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Team-building through sailing: effects on health status, job satisfaction and work performance of health care professionals involved in organ and tissue donation

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ABSTRACT. *The aim of this study was to evaluate the effects of a team-building learning project on job satisfaction, psychological wellbeing, and performance of health care workers involved in the process of organ and tissue donation. The project was conducted between June and September 2011 and consisted of two one-day meetings and a one week sailing, involving 20 staff members. GHQ-12, MBI-HSS, and 25 items taken from the Multidimensional Organizational Health Questionnaire (MOHQ) were used to assess health status, burnout, and job satisfaction. Results of the descriptive analyses were expressed as mean \pm SD and as counts and percentages; Chi-square test was used to evaluate statistical significance of differences before and after the initiative. 6 (30.0%) participants showed the likelihood to suffering from anxiety and depression (i.e. recognized as 'cases' by the GHQ-12), 3 (15.0%) of them at baseline and 3 (15.0%), different from the previous ones, in the post-intervention. The presence of stress was revealed in 9 (45.0%) and 12 subjects (60.0%) before and after the experience, respectively (6 subjects showed the presence of stress in both circumstances). We documented 4 burnout cases, 3 (15.0%) at baseline and 1 (5.0%) after the experience. Nevertheless, about 80% of the participants showed a high degree of job satisfaction, in terms of positive influence of job in the professional satisfaction and of clear satisfaction for the organization, during both evaluation. In respect to 2010, the number of organ donors and that of ocular tissue donors improved of about 16% and 10%, respectively, during the year of the project and in the following year (mean value). We recognize that our team-building project for personnel involved in the stressful and demanding setting of organ and tissue donation, worthwhile and recompensing at the same time, possibly influenced the personal commitment and the quality of job provided. The high level of stress showed by participants should be appropriately targeted in order to prevent burnout.*

Key words: *organ and tissue procurement, transplant coordination, burnout, health status, job satisfaction.*

RIASSUNTO. **ESPERIENZA DI TEAM-BUILDING IN NAVIGAZIONE: EFFETTI SU STATO DI SALUTE, SODDISFAZIONE, PERFORMANCE LAVORATIVA DEL PERSONALE COINVOLTO NELLA DONAZIONE DI ORGANI E TESSUTI.** Scopo di questo studio è stato quello di valutare gli effetti di una iniziativa esperienziale di team-building sulla soddisfazione lavorativa, il benessere psicologico, e la performance lavorativa del personale sanitario che opera nel network regionale di donazione e trapianto di organi e tessuti. Tra giugno e settembre 2011, 20 operatori hanno partecipato ad un incontro di preparazione, seguito da una esperienza di navigazione di una settimana, e da un successivo incontro di follow-up. Stato di salute, burnout, e soddisfazione lavorativa sono stati valutati rispettivamente con i questionari GHQ-12, MBI-HSS e MOHQ prima e dopo

Introduction

The procurement of organ and tissue for donation is a critical challenge in health care organizations throughout the world. While countries worldwide are employing a range of strategies to educate the public and affect attitudes towards donation, in the end, front line health care professionals are faced with the challenging task of approaching grieving families for consent. There is growing evidence of the stress encountered by these professionals and the link between their own attitudes and the successful procurement of donors' organ and tissue (1-2).

In Italy, organ and tissue procurement organizations have been established on a regional basis by formation of donation coordination teams responsible for caring for potential donors, the request of consent to the donor's relatives, and the placement of organs and tissues (3).

Starting from the year 2000, the organ and tissue procurement in the Veneto Region (almost 5 million inhabitants) is organized as a public, non-profit network (The Veneto Regional Transplant System) (4) that includes about 300 professionals (doctors, nurses, technicians, mortuary workers secretarial and accounting staff, almost 70% working as part-time employees in the network), led by a Regional Coordination Center and allocated in 23 teams (supporting around 40 hospitals), two multi-tissue banks and one eye bank (specialized in the evaluation of potential donor clinical records, tissue recovery, processing, storage, and distribution), along with a teaching institution for the continuing medical education of the personnel.

