Well-being at work in a center for rehabilitation

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Summary

Background: **the quality of the work environment of nurses is a subject of increasing interest since there is a close link between the quality of care and patient satisfaction. Surveys on the characteristics of hospitals in Europe, United States and Asia demonstrated that the quality of organizational behaviour influenced emotional exhaustion and the intention to change jobs in nurses. With regard to this, we performed a survey on the health service staff, at risk of occupational stress, in a center for rehabilitation located in Abruzzo (Italy).**
Methods**: the first step of the investigation was to identify homogenous groups of workers considering their duties in relation to job stress. We investigated all the health service staff, the office-workers and the blue collar workers (117 women and 58 men); 85% of them were in a stable job. We used anonymous questionnaires to evaluate the perception of anxiety, job stress and symptoms. State trait anxiety inventory (STAI) was used in scale 1, to measure state-anxiety as a temporary and varying condition, and in scale 2, to monitor trait-anxiety, as a relatively fixed tendency of the personality. Occupational stress was determined by the Italian version of the Karasek Job Content Questionnaire, composed of 49 items, determining decision latitude (DL), job demand (JD) job strain (JD/DL), social support and job insecurity. The perception of symptoms was also evaluated by a 10 item questionnaire.**
Statistical analyses were performed using SPSS® software 11.0 (SPSS Inc, Chicago, IL, USA). The "multiple comparisons/post hoc tests" (into the ANOVA) for the analysis of significant differences among groups was utilized, while the Spearman rho correlation coefficient was applied to evaluate the correlation between quantitative variables such as STAI 1 and STAI 2, DL, JD, JI, SS.
Results**: the levels of anxiety and job insecurity of all the groups of workers were within the normal range. Physiotherapists and professional nurses showed rather higher anxiety, elevated job demand (JD), rather lower decision latitude and higher job strain ("job strain" = JD/DL). The health care assistants showed lower JD and DL similar to that of the professional nurses. The social assistants, teachers and logopedics showed rather low JD and rather elevated DL. Physicians had low values of anxiety, job demand and job strain, high DL and low perception of symptoms. The job stress of the blue collar workers of the hospital was similar to that of the professional nurses and physiotherapists. The perception of symptoms in all the sanitary staff was highly correlated with levels of anxiety and job strain.**
Conclusions: **the low levels of anxiety and job insecurity of the health service staff show that, in this center, the work environment was of good quality. However, this study also indicates that in centers for rehabilitation and treatment of chronic diseases, the levels of occupational stress of physiotherapists and professional nurses are higher than those of the other groups of health service staff (social assistants, teachers and logopedics). This investigation thus demonstrates that it necessary to improve the work environment of physiotherapists and professional nurses (fewer than the number required for the health care of the increasingly ageing population), also in order to avoid them leaving their jobs and therefore maintaining workforce stability.**

KEY WORDS: well-being at work, health service staff, job stress, rehabilitation.

Background

In work environments, along with the risks related to the traditional occupational diseases, there are psychological risks which may induce disorders affecting the health of workers. The psycho-social factors are a problem of increasing importance since they may reduce both the quality of life style and the efficiency of industries and services, not only in Italy but also in all

