



Job Satisfaction of Albanian nurses: A New Measurement Tool

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Background

Education of nurses is expensive and lasts for many years making them a valuable human resource. The health care migration process of Albanian health care works is palpable but complete data on subject are hard to find and in some cases misleading. The boost on number and diversity of nursing education institutions, especially the private sector, didn't generate an increased number per capita. Contrariwise, the number of nurses and midwives (per 1,000 people) decreased from 4.50 in year 1990 to 3.65 in year 2016. [1] The numbers are expected to drop further because of increasing health care human resources demand from EU countries increasing emigration especially towards Germany. Second the German Federal Statistical Office (Destatis) of 36,400 foreign professionals recognized in 2018 the number of nurses seized 28.4%. [2] The process goes beyond the terms of workers natural migration towards better job conditions but of a framework for human resources recruitment strategy draining the countries of origin. [3] Thus, preserving the actual nursing staff numbers in Albania, without touching the sensitive topic of work quality, regardless the official policymakers' declare, requires a long term counterstrategy. The process requires perpetual evaluation of the risks and one of main topics to tackle continuously is the job satisfaction measurement. The stressors which condition migration are well reflected in job measurement, especially in questionnaires like Healthcare Environment Survey (HES) composed of exhaustive job nurse satisfaction dimension ramified in 76 questions, we referred on our study. [4] Identifying stressors is very important. Although

they act specifically to different groups of nurses they are common and identification prevents unwanted consequences. Nurses near to retirement age and financial possibilities can leave prematurely their carrier thus they do behave differently from younger colleagues making age one of important health care resources stability covariates. [5] [6] The Albanian case is of different intertwined features. Nurses of young age tend to emigrate toward EU countries and it becomes more prominent under stressors other than financial reward. Role clarity is considered one of the most important dimensions of the questionnaire. It is a dimension important for appeasing stressors. Clarity and task mastery were related to lower stress levels. [7] Thus lowering the stressors level is expected to be a favorable intervention on holding emigration. Actually this topic, part of the whole nurse job satisfaction, is subject to political propaganda. To add, the level of horizontal violence, not unknown to the nurse profession but prominent in Albania is factual, without forgetting the vertical pressure.

This makes reporting tools of job satisfaction a necessity for the employer, the nurse and the wider public. Especially the actual situation of COVID-19 pandemic makes obligatory reorganization of their critical contribution to global health in the Year of the Nurse and Midwife 2020. [8]

Methods

Instrument

The Healthcare Environment Survey - Revised (14CI) was used as the measurement instrument in our study. [4] Previously the questionnaire was used successfully and it can be already considered a practical tool to measure nurse job satisfaction.

The questionnaire is composed of 76 questions grouped in 14 dimensions. Two additional questions are added to the "How satisfied are you with your job?" dimension as free text comments (open-ended questions). Answers scale the possible range of choices from 1 to 7, representing an ordinal variable from 'strongly disagree' to 'strongly agree'.

Data were gathered individually in paper based format. The author constructed a web based tool in collaboration with IT university resources to collect the data electronically and after data entry data were retrieved in .csv format and imported on a

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SPSS data sheet.

Sample

The sample was composed of nurses working in the hospital facilities of Albania. The number of respondents was 2067 nurses. The sample is composed of nurses working in the public and private hospital settings. The convenience sample required as the sole inclusion criteria for the responder to work in the preordained list of healthcare institutions. Our sample outnumbers the standard, considered as excellent, for samples of over 1000 elements. [9]

Analysis

Data are retrieved from the web based tool and elaborated through IBM SPSS Statistics V23.0 software. We used factor analysis technique to perform dimension reduction. Steps used in the analysis followed the standard SPSS procedure starting with variance explanation of components and building components matrix. Following was realized the translation of components in new

questions. Demographics are covariates in our study. The hierarchical regression was used to ponder over important, other than the questionnaire, covariates composed of demographic and socio-economic data. Demographics were considered important as local characteristics to be taken in consideration. To the effects of gender, age and marital status which are somewhat universal covariates, in the second step local covariates were added to the hierarchical regression model. Q.all is a measure of total points gathered by each participant, while q21 and q22 respectively represent clarity of role and clarity of system at the workplace considered as the most important dimensions of the evaluation

Results

The questionnaire is distributed indiscriminately on all hospital nurse population. The Albanian hospital nurses respondents sample (N=2067) is composed of females 1570 (76.0%), (M=38.58; SD=10.89) and males 497 (24.0%), (M=37.65; SD=9.83).

