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USING RASCH MODEL TO UNDERSTAND PSYCHOMETRIC PROPERTIES OF JUNIOR STUDENTS AGGRESSIVE BEHAVIOR INVENTORY (J-SABI)

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Abstract

The emergence of aggressiveness among students requires attention from various parties, especially schools. The direction of this research is to develop and examine the validity of the Junior Students Aggressive Behavior Inventory (J-SABI), to know the level of suitability and item's difficulty level, also to know the variable maps of the person's ability to answer an item's ability to describe aggressive behavior. The sample of this study consisted of 360 with the number of items was 47. The analytical technique that was used was Rasch model to examine the reliability, instrument validity, item's validity, the function of differential items, and the validity of the ranking scale. The result shows that overall inventory which developed was valid and reliable (person reliability consist of 0.89 and item reliability 0.98). The validity of the instrument respondents using variable maps show the Item P15 is a matter of the highest difficulty level (+0.69 logit), which means the probability of all the students to work on this matter right is small. As for the P52 is a matter that almost all students can work properly, logit value is low (-0.80 logit). The value of Andrich Threshold moving from option 1 (none), then to the second choice (logit -0.50), option 3 (-0.30 logit), selection 4 (-0.19), and option 5 (+1.00 logit), indicates the five choices answer given are valid for respondents.

Keywords: *aggressive behavior, validity, reliability, Rasch model, J-SABI*

Abstrak

Timbulnya agresivitas di kalangan siswa membutuhkan perhatian dari berbagai pihak khususnya sekolah. Arah penelitian ini adalah untuk mengembangkan dan menguji validitas instrumen perilaku agresif siswa SMP (Junior Student Aggressive Behavior Inventory J-SABI), melihat tingkat kesesuaian item dan melihat tingkat kesulitan item serta dapat melihat variable maps dari kemampuan person menjawab dan kemampuan item dalam mengungkap perilaku agresif. Sampel penelitian 360 siswa dengan jumlah 47 butir soal. Teknik analisis yang digunakan adalah model Rasch. Analisis yang dilakukan adalah reliability, validity instrument, validity item, keberfungsian item differensial dan validity skala peringkat. Hasil analisis menunjukkan bahwa secara keseluruhan inventory yang dikembangkan valid dan reliabel (person reliability adalah 0,89 dan item reliability adalah 0,98). Validitas instrumen responden dengan menggunakan

peta variabel menunjukkan Soal P15 merupakan soal yang tingkat kesukarannya paling tinggi (+0.69 logit), yang berarti peluang semua siswa untuk mengerjakan soal ini dengan benar adalah kecil. Sedangkan untuk P52 adalah soal yang hampir semua siswa dapat mengerjakan dengan baik, nilai logitnya rendah (-0,80 logit). Nilai Andrich Threshold bergerak dari opsi 1 (tidak ada), lalu ke pilihan kedua (logit -0,50), opsi 3 (-0,30 logit), pilihan 4 (-0,19), dan opsi 5 (+1,00 logit), menunjukkan lima pilihan jawaban yang diberikan valid untuk responden.

Kata kunci: *perilaku agresif, validitas, reliabelitas, Rasch model, J-SABI*

INTRODUCTION

Aggressive behavior is a psychosocial problem which is a conversation among researchers to carry out prevention and alleviation of this one psychosocial problem (Hariyani & Syahputra, 2019). This condition produces various concepts about aggressiveness, including physical aggression with verbal (Buss, 1961), direct and indirect aggression (Little et al., 2003), proactive aggression with reactive (Anderson & Bushman, 2002), or instrumental aggression with impulsivity (Berkowitz, 1993). In addition, there are various instruments of aggressive behavior (Collani & Werner, 2005; Cyba et al., 2016; su et al., 2015). None of the several instruments attempts to find a valid taxonomic model for aggression were fully successful because a comprehensive classification that integrates all types of aggression still has to be adopted universally (Parrott & Giancola, 2007). Historically, one of the instruments widely accepted in the scientific community is (Buss & Perry, 1992) who developed the Aggressive Questionnaire (AQ), which is often referred to as the Buss-Perry Aggressive Questionnaire (BPAQ), which has become one of the most popular aggressiveness questionnaires since published by several researchers (Morren & Meesters, 2002; Vigil-Colet et al., 2005).