European Countries. With regard to this, it has been demonstrated that the psycho-social well-being of workers in hospitals and health care centers is closely related to the quality of care and patient satisfaction with the treatment received (1, 2). A pilot study on the health service staff of the University of Brescia correlated objective and subjective parameters of occupational stress and burnout (3); the results showed a significant correlation between 6 objective indexes (regarding inefficiency of the organization) of job strain and subjective parameters determined by an Italian version of the Job Content Questionnare (JCQ) (4, 5), the Maslach Burnout Inventory (MBI) (6) and the State-Trait Anxiety Inventory (STAI) (7). Night-shift work is one of the main risks for health service staff since it induces circadian disruption of physiological neuroendocrine and immune rhythms. It may either reduce the attention in work activities with higher risks of mistakes and accidents or enhance the onset and progression of organic diseases (8). 220 shift workers and 422 day-time workers in an Italian hospital were investigated to detect any relationship of shift work with subclinical autoimmune hypothyroidism (9). Subclinical autoimmune hypothyroidism was seen in 8% shift workers, compared to 4% day-time workers, and elevated titers of anti-peroxidase thyroid (TPO) autoantibody in 14% shift workers, compared to 9% in day-time workers. A survey was performed on general acute care hospitals in 12 European countries and in the United States to determine whether good organization can affect patient care and workforce stability. The results showed that the quality of organizational behavior influenced the level of satisfaction for the treatment in patients and emotional exhaustion and the intention to change jobs in nurses (10). The results, evidencing defects of the organization in every country, also evidenced that cost for improving the work environment seemed to be relatively low. A cross-cultural and longitudinal study (Nurses Early Exit Study: NEXT) on the working conditions, health and wellbeing of nurses was carried out. Data on 6,469 nurses working in hospitals in seven European Countries showed that 8.24% of nurses had newly developed intentions to leave during the follow-up. High effort-reward imbalance predicted an elevated risk of intention to leave the profession; reward frustration showed the strongest explanatory reason. Findings were similar in the majority of countries, with lower association between job stress and intention to leave in Netherlands and in Slovakia (11). The differences among countries are likely justified by cultural, socioeconomic and organizational variety. With regard to this, it was shown that Italy was a country with relatively lower expenses for nurses (12). Investigations on the health service staff in northern Italy highlighted elevated frequency of subjects with poor working capacity, symptoms of chronic fatigue, dissatisfaction with the job and sleep disturbances. These effects increased with age and were more evident in females because of the difficulty to balance home and job activities and periods of lack of sleep (13). In this study we used the "Karasek's Job Content Questionnaire" which has previously proven to be a useful instrument in determining job strain in a large group of Italian employees (14), by the staff of a university (10, 15), by a group of teachers (16), by workers in a clothing industry (17) and by health service staff (3). Today there are different types of health services for the treatment of acute and chronic diseases and rehabilitation. The role of the centers for rehabilitation and the treatment of chronic diseases, a part of which also have day hospitals, is increasing because the population is continuously ageing. Our investigation was performed in these centers of Central Italy; in particular, we investigated the wellbeing at work of physiotherapists, professional nurses, and social assistants, who were fewer than the number required in these centers.

Methods

The investigation was carried out in a private clinic for rehabilitation and care of chronic diseases. This health center ("San Francesco d'Assisi" located in Vasto, near the Adriatic sea) started its activity in 1965 by taking care of young people with mental diseases. In the following years, it became a center for rehabilitation and treatment of all physical, sensorial and mental diseases with different ways of health care, including those with periodic or permanent stays in hospital or hospital and outpatient assistance. The consideration for the activity of this center as well as the level of patient satisfaction for the treatment received was relatively high. This is in agreement with the percentage of voluntary collaboration of its health service staff in this research (about 95%). Participation in the research was voluntary and, prior to inclusion, all subjects gave their informed consent. The study protocol was performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments and was approved by the ethics committee of the University of Chieti-Pescara. We evaluated the type of sanitary staff taking into consideration the type of work activities and duties. 175 workers were recruited (117 men: 66.9 %) and (58 men: 33.1 %); only one worker was not of Italian nationality; the age ranged between 20 and 60 years. Only 6 recruited subjects were not investigated, The health service staff was composed of physiotherapists, professional nurses, health care assistants, social assistants, teachers and logopedics as well as physicians; a small group of office-workers and blue collar workers of the same health centers were included as controls in the study (Tab. 1). Sociodemographic characteristics of the study population are shown in Table 2.

The office-workers and the blue collars were slightly older, while the physicians were the oldest of the sanitary staff. Mean overall working life ranged from 17.5 to 26.8 years, while mean working life in the health center of Vasto ranged from 13.0 to 25.5 years. The working life of the office-workers was the longest, while the working life of the physicians, professional nurses and health care assistants in the center, was shorter than that of the other groups. 85% of the recruited subjects had permanent work contracts, 28.5% were smokers.

Table 1 - Number of male and female workers.

	Women	Men	Total number	Total %
Physioterapists	31	11	42	24
Professional nurses	16	5	21	12
Health care assistants	39	18	57	32.6
Social assistants, teachers and logopedics	19	13	32	18.3
Physicians	5	4	9	5.1
Blue collars	5	1	6	3.4
Office-workers	4	4	8	4.6
Total	117	58	175	100

Table 2 - Age, professional characteristics, education level and smoking habits of the study population.

