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The Basic Empathy Scale: Validation of Empathy Measurement of Pesantren Students in Indonesia

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Abstract. Over the past decade, the Basic Empathy Scale (BES) has become a standard tool for measuring empathy. Despite the reliability and cross-cultural applicability, challenges remain regarding the validity and generalizability. This study aimed to validate the BES using Rasch model to establish the reliability and validity of the instrument in measuring empathy. Participants in validation consisted of 200 students from Islamic Boarding Schools (Pesantren) in Java, Indonesia. This analysis was conducted using a quantitative method with Rasch model analysis by incorporating a Wright map, item fit analysis, a unidimensionality test, and Different Item Functioning (DIF). The results showed that the BES was reliable for measuring cognitive and affective empathy, confirming unidimensionality and item fit among participants. These findings implied that the BES was suitable for application among Islamic Boarding School students. DIF analysis further showed that some items might require revision to elicit more accurate results even though the instrument was considered valid and reliable.

Keywords: empathy, adolescents, Basic Empathy Scale, sex difference, islamic boarding school

The Basic Empathy Scale: Validasi Pengukuran Empati Siswa Pesantren di Indonesia

Abstrak. Selama dekade terakhir, skala empati dasar (BES) telah menjadi alat standar untuk mengukur empati. Meskipun keandalan dan penerapan lintas budayanya, masih ada tantangan terkait validitas dan generalisasi. Penelitian ini bertujuan memvalidasi (BES) dengan menggunakan pemodelan Rasch untuk mengetahui reliabilitas dan validitas instrumen dalam mengukur empati. Terdapat 200 santri dari pesantren di pulau Jawa yang terlibat dalam pengambilan data. Penelitian ini dilakukan dengan menggunakan pendekatan kuantitatif dengan analisis model Rasch. Analisis dilakukan dengan menggunakan peta Wright, kecocokan item, uji unidimensionalitas, serta different item functioning (DIF) pada model Rasch. Hasil penelitian menunjukkan bahwa BES adalah alat yang handal untuk menilai empati kognitif dan afektif melalui unidimensionalitas yang dikonfirmasi, serta kecocokan item pada responden siswa di pesantren. Temuan ini menunjukkan implikasi bahwa BES cocok untuk aplikasi pada santri. Meskipun instrumen telah valid dan reliabel, hasil analisis DIF menunjukkan adanya item yang perlu direvisi.

Kata Kunci: empati, remaja, Basic Empathy Scale, perbedaan jenis kelamin, pesantren

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Empathy defined as the ability to understand and share another individual's perspective and emotions is regarded as fundamental in various aspects of human interaction. In psychology, empathy fosters a strong connection between therapists and clients, creating a supportive environment for addressing mental health issues (Baron-Cohen & Wheelwright, 2004; Sun, 2023). Similarly, in the classroom, educators who show empathy understand students better by creating a more welcoming atmosphere for learning (Ratka, 2018; Sun, 2023). Empathetic caregivers in healthcare settings significantly improve patient outcomes by making individuals feel understood and cared for (Moudatsou et al., 2020). In digital communication, empathy helps transform impersonal interactions into respectful and meaningful exchanges, thereby enhancing social connections (Terry & Cain, 2016).

In this context, empathy is considered essential for creating a supportive and interconnected society where individuals understand and support each other (Dijke et al., 2023). Those who show empathy understand and experience other's feelings, contributing to the development of strong interpersonal relationships such as through conversation orientation with parents (Salsabilla et al., 2021) and promoting pro-social behaviors (Chen, 2023). Several studies showed that high empathy reduced the level of aggressiveness including bullying in schools (Jolliffe & Farrington, 2006) and further determined different bullying roles (Deng et al., 2021; Rizkyanti et al., 2020; Rizkyanti et al., 2021) as well as cyberbullying (Zych et al., 2019). The practice of empathy across various disciplines is crucial for fostering positive relationships, including romantic relationships (Ifthiharfi et al., 2024), enhancing patient care (Teófilo et al., 2019; Wu, 2021), and creating inclusive environments that support individuals' well-being and understanding in society (Chung et al., 2021).

Since the term "empathy" was first coined, various definitions have evolved throughout the development. The fundamental concept remains the ability to understand and place oneself in another's position. A minimum of four attributes describe empathy namely (1) understanding, (2) feeling, (3) sharing the world with others, and (4) distinguishing between oneself and others (Cabedo-Peris et al., 2021). These key concepts are divided into two main dimensions of empathy namely cognitive and affective (Lima & Osório, 2021). The dimensions further outline the complex interplay between thought and emotion in empathetic process, showing how empathy comprises both intellectual and emotional component (Cairns et al., 2024).

Previous scales have been criticized for conceptual and psychometric limitations in distinguishing empathy from sympathy (Chismar, 1988; Vossen et al., 2015). In contrast to sympathy, empathy does not have to agree

with the feelings described—a distinction not captured by earlier scales (Suazo et al., 2020). A second key problem is the role of what is called cognitive empathy. It is necessary to comprehend the role that cognitive empathy plays in a variety of conditions, including criminal behavior (Ma, 2023). Cognitive empathy is the state of understanding an individual's feelings without emotionally experiencing the act which is referred to as low affective empathy (Graaff et al., 2016; Smith, 2006). This distinction is critical because understanding may lead to behaviors that fail to address or alleviate suffering when not accompanied by an emotional response.

Empathy scales are tools designed to measure the understanding of an individual's emotions and experiences (Innamorati et al., 2019). Among these tools, the Basic Empathy Scale (BES) is significant for assessing two dimensions, namely cognitive and affective empathy. The BES is developed based on the definition of empathy proposed by Cohen and Strayer (1996), which emphasizes the understanding and sharing of another person's emotional state or situation. This definition focuses on both emotional correlation (affective empathy) and comprehension of other's emotions (cognitive empathy). Jolliffe and Farrington (2006) designed the BES to address deficiencies observed in earlier tools such as the Interpersonal Reactivity Index (Davis, 1983), Hogan's Empathy Scale (Hogan, 1969), and Questionnaire Measure of Emotional Empathy. During validation process, the BES was tested on adolescent samples (Cabedo-Peris et al., 2021).

A criticism of many empathy studies is the lack of representative samples (Jolliffe & Farrington, 2006). Many validation studies of existing empathy scales have been conducted among university students (Cabedo-Peris et al., 2021; Lima & Osório, 2021). Since university students often exhibit characteristics not applicable to the broader population in the educational context, this severely restricts the generalizability. Therefore, it is necessary to examine the scale at other educational levels such as secondary and primary education.

Despite these challenges, the BES was developed as a self-report scale oriented toward four basic emotions, namely fear, sadness, anger, and happiness (Cabedo-Peris et al., 2021). The definition of empathy was guided by Cohen and Strayer's definition which underlined affective and cognitive aspects of empathy as different but related constructs (Cohen & Strayer, 1996). This dual focus on affective and cognitive empathy was considered a critical element for a comprehensive measure of empathy, redressing the weaknesses of predecessors and offering a more nuanced and representative assessment tool.