Furthermore, Buss and Durkee revised BPAQ into the Buss-Durkee Hostility Inventory (BDHI) into 7 factors and several items were repaired or omitted, and a 5-point Likert-type scale item replaced the correct-wrong response in the answer choices (Buss & Perry, 1992). Of the 52 items, the researcher conducted exploratory and confirmation factors to analyze three separate samples from undergraduate students and produced 29 items and four factors that were derived empirically (physical aggression, verbal aggression, hostility, and anger) in the instrument of aggression. Pechorro et al. (2015) reported that the Aggressive Questionnaire (AQ) has good internal consistency, adequate stability over time, good convergent validity and good discriminant validity in the English-speaking population.

Based on the explanation above, there are many AQ studies in other cultures. BPAQ has been used in various countries by adjusting to the language in the country, namely: the Portuguese (Pechorro et al., 2016), China (Maxwell, 2007), France (Nahama et al., 2003), Italy (Fossati et al.,

2003), and Germany (Collani & Werner, 2005). However, the measurement of AQ has not been carried out in Indonesian culture especially by a culture that adheres to the matrilineal kinship system.

The Minangkabau community is known as one of the world's ethnic groups that adheres to the matrilineal kinship system (Jani & Hussain, 2014; Radjab, 1969). Minangkabau is one of the largest ethnic groups in Indonesia that has a kinship system that is different from other cultures. The characteristics of the matrilineal kinship system are offspring calculated according to the maternal line, the tribe formed according to the mother's lisne, exogamous marriage, revenge, and inheritance rights inherited from the mother to the child of the sister (Radjab, 1969). Hanani (2016) explained that ideally there was no violence in Minangkabau. However, in reality, the results of research Hardoni et al. (2019) show that the aggressive behavior of vocational high school adolescents in the city of Padang tends to be high with a mean value of 86.74. Reinforced by police data during 2014, there were 248 juvenile delinquency cases with an average of cases of gambling, truancy, and brawls. Meanwhile, in 2015 there were 324 cases of juvenile delinquency that most often occurred among students in Padang City were brawls (Hijratul, 2017). Based on these conditions, it is necessary to intervene in the aggressiveness of students by detecting acts of aggressive behavior through an aggressive questionnaire using the basis of the BPAQ theory (Buss & Perry, 1992) which has been adapted to the Minangkabau language and culture. So, the purpose of this study is to examine the validity and reliability of the measurement of Aggressive Questionnaire (AQ) related to the difficulty level of the items, the level of suitability of the items, strengths and weaknesses of the items, the functioning of differential items and the ability of students to fill the instrument.

METHODS

This research method uses development steps using Model Oriondo and Antonio, namely: (1) planning instrument, (2) trying out the instrument, (3) establishing an instrument validity and reliability, and (4) interpreting the assessment scores (Oriondo & Dallo-Antonio, 1998). The steps of developing the instrument as follows.

The stage of planning instrument includes: *Determination of instrument objectives* (the goal is to make a valid and reliable instrument to measure the aggressive behavior of junior high school students); *Determination of competence tested* (Instrument to measure forms of aggressive behavior (physical, verbal, anger, and hostility) that often occurs in junior high school students); *Determination of the tested material* (with regard to the physical form of aggressive behavior such as hitting, kicking, pushing, and plunder. Verbal aggressive behavior such as insulting, beating, spreading rumors, and

denials. Aggressive behavior such as revenge and anger of young angry. Hostility aggressive behavior such as jealousy and prejudice); *Preparation of the grid* (instrument consists of four forms of aggressive behavior (physical, verbal, anger, and hostility), the GCC developed into 12 indicators include: hitting = 8 items, kicking = 7 items, push = 7 items, rob = 6 items, insult = 6 items, scolding = 10 items, spreading rumors = 8 items, rejection = 11 items, revenge = 8 items, irritability = 6 items, envy = 6 items and prejudices = 5 items); *Writing items based on the principles of development of Aggression Questionnaire* (AQ - the instrument is based on other forms of aggressive behavior, namely: physical, verbal, anger, and hostility (Abd-El-Fattah, 2007; A. H. Buss & Perry, 1992; Reyna et al., 2011; Singh & Singh, 2016; Værøy, 2013); *Preparation of scoring guidelines* (data in this study a polytomy of data collected using the instrument in the form of aggressive behavior models Likert scale with five alternative answers); *Validation team* (the instrument has been validated by three experts in the field of education and social psychology associated with aggressive behavior); *Fixed items* (from the results of expert validation, the instrument which was composed of 94 items to 88 items that have been repaired for further trials).

