The Cross Cultural Adaptation and Psychometric Evaluation of the Bully Survey Sweater - Student Version (BYS-S) Indonesian

by Abdul Ghofur

The Cross Cultural Adaptation and Psychometric Evaluation of the Bully Survey Sweater - Student Version (BYS-S) Indonesian version *

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ABSTRACT

Background. Bullying in the primary school and a valid instrument is needed to figure out the actual conditions.
Aim. This study aim is to adapt BYS-S questionnaire and psychometric evaluation with a cultural approach.
Method. This psychometric testing applies the Cross Cultural Adaptation method which consists of five translation stages. Item's validity was analyzed by rank-spearman (r) and cronbach's alpha (α) correlation test and followed by t test to obtain discriminatory power and difficulty level for each item.
Result. The results showed that the items had a great level of validity and reliability with a discriminatory and the difficulty level of each item was very good. Discriminated and difficulty items in the form and impact of bullying victim are higher than the bullies and bystanders.
Conclusion. BYS-S questioner Bahasa Indonesia's version is valid and reliable and has excellent discriminatory and difficulty power.
Keyword: bullying, quesioner, primary school students

What is known ?

Bully Survey-Student Version (BYS-S) English version is a bullying questionnaire for primary school students. It has already been assest for validity, reliability and feasibility as well as discrimination and difficulty level.

What is new ?

Psychometric testing is conducted on Bahasa Indonesia version of the questionnaires using the Cross Cultural Adaptation approach.

This questionnaire does not only presenting bullying victims, but also the bullies, bystanders and student attitudes about bullying. Therefore, this questionnaire is suitable to be used as a research instrument and a screening tool related to bullying in the primary schools.

1. Introduction

In the recent days, bullying in school age children considered as a public health problem due to its impact to the children's mental development in the future.[1] A meta-analysis study showed the proportion of bullying all over the word. The highest is in the Europe with 70.4% of bullying occured, in the United States there was 11.1% and the rest of 18.5% were happened in other countries (3 in Australia and 2 in Canada).[2] In Indonesia, the prevalance of bullying is 40%[3], the highest within ASEAN countries[4]. A studies in West Java show that 48% of bullying cases occurs in the classroom during school hours.[5]

Students who experience bullying are difficult to detect because victims generally do not report the incidents to parents or teachers[6], students are reluctant to report because of the fear of reverenge or the shame of telling the story[7] or even their teachers do not response optimally to their report and caused students to be constantly supervised[8], it has a huge impact to their academic and privacy.[9] The assessment of bullying incidents in Indonesia have haver been applying an instruments that have been tested for validity and reliability.

This causes the results of study about bullying phenomenon in Indonesia is not accurate to be provide information related to the incidents of bullying in Indonesia. Based on this reason, we need a valid and reliable instrument that is adapted to the local culture to assess the incidence of bullying.

In Indonesia, Swearer Bully Survey-Student Version (BYS-S) has not been used as a tool for bullying screening among primary school students. There is no official BYS-S translation to Bahasa Indonesia yet. This study's aims is to translate and to adapt the BYS-S instrument to the Indonesian culture through several stages.

2. Materials and methods

2.1. Original *BYS-S* instrument

The use of the BYS-S instrument for the psychometric test was approved by the original author, Susan Swearer. This instrument has four sections related to the of bullying incidents. These include aspect of students as victims, as bullies, as bystanders and the aspect of student attitudes about bullying. In this study, the English version of the instrument has been translated into Indonesian version using cross cultural adaptation approach. This instrument consist of multiple-choice question, statements with a Likert scale answer and essays. However, only item within Likert scale question were discussed, while the other type of questions only displayed as an appendix.

2.2. Cross-cultural adaptation process

Cross-cultural adaptation of this questionnaire applied guidelines by Beaton.[10] This questionnaire consists of three types questions/statements, which are consist of 1) multiple-choice questions, 2) statement using a Likert scale, 3) and short essays. Only type 2 question which has been measured for the validity and reliability. Multiple-choice question and essay included for the adaptation process only, but the validity and reliability were not measured.

2.3. Participants

Respondents in this study are primary school students were total of 30 respondents, students, aged 10 to 12 years, in both public and private schools in Yogyakarta.

