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PSYCHOMETRIC PROPERTIES OF INDONESIAN VERSION CO-WORKER SUPPORT SCALE

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Abstract

This study aimed to validate the Indonesian Version of the Co-worker Support Scale. A scale used to measure co-support in organization. The International Test Commission (ITC) Guidelines for Translating and Adapting Test Second Edition procedure used to adapt this scale. A total of 318 employees (M = 44%, F = 56%; *SD* Age = 8.3) from various organizations were involved in this study. Based on the Rasch model analysis, it indicated that the Co-worker Support Scale has good internal consistency. The result showed that the scale's factor structure was unidimensional, RV= 60.8%. It means that the items can be effectively able to measure co-worker support. The significant chi-square value indicates that the data is fit to the model, $\chi^2(4118) = 8017.19$, $p < .01$. The answer choice category option with 5 answer choices can be preserved. Moreover, no differential item functioning was found based on gender, education level, and type of organization. Overall, the results indicated that this 14-item scale, including its psychometric properties, was satisfactorily reliable and valid to measure co-worker support in the organizational context in Indonesia.

Keywords: peer support; adaptation; Rasch model

INTRODUCTION

Peer support is very important at work (Mathieu et al., 2019) and can be a valuable resource for employees (Halbesleben et al., 2014). For Indonesian society with collectivistic culture, individuals or employees hold a high preference for a social framework where an individual is expected to be able to adapt with others or a group they are in (Hofstede et al., 2010). Individuals are socially dependent and enjoy close contact or support from others (Xu et al., 2017). Co-worker support is a form of social support within the workplace and can improve team performance (Bishop et al., 2000). Susskind et al. (in Loi et al., 2014) define co-worker support as the extent to which employees believe that co-workers are willing to provide work-related assistance to support in the carrying out of tasks. A study (Loi et al., 2014) shows that co-worker support is not only the provision of information or task-related assistance but includes socio-emotional support such as providing personal attention and empathy.

There are two forms of co-worker support: instrumental and emotional support. Instrumental support focuses on tasks and goals which get the job done, while emotional support focuses on people based attention and personal friendship (Tews et al., 2013). Studies on co-worker support have positively contributed to organizations and have gained attention in Indonesia, including improving performance (Mukarramah & Chalil, 2020; Wenang & Affifatusholihah, 2020), relating to self-resilient (Santoso & Setiawan, 2018).

The variety of measuring instruments adopted to assess co-worker support raises the need to further examine a more precise Co-worker Support Scale. In addition, these studies did not provide a detailed psychometric explanation of the measuring instruments applied to evaluate co-worker support. The aim of this study was to adapt the Co-worker Support Scale developed by Setton and Mossholder suited to the organizational context (Tews et al., 2013) to obtain psychometric properties which can be validated using the Rasch model. Testing of

this measuring instrument is adequately carried out on employees from various organizations to draw an idea of the functioning of the items. Among them are Differential Item Functioning (DIF), response category function, item suitability, and reliability. If adapted properly, it will benefit future studies especially on the subject of co-worker support in the organizational context in Indonesia. There have been no previous co-worker support studies in Indonesia using various scales (Ariani, 2015; Santoso & Setiawan, 2018).

The advantage of Rasch model is that the analysis results are more accurate. In the analysis at the instrument level, if the data is in accordance with the Rasch model, the mean square value is 1.0 while the Z-standardized values are 0.0. Boone et al. (2014) stated to check the suitability of the items with the criteria, namely: Point Measure Correlation (x): $.4 < x < .85$, Outfit Mean Square (y): $.5 < y < 1.5$, Outfit Z-standard (z): $-2.0 < z < +2.0$. An item is not suitable (misfit) if it does not meet these three criteria, which indicates that the item does not measure the required characteristics.

METHOD

Participants

Table 1.
Descriptive Statistics

		n	%
Gender	Male	140	44
	Female	178	56
Type[a]	BUMN[b]	26	8.2
	Public	56	17.6
	Private	236	74.2
Education	Highschool	23	7.2
	Diploma	14	4.4
	Bachelor	212	66.7
	Master	65	20.4
	Doctoral	2	0.6
	Specialist	2	0.6

Note.
[a]Organization type.
[b]State-owned enterprises.