The stage of trying out the instrument, test phase tests include: *Set the test subject* (the test subjects were 138 of 8th graders spread across 4 junior high schools); *Implementation of the trial* (the trial was conducted at 4 Junior High School consists of junior public, private and Islamic Junior High School in the city field); *Data analysis test results* (data analysis test results using Rasch models to identify the suitability of items and person's, detecting bias measurement, strengths and weaknesses of the item, and the item difficulty level of ability and the ability of the person answering the items in exposing the aggressive behavior).

The stage of establishing instrument validity and reliability, the last stage in the development of this inventory is to assemble the items that have tested the validity and reliability. From the test results using Rasch analysis model into 47 items that valid and reliable in accordance with the fit statistics. The stage of interpreting the assessment scores, the data analysis results are interpreted in accordance with the score obtained will be discussed further on the findings.

The research sample amounted to 360 people spread across 8 junior high schools (public and private) in West Sumatra. With the approval of the study ethics committee (Mr. Hadiyanto), the coordinator of the study program (Mr. Herman Nirwana), and the education office (Mr. Win Atriosa) and get approval from parents who are assisted by the principal.

Data was collected using an instrument compiled based on forms of aggressive behavior, namely: physical, verbal, anger and hostility (Abd-El-Fattah, 2007; Buss & Perry,

1992; Reyna et al., 2011; Singh & Singh, 2016; Værøy, 2013). Instrument measures aggressive behavior with number of items 94 before validation. An aggressive behavior instrument is Likert model scale with five alternative answers. The research data were analyzed using the Rasch model using statistical suitability analysis (Bond & Fox, 2015; Sumintono & Widhiarso, 2015; Syahputra et al., 2019; 2020). Analysis of conformity statistics using MNSQ outfit parameters with an ideal range (+0.5 s / d +1.5), ZSTD outfit with ideal range (-2.0 s / d +2.0) to find the suitability of items and people, detect measurement bias, item strengths and weaknesses, and the level of difficulty of items from the ability of the person to answer and the ability of the item to reveal aggressive behavior (Sumintono & Widhiarso, 2015).

RESULT AND DISCUSSION

Reliability

Reliability of an instrument refers to examine stability and consistency in the measurements. For information about the reliability of the person and the reliability of the items can be displayed in summary statistics. The results of the statistical summary further described in Table 1 below. In Table 1, we can see the reliability score was 0.89, person and item reliability score were 0.98. This indicates that the quality of the answers given to a person is good and the quality of the items used in the measurement is special. While the Cronbach alpha value (KR-20) is 0.91 which indicates that the interaction between the person and the items was good.

The next grouping of persons and items can be known from the value of separation by using formula strata person is H, so that the value of H = [(4 * separation) + 1] / 3 (Sumintono & Widhiarso, 2015). Value Person separation 2.80, H = [(4 * 2.80) + 1] / 3, H = 4.06 (rounded up to 4). This shows four groups of respondents (ability high, medium, low, and very low). Judging from the value of separation the item 7.25, then H = 10 can be concluded that the grains are able to reach people's ability medium, high, and very high.

Validity

The concept validity is very important for a measurement. An instrument can be said to be valid when measuring what is supposed to be measured. J-SABI instrument development was evaluated whether able to measure what should be measured. In this case, the extent to which an instrument measures the aggressive behavior of students.

Table 1. *Summary Statistics*

Summary Statistics Measured	Measure	MNSQ		Separation	Reliability	Cronbach Alpha (KR-20)
		INFIT	OUTFIT			
Measured Person	-.85	1.04	1.02	2.80	.89	.91
Measured Item	.00	1.03	1.02	7.25	.98	

Validity analysis using Principal Component Analysis (PCA) of the residual, which measures the extent to which the diversity of J-SABI instrument to measure what it is supposed to measure. PCA analysis using two parameters, the first variance in the value of total raw observation (minimum 20%) and the total value of raw unexplained variance (minimum 15%) (Linacre, 2011). Further reported in Table 2 below.

Table 2 above shows the results of a total of 28.1% raw variance is not much different from the expected value of 30.5%. This indicates that the unidimensional 20% minimum requirement has been met (Linacre, 2011). While the results of all the unexplained variance below 15% which indicates the level of independence of the items in a good instrument. Thus, this condition uni-dimensionality instrument states that the requirements are met, further declared 47 items used in the J-SABI instrument is valid.