The BES developed by Jolliffe and Farrington (2006) was initially evaluated using traditional psychometric methods, including reliability and validity assessments. However, limited research has applied Rasch model analysis to the BES, despite its potential to

enhance instrument development (Boone, 2016). The Rasch model offers unique advantages by ensuring that all items function effectively to measure a single latent trait—empathy, comprising both cognitive and affective dimensions. This approach supports the unidimensionality of the scale, a key requirement for strong measurement (Brentani & Golia, 2007; Tennant & Küçükdeveci, 2023). Additionally, the Rasch model facilitates the detection of Differential Item Functioning (DIF), identifying whether groups defined by factors such as gender, ethnicity, or culture respond differently to specific items, even when the overall empathy levels are the same. These features make the Rasch model a valuable tool for refining and validating the BES (Hermansyah et al., 2024).

The BES is widely used in numerous studies with target populations primarily consisting of adolescents including educational, clinical, and general populations (Cabedo-Peris et al., 2021). It has been translated and validated in several countries including Brazil (Loureto et al., 2022) China (Geng et al., 2012), France (Bensalah et al., 2016), Italy (Albiero et al., 2009), Poland (Zych et al., 2019), Portugal (Anastácio et al., 2016), Slovakia (Èavojová & Sirota, 2012), South Korea (You et al., 2018), and Spain (Sanchez-Perez et al., 2014). A short version which is the Basic Empathy Scale–Brief (BES-B) containing 9 items has also been validated for children and adolescents in Spain (Oliva, 2011). Furthermore, participants in these studies include diverse groups such as male German juvenile prison offenders (Heynen et al., 2016), female Portuguese juvenile offenders (Pechorro et al., 2017), and inpatient adolescent samples (McLaren et al., 2019).

The investigations advance the understanding of the scale's psychometric properties and practical applications. The BES has been applied in educational contexts including in Indonesia where it was used to assess empathy among counseling students at STKIP PGRI Bandar Lampung (Diswantika et al., 2023). It has also been applied in clinical settings to assess healthcare professionals' and patients' level of empathy (Cabedo-Peris et al., 2021). Over the past decade, the BES has become a standard tool for measuring empathy (Carré et al., 2013; Lima & Osório, 2021). Despite the reliability and cross-cultural applicability, challenges remain regarding the validity and generalizability.

In Indonesia, the BES has been adapted to reflect local cultural nuances. The adaptation process includes modifications to suit the Indonesian context, and the scale has been tested for construct validity and reliability using Rasch model (Diswantika et al., 2023). The study focused on adults in higher education, specifically students in early adulthood. However, few analyses have explored empathy among adolescents in secondary education. Indonesian diverse educational systems such as public, vocational, faith-based, and Islamic Boarding Schools (Pesantren) further outline

the need for a more inclusive method. Similar to most existing empathy scales, the BES faces limitations in terms of validity and reliability which necessitate further studies to address these shortcomings (Jolliffe & Farrington, 2006). Therefore, this study aims to develop and validate the BES for measuring empathy among adolescents attending Islamic Boarding Schools in Indonesia.

Psychometric analysis further plays a crucial role in developing strong measurement tools (Furr, 2011). This process ensures that instruments accurately measure variables such as empathy. Psychometric evaluations typically include statistical analyses and can be conducted using classical test theory or alternatives such as Rasch model (Vaingankar et al., 2020). Basically, instrument development measures two main aspects, namely validity and reliability (Mohajan, 2017). Validity ensures that each item reflects the intended construct, while reliability ensures consistent measurement across time and populations (Boateng et al., 2018). According to Hapsari and Widhiarso (2023), each item in the instrument should reflect unidimensionality and contribute to the overall construct. Reliability or consistency is also required in the sense that there should be no discrimination against certain groups of individuals, and the tool would record similar responses at different times when administered on several occasions to individuals with close characteristics (Farzad et al., 2016).

In Indonesia, students in Islamic Boarding Schools known as *santri* represent a unique population for studying empathy due to communal living, intensive religious education, and strong social interactions. These factors deeply influence emotional and social development, making students a critical group for understanding empathy in a culturally distinct context. Testing the BES in this population not only strengthens the scale's validity and reliability but also enhances the applicability across diverse demographic groups (Boateng et al., 2018; Lamm et al., 2020). This process correlates with the need for psychometrically sound measures that capture the multifaceted nature of empathy as emphasized in previous studies (Chen et al., 2021). Furthermore, the relevance of cultural context in the assessment of empathy which was conducted in a variety of cultural settings such as Turkey (Şahin & Şirin, 2021), China (Zhang et al., 2018), and Poland (Zych et al., 2022) showed the need to test the instrument in the cultural context of Indonesians.

This study aims to analyze the Basic Empathy Scale (BES) using the Rasch model, focusing on construct validity, reliability, item fit, and Differential Item Functioning (DIF). It also sought to confirm the BES as a reliable and valid tool for assessing empathy, particularly among students in Indonesian Islamic boarding schools. Currently, no validated instrument exists specifically for measuring empathy in this demographic. Developing an Indonesian

version of the BES could significantly advance clinical and educational assessments of empathy in adolescents. To achieve this development, the study included translating the BES into Bahasa Indonesia and evaluating its psychometric properties. Additionally, it examined the scale's performance using the Rasch model to determine the suitability for the unique student population.

Method

This study used a quantitative method to validate Basic Empathy Scale (BES) with data analysis incorporating Rasch model testing which was a psychometric tool designed to test instrument capacity (Boone, 2016). Rasch model was used to examine the validity and reliability of the instruments, item fit, and DIF to identify potential item bias due to participants' background differences. The model served as a powerful tool for item response theory providing rigorous, invariant measurement and ensuring consistency of scores regardless of the sample or items used (Boone, 2016). This made the model particularly useful for evaluating scale items across diverse cultural and demographic groups, as the model assessed how well each item functioned relative to an individual's ability. Compared to other psychometric methods such as factor analysis, Rasch model provided a more precise evaluation of unidimensional constructs and directly identified issues with item functioning. This further enhanced score interpretation and the scale's application in Indonesian educational and psychological contexts.

Data were collected through Google Forms, and all participants were informed and provided consent when the instrument was completed in the school laboratory. This study included 200 students as participants from 3 Islamic Boarding Schools in Java, Indonesia. Furthermore, convenience sampling was used including participants who were readily available and willing to participate in the analysis (Johnson & Christensen, 2019). The use of convenience sampling could be applied in non-probabilistic quantitative studies with the limitation that the analysis did not generalize to the entire population (Raifman et al., 2022; Stratton, 2021). Therefore, the results of this study were limited to adolescents attending Islamic Boarding Schools. The target population further comprised adolescents in Junior or Senior High Schools typically aged 11 to 18 years (Miller, 2011).

The BES contained 26 items including 16 favorable and 10 unfavorable items while the reverse-scored items comprised 1, 6, 7, 8, 13, 18, 19, and 20. The instrument measured two main dimensions of empathy namely cognitive and affective. The two dimensions of empathy aimed by the scale to measure were the cognitive and affective dimensions of empathy. For assessing cognitive empathy, the items included in the subscale were 3, 6, 9, 10, 12, 14, 16, 19, and 20, totaling 9 items.