This study has granted and ethical clearance from the Faculty of Medicine, Public Health and Nursing, Gadjah Mada University, Indonesia. ethical commission Ref: KE/FK/1124/EC/2018.

2.4. Procedure

First, the English version questionnaire was translated into Indonesian version by two sworn translators. After that, the translation results were compared and discussed to reach a consensus within Indonesian context, then it becomes a synthesis translation for back translation. The next step was back translation by two independent native translators who have no medical or psychological background and have never known about the BYS-S instrument. The results of the back translation were then compared and synthesized again to get the translation back. In the next stage (the fourth stage) an expert review by practitioners (primary school teachers), linguists, methodologists and professionals were held. The review's result were to make a consensus at the discrepancy. The final results of this meeting were to produce an outcome of a pre-final version. The last stage was the pre-testing stage, the questionnaire has been completely tested for every question item.

The next step, researcher visited the chosen school to give information about this study. The questionnaire was given to students after an explanation on how to fill out the questionnaire. The number of respondents in this study were 30 primary school student both in rural and urban areas. The researcher gave 15 minutes for each student to complete the questioner.After collected the data, the researcher nterviewed the student to find out the level of understanding of the question items.

The results from students and teachers then reviewed and adjusted based on expert input to become a standardized research instrument.

2.5. Outcome measures

The expected outcome of this study is to obtain a reliable and valid instrument that is adaptable to the local culture in primary school students. This questionnaire describes the status of students as bullies, victims, bullies and bystanders as well as students' attitudes about bullying incidents in schools.

2.6. Statistical analysis

SPSS software version 22 was utilised for the statistical analysis to develop an index validity and reliability index. The outcome are then further analyzed using Item Response Theory (IRT) in STATA 14 with Grade Response Model (GRM) and Generalized Partial Credit Models (GPCM) approach. IRT was assigned to generate the validity (discriminated and difficulty) of each item parameter. The parameters reflect the effect of each item on the latent variables, its means that the higher the

discriminatory parameters, the better the relevance of measurement items.[11]

GRM is a test to determine the level of difficulty of an item. This model allows someone to choose items in ascending order depends on the most frequently chosen item.[12] GPCM is a further development of GRM. It was deployed to determine discriminatory power for each option set using a Likert scale. GPCM measures that each item cannot be generalized because each item has its own discriminatory power.[13]

There three outcome variation of the GPCM measurements, a) constant discriminatory power equal to 1; b) constant discriminatory power is not equal to 1; and c) the power of variable discrimination in all items. While GRM was result in two variations: d) constant discriminatory power between items; and e) the discriminatory power variable between. Whereas to determine internal consistency Cronbach alpha with a value higher than 0.60 was assigned to assess realibity. Table 1 show the reference to determine the reliability of the instrument .

Table 1 Reliability Guideline

Reliability coeffisien (Guilford, 1956:145)	Level of Reliability
0,1 – 0,20	Less Reliable
>0,20 – 0,40	Rather Reliable
>0,40 – 0,60	Quite Reliable
>0,60 – 0,80	Reliable
>0,80 – 1,00	Very Reliable

3. Result

The instrument translation consists of five stages before being tested to the respondents. The result of translation being reported by the author for disagreement. Then the discussion upon words or sentences that fit the culture and characteristics of primary school students being held for agreement. Some agreements that have been

made for example, the word "bullying" is more familiar among student compared to the word "perundungan", so the word "*bullying*" was keep in use. The word "gym" was changed to "ruang olah raga"; "kemayu (male)" or "tomboy" (female) replaced "Gay/lesbian" ; "girlfriend/ boyfriend" agreed to change to "pacar"; "Face looks funny" was modified into

"wajah jelek"; "Rumors" became "gosip"; "Gang up" was interpreted as "secara bersama-sama". Some interface such as face validty: writings and commands layout are adjusted to the level of student understanding for instance "check all that apply" modified into " pilihan boleh lebih dari satu".

3.1 Hasil pengujian validilitas

The internal validity value of BYS-S Indonesian version is 0.3 (α = 5% in the 30 the respondents). Further, the author did IRT analysis to obtain the discrimination coefficient (using the GPCM model) and the level of difficulty (using the GRM model) on each item.

