

# Knowledge, attitudes and perceptions of epilepsy among secondary school teachers in Osogbo South-West Nigeria: A community based study

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## Abstract

**Background:** The attitudes toward people with epilepsy are influenced by the degree of knowledge of the condition. The social problems encountered by school children with epilepsy as a result of negative attitude and beliefs are quite enormous.

**Objectives** The study therefore looked at the knowledge, attitudes, and perceptions of teachers, who see a lot of epileptics, relate to them on a daily basis and have influence on them.

**Materials and Methods:** A cross-sectional survey, using a self-administered questionnaire obtained from the author of a similar study in the United States, was carried out among 269 school teachers randomly selected from various secondary schools in Osogbo, the Osun State capital in South-West Nigeria. The questionnaire included the scale of attitudes toward persons with epilepsy and knowledge about epilepsy as well as demographic and teaching experience survey among others.

**Results** Despite the high level of education of the teachers ranging from Masters Degree to National Certificate in Education, there were significant deficits in terms of general knowledge about epilepsy (70% of the respondents reported their general knowledge about epilepsy in the lower half of the scale). There was also poor knowledge of the first aids measures in the classrooms. Below one-third (29.2%) felt it was contagious and 40% of respondents reported that sufferers should not be kept in regular classes. However, their attitudes toward epilepsy were generally positive.

**Conclusions and Recommendations:** We concluded that teachers need to have health education courses on common disease conditions such as epilepsy that are prevalent in school age; this might help to reduce the prejudice and increase the acceptance of epileptic individuals in the classrooms. Also, generally public health campaigns should be encouraged in this field.

**Key words:** Attitudes and school teachers, epilepsy, knowledge

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## Introduction

Epilepsy is one of the most common neurological disorders encountered worldwide.<sup>[1]</sup> It is a tendency toward recurrent unprovoked seizures. A seizure itself is an episodic disturbance of movement, feeling, or consciousness caused by sudden synchronous, inappropriate, and excessive electrical discharges in the cerebral cortex.<sup>[2]</sup>

The causes of this disease are protean and include genetic,

structural, functional, metabolic abnormalities, and other insults.<sup>[2]</sup>

Epilepsy is estimated to affect 50 million people worldwide, of whom 10 millions live in Africa<sup>[3]</sup> - approximately 2 million people have epilepsy in the United States.<sup>[4]</sup> Epilepsy is also noted to be the most common neurological

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problem of childhood, and its incidence is highest in the first decade of life,<sup>[5]</sup> a period during which children begin and complete a critical part of their social and educational development.

During a seizure, the individual may lose control of the body and return to a primitive form of behaviour that may result in social rejection.<sup>[6]</sup> Sometimes the social discrimination against people with epilepsy may be more devastating than the disease itself. Some children with epilepsy may be rejected from their classes because of the fear of the unexpected and public loss of self-control.

A study done on teachers' perception of epilepsy in South East Nigeria by Ojinnaka, a decade ago revealed that majority of the teachers had negative attitudes and beliefs about epilepsy and the mean over-all score for correct response for knowledge was 59.2%.<sup>[7]</sup>

Five years after, the picture did not change considerably in Nigeria considering the findings of Sanya *et al.* in their study among teachers in primary, secondary, and tertiary institutions in Ilorin, a town in the middle belt of Nigeria. They reported that a significant percentage of the teachers still had erroneous and misleading perceptions about epilepsy. About 30.5% of the respondents in their study believed that epilepsy could be contracted through saliva, 27.7% thought it was synonymous with possession with evil spirits, while 10% equated epilepsy with insanity.

Worldwide, significant deficits in terms of general knowledge about epilepsy, misconceptions and prejudice against epilepsy do exist based on the findings of kankirawatana in a survey of 360 schools across Thailand,<sup>[9]</sup> where 38% of the respondents had not heard or read about epilepsy and Dantas who studied 300 teachers across the three tiers of education primary, secondary, and tertiary schools in Campina Brazil.<sup>[10]</sup> The essence of discrimination is forming opinions about others based not on individual merits.<sup>[11]</sup> The attitudes toward people with epilepsy are influenced by the degree of knowledge of the condition.