Table 1. Demographics

Question	Aswer	Man	Woman	Total	p
q3_How do you assess the financial situation of your household?	Very good	39 26.5%	108 73.5%	147 100.0%	0.001
	Good	338 22.3%	1181 77.7%	1519 100.0%	
	Bad	109 32.2%	229 67.8%	338 100.0%	
	Very bad	11 17.5%	52 82.5%	63 100.0%	
q4_What is your current marital status?	Single	109 25.6%	316 74.4%	425 100.0%	0.001
	Living with a partner	60 36.6%	104 63.4%	164 100.0%	
	Married	315 22.2%	1107 77.8%	1422 100.0%	
	Divorced/ separated	13 23.2%	43 76.8%	56 100.0%	



q5_How long have you been working as a licensed nurse?	Less than a year	33	20.5%	128	79.5%	161	100.0%	0.076
	Between 1-3 years	65	24.0%	206	76.0%	271	100.0%	
	Between 3-5 years	80	29.7%	189	70.3%	269	100.0%	
	Between 5-7 years	60	27.3%	160	72.7%	220	100.0%	
	More than 7 years	259	22.6%	887	77.4%	1146	100.0%	
q6_In what type of hospital are you working in?	State hospital	481	24.6%	1474	75.4%	1955	100.0%	0.013
	Private hospital	16	14.3%	96	85.7%	112	100.0%	
University Hospital	other	339	24.7%	1035	75.3%	1374	100.0%	0.347
	yes	158	22.8%	535	77.2%	693	100.0%	
q8_The city/district you live in is:	The capital	160	20.9%	604	79.1%	764	100.0%	<0.001
	With population over 100 thousand citizens	182	29.5%	434	70.5%	616	100.0%	
	With population between 50 and 100 thousand citizens	76	28.5%	191	71.5%	267	100.0%	
	With population between 25 and 50 thousand citizens	39	18.5%	172	81.5%	211	100.0%	
	With population less than 25 thousand citizens	40	19.1%	169	80.9%	209	100.0%	
q24_Education level	Bachelor	255	24.5%	784	75.5%	1039	100.0%	0.039
	Master	235	24.4%	728	75.6%	963	100.0%	
	Other	7	10.8%	58	89.2%	65	100.0%	

Table. 2 KMO (Kaiser-Meyer-Olkin) and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.979
Bartlett's Test of Sphericity	Approx. Chi-Square	150788.244
	df	2850
	Sig.	0.000



The sampling adequacy of data was evaluated through Kaiser-Meyer-Olkin test. Bartlett's Test was performed to evaluate the questions correlation matrix (Table 1). Both results are very good and permit further factor analysis. Kaiser-Meyer-Olkin Measure equals 0.979, which in the tests values tables falls under the category 'marvelous'. Bartlett's Test of Sphericity has a significance value <0.001 as required.