Participants were employees from various organizations in Indonesia, randomly selected and willing to participate in this study. Initially, 326 data was obtained, but after screening only 318 data could be analyzed due to incomplete data filling and some participants objecting if the data was to be used for publication. Table 1 shows descriptive data. The participants filled out the study scale through Google Form after the purpose of data collection had been explained. Participants also filled out an informed consent indicating the participant's approval to participate in this study and agree for the data to be used in the publication.

Instrument

The measuring instrument or study instrument applied in this study was adapted from the Co-worker Support Scale developed by Setton and Mossholder which is suited to the organizational context (Tews et al., 2013). In the study of Tews et al. (2013), the psychometric description of the measuring instrument was as follows: instrumental and emotional support items were included in the respective latent constructs. The results were statistically significant Chi-square, χ^2 (72, n = 188) = 133.78, $p < .01$, Comparative Fit Index (CFI) was .95, Tucker–Lewis Index (TLI) = .94, the root mean square error of approximation (RMSEA) = .07, and standardized root mean square residual (SRMR) = .05. In the study of Xu et al. (2017) emotional support had a value of $\alpha = .94$ and instrumental support had a value of $\alpha = .93$.

This study performed an adaptation into an Indonesian version using the International Test Commision (ITC) Guidelines for Translating and Adapting Test Second Edition (2016). A total of 14 statements have been translated and reviewed by experts both in terms of language and content. The Co-worker Support Scale consists of two dimensions, 6 items of instrumental support (e.g., "My co-workers assist me with heavy workloads") and 8 items of emotional support (e.g., "My co-workers take time to listen to

my concerns"). The Co-worker Support Scale has five response choices from 1 (strongly disagree) to 5 (strongly agree). The raw scores were calculated, with scores ranging from 0-70. High scores indicate higher co-worker support.

Data Analysis

For data analysis, this study applied the Rasch model with Winstep software (version 3.73) to perform reliability analysis, rating scale, psychometric properties and DIF (Differential Item Function).

RESULT AND DISCUSSION

This study aimed to validate the Indonesian Version of the Co-worker Support Scale. The data was analyzed using the Rasch model as a comparison from previous studies (see Tews et al., 2013; Xu et al., 2017).

Table 2 shows that the items on the Co-worker Support Scale vary with the average logit item being 0.00 and the standard deviation approaching the value of 1 logit (.54). The value of person reliability (.92), item reliability (.97) indicates that the instrument has good internal consistency. The interaction between person and item is good, indicated by the value of the Alpha Cronbach coefficient (.95). The team support scale has a special unidimensionality measurement because it has a value of 60.8%, greater than 60% (Sumintono & Widhiarso, 2014). This reveals that the items are able to effectively measure peer support. The value of outfit mean-square between person and item is 1.01, supported by significant chi-square level indicating that the data is fit to the model, $\chi^2(4118) = 8017.19$, $p < .01$ (Boone et al., 2014).

Table 2.
Summary Statistics

	Person	Items
N	318	14
Measures (logit)		
Mean	1.17	.00
SD	1.92	.54
SE	.11	.15
Outfit Mean Square		
Mean	1.01	1.01
SD	.89	.38
Separation	3.39	5.56
Reliability	.92	.97
Alpha Cronbach	.95	
Chi-Square	8017.19**	
RV	60.8%	

Note. RV = Raw Variance Explained by Measure.
** $p < .01$.