In general, teachers do not receive any formal instruction on epilepsy during their training and most cases of epilepsy tend to occur in childhood and adolescence. Children spend most of their formative years under the tutelage of these teachers and a negative attitude toward children with epilepsy may have a huge impact on their scholastic activities and future achievements. Teachers could play a significant role in the management and surveillance of children with epilepsy.

This study therefore looked at the knowledge, attitude, and perceptions of teachers, who see a lot of epileptics, relate to them on a daily basis and have influence on them.

## Materials and Methods

A cross-sectional descriptive survey, using a self-administered, slightly modified, and standardized questionnaire obtained from Malachy Bishop,<sup>[12]</sup> the author of a similar study in the United States, was carried out among 269 secondary school teachers randomly selected from eight secondary schools from two local governments in Osogbo, the Osun State Capital in South-West Nigeria, from January to June of 2007. The questionnaire included an ATPE (attitude toward persons with epilepsy) rating scale which evaluates attitudes toward epilepsy, knowledge about epilepsy, the educational background of the teachers, the number of years of teaching experience, the location of schools among others, their comparative knowledge between epilepsy, and other chronic medical illness were also determined. A comprehensive list of public secondary schools in Osogbo totaling 19 was obtained from the Osun State Teaching service commission and written permission was sought from the chairman of the commission to carry out the study. Personal visits were made to the schools by us and questionnaires were distributed to the teachers after obtaining their informed consent. The completed forms were collected by us after a week or two.

### Survey instrument

The ATPE (form S)<sup>[11]</sup> is a summated rating scale developed to be a contemporary brief, easily administered, secured, and psychometrically sound instrument for measurement of both attitudes toward persons with epilepsy and knowledge about epilepsy. The item content for this scale was developed through a review of literature including previously published investigations of attitudes toward persons with epilepsy, open-ended interviews with experts in the field of epilepsy, including neurologists, special educators, and rehabilitation counselors. The 28-item scale includes 17 attitude items, 7 knowledge items, and 4 combined knowledge and attitude items. Respondents were asked to rate each statement on a 6-point scale ranging from "I disagree very much" to "I agree very much." Weighted sums of the items responses provide measures of the respondents' knowledge or global attitude "with higher scores representing more enlightened knowledge and a more favourable attitude." In addition, the teachers were asked to report the following:

- (1) Their general knowledge of the conditions and life circumstances of persons with epilepsy.
- (2) The frequency of their contact with a person with epilepsy
- (3) Whether they have ever been a teacher of a student with epilepsy.
- (4) And whether they were currently a teacher of a student with epilepsy.

### Data analysis

The data obtained were analyzed using the SPSS 12 package, the mean was used as a summarizing index, while the standard deviation as an index of variation, Student's *t*-test

was used to assess significant differences between means of continuous variables, the chi-square test was used to test association between discrete variables and attitudes and knowledge about epilepsy were determined by multivariate analysis and linear regression.

## Results

A total of 269 secondary school teachers completed the survey to a satisfactory level out of 310 questionnaires that were distributed, giving a response rate of 86.8%. Two hundred and sixty five respondents indicated their gender comprising primarily female (65.5%) with F: M of 1.9: 1. The mean age of the teachers was  $42.3 \pm 8.10$  years while the age range was between 23 and 60 years.

Figures 1 and 2 give the age group of the respondents and the level of education of the respondents respectively. With respect to the level of education, majority had a Bachelor degree in Education (B. Ed) = 137, B. Sc = 58, NCE = 49, and 21 had M. Sc. The average number of years of teaching was  $16.7 \pm 9.9$  years. The majority of the teachers (88.3%) described their schools as being in the urban areas.

### Self-reported knowledge and experience

On the 6-point scale concerning general knowledge the condition and life circumstances of persons with epilepsy ranging from no knowledge to extensive knowledge of epilepsy in relation to gender, educational levels, and years of teaching. About 70% of the respondents reported their

