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FURTHER EVIDENCE FOR THE VALIDITY OF THE KUT: A MEASURE OF ORGANIZATIONAL COMMITMENT

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Theories of organizational commitment (OC) and related measures are the background of this work. A valid measure of OC, useful for its brevity and adaptability to different targets, was proposed by Klein and colleagues (the KUT; "Klein et al., Unidimensional, Target-free" scale). The goal of the present study was to test its validity in the Italian context. A sample of employees (N = 906), belonging to different organizations, was interviewed using an online questionnaire. Findings supported the unidimensional structure of the scale and its reliability. Furthermore, the KUT was invariant across occupational levels, genders, job seniority, and educational levels. Findings also showed its nomological validity: the KUT was associated, in the expected direction, with the constructs included in Meyer and Maltin's model of well-being. The incremental validity was demonstrated as well. Thus, findings proved the validity of the KUT's Italian version and provided support to Meyer and Maltin's model.

Keywords: Organizational commitment; Invariance of the KUT; Incremental validity of the KUT; Nomological validity of the KUT; Meyer & Maltin's model.

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The main aim of the present study is to validate the KUT ("Klein et al., Unidimensional, Target-free" measure of commitment; Klein et al., 2014) in the Italian cultural context. The KUT is a short tool that can be used to assess commitment toward different targets (e.g., the organization, the union, one's supervisor). In this work, the target of commitment is one's organization.

Over the past 60 years, organizational commitment (OC) has been one of the most investigated constructs in work psychology. As clarified later, OC has been differently defined, for instance, as acceptance of the goals and values of the organization (Mowday et al., 1979) or as a desire to maintain one's relationship with it (Meyer & Allen, 1997). The interest in this construct stems from its association with important outcomes for employees, such as general health (e.g., Brigder et al., 2007; Sokhandan et al., 2021), life

satisfaction (e.g., Jeon & Choi, 2021; Lu et al., 2009), and well-being (e.g., Abdullah et al., 2021; McInerney et al., 2015; Mihalache & Mihalache, 2022). Organizational commitment is also related to lower stress symptoms (see Abdelmoteleb, 2019; Alipour & Kamaee Monfared, 2015) and lower burnout (e.g., Chambel & Carvalho, 2022; Falvo et al., 2012).

OC generates beneficial effects not only for employees but for the organization as well (Becker et al., 2009; Cooper-Hakim & Viswesvaran, 2005). Committed employees are less likely to leave the organization (e.g., Guzeller & Celiker, 2020; Meyer et al., 2002; Ozkan et al., 2020), are good performers (e.g., Meyer et al., 2002; Riketta, 2002; Wang et al., 2019), and good organizational citizens (e.g., Cetin et al., 2015; Dalal, 2005; Meyer et al., 2002; Riketta, 2002). Citizenship behaviors (OCBs) have been defined as discretionary contributions to the organization that do not claim contractual rewards from the formal reward system. OCBs may promote the effective functioning of the organization (Organ, 1988; see also Organ and colleagues as cited by Spitzmuller et al., 2008, p. 107).

Regarding antecedents of OC, it has been found that both individual differences and organizational variables are reliable precursors of OC. For instance, all traits of the Five-Factor model (Costa & McCrae, 1992) are related to normative and/or affective components of OC (e.g., Albrecht & Marty, 2020; Choi et al., 2015). With regard to organizational factors, a crucial role is played by job demands and job resources (see the JD-R model by Bakker & Demerouti, 2017; Bakker et al., 2023). Job demands are those aspects of the job that require sustained physical and/or psychological effort; therefore, they are key risk factors for the development of burnout. Job resources, in contrast, are those aspects of the job that: (a) are functional in achieving work goals, and (b) reduce the costs associated with demands. Being intrinsically or extrinsically motivating, job resources are the main drivers of work engagement: a state of mind characterized by vigor, dedication, and absorption in one's work (Schaufeli et al., 2002). Job resources may also mitigate burnout.

With respect to resources, it has been found that OC is positively related to job autonomy (see, e.g., Albrecht & Marty, 2020; Galletta et al., 2011; Stinglhamber et al., 2015), social support from colleagues or supervisors (e.g., Albrecht & Marty, 2020; Priyono et al., 2022), performance feedback (Albrecht & Marty, 2020; Johnson, 2015; Jong & Ford, 2016), and some dimensions of transformational leadership (Rafferty & Griffin, 2004). Regarding demands, OC is negatively related, for instance, to work overload (Bowling et al., 2015; Jong & Ford, 2016; Pooja et al., 2016; Shahzad et al., 2020), role conflict and role ambiguity (Jong & Ford, 2016; Kuntjoro & Meilani, 2023; McCormick & Donohue, 2019), and job insecurity (Vander Elst et al., 2014; Hngoi et al., 2023; Hur, 2022). In this paper, job demands and resources, work engagement, organizational citizenship behavior, and performance are concepts used to perform the nomological validation of the KUT.

Several definitions of organizational commitment have been proposed and several tools have been devised. One of the most influential definitions was developed by Mowday et al. (1979). According to these scholars, OC conveys: (a) a firm acceptance of organizational goals and values, (b) the willingness to exert effort on behalf of the organization, and (c) a strong desire to maintain one's affiliation with the organization (p. 226). Mowday et al. developed a scale, which has been widely applied in scientific and professional settings (Organizational Commitment Questionnaire; OCQ). The OCQ, composed of 15 items, is modeled as a unidimensional construct.

Despite its large diffusion, the OCQ has been the target of several criticisms. Klein et al. (2014) questioned its content validity because the scale measures other constructs besides commitment, such as job satisfaction, identification with the organization, and turnover intentions. Some studies, in addition, did not replicate its expected unidimensional configuration (e.g., Angle & Perry, 1981; Bozeman & Perrewe, 2001).

