

# Psychometric properties of Sexuality and the Mental Retardation Attitude Inventory (SMRAI) in university student of Lima

## Propiedades psicométricas del Sexuality and the Mental Retardation Attitude Inventory (SMRAI) en estudiantes universitarios de Lima

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### Notas

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## Summary

The aim was to analyze the psychometric properties of *Sexuality and the Mental Retardation Attitude Inventory* (SMRAI) in a sample of 144 psychology college students 2<sup>nd</sup> to the 9<sup>th</sup>, of a private university in Lima, of which 44 were males (30.6%) and 100 female (69.4%), aged between 17 and 43 years (average: 21.9). The confirmatory factor analysis conducted reveals that this test presents a two-factor structure with adequate fit indices. Furthermore, regarding the reliability of the construct using the coefficient *Rho*, an indicator of .804. was obtained. We conclude that the SMRAI has appropriate psychometric properties to be implemented in studies oriented to know more facets about attitudes towards the sexuality of people with intellectual disabilities.

**Key words:** Sexuality, intellectual disability, attitudes, validity, reliability.

## Resumen

El objetivo fue analizar las propiedades psicométricas del *Sexuality and the Mental Retardation Attitude Inventory* (SMRAI) en una muestra de 144 estudiantes universitarios de la carrera de psicología de una universidad privada de Lima Metropolitana, del 2do al 9no ciclo, de los cuales 44 fueron varones (30.6%) y 100 mujeres (69.4%), con edades comprendidas entre 17 y 43 años (M: 21.9). El análisis factorial confirmatorio realizado revela que dicha prueba presenta una estructura de dos factores con índices de ajuste adecuados. Por otro lado, con relación a la confiabilidad del constructo mediante el coeficiente *Rho* se obtuvo un indicador de .80. Se concluye que la SMRAI cuenta con propiedades psicométricas adecuadas para implementarlo en estudios orientados a conocer más facetas de las actitudes hacia la sexualidad de las personas con discapacidad intelectual.

**Palabras clave:** Sexualidad, discapacidad intelectual, actitudes, validez, confiabilidad

## Introduction

Intellectual disability (ID) refers to significant limitations both in intellectual functioning and in adaptive behavior expressed in conceptual, social and practical skills (Schalock, Luckasson & Shogren, 2007). Also, Schalock (2010) refers to five dimensions, based on a multidimensional concept of the human being, he emphasizes intellectual abilities, adaptive behavior, health, participation and context, specially the context (Dominguez, 2013).

Context describes the interrelated conditions within which people live their everyday live, considering that ID refers to a limitation in a person's functioning, not to a person's limitation, being the decrease in performance a consequence of the interaction between a person with limited abilities and his/her environment (FEAPS, s.f.).

In this regard, a successful integration of people with intellectual disability will be facilitated by a normalization of behaviors and attitudes of people with no intellectual abilities in all types of interactions such as social, work and family, including of course sexuality (Katz & Lazcano, 2010). In the cases of people with ID, the sexual aspect is not affected (Muntaner, 1995) and they have the same need for affection than the rest of the population (Marten, 2006; Lopez, 2006; Conod & Servais, 2010).

In this case, the application of the *Normalization* principles to human sexuality requires recognition of the sexual needs and rights of people with ID (Karellou, 2003) considering that this is one of the most important psychosocial factors in an individual's life (Kazukauskas & Lam, 2009). Through this recognition, socially acceptable behavior in people with ID would be promoted while respecting their autonomy and promoting the individual's development of a sexual and social code according to the context in which they live (Clark & O'Tole, 2003)

Therefore, attitudes towards people's sexuality play a fundamental role. Previous studies on attitudes towards sexuality of people with ID show that society in general disapprove the fact that people with intellectual disabilities engage in specific sexual behaviors (Marten, 2006). These negative beliefs and attitudes facilitate the creation of prejudices and negative stereotypes that stigmatize and exclude them, which has a negative effect on their quality

of life (Kazukauskas & Lam, 2009) and hinders their personal development (Antonak & Livneh, 2000; Watson, 1980). However, if people with ID were oriented with a more open posture regarding their sexuality, they could express it adequately following socially established guidelines (Carrier, 2007).