Most of translated questionnaire items were valid except 2 items on types of bullying (item l and item f) and 1 item on impact of bullying (item b1). While 2 items on impact of bullying were not reliable (item b1 and d1). The complete results is shown in tables 2 and 3 below

Table 2 Result of Discriminated Test, Validity and Reliability, item of bullying action on victims, by standers and bullies

Item	Statement	Victim			Bystanders			Bullies		
		D	IV	Alpha	D	IV	Alpha	D	IV	Alpha
g	Attacked him/her (me)	6,19	0,89	0,87	0,87	0,70	0,87	1,24	0,57	0,88
b	Made fun of him/her (me)	1,35	0,75	0,88	1,41	0,71	0,86	0,98	0,74	0,87
k	Got pushed or shoved	1,07	0,69	0,88	0,56	0,46	0,88	0,99	0,65	0,87
a	Called him/her (me) names	1,18	0,69	0,88	0,68	0,42	0,88	0,89	0,67	0,87
e	Wouldn't let (me) him/her be a part (a part of their) of my group	0,86	0,64	0,88	0,60	0,59	0,87	1,07	0,59	0,88
f	Broke his/her (my) things	0,94	0,57	0,89	2,01	0,75	0,86	0,75	**0,33***	0,89
j	Said mean things behind his/her back	0,62	0,61	0,89	0,72	0,59	0,87	1,05	0,63	0,87
c	Said I will do bad things to him/her (me)	0,62	0,59	0,89	0,44	0,49	0,88	1,53	0,69	0,87
h	Wouldn't talk to him/her (Nobody would talk to him/her)	0,45	0,45	0,89	0,46	0,55	0,87	0,98	0,57	0,88
d	Played jokes on him/her (me)	0,49	0,49	0,89	2,08	0,75	0,86	0,73	0,53	0,88
i	Wrote bad things about him/her	0,42	0,48	0,89	0,85	0,64	0,87	1,05	0,62	0,87
l	Wrote mean things or made things up online about me (i.e., Facebook, Instagram, Twitter, etc.)	0,36	0,51	0,89	0,18	**0,29***	0,88	0,71	0,49	0,89

Footnote
D   = Coefficient discriminated
IV   = Indeks Validity
Reliability = Cronbach's Alpha

*) not valid
**) not reliabel

Table 2 illustrates the validity level for victims, bystanders and bullies items by measuring item discrimination and validity index to obtain validity reliability of each item.

Discrimination test results showed that the highest level of discrimination for victim was item g, while item d was the highest for bystanders and item c was the highest for bullies.

There were 2 invalid items on the validity index, item l for bytanders and item f for bullies. Nevertheless, all items related to the type of bullying were reliable.

Table 3 Validity and reliability item, the impact of bullying on victims, bystanders and bullies

Item	Statement	Victim			Bystanders			Bullies		
		D	IV	Alpha	D	IV	Alpha	D	IV	Alpha
d1	Made it difficult for to learn at school	2,93	0,53	0,74	1,85	0,57	0,55	2,43	0,77	**0,48****
b1	I couldn't make friends	1,22	0,51	0,74	3,48	0,64	**0,53****	0,94	**0,26***	0,68
c1	Made me feel bad or sad	0,99	0,64	0,69	2,27	0,54	0,56	1,32	0,49	0,61
a1	Made me feel sick	0,65	0,44	0,75	0,12	**0,05***	0,75	0,88	0,31	0,67

Footnote

D   = Coefficient discriminated   *) not valid
IV   = Indeks Validity   **) not reliabel
Reliability = Cronbach's Alpha   Item e^1 and f^1 does not meet the requirements for being a model

Modelling is important to obtain the optimal value of item discrimination. The result from the modelling identified that item e1 and f1 did not meet the requirements criteria for IRT. Table 3 illustrated the complete result. For the impact of bullying, one item (a1) was not valid and one item (b1) was not reliable on bystanders item while on on bullies, item was not reliable. All item under vistims were valid and reliable with the highest level of was item d1.