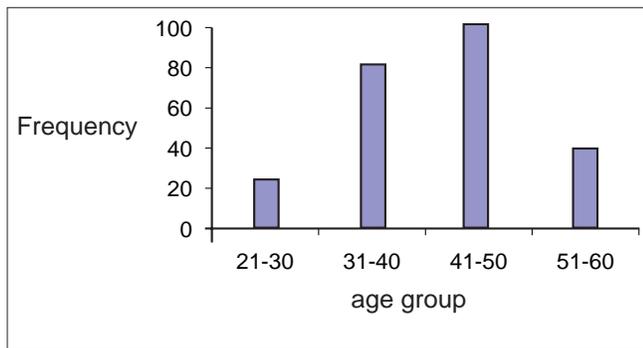


Figure 1: Frequency of respondents' age groups

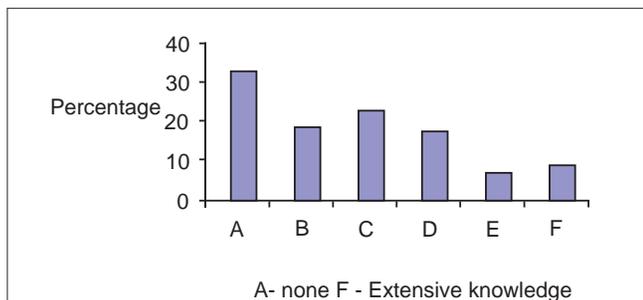


Figure 3: Self-reported general knowledge of epilepsy of the respondents

general knowledge of epilepsy in the lower half of the continuum. This is illustrated in Figure 3.

A majority of the teachers (88%) reported infrequent contact with epileptic students. This is illustrated in Figure 4. About one-fifth of the respondents reported having taught a child with epilepsy and only 2.2% reported that they were currently teaching a student with epilepsy.

### ATPE Attitude scale score

Analysis of the ATPE attitude scale scores included evaluation of the weighted sum of the item responses and individual item analysis. Weighted sums of the item responses provide a measure of the teachers' global attitude with higher scores representing a more favorable attitude. Based on a 6-point fully anchored Likert-type scale ranging from I disagree very much to "I agree very much." The possible scores for the 21-item scale range from 21 to 126. The total mean score of the participants in this study was  $79.20 \pm 35.40$  which is well above the average value. The mean score for the teachers in this study according to sex was for males  $80.00 \pm 10.01$  and for females  $78.65 \pm 11.94$ . Both were in the upper half of the scale.

In addition to evaluating the sample's total scale score, analysis of the responses to individual items were conducted to assess teachers on items most relevant to educational setting. Table 1 lists the attitude items and the mean responses of the participants in the present study. To assess the relationship between selected teachers characteristics and attitude scale score, a linear logistic regression analysis of demographic variable (gender, marital status, and highest

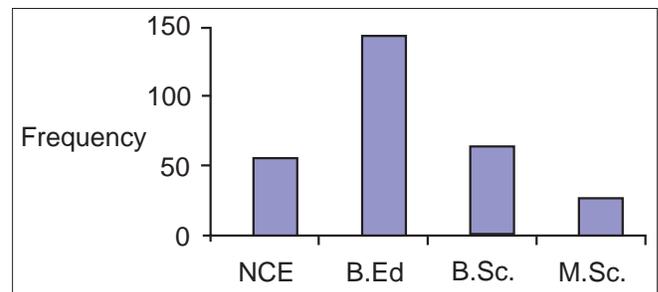


Figure 2: Level of education of respondents

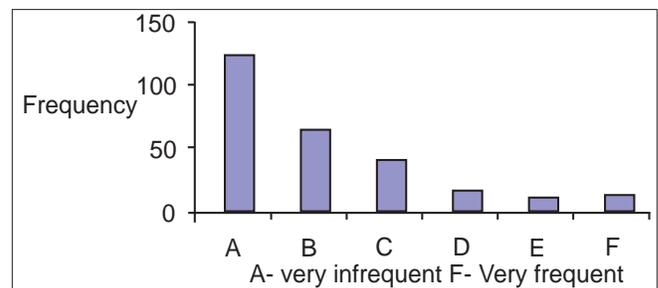


Figure 4: Frequency of contact of respondents with persons with epilepsy

educational level) and school/teacher experience variables (years of teaching, self-reported knowledge of epilepsy, and location of schools in an urban or rural location) was conducted on the ATPE attitude score. None of these variables were predictors of attitudes toward epilepsy among the school teachers. This is illustrated in Table 2.