During the first decade of activity, the mean number of deceased donor organ recovery was 24.5 donors per million population (pmp), that of ocular tissues was 384.8 donors pmp, and that of tissues other than ocular of 31.7 donors pmp.

Although these results are comparable to that of the most advanced organizations in Europe (5-6), number of donors undergo substantial year by year variability and shows a trend to plateau or even reduction, and triggers an unsatisfactory overall appraisal of the network performance in view of the number of patients waiting for transplants in our country.

By contrast, Spain reported a stable 33-35 organ donors pmp during the period 1999-2009 and has set a

l'esperienza di navigazione. I risultati dell'analisi sono stati espressi come medie, e deviazioni standard, e come somme percentuali; il test del chi quadrato è stato applicato nella valutazione della significatività dei risultati. Alterazioni emotive in senso ansioso-depressivo ("casi al GHQ-12") sono state riscontrate in 6 (30,0%) partecipanti, 3 al basale e 3, differenti dai precedenti, al follow-up successivo all'esperienza. In 9 (45,0%) e 12 (60,0%) partecipanti è stata rilevata presenza di stress, rispettivamente prima e dopo l'esperienza (in 6 soggetti in entrambe le occasioni). Sono stati documentati 3 (15,0%) casi di burnout al basale e 1 (5,0%) al follow-up. L'80% circa dei partecipanti dichiara soddisfazione professionale e per l'organizzazione. Nell'anno dell'iniziativa di formazione e nel successivo, rispetto al 2010, è aumentato del 16% il numero dei donatori d'organo e del 10% quello dei tessuti oculari (valori medi nei due anni). Riteniamo che un'esperienza di team-building così progettata per il personale sanitario che opera nel contesto particolarmente stressante, ma allo stesso tempo coinvolgente e gratificante, della donazione di organi e tessuti per trapianto, possa influenzare positivamente l'impegno professionale e la qualità del lavoro. Il riscontro di elevati livelli di stress nei partecipanti allo studio evidenzia la necessità di interventi specifici per prevenire l'instaurarsi di una condizione di burnout.

Parole chiave: donazione di organi e tessuti, coordinatore trapianti, burnout, stato di salute, soddisfazione lavorativa.

comprehensive strategy to achieve 40 donors pmp (7-8), whereas in the UK organ donation has increased by 25% from 2009-2011 through the implementation of a series of recommendations that have transformed the infrastructure of donation (9).

In fact, despite the application of common rules, specific local initiatives, the significant effort toward repeated educational campaigns on donation, and public acknowledgement of the medical and social value of donation and transplantation, organ donors in the Veneto Region during 2007-2010 decreased from 28.3 to 20.3 pmp, ocular tissue donors declined from 388.3 to 371.7 pmp, and donors of tissue other than ocular decreased from 41.5 to 31.2 pmp (4,10-11). In the same years, denied consent to organ donations increased from 21.0% to 31.2%, matching the 10-year steady national rate of about 31% (3-4).

There is strong evidence that the process of donor procurement is highly stressful (12-13), and produces personal feelings of distress which can result in the burnout syndrome, the exhaustion of the employee and their reduced capability to maintain an intense involvement and have a meaningful impact at work (14).

Several studies have shown that hospital staff involved in organ donation do not feel comfortable performing key tasks related to donation (15-16), and that negative attitudes of operators to the recovery of organ and tissue can be transmitted to nearby colleagues and undermine procurement efforts (17).

Research regarding intervention models for reducing occupational stress and burnout showed that stress management interventions can lead to positive health effects among health care personnel (18-20). Moreover, it has been suggested that a health care system that supports ef-

fective teamwork can improve the quality of patient care and reduce workload issues that cause burnout among professionals (21).

To cope with challenging circumstances in the Veneto Region, we designed a training program for donation coordinators, with the aim to educate in the principles of the team-building process and team-working, to strengthen the sense of belonging and personal commitment, to favor relationships, and to recover personal motivation and participation.

In the present study we assess burnout and psychiatric disorders (in terms of anxiety and depression) in this specific group of health care workers, and we measure the results of the training program on participants' wellbeing, job satisfaction and network performance.

