How are the temporary workers? Quality of life and burn-out in a call center temporary employment in Italy: a pilot observational study

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Abstract
Objectives. The aim of this study was to quantify the level of health related quality of life and burnout in a call centers sample of precarious workers.
Methods. An observational study was carried out in Italy. A self-reported anonymous questionnaire was administered to temporary workers in order to estimate burn-out and quality of life levels.
Results. 227 questionnaires were collected. 78% of the sample was female and the mean age was 35.48 years (SD = 9.91). Among the participants, 40% were smokers, 42% regularly drinkers, 65% changed the body weight (more than 5 kg, in 1 year).
The mental component score (MCS) was significantly better in subject that have a regularly life style, for example in those no change their body weight (p = 0.001), sleep more than 7 hours (p = 0.018) and followed a diet (p = 0.035). The DP (depersonalization) is significant higher in former smokers (p = 0.031), in underweight subjects (p = 0.025) and in the group that have a precarious employment of over 2 years (p = 0.013).
Conclusions. This investigation shows that in this particular category of atypical workers depressive symptoms and quality of life were lower than the general population. It is important to underline that the interpretation of the results is limited partly by the observational character of the study.

INTRODUCTION

Call centers represent an important working market in several countries. Often, people that work in call centers societies have a permanent precarious working condition. Data relating to the Italian employment, collected in the second quarter of 2012, show that precarious condition affects almost 3 million [1] short and not extended contracts lead inevitably to an increase in the unemployment rate.

Temporary working is an employment form almost widespread in the world with globalization process; work position is occupied only for a well certain period of time and then, according to business employee can keep on the same conditions, come out working relationship or be hired in permanent way. Virtanen *et al.* [2] in a review showed a higher risk of psychological morbidity and occupational injury in temporary workers compared to permanent ones, due to job insecurity and absence of security at the workplaces, respectively. Precarious workers present particular features compared to permanent employed: low social level, low economic status, not

sentimentally engaged, a smaller number of children [3]. Furthermore, workers employed in occasional and seasonal jobs showed a significant dissatisfaction [4, 5].

Generally speaking, call centers activities include inbound or outbound services. The first ones administer incoming product support or information inquiries from consumers, whilst the second type is operated for telemarketing, solicitation of charitable or political donations and debt collection. Ferreira and Saldiva [6] indicated that call centers working on outbound services faced higher productivity pressures and conflicts associated with supervisors than on inbound services, but work related to inbound services was more repetitive, and lacked autonomy and a structured work/rest schedule. Lin *et al.* [7] found a correlation between high job stress and risks of multiple health problems. Several situations like job stress, competition, relationships with customers, a limited autonomy cause a stressful condition and further, movements represent risk factors for musculoskeletal symptoms [8]. Concerning psychological risk factors, an increased workload was strongly

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associated with greater stressful, likewise, there is an important correlation between mental health problems and call center employees compared to groups in other jobs [9]. Moreover, several studies regard specifically the relationship between shift work and physical health effects in short and long term [10-13]. Particularly, one study [14] has demonstrated that inappropriate sleep was associated with negative physical health and for this reason, it is very important to promote sleep hygiene, which may decrease overall morbidity in call centers workers.

In the light of the findings it is important to consider the potential health implications of job stress from interpersonal factors that are unique in a call center setting.

The aim of study was:
a) to quantify the level of health-related quality of life and burnout in a call centers sample of precarious workers;
b) to assess factors potentially associated to these outcomes.

MATERIALS AND METHODS
Study design and settings
The observational study was performed following the STROBE statement [15].

This investigation was carried out in two call centers in Rome, Italy, from November 2011 to January 2012. The information was collected using a questionnaire directly administered at workplace. Those who decided to participate were requested to go in the administrative office to explain the scope of the research and to give the questionnaire. One center employed either inbound operators or outbound operators, the other center had only outbound workers. Consensus document concerning the participation to the study was obtained from each participant.

Data collection procedures and tool
All participants have been recruited on voluntary basis asking them to fill in the questionnaire during working break in order not to hinder their work. The study was conducted according to the Helsinki declaration and the protocol of the study was approved by the local ethic committee.