Table 3.
Respondent's Answer Choice Category

Response Category	*f*	%	Average Measure	Outfit MNSQ	Step
1 (STS)	164	4	-2.41	2.53	NONE
2 (TS)	485	11	-1.14	1.00	-3.00
3 (N)	1182	27	+ .23	.82	-1.23
4 (S)	1966	44	+1.77	.85	+ .54
5 (SS)	655	15	+3.70	.94	+3.69

Source: *summary of category structure*

Table 3 shows that observed average reveals an increase in the value of each rating, moving up from -2.41 to +3.70. This confirms that the answer choice category option is already correct for the respondents. In addition, the choice of value 1 is above the outfit MNSQ limit value, which is 2.53 (ideal MNSQ = .5-1.5), but the format of these five answer choices can still be maintained because the distance between the threshold is still in the range of 1.4 – 5.0 (Van Zile-Tamsen, 2017).

Table 4.
Psychometric Properties

Item	Logit	Measure	Infit MNSQ	Outfit MNSQ	Pt. Measure Correlation
12	1.36	.08	2.05	2.24	.54
7	.01	.09	1.22	1.27	.72
2	.82	.09	1.06	1.17	.73
5	.27	.09	1.01	1.01	.78
14	-.40	.09	1.00	.92	.76
9	-.64	.09	.96	.93	.78
3	.03	.09	.96	.96	.78
8	-.67	.09	.93	.91	.76
6	.14	.09	.92	.90	.77
1	-.65	.09	.88	.92	.77
4	.02	.09	.80	.80	.80
13	-.01	.09	.77	.75	.80
11	-.30	.09	.72	.70	.84
10	.03	.09	.66	.68	.83

According to Table 4, it can be concluded that item number 12 needs to be considered for revision. The statement in the item is "My co-workers take a personal interest in me", and in the cultural context of Indonesia, respondents are predicted to be hesitant to response to this item. In the eastern cultural values they hold, respondents are unwilling to openly show interest in the opposite sex at work. The results of the study from Lita et al. (2016), explained that attraction to the opposite sex is perceived differently between western and eastern cultures. In Indonesian culture, showing physical attraction and approaching the opposite sex is not acceptable, this is strongly influenced by religion.

However, according to table 5, the items on the Co-worker Support Scale as a whole do not contain gender bias, education level or type of organization. Detection of bias on items based on gender, education level, and type of organization for the Co-worker Support Scale is displayed in table 5.

Table 5.
Differential Item Functioning

Item	Probability		
	Gender	Education Level	Type of Organization
1	.0697	.4998	.8888
2	.6365	.7502	.1384
3	.2020	.2901	.8846
4	.6395	.2115	.0511
5	.2926	.7999	.8813
6	.2674	.9555	.9280
7	.1512	.8442	.8617
8	.0751	.9470	.3841
9	.1845	.4105	.7559
10	.4183	.6198	.7056
11	.7037	.8095	.1582
12	.4677	.4428	.3236
13	.1574	.4335	.6769
14	.3227	.3307	.9581

The person reliability of the Indonesian version of the Co-worker Support Scale is .92, which is higher than the required standard value (Tennant & Canaghan, 2007), indicating that the scale can distinguish groups of people with high and low scores (Linacre, 2018). Similarly, the item reliability shows a value of .97, which indicates a satisfactory internal consistency. This study provides new contributions to the literature evaluating the psychometric properties of the Co-worker Support Scale in the organizational context in Indonesia with Rasch analysis. The findings of this study describe the characteristics of the Co-worker Support Scale and need to be taken into consideration by researchers when conducting future studies related to peer support. The limitations of this study are, firstly, although it has used sufficient samples, cultural differences and the distribution of participants have not been taken into consideration. Therefore, future studies may develop the usage of more varied samples. Second, non-probability sampling may not be able to describe the accuracy of the study population, it would be necessary to replicate this study in different populations to obtain a more comprehensive overview of the results.

CONCLUSION

Based on the Rasch model analysis, it is indicated that the Co-worker Support Scale has good internal consistency. The results showed that the scale's factor structure was unidimensional, which means that the items can be effectively able to measure co-worker support. The significant chi-square value indicates that the data is fit to the model. The answer choice category option with 5 answer choices can be preserved. Moreover, no differential item functioning was found based on gender, education level or type of organization. Overall, the results indicate that this 14-item scale, including its psychometric properties, is satisfactorily reliable and valid to measure co-worker support in the organizational context in Indonesia.

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