

Reliability and Validity of the Persian Version of the Professional Self Identity Questionnaire (PSIQ)

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Abstract

Background: Professional identity is a vital component of medical education that affects the future practice of medical students. There is a notice of the lack of a reliable and valid Persian scale to measure the students' readiness for professional identity.

Objective: This present study aims to determine whether or not the PSIQ can be adapted for Persian healthcare professions.

Methods: A cross-sectional study was performed among medical students (years of 4-7) in Shiraz medical school. A total of 175 students completed the Persian version of PSIQ using convenience sampling. Categorical confirmatory factor analysis (CCFA) and Cronbach's alpha coefficient were used to investigate the questionnaire's validity and reliability. Moreover, R.3.6.2 software, by using the lavaan and semPlot packages in it, was used for data analysis and the path diagram.

Results: The indices of the goodness of fit of the model were used for the professional self-identity, which including root mean square error of approximation (RMSEA), Tucker-Lewis index (TLI), and comparative fit index (CFI) (RMSEA=0.055, CFI=0.996, and TLI=0.994). The Cronbach's alpha coefficients for these three factors of "profession-specific tasks," "generic attributes," and "inter-personal tasks" subscales were 0.762, 0.622, and 0.747, respectively (p-value<0.05). The internal consistency of the whole questionnaire measured by Cronbach's alpha was 0.873. The set of these fit statistics show that the hypothesized three-factor model fits the sample data. Therefore, all nine items were significantly loaded on the three domains (Profession specific tasks, Generic attributes, Interpersonal tasks).

Conclusion: The Persian translated version of the PSIQ may be an appropriate, valid and reliable tool for assessing medical students' health professional self-identity attitudes in Iran.

Introduction:

Physician training involves far more than acquiring basic sciences, pathophysiology, diagnosis, and management of diseases. Medical students should learn some skills, such as interpersonal communication, empathy, self-care, and professional identity(1). Professional identity as a concept has had an extensive existence in medicine(2). Professional identity can be defined as a subjective state that a person belongs to a particular professional group (3, 4). In medicine, professional identity means how a doctor thinks of himself or herself as a doctor(5). Cruess RL and et al. defined professional identity as a symbol achieved in stages over time in which the characteristics, norms, and values of the medical profession are internalized. This internalization will result in thinking, acting, and sensation like a physician (6).

Acquiring professional identity has a subjective nature under the influence of some factors such as social, demographic, and personality(3). According to Cruess *et al.* study, identity formation includes three domains. The first domain is the individual identity (personal characteristics, Self-esteem, and life experiences). The second domain is the relational identity (friends, family members, mentors, and colleagues). The third domain is the collective identity (social groups to which an individual belongs or wishes to join)(7). Crossley and Vivekananda-Schmidt show that the professional identity is under the influence of three factors of 'profession-specific tasks,' 'generic attributes,' and 'inter-personal tasks' (3). Pratt et al. study show socialization, identity work, and career/role transitions are different aspects of identity construction (8). According to Tagawa's study, professional identity formation evaluates self-control as a professional, awareness of being a medical doctor, reflection as a medical practitioner, execution of social responsibility, and external and internal self-harmonization. However, medical learners are different from in the experiences and development process of professional identity(9).

These findings show that different experiences on the development of professional identity. Generally, professional identity is affected by the learning environment, existing personal characters, role models and mentors, clinical/non-clinical experiences, the attitude of peers, health care professionals(7), life experience, socialization in academic and clinical settings, and technological and societal factors(5).

Professional identity is a vital component of medical education (3, 10). Professional identity affects the future practice of medical students in the workplace. The potential challenges associated with health settings(10) and delays in acquiring this critical competency are barriers for successful movement from medical student to physician (3). The absence of professional identity clarity has greatly impacted a practitioner's confidence in encouraging their professional opinions(10). Therefore, one of the vital missions of the medical education curriculum is to consider the goal for students to develop Professional identity formation (8).

There are numerous studies on the professional identity of physicians (8, 11–14). Along with this growth in professional identity, there is a growing concern over the lack of a reliable and valid Persian scale to measure professional identity. One of the questionnaires for measuring this ability is the professional self-identity questionnaire (PSIQ). The purpose of this study is to determine whether or not the PSIQ can be adapted for Persian healthcare professions. Using the Persian validated version of this questionnaire is a way to recognize the curricular features that lead to the development of professional self-identity in Persian language medical students.

Materials And Methods:

Study design and participants:

This study is a quantitative study using a cross-sectional design done on medical students (year of 4–7) in Shiraz Medical School in 2019. The sample size number was determined by an expert statistician based on sample size requirements for structural equation models (15). The PSIQ includes nine items, and ten respondents determined the minimum required sample size for each item (90 students). Due to drop-out probabilities, we increased the sample size to 200 medical students. The number of medical students in each year was determined and based on the stratified sampling method. One hundred seventy-five medical students (year of 4–7) with a mean age of 23.52 ± 1.54 completed the questionnaire (response rate 87.5%). The percentage of withdrawn subjects was 12.5% (25 students).