The validity of respondents

The validity of the instrument respondents using variable maps that can show the distribution ability student on the left and the distribution of item difficulty level on the right (Sumintono & Widhiarso, 2015). He also noted in Figure 1 below. Based on Figure 1, the first right folder left visible there is one student (295L) which ability a higher level (+0.32) than other students. There are also ten students (94P, 194P, 96P, 284P, 290P, 167P, 208P, 286P, 171P and 349P) with ability level low (-1.86 s / d -2.91 logits) which demonstrated the ability to lower answered the item P52 (-0.80 logit) could not answer correctly. From the analysis of the variable folder for girls (94) can be stated that the level of the lowest aggressive with a mean value is (-2.91 logit). While male students (code 295) can be stated that the highest aggressive level with a mean value is (+0.32 logit).

Second, at the right of wright map explains the distribution of grain logit value. Item P15 is a matter of the highest difficulty level (+0.69 logit), which means the probability of all the students to work on this matter right is small. As for the P52 is a matter that almost all students can work properly, logit value is low (-0.80 logit). With the revelation of P52 is "When discussing ugliness friend, I better go".

Table 2. Standardized Residual Variance

		Empirical		Modeled
Total raw variance in observations	65.4	100%		100%
Raw variance explained by measures	18.4	28.1%		30.5%
Raw unexplained variance (total)	47	71.9%	100%	69.5%
Unexplned variance in 1st contrast	6.7	10.2%	14.2%	
Unexplned variance in 2nd contrast	3	4.6%	6.4%	
Unexplned variance in 3rd contrast	1.9	3%	4.1%	
Unexplned variance in 4th contrast	1.7	2.6%	3.6%	
Unexplned variance in 5th contrast	1.7	2.6%	3.6%	

Third, comparing the distance between the MST (average, 1SD, and 2SD) at variable maps above show on the left side of the distribution map's ability students is greater than the distribution rate of ability items on the right side.

In this context, items show diversity, but the distribution of the 360 students' ability wider downward. This means the ability of 360 students were not able to reach items with high abilities. Fourth, comparing the mean value of the person and the mean value of the items.

The mean value of the 360 respondents is -0.85, while the mean value of items is +0.00. This indicates that the person is too low abilities of the level of difficulty about.

Validated items

The items measure the useful analysis can reveal the fit statistic. The parameters used to demonstrate the suitability is infit and outfit of the mean squared value by the middle square value 1.0 or with the ideal range of 0.5> MNSQ <1.5 and Z-standardized values by the middle square value 0.0 or with the ideal range -2.0> ZSTD <+2.0 (Bond & Fox, 2015; Boone et al., 2014; Linacre, 2011; Sumintono & Widhiarso, 2015). Further presented in Table 3 below. In Table 3 shows the sequence of item misfit order, there are eight items that misfit i.e., P76, P68, P42, P2, P69, P32, P52, P84. Judging from the value of the standardized values (ZSTD)> 3.0 is already past the ideal range, namely (-2.0> ZSTD <+2.0) so that the item needs to be revamped to meet the conformance statement.

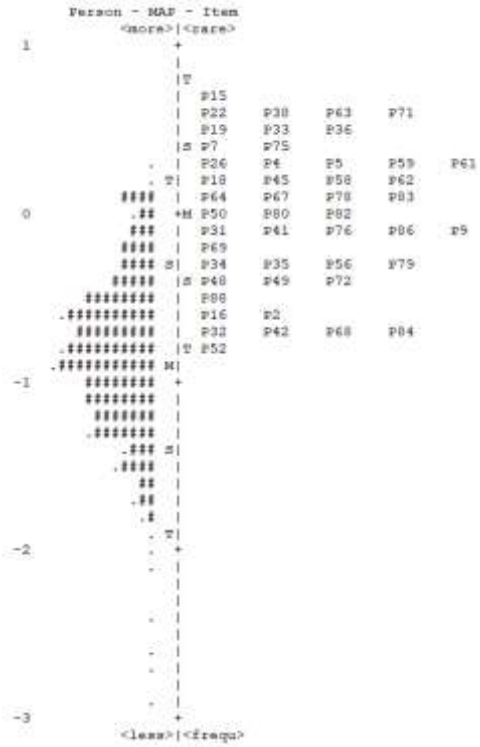

Figure 1. *Variable Maps* (person 360 and 47 items)