Materials and methods

This was a voluntary prospective survey that involved staff from the organ and tissue procurement organization of the Veneto Region.

The project. The team-building experiential learning project (hereafter the project) was conducted between June and September 2011 and comprised two one-day meetings and one-week of sailing experience (between 12th to 16th July) in the Mediterranean on board of the sailing brigantine *Nave Italia* owned by the Tender to Nave Italia Foundation (22). During the first meeting, participants agreed on the rules and contents of the experience, and in a second meeting, two months after sailing, they shared personal feelings and implication of the project on their daily performance. While sailing, participants were actively involved in running the boat and joined 5 focus groups to examine factors related to role stress in terms of role ambiguity, role conflict, and work overload within the context of relationships with reference institutions, donors' relatives, partners in the health care units, personnel from tissue and eye banks, and the public.

Psychometric evaluations. To assess health status, level of burnout, and job satisfaction, a set of self-administered questionnaires were distributed to participants during the initial and subsequent follow-up meetings. Demographic and job-related data (i.e. working status, education, role and responsibility, duration of the employment in the role) were also collected.

Health status in the previous two weeks was evaluated using the 12-item questionnaire GHQ-12 (23). All items have a 4 point scoring system that ranges from a 'better/healthier than normal' option, through a 'same as usual' and a 'worse/more than usual' to a 'much worse/more than usual' options. The GHQ-12 yields an overall total score and there are two out of four major possible methods of scoring the questionnaire: GHQ scoring (0-0-1-1), that yielded a score ranging from 0 to 12 (subjects with score ≥ 4 reflected the likelihood to suffering from anxiety and depression and are indicated as "cases");

and Likert scoring (0-1-2-3), that produces a total score ranging from 0 to 36 (subjects with scores ≥ 8 were considered as displaying stress). For both GHQ and Likert scoring, the wording of the items mean that they can all be scored in the same direction (no need to reverse score), so the higher the score, the more severe the condition.

Burnout was assessed by the Maslach Burnout Inventory-Human Service Survey (MBI-HSS) (24), a 22-item questionnaire on job-related feelings ranging from 'never' (score = 0) through 'every day' (score = 6). According to this scale, burnout is defined as emotional exhaustion (EE), depersonalization (DP), and a reduced sense of personal accomplishment (PA). Scores from each of these subscales were graded as low, moderate, or high according to validated cut-offs. A high degree of burnout is correlated with high scores on EE and DP while inversely correlated with PA. In accordance to the literature, we defined 'burned-out subjects' those who presented at least two out of three subscales in the high range, and we took as reference cut-offs those of the MBI questionnaire modified for Italian Health Service workers (25-26-27).

Job satisfaction was evaluated through 25 items adapted from the Multidimensional Organizational Health Questionnaire (MOHQ) (28), related to work expectations and relevance, job organization and process, role and responsibilities, interaction with co-workers and colleagues, management styles and culture, employee involvement, empowerment, autonomous work positions, resource availability, and the quality of the work environment.

Questions were rated using a 4-point scale that ranges from 'insufficient', 'limited', 'sufficient', to 'good' (17 questions), from 'never', 'rarely', 'sometimes' to 'often' (2 questions), and from 'none' 'poor', 'enough', to 'a lot' (6 questions). Job satisfaction was analyzed calculating the total score obtained by each subject, as the sum of the scores to each question (range, 25 to 100). Subjects with scores of ≤ 50 were considered unsatisfied.

Performance of the Veneto Regional Transplant System. Results of the project on the overall effectiveness of the network were evaluated in respect to the number of organ and tissue donors, the occurrence of denied consent to the donation of ocular tissues (the most frequent tissue donated), and the post-mortem time for the retrieval of ocular tissues, measured the year before and the year after the project.

Statistical Analysis. Subjects that completed the questionnaires both at baseline and post-intervention were considered for evaluation. Results of descriptive analyses are expressed as mean \pm standard deviation (SD) for quantitative variables and as counts and percentages for categorical variables, unless otherwise specified. Proportions were compared using Chi-square test for proportions. *p* values of less than 0.05 were considered statistically significant.

