

# Nurse Professionalism Scale: Development and Psychometric Evaluation

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## Abstract

*Professionalism is a key trait connecting the nurse and patient, and code of professional conduct, a professional legitimacy in considering nursing as a profession and an essential tool that facilitates nurse practice. This study sought to develop Nurse Professionalism Scale and test the psychometric properties. Data were collected through self-report from registered nurses working in various health care settings selected using stratified random sampling and as multi-source feedback from supervisors and colleagues using Nurse Professionalism Scale. Reliability estimate of the 38 item scale was 0.910 (self-report), 0.951 (supervisor-feedback) and 0.952 (colleague-feedback). Exploratory factor analysis using self-reports extracted five factors with 22 items. Confirmatory Factor Analysis using supervisors and colleague feedbacks yielded acceptable model fit indices confirming psychometric properties. The scale can be used to evaluate professionalism among nurses across settings. Multisource feedback from stakeholders can be considered as an effective method of gathering data on this construct.*

Nurses are perceived as a compliment 'package' or 'quick' trained caregivers filling up the health provider shortage. However, they are seldom considered while contributing ideas related to client needs or interventions or any form of health care modalities. Scenario does not synchronise with the fact that nurses are 'round the clock', well-educated health care providers and constitute the largest group of professionals in the health care delivery system. Hence, amidst tremendous development, professionalism among nurses is essential to promote transition in the profession (Balang & Burton, 2014).

## Objective

This objective of this study was to develop and evaluate psychometric properties of Nurse Professionalism Scale (NPS) which is based on the Code of Professional Conduct for Nurses in India by Indian Nursing Council.

**Need for the study:** Nurse researchers in developed countries have evaluated professionalism using Miller's Model or 'Wheel of Professionalism in Nursing', an extension of Hall and Friedson's works. Miller also used "The Social Policy Statement, Code for Nurses with Interpretative Statements, and recommendations & policies from the American Nurses Association" as the basis for behaviours represented in the Wheel which served as a guide in monitoring nurses professional behaviours. Subsequently, Miller, Adams & Beck (1993) developed an evaluative "Behavioral Inventory Form for Professionalism in Nursing" (BIPN) based on the model which was used

by Tanaka et al (2015); Dikmen et al (2016) to evaluate professionalism among nurses.

Fantahun et al (2012) and Solomon et al (2015) explored professionalism using RNAO-BPG questionnaire, an adaptation of Registered Nurses Association, Ontario; Best Practice Guidelines (RNAO-BPG, 2007), while Hassandoost et al (2016) used "Hall's Professionalism Inventory" scale. Baumann & Kolotlyo (2009) developed "The Professionalism and Environmental Factors in the Workplace Questionnaire, based on literature, code of ethics and jurisdictional practice standards.

Physician Charter on Medical Professionalism is a product of the American Board of Internal Medicine Foundation, American College of Physicians Foundation and European Federation of Internal Medicine highlighting the principles and responsibilities fundamental to professionalism in medicine (San-Martin, Delgado-Bolton & Vivanco, 2017). Hammer (2000) used the "Code of Ethics for Pharmacists and the American Association of Colleges of Pharmacy" and "The American Council on Pharmaceutical Education Accreditation Standards" in describing behavioural components in pharmaceutical care. Miniggio (2015) considered "The College of Medical Laboratory Technologists of Ontario's Code of Ethics and Standards of practice" to measure MLT's professionalism, whereas (Irvin, 2012) evaluated professionalism among lawyers using American Bar Association and the judicial statements.

Professional code of conduct is viewed as a professional legitimacy for considering nursing as a profession and an essential tool that facilitates nurse practice while handling ethical challenges (Balang & Burton, 2014). The code has been considered across

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professions and across countries to evaluate professionalism. Hence the researcher felt the need to develop the nurse professionalism scale on the basis of the national code of professional conduct which can be used in a developing country.

## Methodology

*Development of the Nurse Professionalism Scale (NPS):* The process followed in the development of the scale is based on steps enlisted by Boateng et al (2018).