	Age (years)	This job work time (years)	Total work time (years)	Education Second low	level (%) Second high	Degree	Permanent contract (%)	Smoker (%)
Physio-terapists	44.5±5.7	17.0±7.9	20.3±5.2	0	7	93	7	17
Profess. Nurses	41.4±8.6	13.0±8.6	17.5±8.6	6	38	56	5	28
Health care assistants	44.4±7.5	14.3±7.8	21.6±7.6	52	46	2	23	37
Social ass., teachers, logopedics	45.8±7.3	19.1±7.3	21.5±6.5	6	68	26	12	31
Physicians	49.2±3.6	14.0±9.9	17.5±8.6	0	0	9/9	3/9	0
Blue collars	55.5±4.5	17.6±6.2	17.5±8.6	5/6	1/6	0	0	1/6
Office-workers	50.4±4.1	25.5±2.9	26.8±5.3	0	4/8	4/8	0	3/8
Total	45.2±7.3	16.4±8.1	21.1±7.1	22	37	41	15	27

Values are means ± S.D.

In particular the group of the health care assistants had higher percentage of smokers compared to the group of physicians. The level of education of the physiotherapists was higher (almost all with degrees) than that of the professional nurses (50% with degrees). About 50% of health care assistants and 68% of social assistants, teachers and logopedics had a high school diploma. The study was carried out as an anonymous survey using standardized questionnaires; the recruited subjects compiled the questionnaires in a quiet room. The state-trait-anxiety inventory (STAI) was used in Scale 1, to measure state-anxiety as a temporary and varying condition, and in Scale 2, to monitor trait-anxiety, as a relatively fixed tendency of the personality (7). Occupational stress was determined by the Italian version of the Karasek Job Content Questionnaire (JCQ) composed of 49 items: 9 items determined the decision latitude (skill decision + decision authority) (DL), 8 items determined the macro level decision authority, 1 item (skill level) for skill underutilization, 14 determined job demand (JD), 12 social support (SS) and 6 job insecurity (JI). Job strain (JS) was determined by the ratio JD:DL (4, 5). The relationship between JD and DL gave four work conditions characterized by: "high strain" with high JD and low DL; "passive strain", with low JD and DL; "active strain", with high JD and DL; "low strain", with low JD and high DL. Perception of subjective symptoms was determined by the Italian version of Somatization scale of Symptom Checklist SCL-90 (18) that consists of 12 items. These items assess the occurrence of several physical symptoms (e.g., headache, vomiting) in the previous week. All statistical analyses were performed using SPSS® software 11.0 (SPSS Inc, Chicago, IL, USA). In particular the "multiple comparisons/post hoc tests" (into the ANOVA) for the analysis of significant differences among groups was utilized, while the Spearman rho correlation coefficient was applied to evaluate the correlation between quantitative variables such as STAI 1 and STAI 2, DL, JD, JI, SS.

Results

The physiotherapists showed a more elevated perception of trait (STAI 1) and state anxiety (STAI 2) and of

subjective symptoms than that of the other groups of workers (Tab. 3).
Professional nurses also showed a more elevated perception of trait anxiety (STAI 1) and of subjective symptoms, while that of the state anxiety (STAI 2) was within the normal range. The "job demand" (JD) of the physiotherapists, professional nurses and health care assistants was high, while their decision latitude (DL) was rather low; therefore the job strain (JD/DL) was rather elevated, similar to that of the blue collars (Tab. 4).
Social assistants, teachers and logopedics (as well the office-workers) presented low JD and DL rather high with the "job strain" (JD/DL) reduced. This was even more reduced in the physicians (Tab. 4). The social support, slightly lower in the physiotherapists and in the physicians, as well as the job security, did not present significant differences among all the examined groups (Tab. 4). The relationship between JD and DL gave four work conditions characterized by: "high strain" with high JD and low DL; "passive strain", with low JD and DL; "active strain", with high JD and DL; "low strain", with low JD and high DL.
"High strain" (low and right on Fig. 1), with high JD and low DL, includes physiotherapists, blue collars, professional nurses (with levels near to those of the "active

Table 3 - Perceptions of anxiety and subjective symptoms of the study population.

