ORIGINAL PAPER

International Journal of Occupational Medicine and Environmental Health 2018;31(4):415–427
http://doi.org/10.13075/ijomeh.1896.01187

DEVELOPMENT AND VALIDATION OF THE POLISH VERSION OF COLQUITT'S ORGANIZATIONAL JUSTICE MEASURE

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Abstract

Objectives: Organizational justice is an important predictor of employees' well-being and job performance. Colquitt's Organizational Justice Measure (OJM) was designed to assess four aspects of justice – distributive, procedural, interpersonal and informational. The lack of a Polish version of the tool, however, has precluded its application in Poland. The objective of this study was to test the psychometric properties of the OJM in a Polish sample. **Material and Methods:** The validating study was conducted on 2 participant samples (N = 209 and N = 659), employed in public and private companies. Both the exploratory and confirmatory factor analyses (EFA, CFA) as well as the estimation of internal consistency with Cronbach's α method were conducted. Predictive validity was assessed by correlating organizational justice with job-related factors and outcomes, including job resources and counterproductive work behavior. **Results:** The EFA and CFA supported a 4-dimension model of the OJM Polish version. This model indicated a better fit to data than the alternatively tested 1-factor, 2-factor and 3-factor models. The internal consistency of the scales was satisfactory, ranging 0.81–0.93 for various subscales. As expected, the overall organizational justice and the four subscales correlated positively with job resources and negatively with counterproductive work behavior. **Conclusions:** The Polish version of OJM has satisfactory psychometric properties and may be useful in assessing organizational justice in a Polish setting. Int J Occup Med Environ Health 2018;31(4):415–427

Key words:
Psychometric properties, Validation studies, Organizational psychology, Organizational justice, Job attitudes, Polish version of Colquitt's Organizational Justice Measure

INTRODUCTION

The problem of justice has pervaded scholarship in various fields for centuries. Philosophers wrote about the benefits of just social systems long before sociologists, psychologists and management scientists [1]. For example, Herodotus described the achievements of the lawgiver Solon who reformed Athenian government. Plato, in turn, outlined the rules of a justly administered state. These are prescriptive approaches since they seek to determine logically what sorts of actions are truly just [2]. Unfortunately, in these approaches, there is often no agreement on what a just system should be.

Current understandings of justice differ greatly, too. For example, Aristotle noted that people in diverse roles will advocate diverse justice rules, arguing that "the democrats are for freedom, oligarchs for wealth, others for nobleness of birth" [3]. This diversity of understanding of what is fair treatment has also been reflected on the field of organiza-

Funding: this research was supported by Central Institute for Labour Protection – National Research Institute (CIOP-PIB) (project No. V-29 (2015–2016) entitled "Individual and organizational predictors of counterproductive work behavior". Project manager: Łukasz Baka, Ph.D).
Received: February 11, 2017. Accepted: July 24, 2017.
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tion. Presently, organizational psychologists and practitioners of management are less concerned with what is just and more concerned with what people believe to be just. In other words, these researchers are pursuing a descriptive agenda [2]. They try to understand why people view certain events as just as well as the consequences that follow from these appraisals for the organizations.

The construct of organizational justice was introduced by Greenberg to refer to employees' perceptions of fairness in organizations [4]. It is concerned with the ways in which employees determine whether they have been treated fairly in their jobs and the ways in which their perceptions influence other work-related variables [5]. The research on organizational justice research has flourished in the last 30 years. Results of PsycINFO searching indicate that over 2100 articles related to organizational justice were published in industrial and organizational journals of psychology from 2000 to 2016. By comparison, only 600 papers were published between 1975 and 1999 [6].

One reason for the increase of interest in organizational justice is that it is an important predictor of employees' health and job performance. For example, research has found that employees' perception of fairness is positively related to job satisfaction, perceived organizational support, leader–member exchange, task performance, work engagement, organizational commitment and organizational citizenship behavior, and negatively related to job burnout, turnover intentions and counterproductive work behavior [6–8].