### Phase 1

*Item Generation:* The national “Code of Professional Conduct for Nurses in India” consisting of 38 items and six dimensions, was identified as a comprehensive measure to identify professionalism among nurses. The code was reviewed by four nurse educators, two clinical nurses and three management faculty for readability, comprehensiveness and appropriateness of items. It was decided to use the code as a Nurse Professionalism Scale (NPS) on six-point Likert scale with 0=Not Applicable, 1=never, 2=rarely, 3=sometimes, 4=mostly, and 5=always. Two versions of the instrument were devised; self-assessment for clinical nurses and multi-source feedback for supervisors and colleagues to evaluate the nurses’ behaviour.

*Content validation:* ‘A measure has content validity when its items accurately represent the thing being measured’ (Baumann & Kolotylo, 2009). The tool was validated by 16 nursing and 7 health care management experts for relevance and clarity on a 4-point rating scale. The calculated I-CVI and the S-CVI were above 0.9.

*Ethical considerations:* Approval was obtained from concerned ethical review committees. Informed consent was obtained from respondents after explaining the purpose, benefits, and risks and confidentiality assurance.

*Phase II: Scale Development: Pre-testing:* “Pre-testing helps to ensure that the items are meaningful to the target population before the survey is actually administered” (Boateng et al. 2018). The tool was administered on conveniently selected 55 clinical nurses. The participants indicated no difficulty in providing responses.

*Survey administration and sample size:* Various clinical settings which permitted and had more than five registered nurses were included in the study. Nurses were selected using stratified random sampling. The tool was administered to 1054 registered nurses and their supervisors and colleagues personally. To avoid researcher presence bias and considering their demanding work schedule, participants were given one week period to complete their responses. Data collection period was from April to October 2018.

Data were collected through self report from

nurses and as multi-source feedback from their supervisors and colleagues. Following entry of 830 self reports, 687 supervisor and 747 colleague responses, data were checked for missing and incomplete responses and outliers. Complete set of self-supervisor-colleague responses contained in 644 data sheets from respondents working across work areas (medicine=130, Surgery=136, Obstetrics & Gynaecology=42, Paediatrics=88, Emergency and Intensive Care Unit=144, Psychiatry=28 and Community=76), across levels (Tertiary=400, Secondary=195 and Primary=49) and across sectors (Private=151, Government=479 and Autonomous=14) was used for analysis. Reliability estimate for internal consistency of 38-item NPS using Cronbach  $\alpha$  was 0.910 (self-report), 0.951 (supervisor-feedback) and 0.952 (colleague-feedback).

## Results

*Extraction of Factors:* Exploratory Factor Analysis (EFA) is used to inspect the item set underlying dimensionality and extracted factors explaining maximum variance in the scale. Thus, a large set of items can be grouped into meaningful subsets gauging different factors (Worthington & Whittaker, 2006). EFA was performed to reduce and group items together so that each factor would represent consistent content area. Factors extracted with Eigen values greater than 1 and items with communalities above 0.4 which confirms common variance shared by each measured item with other items of the construct on which it loads were retained. The Scree test which identifies optimal number of factors can be extracted as per graphical presentation indicated five factors above one (Fig. 1).

Factor loadings of  $\pm 0.5$  and greater are measured as practically significant (Hair et al, 2010). Factor loadings obtained are between 0.84 and 0.50 (Table 1). Four factors are explained by 4-6 items. Two item factor can also be retained and considered acceptable if the items are strongly correlated ( $r > 0.70$ ; or  $>0.60$ ) and reasonably uncorrelated with other variable (Worthington & Whittaker, 2006). Factor with two items ( $r=0.62$ ) was retained in this study. In social sciences a factor solution accounting for total variance extracted up to 60 percent (Hair et al, 2010) or at least 50 percent is acceptable (Streiner, 1994). Five factors measured by 22 items explained the total cumulative variance extracted at 51 percent. Kaiser-Meyer-Olkin measure of sample adequacy (MSA) value of 0.893 indicated sample adequacy. Bartlett Test of Sphericity (BTS) was significant ( $\chi^2 = 3318$ ,  $df= 231$ ,  $p<0.000$ ) and indicated sufficiently large correlations among items.