	STAI 1	STAI 2	Subjective symptoms
Physioterapists	38.7±9.1 *	39.6±9.6 *	10.9±9.5 **
Professional nurses	38.8±8.3 *	35.7±9.1	10.0±6.7 **
Health care assistants	34.9±7.4	35.9±7.6	8.9±6.6
Social assistants, teachers, logopedics	37.2±9.5	34.1±8.9	7.1±6.3
Physicians	35.3±5.7	33.0±4.2	3.3±3.7
Blue collars	36.0±9.8	36±2.7	9.5±11.0 *
Office-workers	30.5±6.8	36.1±7.1	7.6±9.7
Total	36.5±8.5	36.3±8.4	8.8±7.7

Values are means ± S.D. "Multiple comparisons/post hoc tests" (into the ANOVA). Statistical significant difference among the groups: *p<0.05; **p<0.001

Table 4 - Perception of decision latitude (DL), job demand (JD), social support (SS), job security (JI), job strain (JD/DL, JS) of the study population.

	Job demand (JD)	Decision Latitude (DL)	Job strain (JD/DL) x 10^2	Social support	Job security
Physioterapists	37.5±6.1 **	64.3±9.4 **	6.0±1.2 **	19.9±3.9	13.4±2.2
Professional nurses	39.2±5.3 **	65.2±7.1 **	6.1±1.0 **	20.4±4.7	13.1±2.8
Health care assistants	35.8±5.0 **	64.9±7.1 **	5.6±0.6 **	22.6±3.5	13.6±3.0
Social assistants, teachers,logopedics	32.6±4.4	69.0±5.7	4.8±0.9	21.1±3.8	13.8±2.5
Physicians	30.1±3.2	74.9±6.6	4.1±0.4	18.9±2.6	13.8±2.5
Blue collars	38.5±6.5 **	64.0±6.6 **	6.1±1.7 **	23.2±0.7	10.5±1.6
Office-workers	32.9±3.5	69.7±9.8	4.8±0.6	22.6±1.8	12.4±2.0
Total	35.7±5.6	66.3±8.1	5.5±1.4	21.3±3.8	13.4±2.6

Values are means ± S.D. Multiple comparisons/post hoc tests" (into the ANOVA). Statistical significant difference among the groups: *p<0.05; **p<0.001

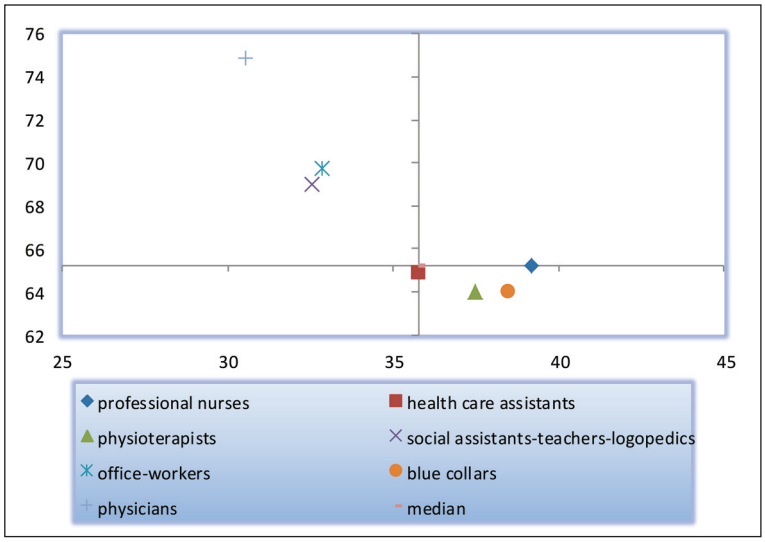

Figure 1 - "Job strain ("Job demand/decision latitude") of groups of workers with different tasks: "high strain" low and right; "low strain" (low and left); "active strain" (high and right); "passive strain"(high and left).

Table 5 - Linear significant statistical correlations among STAI 1, STAI 2, job strain social support and subjective symptoms of 175 workers.