Table 3. ***Item Misfit***

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PT-MEASURE CORR.	PT-MEASURE EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	Item
39	793	360	-.13	.05	1.36	5.0	1.43	5.1	A .23	.44	29.4	31.3	P76
34	1026	358	-.67	.05	1.29	4.4	1.41	5.7	B .19	.48	26.0	29.8	P68
20	1024	360	-.65	.05	1.25	3.9	1.38	5.3	C .06	.48	30.0	29.8	P42
1	980	360	-.56	.05	1.10	1.6	1.38	5.3	D .15	.48	27.2	29.6	P2
35	835	359	-.23	.05	1.28	4.1	1.32	4.1	E .30	.45	33.7	30.7	P69
13	1061	360	-.73	.05	1.19	2.9	1.26	3.8	F .24	.48	25.0	30.1	P32
25	1093	360	-.80	.05	1.12	2.0	1.23	3.3	G .19	.49	31.1	30.5	P52
45	1037	356	-.71	.05	1.16	2.5	1.22	3.2	H .30	.48	25.3	29.9	P84
38	602	359	.44	.06	1.20	2.2	1.05	.5	I .52	.37	44.3	44.3	P75
44	690	355	.12	.05	1.15	2.0	1.17	1.9	J .48	.41	29.9	35.9	P83
17	583	360	.52	.06	1.16	1.7	1.00	.1	K .52	.35	46.9	47.9	P36
4	621	360	.37	.06	1.16	1.8	1.15	1.5	L .47	.38	38.3	42.9	P7
10	564	360	.60	.07	1.14	1.4	1.02	.2	M .47	.34	53.3	51.3	P22
40	699	359	.12	.05	1.14	1.8	1.13	1.4	N .35	.41	42.6	35.8	P78
41	846	360	-.25	.05	1.13	2.0	1.11	1.5	O .38	.46	31.1	30.5	P79
22	908	360	-.40	.05	1.13	2.0	1.10	1.5	P .29	.47	25.8	29.6	P48
26	858	359	-.29	.05	1.11	1.6	1.12	1.7	Q .35	.46	33.7	30.4	P56
36	560	359	.61	.07	1.12	1.3	.88	-1.1	R .58	.34	55.2	51.4	P71
7	978	360	-.55	.05	1.10	1.6	1.12	1.8	S .31	.48	29.4	29.7	P16
42	727	360	.05	.05	1.10	1.4	1.03	.4	T .40	.42	41.7	34.1	P80
16	864	360	-.30	.05	1.09	1.4	1.08	1.2	U .31	.46	32.8	29.9	P35
47	935	357	-.47	.05	1.05	.9	1.07	1.0	V .35	.48	30.0	29.7	P88
32	720	358	.06	.05	1.06	.9	1.05	.6	W .51	.42	29.1	34.5	P64
18	559	360	.62	.07	1.06	.7	.90	-.9	X .53	.34	52.8	52.2	P38
37	907	360	-.39	.05	1.02	.4	1.06	.9	w .41	.47	34.7	29.6	P72
43	736	356	.00	.05	1.01	.1	1.04	.5	v .43	.43	33.4	33.4	P82
21	671	360	.21	.06	.95	-.7	1.03	.3	u .46	.40	40.3	37.8	P45
31	557	358	.62	.07	1.02	.2	.95	-.4	t .51	.34	55.9	52.1	P63
6	545	360	.69	.07	1.02	.2	.84	-1.4	s .55	.33	58.1	55.0	P15
29	643	360	.30	.06	.97	-.4	1.02	.2	r .48	.39	40.6	40.6	P61
23	926	360	-.44	.05	1.02	.3	1.01	.1	q .41	.47	30.8	29.8	P49
24	742	360	.01	.05	1.01	.2	1.01	.2	p .46	.43	32.2	33.3	P50
28	641	360	.31	.06	.98	-.3	.90	-1.1	o .54	.39	35.8	41.1	P59
11	649	360	.28	.06	.96	-.4	.95	-.5	n .52	.39	40.8	40.6	P26
9	593	360	.48	.06	.95	-.5	.83	-1.7	m .56	.36	46.1	46.0	P19
2	650	360	.28	.06	.95	-.6	.95	-.5	l .49	.39	36.1	39.8	P4
30	660	360	.24	.06	.90	-1.3	.92	-.9	k .50	.40	35.6	38.7	P62
14	594	359	.47	.06	.89	-1.2	.79	-2.0	j .57	.36	50.7	46.0	P33
8	660	360	.24	.06	.87	-1.7	.83	-1.9	i .52	.40	36.9	38.7	P18
27	679	358	.17	.05	.85	-2.0	.84	-1.9	h .55	.41	35.8	37.2	P58
12	765	360	-.05	.05	.81	-2.9	.84	-2.2	g .54	.44	37.5	32.0	P31
3	651	360	.27	.06	.83	-2.2	.79	-2.3	f .57	.39	41.7	39.8	P5
46	775	356	-.10	.05	.80	-3.1	.82	-2.5	e .47	.44	37.9	31.6	P86
33	692	360	.15	.05	.80	-2.8	.78	-2.7	d .57	.41	37.5	36.4	P67
19	792	360	-.12	.05	.77	-3.7	.77	-3.3	c .49	.44	42.8	31.3	P41
15	859	360	-.28	.05	.68	-5.8	.68	-5.2	b .55	.46	40.3	30.4	P34
5	770	359	-.07	.05	.67	-5.6	.65	-5.1	a .53	.44	41.5	32.0	P9
MEAN	760.0	359.3	.00	.05	1.03	.4	1.02	.3			37.6	36.7	
S.D.	154.0	1.3	.41	.01	.16	2.3	.19	2.5			8.5	7.4	