Dimensions of justice

During the course of the research on organizational justice there has been continuous discussion whether the construct is best described in 1-, 2-, 3- or 4-factor conceptualizations [7]. This diversity of approaches is the reflection of the number of existing classifications of justice. The first contribution in the organizational justice field may be traced back to descriptions of distributive justice by Adams [9]. The author used a social exchange theory framework to evaluate fairness. According to Adams's theory of equity employees calculate the ratio of their contributions or "inputs" (e.g., education, intelligence and experience) to their outcomes (e.g., pay satisfaction, reward) and then compare that ratio with that of others. It is emphasized that the process of comparison of the input–outcome ratio is completely subjective for each worker. Distributive justice refers to the perceived fairness of outcomes, and especially whether employees perceive outcomes to be equitable – that is consistent with their contributions and input.

In the mid-1970s, researchers developed the concept of organizational justice and introduced other types of justice, labelled procedural justice [10]. This refers to the process leading to decisions and the amount of influence people perceive to exert on this process. In other words, procedural justice reflects the perceived fairness of the decision-making process and the degree to which decisions are consistent, accurate, ethical and open to scrutiny [11]. According to Leventhal, these procedures should meet specific criteria in order to be perceived as fair, e.g., they should be applied consistently, be free of bias, build on accurate information, ensure the possibility to correct unfair or inaccurate decisions, conform to ethical and moral standards, and incorporate the opinions of the various groups affected by the decisions [11].

The 2-factor structure of organizational justice and their differential relationships with other job-related variables were supported by a number of studies. For example, McFarlin and Sweeney [12] found that distributive justice was stronger related to affective outcomes (e.g., job satisfaction). In turn, procedural justice was more strongly associated with cognitive outcomes (e.g., organizational commitment).

In the mid-1980s, the clarity of the 2-factor model of organizational justice was confounded with the introduction of interactional justice, which was defined as the fairness perceptions of interpersonal treatment (i.e., truthfulness,

justification, respect and propriety). Interactional justice should be included during the implementation of a procedure, and the explanations provided for those procedures and decisions [13]. It is further fostered when decision-makers treat employees with respect and sensitivity, and explain the rationale behind their decisions thoroughly. Although some researchers have treated interactional justice as the third type of justice [14], others have considered it as a subset of procedural justice [5].

Moreover, some researchers have suggested that interactional justice is not a homogeneous construct and has suggested its 2 subcomponents: interpersonal justice and informational justice [15]. Interpersonal justice reflects the degree to which employees are treated respectfully, politely and with dignity by decision-makers. Informational justice focuses on the quality and quantity of information on the decision-making process distributed to people in the guise of accurate, timely and reasonable explanations. At least 2 meta-analytic reviews conducted on 183 justice studies from 1975 to 2000 [8] and on 493 justice studies from 2001 to 2010 [6] have supported a 4-dimensional model of organizational justice. The results suggest that interpersonal and informational justice should be classified as 2 distinct dimensions. Although these 2 types of justice are highly correlated, their correlation is similar to the association between procedural and distributive justice [8,12].

Moreover, the results of the meta-analysis have shown that varied dimensions of organizational justice are related to varied outcomes. For example, procedural justice is most closely related to job performance and counterproductive work behavior, while distributive justice is related to pay satisfaction, interpersonal justice to supervisor satisfaction and member exchange, and informational justice to trust [7,8].

Colquitt's Organizational Justice Measure

The literature review shows that both concepts of organizational justice as well as the methods of its measurement have evolved over the past 30 years. Greenberg [16] points out that in early studies, the overall measure of organizational justice was the only one to be taken into consideration, without distinguishing between its diverse types. Most previous justice inventories were focused on single components of justice – e.g., procedural and distributive justice [17], procedural and interactional justice [5], or interactional justice [18]. Furthermore, some authors tended to use a single question to measure justice (e.g., "How fair was the way the goal was set?") [19]. In order to understand the impact of organizational justice on an employee's well-being and behavior, however, it was important to have a standardized tool to measure the varied types of justice. Therefore, later studies introduced more comprehensive measures that consisted of varied types of organizational justice [5,12,13]. As argued by Colquitt [3], however, a certain weakness of these measures is that they attempt to measure one type of justice by means of items which seem to be more applicable to another type.

For example, in one of the more popular justice measurements developed by Moorman [5], the interactional justice subscale contains items asking whether a supervisor "considered your viewpoint" and whether s/he "was able to suppress personal biases," which seem to assess 2 of the most common procedural justice criteria: voice and bias suppression. Aquino's tool contains an interactional justice scale that assesses the extent to which a supervisor may give accurate performance ratings; thus, it rather captures a procedural justice concept [18]. Another measure of organizational justice developed by Skarlicki and Latham combined Moorman's procedural and interactional justice in one scale, labelled interactional justice [20]. One of the most complex methods, which seems to be free from the above confusion, is Colquitt's Organizational Justice Measure (OJM). The items included in the tool have been generated by strictly following the seminal works in the organizational justice domain, along with later examinations of the construct. In particular, the present author explored the theoretical approach proposed by Greenberg [15].