The ATPE knowledge scale includes 11 items. Respondents were asked to rate their agreement with each statement on a 6-point, fully anchored Likert-type scale ranging from "I disagree very much" to "I agree very much." Weighted sums of the responses provide measures of the respondents' knowledge about epilepsy with higher scores representing a more enlightened knowledge. The total possible score range was 11-66. The total mean score of the participants in this study was  $38.98 \pm 18.83$ . The mean score for males in this study was  $39.88 \pm 6.42$  and that of females  $38.44 \pm 5.27$ .

Table 3 lists the individual knowledge items and the scores of the participants. To assess the relationships between teachers characteristics and teachers scores on the knowledge items scale items, a multiple regression analysis of the same demographic variables (gender, marital status, and highest educational level) and school/teacher experience variables (years of teaching, self-reported general knowledge of epilepsy, and location of school in an urban or rural location) was conducted on the ATPE knowledge score. Gender and location of the teachers' school were predictors of knowledge of epilepsy. This is illustrated in Table 4.

### Additional knowledge and attitude items

A number of issues directly related to teacher preparation and teachers practice are identifiable in these responses. 23.9% of the school teachers reported that they had received adequate training in handling seizure during their teacher training. Approximately 69.1% of the teachers felt well prepared to handle a seizure in the classrooms. Only 25.3% of the respondents reported that they had sufficient training in first aid measure and 26% said they were familiar with the different seizure types. This is illustrated in Table 5.

### Comparative familiarity item

Participants were asked to rate how familiar they were with the following health conditions and disabilities: Asthma, HIV/AIDS, diabetes, autism, mental retardation, epilepsy, and ADHD. Ratings were based on the percentage levels of respondents who expressed familiarity with each disease condition. Based on the average familiarity rating for each

**Table 1: ATPE attitude items and scores of participants**

Attitude items	Mean	Std. Dev.
Epileptic students should not be in normal classrooms	3.45	1.94
Epileptic persons have same rights	5.13	1.51
Epileptics can operate machinery	2.54	1.63
Epileptics should not be denied insurance	4.85	1.53
Epileptics should be prevented from having children	5.06	1.49
Epileptics should be prevented from driving	4.40	1.84
Epileptics should attend regular public schools	4.06	1.81
Onset of epilepsy is enough reason for divorce	2.77	1.71
Epileptics are dangerous to the public	2.53	1.66
Responsibility for educating epileptics rests with the public	3.18	1.92
Epileptics are accident prone	4.41	1.66
Children need protection from epileptics	3.52	1.91
Parental expectations from epileptics same with other children	3.95	1.68
Epileptics are criminal	2.21	1.65
Epileptics should not marry	5.02	1.46
Laws barring epileptic children from being adopted	3.92	1.65
Conditions of persons with epileptics expected to deteriorate	3.49	1.71
Epileptics should have equal employment opportunities	4.65	1.67
When epileptics are treated they are just like any other person	4.74	1.57
Families of epileptics should not be provided with social support	2.18	1.64
Epileptic children in regular classes affect other children	3.05	1.78
Total	79.20	35.40

See Appendix 1 for explanation of the table.

**Table 2: Result of the regression analysis of teacher variables on ATPE attitude scores**

Variables	Unstandardized coefficients		Standardized coefficients	T	Sig.
	B	Std. error	Beta		
(Constant)	90.140	11.182		8.061	0.000
Age	0.148	0.245	0.109	0.605	0.546
Gender	-2.904	1.799	-0.128	-1.614	0.108
Marital status	0.514	0.833	0.052	0.617	0.538
Highest level Education	0.538	1.007	0.042	0.534	0.594
Years of teaching	-350	0.191	-0.315	-1.828	0.069
Location of School	-5.036	2.712	-0.143	-1.857	0.065
General knowledge of epilepsy	0.102	0.583	0.014	0.175	0.862

condition, the teachers were most familiar with Asthma followed by DM and least familiar with epilepsy, autism, and ADHD, respectively. This is illustrated in Table 6.

### Most effective medium of gaining information about epilepsy

To understand how to most effectively deliver information about epilepsy and its effects in the context of education, teachers were asked to select their preferred medium for obtaining more information about epilepsy from a list of six options.