The differential item functioning (DIF)

Measurement instrument and the item may be biased because of their difference in which specific items would be partial to a certain kind (e.g., gender, family background, etc.). In Table 4 below show the results of the analysis of the DIF, which can be determined by a probability value below (0:05) shows the items affected by bias (Sumintono & Widhiarso, 2015). In Table 4 above shows, 22 items that are not affected by the bias is P2, P4, P9, P31, P34, P41, P42, P45, P49, P50, P56, P58, P61, P62, P64, P67, P72, P75, P78, P82, P84, and P86. Many items were affected by bias indicates that the difference in assessment of students 'aggressive behavior is influenced by several factors, namely gender, parents' educational background, culture, and economic level of the parents.

Table 4. Differential Items Functionality (DIF)

Person CLASSES	SUMMARY DIF CHI-SQUARE	D.F.	PROB.	BETWEEN-CLASS MEAN-SQUARE	t=ZSTD	Item Number	Name
4	4.9800	3	.1723	.4298	-.6293	1	P2
4	4.9429	3	.1751	.4844	-.5164	2	P4
4	13.0876	3	.0044	1.0098	.2841	3	P5
4	15.7278	3	.0013	1.6060	.9007	4	P7
4	.2814	3	.9637	.0256	-2.3199	5	P9
4	12.5155	3	.0057	1.1029	.3941	6	P15
4	12.3660	3	.0062	.9996	.2716	7	P16
4	8.1250	3	.0431	.7075	-.1280	8	P18
4	22.8104	3	.0000	2.3844	1.5066	9	P19
4	13.8491	3	.0031	1.3129	.6212	10	P22
4	9.8949	3	.0193	.9713	.2367	11	P26
4	6.9176	3	.0740	.5526	-.3870	12	P31
4	10.0380	3	.0181	.9140	.1637	13	P32
4	15.8014	3	.0012	1.6214	.9145	14	P33
4	1.3965	3	.7058	.1283	-1.5488	15	P34
4	11.8097	3	.0080	1.1142	.4070	16	P35
4	27.5855	3	.0000	2.9442	1.8640	17	P36
4	17.0439	3	.0007	1.7756	1.0471	18	P38
4	4.2247	3	.2371	.3898	-.7182	19	P41
4	5.0609	3	.1665	.4406	-.6062	20	P42
4	4.2005	3	.2395	.3668	-.7720	21	P45
4	9.4859	3	.0233	.8178	.0339	22	P48
4	4.2843	3	.2313	.3972	-.7013	23	P49
4	6.1895	3	.1021	.5746	-.3475	24	P50
4	14.6597	3	.0021	1.3444	.6531	25	P52
4	3.1825	3	.3631	.2781	-1.0039	26	P56
4	4.0550	3	.2544	.2937	-.9597	27	P58
4	14.6912	3	.0021	1.4796	.7847	28	P59
4	2.5790	3	.4600	.2470	-1.0966	29	P61
4	6.6307	3	.0841	.6229	-.2641	30	P62
4	9.1714	3	.0269	.8969	.1413	31	P63
4	1.0077	3	.7991	.0964	-1.7174	32	P64
4	1.6560	3	.6460	.1575	-1.4177	33	P67
4	25.9050	3	.0000	2.3697	1.4964	34	P68
4	24.1424	3	.0000	2.2381	1.4041	35	P69
4	18.8846	3	.0003	1.8644	1.1201	36	P71
4	5.7725	3	.1224	.4999	-.4861	37	P72
4	6.9495	3	.0730	.6415	-.2332	38	P75
4	12.6958	3	.0053	1.2461	.5518	39	P76
4	4.5139	3	.2100	.3647	-.7769	40	P78
4	12.9061	3	.0048	1.2198	.5237	41	P79
4	14.2047	3	.0026	1.3932	.7015	42	P80
4	2.5877	3	.4585	.1980	-1.2605	43	P82
4	8.5350	3	.0358	.6761	-.1773	44	P83
4	4.6506	3	.1982	.3278	-.8686	45	P84
4	3.2729	3	.3502	.2442	-1.1054	46	P86
4	7.8053	3	.0498	.6571	-.2077	47	P88