Affective empathy considered the ability to share and react to other's feelings and further included questions such as 1, 2, 4, 5, 7, 8, 11, 13, 15, 17, and 18. The instrument also used a 4-point Likert scale, where 4 – Strongly Agree, 3 – Agree, 2 – Disagree, and 1 – Strongly Disagree. Additionally, a middle choice was intentionally excluded to avoid the natural tendency for participants to select a neutral option.

Demographic data were also collected to complement the empathy scale. Adjustments to the scale were made to fit the cultural context of Indonesia, ensuring relevance and appropriateness for the participants as shown in Table 1.

Table 1

Participants' Demographics

	n	*%*
Age		
13	25	12.5
14	50	25
15	53	26.5
16	21	10.5
17	20	10
18	31	15.5
School Level		
Junior High School	134	67
Senior High School	66	33
Grade		
7	22	11
8	47	23.5
9	67	33.5
11	19	9.5
12	29	14.5
10	16	8
Extra activity		
Not Follow Extra Activity	5	2.5
Follow Extra Activity	195	97.5
Parents		
Complete	169	84.5
Separated, Followed Father	8	4
Separated, Followed Mother	12	6
Both Parents Deceased	11	5.5
Reasons for Schooling		
Personal Desire	112	56
Parental Wish	71	35.5
Inspired by someone	14	7
Other	3	1.5

Note. N = 200.

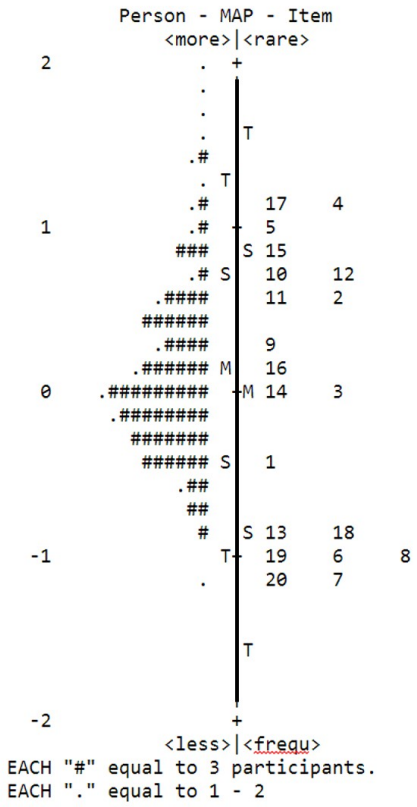
Rasch calibration analysis was conducted in 4 stages. These included (1) reliability testing by examining item reliability, person reliability, and Cronbach's alpha, (2) construct validity testing to assess unidimensionality, (3) item fit analysis to evaluate the suitability of each item with the overall instrument, and (4) analysis of item responses across demographic groups such as gender, school level, parental completeness, age, and reasons for attending school.

Results

Wright map of item difficulty distribution and participants' scores

Figure 1

Wright Map Result of BES



The distribution of participants and abilities were displayed on the left by the histogram Wright map while the items as well as the levels of difficulty were indicated on the right (Boone, 2016). The top section of Wright map indicated the highest-performing students and the increasing difficulty of items in the instrument (Engelhard Jr., 2013). In general, Wright map showed a normal data distribution, forming a bell-shaped curve. The range of item difficulty spanned from -1.18 to 1.13 logits with a standard deviation of .82. This distribution did not exceed the ±2*standard deviation (1.64), suggesting the need for items with greater diversity in difficulty levels to refine the instrument further and effectively measure varying levels of empathy. Additionally, the person measure value as observed in Table 2 exceeded the average item measure (>0), suggesting that participants' abilities were generally higher than the difficulty of the items.

Reliability

Reliability test analysis used Cronbach's alpha to assess the overall reliability as well as the items and individuals. The following were the criteria for reliability including exceptional (>.94), special (.91 - .94), acceptable (.81 - .90), sufficient (.67 - .80), and insufficient (< .67) (Sumintono, 2015). The results of the reliability measurement in Table 2 further showed .71 for person reliability and .99 for item reliability with a Cronbach's alpha of .74. This showed that the instrument had person reliability with sufficient criteria and exceptional item reliability. The person reliability parameter further indicated adequate variability among individuals, and the high item reliability value suggested that the instrument possessed good consistency in measuring the construct.

Table 2

Reliability Score

	Mean of Logit (SD)	Separation	Reliability	α
Person	.15 (.55)	.88	.71	.74
Item	.0 (.86)	8.99	.99	

Validity

Construct validity measurement was conducted through the testing of unidimensionality and item fit. Unidimensionality suggested the assumption that a set of items in an instrument measured only a single construct (Engelhard Jr., 2013; Sumintono & Widhiarso, 2015). To meet the requirements for construct validity through unidimensionality, the raw variance value should be greater than 20%. Variance values between 20 and 40% were also classified as good, 41 to 60% as exceptional, and values under 20% as weak. Unexplained variance values should be below 15% to become acceptable (Sumintono & Widhiarso, 2015).

Table 3

Standardized Residual Variance for Validity

	Empirical			Modeled (%)
	Eigenvalue Unit	%	Variance Unexplained (%)	
Total raw variance in observations	33.6	100		100
Raw variance explained by measures	13.6	40.5		40.2
Raw unexplained variance (total)	20	59.5	100	59.8
Unexplained variance in 1st contrast	2.8	8.2	13.8	
Unexplained variance in 2nd contrast	2.5	7.5	12.7	
Unexplained variance in 3rd contrast	1.6	4.6	7.8	
Unexplained variance in 4th contrast	1.4	4.1	7	
Unexplained variance in 5th contrast	1.3	3.7	6.3	

The results of unidimensionality test showed a raw variance by measure value of 40.5% and unexplained variance from the 1st to 5th contrasts below 15%, suggesting that the scale met good criteria. The BES effectively measured a single variable of empathy without interference from other factors, enhancing the construct validity of the BES.

Item fit was another method used to assess the validity of each item. It measured the extent to which each item in the BES in this study fit the theoretical model of empathy developed by Jolliffe and Farrington (2006). An item was found to fit the model when it met one of the following criteria such as outfit MNSQ $.50 < x < 1.50$, Outfit ZSTD $-2.0 < x < +2.0$, and Point Measure Correlation $.4 < x < .85$ (Sumintono & Widhiarso, 2015). The fit order results showed that none of the items violated the outfit MNSQ criteria, indicating that all items were valid. Although items 1, 4, 5, 6, 15, and 20 exceeded the standard outfit ZSTD, and items 1, 4, 6, 10, 15, 19, and 20 exceeded the standard point measure correlation, these items still functioned adequately in measuring empathy among Islamic Boarding School students, and there were no misconceptions among participants.

