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Development of Sibling Rivalry Instrument on Adolescents

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Abstract

This study aims to develop a measurement instrument for sibling rivalry that has been previously constructed. Previous research indicated a unidimensional model, but this study found a more suitable multidimensional model with three dimensions: jealousy, resentment, and competition. Through the confirmatory factor analysis (CFA) method, the instrument underwent modification, resulting in a final 8-item instrument divided into two items for jealousy, three for resentment, and three for competition. The CFA analysis showed that the instrument has good overall validity and meets convergent and discriminant validity criteria. The instrument's reliability is also considered good. Thus, this instrument can effectively measure sibling rivalry in adolescent populations.

Kata kunci:
persaingan antarsaudara;
confirmatory factor analysis;
remaja.

Abstrak

Penelitian ini bertujuan untuk mengembangkan instrumen pengukuran persaingan antarsaudara yang telah disusun sebelumnya. Penelitian sebelumnya menunjukkan model unidimensional, tetapi penelitian ini menemukan model multidimensional yang lebih sesuai dengan tiga dimensi: kecemburuan, kebencian, dan persaingan. Melalui metode *confirmatory factor analysis* (CFA), instrumen tersebut mengalami modifikasi, sehingga menghasilkan instrumen akhir yang terdiri dari delapan butir yang dibagi menjadi dua butir untuk kecemburuan, tiga butir untuk kebencian, dan tiga butir untuk persaingan. Analisis CFA menunjukkan bahwa instrumen tersebut memiliki validitas keseluruhan yang baik dan memenuhi kriteria validitas konvergen dan diskriminan. Reliabilitas instrumen tersebut juga dinilai baik. Dengan demikian, instrumen ini dapat secara efektif mengukur persaingan antarsaudara pada populasi remaja.

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INTRODUCTION

Parents and children are the main components of family life and have their respective social roles. The family is the first environment for children, which is informal and natural, where children will get value in life (Adison & Suryadi, 2020; Helmawati, 2014). Parents have the most significant influence and responsibility on the growth and development of a child. Most parents will undoubtedly give their children the best so they grow and develop physically, psychologically, and spiritually well. A child also needs affection, attention, and guidance from his parents. Therefore, parents are prominent supporters of family life. In the family itself, a subsystem is formed, such as the relationship between husband and wife, the relationship between children and parents, and the relationship between siblings or sibling relationships (Santrock, 2012).

According to Santrock (2012), the relationship between siblings will be formed after the married couple gives birth to the second child and so on, where later the first child and the second child, as

younger siblings, will grow and develop in the family environment. Over time, they will go through the development process from toddlers, childhood, adolescence, to adulthood together and interact with each other (Santrock, 2012). Interaction between these siblings can be physical interactions, such as playing together; cognitive interactions, such as building mutual trust in their siblings; as well as affective interactions, such as the emergence of emotions to their siblings, which will give rise to a high sense of empathy for their siblings (Cicirelli, 1995, as cited in Lestari, 2012). This interaction can also build cooperation, sharing, mutual help, and empathy between brothers and sisters (Salmon & Shackelford, 2007).

However, in living life, a person will be faced with various conflicts or problems, so that in the family, there will also be various conflicts. Besides that, Wirawan (1992, as cited in Hyoscyamina, 2011) also revealed that conflicts in the family can arise due to several factors such as lack of interpersonal interaction in solving problems, lack of commitment to the family, unclear and rigid roles between family members, lack of stability in dealing with the environment, as well as lack of communication in the family. Conflicts in the family involve the relationship between husband and wife and the relationship between parents and children. It can also involve sibling relationships, such as not wanting to share things with their siblings (Lestari, 2012). Conflicts involving relationships between siblings can also be in the form of jealousy of each other, expressed angrily, and sulking, where this sense of jealousy or dislike is naturally referred to as sibling rivalry (Haniyyah et al., 2019).