Questionnaires were nameless and self-reported, and returned directly to the researcher. The following information were obtained:

- socio-demographic data: gender, age (< 36; ≥ 36 years), civil status, quality relationship with partner (very good, good, sufficient, insufficient, low), number of sons, city of residence, distance between house and work, home ownership (yes/no), loan (yes/no), year of the loan;

- background and activites: university degree (yes/no), years after graduation, type of contract, years working (≤ 2; > 2);

- anthropometric and lifestyle characteristics: BMI, changes of the body weight (more or less than 5 kg in one year), special diet (for example: vegetarian, gluten-free, low-sodium, etc.) (yes/no), smoking (yes/no), hours of sleep (≤ 7; > 7) and alcohol (yes/no);

- quality of life with using SF-12, and computing physical component score (PCS) and mental component score (MCS) [16];

- stressfull/burnout using Maslach's questionnaire [17] and computing emotional exhaustion (EE), personal accomplishment (PA) and depersonalization (DP).

Statistical analysis
Descriptive statistics (median, interquartile range, means, and standard deviation [SD]) was reported for all quantitative variables; percentages and frequencies were generated for qualitative variables.

Univariate analysis was conducted to evaluate possible associations between outcomes (EE, DP, PA, PCS, MCS) and socio-demographic variables, lifestyle and anthropometric characteristics.

Parametric or no parametric approach were established using Kolmogorov Smirnov normality test. T-student and Mann-Whitney tests were applied to compare two independent samples. Leven's test was used to assume or non equal variances. Kruskal-Wallis and ANOVA tests were used to compare multiple groups.

Five linear multivariate regression models were conducted using the following dependent variables: PCS, MCS, EE, DP and PA. The covariates included in these models were those that at the univariate analysis had obtained a p-value < 0.25 in according to Hosmer and Lemeshow's procedures. The fit of the model was estimated by the correlation coefficient R^2.

The correlation analysis between outcomes was carried out using Pearson's coefficient.

The level of significance was set at $p < 0.05$.

Data analysis was conducted using IBM software Statistical Package for Social Sciences (SPSS) version 19.0 for Windows (SPSS Inc. Chicago, Illinois, USA).

RESULTS
Out of 265 questionnaires distributed, 227 were returned filled in (response rate of 85.7%). The remaining 38 questionnaires belonged to workers that decided not to take part or had filled them incompletely: the no-responders had same distribution for gender and age of responders.

Table 1 shows the socio-demographic characteristics of the participants: female accounted for 78% of the total sample that had a mean age of 35.48 years (SD = 9.91).

In *Table 1* the descriptions of lifestyle and anthropometric characteristics is reported: 40% were current smokers; 42% regular drinkers; 77% of the responders were classified as normal weight and 65% changed the body weight (more than 5 kg in one year); 40% slept less than seven hours per night.

In *Table 2* the means of outcome variables are reported: the values of EE, DP and PA corresponded to medium values; PCS and MCS were respectively 51.76 (SD = 7.30) and 42.55 (SD = 11.15).

Table 3 illustrates the univariate analysis. It's possible to observe associations between different outcomes (EE, DP, PA, PCS, MCS) and socio-demographic variables, lifestyle and anthropometric characteristics.

Major DP score was found in older and underweight responders, respectively p = 0.001 and p = 0.032.

In PA scale the lower score was obtained in the younger group (p = 0.004).

No significant associations were identified for EE.

Table 1
Description of the sample

SOCIO-DEMOGRAPHIC CHARACTERISTICS			
Qualitative variables		**N**	**%**
Gender	Male	49	21.7
(N = 226)	Female	177	78.3
Civil status	Single	127	57.7
(N = 220)	Married	93	42.3
Quality relationship with partner	Good/excellent	78	83.9
(N = 93)	Sufficient	8	8.6
	Poor	7	7.5
Home ownership	Yes	107	47.6
(N = 225)	No	118	52.4
Loan	Yes	33	35.5
(N = 93)	No	60	64.5
University Degree	Yes	64	28.3
(N = 226)	No	162	71.7
Type of contract	Coordinated and continuous	18	8.8
(N = 204)	Contract for project	168	82.4
	Occasional collaboration	11	5.4
	Fixed-term contract	7	3.4
Continuous variables		**MEAN**	**SD**
Age (years)		35.48	9.91
Number of sons		0.61	0.9
Kilometers to go to work		17.24	22.5
Years working		2.57	2.3
Years after graduation		6.55	6.4
ANTHROPOMETRIC CHARACTERISTICS		**N**	**%**
BMI	Underweight	12	5.5
(N = 219)	Normal weight	169	77.2
	Overweight	29	13.2
	Obese	9	4.1
Changes in body weight in one year (more than 5 kg)	Yes	147	64.8
(N = 227)	No	80	35.2
Special diet	Yes	59	26.6
(N = 222)	No	163	73.4
Alcohol	Yes	93	42.3
(N = 220)	No	127	57.7
Smoking	Yes	89	39.4
(N = 226)	Former	43	19
	No	94	41.6
≤ 7 hours of sleep	Yes	89	39.9
(N = 223)	No	134	60.1

