The Assessment of the Ethical Organizational Culture: Validation of an Italian Short Version of the Corporate Ethical Virtues Model Based Questionnaire

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ABSTRACT

Background: In the context of the relationship between work and ethics, it is essential to be able to analyse the Ethical Organizational Culture of the work environment through the use of multidimensional tools. The lack of validated tools on the Italian population led us to develop a short Italian version of the Kaptein's Corporate Ethical Virtues Model. The purpose of this study is to validate this tool to be used in Italy, in public administration notably.

Methods: Within an assessment campaign of the working conditions of the operators (all 10422 white collar employees) of an Italian Public Administration for the purposes of welfare and safety of working conditions we performed a validation study. At the time of the survey, an exploratory factor analysis was carried out by selecting the items on the basis of factor loads. We used the Cronbach's alpha coefficients to evaluate the internal consistency. Confirmatory factor analysis was conducted to assess the goodness-of-fit of the latent structure underlying the ethical culture indicators.

Results: In the exploratory factor analysis out of 690 questionnaires, 405 (59%) were filled out; we selected 24 items with a load factor between 0.61 and 0.92. The internal consistency was good (α=0.917). In the confirmatory factor analysis, out of 5497 questionnaires, 3706 (67%) were filled out; the confirmatory factor analysis model showed an excellent adaptation of the model of the eight-dimensional structure of the 24-item questionnaire (RMSEA=0.052 [90%CI 0.050-0.054], CFI=0.96, TLI=0.95).

Conclusion: The Italian short version of the Corporate Ethical Virtues Model based Questionnaire demonstrated good psychometric properties. In Italy the adapted questionnaire has evidence of its validity and reliability to be used in further studies and to be able to conduct surveys on ethical climate about companies and to foster actions to improve working conditions in relation to ethics.

Keywords: Occupational medicine; Ethical organizational culture; Ethical climate; Questionnaire validation; Psychological wellbeing; Business ethics; Corporate ethical virtues model

INTRODUCTION

Ethics are codes of values and principles that regulate the behavior of an individual or a group of people concerning what is right versus what is wrong [1]. On the other hand, business ethics are characterized as a complex of laws, norms, codes, or principles that provide guidelines for morally acceptable actions in management decisions relating to corporate operations and business relationships. Business ethics addresses internal principles which are part of organizational culture and influences social responsibility decisions with regard to the external world [2]. Being ethical in the business world means applying integrity and fairness standards to relationships with employees and customers [3].

In the context of the relationship between ethics and work in the field of Occupational Medicine and Public Health the analysis of the organizational climate is essential, this is characterized by the examination of the working environment and how it can make workers feel satisfied or dissatisfied; from the moment in which the degree of satisfaction affects the efficiency of workers, it is possible to say that the organizational climate influences the efficiency and performance of workers, but it is also possible to say that it affects the psychophysical well-being of workers, being the job satisfaction related to job performance, quality of life, stress, burnout, anxiety and turnover intention [4]. The Ethical Climate is one of the aspects of organizational climate and influences the performance and physical and mental health of employees as well [5-8]. The connection between Ethical Climate and organizational climate has been analyzed since the 1970s by Schneider and subsequently these aspects have been examined by various additional authors who have investigated several facets referred to as "climate for something" such as safety climate, climate for achievement, ethical climate, climate for implementation as well as service climate and diversity & inclusion climate [9-12].

According to the analysis of the organizational climate, a very important topic is the Ethical Climate. The Ethical climate is a construct elaborated by Victor & Cullen taken up and subsequently expanded by different authors the Ethical Climate construct of Victor & Cullen was developed to measure the types of ethical climates within organizations, thus it is a preparatory work for the evaluation of business contexts with regard to ethics [13-18]. In 2006, the Ethical Climate has been defined as a form of working climate that embraces shared perceptions about what constitutes the correct behavior, which in turn influences how any ethical issues and decision-making are handled [19]. Ethical climate has therefore been described, in numerous contexts, as the consequence of how codes of ethics, perceptions of norms, and policies, influence the workers' ethical behavior. In the healthcare context in particular, ethical climate can be a variable, complicated phenomenon, since medical professionals and other healthcare professionals have to interact with the patients and their families on a daily basis [20].

Given the central role of ethics within organizations in relation to the evaluation of workers' satisfaction and also the evaluation of their well-being in the present study, an analysis of the literature was carried out to propose as our perceptual purpose the adoption of a tool for the specific appreciation of the Ethical Climate within organizations.

Although there are numerous questionnaires that investigate various aspects of organizational culture (such as that of Ashkanasy et al. or Scott et al.), only a few of them investigate specific dimensions related to the ethical culture of organizations; this issue appears to be even more evident in the Italian context. Among the existing tools found in the literature, Cullen et al. developed the Ethical Climate Questionnaire to measure ethical climates within organization; it is a 36-item questionnaire. Treviño, Butterfield and McCabe developed a construct of 14 items [21-24]. Kaptein developed in 2008 a new tool to study Ethical Climate, it was a 58-item self-reporting questionnaire developed on the Corporate Ethical Virtues Model as developed by Kaptein that comprises multiple normative dimensions for the ethical culture of organizations [25-27]. In 2019, Gro¨nlund et al., developed and tested a questionnaire on ethical climate, the Swedish Ethical Climate Questionnaire (SwECQ), comprised of 10 item and constructed through the input of an expert panel, comprised of several professionals including healthcare professionals, and tested on a sample of various groups of healthcare workers. This questionnaire was found to be suitable to investigate ethical climate in healthcare related workplaces.