Table 4

Fit Order Result

Entry Number	OUTFIT MNSQ	OUTFIT ZSTD	PT-MEASURE CORR.	Item	Description
1	1.39	3.7	.10	1A	Fit
6	1.38	3.5	.20	6C	Fit
4	1.36	3.8	.37	4A	Fit
20	1.32	3.0	.32	20C	Fit
7	1.30	2.9	.45	7A	Fit
15	1.21	2.3	.35	15A	Fit
5	1.20	2.2	.44	5A	Fit
19	1.17	1.7	.32	19C	Fit
13	1.15	1.5	.40	13A	Fit
8	1.07	-.7	.47	8A	Fit
18	1.06	-.4	.43	18A	Fit
11	.96	-.6	.55	11A	Fit
2	.80	-2.3	.49	2A	Fit
17	.80	-2.4	.52	17A	Fit
10	.76	-2.9	.39	10C	Fit
3	.75	-2.9	.42	3A	Fit
9	.72	-3.4	.48	9C	Fit
16	.66	-4.2	.46	16C	Fit
12	.65	-4.5	.54	12A	Fit
14	.63	-4.6	.49	14A	Fit

Analysis of potential bias in certain groups through DIF analysis

DIF analysis described the bias in responses based on demographic data. Certain demographic groups had interpretations or preferences in answering specific items, causing those items to be non-neutral. Items indicated as DIF showed a significance value below .05 (Sumintono, 2015). In this study, DIF was compared based on the demographic data of school level, gender, and participation in extracurricular activities.

Figure 2

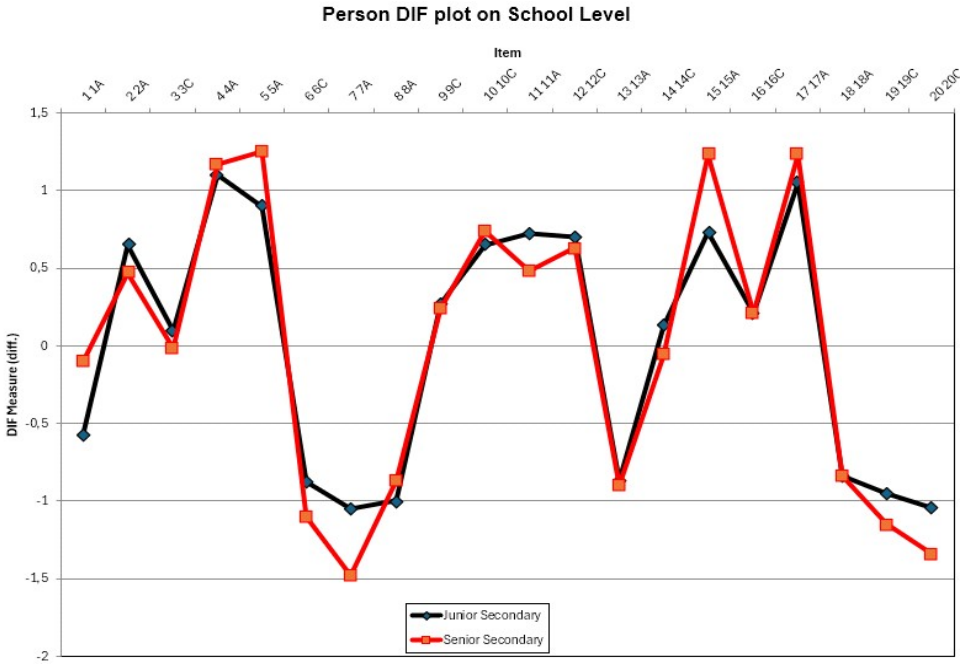
DIF Results on School Level

Person CLASSES	SUMMARY DIF CHI-SQUARE	D.F.	PROB.	BETWEEN-CLASS MEAN-SQUARE	t=ZSTD	Item Number	Name
2	6.9149	1	.0085	3.1987	1.4757	1	1A
2	1.2022	1	.2729	.5518	.0900	2	2A
2	.4863	1	.4856	.2182	-.3728	3	3C
2	.1752	1	.6755	.0763	-.7501	4	4A
2	4.0571	1	.0440	1.8646	.9610	5	5A
2	1.2425	1	.2650	.5453	.0831	6	6C
2	4.2664	1	.0389	1.9107	.9824	7	7A
2	.4586	1	.4983	.2135	-.3820	8	8A
2	.0656	1	.7979	.0459	-.8906	9	9C
2	.3092	1	.5782	.1373	-.5555	10	10C
2	1.9167	1	.1662	.8819	.3844	11	11A
2	.1542	1	.6945	.0721	-.7668	12	12C
2	.0216	1	.8831	.0097	-1.1973	13	13A
2	1.2046	1	.2724	.5430	.0807	14	14C
2	8.4623	1	.0036	3.9652	1.7077	15	15A
2	.0000	1	1.0000	.0089	-1.2100	16	16C
2	1.0877	1	.2970	.4896	.0221	17	17A
2	.0000	1	1.0000	.0007	-1.4599	18	18A
2	.9934	1	.3189	.4337	-.0442	19	19C
2	2.1604	1	.1416	.9542	.4385	20	20C

In school level category as shown in Figures 2 and 3, there was DIF in the affective dimension for scale items number 1 (p = .008) "My friend's emotions don't affect me much", 5 (p = .044) "I get caught up in other people's feelings easily", 7 (p = .038) "I don't become sad when I see other people crying", and 15 (p = .003) "I tend to feel scared when I am with friends who are afraid." These 4 items shared a common focus on responses to other people's emotions. There were indications of bias in these items when comparing Junior and Senior High School levels. Students in Junior High School were more inclined to agree with items that discussed comprehending other people's feelings than to disagree with items lacking comprehension of other people's feelings.

Figure 3

IF Plot on School Level



In terms of gender, there were four items indicated as DIF as shown in Figure 4. Items number 1 (p = .006), 4 (p = .005), and 11 (p = .012) belonged to the affective dimension, and item number 10 (p = .021) belonged to the cognitive dimension. Male participants tended to agree with item number 1, "My friend's emotions don't affect me much." For item number 4, "I get frightened when I watch characters in a good scary movie," male participants tended to find it more difficult to agree. Additionally, females tended to agree with item number 11, "I often become sad when watching sad things on TV or in films." For item number 10, "I can usually work out when my friends are scared," male participants were more inclined to agree compared to females.