Table 4 Discrimination Test : Validity and reliability of students' attitudes to the incident of bullying

Item	Statement	Attitude		
		D	IV	Reliability
c	I don't like bullies.	4,37	,603	,880
m	I feel sorry for kids who are bullied	3,35	,575	,882
l	Bullies make kids feel bad	2,64	,580	,881
i	I can understand why someone would bully other kids	2,34	,770	,872
	It's okay to be friends with a bully	2,32	,801	,870
j	I think bullies should be punished	1,97	,390	,888
	Bullies scare people	1,88	,629	,880
f	Bullies hurt kids.	1,77	,411	,888
	It's okay to bully others online	1,63	,786	,873
	Bullies don't mean to hurt anybody	1,57	,685	,876
a	Most people who get bullied ask for it	1,31	,558	,882
b	Bullying is a problem for kids	1,01	**,295***)	,893
	Bullying toughens wimpy kids.	,95	,607	,880
n	Being bullied is no big deal	,43	,345	,891
o	It's okay to bully others if I don't get caught	-,23	**,307***)	,891

Footnote

D   = Coefficient discriminated;
IV   = Indeks Validity   *) not valid
Reliability = Cronbach's Alpha   **) not reliabel

Most items under students' attitudes towards bullying were valid and reliable, however items b and o were not valid (table 4). The highest score on discrimination was item c that indicates if all student do not like bullying. The lowest score on discrimination was item o. The researcher then go forward to anlysis process to find out whether students face any challenges in answering the quesionner. This analysis carried on using STATA 14 with the Grade Response Model (GRM) approach. The results of this measurement can be seen in Figures 1 and 2 below.
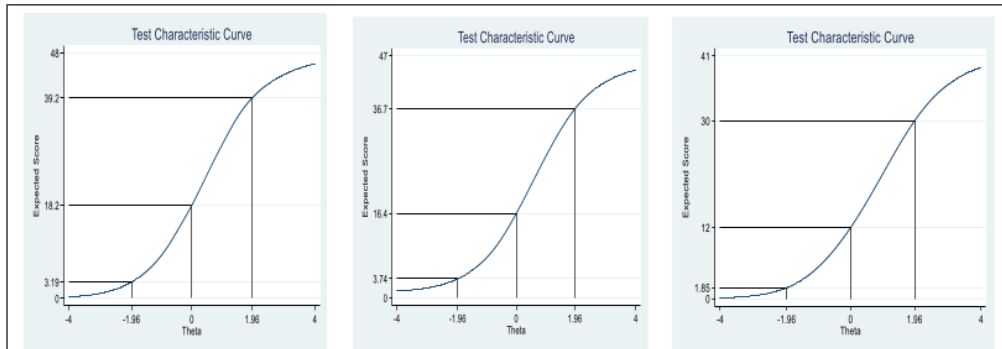
Figure 1 Item difficulty bullying form: (A) victim, (B) *bystanders*, (C) bullies
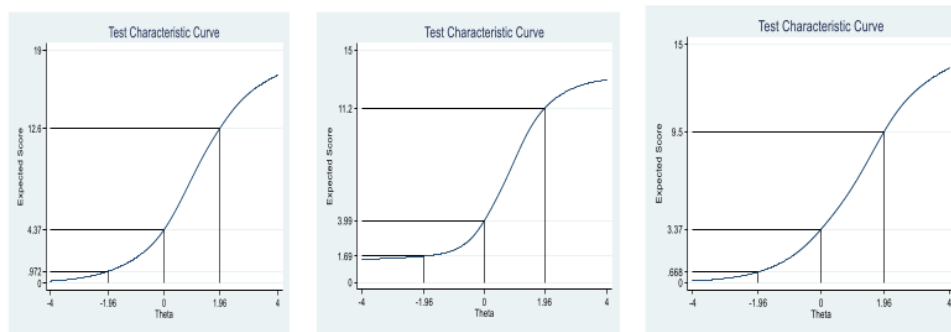
Figure 2 Item difficulty dampak *bullying*: (A) victim ,(B) *bystanders*, (C) bullies

Figure 1 shows the level of difficulty in the quesionner item under type of bullying group, while figure 2 illustrates the level of difficulty on the impact of bullying. Figure 1 indicates the level of difficulty, the likelihood of students maximum score, within 95% confidence interval (z values: -1.96 to 1.96), The higher the score, the more difficult the statement item.