In Italy, Iavicoli et al. performed a literature and grey literature review in 2018, trying to determine the extent of ethical issues in the occupational health world [28]. This review highlighted dis homogeneous methods to measure ethic values adopted in the past, and showcases the contrast between the fundamental principles of medical ethics and the economic centric work environment that occupational health professionals work in. Iavicoli et al. conclude that, in order to resolve ethical challenges, there is a need to: develop new ethical principles for occupational health professionals coherent with the new working world, the introduction of ethic courses for medical professionals, a multidisciplinary approach to ethics in the medical field, developing ethical dilemmas scenarios for which policies are not easily made.

The Corporate Ethical Virtues (CEV) model is the first empirically validated multi-dimensional model to measure ethical organizational culture. It distinguishes between eight virtues that promote the ethical culture of an organization and, by implication, ethical behavior of employees and managers. The concept of virtue ethics defines what kind of behavior is seen as morally right and worth pursuing [29]. The Kaptein's tool-based on CEV model – was subjected to first and second order confirmatory factor analyses to assess the goodness-of-fit of the correlated eight-factor structure and the latent structure underlying the ethical culture indicators. The correlated eight-factor structure of the 58-item tool scale was first tested with a first-order factor analysis, which showed that the expected structure fit the data very well. After that, a second-order factor structure, where the high inter correlations between first-order factors were explained by a higher-order factor describing the total CEV, was estimated. This model also fits the data well. Thus, the factorial validity of the 58-item tool scale was supported in a sample of employees. The results showed eight factors with a good overall fit of the model, factors that appeared to contribute to the unethical conduct of employees. Although we have not found any validated tool on Italian population, in the present study we wanted to carry out a validation work of a tool for the evaluation of ethics in the workplace to fill that dearth and therefore to be able to put in place a tool to be used in Italy. To do this it was decided to start from Kaptein's tool (of which in the literature there is no validated Italian version) to investigate the Ethical Climate; the choice of this tool was also determined by the fact that it consists of 7 dimensions and therefore has great descriptive potential on the investigated phenomenon. The tool has 58 items and the dimensions are divided as follows:

1. **Clarity:** Clarity of organizational rules.

2. **Congruency:** The organization's consistency has been measured by questions that reflect perception as management and supervisors.

3. **Feasibility:** It relates to the degree to which employees are able to act ethically.

4. **Supportability:** It measures how respondents experience trust and respect in their work environment and to what degree employees identify and approve of the organization's values, standards and rules.

5. **Transparency:** It measures how interviewees' actions are clearly visible to themselves and their colleagues and managers.

6. **Discussability:** It measures how ethical issues can be discussed fairly in the organization.

7. **Sanctionability:** It measures the extent to which unethical conduct can be sanctioned.

The theory of the Corporate Ethical Virtues model is normative, taking into consideration 150 practices of unethical behavior that corporations can showcase, suggesting that both individuals and organizations should have certain features that promote acting according to what is seen to be morally right, therefore representing a complexly developed, yet comprehensive tool to analyse the approach corporations have to ethics in business. The presence of these features, in turn, promotes the ethicality of an organization, thus creating a virtuous circle. In our opinion, a further strong point of the research is the fact that the tool has been developed within an important Italian public structure and that it has been possible to investigate over a very large number of workers.

In 2018, Huhtala et al. validated a shortened version of the Corporate Ethical Virtues model consisting of only 32 items [30]. The study was conducted by testing two separate groups, one of managers and one of psychologists, and results showed that the shortened Corporate Ethical Virtues model consisting of 32 items maintained the same eight factor structure as the original 58 items version, and that the results were consistent across the two groups of professionals, demonstrating the tool's ability to measure work ethical virtues across different job fields, work context and demographics.

In 2021, Huhtala et al. performed a longitudinal study, using the same shortened version of the Corporate Ethical Virtues model consisting only of 32 items, in order to investigate the correlation between the temporal dynamics of ethical organizational culture and the well-being of workers, by measuring the changes in ethical culture during a period of 6 years [31]. Previous longitudinal studies performed to investigate ethical culture are uncommon, and they have failed to identify ethical changes through time [32,33].

Kangas et al., in 2018 performed a longitudinal study with a follow-up period of 4 years, using the Corporate Ethical Virtues model, which determined that poor organisational ethical culture is a predictive factor in managers' turnover, causing a higher number of managers to leave their job.

The survey that is the topic of the study is only a part of a survey carried out for internal needs of the administration to assess some aspects of the organization whereas mentioned the evaluation of ethics was only a part of the survey; the original survey was conducted to assess the working conditions in the operators also for the purposes of welfare and safety of working conditions with particular reference to organizational factors that may affect the health and welfare of workers in relation to national legislation; the study of ethics in the working context of the Italian public administration was also born as a result of the stimulus received from the 2013 National Anti-Corruption Plan (Italian Act 6 November 2012, n. 190) according to which, in order to increase the ability to discover cases of corruption, it provides for "interviews in selected contexts to assess the perception of corruption by employees and the value of integrity" and then in the 2015 update following the update of the National Anti-Corruption Plan the analysis of the internal context is strongly recommended for the preparation of the Three-Year Plan

for the Prevention of Corruption and Transparency and inviting to consider, among other data, those related to the "organizational culture, with particular reference to the culture of ethics".