According to Shaffer and Kipp (2014), sibling rivalry is a feeling of rivalry, jealousy, or hatred between siblings that tends to appear once a younger sibling appears. Furthermore, Shaffer and Kipp (2014) also explained that when a younger sibling is born, a mother tends to be less warm and less playful with her first child, so the first child will feel neglected and vent it by being complex, prone to destructive behavior, and difficult to understand. Sibling rivalry usually arises when the age difference between siblings is quite close, where the age gap that can trigger sibling rivalry is 1–3 years (Reviyanti & Komalasari, 2021). This sibling rivalry is often found in the age range of 1–5 years, but there is a possibility of a delayed effect where this sibling competition will reappear in the age range of 12–18 years (Masruroh & Ramadhana, 2016, as cited in Tirtania, 2023). The delayed effect is further explained as it can be in the form of deviant or destructive behavior. According to Panggabean (2021), if sibling rivalry that leads to negative relationships is not avoided, it will continue and affect the development process.

In an extreme example, a case study conducted by Barber (2021) in America, there was a man named John (59) who killed his siblings William (66) and Patrick (60). Local police speculate from the evidence that has been collected that John killed his brother and then committed suicide, based on tension and jealousy over the family inheritance. In another case, it proves that sibling rivalry becomes severe in adulthood, where in 2016, there was a 19-year-old teenager who killed his 17-year-old sibling in Russia, allegedly due to jealousy (Steinbuch, 2019). Similar cases have also occurred several times in Indonesia, such as the case of a man with the initials ES (39) who killed his own younger brother with the initials MS (35) in Pekanbaru, Riau in September 2023 because ES felt hurt for his younger brother who often denied and fought against his parents (Rosa, 2023). Both cases explain that sibling rivalry can be fatal if not appropriately handled by parents. Based on these two examples of extreme cases, further research is needed on sibling rivalry.

Further research into sibling rivalry requires an instrument that future researchers can use. In the previous study, Haniyyah et al. (2019) examined the relationship between sibling rivalry and emotional regulation in adolescents using sibling rivalry instruments based on the research of Setiawati and Zulkaida (2007), where the instrument has five dimensions, namely golden children, envy, seek-

ing more attention, temperament, and the desire to win from their siblings. However, Haniyah et al. constructed the instrument to the stage of content validity only. Meanwhile, in constructing the instrument, the validity of the construct is needed to test the quality of the instrument in describing the theoretical construct used in the research (Widodo, 2006). One way to calculate the validity of a construct is to use the confirmatory factor analysis or CFA method that can be used to overcome instruments that have an item that contains bias, where the item is valid and significant in measuring what is measured, but at the same time can measure something else (Umar & Nisa, 2020).

In addition, Tirtania (2023) constructs the scale of sibling rivalry based on the theory of Shaffer and Kipp (2014) with the aspect of jealousy, where the emergence of disacceptance of the appearance of others is considered the cause of the division of attention and affection from loved ones; resentment, which is an emotional reaction in the form of feelings of conflict or hostility towards someone or something that is considered harmful; and competition, which is a feeling that arises due to a situation where one person seeks to be superior to others (VandenBos, 2015). However, the research still needs to be further developed to have good validity and reliability for future research. As for the instrument of sibling rivalry, or one that already has the validity of the construct evidence, there is still none, especially in Indonesia.

METHODS

Research Subject

This study was conducted on adolescents who had one or more siblings. According to the International Test Commission (2017), 500 people are recommended to develop the instrument. In this study, the number of respondents was 769. For sampling, this study uses non-probability sampling using an incidental sampling technique, where respondents are selected based on the availability of a population that is in accordance with the research criteria (Sugiyono, 2019).

Instrument

This research was conducted using a sibling rivalry scale instrument constructed by Tirtania (2023) based on the theory of Shaffer and Kipp (2014), with aspects of jealousy, resentment, and competition, with 37 items. The instrument is a Likert scale with four choices of answers, namely *very not suitable* (sangat tidak sesuai/STS), *not suitable* (tidak sesuai/TS), *suitable* (sesuai/S), and *very suitable* (sangat sesuai/SS). In the favourable item, SS answers are given a score of 4, S answers are given a score of 3, TS answers are given a score of 2, and STS answers are given a score of 1. Meanwhile, in unfavourable items, STS answers are given a score of 4, TS answers are given a score of 3, S answers are given a score of 2, and SS answers are given a score of 1.