Table 2
Description of the outcome variables

OUTCOMES	MEAN	SD	IC 95%
Emotional exhaustion (EE) (N = 212)	15.04	11.57	13.47-16.61
Depersonalization (DP) (N = 211)	5.62	5.39	4.89- 6.35
Personal accomplishment (PA) (N = 202)	32.44	9.71	31.09-33.79
Physical component score (PCS) (N = 215)	51.76	7.30	50.78-52.74
Mental component score (MCS) (N = 215)	42.55	11.15	41.05-44.05

Table 3
Univariate analysis. Evaluation of the possible association between outcome variables versus sample's socio-demographic, lifestyle and anthropometric characteristics

VARIABLES		OUTCOMES				
		EE	DP	PA	PCS	MCS
		Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Gender	**Male**	13.19 (9.76)	5.73 (4.67)	31.16 (10.53)	54.60 (4.63)	45.44 (10.65)
	Female	15.43 (12.00)	5.32 (5.85)	32.88 (8.762)	51.46 (6.96)	42.83 (10.41)
	p	0.192°	0.659*	0.273*	**0.001**°	0.145*
Age (years)	**≥ 36**	13.94 (11.66)	4.19 (5.03)	34.26 (8.05)	50.467 (7.37)	45.05 (10.35)
	< 36	16.07 (11.47)	6.69 (5.93)	30.58 (9.75)	53.85 (5.34)	41.53 (10.45)
	p	0.185*	**0.001***	**0.004***	**0.000***	**0.015***
Years working	**≤ 2**	14.38 (11.39)	4.79 (5.40)	32.89 (9.28)	52.53 (6.15)	43.62 (10.26)
	> 2	16.18 (12.45)	6.51 (6.26)	32.97 (9.07)	50.96 (7.09)	43.34 (11.77)
	p	0.329*	0.064°	0.958*	0.122*	0.864*
University Degree	**Yes**	16.39 (12.94)	6.07 (6.52)	32.42 (9.43)	52.60 (5.73)	44.07 (10.25)
	No	14.29 (10.95)	5.13 (5.19)	32.57 (9.15)	51.88 (7.02)	43.16 (10.70)
	p	0.231*	0.276*	0.916*	0.473*	0.569*
Changes in body weight in one year (more than 5 kg)	**Yes**	15.43 (11.48)	5.25 (5.53)	32.86 (8.58)	52.07 (6.52)	41.87 (10.42)
	No	13.80 (11.73)	5.64 (5.79)	32 (10.47)	52.19 (6.94)	46.36 (10.17)
	p	0.327*	0.631*	0.535*	0.898*	**0.003***
Special diet	**Yes**	15.70 (12.98)	5.27 (5.52)	33.76 (10.27)	52.03 (6.79)	45.59 (10.35)
	No	14.70 (11.04)	5.45 (5.71)	32.09 (8.93)	52.11 (6.70)	42.65 (10.59)
	p	0.584*	0.845*	0.272*	0.934*	0.076*
Alcohol	**Yes**	15.40 (10.96)	5.87 (5.22)	31.91 (9.75)	52.37 (7.20)	43.89 (10.79)
	No	14.56 (12.05)	5.03 (5.99)	32.87 (8.97)	51.89 (6.38)	43.15 (10.54)
	p	0.607*	0.298*	0.472*	0.614*	0.619*
Smoking	**Yes**	15.03 (12.10)	4.89 (5.30)	33.04 (7.97)	52.03 (6.72)	43.42 (9.73)
	Former	16.61 (11.35)	7.69 (6.27)	33.14 (10.96)	52.99 (5.51)	43.85 (10.80)
	No	15.21 (11.31)	5.50 (5.72)	32.81 (9.68)	51.99 (7.59)	42.55 (10.76)
	p	0.802§	0.100§	0. 977§	0. 687§	0. 611§
≤ 7 hours of sleep	**Yes**	13.28 (10.93)	5.92 (5.98)	31.67 (9.95)	52.47 (6.81)	44.88 (10.13)
	No	15.98 (11.89)	5.09 (5.36)	33.17 (8.71)	51.85 (6.61)	42.55 (10.74)
	p	0.099*	0.297*	0.260*	0.506*	0.113*
		EE	DP	PA	PCS	MCS
		MEDIAN (25°-75°perc)	MEDIAN (25°-75°perc)	MEDIAN (25°-75°perc)	MEDIAN (25°-75°perc)	MEDIAN (25°-75°perc)
BMI	**Underweight**	17 (9.25-25.75)	10 (6-13)	35 (22-43)	52.22 (49.26-54.42)	44.38 (35.41-51.15)
	Normal weight	14 (5- 21.25)	4.50 (0-8)	32 (27-39)	54.27 (49.97-56.58)	45 (33.86-52)
	Overweight	9.50 (6-18.75)	3 (0-7)	34 (27-40)	50.55 (46.24-55.39)	44.35 (36.25-52.91)
	Obese	9 (5-17)	4 (0.5-10.5)	36 (34.25- 42.75)	50.36 (40.75-55.09)	48.17 (40.99-57.17)