It is important to understand the existing attitudes towards sexuality of people with ID since the interplay of sexuality and disability is too much complex and it cannot be understood without paying further attention to the various barriers that exist (Marten, 2006).

### **Importance of College Students' Attitudes.**

College is an institution that should, in close cooperation with organizations and institutions dedicated to supporting people with disabilities, develop an efficient basic training as well as encourage rigorous research and transformation of care systems. All this is expected because colleges are called to play a decisive role in ensuring the principle of equal opportunities (Verdugo, 2003; Bausela, 2009). Furthermore, according to Morales, Lopez, Charles, Tuero, and Mullet (2011) there is a need for further research that contributes to the understanding of the community attitudes. For this reason, this work addresses the college students' attitudes towards sexuality of people with ID.

Research works show that college students have a low acceptance of sexual relationships of people with ID (Scotti, Slack, Bowman & Morris, 1996). Similarly, they show unfavorable attitudes towards the ability to act with responsibility and make appropriate personal choices by people with ID (Katz & Bizman Shemesh, 2007).

As for teachers, special education teachers disapprove such behaviors (Wolfe, 1997) and as for health professionals, they show a poor understanding of the needs of women with ID. These professionals do not inform about procedures, instrumentation or use a complex language giving people with ID a negative experience (Stinson, Christian & Dotson, 2002). Meanwhile, rehabilitation professionals report that it is not their responsibility to address those topics or consider them inappropriate (Booth, Kendall, Fronek, Geraghty & Miller, 2003). It should be taken into consideration that these professionals were once college students. Therefore, it is necessary a study of attitudes towards people with ID and their sexuality.

However, as posed by Yazbeck, McVilly, & Parmenter (2004) the study of attitudes related to the integration into society of adults with intellectual disabilities is an area seldom addressed by researchers, and even more the area of sexuality of people with intellectual disabilities, for which they have little interest. It is important to outline the fact that in Peru we cannot find recently published research works about attitudes towards sexuality of people with disabilities. A preliminary study was conducted on the attitudes of college students towards people with disabilities showing that psychology students showed more favorable attitudes (Dominguez et al., 2014).

In addition, there are no instruments that have the appropriate psychometric properties to assess this aspect, considering that evidence obtained from credible sources that used reliable and valid methods and is based on a clearly articulated and empirically supported theory, they would facilitate the consideration of these findings in development plans in the study population (Schalock, 2010). That is, through knowledge of the college students' attitudes, awareness sessions on disability issues could be implemented within their syllabuses in order to facilitate future integration of people with intellectual disabilities.

Thus, in this study we will use the Mental Retardation Sexuality Attitudes Inventory (SMRAI) of Brantlinger (1983). The SMRAI was originally intended for health professionals only, and it presented a reliability coefficient of .95. Later, Murray and Minnes (1994) and Holmes (1998) found Cronbach's alpha coefficients of .88 and .85 respectively. However, there are no studies in this context that studied this instrument despite it has been used in multiple research works on the subject (Albuquerque & Ramos, 2007; Bazzo, Note, Soresi, Ferrari, & Minnes, 2007; Holmes, 1998; Jorissen & Burkholder, 2013; Murray & Minnes, 1994; Plaute, Westling & Cizek, 2002; Yoot, Langdon & Garner, 2003) and it has not been specifically addressed in college students, despite the importance of this group.

The aim of this study is to analyze the psychometric properties of *Sexuality and the Mental Retardation Attitudes Inventory* (SMRAI) of Brantlinger (1983) among college students of psychology of a private institution, since they will deal directly with people with ID during their academic training as well as during their professional practice. Therefore it

is necessary for them to know their attitudes in order to establish awareness plans on the issue.