Analyses were conducted using the SAS version 9.1.3 statistical software (SAS Institute Inc., Cary, NC). MBI-HSS and GHQ-12 questionnaires were analyzed following the methods reported in the user manuals.

Results

Twenty subjects (11 female and 9 male), with a mean age of 43.8 ± 11.2 years (median 47.5; range 24-57 years) working either in the regional coordination center, or in the eye bank, or in 7 out of 23 (30.0%) donation coordination teams, accepted to participate (Table I).

GHQ-12 questionnaire evaluation (Table II) showed 6 subjects with the likelihood to suffering from anxiety and depression (i.e. recognized as 'cases' by the GHQ-12), 3 subjects (15.0%) during the first meeting (baseline) and 3 (15.0%) at the evaluation during the second meeting (follow-up), different from the previous ones. Presence of stress was revealed by 9 subjects (45.0%) at baseline and by 12 subjects (60.0%) in the follow-up ($p < 0.2$). 6 subjects showed presence of stress in both circumstances.

MBI-HSS scores showed at baseline mean values in the low range for EE and PA, and in the moderate range for DP (Table III). In the follow-up, mean values for all subscales were in the low range. We documented 4

Table I. Demographic characteristics of participants (N = 20)

	N (%)
Sex	
female	11 (55.0)
male	9 (45.0)
Age (years)	
< 30	4 (20.0)
31-45	4 (20.0)
> 45	12 (60.0)
Education	
Degree	13 (65.0)
High school	7 (35.0)
Role in the organization	
Donation coordinator	12 (60.0)
Donor family communication coordinator	3 (15.0)
Professional, technical role	3 (15.0)
Public relations & communication	2 (10.0)
Duration in the role (years)	
< 2	6 (30.0)
3-8	7 (35.0)
> 8	7 (35.0)
Time dedicated to the organization*	
Full-time	13 (65.0)
Part-time	7 (35.0)

* part-time means that the role in the organization is not the main occupation of the health care worker

Table II. Health Status in the previous two weeks measured with GHQ-12

	Cut-off scores	Baseline N (%)	Follow-up N (%)
Suffering from anxiety & depression ('cases')	≥ 4	3 (15.0)	3 (15.0)
'non-cases'	<4	17 (85.0)	17 (85.0)
Presence of stress	≥ 8	9 (45.0)	12 (60.0)
Non presence of stress	<8	11 (55.0)	8 (40.0)

Table III. Maslach Burnout Inventory-HSS scores

Subscales	Baseline scores mean \pm SD	Grading according to validated cut-offs* N (%) low, moderate, high	Follow-up scores mean \pm SD	Grading according to validated cut-offs* N (%) low, moderate, high
Emotional exhaustion (EE)	14.9 \pm 11.6	12 (60.0), 4 (20.0), 4 (20.0)	11.3 \pm 9.2	14 (70.0), 4 (20.0), 2 (10.0)
Depersonalization (DP)	5.5 \pm 5.4	10 (50.0), 6 (30.0), 4 (20.0)	2.9 \pm 2.3	13 (65.0), 7 (35.0), 0 (-)
Personal accomplishment (PA)	40.2 \pm 4.0	15 (75.0), 5 (25.0), 0 (-)	37.8 \pm 7.9	10 (50.0), 8 (40.0), 2 (10.0)

*Reference cut-off values (low, moderate, high) in the Italian adaptation of MBI-HSS [25,26]: EE = <15, 15-23, >23; DP = <4, 4-8, >8; PA = >36, 30-36, <30

burnout cases (i.e. subjects who presented at least two subscales out of three in the higher range), 3 (15.0%) at baseline and 1 (5.0%), different from the former three, in the follow-up.

