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Development and validation of a brief form of the nursing questionnaire on organizational health

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Abstract. *Background and Aim of the work.* Well-being work environment organizational conditions might generate health and, at the same time, maintaining high quality of life in their workers. The Nursing Questionnaire on Organizational Health (QISO) assessed organizational health in nursing. The purpose of this study was to evaluate the reliability and validity of a brief version of the QISO. *Methods.* The QISO was administered to nurses belonged to surgical, medical and emergency settings in the Di Venere Hospital, Local Health Authority Bari, Italy. The same interviewers were recruited a second time in order to fill also the QISO brief form. *Results.* The correlations between the compilations of the two different questionnaires, significantly confirmed the reproducibility of the different sub-dimensions ($p<.001$). The QISO brief form also demonstrated good internal consistency comparable to the values of its original version ($\alpha=.630$). *Conclusions.* The QISO brief form was not designed to replace its original version, but it was conceived as a broader and more general administration in its content prior to the QISO, which could be administered successfully, if the QISO brief form underlined a negative organizational condition, in order to mention all negative aspects of the context investigated.

Keywords: Environmental Comfort; Nursing Questionnaire**;** Organizational Context; Organizational Health; Positive Indicators; Safety.

Introduction

The radical changes regarding the National Health System (NHS) inevitably caused a transition from a formal and bureaucratic management to a managerial one, also based on the assignment of trustee-type assignments and periodic checks of the results (1). Today, management applied to the nursing sciences is considered the key tool for nurses to better interpret this change by realizing the combination between the care improvement and, at the same time, human resources optimizing and enhancing (2-4).

Healthcare organizations reflected on workplace safety and relationships with their teams, creating an organizational well-being and, therefore, positively influencing their workers' health (5).

From the current literature, it appeared that nurses who perceived the presence of their nursing manager more in their contexts felt less stressed and more respected, having a perception of greater justice and more committed to their organizations (6-8).

Moreover, the important change implied that nurses judged and measured their working satisfactions linked to their needs and conditions, too (9,10). So, nurses underlined their importance in implementing organizational and managerial practice through observance of standard procedures. On the contrary, an unsafe environment determined high levels of stress among the staff that will inevitably affect patients (9,11).

In this context, the organizational well-being, health and quality of life in the workplace became more important issues in healthcare management (9,12,13),

referring to the ability of the Healthcare Agency not only to be effective and productive in terms of health provided to patients but also to promote an adequate degree of physical and psychological well-being (14) and directly influence the health of the entire system by using ad hoc procedures (15,16).

In fact, by considering poor organizational well-being conditions , phenomena such as decrease in productivity, absenteeism, low motivation levels, stress and burn out, reduced availability to work, lack of trust, lack of commitment, increasing in patients' complaints and the condition of unease and psychological malaise of the organization (9,17).

The presence of all the well-being conditions will be capable to generate health and, at the same time, maintaining high quality of life in their working.

Recently, literature reported several studies on working well-being assessment and its related benefits. For example, Xenidis and Theocharous (18) evaluated organizational health in four different steps by performing critical aspects of the organization assessed. Additionally, Miles (19) reported that the organizational health implied personal work, relationships, empowering information flow and norms. Moreover, other studies emphasized the organizational performance as an indicator both for the organization's well-being and workers (20,21). Orvik and Axelsson (22) explained how the organizational well-being might manage the tension between the competitions and ameliorated the care provided (22). Additionally, the Multidimensional Organizational Health Questionnaire (MOHQ) was identified as a self-report questionnaire validated among 3197 employees of the Italian Public Administration (23) to better explore and quantify the organizational well-being (24). The MOHQ was successfully adapted in the nursing context by validating the Nursing Questionnaire on Organizational Health (QISO) form (25,26). This adapted version consisted in 118 items, that exhaustively aimed to find several detailed information on the organizational and individual well-being of the nurse interviewed. Each item was associated to a score on the Linkert scale from 1, as "never" to 4, as "often", even if there was further information, especially in the descriptive demographic part and in the improvement proposals of the organization where this range of response was not considered.

Despite the QISO was very complete in its genre, it had the peculiarity of being very long in its compilation, as each interview took at least 20-25 minutes to spare their work duties. Hence the idea, connected to the weakness complained by the interviewees of being able to shorten the QISO, so that it might be more immediate and faster in its administration and in its consequentially elaboration.