Figure 4

DIF Results on Gender

Person CLASSES	SUMMARY DIF CHI-SQUARE	D.F.	PROB.	BETWEEN-CLASS MEAN-SQUARE	t=ZSTD	Item Number	Name
2	7.3668	1	.0066	3.7530	1.6467	1	1A
2	.0000	1	1.0000	.0203	-1.0709	2	2A
2	.0000	1	1.0000	.0217	-1.0586	3	3C
2	7.6792	1	.0056	3.8620	1.6783	4	4A
2	.4394	1	.5074	.2151	-.3789	5	5A
2	.0000	1	1.0000	.0010	-1.4405	6	6C
2	.1637	1	.6858	.0829	-.7248	7	7A
2	.1817	1	.6699	.0919	-.6925	8	8A
2	.7744	1	.3788	.3875	-.1033	9	9C
2	5.2876	1	.0215	2.6733	1.2942	10	10C
2	6.1800	1	.0129	3.1252	1.4516	11	11A
2	.1051	1	.7457	.0529	-.8536	12	12C
2	1.4079	1	.2354	.7100	.2425	13	13A
2	.4681	1	.4939	.2340	-.3428	14	14C
2	.5442	1	.4607	.2723	-.2749	15	15A
2	1.0466	1	.3063	.5241	.0604	16	16C
2	.2410	1	.6235	.1169	-.6126	17	17A
2	.0960	1	.7567	.0487	-.8754	18	18A
2	1.3465	1	.2459	.6746	.2106	19	19C
2	.9697	1	.3248	.4892	.0216	20	20C

One item indicated as DIF was also found between students who participated in extracurricular activities and those who did not (Figure 5). DIF was found in item number 3 (p = .031), "I can understand my friend's happiness when they do well at something." Participants who engaged in extracurricular activities tended to disagree compared to those who did not which required further investigation. Additionally, there was no DIF or tendency in responses based on demographic backgrounds of age, parental completeness, and reasons for attending school.

Figure 5

DIF Results on Extracurricular Engagement

Person CLASSES	SUMMARY DIF CHI-SQUARE	D.F.	PROB.	BETWEEN-CLASS MEAN-SQUARE	t=ZSTD	Item Number	Name
2	.3350	1	.5628	.0294	-.9955	1	1A
2	.0105	1	.9182	.0015	-1.4083	2	2A
2	4.6368	1	.0313	.5158	.0514	3	3C
2	2.0606	1	.1512	.1344	-.5633	4	4A
2	.6513	1	.4197	.0356	-.9520	5	5A
2	.0576	1	.8103	.0021	-1.3777	6	6C
2	1.4295	1	.2318	.0999	-.6657	7	7A
2	.0657	1	.7976	.0098	-1.1960	8	8A
2	.2800	1	.5967	.0187	-1.0868	9	9C
2	2.1389	1	.1436	.1827	-.4462	10	10C
2	.0560	1	.8130	.0025	-1.3625	11	11A
2	1.1835	1	.2766	.0968	-.6758	12	12C
2	.3258	1	.5681	.0329	-.9699	13	13A
2	.1365	1	.7118	.0089	-1.2108	14	14C
2	1.2179	1	.2698	.1012	-.6614	15	15A
2	.4209	1	.5165	.0301	-.9901	16	16C
2	.0668	1	.7961	.0081	-1.2242	17	17A
2	.2612	1	.6093	.0270	-1.0138	18	18A
2	.0140	1	.9057	.0008	-1.4538	19	19C
2	.7252	1	.3944	.0436	-.9035	20	20C

Discussion

Wright map results showed that the majority of participants scored in the medium range, falling between +1 and -1 standard deviation (-.82 to .82). However, 11 participants achieved a score above the most difficult question, item number 4, which had a difficulty level of 1.13 logits. The results suggest that the instrument requires questions with a higher level of difficulty to more accurately measure empathy levels of participants. No participants score below the lowest level of difficulty, indicating that all participants possess measurable levels of empathy according to the construct.

Based on the results and analysis, the BES instrument shows good validity and reliability as evidenced by satisfactory results in item fit testing, construct validity, and Cronbach's alpha. However, the analysis of DIF shows potential item bias. DIF results related to school level (junior vs. senior), gender, and extracurricular engagement may influence how scores are interpreted for Islamic Boarding School students. These differences suggest that certain BES items function differently depending on students' demographic group. To ensure unbiased and accurate measurement, these variations should be considered, and adjustments to the instrument may be necessary to account for the unique experiences and contexts of Islamic Boarding School students.

Junior High School students are more inclined to agree with items related to understanding other people's emotions and to

disagree with items about not understanding others' emotions compared to Senior High School students. This suggests that Junior High School students are more sensitive to other people's feelings. Many Junior High School students in Islamic Boarding Schools are new to the environment and separated from the parents. Students should adapt to new habits, which often requires forming new attachments with peers (Rifandi, 2022). These socio-emotional bonds may enhance their capacity for empathy. Studies show a positive correlation between peer attachment and empathy levels (Xu et al., 2022). In the context of close friendships, addressing a friend's emotional and practical needs with understanding, support, and emotional resonance strengthens emphatic capacity (Stern et al., 2021). Despite these differences, overall empathy levels do not vary significantly between Junior and Senior High School students, correlating with the results from Gaspar and Esteves (2022). This is consistent with the idea that both groups are in the adolescent stage of development, sharing similar characteristics.

The gender-related DIF findings also outline differences in empathy levels between male and female students. Specifically, most DIF indications originate from the affective dimension. Female students consistently show higher levels of effective empathy compared to male students. This correlates with prior studies showing that females score higher on empathy measures (Jolliffe & Farrington, 2006; Mestre et al., 2009). Developmental studies also show that gender differences in empathy appear early in life and remain stable over time (Michalska et al., 2013; O'Brien et al., 2013). Females further exhibit higher empathy levels in the lifespan, a trend that appears consistent from birth (Eisenberg et al., 1998). This developmental stability suggests that gender differences are incline not simply due to postnatal experiences (e.g., maternal care) but can reflect some evolutionarily important differences between males and females. Several studies further suggest that empathy is moderately heritable such as Baron-Cohen (2002), Chakrabarti and Baron-Cohen (2013), Cristov-Moore et al. (2014), and Knafo et al. (2008). However, it is essential to develop strong items that are free from gender bias, particularly in the affective empathy dimension to ensure the instrument measures empathy without being influenced by demographic factors.

Participants who engage in extracurricular activities tend to disagree with items related to their peers' achievements compared to those who do not participate in such activities. This competitive attitude can positively impact students' development (Shimotsu-Dariol et al., 2012). However, the specific item suggests that students may not favor peers' success. When adolescents engage in extracurricular activities and show less sensitivity or understanding of others' emotions, this could be considered a deficiency

in empathy. Addressing the aspect in future revisions of the instrument is crucial to ensure comprehensive measurement.

Conclusions

In conclusion, this study validated the BES using Rasch model among Indonesian Islamic Boarding School students. The result showed that the BES was a valid and reliable instrument for measuring empathy levels. Rasch analysis also supported unidimensionality of the scale with appropriate item fit while deeper analysis showed item bias across different demographic groups. These results supported the study objectives which attempted to establish that the BES effectively measured both cognitive and affective dimensions of empathy among students in Islamic Boarding Schools. Therefore, the study showed that cultural contexts played a significant role in empathy assessments and the BES was suitable for use with Islamic Boarding School students in Indonesia. Certain items still required revision to enhance clarity.