The large majority of participants showed a high degree of job satisfaction (Table IV). In detail, 78.9% and 83.4% of the subjects assessed in a positive way ('sufficient' or 'good') the *influence of job on the professional satisfaction*, and 78.9% and 88.9% rated clearly *satisfaction for the organization* ('sometimes' or 'often'), at baseline and during follow-up evaluation, respectively ($p < 0.2$). On the other hand, about 30% of respondents reported *loss of interest on the job* ('sometimes' or 'often') on both interviews, and about 70% *felt distressed thinking while going to work* (40% in the follow-up).

To estimate the implication of the project on the overall organ and tissue procurement activity, we evaluated some indicators of performance usually assessed by the Veneto Regional Transplant System and by the National Italian Transplant Centre as measures of effectiveness (Table V).

Compared to 2010, all indicators improved in 2012, with two exceptions: the number of donors of tissues other

than ocular, that showed a 2.0% reduction to a level slightly above the minimum reached in 2009 (see also Figure 1C, historical series 2002-2012), and the post-mortem interval for ocular tissues that increased by 5.8%.

The number of the ocular tissues retrieved in the 7 hospitals where participating coordinators were affiliated, increased by 13.1% in 2011 (N=1308), and by 19.5% in 2012 (N=1381), in respect to the year 2010 (N=1156).

A more comprehensive outlook of the organ and tissues donation activity in the Veneto Region, during the 2002-2012 years, is showed in Figure 1.

Discussion

This study illustrates one of the educational initiatives carried out among health care personnel involved in the process of organ and tissue donation in the Veneto Region, to favor relationships, strengthen the sense of belonging and personal commitment, and to recover personal motivation and participation.

To our knowledge, this study represents the first application of a team-building experiential learning project on

Table IV. Job satisfaction scores

	Mean \pm SD	Range	≤ 50 n (%)	51-75 n (%)	>75 n (%)
Baseline	72.2 \pm 10.7	48-90	2 (10.0)	11 (55.0)	7 (35.0)
Follow-up	74.0 \pm 11.0	52-91	0 (-)	10 (50.0)	10 (50.0)

Table V. Performance of the network before and after the team-building project

Indicators of performance	2010	2011	2012	Variation 2012-2010 (\pm %)
Organ donors (N)	98	110	118	+20.4
Denying of organs donation (%)*	31.2	15.6	20.6	-34.0
Donors of ocular tissues (N)	1796	2016	1934	+7.7
Denying of ocular tissues donation (%)*	32.2	27.3	29.1	-9.6
Donors of tissues other than ocular (N)	151	162	148	-2.0
Post-mortem time for ocular tissues (h:min, median) [§]	10:00	10:45	10:35	+5.8

* Number of refusals / number of assessed donors \times 100

[§] Time from the decease of donor to the retrieval of the donated tissues. This indicator appraises the efficiency of the linkage between the donor procurement team and the practitioner in charge of the retrieval of the eye tissues. Period of times less than 12 hours represent the best standard for the procedure.