Validation Rating Scale

The validity rating scale is very important in the measurement because the rating scale that is used for the verification test rating option is used. The J-SABI instrument uses Likert scale for each item. Respondents give appropriate answers to the situation themselves on any given item. Respondent's answers viewed by the tendency the answers whether the leftmost column 1 with Always (A) or the rightmost column 5 with the option Never (N). This option contrasts the level of aggressive behavior of students in each item. Further presented in Figure 2.

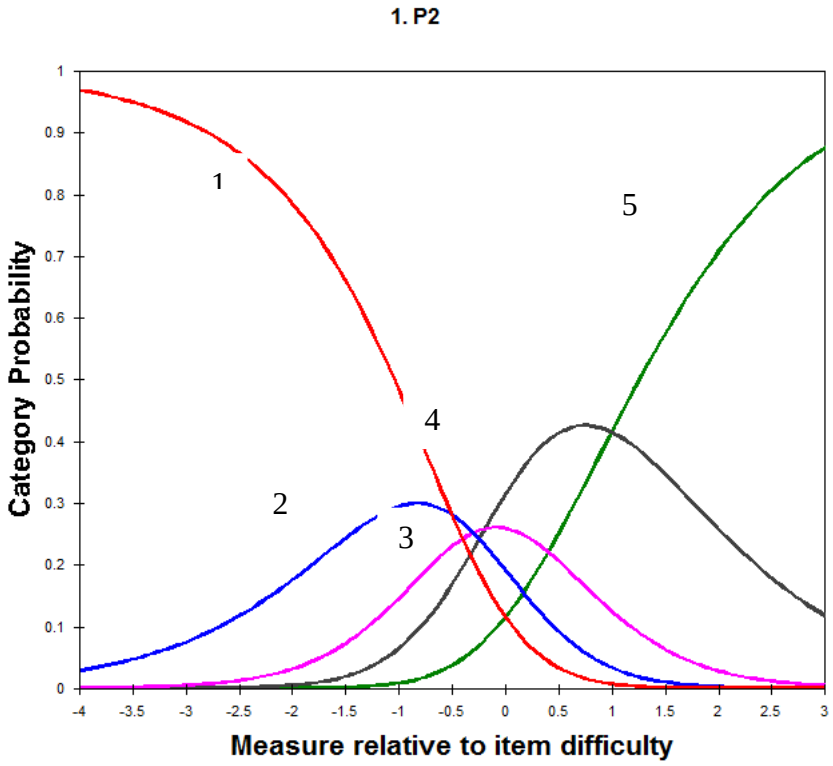

Figure 2. Response functions for a Likert-style item with 5 categories (item 47) and disordered threshold estimates

In Figure 2 above shows the numbers 1 = always, 2 = often, 3 = rarely, 4 = sometimes, and 5 = never. Further to determine the validity of the size rank is called Andrich Threshold, which shows the transition that occurs in decision-making by the respondent from one rank to the next rank (Linacre, 2011; Sandjaja et al., 2020). The value of Andrich Threshold moving from option 1 (none), then to the second choice (logit -0.50), option 3 (-0.30 logit), selection 4 (-0.19), and option 5 (+1.00 logit), indicates the five choices answer given are valid for respondents.