By means of the confirmatory factor analysis, multiple a priori factor structures, including 1-factor, 2-factor, 3-factor and 4-factor conceptualizations in 2 independent studies were compared. The data indicated that the best fitting model was the 4-factor model and the worst was the 1-factor model.

Finally, Colquitt's Organizational Justice Measure consists of 20 items and includes four subscales of organizational justice – distributive, procedural, interpersonal, and informational [3]. In order to estimate overall justice, the aggregated measure of those four components may be used. The OJM has been used in many studies across a variety of industries and settings [21–23]. It has been translated and used in numerous countries, including the United States [3], Germany [21], Japan [22], Norway [23], Australia [24], and Spain [25]. In each of the countries, the psychometric properties of the OJM were satisfactory. All the studies also confirmed 4-factor structure of the tool.

The aim of the study

This study examined Colquitt's 4-factor model of organizational justice in Polish conditions. To the best of my knowledge no Polish adaptation of the OJM has been previously performed. The objectives of the research included:

- validation of the factor structure of the Polish version of the OJM,
- determination of reliability of the OJM,
- test of convergent validity of the OJM.

In line with the original research on the OJM [3], the 4-factor structure of organizational justice is expected. In terms of convergent validity, it was predicted that the four types of justice would show positive correlations with job resources (i.e., job control, social support) and negative correlations with counterproductive work behavior. The criterion variables were selected on the basis of the previous studies [6,26].

The analysis was performed on 2 independent samples. The exploratory factor analysis was conducted in sample 1 (N = 209), while in sample 2 (N = 659) the confirmatory factor analysis (CFA) was performed. Convergent validity was examined in sample 1 but descriptive statistics and reliability coefficients were calculated in both samples.

MATERIAL AND METHODS

Procedure

The studies were carried out in 2015–2016. In both samples, the examined individuals were blue-collar and white collar workers employed in private and state-owned companies and institutions, such as: civil servants, public administration officials, customer service employees, office personnel, production staff, and accountants. Questionnaires were distributed at state-owned and private organizations in four regions of Poland by research assistants (i.e., undergraduate students).

Potential respondents received a hard copy of the questionnaires along with a letter explaining the purpose of the study. Full confidentiality of data and anonymity were assured. Those who provided informed consent were asked to fill out the questionnaires and seal them in envelopes which were subsequently collected by research assistants. All the participants were treated in accordance with the ethical guidelines of the Helsinki Declaration.

Study population

Sample 1

The data used in the study 1 was collected from April to July 2015. The participants of the study 1 (N = 209) were workers employed in state-owned (N = 108, 52%) and private (N = 101, 48%) companies. Out of the 300 questionnaires distributed, 209 were completed, for a response of 70%. Women constituted the majority of the sample (N = 122, 58%). Mean (M) age was 38.23 (standard deviation (SD) = 8.49) and mean job seniority was 14.42 (SD = 9.86).

Sample 2

The study on sample 2 was conducted between February and May 2016. Out of the 800 questionnaires distributed, 659 (82.4%) were returned complete in at least 75% and were subsequently used for data analysis. The sample was composed of 397 (60%) women and 262 (40%) men, with an average age of 37.24 (M = 37.24, SD = 8.79) and job seniority of 14.43 (SD = 7.62). The examined group comprised employees of state-owned (N = 364, 55%) and private (N = 295, 45%) companies. A significant proportion of participants (N = 268, 40%) were employed on managerial positions, while the rest (N = 391, 60%) were employed as executive workers.

Instruments

The Organizational Justice Measure (OJM) was obtained according to the authorized process, that is, a translation from English into Polish and translation back from Polish into English was approved for use. OJM includes twenty items referring to the four types of organizational justice – procedural (7 items, e.g., "To what extent have you been able to express your views and feelings during those procedures?"), distributive (4 items, e.g., Does your outcome reflect the effort you have put into your work?"), interpersonal (4 items, e.g., "Has s/he treated you in a polite manner?"), informational (5 items, e.g., "Has s/he explained the procedure thoroughly?").