Another popular scale was developed by Meyer and colleagues (1993). These authors, in the context of the three-component model of commitment (TCM; Meyer & Allen, 1991, 1997; Meyer & Herscovitch, 2001), conceptualized OC as a psychological state characterized by three mindsets: (a) the desire to maintain one's relationship with the organization (affective commitment; AC), (b) the need to preserve this relationship (continuance commitment; CC), (c) a feeling of moral obligation to remain in the organization (normative commitment; NC). The scale devised by Meyer et al. includes 18 items: six for each mindset. As with the OCQ, this scale aroused great interest, but was also criticized. For instance, the three-factor structure was not always replicated: in some studies, the normative and affective mindsets were not distinct constructs (Allen & Meyer, 1990; Bergman, 2006).

To overcome the main weaknesses of the previous models and scales, Klein et al. (2012) proposed a new, unidimensional conceptualization of the construct. Specifically, they defined commitment as a "volitional psychological bond reflecting dedication to and responsibility for a particular target" (p. 137). The scale measuring this construct was called "Klein et al., Unidimensional, Target-free" measure of commitment (Klein et al., 2014), a tool having several practical advantages over the other scales. First, it allows researchers to obtain a comparable assessment of commitment across different targets (e.g., the organization, the union, organizational goals) in the same workplace. Second, deriving from a parsimonious and unitary conceptualization of commitment, it overcomes the problem of overlapping between components of the constructs (see the TCM for this problem). Finally, because of its shortness (only four items), it is easily applicable to any organizational context. The authors provided convincing evidence for the good psychometric proprieties of the scale (Klein et al., 2014), which were supported by surveys performed in different cultural settings (e.g., Fabiny & Lovaš, 2018; Mai et al., 2016; Procházka et al., 2019).

Aims and Overview of the Study

In this work, the evaluation of the psychometric attributes of the KUT (organization as the target) was performed in the Italian cultural context. The KUT reliability, factor structure, and measurement invariance were explored. For invariance, the following variables were examined: educational level (high-school diploma vs. university degree or higher education), work position (blue collars vs. white collars), and working seniority (up to 5 years vs. from 6 to 20 years vs. over 20 years). Showing the invariance of a scale increases confidence in its application and is a prerequisite for meaningful comparisons between groups (Colledani, 2018; Colledani, Anselmi, & Robusto, 2018, 2019; Hamilton, 1999; Vandenberg & Lance, 2000).

The invariance across genders (male vs. female), organizational sectors (private sector vs. nongovernmental [NGO] and state organizations), and type of contract (full-time vs. part-time) was explored in a survey performed in the Czech social context (Procházka et al., 2019). Findings supported the measurement invariance of the KUT, but likewise highlighted differences in latent means. In particular, compared to people working full-time, people working part-time displayed a moderately higher OC; higher KUT scores were found among employees working for the private sector compared to NGO and state employees.

In line with these findings, we expected that the KUT would be invariant across work positions, working seniority, and educational levels, with some differences in latent means. Specifically, regarding work positions, white collars should display higher commitment than blue collars, having higher status and more valued jobs. For seniority, OC develops over time, through constant interaction between employees and the organization; KUT scores should, therefore, be higher among employees with higher rather than

lower seniority. For education, workers with higher education should display higher commitment, having, in general, higher-status jobs and gaining more benefits from the company. Measurement invariance demonstrates that the four items have the same meaning across subgroups. The finding that latent means differ in the expected direction provides evidence for the predictive validity of the scale.

Thus, the first hypothesis of the current study is that the Italian version of the KUT has good reliability, unidimensional structure, and is invariant across work positions, educational levels, and seniority levels. It should also have predictive validity. The nomological validity of the KUT was explored, as well. As suggested by some authors (e.g., Bagozzi, 1981; Putka & Sackett, 2010), the discovery that a measure works as expected in relation to other constructs is a central step in defining its validity. To detect its nomological validity, the KUT was embedded in a network of relevant constructs. Specifically, the KUT was modeled as a mediator in the relationship between job demands/resources and core outcomes: work engagement, self-rated performance, and organizational citizenship behavior (Figure 1). The nomological model was inspired by Meyer and Maltin's (2010) account of the relationship between OC and employees' well-being.

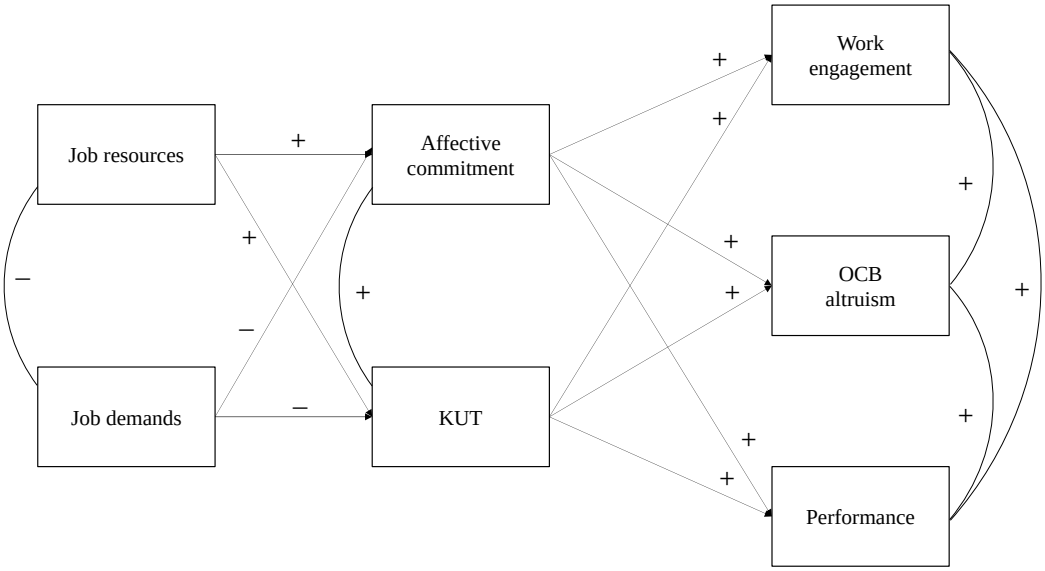


FIGURE 1
Mediation model proposed to test the nomological validity of the KUT

Note. Theoretical mediation model proposed to test the nomological validity of the KUT. In the model, the KUT plays a mediation role in the relationship between job demands/resources and work engagement, organizational citizenship behavior (OCB), and performance. Curved lines represent correlations. KUT = Klein et al., Unidimensional, Target-free measure of commitment (Klein et al., 2014).