Discussion

The emergence of aggressiveness among students demands the attention of various parties. Schools as a place of formal education have a responsibility in dealing with students' aggressive behavior. All parties in the school such as teachers, counselors and administrators have a responsibility and have an important role (Lai et al., 2008). One of the most important roles is school counselors. One of the functions of guidance and counseling is the prevention function, namely the effort to intervene in the need for assistance. Efforts to form learning groups (Alizamar, 2016), group coaching, individual guidance and extracurricular activities, all of which are a series of prevention efforts (Widodo, 2013). So, the need for valid and reliable instruments to facilitate teachers in the field of study and counselors in making

program design, through the provision of educational services in accordance with their respective fields and duties.

Empirical research finds many researchers who create aggressive behavioral instruments in the fields of health, sports, social and education. Another valid and reliable aggressive behavioral instrument helps future researchers to find aggressive behavior. The results of an aggressive instrument validity test using Rasch Model are very effective to see the suitability of person and items, the level of items and person. Eventhough, analysis at instrument level can be done. Development of Aggression Questionnaire (AQ) given to high school students in Egypt with 510 free samples between men and women (Abd-El-Fattah, 2007). Limitations in Aggression Questionnaire (AQ) are some items (29 items). So, researchers developed J-SABI by creating a form of aggressive physical, verbal, anger, and hostile behavior into 12 indicators with a total of 47 more items to represent aggressive behavior that often occurs in junior high schools in Indonesia.

Furthermore, when compared with other instruments such as the SDAS (social dysfunction and aggression scale) and SOAS-R (staff observation aggression scale-revised) which is not only measure aggressive behavior but also to predict the aggressive events, the using of both instruments (SDAS and SOAS-R) is very useful to apply simultaneously in recording aggressive behavior (Kobes et al., 2012). But, these two instruments have been designed for forensic psychiatric patients. Two other instruments also measure the aggressive behavior of senior high school students which 11 items of it related to aggressive behavior (CORT Inventory in 2004) and Freiburg Personality Inventory (FPI). The measurements of these two instruments are used to reduce psychosomatic students aggressively by increasing feelings of pleasure (Carmen et al., 2010). The limitations of both instruments are measurements made through descriptive needs assessment and not to test causal hypotheses. It is therefore difficult to measure students by large numbers to see the aggressive behavior because it is inefficient (much time required) to describe many students.

The aggressive behavior instrument has also been developed by sports, namely, The Competitive Aggressiveness and Anger Scale (CAAS) in the field of sport. It can show the aggressive behavior of athletes accompanied by anger (Kerr, 2008). The limitations of this scale are only for understanding the aggression of competition and anger in sports. This instrument is the less precise measure of aggressive behavior of students in Junior High School. The need for appropriate instruments to measure the aggressive behavior of Junior High School students in Indonesia. Using J-SABI instruments can measure students' aggressive behavior in the form of verbal, emotional anger, and hostility

that is physically displayed in Junior High School. Instrument J-SABI can also be used for students with large numbers without spending a long time.

CONCLUSION

The findings show that the J-SABI instrument is valid and reliable to measure the aggressive behavior of junior high school students with a total of 47 items. The excess J-SABI instrument, able to measure in the form of verbal, emotional anger, and hostility that is displayed physically that has been associated behavior that is often done in Junior high school. However, to measure the aggressive behavior of Junior high school students needed the right instruments, using J-SABI instrument can measure aggressive behavior in Junior high school. This instrument is one of the alternatives that can be used by subject teachers and counselors to uncover students 'aggressive behavior levels so that they can understand students' conditions in order to develop appropriate learning strategies for aggressive children (Bílgín et al., 2017; Che Ahmad et al., 2017). Similarly, the subject teachers use various instruments aimed at improving learning strategies (Acat et al., 2010; Ar & Anagün, 2009; Zubaidah et al., 2017) and make educational assessments (Mokshein et al., 2019) including assessment on the field of mathematics (Kartowagiran et al., 2019) and the assessment of science process skills that are valid and reliable (Supahar et al., 2017). The results of the J-SABI instrument can also assist the school in designing programs for prevention of aggressive behavior of students by completing the necessary facilities and infrastructure (Afdal, 2015; Alizamar et al., 2016; Alizamar & Afdal, 2017). The limitations of J-SABI instrument are not too large sample of research, still limited to eight junior high schools in West Sumatra. Furthermore, items contained in this instrument are still considered difficult by students.

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