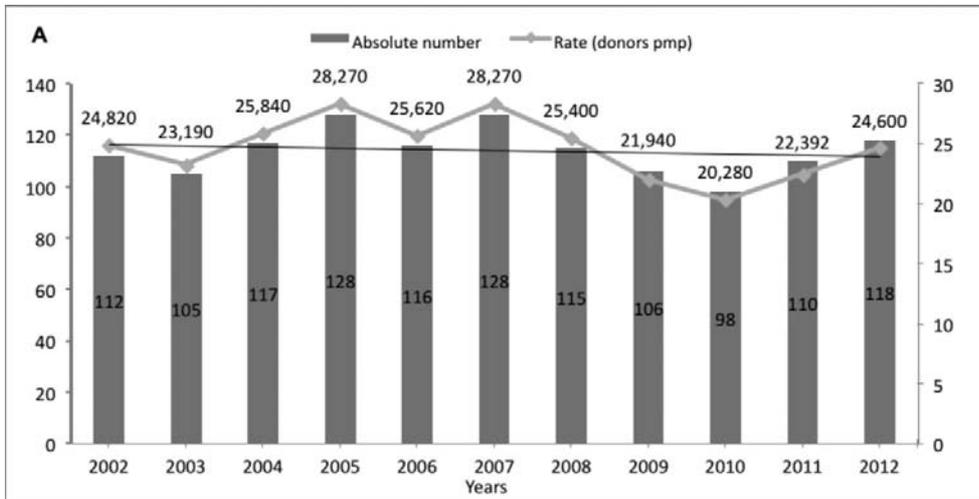
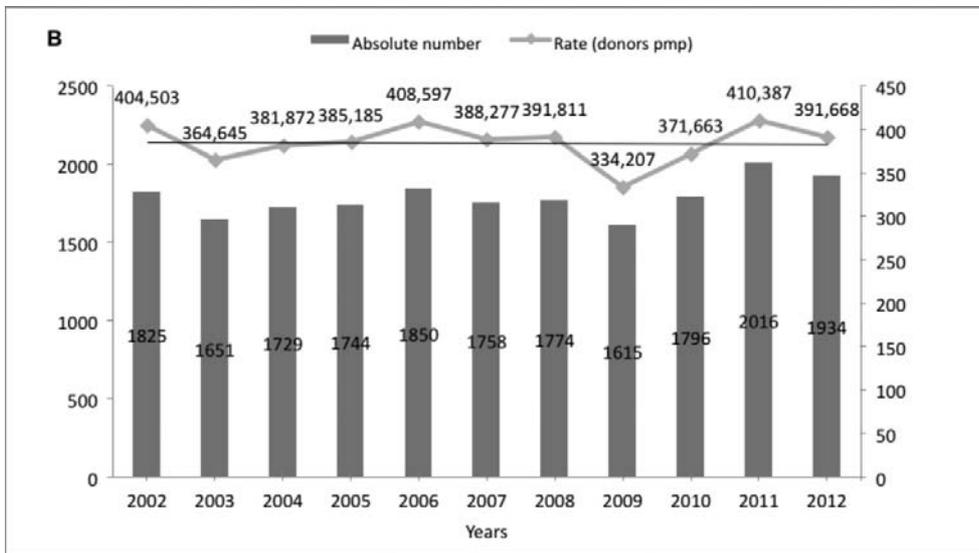


Figure 1. Absolute number and rate (donors pmp) of organ and tissue donors in the Veneto Region (Italy). Years 2002-2012

(Population increased from about 4.5 million in 2002 to 4.9 million in 2012)

A - Deceased organ donors. Source: The Veneto Region Transplant System (SRT) database.

B - Ocular tissues donors. Source: The Veneto Eye Bank Foundation database.

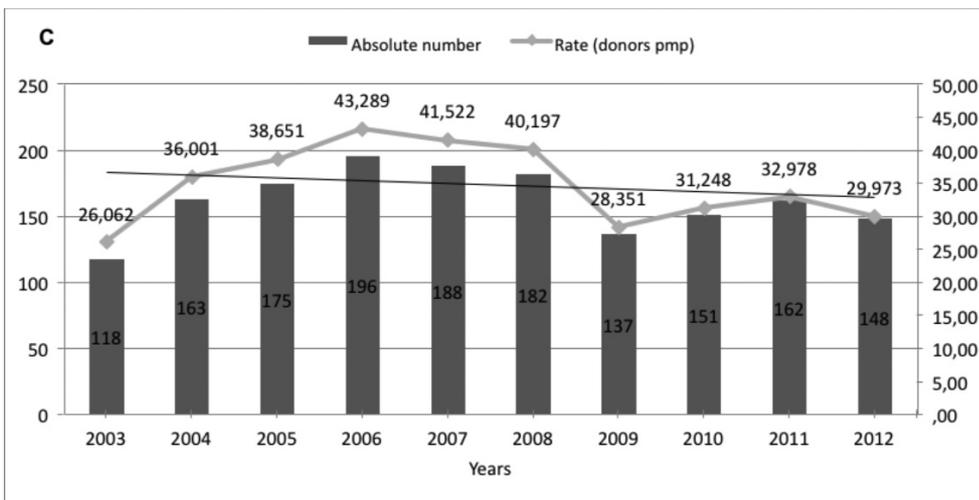


C - Donors of tissues other than ocular.