Moreover, by analyzing the literature, there was no universally accepted method to develop questionnaires, so the approach used in developing a brief form of the QISO followed commonly used general practices and appeared consistent with the basic principles outlined in the US Food and drug Administration Guidance for industry patient reported outcome measures (27,28).

By considering all that abovementioned, the present study aimed to validate a brief form of the QISO, in order to be more easily applied in the nursing environments, already struggling thanks to several activities performed.

Materials and Methods

Participants

Initially to a sample of nurses all employed at the "Di Venere" hospital in Bari, Italy, the QISO questionnaire was administered to assess the organizational health of their work environments. The chosen sample was random, with no randomization parameters. The compilation period of the QISO questionnaires took place between April and June 2019. The questionnaires were filled in with great difficulty since the interviewees underlined the high number of questions to answer.

Therefore, a reduced version of the QISO was formulated and administered to the same interviewees during April and May 2020 in order to perform the validity of the QISO in its brief form.

Questionnaires

The QISO aimed to search and quantify all information on the different dimensions of organizational health and on three groups of indicators, as: positive, negative and of mental and physical discomfort, in the

nursing population. It was composed of 118 items divided into 8 scales/dimensions, by assessing:

- the Work Environment Comfort, as the nurses' perceptions on their work environments characteristics;
- the Organizational context, which included clarity in Health Companies' objectives, in their awareness and programmed purposes as: the enhancement of skills, the active listening, the availability and circulation of information, the conflict management, the collaborative interpersonal relations, the operational smoothness, the organizational equity, the propensity and openness to innovation sub-dimensions;
- the Stress Factors, which evaluated experiences related to fatigue, the sense of not having the preparation or the appropriate skills and the degree of psychological involvement that the job causes the employee;
- the Safety and Accident Prevention dimension, which explored area relating to safety measures in the work environment;
- the Tolerability of Work Tasks dimension, which investigated the different components that characterized nursing and which generally had reason to consider less desirable as mental and physical fatigue, psychological isolation, monotony as well as excessive emotional involvement;
- the Propensity to open up to innovation dimension, which investigated the capacity for innovation within the organization;
- the Positive and Negative indicators present in the nursing organizational context;
- the Psychophysical distress indicators charactering the malaise condition of the interviewers linked to their work environments.

At the end of the collection of information, in the QISO, interviewers also had the opportunity to suggest some areas for improvement which, in their opinions, deserve an appropriate measure of intervention.

On the other hand, in the brief form of the QISO, a total of 48 items were included by considering the same sub-dimensions and reducing items, as the questions with similar key concepts were combined, eliminating satisfaction levels at the different company levels, as the figures of the nursing manager and the coordinator, and encompassing all the concepts of satisfaction relating to the company as a whole (Table1). The organizational context brought together 30 items, since we excluded the items that sounded redundant in their meaning and items that had a meaning opposite to the other items considered. Additionally, safety perception was assessed by a unique item, considering an overall assessment by the interviewer. Furthermore, also the dimensions concerning the positive and negative indicators had been generalized in their specific meanings to reduce the number of items in a consistent way in order to outline a photograph of the perception of the well-being of the interviewee's own organizational context, without any details (Appendix I).

Finally, both the QISO and the brief form performed, all the items were associated to the 4-point Likert scale, assigning the negative condition to the value 1 and the best condition to the value 4, therefore the higher score attributed the better condition explored will be.

Ethical considerations

Each participants voluntary agreed to participate to this study. The present study was approved by the Ethical Committee of Polyclinic in Bari, Italy, with no. 6315/2020.

Data analysis

Anonymous data were collected in an Excel data sheet and then, statistical analysis were performed thanks to the SPSS program, version 20. Socio-demographic data were presented as frequencies and percentages by considering categorical variables as: sex and ward of belonging. On the other hand, age and years of work experiences were showed as continuous variables and expressed in means and standard deviations. Test-retest reliability or reproducibility, internal consistency and convergent validity of the QISO questionnaire in its brief form were assessed. Specifically, to perform the repeatability, the compilation of the QISO questionnaire and that of the related brief form were compared to the same subjects, in two different times and the degree of correlations between the scores were calculated. Correlations were assessed thanks to the paired-sample t-test. To assess internal consistency, Cronbach's alpha was performed in the QISO-brief version.

Results

All 295 nurses who answered to the first QISO administration were contacted a second time and also responded to the QISO brief form.