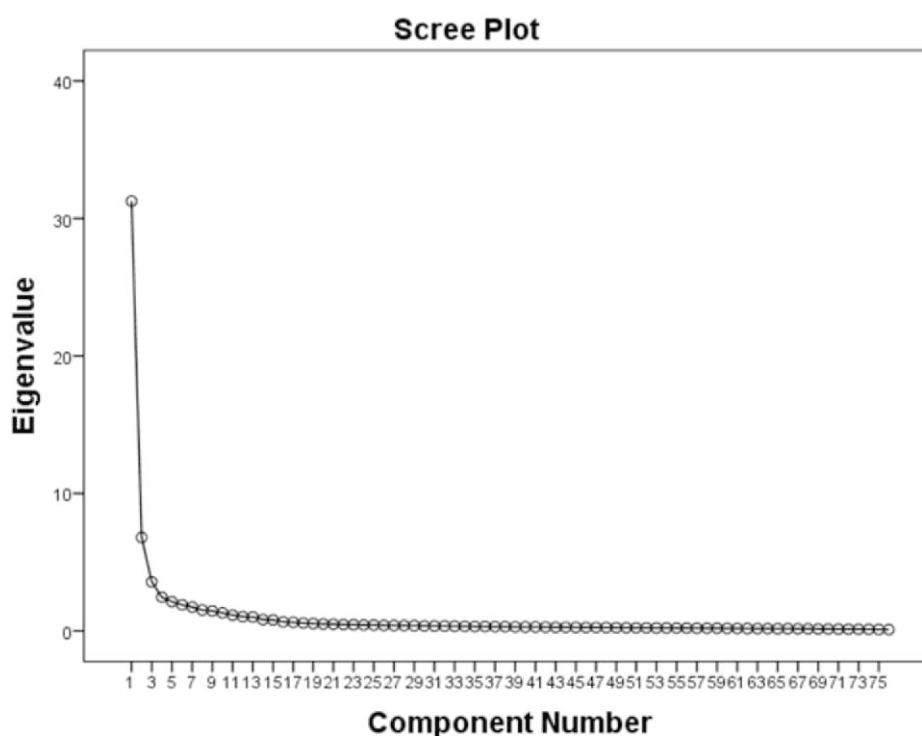
After performing factor analysis the results on

components are reduced only as required in the preliminary requirement for Eigenvalues greater than 1. Thirteen factors will be retained for further analysis. All thirteen factors account for 75.4% of the variance. Rotation makes the differences of initial values less prominent making their weight relative. For example variance of factor 1 descends from 31.3% to 10.5% and the next ones increase. Scree plot graphs the above tables of explained variance through components.

Table 3. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	31.26	41.1	41.1	31.26	41.1	41.1	7.97	10.5	10.5
2	6.80	8.9	50.1	6.80	8.9	50.1	7.96	10.5	20.9
3	3.56	4.7	54.8	3.56	4.7	54.8	7.42	9.8	30.7
4	2.45	3.2	58.0	2.45	3.2	58.0	6.38	8.4	39.1
5	2.12	2.8	60.8	2.12	2.8	60.8	4.20	5.5	44.6
6	1.90	2.5	63.3	1.90	2.5	63.3	4.10	5.4	50.0
7	1.73	2.3	65.5	1.73	2.3	65.5	4.06	5.3	55.4
8	1.51	2.0	67.5	1.51	2.0	67.5	3.61	4.7	60.1
9	1.45	1.9	69.4	1.45	1.9	69.4	3.44	4.5	64.6
10	1.31	1.7	71.2	1.31	1.7	71.2	2.61	3.4	68.1
11	1.15	1.5	72.7	1.15	1.5	72.7	2.16	2.8	70.9
12	1.03	1.4	74.0	1.03	1.4	74.0	1.85	2.4	73.4
13	1.01	1.3	75.4	1.01	1.3	75.4	1.52	2.0	75.4

Figure 1 Scree plot visualization of Eigenvalues



Kaiser-Varimax rotation was performed to maximize the variance of the squared loadings. Groups of questions were extracted from component matrix and the creation of the new questions was performed as a group discussion prone to professional skills and the experience based in knowledge of nurse daily hospital activities.

List of new questions derived from components evaluation.

1. I know what is expected from me and I can explain administrative hospital interventions related to my job description.

2. I am satisfied with coworkers and physicians in terms of cooperation, respect and skill appreciation.

3. I am satisfied with how the organization rewards on terms of pay, efforts and stressors of my job.

4. I am satisfied with the patient care and it goes along my job my goals and objectives.

5. I am satisfied with the level of workload and it doesn't affect my professional autonomy.

6. I feel worthy in relation to the professional aspects where I work.

7. I am satisfied with how the manager of my

unit/department acts on terms of cooperation, respect and skill appreciation.