In view of the relevance of aspects relating to ethics in the workplace and the need to have a reliable assessment tool based on a sound theory, the purpose of this study is to develop an ethics assessment tool and to validate it in order to use it on the Italian population and which is at the same time based on a sound theory widely used outside Italy in order to allow even comparisons between different countries on the issue of ethics; as a further aim of the research, we wanted to develop a tool with a reduced number of items in order to increase compliance in the recipients and to be able to use it at the same time by combining it with other tools in surveys with a broader scope than the sole issue of ethics.

MATERIALS AND METHODS

Methodology

The study has been carried out in a large company of the Italian public administration that fulfils the duties and tasks pertaining to the State in matters of economic-financial, budgetary and tax policy structured in several departments with offices mainly located in the territory of the Municipality of Rome although it has some units in other Italian cities. The activity performed by the company subject to the study is mainly of the administrative type of back office although it has a minority of front-office activities. At the time of the survey, the company had 10422 employees (54.8 % male, 45.2 % female) throughout the country, all with white collar activities.

The items of the Kaptein version have undergone a translation and cultural adaptation to the Italian context. The translation, cultural adaptation and back-translation were conducted by one specialist in psychology and one bilingual expert in public health to determine whether the context of the products has been preserved. Four new items (for clarity dimension) were added and three removed in the final adapted used version; five items were deleted from discussability and two from sanctionability. The changes were made to better align the content of the questions with the Italian rules of conduct in public administrations (Italian Act DPR n. 62/2013); the process was carried out at a technical panel chaired by a specialist in psychology that included the participation of the upper management.

As a result, there have been 51 items in the Italian measure of ethical aspects we used for this study. All items were followed by a four-point Likert-type response scale.

In order to address the twofold purpose of the study, and therefore the intention to achieve an ethics evaluation tool with a small number of items and then to validate this tool in Italian, the study has been divided into two studies. In these two studies, first an exploratory factor analysis was carried out and then a confirmatory factor analysis in order to assure the viability of the shortened version in Italian.

The Study 1 is aimed at the selection of the items of the questionnaire for the identification of a short version of the questionnaire itself has been conducted on an entire department of the company, it was done in such a way as to have a sufficient number of individuals on which to make the exploratory factor analysis for the selection of items with good accuracy (in Kaptein's work this phase was conducted on a sample of 382 workers) and then on a structure

that had at the time of the survey 690 employees [25].

The Study 2 focused on the validation of the simplified version of the tool identified in Study 1, the confirmatory factor analysis was carried out on a very large sample of employees of the same company but related to other departments; the sample of workers on which we worked was made up of 5497 workers (in Kaptein's work the confirmatory factor analysis was conducted on a total of 725 employees).

The entire procedure of administration and data collection was done anonymously and participation in the evaluation procedure was voluntary, no incentives were offered to participate. The survey from which the study stems for the administration's evaluation needs was offered to all staff, with no selection criteria other than being employed by the time of the survey. In detail, the whole of the workers received an email with a link to fill out some questionnaires including the one that was the subject of the study, the worker in the absence of tracking was free to join or not to fill out the questionnaire. The management software of the survey did not allow the procedures if the fields were not filled in, therefore no survey have been collected with missing; in general all those who completed the survey joined the study.

All methods were carried out in accordance with the relevant guidelines and regulations and approved by the institution where they were applied. The entire procedure of administration and data collection was done anonymously and participation in the evaluation procedure was voluntary, no incentives were offered to participate, and the data are limited to topics that are strictly within the professional competence of the participants. The collection of data was carried out in accordance with the principles expressed in the Declaration of Helsinki and with national legislation on safety and health at work (Legislative Decree 81/2008 and Italian Act 6 November 2012, n. 190-2013 National Anti-Corruption Plan).

Statistical analysis

Study 1: The sample for the Study 1 was drawn from a Department of Public Administration with 690 employees who participated in the survey; this sample was a convenience sample; only complete questionnaires and without missing items were used. Completion of the survey was completely voluntary and anonymous.

In this study we conducted an exploratory factor analysis to verify the factorial structure of the Italian adapted version in relation to Kaptein's original instrument (8 dimensions/factors). The analysis of the factorial structure was performed through parallel analysis.

The exploratory factor analysis was also used to obtain the reduction of the number of items, the criterion of choice of the items was that of the factor load analysis; so 3 items per size were chosen in order to represent equally all the aspects investigated by the Corporate Ethical Virtues Model. The items subjected to the factor load analysis were those that in the back-translation phase had received a judgment of adequacy of the conservation of the sense of the question (with a score on internal Likert scale from 1 to 5 higher or equal to 3).

We evaluated the reliability of the new short Italian version of the questionnaire and each of its eight dimensions using Cronbach's alpha coefficients of internal consistency. In this study we used STATA16 software.

Study 2: The sample for the Study 2 was drawn from four Departments of Public Administration with 5497 employees who

participated in the survey, only the complete questionnaires were used and without missing items. Completion of the survey was completely voluntary and anonymous.

In this study, the Italian version of the questionnaire developed in phase 1 with a total of 24 items was evaluated.

To test the goodness-of-fit of the latent system underlying the indices of ethical culture, confirmatory factor analysis was performed. For parameter estimation and for model checking, structural equation simulation was used. A second-order confirmatory factor analysis further explored the discriminant and convergent validity of the eight dimensions of ethical culture, in which each of the dimensions are believed to derive from an encompassing construct of ethical organizational culture. The objective of this analysis was confirmed that what Kaptein has observed in the original version of the questionnaire is also valid for the adapted and shortened version in Italian [25].