*Labelling factors or dimensions:* Variables with higher loadings on a particular factor are considered as more significant and representative of the factor.

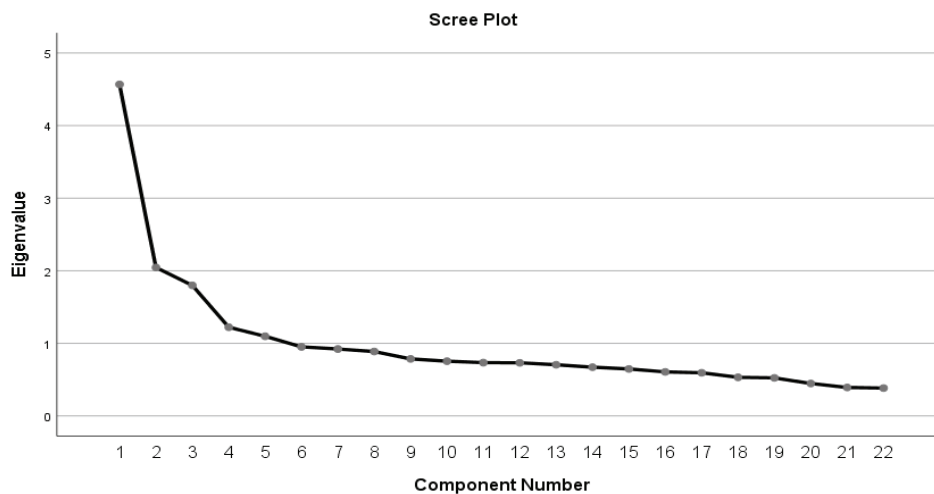


Fig 1: Scree test plot indicating extraction of factors.

Hence factor is labelled with reference to variable with higher factor loading (Hair et al, 2010). In this study, in Factor I, variable PA2 with highest loading and PA5 was originally from the dimension “Professional advancement”. Items MAN9 and MAN8 reflect development of the profession through working with other stake holders and participating in policy decisions. Hence, the factor is labelled as “Professional Advancement /Development”. In Factor II, two variables with higher factor loadings (MAN4 and MAN3) are originally from dimension “Management”, variable VHB2 reflects decision making which can be considered as a management function. Hence the second factor is labelled as “Management” and includes items PA1, PA4 and PRA8. Factor III is basically a reflection of “Nursing Practice”. Factor IV is explained by three variables; PRA5, PRA3 and PRA1, from the original dimension “Professional Responsibility and Accountability”. Factor V is explained by two variables from the original dimension “Valuing Human Being”.

### Phase III: Scale Evaluation

*Tests of Dimensionality through Confirmatory Factor Analysis:* “Tests of dimensionality determine whether the measurement of items, their factors, and functions are the same across two independent samples or within the same sample at different time points. Such tests can be conducted using independent confirmatory factor analysis” (Boateng et al 2018). Obtaining a good model fit to the data in a different sample supports the factor structure reliability and validity of scale (Worthington & Whittaker, 2006). Confirmatory factor analysis using AMOS version 22 was conducted using supervisor and colleague feedback data separately. Confirmation of factors is based on fit indices which range from 0 to 1. Values closer to 1 suggest good model fit (Hair et al, 2010). Structural equation modeling researchers advocate 0.95 as a more desirable level. “Root mean square

error of approximation (RMSEA) at or less than 0.05” indicates secure model fit (Worthington & Whittaker, 2006). In this study the model fit indices obtained (CMIN/DF=2.938; GFI=.926, IFI=0.939; TLI=0.927; CFI=0.939 and RMSEA=0.055) for supervisor data and (CMIN/DF=3.165; GFI=0.921, IFI=0.923; TLI=0.908; CFI=0.923 and RMSEA=0.058) using colleague data confirmed the factors in NPS.