Table 1 showed socio-demographic characteristics of the nurses interviewed.

Additionally, Table 3 showed the descriptive statistics of the two samples collected.

Table 1. Dimensions analyzed and number of items in QISO and in the QISO-brief form.

Dimension explored	n. item QISO	n. item QISO brief form
Scale 1: Comfort of the Work Environment	11	7
Scale 2: Organizational context		
Clarity of the Organizational Objectives	4	2
Enhancement of Skills	4	2
Active Listening	4	1
Availability and circulation of information	4	2
Conflict Management	4	1
Collaborative Interpersonal Relations	4	1
Operational smoothness	4	2
Organizational equity	4	2
Sense of Social Utility	4	2
Scale 3: Stress Factors	4	3
Scale 4: Accident Safety and Prevention	8	1
Scale 5: Tolerability of Work Tasks	10	4
Scale 6: Openess and Innovation	9	5
Scale 7:		
Positive indicators	18	6
Negative indicators	13	5
Psychosomatic disease	8	2
Total items	118	48

Table 2. Sampling characteristics (n=295)

Variables	Frequencies; Percentages (n;%)[a] Means ± Standard Deviations (μ±s.d.)[b]
Sex:	
Female	189(64.1%)[a]
Male	106(35.9%)[a]
Ward:	
Medical Area	75(25.4%)[a]
Surgical Area	107(36.3%)[a]
Emergency Area	113(38.3%)[a]
Age (years)	37.33±8.33[b]
Work experience (years)	10.54±6.52[b]

Table 4 reported correlations for each scale, between the compilations of the QISO and the QISO brief form, assessing by the t-test.

Table 3. Statistics for paired samples

Dimension explored	N	Means ± Standard Deviationd (μ±s.d.)	SEM
Scale 1			
QISO	295	2.36±.20	.011
QISO-brief form	295	2.49±.23	.014
Scale 2			
QISO	295	2.13±.23	.013
QISO-brief form	295	2.15±.41	.025
Scale 3			
QISO	295	2.39±.43	.025
QISO-brief form	295	2.64±.93	.054
Scale 4			
QISO	295	2.76±.50	.029
QISO-brief form	295	2.90±1.11	.064
Scale 5			
QISO	295	2.39±.43	.025
QISO-brief form	295	2.62±.88	.051
Scale 6			
QISO	295	2.41±.36	.021
QISO-brief form	295	2.19±.47	.027
Scale 7			
QISO	295	2.46±.23	.013
QISO-brief form	295	2.43±.34	.020
Scale 8			
QISO	295	2.16±.33	.019
QISO-brief form	295	2.25±.67	.039

Table 4. Paired samples correlations (n=295)

Scales	N	Correlation	Significance
Scale 1: QISO & QISO-brief form	295	.770	<.001*
Scale 2: QISO & QISO-brief form	295	.930	<.001*
Scale 3: QISO & QISO-brief form	295	.947	<.001*
Scale 4: QISO & QISO-brief form	295	.597	<.001*
Scale 5: QISO & QISO-brief form	295	.949	<.001*
Scale 6: QISO & QISO-brief form	295	.918	<.001*
Scale 7: QISO & QISO-brief form	295	.880	<.001*
Scale 8: QISO & QISO-brief form	295	.726	<.001*

*p<.005: statistically significant

The Internal Coherence (Cronbach Alpha Coefficients) for all the items of the QISO was α=.563, while the Cronbach Alpha Coefficients of the QISO brief form was α=.630, highlighting an adequate interrelationship of the items of each sub-dimension of the questionnaire.

Discussion

The present study reported that the validation of the QISO-brief form might be an opportunity. The correlations between the compilations of the two different questionnaires, evaluating through the t-test, significantly confirmed the reproducibility of the different sub-dimensions ($p<.001$). The QISO brief form also demonstrated good internal consistency comparable to the values of its original version.

In addition, to the small number of samples, it was also necessary to consider the fact that the recruitment of participants was carried out only in one hospital of the Local Health Authority of Bari, without considering the multiplicity of conditions that could arise in the rest of both the Puglia Region and the rest of Italy. Furthermore, the Di Venere hospital was a First Level facility, therefore even more complex realities should be considered in future studies. In any case, considering the clinical area to which each participant belonged, the sample was very representative also in relation to the single organizational context examined.