8. I am satisfied with other than nurses' professional health care workers.

9. I am satisfied with my opportunities for continuous education and on place skill improvement.

10. I am satisfied with the shift roster and its change in case of personal problems.

11. I am satisfied with the availability of supplies, equipment and human resources (not just nurses).

12. I am satisfied with the level of respect between professions in this workplace, in terms of hierarchical leadership.

13. I understand my position on terms of overall hospital/facility professional power structure.

Hierarchical Regression Analysis

The hierarchical regression model studied the effects of gender, age and marital status respectively in; q-all score, q21 and q22, while in the second step were added predictor variables; q3 (How do you assess the financial situation of your household?), q23 (Position), q24 (Education level, University Hospital), q6 (In what type of hospital are you



working in?), q5 (How long have you been working as a licensed nurse?).

In the first step of regression model (**for q-all**) predictor variables accounted for 2.8% of the q-all variance ($R^2 = 0.028$, $F_{(3,2063)} = 19.66$, $p < 0.001$). In the second step the added predictor variables led to an increment of 3.8% in the variance of q-all compared to step one ($R^2 = 0.066$, $F_{(9,2057)} = 16.05$, $p < 0.001$).

In the first step of regression model (**for q21**) predictor variables accounted for 3.0% of the q21 variance ($R^2 = 0.030$, $F_{(3,2063)} = 20.96$, $p < 0.001$). In the second step the added predictor variables led to an increment of 1.7% in the variance of q21 compared to step one ($R^2 = 0.047$, $F_{(9,2057)} = 11.392$, $p < 0.001$).

In the first step of regression model (**for q22**) predictor variables accounted for 2.4% of the q22 variance ($R^2 = 0.024$, $F_{(3,2063)} = 16.86$, $p < 0.001$). In the second step the added predictor variables led to an increment of 2.5% in the variance of q22 compared to step one ($R^2 = 0.49$, $F_{(9,2057)} = 11.76$, $p < 0.001$).

Employment duration as a nurse and job position didn't contribute significantly to the hierarchical regression model ($p > 0.005$) for all three questions, while education didn't contribute significantly to q_all question ($p > 0.005$).

After inclusion of covariates in the factor analysis it came a list of 13 components with greater Eigenvalues > 1 .

Discussion

The number of respondents was satisfactory ($N=2067$), an approximate calculation show the questionnaire is completed by 20% of all Albanian nurse workforce, part of which works on hospitals. A number of difficulties were faced during its practical implementation. First, it required the authors' full commitment on interviews and 76 question representing 14 dimension plus 2 open-ended questions permitting the expression of personal unstructured opinions on their own words was time consuming. Results were a valuable cross-sectional evaluation of nurse job satisfaction, especially in time of human resources crisis as it actually happens in Albania. Another satisfactory outcome is the nurses' interest in participation as a way of communicating their needs and preferences. Albania actually lacks effective syndication and the

questionnaire after explanation was seen a tool of self expression. This makes its replication favorable but on the same time requires its revision to make it more practical for mass use and repetitiveness. The replication has more than human resources implications which are expected to be dependent upon time. [10] It is important in evaluating personal changes over time as it is the case of role transition. Role transition is accompanied by anxiety and confusion. [11] Also it can be part of a larger evaluation were the nurse job satisfaction is one of the dimensions. [12] The example of combining nurse job satisfaction measurement with work quality measurement would give an encompassing report on the working nurse. A good example of a practical tool was the six domains, represented by 24 items questionnaire used during Hajj 2018 period in Saudi Arabia to evaluate nurse job satisfaction during increased workload times. [13] Thus, decreasing the number of questions while maintaining the quality of investigation has become our objective. Our sample can be considered excellent and permits further manipulation of data. We chose factor analysis technique to detect underlying factors which will serve as subjects for new question creation. The KMO and Bartlett scores indicate factor analysis can be convenient. We chose the number of factors not to be fixed but based on Eigenvalues > 1 . It resulted in the creation of 13 components with greater Eigenvalues > 1 . The final table of rotated component matrix served as basis to construct the new questions based on grouped component correlation coefficients greater than 0.3. In some cases questions are build over previous seemingly unrelated questions. For example the new question 13 'I understand my position on terms of overall hospital/facility professional power structure.' derived from questions q17.1 (I am not sure what executive team member is responsible for my profession within this facility.) and q22.1 (I understand what I do and do not have control over within this hospital/facility as it relates to my job.). The question can be reformulated if considered necessary but it must happen over the combination of q17.1 and q22.1 questions generated by factor analysis. The process of job satisfaction is a dynamic process which requires continuous modification of the questionnaires. In some cases, due to the nurses job characteristics the questionnaire is overturn to estimate job