The foundations of Meyer and Maltin's (2010) model are the three-component theory of commitment (Meyer & Allen, 1991, 1997) and self-determination theory (SDT; Deci & Ryan, 2000; Ryan & Deci, 2000, 2017). According to SDT, humans are optimally motivated and experience well-being when they perceive three needs satisfied: (a) the need for autonomy (individuals feel what they are doing is freely chosen), (b) the need for competence (employees believe they have the resources needed to complete their tasks), and (c) the need for relatedness (they feel appreciated by others). SDT argues that the satisfaction of the three needs is essential to achieve psychological growth, autonomous regulation of one's behavior, and well-being.

According to Meyer and Maltin (2010), affective commitment — the desire to preserve membership in one's organization — is associated with work conditions that favor the satisfaction of the three needs. AC, in turn, having energizing and buffering effects, engenders both hedonic (a pleasant mindset characterized by positive affect and lack of pain) and eudaimonic well-being (a lifestyle associated with feelings of optimism and hope) (for the distinction between the two facets of well-being, see Ryan & Deci, 2001; Ryan et al., 2008).

In the model of Figure 1, job resources and job demands (Bakker & Demerouti, 2017; Bakker et al., 2023) were used as work conditions that, by promoting or hindering need satisfaction, may promote or hinder the development of AC. As mentioned above, the association between demands/resources and AC has been consistently demonstrated (for demands, see, e.g., Bowling et al., 2015; Jong & Ford, 2016; for resources, Galletta et al., 2011; Stinglhamber et al., 2015). Similarly, consistent evidence shows that resources are positively related to well-being, in particular to work engagement (Bakker & Demerouti, 2017; see also the meta-analyses by Christian et al., 2011, and Lesener et al., 2020), which is an indicator of eudaimonic well-being (Meyer & Maltin, 2010). Regarding AC and well-being, numerous investigations have highlighted that AC may be a reliable predictor of work engagement and positive affect (e.g., Chambel & Carvalho, 2022; Gillet et al., 2015; McInerney et al., 2015; Mihalache & Mihalache, 2022; Rivkin et al., 2018). The mediation role of basic needs in the relationship between job characteristics and AC is supported by a meta-analysis performed by Van den Broeck et al. (2016). Findings showed that job demands (e.g., work overload, job stress) are related to need frustration; in contrast, job resources (e.g., autonomy, social support) lead to the satisfaction of the three needs (for experimental evidence, see Capozza et al., 2023). Need fulfillment, in turn, is positively related to AC. Therefore, research supports the relationships concerning AC (Figure 1), based on Meyer and Maltin's (2010) model.

This study aimed to extend Meyer and Maltin's (2010) model to the KUT, which shares meanings with both affective (r = .69, p < .01; Klein et al., 2014) and normative (r = .58, p < .05) commitment, the latter (NC) including feelings of loyalty and responsibility toward one's organization. (It should be noted that Meyer and Maltin developed the same hypotheses for affective and normative commitment.)

Regarding the KUT, it has been found that it is predicted by the satisfaction of basic needs (Colledani, Capozza, et al., 2018), which mediates the relationship between organizational factors and the KUT (Falvo et al., 2016). The KUT is also related to overall job satisfaction (Colledani, Capozza, et al., 2018; see also Bennett & Hylton, 2019; Klein et al., 2014; Procházka et al., 2019). Thus, previous research supports the relationships between the KUT, contextual factors (resources), and well-being displayed in Figure 1.

In the mediation model of Figure 1, self-rated performance and OCB (altruism toward individual employees) were added as dependent variables, because they are core organizational outcomes associated with both AC (see, e.g., Capozza et al., 2017; Cetin et al., 2015; Wang et al., 2019) and the KUT (e.g., Klein et al., 2014; Procházka et al., 2019). It should be noted that the use of the two measures of commitment allows us to provide evidence for the incremental validity of the KUT, which is expected to explain unique variance in the outcomes of the path analysis model (for the concept of incremental validity, see Haynes & Lench, 2003; Hunsley & Meyer, 2003).

Thus, the second hypothesis of this study concerns nomological validity: the KUT has nomological validity if it mediates the relationship between job characteristics and work engagement. This expectation is grounded on Meyer and Maltin's (2010) model of well-being. In addition, the KUT has nomological validity if it mediates the relationship between job characteristics and altruism and performance.

The third hypothesis concerns incremental validity. The KUT has incremental validity if it explains unique variance in the outcomes of the mediation model (Figure 1).

Concerning AC, findings should replicate its mediation role in the relationship between job characteristics and the outcomes, observed in previous studies (for work engagement, see, e.g., Poon, 2013, and Sezen-Gultekin et al., 2021; for altruism, see Capozza et al., 2017; for performance, see Van Waeyenberg et al., 2022). To the best of our knowledge, this is the first time that the KUT is used to test Meyer and Maltin's (2010) model and the first time that the two conceptualizations of OC are shaped as parallel mediators in the relationship between demands/resources and organizational outcomes.