Source: The Veneto Region Transplant System (SRT) database (Data for the year 2002 resulted unreliable and were omitted).

The yearly fluctuation in the number of donations is significant, and likewise the number of organs and tissues available for transplantation; this resulted in an overall decreasing tendency for deceased organ donors and for the donors of tissues other than ocular, and displayed a persistent smooth trend for ocular tissues donors.

In the years 2009 and 2010 the Veneto Region Transplant System showed its worst performance, after years of sustained growth or of steady results at best.



health care personnel working in an organ and tissue donation network. We focused on team-building as we recognized that in such complex and personal-demanding profession, working as a team and having a common thought, represent strategic drives to maintain commitment and improve personal effectiveness and within the system (29). Moreover, since the donation process is organized as a network of people that have to refer to different institutions, personnel frequently don't have a direct

mutual familiarity, because interactions mainly occur by telephone and turnover of staff, managed independently by each institution, can weaken the system as a whole. In general, training programs designed to improve team skills are a new concept in health care, particularly for physicians, who are trained largely to be self-sufficient and individually responsible for their actions (21), or could result more reluctant to participate to stress management intervention (19).

For these reasons we believe that the experience of living together in a boat and participating in daily tasks, represented a favorable and effective setting to learn about team-building and practice it. In fact, all participants agreed that living together in the boat allowed for self-expression, promoted mutual acquaintances, and positively affected enthusiasm, motivation and a sense of belonging. Equally, they emphasized the need for identification marks, to neutralize the sense of loneliness and show that being together one can share the same values, identify better role definitions, tasks identification, and activities planning, the three most critical areas for improving the performance of a system.

Whereas the direct influence of the project on the number of donations might be difficult to be assessed, the increase in organ and tissue donations in the 2011, after several years of negative growth and the worst performance during 2009 and 2010 years, seems to show this effect. We can hypothesize that the communication of the project, the rumors around it, and the report of the experienced issues that participants gave to their colleagues, possibly influenced the personal commitment and the overall output of the network, pushing up the annual number of donations or stabilizing its fluctuation.

Although a small part of the personnel involved in the coordination of organ and tissue donation take part in the project, participants conveyed the contents of the project and the acquired working style through the daily relations inside their institution, and with other workers in the organization, with positive influence on it. This fact indicates that a renewal of professional commitment in terms of mission, passion, goals, may significantly influence the quality of the job or service being provided.

Despite of the encouraging outcomes on performance, the evaluation of psychological and physical wellbeing of participants demonstrated the presence of stress, anxiety and depression symptoms, and personal exhaustion in terms of burnout.

Compared with the results on burnout found by Tabolli and colleagues in an Italian population of healthcare workers (30), in the present study we showed lower baseline mean values for all the MBI-HSS subscales, and a reduction of the mean scores after the project. On this respect, we could hypothesize that the high job satisfaction acknowledged by the large majority of participants, boosts the capability to cope with the role and to maintain a reliable and effective behavior, despite of the psychophysical demanding tasks due to facing with organ or tissue donation requests or retrievals.

Far from thinking that such project could positively affect in a short term the psychological exhaustion or distress, our data confirms the findings of other authors (31) that organ and tissue procurement activity has meaningful impacts on personal feelings and on health status. Since burnout represents an adaptation response to significant and long-standing stressful working conditions, the results from our study highlight the requirement to help donation coordinators, and all the operators in the network of the donation process, to maintain good mental health and low levels of distress to prevent negative influences on the

quality of relationships and on the effort in conducting daily activities.

In conclusion, it appears that the personnel involved in the network of organ and tissue donation in the Veneto Region express high level of job satisfaction, but stress and burnout as well, although few cases. These findings, suggest the need for such organization to appropriately remove stressors and enhance work environments, either from physical or psychological point of view, in order to prevent burnout. The adoption of identification marks to better define role, tasks, and activities, as recommended by participants, will promote a further stronger sense of confidence and accomplishment. Continuing education and advanced learning strategies could be successful ways of achieving this.

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