We used the Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Tucker Lewis Index (TLI), and Standardized Root Mean Square Residual (SRMR) as measures of goodness-of-model fit. We considered adequate fit indicators if the RMSEA was less than 0.08, and the CFI, TLI, equal or higher than 0.95 [34,35]. In this study we used STATA16 software.

RESULTS

Study 1

690 white collar workers participated in the study in whole. Due to various missed information in one or more questionnaire items, data from 285 participants was withdrawn. Thus in this study, we included data from 405 employees (response rate 59%). Among the participants we have 148 males (36.5%), 257 females (63.5%), 16 (4%) executives, 171 (42.22%) middle managers, 218 (53.83%) employees; the age was distributed 51.85% between 55 and 64 years, 32.84% between 45 and 54 aa, 7.16% between 35 and 44 years, 5. 43% with age less than 35 aa and 2.72% with age over 65 years; 43.21 had length of service greater than 30 years, 34.32 % between 21 and 30 and 10.86% between 11 and 20, while 11.6% was less than 11 (Table 1).

We used the Exploratory Factor Analysis (EFA) to verify the theoretical structure of the instrument; from EFA emerges the number of dimensions (factors) that are at the basis of the investigation, each dimension will then be regulated by a number of variables-items; in the present study EFA has revealed seven factors with the selection criterion based on the theory of eigenvalues analysis (to take the factors with values of one or more); the eighth factor had eigenvalue of 0. 90 so with this selection criterion should be discarded. The difference between our analysis and Kaptein's analysis with 8 factors can be due to the fact that our version submitted to EFA consists of 51 items while the original Kaptein version was 71 items and the number of items has an important influence on the number of factors selected on the basis of the eigenvalues. We then proceeded with further analysis of the number of factors and then to the analysis of the screen plot where the number of factors was between 7 and 8. For what emerged then we proceeded having found a different factorial structure between Kaptein's questionnaire in the original version and the adapted Italian version-to perform the parallel analysis which is the most accurate tool for this type of analysis. The parallel analysis indicates that there are at least eight factors (average selection criterion of the eigenvalues differences between FA and PA is greater than 0) with

Table 1: Descriptive data-population of study 1.

| Study 1	Participants (405)
Male	148 (36.5%)
Female	257 (63.5%)
>65 years old	11 (2.7%)
55-64 years old	210 (51.9%)
45-54 years old	133 (32.8%)
35-44 years old	29 (7.2%)
<35 years old	22 (5.4%)
Executive	16 (4%)
Middle Manager	171 (42.2%)
Employee	218 (53.8)
Length of Service >30 years	175 (43.2%)
Length of Service 21-30 years	139 (34.3%)
Length of Service 11-20 years	44 (10.9%)
Length of Service 0-10 years	47 (11.6%)

Table 2: Parallel Analysis for Factor Analysis ~N=405.

S.No	FA	PA	Dif
1	17.40562	0.885659	16.51997
2	4.959435	0.815719	4.143716
3	3.290719	0.750939	2.53978
4	1.979423	0.702458	1.276964
5	1.734454	0.663767	1.070687
6	1.419126	0.626709	0.792417
7	0.996101	0.589575	0.406525
8	0.902504	0.561781	0.340723
9	0.615909	0.525488	0.090421
10	0.481514	0.490423	-0.00891
11	0.443153	0.455031	-0.01188
12	0.368036	0.424313	-0.05628

Note: PA=Parallel Analysis; FA=Factor Analysis; Dif=Difference

a possibility that there is a ninth factor, actually the average of the differences is slightly in the ninth factor of 0.09 (Table 2).

This occurs in the graph as well as where the parallel analysis dashed line crosses the solid factor analysis line right between the eighth and ninth factor (Figure 1).

Figure 1: Parallel Analysis shows 8-factor structure. **Note:** (——•——) Factor Analysis; (-----) Parallel Analysis
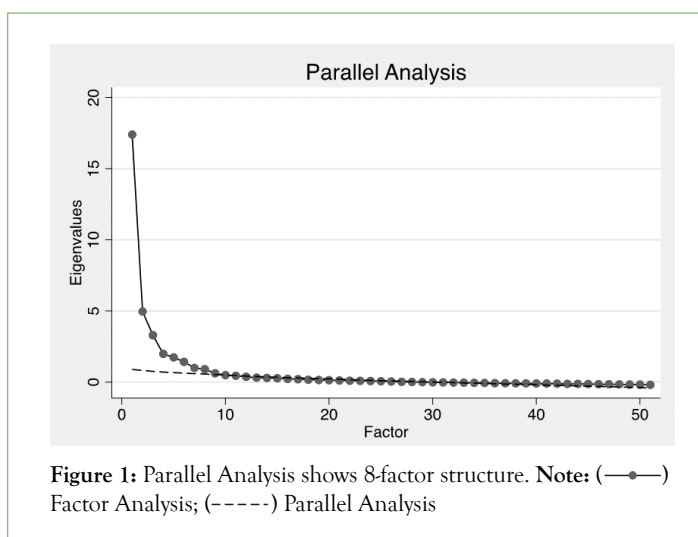
As a result of the parallel analysis and the original model of the questionnaire and the Corporate Ethical Virtues Model theory, the 8-factor structure was chosen. In the analysis of the variance of the 8-factor structure the following values r 17.59, 14.99, 11.74, 11.45, 11.17, 10.98, 9.96, 4.33 for a proportion of variance of 92.21 were respectively found.