To validate the KUT, a sample of employees working for different organizations in Italy was examined. Participants were required to complete an online questionnaire, which contained measures of the constructs included in the path analysis model (Figure 1). To assess job demands and job resources, studies inspired by Bakker and Demerouti's (2017; see also Bakker et al., 2023) theory were considered. Two demands and three resources were selected. Demands were work overload (see Brauchli et al., 2015, for a study using employees of different organizations) and role ambiguity. Resources were autonomy in carrying out one's work, social support from colleagues, and feedback on one's performance (see Van den Broeck et al., 2008, for a survey conducted in 17 organizations). Therefore, job characteristics were chosen that reliably affect motivation and well-being when the general working population is examined (see also Van den Broeck et al., 2017).

In the process of KUT validation, several statistical techniques were applied. The unidimensional configuration of the KUT was investigated using parallel analysis (PA; Horn, 1965) and confirmatory factor analysis (CFA). Measurement invariance across subgroups was verified by applying multigroup confirmatory factor analysis (MGCFA). Path analysis with observed variables was used to evaluate the mediation model of Figure 1, namely, to verify the nomological and incremental validity of the KUT. All analyses were run using Mplus (Muthén & Muthén, 1998-2015).

Method

Participants and Procedure

A total of 906 workers took part in the study: 443 (48.90%) were men and 463 (51.10%) women (M_{age} = 38.15, *SD* = 12.79). Regarding professional level, participants had to choose one of the four alternatives: "blue-collar worker," "white-collar worker," "manager," and "other position." The majority (48.8%) chose white-collar worker (*n* = 442), 21.1% (*n* = 191) blue-collar worker, and 5.5% (*n* = 50) chose manager. The remaining 223 participants (24.6%) answered they belonged to specific sectors, for instance: trade, education, and healthcare. With respect to education, 55.5% of the respondents (*n* = 503) had a high-school diploma, 34.1% (*n* = 309) a university or higher degree; primary or junior-high school diploma was chosen by 94 respondents (10.4%). For length of service, 44.8% of the respondents (*n* = 406) reported a seniority of 5 years or less, 31.5% (*n* = 285) a seniority ranging from 6 to 20 years (with an almost equal frequency for the three classes: from 6 to 10, from 11 to 15, from 16 to 20); 23.7% of the participants (*n* = 215) had a seniority of over 20 years.

Participants were recruited with the help of students attending social psychology courses at a large Northern Italian University. Each student was asked to send the Uniform Resource Location (URL) of the questionnaire to four or six people, half of whom were men and half women. Target people had to work for different organizations and not belong to the same family. The sample obtained with this procedure included workers with different work affiliations, each belonging to a different organization. Data,

therefore, meet the assumption of independence of observations made by many statistical approaches. The respondents were all Italian.

The sample used is, thus, a convenience sample, obtained through a procedure similar to snowball sampling. It includes workers from all work sectors and various Italian regions. The unit of analysis in this study is the individual employee.

Participation in the study was anonymous and voluntary. Before accessing the questionnaire, respondents were required to agree to participate by signing an electronic informed consent. They were made aware of the aims of the survey, the duration of the task, and the possibility of withholding their consent at any time. The research project was approved by the local Ethical Committee for Psychological Research.

Regarding the sample size, it was established a priori based on the following criteria. First of all, the minimum sample size was established for the multiple regression which predicts the three outcomes (Figure 3). With a probability level of .05, a small effect size (f^2 = .02), and seven predictors (the five job characteristics and the two mediators) a sample of at least 721 respondents is needed to reach the power of .80 (Soper, 2024). With respect to the multigroup CFAs, a general rule of thumb is to have at least 200 participants for each subgroup (see Pendergast et al., 2017). The number of 721 was, therefore, exceeded to be able to form subgroups of this size.

Measures

The questionnaire included scales and questions regarding demographic characteristics, such as gender, age, educational level, length of service, and professional level. The following scales were used.

Job resources. Job resources were autonomy, social support from colleagues, and feedback on one's performance. Autonomy was measured using three items, for instance: "At work, I have some freedom in the completion of my tasks"; Cronbach's alpha was .84. The social support scale included three items, such as: "In my work environment, there is at least one employee I can ask for advice" (alpha = .77). Four items measured feedback on job performance. Representative items are: "At work, I get feedback on the effectiveness of my performance"; "I get feedback on what I need to do to improve my performance" (alpha = .87).

Job demands. Job demands were work overload and role ambiguity. The first was measured using four items, for instance: "At work, what I have to do is often complex"; "I generally have to work under tight time deadlines" (alpha = .61). Four items were used for role ambiguity too, for instance: "At work, the activities I have to perform are not clearly defined"; "The roles I have to play and rules I have to follow are not clear" (alpha = .78). As for resources, responses were coded on a 7-point scale ranging from 1 (*definitely false*) to 7 (*definitely true*) with 4 being *neither true nor false*. Larger numbers indicate the perception of higher levels of demands or resources. Items were taken from studies related to JD-R theory (e.g., Fernet et al., 2013; Van den Broeck et al., 2008, 2017).

Organizational commitment. The core measure in this study was the KUT (Klein et al., 2014). The Italian version of the scale is reported at https://u.osu.edu/commitmentmeasure/k-u-t-commitment-measure/italian/. Representative items are: "I feel committed to this organization"; "I am dedicated to this organization" (alpha = .86). Affective commitment was measured using the six AC items included in the commitment scale by Meyer et al. (1993). Representative items are: "This organization has a great deal of personal meaning for me"; "I would be very happy to spend the rest of my career with this organization" (alpha = .89). To assess the two constructs, a 7-point scale was used anchored by *definitely*

false (1) and *definitely true* (7) (4 indicating *neither true nor false*). Higher scores convey stronger organizational commitment.

Measures of the outcomes. To assess work engagement, the Italian version (Balducci et al., 2010) of the shortened Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006) was applied. This measure detects the three facets of the construct: vigor, dedication, and absorption. It includes nine items, for instance, "My job inspires me"; "I feel happy when I am working intensely" (alpha = .94). Answers were given on a 7-point scale anchored by *never* (1) and *daily* (7).