Data Gathering Tool:

There are validated methods that have been developed for assessing professional identity; one of the tools for evaluating professional identity is the "Professional Self Identity Questionnaire "(PSIQ) (1) that was used in the present study. It was developed in 2009 by Crossley and Vivekananda-Schmidt (5) for examining the curricular features that contribute to the development of a professional identity (1). This questionnaire includes a 9-item that indicates a three-domain. The latent constructs proposed by these three factors are: "profession-specific tasks" (conducting assessments, using records, dealing with emergencies and teaching), "generic attributes" (cultural awareness, ethical awareness, and reflection), and "inter-personal tasks" (teamwork and communication) (5). Present questionnaire was used in pharmacy(16), medicine(4, 17), dentistry(4), nursing(17) professions.

Procedure

Professional Self Identity Questionnaire (PSIQ) was first translated into Persian by two independent translators whose first language was Persian and reached an agreement. The translated version of the PSIQ was reviewed for inconsistencies using the back-translation method by two independent translators who were native English speakers. Back translators were blinded to the original version of the PSIQ. That means they had no access to the original English version.

All translations were reviewed by an expert committee consists of English and medical education experts to reach on consensus on discrepancies. After determining the inconsistencies and resolving them, we distributed the final translated version of the PSIQ to final-year medical students. The purpose of the PSIQ was thoroughly described to the students, and we explained that we would use the study results anonymously only for research purposes. All items were scored on a six-point Likert response scale (from 1 as the lowest to six as the highest). The raw subscale scores were transformed into values ranging from 3 to 18, such that higher scores indicated better task performance.

Statistical analyses

Ordered-categorical confirmatory factor analysis (CCFA), initially designed for the Likert response scale, was used to evaluate the construct validity of the questionnaire. By using CCFA, we could measure how well our data can be made using extracted domains. In the present study, we investigated whether or not the hypothesized three-factor model fits the data well. Three criteria, including root mean square error of approximation (RMSEA), Tucker-Lewis index (TLI), and comparative fit index (CFI), were used to assess the goodness of fit of the model. Values of CFI more than 0.9 can support a good fit model, and above 0.95 represents an excellent fit model. Moreover, $TLI > 0.90$ is acceptable, and more than 0.95 is a good fit model (18); and $RMSEA < 0.08$ can support acceptable and good model fit, and it under 0.05 can show an excellent model fit (19).

To assess the internal reliability of the consistency of the PSIQ, we calculated Cronbach's alpha for each of those subscales. The coefficient alpha equal to or greater than 0.70 was considered satisfactory reliability of the scale score(20, 21).

The statistical data analysis was used by the diagonal weighted least square (DWLS) estimation procedure in the lavaan package in R.3.6.2 software was used to perform the CCFA. Moreover, the path diagram was plotted by semPlot package in this statistical software.

Results:

A total of One hundred seventy-five participants answered the questionnaires (male: 77, female: 98). The mean age of participants was 23.52 ± 1.54 years.

The results of the CCFA indicated that all values of CFI and TLI were greater than 0.95, and the RMSEA index was less than 0.08, which supported the excellent and satisfactory fit of the three-factor CCFA model (Table 1).

Table 1
The results of the CCFA for the hypothesized CFA models.

| Factor model | Fit index | Acceptable range |
|--------------|-----------|------------------|
| RMSEA | 0.055 | < 0.08 |
| CFI | 0.996 | > 0.95 |
| TLI | 0.994 | > 0.95 |

Moreover, the path diagram showed that all of the items (questions) should have been in profession-specific tasks, generic attributes, and inter-personal tasks subscales were properly loaded (higher than 0.5) on these dimensions. (Fig. 1).

The result of the reliability test for the three dimensions of the questionnaire is shown in Table2. Cronbach's alpha was used to evaluate the internal consistency of the items with each subscale. The results revealed that the Cronbach's alpha coefficients for the three factors of "profession-specific tasks," "generic attributes," and "inter-personal tasks" subscales were 0.762, 0.622, and 0.747, respectively (p -value < 0.05) (Table 2). The internal consistency of the whole questionnaire also measured by Cronbach's alpha was 0.873.