Figure 2 illustrate that the higher score came from the victims of bullying. The bullies had the lowest score, while bystanders' score found in the middle of victims and bullies.

This data tells if it is highly likely that the victims were easier to describe their experiences than the bullies and bystanders. On the contrary, the bullies found to not realize that his/her behavior is an act of bullying.

Figure 3 indicates that the difficulty level of student attitudes was the highest compared to other group of items (figures 2 and 3). The value within 95% confidence interval, shows that the items about students' attitudes of bullying in primary school was the highest level of difficulty compared to victims, bullies and bystanders
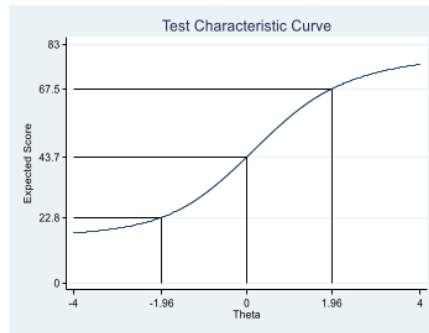
Figure 3 Item difficulty student attitudes on bullying in the primary school

4. Discussion

Victims of bullying are difficult to detect by the schools because the vistims tend to be reluctant to report because of fear of reverange by bullies and the recurrence of bullying in the future.[6] While the bullies committed bullying because they wanted to be valued, treated fairly and felt satisfaction[15]. Meanwhile, the potential incidents of bullying in schools will be repeated if the initial assessment is not able to anticipate and to explore the impact of bullying in primary schools student. For this reason, questionnaires that have reliable internal validity and consistency related to bullying are needed.

In general, there was no significant problem on translations process because the team worked together finding the most appropriate words to replace the English term based on the the level of student understanding and the local culture. Nevertheless, the final translation results were still validated to the student before use to improve the tool. The final results become the standard for validity and reliability test. At the end, the final BYS-S Indonesian version confirmed to be equivalent to the English version.

The translated term was adjusted based on current language among primary school age children, for instance, term "tomboy" used for girls acting like boys, and "kemayu" used for feminime boys.

This term was agreed by the translator, primary education practitioners, and methodology expert. The term was not translate by the literacy meaning but more based on contextual meaning.

The BYS-S questionnaire English version assess the students' experiences of being a victim, a bully and a bystanders as well as their attitudes about bullying in primary school setting. The reliability[11] of this questionnaire have been tested with Cronbach's Alpha values of 0.91 (physical victimization) and 0.76 (verbal victimization). Furthermore, the latest version (student version) of questionnaire has been assigned to get a complete illustration of bullying by looking at victims, bystanders, bullies and to explore student attitudes about bullying at the school.

The discrimination power show the reliability of questionnaire items[17]. Therefore, the BYS-S item has the discrimination power to distinguish the bullying type and the bullying impact for bullies, victims and bystanders. Item discrimination compared the option made by one student to the other students to determine the items' strengths. Whereas, the level of difficulty was assigned to examine the tendency of students selection.

The result of item discrimination and difficulty indicate that a victim would experience a deeper feeling than those who seeing or even doing the bullying.

The victim tend to remember the event very details.[11]

One weakness of the BYS-Y is that this questionnaire are too long with so many questions. It is not suitable for primary school children especially those living in rural area whose level of illiteracy is low. They have difficulty in understanding the context. Another weakness of this tool, particularly the Indonesian version, we have not yet assessed the test-retest reliability and validity aspects (construction validity and criterion-related validity) with other versions.

5. Conclusion

In general, the BYS-S questionnaire had a great level of validity and reliability in distinguishing the forms of bullying and the impact of bullying on bullies, victims and bystanders in primary school students. There are three items that have low validity and one effect of bullying by the bullies, was unreliable. The level of discrimination and difficulty is very great to be applied to the primary school students. It is better to do a test and retest to get a valid and reliable instrument.

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Authors' contributions
AG participated in the conception and design of the study, carried out the data collection, analyzed and interpreted the data and drafted the manuscript. NI participated in the analysis and interpretation of the data and revised the manuscript critically for intellectual content. RI participated in the conception and design of the study, participated in the interpretation of the data and revised the manuscript critically for intellectual content. All authors read and approved the final manuscript.