The altruism component of organizational citizenship behavior was measured using four items developed by Pond et al. (1997). Sample items are: "At work, I help others who have heavy workloads"; "I help others who have been absent" (alpha = .83). The answer format was on a 7-point scale from *definitely false* (1) to *definitely true* (7), with 4 indicating *neither true nor false*.

To assess self-reported performance, a scale elaborated by Abramis (1994; four items) was used. Sample items are: "In the last seven days you worked, how well were you handling the responsibilities and daily demands of your work?" "How well were you performing without mistakes?" The 5-point response scale was anchored by *very poorly* (1) and *very well* (5) (alpha = .81).

Analytic Strategies

Normality of answers to the four KUT items was estimated by examining the univariate (Kolmogorov-Smirnov test; KS) and multivariate distribution (HZ test by Henze & Zirkler, 1990; Mardia's tests of skewness and kurtosis). Data showed a reliable departure from normality; in fact: KSs ranged from .21 and .24, *p*s < .001; HZ was equal to 37.94, $p < .001$; for Mardia's tests, multivariate skewness and kurtosis were 1331.46 and 54.32, respectively, *p*s < .001. Given the nonnormality of ratings, in applying confirmatory factor analysis and comparing groups with the multisample method (MGCFA), maximum likelihood with adjusted means and covariances (MLMV) was used. This estimator provides standard errors and statistical tests that are robust against nonnormality (see Muthén & Muthén, 1998-2015).

To evaluate the models' fit, χ^2, the standardized root-mean-square residual (SRMR; Bentler, 1995), and the comparative fit index (CFI; Bentler, 1990) were applied. A model fits the data well if χ^2 is nonsignificant, CFI is close to .95, and SRMR is close to .08 (see Hu & Bentler, 1999). CFI and SRMR were chosen as fit indices because they offer different information about the adequacy of a model: SRMR detects models with misspecified factor covariances, whereas CFI detects models with misspecified factor loadings (see Hu & Bentler, 1999).

The invariance of the KUT factor structure across work positions, educational levels, and working seniority was evaluated using MGCFA. A series of CFA models was run and models were compared. In the first step, the one-factor model was fitted separately on the compared groups (e.g., white-collar and blue-collar workers). Then, the following models were tested: configural (same pattern of fixed and free parameters), metric (equality of factor loadings), scalar (equality of factor loadings and item intercepts), strict (equality of factor loadings, intercepts, and residual variances). The equality of latent means was examined, as well. The hypotheses of equivalence were evaluated using two difference tests for nested models: the chi-square difference test ($\Delta\chi^2$; see Asparouhov & Muthén, 2006, for MLMV as estimator) and the test of change in CFI (ΔCFI; Cheung & Rensvold, 2002). Invariance is supported by nonsignificant values of $\Delta\chi^2$s and by ΔCFIs equal to or less than |.01|. The hypothesis of factor loading invariance, for instance, is verified by

comparing the fit indices of the configural and metric models. Loadings across groups are equal if $\Delta\chi^2$ is nonsignificant and the difference between CFIs is equal to or less than |.01|.

Finally, the mediation model of Figure 1 was tested to establish the nomological and incremental validity of the KUT. As told before, autonomy, social support from colleagues, and feedback on one's performance were used as job resources, whereas work overload and role ambiguity were used as demands. In applying path analysis, all direct paths from exogenous variables to mediators and outcomes, and from mediators to outcomes, were estimated. A saturated model was therefore evaluated (chi-square equal to zero and zero degrees of freedom). The significance of indirect effects was established using bootstrapping (5,000 resamples) and the 95% bias-corrected confidence interval (maximum likelihood was the estimator).

Results

Factor Structure of the KUT

The parallel analysis highlighted that the KUT items only measured one dimension: in fact, only the first real eigenvalue (sample eigenvalue) was greater than the parallel eigenvalue (Figure 2), obtained from random data sets (1,000 data sets). For each factor, the 95° percentile of the randomly generated eigenvalues was used, rather than the mean, because it offers a more conservative estimate of the random data distribution.

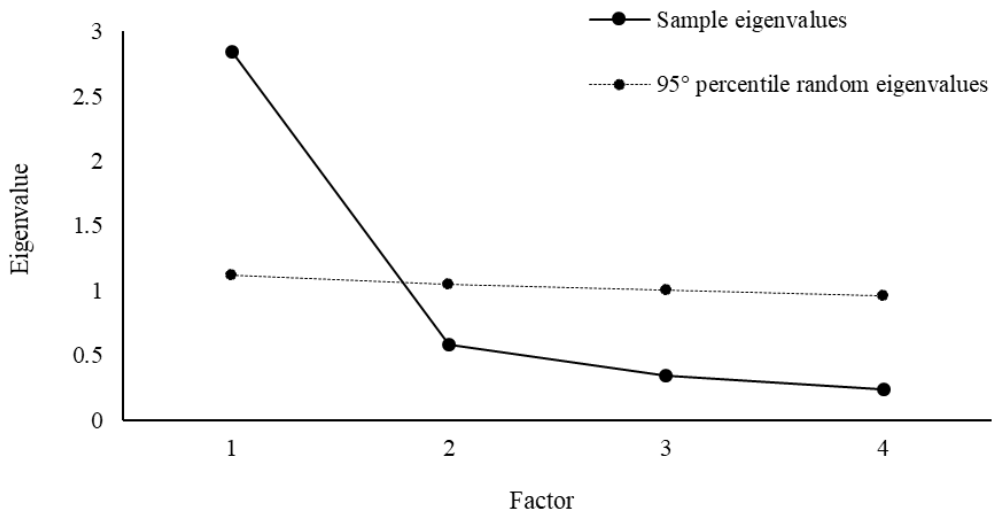


Figure 2
Scree plot of real data eigenvalues and 95° percentile of eigenvalues for random data

To confirm the one-factor configuration, CFA was run. Regarding fit indices, the chi-square was significant: $\chi^2(2) = 26.072$, $p < .001$. It is, however, unlikely to obtain a nonsignificant chi-square when the sample size is large. The other fit indices showed a good adaptation of the one-factor model: CFI = .975 and SRMR = .026. In addition, factor loadings were significant (ps < .001) and high, ranging from .61 to .87. The one-factor solution explained 62% of the total variance.