The validated BES scores provided a reliable foundation for designing educational and psychological interventions customized to the unique social and cultural environment of Islamic Boarding School. These interventions could include integrating empathy training into religious and moral education, peer counseling programs, or group discussions to enhance students' cognitive and affective empathy. The programs correlated with the communal and spiritual values of Islamic Boarding School, promoting pro-social behavior and holistic development. Furthermore, this study underscored the importance of culturally relevant empathy assessments to address construct relevance. Incorporating empathy-building activities into curricula ensured correlation with the values and lived experiences of Islamic Boarding School students, fostering emotional understanding and moral reasoning.

Suggestion

Several stages should be taken to refine the BES for application among Indonesian Islamic Boarding School students and to eliminate demographic bias. First, the cultural relevance of each item should be reviewed to ensure clarity. Second, translations should be culturally sensitive and rephrased to suit the contexts and idiomatic expressions familiar to students. DIF analysis should be used to identify demographic bias by outlining items that functioned differently across various demographic groups. This study also faced limitations in the data collection method, as it relied on convenience sampling. Future studies should consider using probability sampling methods to improve the generalizability of the results.

References

Albiero, P., Matricardi, G., Speltri, D., & Toso, D. (2009). The assessment of empathy in adolescence: A contribution to the Italian validation of the "Basic empathy scale."

Journal of Adolescence, *32*(2), 393–408. https://doi.org/10.1016/j.adolescence.2008.01.001

Anastácio, S., Vagos, P., Nobre-Lima, L., Rijo, D., & Jolliffe, D. (2016). The Portuguese version of the basic empathy scale (BES): Dimensionality and measurement invariance in a community adolescent sample. *European Journal of Develop mental Psychology*, *13*(5), 614–623. https://doi.org/10.1080/17405629.2016.1167681

Baron-Cohen, S. (2002). The extreme male brain theory of autism. *Trends in Cognitive Sciences*, *6*(6), 248–254. https://doi.org/10.1016/S1364-6613(02)01904-6

Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: An investigation of adults with asperger syndrome or high functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders*, *34*(2), 163–175. https://doi.org/10.1023/B:JADD.0000022607.19833.00

Bensalah, L., Stefaniak, N., Carre, A., & Besche-Richard, C. (2016). The Basic Empathy Scale adapted to French middle childhood: Structure and development of empathy. *Behavior Research Methods*, *48*(4), 1410–1420. https://doi.org/10.3758/s13428-015-0650-8

Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Frontiers in Public Health*, *6*. https://doi.org/10.3389/fpubh.2018.00149

Boone, W. J. (2016). Rasch analysis for instrument development: Why, when, and how? *CBE—Life Sciences Education*, *15*(4), rm4. https://doi.org/10.1187/cbe.16-04-0148

Brentani, E., & Golia, S. (2007). Unidimensionality in the Rasch model: How to detect and interpret. *Statistica*, *67*(3), 253–261. https://doi.org/https://doi.org/10.6092/issn.1973-2201/3508

Cabedo-Peris, J., Martí-Vilar, M., Merino-Soto, C., & Ortiz-Morán, M. (2021). Basic Empathy Scale: A systematic review and reliability generalization meta-analysis. *Healthcare*, *10*(1), 29. https://doi.org/10.3390/healthcare10010029

Cairns, P., Isham, A. E., & Zachariae, R. (2024). The association between empathy and burnout in medical students: a systematic review and meta-analysis. *BMC Medical Education*, *24*, 640. https://doi.org/10.1186/s12909-024-05625-6

Carré, A., Stefaniak, N., D'Ambrosio, F., Bensalah, L., & Besche-Richard, C. (2013). The Basic Empathy Scale in Adults (BES-A): Factor structure of a revised form. *Psychological Assessment*, *25*(3), 679–691. https://doi.org/10.1037/a0032297

Èavojová, V., Sirota, M., & Belovièová, Z. (2012). Slovak validation of the Basic Empathy Scale in pre-adolescents. *Studia Psychologica, 54*(3), 195–208. bwmeta1.element.cejsh-e3d7896e-5cf6-4647-8cfb-159b34ddd6af

Chakrabarti, B., & Baron-Cohen, S. (2013). Understanding the genetics of empathy and the autistic spectrum. In S. Baron-Cohen, H. Tager-Flusberg, & M.V. Lombardo (Eds.), *Understanding other minds: Perspectives from developmental social neuroscience* (3th ed., pp. 326-342). Oxford University Press

Chen, F. R., Fung, A. L. C., & Raine, A. (2021). The Cognitive, Affective, and Somatic Empathy Scales (CASES): Cross-cultural replication and specificity to different forms of aggression and victimization. *Journal of Personality Assessment*, *103*(1), 80–91. https://doi.org/10.1080/00223891.2019.1677246

Chen, T. (2023). The relationship between paternal rearing styles and pro-social behavior of Chinese lower-division undergraduate students: The mediating role of empathy and mental capital. *SHS Web of Conferences*, *180*, 02029. https://doi.org/10.1051/shsconf/202318002029

Chismar, D. (1988). Empathy and sympathy: The important difference. *The Journal of Value Inquiry*, *22*(4), 257–266. https://doi.org/10.1007/BF00136928

Chung, Y. W., Im, S., & Kim, J. E. (2021). Can empathy help individuals and society? Through the lens of volunteering and mental health. *Healthcare*, *9*(11), 1406. https://doi.org/10.3390/healthcare9111406

Christov-Moore, L., Simpson, E. A., Coudé, G., Grigaityte, K., Iacoboni, M., & Ferrari, P. F. (2014). Empathy: Gender effects in brain and behavior. *Neuroscience and Biobehavioral Reviews*, *46 Pt 4*(Pt 4), 604–627. https://doi.org/10.1016/j.neubiorev.2014.09.001

Cohen, D., & Strayer, J. (1996). Empathy in conduct-disordered and comparison youth. *Developmental Psychology*, *32*(6), 988–998. https://doi.org/10.1037/0012-1649.32.6.988

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113–126. https://doi.org/10.1037/0022-3514.44.1.113

Deng, X., Yang, J., & Wu, Y. (2021). Adolescent empathy influences bystander defending in school bullying: A three-level meta-analysis. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.690898

Dijke, J. Van, Nistelrooij, I. Van, Bos, P., & Duyndam, J. (2023). Engaging otherness: Care ethics radical perspectives on empathy. *Medicine, Health Care and Philosophy*, *26*(3), 385–399. https://doi.org/10.1007/s11019-023-10152-0

Diswantika, N., Suherman, U., Rusmana, N., Suryana, D., Qurbi, A., & Noor, A. M. (2023). *Analyzing the construct validity of the Indonesian basic empathy scale using the Rasch model*. https://doi.org/10.21203/rs.3.rs-3364544/v1

Eisenberg, N., Cumberland, A., & Spinrad, T. L. (1998). Parental socialization of emotion. *Psychological Inquiry*, *9*(4), 241–273. https://doi.org/10.1207/s15327965pli0904_1

Engelhard Jr., G. (2013). *Invariant measurement* (1st ed.). Routledge.