All items use a 5-point scale with anchors of 1 (to a small extent) to 5 (to a large extent). This summated rating scale assesses the aggregated indicator of organizational justice. High scores represent a high level of organizational justice. In the study concerning the validation of the American version of the inventory, the reliability coefficients for the individual scales were $\alpha = 0.78$ for procedural justice, $\alpha = 0.79$ for interpersonal justice, $\alpha = 0.79$ for informational justice and $\alpha = 0.92$ for distributive justice [3].

In order to establish the convergent validity of OJM, job resources which included job control and social support were taken as criterion variable. They were measured against the Polish version of the Job Content Questionnaire [27,28]. For job control, 2 subscales were used. One subscale, skill discretion (6 items), assesses "both the level of skill and creativity required on the job, and the flexibility permitted the worker to decide what skills to employ, and skill underutilization" [28, p. 585].

Another subscale, decision authority (3 items), assesses "the organizationally mediated possibilities for a worker to make decisions about their work" [28, p. 585]. Each item on these 2 subscales has four response categories (from 1 = totally disagree, to 4 = totally agree). The global index of job control was utilized in this study. The Social Support dimension was assessed with 2 subscales. One subscale relates to Supervisors' Support (4 items), i.e., both emotional and instrumental support. The same aspects of support were measured with the Co-workers' Support scale (5 items). Each item on these two scales has four answer categories (1 = totally disagree, 4 = totally agree).

Counterproductive work behavior was measured with a Polish version of the Counterproductive Work Behavior-Checklist [29,30]. The CWB-C consists of 32 items. Responses are provided on a 5-point scale ranging from 1 (never) to 5 (every day). Five subscales may be distinguished – abuse (harmful behavior that affects other people), production deviance (deliberate violation of the quality or quantity of work norms), sabotage (destroying the physical environment), theft, and withdrawal (avoiding work by being absent or late).

Although 5 theoretical subscales are distinguished [29], the empirical evidence for the multi-component structure is limited (e.g., investigation of the structure with the confirmatory factor analysis). Thus, the 33-item scale is often used for indicating one global index. The general index of the CWB-C was used in this study.

Statistics

The SPSS version 21.0 statistical package was used for computing descriptive statistics, exploratory factor analyses (EFA), correlation analyses and internal consistency. The confirmatory factor analysis (CFA) was conducted using AMOS software. This research was performed on 2 independent samples. In sample 1 (N = 209) the factorial validity of the Polish version of the OJM was examined by the EFA of choice. The fit of the factor structure identified in sample 1 was examined in sample 2 (N = 659) by performing a CFA.

The CFA was conducted because confirmatory procedures offered more rigorous testing than exploratory analyses. As multivariate normality is assumed for most CFA estimation methods, and departures from multivariate normality may have a significant impact on CFA estimations [31], descriptive analytical measures were calculated prior to conducting the CFA. For the OJM, univariate and multivariate kurtosis statistics were found, indicating non-normality; therefore, the CFA was carried out using the asymptotically distribution-free (ADF) method according to the guidelines for non-normal data and large samples [32].

Following Colquitt [3], 4 diverse CFA models were explored and compared with each other [3]:

– 1-factor model which includes all items of the OJM;
– 2-factor model which consists of 2 types of justice – procedural (where procedural, interpersonal and informational justice are combined – 16 items) and distributive;
– 3-factor model which consists of 3 types of justice – procedural (7 items), distributive (4 items) and interactional (where interpersonal and informational justice are combined – 9 items);
– 4-factor model corresponding to the 4 dimensions of organizational justice conceptualized by Colquitt – procedural (7 items), distributive (4 items), interpersonal (4 items) and informational (5 items).

Based on Hoyle's [33] recommendations, and according to the multi-faceted approach to the assessment of model fit [34], the following goodness of fit indices were considered: the root mean square error of approximation (RMSEA), Chi^2 to df ratio (CMIN/df), the goodness of fit index (GFI), the adjusted goodness of fit index (AGFI), the comparative fit index (CFI) and HOELTER fit index. The root mean square error of approximation values lower than 0.05 are considered good, while values lower than 0.08 are considered acceptable. CMIN/df values lower than 2 are usually considered good while values from 2 to 5 indicated acceptable model fit. GFI, AGFI and CFI values equal to or higher than 0.90 are considered acceptable, while values equal to or higher than 0.95 are considered good [32]. HOELTER values higher than 200 indicate good model fit. The Chi^2 values are provided for each analysis but are not used for evaluating the overall model fit, as the Chi^2 test is inappropriate for large samples [32].