Invariance across Groups and Predictive Validity of the KUT

To test the invariance of KUT factor structure across subgroups, multisample CFA was applied. Findings showed that the four items had the same factor loadings, the same intercepts, and the same residual variances across white collars and blue collars, across workers with a high-school diploma and workers with a university or higher degree, and across workers with different seniority. In each comparison, the difference between nested models provided nonsignificant $\Delta\chi^2$s (Table 1). With only two exceptions (difference between strict and scalar models for education and work seniority), the difference between CFIs supported the invariance hypotheses (Table 1).

TABLE 1
Invariance of KUT factor structure across subgroups

Model	χ^2	*df*	*p*	CFI	SRMR	$\Delta\chi^2$	*df*	*p*	ΔCFI
Invariance across white-collar and blue-collar workers[a]									
White collars	13.933	2	< .001	.970	.030				
Blue collars	8.901	2	.012	.967	.032				
Configural	23.440	4	< .001	.969	.030				
Metric	26.874	7	< .001	.968	.033	1.077	3	.783	.001
Scalar	32.240	10	< .001	.964	.036	3.906	3	.272	.004
Strict	30.088	14	.007	.974	.040	2.137	4	.710	.010
Latent mean	32.890	15	.005	.971	.054	4.148	1	.042	.003
Invariance across workers with a high-school diploma and a university degree or higher[b]									
High school diploma	21.817	2	< .001	.954	.038				
University degree or higher	3.208	2	.201	.997	.012				
Configural	27.550	4	< .001	.972	.031				
Metric	32.605	7	< .001	.969	.044	3.751	3	.290	.003
Scalar	38.019	10	< .001	.966	.045	3.064	3	.382	.003
Strict	32.977	14	.003	.977	.047	2.474	4	.649	.011
Latent mean	35.443	15	.002	.976	.057	3.600	1	.058	.001
Invariance across groups with different levels of working seniority[c]									
Up to 5 years	8.693	2	.013	.984	.023				
From 6 to 20 years	20.854	2	< .001	.941	.044				
Over 20 years	5.034	2	.081	.985	.022				
Configural	35.206	6	< .001	.969	.031				
Metric	46.002	12	< .001	.964	.050	10.846	6	.093	.005
Scalar	55.466	18	< .001	.960	.053	5.841	6	.441	.004
Strict	52.968	26	.001	.971	.047	9.283	8	.319	.011
Latent mean	61.771	28	< .001	.964	.079	17.804	2	< .001	.007
Latent mean (free mean "from 6 to 20 years")	60.781	27	< .001	.964	.079	17.825	1	< .001	.007
Latent mean (free mean "over 20 years")	54.998	27	.001	.970	.053	2.752	1	.097	.001

Note. Multigroup confirmatory factor analysis was used to compare subgroups of participants. CFI = comparative fit index; SRMR = standardized root-mean-square residual; $\Delta\chi^2$ = chi square difference test; ΔCFI = test of change in CFI. [a] = Comparison between white-collar workers (n = 442) and blue-collar workers (n = 191; blue collars were the only subgroup with a sample size lower than 200). [b] = Comparison between participants with high-school diploma (n = 503) and participants with a university degree or higher education (n = 309). [c] = Comparison between three levels of work seniority: up to 5 years (n = 406), from 6 to 20 years (n = 285), and over 20 years (n = 215). KUT = Klein et al., Unidimensional, Target-free measure of commitment (Klein et al., 2014).

For latent means, some differences were observed. In particular, findings showed that organizational commitment increased as the length of service increased and was higher among white-collar than blue-collar workers. The expectations of difference between groups were therefore generally confirmed, with this finding supporting the predictive validity of the KUT. (Replicating Procházka et al.'s, 2019, findings, the factor structure of the KUT and latent means were equivalent across genders.)