Farzad, M., Layeghi, F., Asgari, A., Hosseini, S., & Rassafiani, M. (2016). Evaluation of non diseased specified outcome measures in hand injuries to assess activity and participation based on ICF content. *Journal of Hand and Microsurgery*, *06*(01), 27–34. https://doi.org/10.1007/s12593-013-0109-z

Furr, R. M. (2011). *Scale construction and psychometrics for social and personality psychology*. SAGE Publications Ltd. https://doi.org/10.4135/9781446287866

Gaspar, A., & Esteves, F. (2022). Empathy development from adolescence to adulthood and its consistency across targets. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.936053

Geng, Y., Xia, D., & Qin, B. 2012. The Basic Empathy Scale: A Chinese validation of a measure of empathy in adolescents. *Child Psychiatry and Human Development, 43*, 499–510. https://doi.org/10.1007/s10578-011-0278-6

Graaff, J. Van Der, Meeus, W., Wied, M. De, Boxtel, A. Van, Lier, P. A. C. Van, Koot, H. M., & Branje, S. (2016). Motor, affective and cognitive empathy in adolescence: Interrelations between facial electromyography and self-reported trait and state measures. *Cognition and Emotion*, *30*(4), 745–761. https://doi.org/10.1080/02699931.2015.1027665

Hapsari, A. D., & Widhiarso, W. (2023). The effectiveness of item parceling to increase the model fit: A case study of PAPs. *Jurnal Penelitian dan Evaluasi Pendidikan*, *27*(1), 26–38. https://doi.org/10.21831/pep.v27i1.49012

Hermansyah, E., Rizkyanti, C. A., & Hakim, L. N. (2024). Rasch calibration and Differen tial Item Functioning (DIF) analysis of the school well-being scale for students. *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran*, *10*(1), 1-11. https://doi.org/10.33394/jk.v10i1.10759

Heynen, E. J. E., Van der Helm, G. H. P., Stams, G. J. J. M., & Korebrits, A. M. (2016). Measuring empathy in a German youth prison: A validation of the German version of the Basic Empathy Scale (BES) in a sample of incarcerated juvenile offenders. *Journal of Forensic Psychology Practice*, *16*(5), 336-346. https://doi.org/10.1080/15228932.2016.1219217

Hogan, R. (1969). Development of an empathy scale. *Journal of Consulting and Clinical Psychology, 33*(3), 307–316. https://doi.org/10.1037/h0027580

Ifthiharfi, R., Rizkyanti, C. A., & Akhyar, M. (2024). Korban kekerasan dalam pacaran yang sulit meninggalkan hubungannya. *Jurnal Psikologi Sosial*, *22*(2), 163–176. https://doi.org/10.7454/jps.2024.17

Innamorati, M., Ebisch, S. J. H., Gallese, V., & Saggino, A. (2019). A bidimensional measure of empathy: Empathic expe rience scale. *Plos One*, *14*(4), e0216164. https://doi.org/10.1371/journal.pone.0216164

Johnson, R. B., & Christensen, L. B. (2019). *Educational research: Quantitative, qualitative, and mixed approaches*. SAGE Publications, Inc.

Jolliffe, D., & Farrington, D. P. (2006). Development and validation of the Basic Empathy Scale. *Journal of Adolescence*, *29*(4), 589–611. https://doi.org/10.1016/j.adolescence.2005.08.010

Knafo, A., Zahn-Waxler, C., Van Hulle, C., Robinson, J. L., & Rhee, S. H. (2008). The developmental origins of a disposition toward empathy: Genetic and environ mental contributions. *Emotion*, *8*(6), 737–752. https://doi.org/10.1037/a0014179

Lamm, K., Lamm, A., & Edgar, D. (2020). Scale development and validation: Metho dology and recommendations. *Journal of International Agricultural and Extension Education*, *27*(2), 24–35. https://doi.org/10.5191/jiaee.2020.27224

Lima, F. F. de, & Osório, F. de L. (2021). Empathy: Assessment instruments and psycho metric quality – A systematic literature review with a meta-analysis of the past ten years. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.781346

Loureto, G.D.L., Santos, L.C.O., Castelhano, M.V.C., Benevides, D.S., de Lucena, H.H., & Leite, V.S. (2021). The Basic Empathy Scale: Evidence of internal structure in the Brazilian context. *Psico-USF, Bragança Paulista, 27*(3), 581-593. https://doi.org/10.1590/1413-82712035270314

Ma, Z. (2023). Empathy and criminal motivation: Relationship and prevention. *Journal of Education, Humanities and Social Sciences*, *22*, 854–858. https://doi.org/10.54097/ehss.v22i.14552

McLaren, V., Vanwoerden, S., & Sharp, C. (2019). The Basic Empathy Scale: Factor structure and validity in a sample of inpatient adolescents. *Psychological Assessment, 31*(10), 1208–1219. https://doi.org/10.1037/pas0000741

Mestre, M. V., Samper, P., Frías, M. D., & Tur, A. M. (2009). Are women more empathetic than men? A longitudinal study in adolescence. *The Spanish Journal of Psychology*, *12*(1), 76–83. https://doi.org/10.1017/S1138741600001499

Michalska, K.J., Kinzler, K.D., & Decety, J. (2013). Age-related sex differences in explicit measures of empathy do not predict brain responses across childhood and adolescence. *Developmental Cognitive Neuroscience, 3*, 22– 32. https://dx.doi.org/10.1016/j.dcn.2012.08.001.

Miller, P. H. (2011). *Theories of developmental psychology* (5th ed.). Worth Publishers.

Mohajan, H. K. (2017). Two criteria for good measurements in research: Validity and reliability. *Annals of Spiru Haret University. Economic Series*, *17*(4), 59–82. https://doi.org/10.26458/1746

Moudatsou, M., Stavropoulou, A., Philalithis, A., & Koukouli, S. (2020). The role of empathy in health and social care professionals. *Healthcare*, *8*(1), 26. https://doi.org/10.3390/healthcare8010026

O'Brien, E., Konrath, S.H., Grühn, D., & Hagen, A.L. (2013). Empathic concern and perspective taking: Linear and quadratic effects of age across the adult life span. *The Journals of Gerontology: Series B*, *68*(2), 168–175. https://doi.org/10.1093/geronb/gbs055

Oliva, A. (2011). *Desarrollo positivo adolescente y los activos que lo promueven: Un estudio en centros docentes andaluces* (J. de Andalucía, Ed.). Secretaría General de Salud Pública y Participación.