Table 2
Cronbach's alpha, Mean, Standard Deviation, maximum and minimum of the subscales of the PSIQ

| factors | No. Items | Cronbach's alpha | Mean (SD) | (Min, Max) | (%Min,%Max) |
|---------------------------|-----------|------------------|--------------|------------|-------------|
| Profession specific tasks | 3 | 0.762 | 11.61 (2.89) | (4,18) | (1.1,3.4) |
| Generic attributes | 3 | 0.622 | 12.40 (2.60) | (6,18) | (0.6,1.7) |
| Interpersonal tasks | 3 | 0.747 | 10.48 (3.01) | (3,18) | (1.1,0.6) |

Min: Minimum score, Max: Maximum score, %Min, and %Max: Percentage of Minimum and Maximum score.

We used the ANOVA with Tukey post-hoc and T independent tests to compare the students' subscale scores and educational years and gender (Table 3).

Table 3
Comparing subscale scores across educational years and gender groups

| factors | Educational years | | | | P-value | Gender | | P-value |
|---------------------------|-------------------|-------------|-------------|-------------|---------|-------------|-------------|---------|
| | Mean (SD) | | | | | Mean (SD) | | |
| | four | five | six | seven | | Male | Female | |
| Profession specific tasks | 9.83(2.73) | 10.93(2.96) | 12.07(1.63) | 11.65(2.89) | < 0.001 | 11.75(3.03) | 11.51(2.72) | 0.59 |
| Generic attributes | 11.06(2.44) | 11.95(2.63) | 12.46(2.51) | 13.63(2.20) | < 0.001 | 12.80(2.66) | 11.89(2.45) | 0.02 |
| Interpersonal tasks | 8.65(3.06) | 9.88(2.72) | 11.10(2.31) | 11.91(2.68) | < 0.001 | 10.61(3.23) | 10.32(2.72) | 0.53 |

In Table 3, according to the Tukey test, the "profession-specific tasks" and "generic and attributes" subscales were statistically significant between students at the four and six, four and seven, five and seven, and also at the six and seven educational years. Moreover, interpersonal tasks were statistically significant between students at all educational years except for students who were at the five and six as well as six and seven education years. In addition, the generic attributes subscale was statistically significant across male and female medical students.

Discussion:

Professional identity is derived from the individual role that people take on in their work (22). it affects perceptions of the medical student's role in medicine(5). Professional identity formation is affected by students' emotional and spiritual maturity (22, 23), leading to the difference between being a physician and medical practice(22). It is essential to assess the professional identity status of health professional students by a valid and reliable tool. The present study aimed to investigate whether the 3-factor model from the original version of the PSIQ could be applied to the Persian translation of the scale.

The findings are consistent with Crossley and Vivekananda-Schmidt study(3). The internal consistency of the Persian (0.873) and original versions were approximately similar (0.93). The result of the present study confirmed that PSIQ includes three factors of "profession-specific tasks," "generic attributes," and "inter-personal tasks" (3). The internal consistency of the three factors was similar(0.762, 0.747, and 0.622).

The value of RMSEA suggests that the 3-factor model fits the population covariance matrix. It is a perfect and valuable fit index because of its sensitivity to the number of assessed parameters in the model.

In our study, the CFI, estimated to examine the goodness-of-fit a statistical model, is more than the threshold (0.996), suggesting that the 3-factor model fits an independent model. TLI was calculated to measure the difference between the χ^2 value of the 3-factor model to the χ^2 value of the null model. The values of the TLI are indicative of a good-fitting model(24–26).

The values mentioned above showed that the 3-factor model fits the sample data. There are three subscales for each factor in the questionnaire.

Inter-personal tasks include teamwork and communication(3). Inter-professional teamwork and communication are prerequisites for professional self-identity (27); a Positive attitude toward teamwork is related to the positive self-identity of health professions (28). As a treatment team member, developing a professional identity will lead to student help together inpatient care(5).

Profession-specific tasks include conducting assessments, using records, dealing with emergencies, and teaching(3). Reflection on medical records is essential for protecting professional image (29). Confidence in dealing with emergencies and education about one's profession appears to be critical determinants of students' attitudes to qualification(3). Also, a relevant approach for us is based on the understanding that the more profound impact of initial teacher education touches upon the professional identity of the student-teacher. Van Huizen et al. (2005) specify that a teacher education's overall goal is best conceived as professional identity development (30). In addition, professional identity is created during all sorts of activities, e.g., bedside and ambulatory teaching, communication skills teaching, small group teaching, ward rounds, etc., and during exchanges in informal settings(31).

Generic attributes include cultural awareness, ethical awareness, and reflection(3). The effectiveness of reflection is reinforced when facilitated by a role model or mentor or carried out as a group activity(7). Reflection is a critical component of professional identity formation and development(32). Also, Family members, friends, home environments, and other outside influences provide a basis for the professional identity formation process. They can either support the commitment essential to be a medical professional or inhibit it. These factors in the external environment have become increasingly essential as recent generations of students and physicians try to readjust the balance between commitment to medicine, personal well-being, and lifestyle. (7). The strength of this study is the high response rate from a convenience sample, and several significant limitations should be considered. First, the present study was done in a single medical school, so generalizability is limited. Second, the study sample only comprises of medical students, and they may not be a good representative of other allied health science students. Third, response bias may occur due to the nature of self-reports.

