

The Naples-Questionnaire of Work Distress (nQ-WD): Bullying at workplace, organizational dysfunctions and bio-psycho-social effects

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ABSTRACT

The aim of this study is to elaborate a tool, the “Naples-Questionnaire of Work Distress” (nQ-WD), in order to evaluate the conditions of discomfort perceived in the working field. It tries to differentiate the dysfunctional phenomena more tied to the anomalies of the interpersonal relationships (bullying at workplace) from the phenomena more clearly related to organizational dysfunctions. The inventory measures the overall effects of these two areas on the subject and the spin-off in term of bio-psycho-social functioning. The questionnaire has been administered to a group of 178 workers who showed a work-related psychopathological disturbance and to a control group of 178 subjects without exposure to bullying at workplace or to organizational distress. The statistical analysis demonstrated degree of significant validity and reliability. The degree of internal coherence of the answers proposed is satisfactory. The ROC curves allow the determination of a threshold value which allows separating the workers subjected to mobbing and/or organizational stress from control-workers with an optimal reliability degree. The values of the area under the ROC curves show that the inventory has a high discriminating capacity.

Keywords: Bullying at Workplace; Organizational Stress; Work-Related Psychiatric Disturbances; Work Psychosocial Environment; Risk Assessment

1. INTRODUCTION

Over the last decades the topic concerning the work-related distress and its relationship with poor mental health outcome has roused great clinician interest and many studies have underlined the psychopathological [1-6] and economic effects [7,8].

The distress features are linked to three main factors: 1) interpersonal conflicts; 2) organizational dysfunctions and 3) job insecurity. These factors are clearly characterized by a significant overlap and it's frequently difficult to distinguish and to separate these phenomena. For instance, the professional deskilling could be related to interpersonal conflicts as well as to organizational questions and produce subjective job insecurity.

In the area of the interpersonal conflicts the main phenomenon is constituted by the bullying at workplace, in which the psychological and emotional abuses are the central core [9]. Indeed, the concept of bullying at workplace (mobbing, harassment at the workplace, job injustice) is strongly linked to the psychiatric disturbances developing and this phenomenon has become of increasing interest within the international literature both because of its negative psychological health outcome [10-12] and of its health-care costs for poor mental health in the workplace [13,14].

As to the organizational distress, many studies of occupational medicine and psychology have underlined the relationship between the work psychosocial environment and the mental health [2,4,15,16]. The theoretical fields in which the organizational negative phenomena could be summarized are included into three main explicative models: the “job-demand control theory” [17], the “effort-reward imbalance model” [18] and the “organizational injustice” [19].

Finally, the job insecurity is a well-known life-event stressor linked to the development of psychiatric disturbances [20-22], above all in the light of the more and more complex coping processes demanded by the new work environments linked to the economic globalization as well as to the productive and technological changes [23,24].

As already suggested, these areas are strongly overlapped and it's difficult to mark absolute categorical thresholds [25]. This observation is also founded on the hy-

pothesis that the work environments in which bullying at workplace is highest also have poorer psychosocial work characteristics [26,27] and could explain the irresolution, underlined by some studies [28], about the operative definition of these phenomena and their different rates of prevalence [29].

Some methodologies have been proposed to evaluate the bullying at workplace: 1) fixed cut-off score to questionnaire [30]; 2) methodologies by means of which employees self-label into a specific bullying definition [31, 32]; 3) administration of check-list of items exploring the worker exposure to behaviors suggestive of bullying. The questionnaires most used to assess the subjective perception of bullying at workplace are the Leymann Inventory of Psychological Terror (LIPT), based on the Leymann studies from the 1970s [33], and the Negative Acts Questionnaire (NAQ) and its revised version [34,35], in which the assess (if the reported exposure to specific behaviors could be or not to be interpreted as bullying) resides with evaluator.