### Discussion

This study found that the Nurse Professionalism Scale is a valid and reliable tool for measuring professionalism among nurses. EFA using self reported data resulted in extraction of five factors. Supervisor and colleague feedback regarding professional behaviours of registered nurses confirmed the items and factors through confirmatory factor analysis. Miller et al (1993) used BIPN as dichotomous scale with “Yes” and “No” response on nine areas; Educational Background, Participation in Professional Organisation, Adherence to Code of Ethics, Continuing Education & Competency, Autonomy & Self-regulation, Communication & Publication, Theory Use, Development & Evaluation, Community Service and Research Involvement. Solomon et al (2015) adapted RNAO guideline comprising of 34 items and 8 dimensions; Knowledge, Ethics, Accountability, Advocacy, Spirit of Inquiry, Collaboration and Collegiality, Autonomy and Innovation & Visionary on a 5-point likert scale. EFA resulted in extraction of a single 6-item factor reflecting professionalism. Nursing professionalism mirrors the approach in which nurses analyze their work and serves as a lead in their practice towards ensuring patient safety and quality care (Dikmen et al 2016).

### Implications

The code guides assists nurses at every phase of practice from carrying out responsibilities of prevention of illness, promotion and restoration of health and alleviation of suffering among individuals, families and communities. It is a vehicle for self and peer-evaluation of the care quality delivered to consumers. It provides ethical framework and standards for practice. Nurses need to be aware of the important professionalism accents, attitude and behaviours that will aid in the formulation of their identity as indispensable health care providers.

**Limitations:** Self reported data from respondents could involve social desirability bias although multisource feedback was obtained. Busy schedule



**Table 1: Item loadings in Exploratory Factor Analysis (n=644)**

Factors	Items	Loadings	
I	Man9	Works with patients to identify their needs and sensitizes policy makers and funding agencies for resource allocation.	0.771
	PA2	Contributes to the development of nursing practice.	0.740
	PA5	Contributes to core of professional knowledge by conducting and participating in research.	0.734
	MAN8	Participates in policy decisions related to patient care services.	0.687
II	MAN 4	Facilitates conducive work culture in order to achieve patient care objectives.	0.853
	VHB 2	Considers relevant facts while taking decisions in the best interest of patients.	0.671
	PA1	Takes responsibility for updating own knowledge and competencies.	0.585
	PRA 8	Provides adequate information to patients and significant others that allows them to make informed choices.	0.570
	PA 4	Ensures the protection of the human rights while pursuing the advancement of knowledge.	0.560
	MAN 3	Uses judgment in relation to individual competence while delegating responsibility to colleagues, patients and relatives.	0.524
III	NP 6	Ensures safe practice of care for self and patients.	0.708
	PRA 2	Maintains standards of conduct/practice which adds to the status of the profession.	0.641
	CIR 1	Establishes and maintains effective interpersonal relationships with patients and their significant others.	0.613
	PRA 7	Takes responsibility for continuous improvement of current nursing care practices.	0.580
	NP 2	Treats patients and their significant others with human dignity while providing holistic nursing care.	0.561
	PA 3	Participates in determining and implementing quality care.	0.517
IV	PRA 5	Accepts accountability for own decisions and actions.	0.709
	MAN 1	Ensures appropriate allocation and utilization of available resources.	0.595
	PRA3	Carries out nursing responsibilities within the framework of professional boundaries.	0.543
	PRA1	Has a sense of self-worth as a nurse professional and nurtures it.	0.516
V	VHB 3	Encourages and supports patients in their right to speak for themselves on issues affecting their health and welfare.	0.781
	VHB 1	Takes appropriate action to protect patients from harmful and unethical practice.	0.742

amidst the shortage of nurses and the complexity in wording of items could have led to some amount of response error.

**Recommendations:** Similar study can be conducted in settings outside the state. Comparative study on nurses’ professionalism in private and public settings, or different areas can be conducted using the scale.

### Conclusion

Every practicing nurse is expected to share the responsibility of self-regulation and practice in accordance with the professional standards and code of ethics as these define values and beliefs in nursing profession. The scale can be used to explore professionalism through individual nurses’ self-reflection

or as multi-source feedback of professional behaviour within varied practice settings.

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