Research Procedure

This study uses the scale of sibling rivalry constructed by Tirtania (2023) as a model to be developed. In developing the instrument, the researcher took steps based on the stages of the International Test Commission (2017). The stages of the research include: (a) licensing the use of instruments to develop; (b) create constraints on the instrument domain and outline the dimensions on the instrument according to theory; (c) expert judgement and readability test; (d) conducting instrument trials in the field; (e) review of trial results; and (f) preparation of research report.

Data Analysis

In this study, the validity was tested using the CFA method. The CFA method uses Jeffreys' Amazing Statistics Program (JASP) 0.18.1.0 to simplify the statistical process. In evaluating with the CFA method, the dynamic fit index cutoff method developed by McNeish and Wolf (2023) is used, where the selection of items is carried out by comparing matrix covariance with theoretical matrices to re-

duce residues based on maximum likelihood estimation or MLE and fit indices, such as goodness of fit from the data, where the fit category is divided into parsimony, absolute fit indices, and comparative or incremental.

RESULTS AND DISCUSSION

The CFA method tests how well sibling rivalry instruments fit by testing the model. Table 2 shows that the measurement model on the instrument as a whole is still not fit. The values of the GFI, RMSEA, NFI, IFI, CFI, and TLI parameters are still below the criteria determined by Hu and Bentler (1999). In a study by Tirtania (2023), it was explained that the sibling rivalry instrument is a unidimensional construct, while the results of the data analysis found by the researcher were that the unidimensional model did not fit the sibling rivalry construct. Therefore, the researcher first conducted an exploratory factor analysis (EFA) on the data to determine whether the instrument uses a unidimensional or multidimensional model. The use of EFA aims to determine the number of factors an instrument has and the pattern of how influential each factor is (Tucker & MacCallum, 1997). The researcher did not perform EFA in full detail on the instrument, but only reviewed the instrument model based on the results of the scree plot on JASP, as exemplified by Semesta Psikometrika (2020). The results of the scree plot of this instrument show that the instrument model is multidimensional, so in this study, a multidimensional model is used. The model and loading factor of sibling competition instruments are shown in Figure 1.

In using CFA, it is not uncommon for researchers to modify the model by removing items so that the model becomes better or fitter. The criteria for an item that needs to be removed are if the item has a negative factor charge coefficient, the residual result of one item correlated with many other residual items, or the loading factor coefficient is insignificant (Umar & Nisa, 2020). In this study, there are 29 items that are discarded based on these criteria and will not be used for the final model; only the remaining items are used. By discarding these items, the model parameters can be changed to be better as listed in Table 3. These items are as follows.

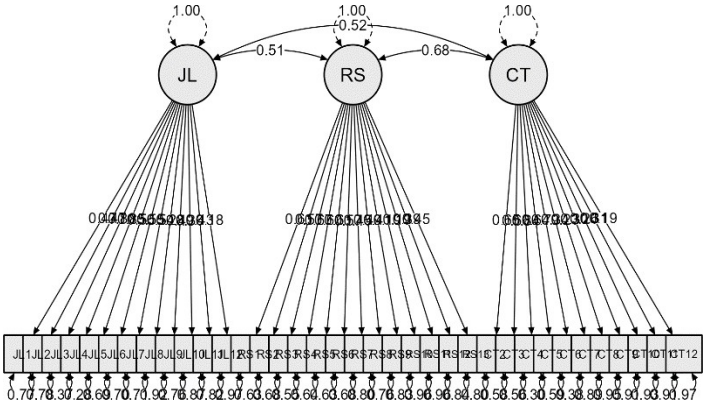
Table 1.
Items Discarded from Each Aspect

Aspect	Code	Item Description
Jealousy	JL1	My sibling's life is better than mine
	JL2	I think that my sibling is everyone's favorite
	JL5	I get upset when my sibling is always praised
	JL6	My sibling always gets what he wants
	JL7	I am hurt when compared to my sire
	JL8	I am also happy with my siblings' achievements
	JL9	Even though my siblings are superior, I still feel loved by my parents
	JL10	I feel happy with my siblings' achievements
	JL11	My parents have been fair
	JL12	I often praise my siblings