Descriptive statistics and the reliability of the OJM by means of Cronbach's α were investigated in both the study samples. Finally, convergent validity was assessed in sample 1 by calculating Pearson's correlation coefficients for each OJM subscale with (a) counterproductive work behavior, and (b) job resources – job control and social support. In the previous study organizational justice was negatively correlated with counterproductive work behavior [6] and positively correlated with job resources [26]. Therefore, similar relationships between these variables were expected in the current study.

RESULTS

Exploratory factor analysis

In order to verify the internal structure of the OJM questionnaire, an exploratory factor analysis (EFA) was carried out, under Varimax rotation with Kaiser normalization. The measures determining the adequacy of the selection of variables were the Kaiser-Meyer-Olkin (KMO) index and Bartlett's test of sphericity. The Kaiser criterion, which recommends factors with eigenvalues above 1, was applied to determine the number of factors, together with

Cattell's scree test with the drop point analysis. The EFA was conducted on sample 1. The findings suggested a 4-factor structure of the OJM, similar to that proposed by Colquitt.

The Table 1 includes the descriptive statistics and factor loadings for the 4-factor solution – distributive (DJ), procedural (PJ), interpersonal (INTJ) and informational (INFJ) justice. The obtained results indicate that the four factors with eigenvalues > 1 explained 74.86% of the total variance. The first factor reflected procedural justice and explained 43.18% of the total variances. The remaining factors were related to distributive, interpersonal and informational justice and explained 6.32%, 5.42% and 3.71% of the total variances respectively. Thus, it is clear from the above mentioned discussion that the structure of the Polish version of the OJM turned out to be fully in line with the original version of the tool proposed by Colquitt [3].

Confirmatory factor analysis

In CFA, 1-factor, 2-factor, 3-factor and 4-factor structures were compared. One-factor, 2-factor and 3-factor struc-

Table 1. Descriptive statistics for the items of the Polish version of Colquitt's Organizational Justice Measure (OJM) and exploratory factor analysis – Sample 1 (N = 209)*

OJM item	Factor 1 (PJ)	Factor 2 (DJ)	Factor 3 (INTJ)	Factor 4 (INFJ)	M	SD	Item skewness	Item kurtosis
PJ1	**0.680**	0.296	0.014	–0.010	3.16	0.98	–0.09	–0.27
PJ2	**0.736**	0.224	–0.214	–0.001	3.03	1.03	0.12	–0.78
PJ3	**0.793**	–0.013	–0.028	0.081	3.00	1.00	–0.50	–0.43
PJ4	**0.932**	–0.205	0.084	0.025	2.93	1.00	–0.14	–0.34
PJ5	**0.799**	–0.014	0.049	0.044	2.81	0.87	0.10	0.34
PJ6	**0.587**	0.169	–0.049	0.095	2.95	0.96	0.03	–0.46
PJ7	**0.793**	–0.053	0.149	0.042	2.78	0.87	–0.01	–0.13
DJ1	–0.064	**0.763**	0.162	–0.036	2.70	0.89	0.12	–0.02
DJ2	0.001	**0.894**	–0.072	0.040	2.89	1.01	0.16	–0.87
DJ3	0.015	**0.855**	0.042	0.030	3.04	0.98	–0.27	–0.49
DJ4	0.102	**0.746**	–0.026	0.044	3.02	0.95	0.02	–0.19
INT1	–0.057	0.039	**0.941**	–0.009	2.38	0.83	–0.01	–0.34
INT2	–0.034	0.013	**0.902**	0.037	2.41	1.02	0.52	–0.51
INT3	0.023	0.029	**0.922**	–0.044	2.55	0.99	0.05	–0.69
INT4	0.107	–0.013	**0.828**	0.011	2.57	1.00	0.20	–0.43
INF1	0.012	0.132	0.137	**0.676**	2.83	0.89	0.05	0.32
INF2	0.043	0.002	–0.038	**0.866**	2.88	1.04	0.17	–0.91
INF3	0.052	0.021	0.018	**0.838**	3.07	0.94	–0.28	–0.20
INF4	0.104	–0.088	–0.018	**0.851**	3.05	0.96	–0.13	–0.48
INF5	–0.028	0.064	–0.037	**0.884**	2.89	0.93	0.07	–0.03

* Workers employed in state-owned (N = 108; 52%) and private (N = 101; 48%) companies.
PJ – procedural justice; DJ – distributive justice; INTJ – interpersonal justice; INFJ – informational justice.
M – mean; SD – standard deviation.