Competing interests
The authors declare that they have no competing interests.

Reference
1. Wolke, D., Lereya, S. T., Fisher, H. L. et al. Bullying in elementary school and psychotic experiences at 18 years : a longitudinal, population-based cohort study. *Psychological Medicine*. 2014: *44*(10): 2199-2211.

2. Mitsopoulou, E., & Giovazolias, T. Personality traits, empathy and bullying behavior: A meta-analytic approach. *Aggression and Violent Behavior*. 2015;21:61-72. *doi: http://dx.doi.org/10.1016/j.avb.2015.01.007.*

3. Unicef Indonesia. Standing up against bullying: 2015. http://unicefindonesia.blogspot.com/2015/07/standing-up-against-bullying.html. Accessed October 29, 2019.

4. Sittichai, R., & Smith, P. K. Bullying in south-east Asian countries: A review. *Aggression and Violent Behavior*. 2015; *23*:22-35.

5. Borualogo, I. S., & Gumilang, E. Kasus Perundungan Anak di Jawa Barat: Temuan Awal Children's Worlds Survey di Indonesia. *Psympathic: Jurnal Ilmiah Psikolog*. 2019; 6(1):15-30.

6. Radford L, Corral S, Bradley C, & Fisher,H.L. The prevalence and impact of child maltreatment and other types of victimization in the UK: Findings from a population survey of caregivers, children and young people and young adults. *Child Abuse Negleck*. 2013; 37:801–13.

7. Wolke, D., & Lereya, S. Long term effects of bullying. *Archives of Disease in Childhood*. 2015;*100;* 879–885. *doi:10.1136/archdischild-2014-306667.*

8. Rigby. K. *Bullying interventions in schools : six basic approaches (pp.1-13).* Wiley-Blackwell. 350 Main Street, Malden, MA 02148-5020, USA; 2012:1-13.

9. Zinan, N. School Nurses' Perspectives on Bullying, In Rosen, L.H, De Ornellas.K., and Scott.S.R, *Bullying in School Perspectives from School Staff, Students, and Parents.* Palgrave Macmillan: Springer Nature, New York. 2017: 118-134.

10. Beaton, D,, Bombardier, C., Guillemin, et al. Guidelines for the process of cross-cultural adaptation of selfreport measures. *Spine.* 2000; 25(24): 3186-3191.

11. Gonçalves, F. G., Heldt, E., Peixoto, B. N. et al. Construct validity and reliability of Olweus bully/ victim questionnaire–Brazilian version. *Psicologia: Reflexão e Crítica*, 2016; 29(1):2-8.

12. Samejima F. Estimation of latent ability using a response pattern of graded scores. (Psychometric Monograph No. 17). Richmond: Psychometric Society; 1969. https://www.psychometricsociety.org/sites/default/files/pdf/MN17.pdf. Accessed October 29, 2019.

13. Muraki EA. Generalized partial credit model: application of an EM algorithm. *Appl Psychol Meas.* 1992;16(2):159–76. *doi:10.1177/014662169201600206.*

14. Andrade DF, Tavares HR, Valle RC. Item Response Theory: concept and applications. In: XIV National Symposium on Probability and Statistics. São Paulo: Brazilian Association of Statistics; 2000. *http://www.ufpa.br/heliton/arquivos/LivroTRI.pdf.* Accessed October 29, 2019.

15. Azzahra, A., & Haq, A. L. A. Intensi Pelaku Perundungan (Bullying): Studi Fenomenologi Pada Pelaku Perundungan di Sekolah. *Psycho Idea.* 2019;17(1):67-76.

16. Hamburger ME, Basile KC, Vivolo AM. *Measuring Bullying Victimization, Perpetration, and Bystander Experiences: A Compendium of Assessment Tools.* Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. 2011:69-78.

17. Sartes, L.M.A, Souza-Formigoni, M.L.O. Avanços na Psicometria: da Teoria Clássic ados Testes à Teoria de Resposta ao Item. *Psicol Reflexão Crítica.* 2013;26(2):241–50. *doi:10.1590/S0102-79722013000200004.*

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12   Xuejing Jin, Gordon G. Liu, Hertzel C. Gerstein,
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13   Susan M. Swearer, Cixin Wang, Adam Collins,
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