The aim of our study was the achievement of the new measuring instrument Naples-Questionnaire of Work Distress (nQ-WD) and to validate it among Italian work sample. The need of a new assessing instrument, perceived within our clinical activity into the area of work psychopathology, was founded on the basis of three main points: 1) to differentiate the dysfunctional phenomena more tied to the anomalies of the interpersonal relationships (bullying at workplace) from the phenomena more clearly related to organizational anomalies on the whole (organizational stress) but also to evaluate their combined pathogenic effect; 2) to evaluate these phenomena without the on/off dichotomy but by means of a progressive grading of intensity; 3) to elaborate a simple and empirical tool to measure the effects of negative work environment on the bio-psycho-social individual level.

2. METHODS

The items of the nQ-WD were elaborated on the basis of two main sources: the clinical experiences of the teamwork of the Work Psychopathology Medical Centre (Department of Mental Health of Naples) and international scientific literature on this topic.

The first section of the questionnaire was composed of 32 items used to obtain information about socio-demographic data (sex, age, education level etc.), working variables (work sector, activity, work level and years of occupation, income bracket etc.): the items included between 18 and 31 explored the organizational characteristics (environment, safety, communication, leadership, workload, career opportunities etc.) to build the Organizational Scale (subscale OS). The answers concerning the items 18 - 26 were evaluated on a 5-points Likert

scale (-0.5, 0, 0.5, 1 and 2 points), while the answers to the items 27 - 32 had a binary evaluation (0 - 1 point).

The second section explored the bullying at workplace phenomena (during the last 6 - 12 months) and was made of 30 items. The sensitive items, used to build the Bullying at Workplace scale (subscale H), of this section were from 38 to 59 and the item 61. The answers explored the frequency of bullying behaviors (never, sometimes, frequently) and were evaluated on a 3-points Likert scale (0, 1 and 2 points), only the item 50 was evaluated on a 4-points Likert scale (-0.5, 0, 1 and 2 points) and the item 61 had a binary evaluation (0 - 1 point).

Finally the third section has provided information about social and family adjustment, quality of life, psychological and physical well-being and has thus composed the Bio-Psycho-Social scale (subscale BPS). This section was made of 23 items, the sensitive items were eleven (65, 66, 67, 69, 70, 76, 77, 78, 81, 83, 84) measured on a 3-points Likert scale (items 65, 70 and 76, 78) or on a 4-points Likert scale (items 66, 67, 69) or on a 5-points Likert scale (items 81, 83, 84).

The random distribution of sensitive and non-sensitive items had the aim to reduce the mechanism of the leading questions [36].

The sum of scores of subscales OS, H and BPS built the overall score of the questionnaire (scale WD) measuring the global dimension of negative work psychosocial environment and its bio-psycho-social effect.

The nQ-WD was administered to 128 subjects (78 males and 50 females) in which was observed a clinical feature consistent with a work-related psychopathology. The study was carried out during a standardized six-months period of clinical observation to evaluate the weight of the work-induced pathogenesis degree according to our previous investigation [6].

The control sample was constituted of 118 workers, matched for sex, age and work level to the patients' sample. All controls were recruited among workers (without work-related health or psychiatric disturbances) who approached the Department of Preventive Medical Sciences of the University of Naples "Federico II". The control subjects who answered positively to the nQ-WD screening question "Have you been exposed to psychological kinds of harassment, constriction or injustice at workplace in the last year?" were excluded from the examination.

The internal consistency of the questionnaire was assessed using Cronbach's alpha coefficient [37]. Descriptive statistics was employed to analyze the collected data. Differences in central tendency between two groups were evaluated with Mann and Whitney U-test [38]. Demographic data were compared by means of two-sample t-test. The Spearman rank correlation analysis [38] was also carried-out. The validity of the questionnaire was studied

applying ROC methodology [39].

3. RESULTS

Women were 38.8% of the group of patients suffering of a work-related psychopathology and 39.8% in the control group; the males were 61.2% vs 60.2%. The two groups were similar concerning the age (patients 48.3 ± 8.8 vs controls 46.5 ± 10.7), years of work (16.73 ± 11.0 vs 19.4 ± 11.3), years of education (13.5 ± 3.9 vs 14.3 ± 4.5). The odds ratio concerning the distribution of workers into the public or private work sector was also matched: 55/73 in the group of the patients and 54/74 in the group of the controls.