Within these factors, individual items were observed to have a load factor much valid and high with values between 0.50 and 0.92; just an item related to the size of the sanctionability had a load factor slightly lower (but still valid) than 0.40, this item was deleted because the analysis of the factors of the present study was related to the size of the supportability and not to that of the sanctionability as in the original version; all other items were aligned consistently with the factors of the original Kaptein questionnaire.

In order to create the shortened version keeping the original factorial structure, we selected the 3 items with the highest factor load in each size (factor) for a total of 24 items; the items selected for the Italian abbreviated version have a load factor between 0.61 and 0.92 (Table 3); Table 3 shows the final version of the Italian tool with the single questions and the corresponding dimensions of The Corporate Ethical Virtues Model and the corresponding questions of the original Kaptein tool. The inter-item correlations varied from 0.05 to 0.84 (Table 4).

Table 3: 24 items in the Italian version of the questionnaire divided by dimension and with the factor load.

Factor Dimension	The Corporate Ethical Virtues Model	The Italian Version	ITEMS	Factor Load
Clarity	The organization makes it sufficiently clear to me how I should conduct myself appropriately toward others within the organization	Sono a conoscenza delle norme di comportamento in servizio	Q1	0.84
	The organization makes it sufficiently clear to me how I should use company equipment responsibly	Sono a conoscenza delle norme sull'utilizzo in modo responsabile delle attrezzature di lavoro e delle risorse a me assegnate	Q2	0.89
	The organization makes it sufficiently clear to me how I should deal with conflicts of interests and sideline activities responsibly	Sono a conoscenza delle norme sulla gestione dei conflitti di interesse in modo responsabile	Q3	0.78
Feasibility	In my immediate working environment, I am sometimes asked to do things that conflict with my conscience	Nel mio ambito di lavoro a volte mi viene chiesto di fare cose che sono in conflitto con la mia coscienza	Q4	0.79
	In order to be successful in my organization, I sometimes have to sacrifice my personal norms and values	Per avere successo nel lavoro a volte devo sacrificare il mio sistema di valori	Q5	0.78
	I have insufficient time at my disposal to carry out my tasks responsibly	Non ho tempo sufficiente per svolgere i miei compiti in modo responsabile	Q6	0.77
Supportability	In my immediate working environment, everyone has the best interests of the organization at heart	Nel mio ambiente di lavoro ognuno persegue gli interessi dell'Organizzazione	Q7	0.8
	In my immediate working environment, everyone takes the existing norms and standards seriously	Nel mio ambiente di lavoro ognuno prende sul serio le norme e i criteri esistenti	Q8	0.77
	In my immediate working environment, everyone treats one another with respect	Nel mio ambiente di lavoro ognuno tratta gli altri con rispetto	Q9	0.74
Transparency	If a colleague does something which is not permitted, my manager will find out about it	Se un collega fa qualcosa che non è permesso, il mio dirigente è nelle condizioni di poterlo scoprire	Q10	0.63
	If a colleague does something which is not permitted, I or another colleague will find out about it	Se un collega fa qualcosa che non è permesso, io o un altro collega siamo nelle condizioni di poterlo scoprire	Q11	0.66
	If my manager does something which is not permitted, someone in the organization will find out about it	Se il mio dirigente fa qualcosa che non è permesso qualcuno nell'Organizzazione è nelle condizioni di poterlo scoprire	Q12	0.66
Discussability	In my immediate working environment, there is adequate scope to report unethical conduct	Nel mio ambiente di lavoro c'è adeguata possibilità di segnalare comportamenti non etici	Q13	0.73
	If someone is called to account for his/her conduct, it is done in a respectful manner	Se qualcuno è chiamato a riferire della sua condotta, viene fatto in maniera rispettosa	Q14	0.69
	In my immediate working environment, there is adequate scope to correct unethical conduct	Nel mio ambiente di lavoro c'è adeguata possibilità di correggere un comportamento non etico	Q15	0.85
Sanctionability	In my immediate working environment, only people with integrity are considered for promotion	Nel mio ambiente di lavoro, vengono presi in considerazione per una promozione solo coloro che hanno dimostrato di essere integri	Q16	0.8
	If necessary, my manager will be disciplined if s/he behaves unethically	Se necessario, il mio dirigente verrà sanzionato se si comporterà in maniera non etica	Q17	0.61
	In my immediate working environment, ethical conduct is rewarded	Nel mio ambiente di lavoro, il comportamento etico viene premiato	Q18	0.71
Congruency of supervisors	My supervisor sets a good example in terms of ethical behavior	Il mio superiore gerarchico rappresenta un buon esempio in termini di comportamento etico	Q19	0.86
	My supervisor fulfills his responsibilities	Il mio superiore gerarchico assolve alle proprie responsabilità lavorative	Q20	0.86
	My supervisor is honest and reliable	Il mio superiore gerarchico è onesto e affidabile	Q21	0.92
Congruency of management	The Board and (senior) management sets a good example in terms of ethical behavior	I vertici dell'Amministrazione rappresentano un buon esempio in termini di comportamento etico	Q22	0.9
	The Board and (senior) management communicates the importance of ethics and integrity clearly and convincingly	I vertici dell'Amministrazione comunicano l'importanza dell'etica e dell'integrità in maniera chiara e convincente	Q23	0.81
	The Board and (senior) management would never authorize unethical or illegal conduct to meet business goals	I vertici dell'Amministrazione non autorizzerebbero mai una pratica non etica o illegale al fine di raggiungere un obiettivo	Q24	0.75

Table 4: Inter-item correlations short Italian version questionnaire to measure the Ethical Climate.