Table 2. Goodness of fit statistics for 4-factors model of the Polish version of Colquitt's Organizational Justice Measure (OJM)

Model	CMIN(df)	CMIN/df	RMSEA (90% CI)	GFI	AGFI	CFI	N-HOELTER
1-factor	3 299.606 (170)	19.409	0.168 (0.163–0.173)	0.614	0.523	0.698	43
2-factor	945.354 (169)	5.595	0.086 (0.081–0.091)	0.803	0.761	0.486	149
3-factor	2 346.936 (167)	14.054	0.141 (0.136–0.146)	0.682	0.600	0.790	66
4-factor	706.716 (164)	4.309	0.074 (0.069–0.080)	0.894	0.865	0.943	209

CMIN – Chi² fit index; CMIN/df – Chi² fit index divided by degrees of freedom; RMSEA – root mean square error of approximation; GFI – goodness of fit index; AGFI – adjusted goodness of fit index; CFI – comparative fit index; N-HOELTER – Hoelter index fit.
CI – confidence interval.

tures were chosen for comparison because of their prevalence in the justice literature [8,22]. The Table 2 shows the fit indices of the four models. It was concluded that the results support a 4-factor structure more strongly (RMSEA = 0.074, CMIN/df = 4.309, GFI = 0.904, AGFI = 0.885, CFI = 0.943, N-HOELTER = 209) compared with:

- 1-factor structure (RMSEA = 0.168, CMIN/df = 19.409, GFI = 0.614, AGFI = 0.523, CFI = 0.698, N-HOELTER = 51);
- 2-factor structure (RMSEA = 0.084, CMIN/df = 5.594, GFI = 0.808, AGFI = 0.761, CFI = 0.486, N-HOELTER = 149);
- 3-factor structure (RMSEA = 0.131, CMIN/df = 14.054, GFI = 0.682, AGFI = 0.600, CFI = 0.790 and N-HOELTER = 68).

Based on the results, the 4-factor solution was chosen for further analysis. Despite the fact that a 4-factor model achieved the best-fit parameters among all analyzed models, only some of the parameters fall within the lower acceptability limit.

Therefore, in order to maintain the original structure of the tool, an attempt was made to improve the model fit parameters. To that end, a covariance of measurement errors of some items within the range of the same factor (modification indices) was imposed. The imposition of 4 covariances amongst measurement errors (in item pairs: 1–2, 4–5, 12–13 and 16–18) helped to improve the model fit parameters: RMSEA = 0.058, CMIN/df = 2.662, GFI = 0.934, AGFI = 0.905, CFI = 0.966, N-HOELTER = 327. The model fit parameters obtained in this way may be considered acceptable.

The Table 3 presents the results of the 4-factor solution: (1) descriptive statistics, (2) standardized regression weights factor (SRW), which is the CFA's measure of factor loadings, and (3) the squared multiple correlation coefficients (SMC), which describe the amount of variance the common factor accounts for the observed variables. Regarding the distributional properties of the 20 items, means ranged 2.98–3.84, standard deviations ranged 0.90–1.15, skewness ranged –0.66–0.07, and kurtosis ranged –0.83–0.07.

The completely standardized item loadings ranged 0.625–0.903 and all factor loadings were statistically significant at $p < 0.001$. The R^2 for items ranged 0.391–0.807. The results obtained justify the factorial validity of the Polish version of the instrument. Furthermore, these results are comparable to a large extent with those obtained by Colquitt [3], both at the level of global fit of the 4-factor model and of the values of item factor loadings.