Cronbach's alpha was 0.80, 0.82 and 0.83 as concerns the items in the scales of Organizational Dysfunction, Bullying at Workplace and Bio-Psycho-Social area, respectively. Averaged values, standard deviations and some relevant percentiles of the above mentioned subscales are reported in the **Tables 1-5**. The results for the U-test are also shown.

Table 6 indicates the areas measured under ROC curves (AUC) and the parameters related to the subscale's discrimination performances.

The cut-off values were selected taking into account the nearest point of the left upper corner in the graph the ROC curves. In this way we obtain the best compromise between sensitivity and specificity.

Table 1. Organizational Dysfunction (scale OS): descriptive statistic & Mann-Whitney U test results.

	Patients	U test	Controls
m ± ds	13.6 ± 3.5	P < 0.0001	6.16 ± 3.9
1° decile	8.2		1.5
1° quartile	11.5		3
Median	14.5		5.5
3° quartile	16		9
9° decile	18		11.5

Table 2. Bullying at Workplace (scale H): descriptive statistic & Mann-Whitney U test results.

	Patients	U test	Controls
m ± ds	22.2 ± 7.4	P < 0.0001	5.54 ± 5.5
1° decile	12		0
1° quartile	18		1
Median	22		4
3° quartile	27		9.25
9° decile	32		14

Table 3. Bio-Psycho-Social Area (scale BPS): descriptive statistic & Mann-Whitney U test results.

	Patients	U test	Controls
m ± ds	12.2 ± 8.3	P < 0.0001	3.70 ± 4.1
1° decile	0		-1
1° quartile	2		0
Median	15		3
3° quartile	19		7
9° decile	22		9.3

Table 4. Overall Scores (scale WD): descriptive statistic & Mann-Whitney U test results.

	Patients	U test	Controls
m ± ds	48.0 ± 14.0	P < 0.0001	15.4 ± 11.6
1° decile	28.8		1.9
1° quartile	37.75		6
Median	48.5		14
3° quartile	58		23.5
9° decile	67		33

Table 5. OS Scale + H Scale: descriptive statistic & U test results.

	Patients	U test	Controls
m ± ds	35.8 ± 9.4	P < 0.0001	11.7 ± 8.6
1° decile	23.5		1.7
1° quartile	30		4.9
Median	36.5		10.5
3° quartile	42		17.5
9° decile	47.8		25.6

Table 6. Summary of the parameters of ROC analysis.

	Scale OS	Scale H	Overall Score
AUC	0.91	0.95	0.95
CUT-OFF	10.5	13	34
Sensitivity	≈0.812	≈0.879	≈0.845
Specificity	≈0.837	≈0.837	≈0.922
Positive predictive value	≈0.852	≈0.861	≈0.926
Negative predictive value	≈0.794	≈0.857	≈0.838

The Spearman correlation coefficient between OS and H subscales, calculated in the group of the subjects who underwent bullying at workplace, was ≈ 0.4 ($P < 0.001$).

4. DISCUSSION

According to Bland and Altman [37] Cronbach's alpha values, lying between 0.70 and 0.80, are regarded as satisfactory to compare groups, whereas in clinical settings, when the value of the scale for an individual is of interest, a minimum alpha of 0.90 is desirable. Our values, in the range of 0.80 - 0.83, indicate, however, a good degree of internal consistency. The groups showed differences in central tendency, in fact controls had lower median values in all subscales (see **Tables 1-6**). ROC analysis indicates cut-off levels to separate controls and subjects suffering from work distress. In fact AUC values were all greater than 0.90; this result suggests that the proposed questionnaire has a good discriminative ability. The OS and H subscales were found correlated; the estimated value of Spearman coefficient is indicative that both score to determinate the overall cut-off level.

These results allow considering the nQ-WD as an effective tool to assess both organizational dysfunctions and bullying at workplace in their single dimensions as well as in their overall weight on the psychological wellbeing evaluated in term of the bio-psycho-social adjustment.

In agreement with these observations, therefore, the Naples-Questionnaire of Work Distress (nQ-WD), along

with the standardized clinical diagnostic trials and the psycho-diagnostic tools, could aid the evaluation of the pathogenic effects of negative psychosocial work environment.

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