## **Method**

It is an instrumental research for the adaptation and study of the psychometric properties of a test (Ato, López, & Benavente, 2013; Montero & León, 2007)

### **Participants.**

A purposive sample of 144 college students was considered. These were psychology students from the 2<sup>nd</sup> to the 9<sup>th</sup> semester of a private university in Metropolitan Lima. 44 were male (31%) and 100 women (69%), aged between 17 and 43 (M: 21.9). It should be mentioned that 87% of these students were between 17 and 25 years old, and 75% between the 2<sup>nd</sup> and 6<sup>th</sup> semester.

### **Instrument.**

The *Sexuality and the Mental Retardation Attitudes Inventory* (Brantlinger, 1983) is a 40 item Likert scale that measures the attitudes of staff members who provided services to individuals with developmental disabilities about sexuality of these individuals. The original test contains items related to sexuality in general, and items that apply specifically to people with developmental disabilities. The answer choices given were in a 5 point scale (1 = *Strongly agree*, 2 = *Agree*, 3 = *Neither agree nor disagree*, 4 = *Disagree*, 5 = *Strongly Disagree*). For this work, two specific subscales will be analyzed which address sexuality of people with intellectual disabilities (Appendix A): Sexual Rights Subscale of people with ID (1, 2, 3, 4, 5, 6, 7, 8, 13, 16, 18, 19, 21, 22) and Sexuality Stereotypes Subscale of people with ID (9, 10, 11, 12, 14, 15, 17, 20), but not those related to sexuality in general.

### **Procedure.**

The translation of this instrument was conducted by two psychologists with English proficiency. Subsequently, items were adapted focusing on college students and replacing the term “*mental retardation*” with “*intellectual disability*” and removing references to *special homes*. Next, some items were written as two questions, both regarding men and women, in order to balance this aspect and minimize answer trends.

The item “*Women with intellectual disabilities are more promiscuous than other women*” was replicated for men this way: “*The men with intellectual disabilities are more promiscuous than other males*”. Similarly, the item “*Most adults with mental retardation seek some kind of sexual pleasure*” was replicated in two different items according to sex (“*Most adult males with intellectual disabilities seek some kind of sex pleasure*” and “*Most adult women with intellectual disabilities seek some kind of sex pleasure*”).

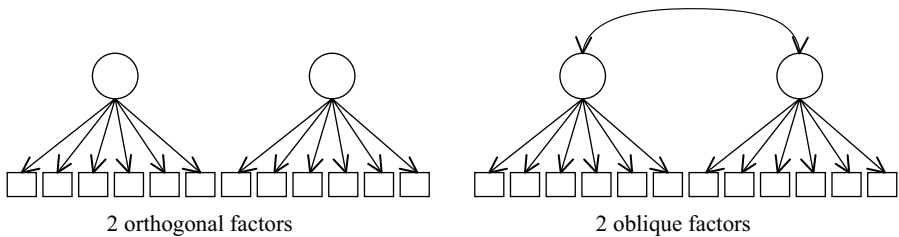
Next, a pilot test was performed with five students who fulfilled the characteristics of the target population. Subsequently, they were not part of the study in order to ensure the understanding of the items.

When administering this instrument, participants were informed about the purpose of the study and guaranteed the confidentiality of results. The instrument was administered by a single evaluator who clarified students’ doubts when needed.