	Q 1	Q 2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24
Q1	1																							
Q2	0.82*	1																						
Q3	0.63*	0.64*	1																					
Q4	0.14*	0.14*	0.15*	1																				
Q5	0.16*	0.15*	0.17*	0.70*	1																			
Q6	0.15*	0.16*	0.17*	0.47*	0.49*	1																		
Q7	0.16*	0.15*	0.16*	0.26*	0.28*	0.25*	1																	
Q8	0.18*	0.17*	0.19*	0.27*	0.27*	0.23*	0.70*	1																
Q9	0.10*	0.12*	0.10*	0.24*	0.25*	0.19*	0.57*	0.64*	1															
Q10	0.12*	0.13*	0.15*	0.14*	0.16*	0.18*	0.36*	0.38*	0.31*	1														
Q11	0.12*	0.13*	0.15*	0.07*	0.08*	0.11*	0.20*	0.22*	0.18*	0.47*	1													
Q12	0.12*	0.12*	0.15*	0.10*	0.12*	0.14*	0.27*	0.26*	0.24*	0.50*	0.56*	1												
Q13	0.18*	0.19*	0.21*	0.24*	0.26*	0.20*	0.46*	0.47*	0.43*	0.44*	0.33*	0.43*	1											
Q14	0.17*	0.18*	0.19*	0.25*	0.26*	0.19*	0.43*	0.46*	0.47*	0.35*	0.28*	0.37*	0.65*	1										
Q15	0.17*	0.19*	0.21*	0.24*	0.26*	0.21*	0.48*	0.51*	0.48*	0.44*	0.32*	0.40*	0.70*	0.69*	1									
Q16	0.08*	0.09*	0.13*	0.17*	0.18*	0.17*	0.36*	0.36*	0.34*	0.31*	0.25*	0.36*	0.47*	0.40*	0.45*	1								
Q17	0.05**	0.05**	0.08*	0.14*	0.16*	0.13*	0.33*	0.33*	0.31*	0.28*	0.23*	0.34*	0.41*	0.36*	0.39*	0.65*	1							
Q18	0.14*	0.14*	0.17*	0.26*	0.26*	0.22*	0.38*	0.39*	0.34*	0.36*	0.27*	0.43*	0.56*	0.52*	0.54*	0.57*	0.54*	1						
Q19	0.13*	0.15*	0.13*	0.34*	0.31*	0.24*	0.37*	0.38*	0.39*	0.29*	0.20*	0.29*	0.45*	0.48*	0.46*	0.38*	0.35*	0.51*	1					
Q20	0.15*	0.15*	0.12*	0.31*	0.28*	0.24*	0.36*	0.35*	0.37*	0.29*	0.22*	0.28*	0.42*	0.44*	0.42*	0.36*	0.31*	0.46*	0.78*	1				
Q21	0.14*	0.15*	0.13*	0.34*	0.32*	0.24*	0.37*	0.36*	0.39*	0.28*	0.20*	0.28*	0.42*	0.47*	0.44*	0.35*	0.33*	0.47*	0.82*	0.84*	1			
Q22	0.12*	0.13*	0.13*	0.27*	0.29*	0.22*	0.38*	0.37*	0.31*	0.29*	0.19*	0.27*	0.37*	0.36*	0.39*	0.40*	0.36*	0.45*	0.44*	0.42*	0.43*	1		
Q23	0.16*	0.16*	0.18*	0.25*	0.26*	0.23*	0.36*	0.36*	0.30*	0.29*	0.18*	0.27*	0.39*	0.35*	0.39*	0.38*	0.36*	0.44*	0.41*	0.40*	0.40*	0.79*	1	
Q24	0.14*	0.13*	0.15*	0.27*	0.27*	0.23*	0.34*	0.33*	0.28*	0.27*	0.17*	0.24*	0.35*	0.33*	0.36*	0.34*	0.31*	0.41*	0.38*	0.39*	0.40*	0.76*	0.71*	1

Note: *p<0.01, **p<0.001

Study 2

In total 5497 white collar participated in the survey (response rate 56%). Data from 1791 participants was excluded due to missing information in one or more questionnaire items. Thus, we included data from 3706 workers in this study. Among the participants we have 1710 male (46.14%), 1996 female (53.86%), 170 (4.59%) executives, 1673 (45.14) middle managers, 1863 (50.27 employees); age was distributed 49.81% between 55 and 64 years, 38.15% between 45 and 54 years, 7.26% between 35 and 44 years, 2.22% with an age less than 35 aa and 2.56% with an age greater than 65 years; 42.58 had a length of service greater than 30 years, 38.26% between 21 and 30 and 10.23% between 11 and 20, while 8.93% was less than 11 (Table 5).

For analyzing the internal consistency and thus the correlation between the different elements on the same test we have calculated Cronbach's α (Table 6).

The Italian Ethic questionnaire had optimal internal consistency reliability, α=0.917 for the 24-item questionnaire (short version).

Good internal reliability levels were observed in the eight dimensions of Corporate Ethical Model: Clarity (α=0.865), Feasibility (α=0.790), Supportability (α=0.843), Transparency (α=0.759), Discussability (α=0.865), Sanctionability (α=0.809), Congruency of Supervisors (α=0.927) and Congruency of Management (α=0.903).

We proceeded with the Confirmatory Factor Analysis of the 24 item version in Italian, the results of which are presented in Figure 2.