Aspect	Code	Item Description
Resentment	RS1	I often fight with my siblings
	RS2	I get upset when my siblings always blame me when there is a problem
	RS5	My sibling's words often hurt me
	RS7	I like to call my siblings inappropriate calls
	RS8	My siblings and I help each other
	RS9	We have a responsibility to remind each other if we make mistakes
	RS10	I often spend time with my siblings
	RS11	My siblings and I are used to solving problems together
	RS12	Even though there are problems between me and my siblings, we still maintain good manners
	RS13	My siblings and I love each other
Competition	CT1	I always try to look good in the eyes of my parents rather than my siblings
	CT2	I like to criticize my siblings, so that I look greater
	CT3	My siblings and I often put ourselves on top of each other
	CT7	My siblings and I are always compact
	CT8	I will defend my siblings if they are treated unfairly
	CT9	I care a lot about my siblings' feelings
	CT10	My siblings are often involved in important events in my life
	CT11	My siblings are one of the best people in my life
	CT12	I often give in to my siblings

Table 2.
Parameters of the Sibling Rivalry Instrument Model Before Modification

Categories	Parameter Fit	Output	Criteria	Conclusion
Absolut fit	Goodness of fit index (GFI)	.882	≥ .90	Not fit
	Root mean square error of approximation (RMSEA)	.101	≤ .08	Not fit
	Normal fit index (NFI)	.528	≥ .90	Not fit
	Incremental fit index (IFI)	.557	≥ .90	Not fit
Incrimental fit	Comparative fit index (CFI)	.556	≥ .90	Not fit
	Tucker-Lewis Index (TLI)	.527	≥ .90	Not fit
Parsimonious fit	Parsimonious normal fit index (PNFI)	.495	.60–.90	Not fit



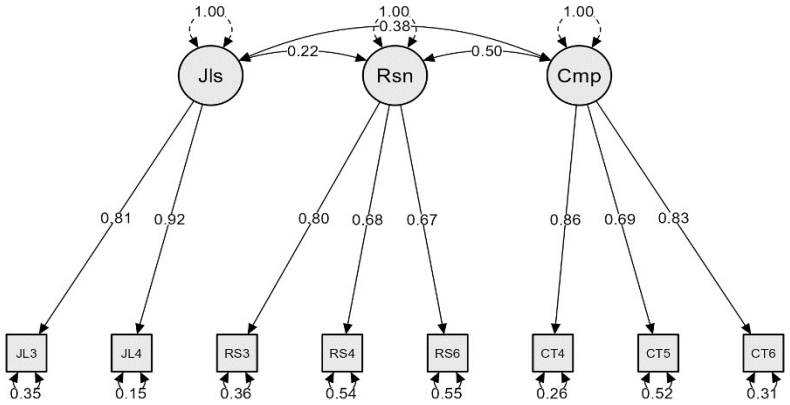
df = 591
p = < .001
GFI = .882
RMSEA = .101
NFI = .528
IFI = .557
CFI = .556
TLI = .527
PNFI = .495

Figure 1.
Initial Measurement Model of Sibling Rivalry Instrument

In Table 3, it can be seen that after making modifications, the output values of GFI, RMSEA, NFI, IFI, CFI, and TLI become in accordance with the criteria (RMSEA < .50; NFI, IFI, CFI & GFI > .90; PNFI > .80) set by Hu and Bentler (1999). The fit model and loading factor after modification can be seen in Figure 2.