	STAI 2	Job demand (JD)	Decision Latitude (DL)	Job strain (JD/DL)	Social support	Job insecurity	Symptoms
STAI 1	0.561 ***	0.177 *	-0.204 **	0.235 **	-0.289 **	0.155 *	0.426 ***
STAI 2		0.209 **	-0.323 **	0.298 **	-0.156 *	0.137	0.409 ***
Job demand (JD)			-0.365 ***		-0.328 **	0.158 *	0.401 ***
Decision Latitude (DL)					0.277 **	-0.173 *	-0.335 **
Job strain (JD/DL)					-0.359 ***	0.212 **	0.460 ***
Social Support						-0.251 **	-0.296 **
Job Insecurity							0.144

Statistical significance: *p<0.05; ** p<0.01; ***p<0.001

strain") and health care assistants (with levels near to those of the "passive strain").
"Active strain" (high and right on Fig. 1), with high JD DL, includes professional nurses (with levels near to those of the "high strain").
"Passive strain" (low and left on Fig. 1), with low JD DL, includes professional nurses (with levels in common with to those of the "high strain") near the interception of the straight lines which divides the 4 working conditions.
"Low strain" (high and right on Fig. 1), with high JD and low DL, includes health care assistants, social assistants, teachers and logopedics as well as physicians.
STAI 1 and STAI 2, job demand (JD) and "job strain" were correlated with high statistical significance (p<0.001) (Tab. 5) with the subjective symptoms. JD was highly negatively correlated (p<0.001) with DL, and with lower statistical significance with STAI 1 and 2. There were positive correlations (p<0.01) between DL and social support, while there were negative correlations between DL and "job insecurity". "Job insecurity" was positively correlated with job strain. Table 5 also reports other positive or negative correlations between the parameters of anxiety, occupational stress and perception of symptoms.

Conclusions

Work activity in health care services has specific targets since the demands of the organizations involve

the needs of the patients, which for definition, have to cope with unexpected situations; the workers have therefore to establish a specific relationship with the patients to help them to understand and adequately manage their own problems. The main aim of this research was to involve the health service staff of the centers of rehabilitation and health care in order to create a collaborative environment able to reduce and manage job stress; the collaboration of the recruited subjects consisted in representing the personal work condition, the aspects of the organization and the personal perceptions of previous experiences in health care. The analysis of the work risks may be a tool to suggest, apply and experiment measures for improving the general organizational, including managerial, support for nursing, doctor-nurse relationships and promotion of care quality. The main characteristics of the management are demand, control, support, relations, and changes with regard to this, for any problem which arises, the worker has to receive from the management responses aimed at the solution of his/her problem. In Central Italy, and in particular in the Abruzzo region, the quality of life is high since the role of the family and social traditions are still present. Also for this reason, as well as for the stability of employment (mean working life in the health center ranged from 13 to 25 years), the levels of anxiety, social support and job insecurity of all the groups of recruited subjects were (with some differences) within the normal range. This investigation demonstrates that the level of job strain of the workers in the centers of rehabilitation and health care depends on the professional activity; the professional role is also related to the education level and lifestyle (including smoking habits). Almost all the physiotherapists had a university degree and a stable employment; they showed slightly elevated state and trait anxiety, high job demand (JD) and rather elevated job strain, rather low decision latitude (DL) and rather high perception of subjective symptoms. In this group women smoked much more than men. About half of the professional nurses had a university degree and about half of them had stable employment; they presented a state of anxiety slightly elevated, high job demand (JD) and rather elevated job strain, low decisional latitude (DL) and a rather high perception of subjective symptoms. About half of the health care assistants had a high school diploma; about 70% had stable employment; they did not show high levels of anxiety, while they presented high job demand (JD) and rather elevated job strain (JD/DL); the DL was not elevated. Most of the social assistants, teachers and logopedics had a high school diploma; about 70% had a stable employment; their perception of anxiety and of subjective symptoms was in the normal range as well as JD, DL and job strain. The physicians showed low levels of anxiety and perception of symptoms, rather elevated JD with rather high DL, with levels of job strain in the normal range; the percentage of smokers was very low. This investigation demonstrates that the perception of symptoms in all the health service staff was highly correlated with levels of anxiety and job strain which is in agreement with the results of previous studies on office-workers, teachers and blue collar workers (10, 16, 17). In conclusion, this investigation demonstrates that in the rehabilitation and health care centers the occupational strain of physiotherapists, professional nurses and health care assistants is higher than that of physicians, social assistants and logopedics. As previously reported, in different countries of Europe, in the United States and in Japan (Kanai-Pak et al. 2008, Hasselborn et al. 2008, Li et al. 2011, Aiken et al. 2012) there is intention of anticipating leaving the current position by qualified nurses, because of reward frustration and/or high level of job demand with low task control. This condition may be more evident in the health service qualified staff who take care of elderly patients or those with chronic diseases, while there is an increased demand for these workers because of the continual ageing of the population. Improvement of the organizational behavior for the nurse and physiotherapist workforce in the centers for rehabilitation and health care (where most of the patients in treatment are elderly or have chronic diseases) is particularly needed. With regard to this, improvement of the hospital work environment for this health service staff, by improving the managerial behavior, can be a relatively low cost strategy.