The confirmatory factor analysis was performed using the EQS v.6.1 program. The method of maximum likelihood (ML) was applied, since even with asymmetrically distributed indicators it has been proven to be a suitable method for factor loadings (Beaducel & Herzberg, 2006). Similarly, absolute fit indices commonly used in research (Dominguez, 2014; Hair, Anderson, Tatham & Black, 2005; Manzano & Zamora, 2010; Schreiber, Stage, King, Nora & Barlow, 2006) were used such as the Root Mean Square error of Approximation (RMSEA), the *comparative fit index* (CFI) and the chi-square ( $\chi^2$ ), the chi-square goodness-of-fit test was calculated applying a fit for the effect of non-normal variables (Satorra & Bentler, 1994; SB- $\chi^2$ ). In the subsequent evaluation phase, possible re-specifications were made on an empirical basis (based on statistical data) and a rational basis (Merino & Kumar, 2013). Two models were studied:

- A model of two orthogonal factors (M1): Sexual Rights of people with ID Subscale and Stereotypes of sexuality of people with ID Subscale, both independent.
- A model of two oblique factors (M2): Sexual Rights of people with ID Subscale and Stereotypes of sexuality of people with ID Subscale, both related.

Finally, the reliability of the construct was assessed using the *Rho* coefficient.



**Figure 1.** Schematic representation of the models studied.

## Results

A confirmatory factor analysis was performed in order to obtain evidence of validity. Before that procedure, an analysis of statistical descriptions and extreme scores was conducted, as well as the inspection of the Pearson correlation matrix to rule out the existence of multicollinearity. Regarding the descriptive analysis of the items (table 1), it was found that most of these indicators have adequate asymmetry and kurtosis, within the range  $\pm 1.5$  (Pérez & Medrano, 2010; Ferrando & Anguiano-Carrasco, 2010). Multivariate normality in these data was assessed using Mardia's coefficient (1970), which was 48.45 ( $Z = 14.72$ ). This result can be considered adequate and it does not seriously jeopardize the estimates based on the maximum likelihood method, considering that the value was below .70 (Rodríguez & Ruiz, 2008). When re-specifying the model, Mardia's coefficient was 38.73 ( $Z = 12.68$ ), which was considered appropriate too.



**Table 1**

*Sexuality and the Mental Retardation Attitude Inventory: Statistical descriptions.*

Item	<i>M</i>	<i>DE</i>	<i>A</i>	<i>C</i>
Item 1	3.56	1.14	-.49	-.48
Item 2	3.28	1.06	-.33	-.43
Item 3	3.26	1.15	-.17	-.73
Item 4	3.22	.99	-.46	.03
Item 5	3.15	1.08	-.19	-.27
Item 6	3.96	1.06	-1.18	1.11
Item 7	3.76	1.07	-.80	.15
Item 8	3.66	1.07	-.62	-.25
Item 9	3.24	.93	-.14	.356
Item 10	3.00	1.06	-.32	-.30
Item 11	2.91	.94	.18	-.05
Item 12	3.29	1.13	-.39	-.56
Item 13	3.45	1.06	-.63	-.07
Item 14	3.26	.88	-.04	.55
Item 15	2.74	.90	.12	.24
Item 16	3.74	1.01	-.46	-.33
Item 17	3.45	.88	-.22	.40
Item 18	3.01	1.13	.17	-.61
Item 19	3.52	.99	-.45	.12
Item 20	2.98	.87	.36	.30
Item 21	3.56	.96	-.55	.23
Item 22	3.74	1.02	-.86	.512

*Note:* *M*: Median, *SD*: Standard Deviation, *A*: Asymmetry, *K*: Kurtosis

### **Confirmatory Factor Analysis.**

Based on the results shown in table 2, the fit indices obtained from each model worked on give information on the fit degree that indicates the data that do not fit the models studied (M1 and M2), since the fit is poor in both of them, and the second one, the fit is not entirely satisfactory.

In this regard, considering the improvement of the instrument in structural terms, items 1, 2, 10, 13, 16, 17, 18, 19, 20 and 21 were removed because they did not significantly contribute to the factor solution. Furthermore, the model of two orthogonal factors was the only model kept, as the correlation between factors was almost zero ( $r = -.046$ ). Thus the respecified model presents a better fit, close to the limits considered appropriate.