Pechorro, P., Ray, J.V., Raine, A., Maroco, J., Gonçalves, R.A. (2017). The Reactive–Proactive Aggression Questionnaire: Validation among a Portuguese sample of incarcerated juvenile delinquents. *Journal of Interpersonal Violence, 32*(13), 1995–2017. https://doi.org/10.1177/0886260515590784

Raifman, S., DeVost, M. A., Digitale, J. C., Chen, Y.-H., & Morris, M. D. (2022). Respondent-driven sampling: A sampling method for hard-to-reach populations and beyond. *Current Epidemiology Reports*, *9*(1), 38–47. https://doi.org/10.1007/s40471-022-00287-8

Ratka, A. (2018). Empathy and the development of affective skills. *American Journal of Pharmaceutical Education*, *82*(10), 7192. https://doi.org/10.5688/ajpe7192

Rifandi, A. (2022). Maladjustment in Islamic boarding school/ : Effects of peer attachment? *Psycho Holistic*, *4*(1), 30–34. https://doi.org/10.35747/ph.v4i1.267

Rizkyanti, C. A., Wahyuni, C., & Alatas, S. (2021). Empathy and defender role in bullying at school: Student-teacher relationship as mediator. *Electronic Journal of Research in Education Psychology*, *19*(54), 227–246. https://doi.org/10.25115/ejrep.v19i54.3564

Rizkyanti, C., Murty, A. I., & Paramaharta, N. R. (2020). Empati afektif: Mediator pengaruh keterlibatan orang tua terhadap peran defender remaja dalam perun dungan di sekolah. *Jurnal Ilmu Keluarga dan Konsumen*, *13*(3), 250–261. https://doi.org/10.24156/jikk.2020.13.3.250

Salsabilla, S., Rizkyanti, C.A., & Yudha, Y.H. (2021). *Family communication patterns* sebagai mediator antara empati dan konflik orang tua-anak pada remaja. *Persona: Jurnal Psikologi Indonesia, 10*(2), 207-223. https://doi.org/10.30996/persona.v10i2.5351

Sánchez-Pérez, N., Fuentes, L. J., Jolliffe, D., & González-Salinas, C. (2014). *Basic Empathy Scale—Adapted Spanish Version (BES-PR, BES-SR, BES)* [Database record]. APA PsycTests. https://doi.org/10.1037/t41914-000

şahin, Y., & şirin, A. (2021). Development and validation of the empathy scale in marriage for Turkish cultural context. *Spiritual Psychology and Counseling*, *6*(2), 63-72. https://doi.org/10.37898/spc.2021.6.2.136

Shimotsu-Dariol, S., Mansson, D. H., & Myers, S. A. (2012). Students' academic competi tiveness and their involvement in the learning process. *Communication Research Reports*, *29*(4), 310–319. https://doi.org/10.1080/08824096.2012.723643

Smith, A. (2006). Cognitive empathy and emotional empathy in human behavior

and evolution. *The Psychological Record*, *56*(1), 3–21. https://doi.org/10.1007/BF03395534

Stern, J. A., Costello, M. A., Kansky, J., Fowler, C., Loeb, E. L., & Allen, J. P. (2021). Here for you: Attachment and the growth of empathic support for friends in adolescence. *Child Development*, *92*(6), e1326–e1341. https://doi.org/10.1111/cdev.13630

Stratton, S. J. (2021). Population research: Convenience sampling strategies. *Prehospital and Disaster Medicine*, *36*(4), 373–374. https://doi.org/10.1017/S1049023X21000649

Suazo, I., Pérez-Fuentes, M. del C., Molero Jurado, M. del M., Martos Martínez, Á., Simón Márquez, M. del M., Barragán Martín, A. B., Sisto, M., & Gázquez Linares, J. J. (2020). Moral sensitivity, empathy, and prosocial behavior: Implications for humanization of nursing care. *International Journal of Environmental Research and Public Health*, *17*(23), 8914. https://doi.org/10.3390/ijerph17238914

Sumintono, B. (2015). *Pemodelan Rasch pada asesmen pendidikan: Suatu pengantar* (Paper). Konferensi Guru dan Dosen Nasional (KGDN) 2015 di Universitas Sumatera Utara (USU) Medan.

Sumintono, B., & Widhiarso, W. (2015). *Aplikasi model Rasch untuk penelitian ilmu-ilmu sosial*. Trim Komunikata Publishing House.

Sun, Z. (2023). Internet use influences digital empathy: A survey on Chinese young adults. *Journal of Education, Humanities and Social Sciences*, *8*, 264–272. https://doi.org/10.54097/ehss.v8i.4259

Tennant, A., & Küçükdeveci, A. A. (2023). Application of the Rasch measurement model in rehabilitation research and practice: Early developments, current practice, and future challenges. *Frontiers in Rehabilitation Sciences*, *4*. https://doi.org/10.3389/fresc.2023.1208670

Teófilo, T. J. S., Veras, R. F. S., Silva, V. A., Cunha, N. M., Oliveira, J. dos S., & Vasconcelos, S. C. (2019). Empathy in the nurse–patient relationship in geriatric care: An integrative review. *Nursing Ethics*, *26*(6), 1585–1600. https://doi.org/10.1177/0969733018787228

Terry, C., & Cain, J. (2016). The emerging issue of digital empathy. *American Journal of Pharmaceutical Education*, *80*(4), 58. https://doi.org/10.5688/ajpe80458

Vaingankar, J. A., Abdin, E., van Dam, R. M., Chong, S. A., Tan, L. W. L., Sambasivam, R., Seow, E., Chua, B. Y., Wee, H. L., Lim, W. Y., & Subramaniam, M. (2020). Develop ment and validation of the Rapid Positive Mental Health Instrument (R-PMHI) for measuring mental health outcomes in the population. *BMC Public Health*, *20*(1), 471. https://doi.org/10.1186/s12889-020-08569-w

Vossen, H. G. M., Piotrowski, J. T., & Valkenburg, P. M. (2015). Development of the Adolescent Measure of Empathy and Sympathy (AMES). *Personality and Individual Differences*, *74*, 66–71. https://doi.org/10.1016/j.paid.2014.09.040

Wu, Y. (2021). Empathy in nurse-patient interaction: A conversation analysis. *BMC Nursing*, *20*(1), 18. https://doi.org/10.1186/s12912-021-00535-0

Xu, X., Liu, Z., Gong, S., & Wu, Y. (2022). The relationship between empathy and attachment in children and adolescents: Three-level meta-analyses. *International Journal of Environmental Research and Public Health*, *19*(3), 1391. https://doi.org/10.3390/ijerph19031391

You, S., Lee, J., & Lee, Y. (2018). Validation of Basic Empathy Scale: Exploring a Korean version. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues, 37*(4), 726–730. https://doi.org/10.1007/s12144-016-9554-8

Zhang, Y., Xiang, J., Wen, J., Bian, W., Sun, L., & Bai, Z. (2018). Psychometric properties of the Chinese version of the empathy quotient

among Chinese minority college students. *Annals of General Psychiatry*, *17*(1), 38. https://doi.org/10.1186/s12991-018-0209-z

Zych, I., Baldry, A. C., Farrington, D. P., & Llorent, V. J. (2019). Are children involved in cyberbullying low on empathy? A systematic review and meta-analysis of research on empathy versus different cyberbullying roles. *Aggression and Violent Behavior*, *45*, 83–97. https://doi.org/10.1016/j.avb. 2018.03.004

Zych, I., Farrington, D. P., Nasaescu, E., Jolliffe, D., & Twardowska-Staszek, E. (2022). Psychometric properties of the basic empathy scale in polish children and adolescents. *Current Psychology*, *41*(4), 1957–1966. https://doi.org/10.1007/s12144-020-00670-y

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