Furthermore, the QISO brief form only reduced the number of items by trying to assemble them by meaning or by eliminating the different levels of the Company organization by dealing of the Company in general. This was purposely wanted by the authors so that the main objectives of the QISO such as the job satisfaction of nurses, attributable to company organizational processes in order to be able to identify and perhaps subsequently implement important information regarding professional growth and development, were not lost. Another important aspect that the QISO was able to detect was the relationship of trust that the nurse had with their company in strengthening their skills. The idea of creating a QISO brief form was inherent in the fact of trying to obtain an ever-increasing number of respondents who could actively participate in the change of their working realities, as well as in the motivation and assumption of responsibility increasing by nurses in order to be more promoters of profound changes in their organizations. Therefore, it was important to understand the context and how each nurse perceived the organizational context to implement change actions that might implement both organizational and individual performance.

In this regard, in the literature there were many studies that evaluated the organization of healthcare realities, but all from a multidimensional perspective (9,29-33). Hence the real strength of the QISO which instead focused on the nursing organizational well-being and from the QISO its brief form which aimed to reach all nurses now called very often to fill out questionnaires and therefore also tired of this approach. This was the reason for a reduced form of the questionnaire, since it was very important to since nowadays there was a lot of talk about performance and therefore having more immediate tools available that allowed to weigh the entire organizational context became an urgent necessity.

Conclusion

The QISO brief form was not designed to replace its original version, but it was conceived as a broader and more general administration in its content prior to the QISO, which could be administered successfully, if the QISO brief form underlined a negative organizational condition, in order to mention all negative aspects of the context investigated. Certainly, results demonstrated promising perspectives for the QISO brief form in its use. Additionally, one of the strengths of the study was having administered the two versions of the QISO, both the integral and the brief form, to the same nurses. On the other hand, the limitation of this study surely consisted in having included a small number of subjects. Therefore, further validation studies could be desirable in order to implement the validity of the QISO brief form so that a snapshot of the nurse's organizational condition could be performed.

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Appendix I. QISO brief form items.

Dimension explored/Items
Scale 1: Comfort of the Work Environment:
Cleaning
Lighting
Temperature
Silence
Pleasantness of the environment and ergonomic furnishings
Space available per person
Functional and clean toilets and changing rooms
Safety
Scale 2: Organizational context
Clarity of the Organizational Objectives
The Company's objectives are clear and well defined
The organizational roles and work tasks are clear and well defined
Enhancement of Skills
The company offers real career opportunities to everyone
Opportunities for professional development and updating are offered
Active Listening
Anyone who makes requests or proposals and suggestions is listened to
Availability and circulation of information
It's easy to get the information you need
Management and organizational changes are clearly communicated to all staff
Conflict Management
Even among colleagues we listen and try to meet each other's needs
Collaborative Interpersonal Relations
Anyone who makes requests or makes proposals and suggestions is listened to
Operational smoothness
There are means and resources to do your job properly
Decisions are made quickly
Organizational equity
Coordinators treat employees fairly
The company finds adequate solutions to the problems that arise
Sense of Social Utility
At the end of the working day, you feel satisfied
Commitment at work and personal initiatives are appreciated
Scale 3: Stress Factors
Physical and mental fatigue
Emotional overload
Work overload
Scale 4: Accident Safety and Prevention
Security level of your work environment
Scale 5: Tolerability of Work Tasks
The tasks at hand require an excessive level of stress
The work totally absorbs
Scale 6: Openness and Innovation
Accept user requests
Recognize and deal with the problems and mistakes of the past by improving work process
Develop innovative skills in employees and introduce new professionals
Establish collaborative relationships with other organizations and
Confront the experiences of other organizations sharing the experiences of each organization

Appendix I. QISO brief form items.
Dimension explored/Items
Scale 7: Positive and Negative indicators
Positive indicators
Satisfaction with your organization and feeling of being part of a team
Going to work makes me fulfilled
Right balance between work and free time
Satisfaction with relationships built at work and trust that negative conditions can change
Sharing of corporate values and how they are appreciated externally
Appreciation and confidence in company management skills, at every level
Negative indicators
Impatience with going to work
Disinterest in work and the desire to change the environment
Feeling of not counting in the organization
Little clarity in circulating information
Feeling of not being appreciated and properly involved
Scale 8: Psychosomatic disease
Feeling of excessive fatigue
Onset of psycho-somatic disorders of different nature attributable to one's work