To measure the appropriateness of sampling for each variable in the model and for the complete model, Kaiser-Meyer-Olkin's sampling appropriateness analysis was used with excellent results as the KMO=0.905. To verify the presence of correlations between the variables we used Bartlett's sphericity test (χ^2=53,048.1, p<0.001, df=276). What illustrated so far has shown the adequacy of the sample and the suitability to complete a factorial analysis. Indicators of adaptation of the CFA model (RMSEA=0.052 [90%CI 0.050-0.054], CFI=0.96, TLI=0.95) showed an excellent adaptation of the model of the eight-dimensional structure of the 24-item questionnaire.

Table 5: Descriptive data–population of study 2.

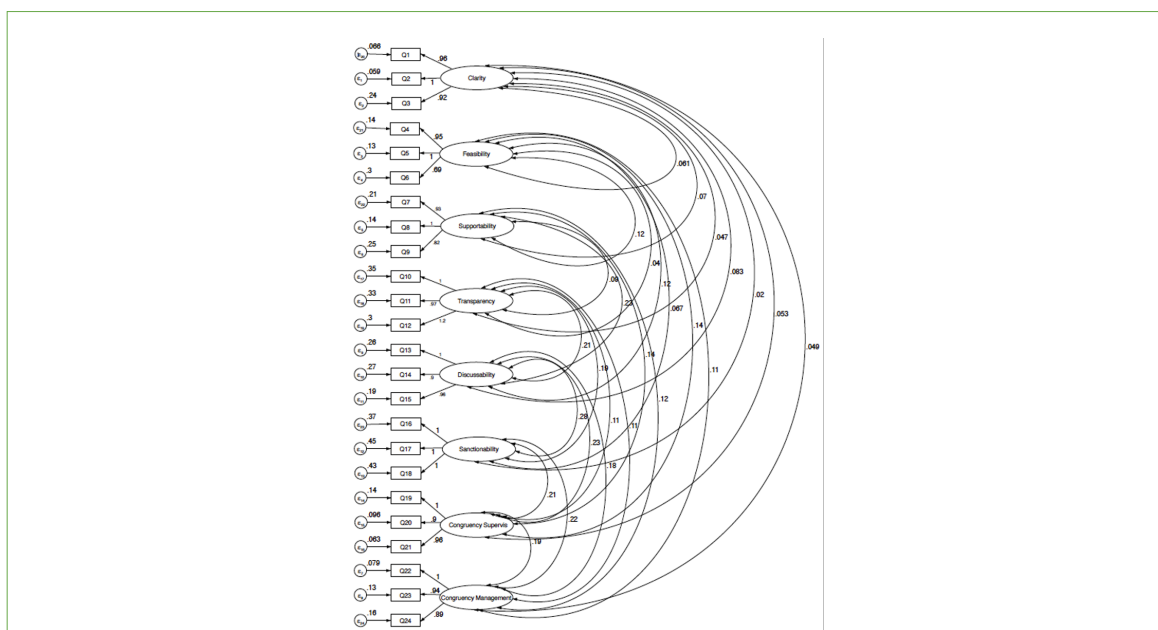| Study 2	Participant (3706)
Male	1710 (46.1%)
Female	1996 (53.9%)
>65 years old	95 (2.6%)
55-64 years old	1846 (49.8%)
45-54 years old	1414 (38.1%)
35-44 years old	269 (7.3%)
<35 years old	82 (2.2%)
Executive	170 (4.6%)
Middle Manager	1673 (45.1%)
Employee	1863 (50.3)
Length of Service >30 years	1578 (42.6%)
Length of Service 21-30 years	1418 (38.3%)
Length of Service 11-20 years	379 (10.2%)
Length of Service 0-10 years	331 (8.9%)

Figure 2: Confirmatory factor analysis estimates of the 24-item questionnaire in Italian to measure the Ethical Climate.

Table 6: Internal consistency of Italian short version.

ITEMS	Dimensions	Alpha-Cronbach	Alpha-Cronbach	Total Alpha-Cronbach
Q1			0.92	
Q2	Clarity	0.86	0.92	
Q3			0.92	
Q4			0.91	
Q5	Feasibility	0.79	0.91	
Q6			0.91	
Q7			0.91	
Q8	Supportability	0.84	0.91	
Q9			0.91	
Q10			0.91	
Q11	Trasparency	0.76	0.91	
Q12			0.91	
Q13			0.91	
Q14	Discussability	0.86	0.91	0.91
Q15			0.91	
Q16			0.91	
Q17	Sanctionability	0.81	0.91	
Q18			0.91	
Q19			0.91	
Q20	Congruency of supervisors	0.93	0.91	
Q21			0.91	
Q22			0.91	
Q23	Congruency of management	0.9	0.91	
Q24			0.91	

DISCUSSION

The development of tools for the evaluation of ethics in the workplace is an essential step for the improvement of organizations and for the monitoring of ethical practices.

The present work of validation of a questionnaire in Italian version is based on the Corporate Ethical Virtues Model as developed by Kaptein, the developed tool can also contribute to the development of methods that investigate moral distress as "The concept of moral distress was defined in 1984 as (a) the psychological distress of (b) being in a situation in which one is constrained from acting (c) on what one knows to be right" [36].

The developed and tested questionnaire can be used to assess the impact of ethical culture on ethical and unethical conduct and to find out to what extent the different virtues have a different impact on different types of conduct. In the first step of the research, the Italian version of the questionnaire confirmed the 8-factor structure as in Kaptein's original model; then 24 items (3 for each size) were selected for the shortened version to be validated. In the second step we proceeded with the validation of the new instrument consisting

of 24 items and translated into Italian. Item reliabilities ranged between .91 and .92 tests produced strong evidence supporting the convergent and discriminant validity of the structure of the ethical organizational culture.