Descriptive statistics and reliability

The Table 4 includes the means, standard deviations and Cronbach's α reliability coefficients of the OJM

Table 3. Descriptive statistics for the items of the Polish version of Colquitt's Organizational Justice Measure (OJM) and confirmatory factor analysis – Sample 2 (N = 659)*

OJM item	M	SD	Item skewness	Item kurtosis	SRW	SMC
PJ1	3.13	1.13	–0.22	–0.76	0.772	0.596
PJ2	3.07	1.13	–0.12	–0.81	0.750	0.563
PJ3	3.12	1.14	–0.12	–0.75	0.768	0.591
PJ4	3.27	1.08	–0.19	–0.56	0.743	0.553
PJ5	3.31	0.96	–0.20	–0.20	0.789	0.623
PJ6	3.19	1.10	–0.15	–0.68	0.739	0.546
PJ7	3.41	0.99	–0.21	–0.37	0.829	0.687
DJ1	3.46	1.04	–0.44	–0.38	0.625	0.391
DJ2	3.10	1.09	–0.16	–0.81	0.850	0.722
DJ3	3.05	1.14	0.07	–0.83	0.898	0.807
DJ4	2.98	1.15	–0.06	–0.75	0.822	0.676
INT1	3.84	0.90	–0.51	–0.03	0.903	0.815
INT2	3.79	0.99	–0.66	–0.11	0.893	0.798
INT3	3.76	1.00	–0.49	–0.45	0.888	0.788
INT4	3.70	1.00	–0.49	–0.38	0.830	0.688
INF1	3.34	0.97	–0.39	0.07	0.813	0.662
INF2	3.27	1.05	–0.27	–0.61	0.842	0.709
INF3	3.19	1.03	–0.09	–0.54	0.870	0.757
INF4	3.15	1.06	–0.08	–0.70	0.805	0.648
INF5	3.24	0.98	–0.22	–0.26	0.841	0.707

* Workers employed in state-owned (N = 364; 55%) and private (N = 295; 45%) companies.
SRW – standardized regression weight; SMC – squared multiple correlation.
Other abbreviations as in Table 1.

achieved in samples 1 and 2. The values of means and standard deviations for each type of organizational justice ranged from 3.05 and 0.70 for procedural justice, to 3.52 and 0.84 for interpersonal justice. These values of the means and standard deviations are adequate and comparable to results achieved by Colquitt [3] in the US validation study. In comparison with the Polish sample, the values of Cronbach's α coefficients obtained in the American sample are slightly lower: α = 0.92 for the DJ, α = 0.78 for the PJ, α = 0.79 for the INTJ and α = 0.79 for the INTJ, respectively.

Convergent validity

Convergent validity was examined by analyzing the relationships between general and specific scales of justice on the one hand, and the 3 criterion variables, including job resources (i.e., job control and social support) and counterproductive work behavior (CWB) on the other. In previous studies on the validation of OJM, the variety of the criterion variables were applied in numerous countries – e.g., job satisfaction, anxiety, depression and effort-reward imbalance index in Japan [22], job satisfaction and work incivility in Spain [25], and job satisfaction, job stress,

Table 4. Descriptive statistics and Cronbach's α reliability coefficients of the general scale and subscales of the Polish version of Colquitt's Organizational Justice Measure (OJM)

OJM item	Sample 1			Sample 2		
	M	SD	α	M	SD	α
OJ	3.15	0.62	0.93	3.29	0.77	0.95
PJ	3.05	0.70	0.86	3.19	0.88	0.92
DJ	3.08	0.76	0.81	3.13	0.96	0.88
INTJ	3.52	0.84	0.89	3.76	0.90	0.93
INFJ	3.06	0.79	0.88	3.23	0.89	0.92

OJ – occupational justice.
Sample 1 (N = 209) – workers employed in state-owned (N = 108; 52%) and private (N = 101; 48%) companies.
Sample 2 (N = 659) – workers employed in state-owned (N = 364; 55%) and private (N = 295; 45%) companies.
Abbreviations as in Tables 1 and 3.

intention to leave and organizational citizenship behavior in Germany [21]. In a recent meta-analysis, however, Colquitt [6] tested the 4-factor model of justice in relation to the CWB; therefore, this factor was included in the current study.

The Table 5 shows the correlation coefficients for the relationships of global measure of organizational justice and the four specific types of organizational justice with the criterion variables – job resources (job control and social support) and the CWB. As expected, all types of organizational justice were significantly positively related to job resources (from $r = 0.17$; $p < 0.05$ for INTJ and job control to $r = 0.28$; $p < 0.01$ for INFJ and social support) and significantly negatively related to the CWB (from $r = –0.11$; $p < 0.05$ for DJ and CWB to $r = 0.23$; $p < 0.001$ for INTJ and CWB).