* T-Student Test equal variances assumed
° T-Student Test equal variances not assumed
^ Kruskal-Wallis Test
§ Anova Test

Table 4
Multivariate regression analysis

Covariates		Dependent variables									
		EE		DP		PA		PCS		MCS	
		B	p	B	p	B	p	B	p	B	p
Gender	Male[a] / Female	0.128	0.070	0.005	0.947	0.040	0.569	-0.143	0.057	**-0.140**	**0.039**
Age (years)	< 36/ ≥ 36[a]	**0.148**	**0.041**	**0.296**	**< 0.001**	**-0.202**	**0.004**	**0.204**	**0.007**	**-0.211**	**0.002**
Years working	≤ 2[a] / > 2	-	-	**0.190**	**0.013**	-	-	-0.072	0.347	-	-
University Degree	No[a] / Yes	0.082	0.244	-	-	-	-	-	-	-	-
Changes in body weight in one year (more than 5 kg)	No[a] / Yes	-	-	-	-	-	-	-	-	**-0.222**	**0.001**
Special diet	No[a] / Yes	-	-	-	-	-	-	-	-	**0.141**	**0.035**
Smoking (No[a])	Yes	-	-	-0.023	0.785	-	-	-	-	-	-
	Former	-	-	**0.162**	**0.031**	-	-	-	-	-	-
> 7 hours of sleep	No[a] / Yes	**-0.171**	**0.017**	-	-	-	-	-	-	**0.161**	**0.018**
BMI (Normal weight [a])	Underweight	-	-	**0.168**	**0.025**	-	-	-0.012	0.869	-	-
	Overweight	-	-	-0.027	0.718	-	-	**-0.211**	**0.004**	-	-
	Obese	-	-	0.077	0.302	-	-	**-0.181**	**0.015**	-	-
R²		**0.047**		**0.143**		**0.041**		**0.147**		**0.136**	

a: Reference group
-: This variable is not included in the model because at the univariate analysis the p-value > 0.250.

The PCD score was significantly higher in male (mean (male) = 54.60 and SD = 4.63 *vs* mean (female) = 51.46 and SD = 6.96; p = 0.001) and in younger in comparison to older groups [mean (younger group) = 53.85 and SD = 5.34 *vs* mean (older group) = 50.467 and SD = 7.37; p < 0.001].

Higher mean value for MCS emerged in those who didn't change their body weight more than 5 kg (46.36 with SD = 10.17 *vs* 41.87 with SD = 10.42; p = 0.003) and in older people (p = 0.015).

The multivariate linear regression models were reported in *Table 4*.

The emotional exhaustion was higher in the younger group (B = 0.148, p = 0.041) and those who sleep less than 7 hours (B = -0.171, p = 0.017).

The DP was increased in younger respondents (B = 0.296, p < 0.001), in the group that have a precarious employment of over 2 years (B = 0.190, p = 0.013), in former smokers (B = 0.162, p = 0.031) and in people who are underweight (B = 0.168, p = 0.025).

A lower value of personal accomplishment was associated with younger age (B = -0.202, p = 0.004).

The physical component score was higher in the younger group (B = 0.204, p = 0.007), but was inversely proportional to the condition of being overweight and obese, respectively B = -0.211 (p = 0.004) and B= -0.181 (p = 0.015).

Mental component score model in the last two columns of table IV, resulted higher in the subject that have a stable lifestyle. In fact the value is lower in those who have changed their weight in the last year (B = -0.222, p = 0.001), increased in those who follow diets (B = 0.141, p = 0.035) and in those who sleep more than 7 hours (B = 0.161, p = 0.018). In addition, the MCS had a significant decrease in women (B = -0.140, p = 0.039) and in younger (B = -0.211, p = 0.002).