dissatisfaction. [14] In an instance questions seem to be overlapping which require careful interpretation or reconsideration. Questions 2 and 8 both hit at the figure of the physician, first in terms of cooperation, respect and appreciation and the second in terms of satisfaction. Question 2 seems more a socio-technical evaluation while the second one realizes other aspects of the nurse-physician relationship. A nurse can be satisfied of the respect shown to her/im and also the cooperation but is reluctant to the under-the-table payments the doctor receives from family members of the patient. A physician-centered hospital care system increases the value of nurses' perception of organizational justice especially where both are competitors in some benefits like founding of research activities. [15] [16] In these cases the two questions on separate forms make sense considering the individual an intelligent entity which gets the questions fragments it in specific elements and then gives a pondered answer in the offered 1 to 7 seven Likert scale.

All covariates considered as universal (gender, age and marital status) contributed significantly ($p < 0.001$) for q_{all} , q_{21} and q_{22} , the other predictor variables considered as local contributed to maintain the significance level ($p < 0.001$) acceptable. Not all dimensions of nurse job satisfaction are equal, clarity of role and clarity of system are of special importance. These results impel the inclusion of these variables, when it is technically acceptable on the factor analysis model. Other hidden variables reside in demographics. Generational differences are real, especially in a country living after a dictatorship. Elsewhere, generational differences were evaluated, for example a study shows generation X and Y more prone to long hour shifts than Baby Boomers. [17] This is interesting to apply as a special study in Albania where generational differences are real. We used age as one of the covariates in the factor analysis and it was an important variable in three of fourteen components of the component matrix, with correlation coefficients of 0.553, 0.501 and 0.370. Other components are important but education doesn't result statistically significant. The education challenges for nurses are real and frequently they have to choose between job, family and education. [18] While Albanian nurses in our study report a master degree to be owned by 963 (46.6%) of respondents. It doesn't contribute to the regression

model as the majority of covariates do, rising serious questions on its quality and importance. In other studies growth satisfaction negatively correlates with level of education it seems the same happens to Albanian nurses which respond with emigration. [19]

One of the crucial issues in the success of the new questionnaire is the mode of distribution. Distribution through administrative or other authority figures would be a weakness for the sincerity of results. Task oriented leadership culture is a common finding and its expression differs where the best approach are the goal, people or patient oriented models. [20] We couldn't find in Albania policies or studies in leadership approaches culture which suggest lack of interest on the topic. Left alone, this subject, unmeasured and uncontrolled, in a climate of political implications with administrative duties, favors other than the vertical route to questionnaire administration. The suggestion is to test more than a rout of questionnaire administration, including personal contact, social media using the snowball virtual sampling method or through traditional electronic communication tools as e-mails and compare the results. The comparison of pilot results with the original questionnaire result is indispensable. Unless the initial optimism cases accompanied with weak coefficients of internal consistency reliability require the revision of the question formulation. [21] The revision under a multidisciplinary team would be a preliminary workshop for the evaluation of the suggestion. To reminisce is the appropriate inclusion of demographics. The example of aging nurse from one point of view only has better skills and has a low risk to abandon the job but also needs more healthcare interventions for herself as all people do, aging. [22] The same caution but necessity is required when measuring workload and profits. [23] Running after profits can be accompanied with health risks like increased incidence if diabetes positive correlations to night shift work. [24] The best recommendation would be the pondering of harvested results from the questionnaire with demographics.

Conclusions

The extraction of new questions through factor analysis process brings the well structured and detailed questionnaire to a practical tool of thirteen questions for easy mass testing and



repetitiveness of nurse job satisfaction. The new questions make the responder a more involved participant through recall of more than one dimension organized in one question. The involvement of covariates, which are demographics, changes the structure of the new questionnaire from thirteen to fourteen questions. It makes necessary their implication or the systematic evaluation of results based on them. After pilot testing the new tool is expected to be offered to the MOH as an evaluation tool on nurse job satisfaction in Albania.

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