**Table 3: ATPE knowledge items and scores of participants**

Knowledge items	Mean	Std. Dev.
Epileptic can operate machinery	2.54	1.63
Epileptics do not possess normal life expectancy	3.06	1.72
Epileptics should be prevented from driving	4.41	1.84
Epilepsy mentally retarded	2.84	1.75
Epileptics are accident prone	4.41	1.66
Epileptics can participate in strenuous exercise	2.79	1.65
Epileptics should not marry	5.02	1.46
Conditions of persons with epileptics expected to deteriorate	3.49	1.71
Epilepsy can be inherited	2.64	1.78
Epilepsy is not a contagious disease	4.39	1.87
Epileptics can cope with normal working 40 hour week	3.34	1.71
Total	38.98	18.83

See Appendix 2 for explanation of table

**Table 5: Which would be the best medium for you to get more information about epilepsy? And its effects?**

Preferred medium	Frequency	Percent
Printed materials such as pamphlets	82	30.5
Web page	36	13.4
Video recording	24	8.9
Being educated by the child's parents	16	5.9
Personal conversation with an epilepsy foundation/profession	79	29.4
Unspecified	32	11.9
Total	269	100.0

**Table 7: Comparative familiarity with chronic conditions/disabilities**

Chronic conditions/disability	Familiarity %
Asthma	43.9
HIV/AIDS	40.2
Diabetes	40.2
Mental retardation	39.7
ADHD	3.6
Autism	3.3
Epilepsy	3.3

Because some teachers endorsed more than one options, we present here the total number of times each item was endorsed, followed by the percentage of teachers endorsing them.

The most frequently endorsed medium for obtaining information was through printed materials such as pamphlets endorsed by 82 teachers (34.6%); this was followed by personal conversation with an epilepsy foundation representative or a health professional such as doctors/nurses 79 teachers (33.3%), epilepsy webpage 36 (13.4%), instructional video (24 = 8.9%) being educated by the child parents 16 (5.9%). This is illustrated in Table 7.

Finally, the teachers were asked whether they had ever looked at the epilepsy foundation website for information

**Table 4: Results of the regression analysis of teacher variables on ATPE knowledge scores**

	Unstandardized coefficients		Standardized coefficients	T	Sig.
	B	Stderror	Beta		
(Constant)	48.311	5.338		9.050	0.000
Age	5.239-02	0.121	0.075	0.433	0.666
Gender	-1.858	0.871	-0.163	-2.135	0.034*
Marital Status	-0.116	0.427	-0.022	-0.273	0.785
Highest level of education	-0.361	0.490	-0.056	-0.736	0.463
Years of teaching	-0.100	0.092	-0.184	-1.089	0.278
Location of school	-3.068	1.255	-0.185	-2.445	0.016*
General knowledge of epilepsy	-6.183E-02	0.280	0.017	-0.221	0.826

\*P-value < or = 0.05 is significant.

**Table 6: Additional knowledge and attitude items**

Statement	Agreeing with statement %
Epilepsy is a form of mental illness	50.2
I would be well prepared to handle a seizure if one of my students had one during class	69.1
I have had sufficient training in first aid management of seizures	25.3
I am familiar with different types of seizures and what they look like	26
When someone is having a seizure it is a medical emergency, and an ambulance should be called immediately	54.3
Epilepsy and epilepsy medications can have a significant effects on students' mood, memory and learning	75.2
I would like to have more general information about epilepsy	90
I would like to have information about how to respond when a student is having seizure	89.9

on or resources for epilepsy only 5.1% of the teachers ( $n = 13$ ) reported that they had done so.

## Discussion

Epilepsy is an age-old disease that is still highly stigmatized in many communities all over the world more particularly in sub-Saharan Africa where the disease is enrobed in superstition, myths, and discrimination. We evaluated the knowledge, attitudes, and perceptions of epilepsy among secondary school teachers randomly selected from eight secondary schools in Osogbo, the capital city of Osun State in South-Western Nigeria. Teachers were specifically studied because epilepsy is more prevalent among school children and teachers have a lot of influence on these children who spend the critical part of their social and educational development under their tutelage. A negative influence from these teachers will have a negative impact on their present and future achievements as it is an established fact that children with epilepsy are at an increased risk for educational under achievement, learning disabilities, mental health problems, social isolation, and poor self esteem.<sup>[13-16]</sup>

A total of 269 secondary school teachers completed the survey to a satisfactory level out of whom 265 indicated their gender comprising primarily females (65.5%) giving a female: male ratio 1.9:1, reflecting a common trend in this part of the world in most public schools where a female dominance is usually noticed. Most of the teachers had postsecondary school education. The majority had a bachelor degree in Education (B.Ed) 137 signifying a high level of formal education. The evaluation from the results of this study revealed some unpleasant findings. About 70% of the teachers reported their general knowledge of epilepsy in the lower half of the continuum. This may be due to infrequent contacts with epileptic children as only one-fifth reported having taught an epileptic child and 2.2% currently teaching an epileptic child. Almost universally, there has been a trend of teachers reporting having insufficient knowledge about epilepsy, inadequate training in their teacher preparation and erroneous and potentially dangerous ideas about first aids management of seizures. About half of the respondents in this study equated epilepsy to mental illness.