The interest in developing a shortened version of Kaptein's questionnaire stems from the need to be able to allow a faster and more agile administration so as to improve workers' compliance with the Ethical Climate survey; the short version can also allow more complex surveys in the workplace by expanding the surveys with other questionnaires such as those to investigate mental and physical health outcomes. In a 2013 study, DeBode et al. also developed a short version to 32 items from the original 58 Kaptein items [37].

As already mentioned in the introduction, tools useful for the analysis of the organizational climate can provide important information on aspects that have a direct influence on the level of employee satisfaction; the Ethical Climate is an important aspect of the organizational climate and therefore the evaluation of the Ethical Climate and the management of the processes underlying

it are tools for action on the efficiency and performance of workers as well as on the psychophysical well-being of operators, since these processes are also related to job performance, quality of life, stress, burnout, anxiety and turnover intention [4]. It is precisely from these important relationships between job satisfaction, the psychophysical well-being of workers and some aspects of health and the opportunity to create a tool that could be integrated and added to others already existing that investigate aspects related and attributable to ethics, it was decided to develop an abbreviated version of the original Kaptein questionnaire.

A further important part of the theoretical model to which we have referred and on which the questionnaire is developed is that there are seven dimensions that can be investigated; this aspect in the study of organizations appeared to be an element of excellence as it could allow the operator to detect more areas of intervention if they wanted to plan actions to improve the conditions related to ethics in companies and, therefore, of workers' psychological wellbeing. This last aspect was a useful element for us to choose not to reduce too much the number of questions leaving at least three items per size and this was the reason that led us to choose a structure with a total of 24 items (7 dimensions of which one with two subgroups, as per the original Kaptein model). The 7-dimensional structure is therefore characterized by a model that allows an accurate description of the observed phenomenon and, since the evaluation of ethics is part of the complex process of business risk assessment, this descriptive feature seems important to be able to develop, in addition to the aforementioned aspects of evaluation of the phenomenon, also those related to the management and implementation of measures to improve the Ethical Climate within organizations; such a broad descriptive feature (7 dimensions) also facilitates the follow-up over time of the most critical dimensions and allows the timely verification of the effectiveness of any planned interventions to improve working conditions in relation to ethics.

Building assessment tools in many languages that are relying on the same theory is an essential process to be able to carry out comparative work on aspects of ethics in different contexts and countries; the stimulus to carry out comparative work on different organizations in order to evaluate the shared aspects comes from the work of Hofstede et al., also Kaptein notes that future research should be conducted to verify how the dimensions investigated can change according to function, hierarchical level, sector, and nation [38].

The present study relies on a very large sample size and in the study the sample is highly homogeneous; in the Kaptein study the sample consisted of both white collars and blue collars. The sample is therefore highly homogeneous both by type of activity (white collars) and by sector (public sector workers). In our opinion, having restricted the survey to a homogeneous group allows us to develop a very specific evaluation tool; in this regard, it should be said that the sample used is representative of a very large working category in Italy, the Public Administration, and therefore it is an instrument that is potentially suitable for surveys on a large sample of the Italian working population. It seems correct, however, with regard to the homogeneity of the sample, to note that because of this characteristic with the aim of being able to use this instrument on other populations; other studies will be needed to investigate these matters in depth.

In addition to the above mentioned dearth of a tool in Italy comparable to the one developed in the present study, as being that the only Italian evaluation tool based on a solid internationally recognized theory and validated on such a large sample, it should be underlined the limitation of the potential selection bias of study participants as they volunteered to be part of the study.

CONCLUSION

This validation study has allowed the development of an evaluation tool for workplace ethics in the Italian context; the questionnaire is structured on a solid theoretical framework, represented by the Corporate Ethical Virtues Model as designed by Kaptein. Our work is the first work that validates an Italian version of the Corporate Ethical Virtues Model.

The tool developed has evidence of its validity and reliability in Italy to be used in further studies. Kaptein himself in one of his studies pointed out the need to develop validated versions in different cultures in order to allow future research to compare different countries on a very delicate and critical issue such as ethics.

The proposed questionnaire has the potential to be used both for a detailed study of ethics in the workplace and for the monitoring of the conditions relating to ethics over time through regular administering of the questionnaire. The measurement of the components of ethics in the workplace and their monitoring over time will allow the identification of critical areas and therefore will allow the analysis and development of interventions aimed at improving working conditions. This tool can be used in association with others to evaluate health outcomes related to ethics.

Our work is focused on white collars, while Kaptein's work has been developed on a mixed population of white and blue collars, so it would be interesting to continue the research also through an analysis of the different working settings for appropriate comparison. As said, the same work can be replicated in other work settings even to study the differences in the approach with ethics in different production activities, in various professional tasks and to compare the public sector with the private sector, too.

In the future, research will focus on the analysis of how the components of the Ethical Climate can act on the psychophysical well-being of workers. It is well known that the psychophysical well-being of workers has an important impact on productivity and social cost of labor, future research based on the evaluation of correlation between the effects on health and ethics will therefore also provide important data on the economic and social impact of any implementation of measures on the ethical climate in the workplace.

The study has shown that Kaptein's original 58 item tool can be reduced, while maintaining its validity, to a more agile version of 24 items; thus, this work provides a shortened and validated version in Italian in order to investigate Ethical Climate topics in companies based on the Corporate Ethical Virtues Model.

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