The correlation analysis underlined that the MCS score was inversely associated with EE and DP respectively r = -0.43 (p < 0.001) and r = -0.172 (p = 0.014), and it is directly proportional to the Personal Accomplishment (r = 0.239: p = 0.001) (*Figure 1*).
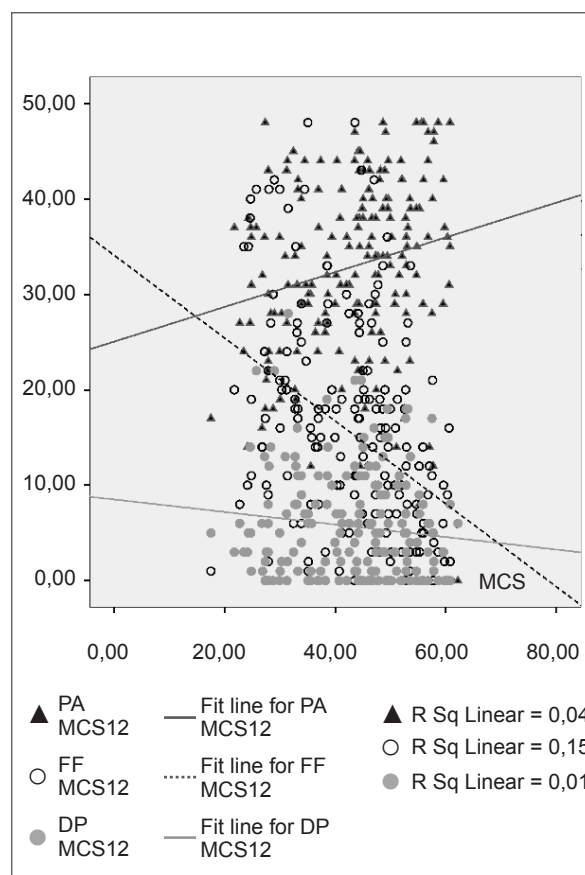

Figure 1
Correlation between MCS score and DP, EE and PA with R² coefficients.

ORIGINAL ARTICLES AND REVIEWS

DISCUSSION

This study found that having an atypical jobs, specifically fixed-term contracts, does not increase the quality of life and burnout.

In particular it is interesting to underline that the levels of the emotional exhaustion, depression and personal accomplishment are according to the medium values.

The lifestyle of this sample was extremely different from the general population. In particular, the percentage of habitual consumption of alcohol and the smoking habit appears to be double than the general population [18, 19].

The mental and physical components appear to have significantly lower values than the general Italian population [20] (PCS = 50.03; 95% CI:49.96- 50.11; MCS = 41.05; 95% CI:49.99-50.15).

These results may suggest that the quality of life of the atypical workers in call centers is lower than the general population, although we cannot assert that this type of work is the cause of this worse condition. Multivariate models showed that among young people and those who have this temporary employment for more than two years, the level of depersonalization may increase significantly. You can probably assume that this type of employment status may contribute to the increase of discomfort in people.

The study has some limitations. First, the project was conducted in just two call centers and a convenience sample, and this sample is not representative of the all atypical jobs. Secondly, using the self-administered questionnaires for the collection of information, an information bias could be present due to different personal interpretations of the questions, closed answers and missing data.

Another major limitation is its cross-sectional character, which makes difficult to interpret the associations observed, especially because it cannot rule out the possibility that some people had precarious employment because of their poor health status [21, 3].

Even the choice of using the SF12 may have reduced the strength of the study. Although on the one hand have adopted this scale has made it easier for the administration of the questionnaires, and reduced the missing data, on the other hand it has certainly reduced

the information that can make clearer the picture on the psychometric characteristics.

Further limitation is the heterogeneity in exposure to temporary employment refers to both qualitative and quantitative aspects. In fact, the analysis shows that this factor increases the depersonalization score.

Although there is a number of studies focusing on the relationship between atypical employment and quality of life, depression and burnout, also highlighting significant associations, the study of the relationship between precarious employment and health is still in its infancy.

CONCLUSIONS

According to Benach and Muntaner [22] there is need to develop a new research agenda on this topic. In fact this is an exposure in which many factors are involved at various levels and it is arduous and complex to analyze the social and health effects: gathering of quality data within improved information systems, clarification of precarious employment dimensions, development of causal theories and pathways, and creation of instruments capable of measuring the mechanisms through which precarious employment may damage workers' health.

Future researches should therefore concentrate on the investigation of multiple situations of precariousness in different social contexts and for different types of workers.

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