**Table 2**  
*Fit indices of the models of 2 factors of Sexuality and the Mental Retardation Attitude Inventory.*

Model	SB- $\chi^2$	gl	CFI	RMSEA	IC 90% RMSEA
Two orthogonal factors	409.61*	188	.636	.091	[.079; .102]
Two oblique factors	409.48*	187	.634	.091	[.079; .103]
Two orthogonal factors-respecified	104.86*	54	.867	.081	[.057; .104]

\* $p < .01$

**Table 3**

*Factorial loads of the two orthogonal factors model of Sexuality and the Mental Retardation Attitude Inventory.*

Item	F <sub>1</sub>	F <sub>2</sub>	R <sup>2</sup>
Item 3	.610		.372
Item 4	.371		.137
Item 5	.602		.362
Item 6	.706		.498
Item 7	.726		.527
Item 8	.791		.626
Item 22	.633		.401
Item 9		.645	.416
Item 11		.599	.359
Item 12		.500	.250
Item 14		.867	.752
Item 15		.460	.212

*Note:* F1: Sexual rights; F2: Stereotypes.

### **Reliability.**

Finally, the reliability of the construct using the *Rho* coefficient (Fornell & Larker, 1981), from which an indicator .804 was obtained for the model of the two orthogonal factors.

Finally, the degree of association between items that form the evidence and test (Elosua, 2003) was evaluated, and those obtaining an item-test correlations greater than .20 were kept (Kline, 1995). Therefore, all resulting items have that characteristic.

**Table 4**

*Analysis of items of the Sexuality and the Mental Retardation Attitude Inventory.*

SR	Rit	S	rit
Item 3	.486	Item 9	.441
Item 4	.338	Item 11	.522
Item 5	.520	Item 12	.367
Item 6	.566	Item 14	.636
Item 7	.551	Item 15	.350
Item 8	.656		
Item 22	.518		

*Note:* SR: Sexual rights; S: Stereotypes

## Discussion

The aim of the research was to analyze the psychometric properties of *Sexuality and the Mental Retardation Attitude Inventory* among college students using the confirmatory factor analysis.

It started with the application of the confirmatory factor analysis as it came guided by a previous theory indicating which construct represented each item (Ferrando & Anguiano-Carrasco, 2010; Pérez-Gil, Chacón & Moreno, 2000). In addition, this procedure is considered a strong approach to the construct validity (Messick, 1995; Pérez-Gil et al., 2000).

Regarding the analysis conducted, the results indicate that the data fit the model of two orthogonal factors, but it is not entirely satisfactory. As for the CFI, although values close to one indicate to what extent the specified model is better than the null model (Hair et al., 2005; Manzano & Zamora, 2010), values above .80 are accepted (Hu & Bentler, 1998). As for the RMSEA a value less than .05 is expected to indicate that the fit is good, and values up to .10 may be accepted. However, an indicator near zero is preferred (Ferrando & Anguiano-Carrasco, 2010; Formiga, Rique, Camino, Mathias & Medeiros, 2011; Sanchez & Sanchez, 1998). On the other hand, most of the factorial loads were greater than .50, an amount that is considered appropriate in a variety of contexts of psychological research (Beaducel & Herberg, 2006).

Therefore, despite the changes made to the scale, the proposed structure is related to the preliminary approaches of Brantlinger (1983), as the construct proposed on attitudes towards sexuality can be considered as composed of the two factors, as mentioned above.

Finally, regarding the reliability of the construct using the Rho coefficient an indicator of .804 was obtained. This exceeds .70 as the lower limit for considering a construct reliable (Hair et al., 2005).

Although some of the items were eliminated based on empirical criteria, this gives more empirical and conceptual strength to the instrument since the items kept are more oriented to beliefs and can be worked more directly. It is also important to consider that the fact of having only 12 items makes it a more manageable version for both researchers and professors of courses related to the subject of sexuality in people with disability.