Evaluation of the Path Analysis Model: Nomological Validation of the KUT

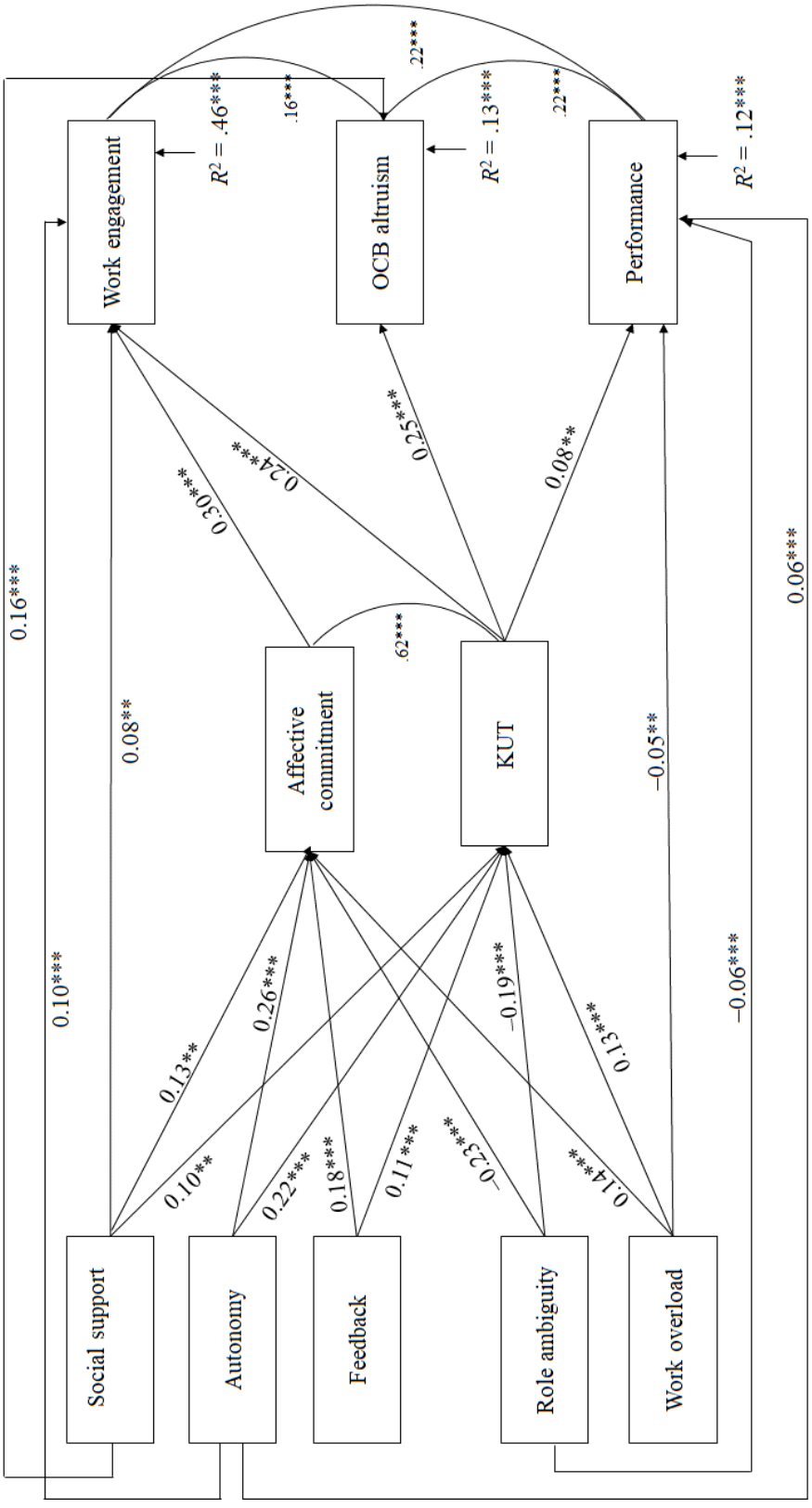
For each variable included in the mediation model (Figure 3), the mean of respective items was calculated. Correlations between composite scores are displayed in Table 2. Findings show that job resources were positively related to both AC and the KUT, whereas role ambiguity was negatively related to the two measures (effect sizes were close to medium or ranged from small to medium). Regarding work overload, contrary to the expectations, it was positively related to both forms of commitment (with effect sizes close to small). Probably, work overload (time pressure, difficult tasks) functioned as a challenge demand, namely, it was perceived by employees as an effortful, but rewarding, job experience (for the distinction between hindrance and challenge demands, see LePine et al., 2005; Podsakoff et al., 2007). The two measures of commitment were, in turn, positively related to the outcomes, especially to work engagement (correlations were from small to medium for altruism and performance; they were large for work engagement). Finally, the correlation between AC and the KUT was high (r = .72), and close to the correlation (r = .69) observed by Klein et al. (2014) in the studies on KUT validation.

Findings regarding the path analysis model are displayed in Figure 3. They show that affective commitment, positively associated with job resources and negatively with job demands (role ambiguity), was a significant predictor of well-being (work engagement). Thus, findings replicate previous studies (e.g., Sezen-Gultekin et al., 2021) and support basic concepts of Meyer and Maltin's (2010) model. As noted above, work overload, functioning as a challenge demand, was positively related to both forms of commitment; however, it was negatively related to self-reported performance.

The KUT relationships replicated those of affective commitment showing its nomological validity (Figure 3). Like affective commitment the new measure supported the hypotheses regarding organizational commitment and well-being included in Meyer and Maltin's (2010) model. Findings also showed the incremental validity of the KUT; the new scale increased the proportion of variance explained in work engagement. In addition, contrary to expectations, only the KUT, but not AC, was associated with altruism and performance.

Regarding the mediation effects (Figure 3), they were all significant: in all cases the 95% bias-corrected confidence interval did not include zero. Finally, it should be observed that the 10 variables contained in the path analysis model, were distinct constructs: for each correlation, in fact, the 95% confidence interval, defined by two standard errors above and two standard errors below the observed correlation, did not include 1.00. Figure 3 shows that also direct paths linked demands and resources to the outcomes (all data of this study are available from the corresponding author upon request).

FIGURE 3
Findings of the path analysis model applied to test the nomological validity of the KUT



Note. Only significant unstandardized regression coefficients are reported. Curved lines represent correlations. OCB = Organizational Citizenship Behavior; KUT = Klein et al., Unidimensional, Target-free measure of commitment (Klein et al., 2014). All the indirect effects are significant.
**$p < .01$. ***$p \leq .001$.

TABLE 2
Descriptive statistics and correlations for variables included in the path model (N = 906)

Variable	*M*	*SD*	1	2	3	4	5	6	**7**	**8**	9	10
1. Social support	5.88	1.26	–									
2. Autonomy	5.29	1.41	.15***	–								
3. Feedback	4.63	1.52	.27***	.20***	–							
4. Role ambiguity	2.91	1.36	–.26***	–.22***	–.36***	–						
5. Work overload	4.45	1.24	.01	.17***	–.02	.05	–					
6. KUT	5.55	1.22	.23***	.36***	.29**	–.34***	.16***	–				
7. Affective commitment	4.77	1.52	.25***	.35***	.32***	–.34***	.14***	.72***	–			
8. Work engagement	4.99	1.28	.27***	.36***	.30***	–.32***	.12***	.58***	.62***	–		
9. Altruism	5.77	1.03	.25***	.12***	.10**	–.15***	.07*	.31***	.22***	.31***	–	
10. Performance	3.97	0.65	.16***	.21***	.11***	–.23***	–.04	.26***	.22***	.35***	.30***	–

Note. Regarding performance, a 5-point scale was used: higher scores indicate higher self-reported performance. For all other measures, on the 7-point scale, higher scores indicate higher job resources or job demands, higher organizational commitment, stronger work engagement, and a higher inclination to altruism. KUT = Klein et al., Unidimensional, Target-free measure of commitment (Klein et al., 2014).
*p < .05. **p < .01. ***$p \leq .001$.