References

1. Aiken LH, Sermeus W, Van den Heeden K, et al. (2012). Patient safety, satisfaction, and quality of hospital care: cross sectional surveys of nurses and patients in 12 countries in Europe and the United States. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3308724/
2. Kanai-Pak, Aiken LH, Sloane DM, Poghosyan L. Poor work environments and nurse inexperience are associated with bornout, job dissatisfaction and quality deficits in Japanese hospitals. J Clin Nurs. 2008; 17: 3324-3329.
3. Lucchini R, Facco P, Tromboni E, et al. Lo stress index, proposta di un metodo per la valutazione da stress e burnout in ambienti sanitari. G Ital Med Lav Erg. 2003; 25(3):219-221.
4. Karasek RA, Brisson C, Kawakami N, et al. The Job Content Questionnaire (JCQ). An instrument for Internationally Comparative Assessments for Internationally Comparative Assessments of Psychosocial Job Characteristics. J Occup Health Psychol. 1998; 3:322-355.
5. Baldasseroni A, Camerino D, Cenni P, et al. La valutazione dei fattori psicosociali – Il Job Content Questionnaire. Fogli d'Informazione 2001; 3:20-32.
6. Maslach C. Maslach Burnout Inventory, Organizzazioni speciali, Firenze, 1994.
7. Spielberger CD. Inventario per l'Ansia di Stato e di Tratto (versione italiana). O.S. Organizzazioni Speciali, Firenze, 1989.
8. Costa G. Problematiche del lavoro a turni in ospedale. G Ital Med Lav Erg. 2010; 32(3):343-346.
9. Magrini A, Pietroiusti A, Coppeta L, et al. Shift work and autoimmune thyroid disorders. Int J Immunopathol Pharmacol. 2006; 19(Suppl.4):31-36.
10. Boscolo P, Di Donato A, Di Giampaolo L, et al. Reduced blood natural killer cytotoxic activity in men working in a university with occupational stress and job insecurity. Int Archives of Occupational and Environmental Health 2009; 82:787-794.

11. Li J, Galatsch M, Siegrist J, et al. Reward frustration at Work and intention to leave the nursing—prospective results from the European longitudinal NEXT study. European NEXT Study group. Int J Nurs Stud. 2011; 48:628-635.
12. Alessio L, Bonfiglioli R, Buselli R, et al. Aggiornamenti in tema di tutela della salute occupazionale dei lavoratori della sanità. Atti 71° Convegno SIMLII, G Ital Med Lav Erg. 2008; 30:228-237.
13. Camerino D, Sandri M, Conway P, et al. Ruolo dei fattori "genere" ed "età" nella valutazione del rischio psicosociale e negli interventi di prevenzione del personale ospedaliero. G Ital Med Lav Erg. 2010; 32:337-342.
14. Ferrario M, Cecchino C, Chiodini P, et al. Realibility of the Karasek scale in the assessment of perceived occupational stress and gender-related differences in scores. The SEMM study. G Ital Med Lav Erg. 2003; 25: 2004-2005.
15. Forcella L, Di Donato A, Di Giampaolo L, et al. Occupational stress and job insecurity may reduce the immune NK response in men working in a university. Boundaryless Careers and Organizational Wellbeing, Ed. M. Cortini, G. Tanucci and Palgrave Macmillan E, Part II Occupational Well being, DA 121-131, January 2011.
16. Forcella L, Di Donato A, Reversi S, et al. Occupational stress, job insecurity and perception of the health status in Italian teachers with stable or temporary employment. J Biol Regul Homeost Agents 2009; 23:85-93.
17. Forcella L, Bonfiglioli R, Cutilli P, et al. Analysis of occupational stress in a high fashion clothing factory with upper limb biomechanical overload. Int Arch Occup Environ Health 2012; 85:527-535.
18. Violani C, Cariani D, Floresta A. Uno strumento per l'autovalutazione del disagio psicologico. In: Mamone P (ed) Atti del I congresso Italiano di Psicologia della Salute. Roma: Edizioni Kappa, SCL-90, 1999.