These study limitations recommend that further data collection is essential for using this questionnaire in other health professions. Other study designs such as using randomization sampling for increasing generalizability and representativeness are recommended. It is recommended that upcoming studies focus more on the factors affecting the formation of the professional identity of health professional learners.

In conclusion, this study revealed that the Persian translated version of the PSIQ is a valid and reliable tool for assessing the health professional self-identity of medical students in Iran.

Abbreviations:

PSIQ: Professional Self Identity Questionnaire

Declarations:

Acknowledgments

This study is a part of the thesis done by the first author, Mina Salari, to obtain a Medical Doctor's degree. It was approved by the vice-chancellor of research at the Shiraz University of Medical Science. The authors thank all medical students for participating in the present study.

Authors' Contribution

MA contributed to the conception of the work, conducted the study, revised the draft, approved the final version of the manuscript, and agreed to all aspects of the work. SD contributed to the conception of the work, revising the draft, approving the final version of the manuscript, and agreed to all aspects of the work. MS, AAH, SZ contributed to data acquisition, analysis, and interpretation of data and agreed to all aspects of the work. PJ, MM contributed to the analysis and interpretation of data, approved the final version of the manuscript, and arranged for all aspects of the work.

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on request.

Ethics approval and consent to participate

Before commencing the study, ethical approval was obtained from the Shiraz University of Medical Sciences Research Ethics Committee with the code: IR.SUMS.MED.REC.1398.382. Before initiating research, informed consent from participants was obtained. The anonymity of the data was guaranteed. We also informed the medical students of their right to refuse to participate for any reason without penalty.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests. Mitra Amini is the associate editor of BMC Medical Education Journal, but there is no competing interests to declare.

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Figures

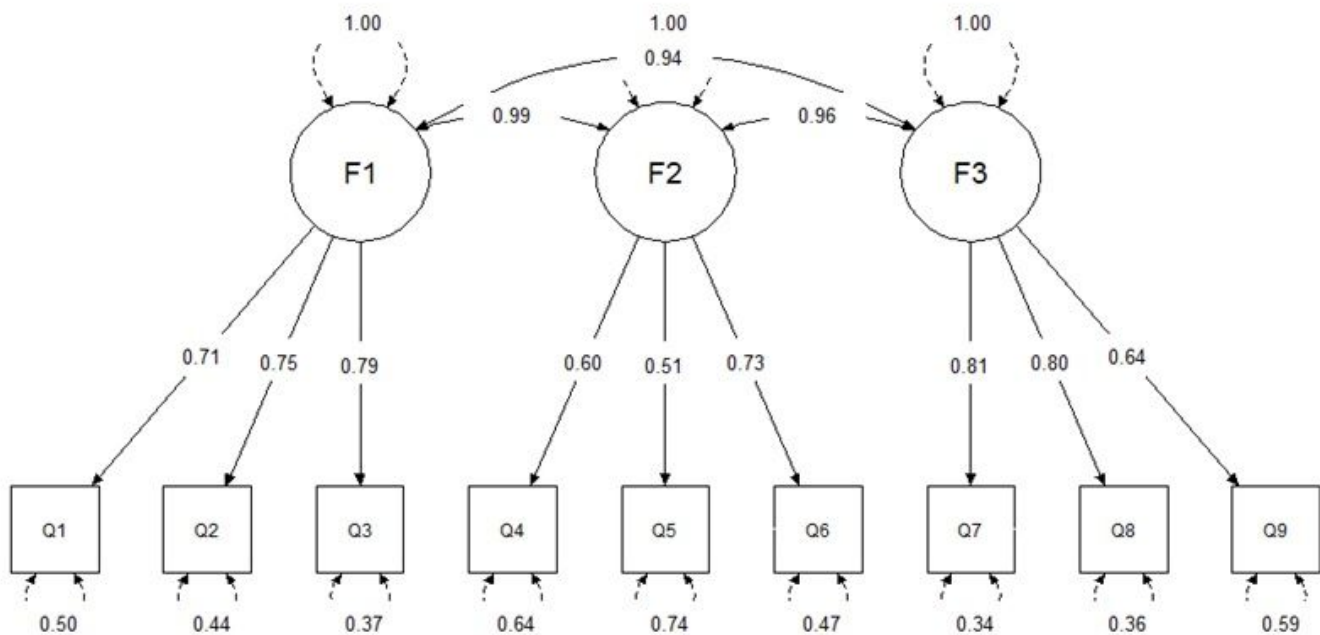


Figure 1

Path diagram for three-factor model of the Professional Self Identity Questionnaire (PSIQ)