Table 5. Correlation analysis between the general scale and subscales of the Polish version of Colquitt's Organizational Justice Measure (OJM), job resources and counterproductive work behavior

Variable	Pearson's correlation						
	OJM	PJ	DJ	INTJ	INFJ	JC	SS
Organizational justice type							
OJ	–						
PJ	0.91***	–					
DJ	0.84***	0.71***	–				
INTJ	0.67***	0.45***	0.43***	–			
INFJ	0.89***	0.76***	0.69***	0.51***	–		
Job resources							
JC	0.26***	0.23**	0.27***	0.26***	0.18**	–	
SS	0.27***	0.21***	0.24***	0.17*	0.28***	0.15*	–
Counterproductive work behavior	–0.21**	–0.13*	–0.11*	–0.23**	–0.16*	–0.07	0.04

JC – job control; SS – social support.
*** 0.001.
** 0.01.
* 0.05.
Other abbreviations as in Tables 1, 3 and 4.

The findings show that the strength of the relationship of the four types of justice with the criterion variables was not high (in the case of CWB particularly) but the correlation direction was consistent with expectations. Moreover, the strength of correlation coefficients observed in Colquitt's meta-analysis is quite similar (e.g., $r = –0.12$; $p < 0.05$ for INTJ and CWB-I). Thus, it may be concluded that the obtained findings confirm, to some extent, the convergent and discriminant pattern of relationships between global and specific organizational justice and other variables related to functioning in the work environment. The four types correlated with overall organizational justice (from $r = 0.67$; $p < 0.001$ for INTJ to $r = 0.91$; $p < 0.001$ for PJ) and with each other (from 0.43 for DJ and INFJ, to 0.76 for PJ and INFJ). Similar relationships were observed in the meta-analysis of Colquitt's study [8].

DISCUSSION

The main purpose of this study was to validate the Polish version of Colquitt's Organizational Justice Measure (OJM). The tool was tested in 2 independent samples. The analyses of the tool included the checking of the OJM structure, reliability and convergent validity. The findings of this study supported the 4-factor structure of the OJM similar to that proposed by Colquitt and confirmed its validity in the Polish sample.

The results of the exploratory and confirmatory analyses were consistent with those reported in previous studies, e.g., in the United States [3], Norway [24] and Spain [25], which indicated a 4-factor solution: DJ, PJ, INTJ and INFJ. These types of OJ are separate but related. The obtained findings show that the Polish version of OJM has satisfactory reliability. Although correlations between subscales were high, their distinctiveness was demonstrated. The mean values and Cronbach's α coefficients of the subscales seemed to be similar to those found in previous studies conducted in other countries [3,24].

Convergent validity was established with moderate correlations with other reliable instruments developed to assess organizational factors. As expected, the general and four specific types of organizational justice were positively associated with 2 kinds of job resources (high job control and high social support) and negatively related to counterproductive work behavior. The results are consistent with expectations but observed the strength of correlation coefficients is not high. However, similar coefficient values were obtained in previous studies [6].

This study has several limitations that should be noted. Firstly, the research sample is not representative of the general population. Although it includes employees from the private and public sectors, the results are limited only to employees of commercial companies and public services. Therefore any general conclusion should be done very carefully. The results of the presented study require further investigation on other occupational groups (e.g., social services and non-profit organizations). The reliability of the Polish version of the OJM by means of the test-retest method was not examined. This kind of verification is needed in the future.

Moreover, both organizational justice and criterion variables were assessed by self-reports, therefore the results might be contaminated by the common method variance or the self-report bias. Further studies are needed to validate the measure in a manner less susceptible to the same source bias. Next thing, as in any study using self-report measures, the results might be influenced by the participants' tendency to acquiescence and need for social desirability. Although anonymity of individuals has been provided, the motive for self-presentation cannot be ruled out. Maybe, experimental studies relying on the manipulation of varied justice dimensions will be needed in the future.

CONCLUSIONS

In spite of its limitations, this study has some broad, general implications for the justice literature as a whole.

Taking into consideration the findings obtained in this study as well as in the studies conducted in other countries [3,24,25], it may be concluded that the OJM is universal and, therefore, an important measure of OJ. Moreover, the Polish version of the tool may help Polish researchers, professionals, managers and Human Resources specialists to explore the organizational justice phenomenon and its impact on job performance and the well-being of workers.

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