However, the global attitudes of the teachers toward children with epilepsy were quite impressive and reassuring considering possible scores for the 21-item scale range from 21 to 126. The mean score for the teachers in this study according to sex was for males  $80.00 \pm 10.01$  and for females  $78.65 \pm 11.94$ . Both were in the upper half of the scale. Attitude researchers have suggested that in the course of the last 50 years, attitudes toward people with epilepsy have consistently improved.<sup>[17,18]</sup> For example between 1949 and 1987, the percentage of respondents in the united states who

agreed that epilepsy is a form of insanity decreased from 12% to 3% and percentage who would allow their child to play with a child with epilepsy increased from 57% to 89%.<sup>[17]</sup> These facts are still being contended by researchers who used indirect measures to assess the attitudes saying that prejudices against people with epilepsy are still present.

However individual item analysis revealed some troubling trends as some teachers believe that epilepsy could be enough reason to prevent marriage or for divorce. Many teachers objected to the fact that epileptics can safely operate machines. A positive finding is that majority of the teachers (more than 70%) did not feel that epilepsy is contagious and that epileptic patients could be placed in regular classrooms. Sanya *et al.*<sup>[8]</sup> reported similar findings in their study among school teachers in Ilorin in the middle belt of Nigeria.

Though this study was designed after the one carried out in the United States by Bishop Malachy which was a nationwide survey, our study was confined to a city in Nigeria. However, there were striking similarities in the findings of both studies. In the two studies, the attitudes were globally positive and there were significant deficits in terms of general knowledge. Most of the respondents in this study as well as the US study reported that they had not received adequate training in first aids measure for an acute seizure attack. The import of this finding is significant as potentially harmful measures may be undertaken during a seizure attack such as inserting hard objects into patients' mouth or pulling their tongues. Most of the respondents were also not familiar with the different seizure types reflecting the appalling low level of knowledge about seizures among the respondents. Discerning an absence seizure or a sensory seizure may be a difficult task for these teachers in the absence of twitching, foaming, and loss of consciousness.

From teachers' responses, it was glaring that they were less knowledgeable about epilepsy compared to other chronic illnesses such as asthma, DM, and HIV/AIDS. Epilepsy is a highly stigmatized disease that is shrouded in superstition, myths, and secrecy in many African communities, that is probably responsible for the poor knowledge of this disease among the respondents.

## Conclusion and Recommendations

Though the attitudes of the teachers were globally positive, there were still significant deficits in terms of general knowledge and ignorance of first aids measures.

School health services must be created in order to ensure that teachers have sufficient knowledge about this disease. The teachers need to have health education courses on common disease conditions such as epilepsy that

are prevalent in school age; this might help to reduce the prejudice and increase the acceptance of epileptic individuals in classrooms. Information can also be obtained on epilepsy from Epilepsy Foundation website.

General public educations campaigns must be encouraged in order to improve the quality of life of persons with epilepsy and dispel wrong notions, perceptions and myths. Pamphlets containing basic information on common childhood diseases can be provided by the Ministry of Health to various Primary and Secondary Schools for the education of teachers and pupils.

### Appendix 1

Note: Potential range of mean scores = 1-6, based on a fully anchored Likert-type scale including the following anchors: 1 = I disagree very much, 2 = I disagree pretty much, 3 = I disagree a little, 4 = I agree a little, 5 = I agree pretty much, and 6 = I agree very much.

### Appendix 2

Note: Potential range = 1-6, based on a fully anchored Likert-type scale including the following anchors: 1 = I disagree very much, 2 = I disagree pretty much, 3 = I disagree a little, 4 = I agree a little, 5 = I agree pretty much and 6 = I agree very much.

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