DISCUSSION

In this work, it has been investigated for the first time how the KUT works in the Italian context and provided new evidence on its validity. Supporting the first hypothesis, results demonstrated the unidimensional structure of the scale, its reliability, and measurement invariance across groups. Findings clarified that the four items have the same factor loading, the same threshold, and residual variance across white and blue collars, across workers with different levels of education, and different working seniority (gender invariance was also observed). KUT items, therefore, are suitable for measuring commitment in these groups and making comparisons between them. In line with expectations, differences in latent means were observed. In particular, commitment was higher among white collars and workers with higher seniority. These differences provide evidence in favor of the predictive validity of the KUT. Because commitment is a mindset that develops over time, it was expected that workers with longer seniority would have a stronger dedication to the company compared to workers with shorter seniority. Likewise, taking into account that commitment depends on perceiving favorable job conditions, white collars were expected to feel more committed than blue collars, who usually have heavier duties, less long-term goals, and lower involvement in the organization (for a recent multigroup CFA of the KUT, see Turek et al., 2023).

Regarding the nomological validity of the KUT (second hypothesis), it was demonstrated by path analysis findings. The KUT allowed us to support basic predictions included in Meyer and Maltin's (2010) model, particularly the prediction that OC mediates the relationship between job aspects and well-being. Meyer and Maltin stated that both affective and normative commitment have an energizing effect on well-being. Both mindsets are highly correlated with the KUT (Klein et al., 2014). These correlations (similarities) justify the use of the KUT to test the goodness of Meyer and Maltin's model and the use of the model to verify the validity of the KUT. This is the first time that Meyer and Maltin's model is validated by using the KUT (for studies based on affective commitment, see Poon, 2013; Sezen-Gultekin et al., 2021).

Path analysis findings also supported the prediction (second hypothesis) that the KUT is a reliable precursor of altruism and performance (Figure 3). No relationship was instead revealed for affective commitment, although zero-order correlations of AC with these variables were significant (rs = .22, ps < .001; Table 2). Overall, findings proved the incremental validity of the KUT (third hypothesis): it has, in fact, unique effects on the outcomes, and, of the two OC scales, only the KUT uniquely predicts altruism and performance. Probably, the influence of organizational commitment on behavior is stronger when, as in the case of the KUT, it combines affective and normative meanings (for the higher association of the KUT than affective commitment with extrarole behaviors, see Klein et al., 2014).

Figure 3 displays many direct effects of demands and resources on the outcomes. One explanation of these effects may be that the relationship between job aspects and the outcomes is mediated by both basic need satisfaction (first-level mediator) and organizational commitment (second-level mediator). Need satisfaction may have direct effects on the outcomes which are not explained by organizational commitment (for the relationship between basic needs and the outcomes of the path analysis model, see Van den Broeck et al.'s, 2016, meta-analysis). Future research should estimate the nomological validity of the KUT by including basic needs as mediators in the path analysis model.

The method used to test nomological validity presents some limitations. First of all, a cross-sectional design was applied which does not allow causal inferences. Nevertheless, findings are coherent with evidence showing that demands and resources are longitudinally related to work engagement (see Lesener et al., 2020; Schaufeli & Taris, 2014) and organizational commitment (Boyd et al., 2011) rather than the other way around (see also Hakanen et al., 2008). Concerning the relationship between organizational commitment and work

engagement, some studies support the path from affective commitment to work engagement (Chambel & Carvalho, 2022; Rivkin et al., 2018) or well-being in general (e.g., McInerney et al., 2015; Mihalache & Mihalache, 2022), other studies and meta-analyses support the opposite relation: from well-being to affective commitment (see, e.g., Brunetto et al., 2012; Mazzetti et al., 2023; Ribeiro et al., 2021). Longitudinal studies and meta-analyses of longitudinal studies are needed. Probably, the relationship between commitment and well-being is bidirectional, and just as organizational commitment leads to well-being, so well-being leads to organizational commitment. This bi-directionality can be suggested for both affective commitment and the KUT.

Another limitation of the nomological validation is that it was exclusively based on self-report measures which are associated with common method biases (Podsakoff et al., 2003). Future studies may benefit from the integration of different techniques, including observers' ratings of demands and resources and supervisors' ratings of altruism and performance. Finally, the mediation model should be evaluated using other indicators of well-being, for instance: life satisfaction could be used to operationalize hedonic well-being, whereas positive psychological capital (hope, resilience, optimism) could be used to measure eudaimonic well-being (see Meyer & Maltin, 2010, p. 331).

A further limitation is that, in validating the KUT, several of the other measures (e.g., the performance and altruism scales) were translations of existing scales; they were not independently validated. In future studies, the Italian validation of these measures would further support this study's findings.

Finally, the Italian version of the KUT only concerned organizational commitment. In further research, performed in Italy, it would be important to see if measuring commitment to other targets (e.g., the team, the supervisor, the occupation) is as reliable and valid as measuring commitment to one's organization.

Regarding path analysis findings, they have practical implications, showing that — in the workplace — the manipulation of relevant job aspects may generate benefits for the organization and the employees alike. They also show that in an organizational analysis, both affective commitment and the KUT should be used because they have unique effects on employees' well-being and behavior.

To conclude, this work demonstrates the strong validity of the Italian version of the KUT, when it is used to detect organizational commitment. It also supports the validity of Meyer and Maltin's (2010) model using for the first time this novel measure of commitment.

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