Table 3.
Parameters of the Sibling Rivalry Instrument Model After Modification

Categories	Parameter Fit	Output	Criteria	Conclusion
Absolut fit	Goodness of fit index (GFI)	.997	≥ .90	Fit
	Root mean square error of approximation (RMSEA)	.046	≤ .08	Fit
	Normal fit Index (NFI)	.982	≥ .90	Fit
	Incremental fit index (IFI)	.998	≥ .90	Fit
Incrimental fit	Comparative fit index (CFI)	.988	≥ .90	Fit
	Tucker-Lewis Index (TLI)	.981	≥ .90	Fit
Parsimonious fit	Parsimonious normal fit index (PNFI)	.596	.60–.90	Fit



df = 17
p = < .001
GFI = .997
RMSEA = .046
NFI = .982
IFI = .988
CFI = .988
TLI = .981
PNFI = .596

Figure 2.
Sibling Rivalry Instrument Measurement Model After Modification

After the model and loading factor testing stage, a reliability test can be conducted on the instrument. Reliability can be described as the accuracy or precision of an instrument in a measurement procedure. In CFA, it is necessary to calculate construct reliability (CR) and average variance extracted (AVE) to test its reliability. According to Hair et al. (2009), the CR value of ≥ .70 is stated as good reliability, while the AVE value ≥ .50 indicates a good convergence value, and an AVE value < .50

indicates that the average. The average item has an error in one latent factor. The researcher used the following formula to calculate CR and AVE values.

Formula for calculating CR:

$$CR = \frac{(\sum Standardized\ loading)^2}{(\sum Standardized\ loading)^2 + Measurement\ Error} \quad (1)$$

Formula for calculating *AVE*:

$$AVE = \frac{(\Sigma Standardized\ loading^2)}{(\Sigma Standardized\ loading^2) + Measurement\ Error} \quad (2)$$

After calculating CR and AVE, Table 4 shows that this sibling rivalry instrument is reliable.

Table 4.
CR and AVE Grades of Sibling Rivalry Instrument

Variable Indicator	No. Item	λ	Error	λ²	CR	AVE
Jelousy	3	.807	.349	.651	.858	.753
	4	.924	.145	.854		
	Total	1.731	.494	1.505		
Resentment	3	.799	.362	.638	.762	.517
	4	.681	.537	.464		
	6	.671	.55	.450		
	Total	2.151	1.449	1.552		
Competition	4	.862	.257	.743	.841	.640
	5	.694	.519	.482		
	6	.834	.305	.696		
	Total	2.39	1.081	1.920		

Convergent Validity and Discrimination

This study found that the instrument model's results differed from previous studies, which showed that the sibling competition instrument was a unidimensional instrument. Because the sibling competition instrument in this study is multidimensional, this instrument needs to meet the convergent validity test with the value requirements of the AVE factor load ≥ .50 and CR ≥ .70. Based on the data in Table 4, it is known that the dimensions of jealousy, resentment, and competition have met the requirements for convergent validity.

Table 5.
AVE and Shared Variance Estimates

Dimension	Item	JL	RS	CT
Jelousy	2	**.753**	.048	.147
Resentment	3	.221	**.517**	.255
Competition	3	.384	.505	**.640**

After conducting a convergent validity test, it is necessary to conduct a discriminant validity test. The purpose of validity of discrimination is to find out the extent to which a construct differs from another construct. Logically, the factor charge of an indicator of a dimension must be higher in correla-

tion with its dimensional indicator than with other dimensional indicators. To test the validity of discrimination, it is necessary to compare the square correlation of the AVE score of each constituency. The validity of discrimination can be achieved if the value of the AVE that has been rooted squared is greater than the correlation between constructs (Fornell & Larcker, 1981; Rahmah, 2023). Based on the results in Table 5, the three dimensions have met the requirements of the discrimination validity test.

CONCLUSION

This study found that this instrument is more suitable for a multidimensional model, with jealousy, resentment, and competition dimensions. The results of the analysis with the CFA method explain that this instrument's validity level is generally valid because the overall model fits. This instrument has also met the requirements of convergent validity and discriminant validity. The reliability of this instrument is relatively good, so it can be used in measuring sibling rivalry properly and consistently. This study found that the model was different from the previous researcher as the maker or constructor of this instrument. The analysis with the unidimensional model became incompatible or not in accordance with the model. So, in the future, it is necessary to develop this instrument by increasing the number of respondents and conducting EFA first to find out if the model on this instrument has a unidimensional or multidimensional model.

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