Regarding the conceptual strength considered above, the resulting subscales, *Stereotypes of Sexuality and Sexual Rights of People with ID*, are consistent with the prejudices and beliefs frequently shown in people without disabilities with regard to people with intellectual disabilities, which include the following: *People with ID do not have sexual needs or desires, they are sexually dangerous or unable to be sexually responsible*. Similarly, it is believed that they *are not capable of falling in love and express love, not seeking emotional fulfillment and are not interested in getting married or having children* (Karellou, 2003). It is also believed that *all mentally handicapped people are the same or that people with mental retardation have an exacerbated sexuality* (Ballester, 2005).

Regarding this, it is known that foundations of existing myths are found in the approach of Wright (1983, Katz et al, 2000) about the *propagation phenomenon* by which based on one characteristic of a person other qualities are inferred. In the case of people with ID, there is the idea that the decrease of their intellectual capacity is closely related to their sexual development. I.e.: no cognitive development, therefore, no sexual development. Another view suggests that prejudices arise from social, emotional and cognitive factors (Myers, 1995).

On the contrary, it is known is that although an individual has a developmental delay, the manifestation of his/her sexual characteristics occur (Ballester, 2005; Conod & Servais, 2010; Lopez, 2006; Marten, 2006; Muntaner, 1995; Navarro & Hernandez, 2012) since people with intellectual disabilities have a general interest in sex which does not differ greatly from that observed in general population, even though they have less sexual activity than people with other disabilities and general population (Conod & Servais, 2010). Although their sexual response is similar to those without ID, the way a person with intellectual disabilities responds to it is what can cause problems due to the difficulties to abstract concepts related to sexuality and sexual differences, reproduction, etc. (Ballester, 2005).

Based on this, it can be said that the more relevant aspects of sexuality of people with intellectual disabilities are known, the more attention can be paid to psychosexual development of youth with intellectual disabilities and how to prepare them to be sexually responsible adults (Wehman, 1992, Katz et al., 2000). Thus, this could help them interact more adaptively with others, allowing their inclusion to diverse groups, and increasing their quality of life (Conod & Servais, 2010) since social participation, friendships and emotional well-being are central components of this (Ward, Bosek & Trimble, 2010).

It should be noted that the findings presented are inconclusive due to some limitations such as small sample size, for which it is suggested to replicate this research with larger samples. Similarly, in the absence of studies with this psychological instrument in college students, the possibility of contrasting findings is reduced, therefore the usefulness of this study is to establish a precedent in terms of an instrument to explore this very specific aspect of attitudes towards people with ID: their sexuality.

Despite the inconveniences, these results encourage a further investigation of such instrument in relation to other constructs, and its implementation in studies oriented to learn more aspects about attitudes towards sexuality of people with intellectual disabilities by the general population as well as students of other careers whose probability of dealing directly with people with ID is high.

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## Appendix A: Attitudes survey

### Personal Information:

Age:

Sex: Male – Female

Semester:

In the survey presented below the term Persons with Intellectual Disabilities is used to refer generally to all those who have limitations in intellectual functioning and in adaptive behavior [Formerly, they were called mentally retarded]. Your task is to review whether you agree or disagree with each phrase that you are going to be presented, considering that:

- (a) There are no right or wrong answers.
- (b) Answer all sentences, even those that do not fit your particular circumstances.
- (c) When in doubt among several options, choose the one closest to your way of thinking.
- (d) Please read each sentence, but do not take too long to choose your answer.
- (e) Answer honestly. The questionnaire is completely confidential and anonymous.
- (f) Mark your answer with a cross (X).

Do you have any type of contact with **people with intellectual disabilities**?  
YES – NO

If yes, please indicate:

Type of contact:	Frequency of contact:	Quality of contact:
Family_____	Very Frequently_____	Very positive: _____
Work_____	Frequently _____	Positive: _____
Assistance _____	Occasionally____	Neutral: _____
Leisure/Friendship _____	Almost never_____	Negative: _____
Other reasons _____		Very Negative: _____

If it is a family contact, indicate relationship\_\_\_\_\_

The meaning of the options are:

SA. Strongly agree

A. Agree

NN. Neither agree nor disagree

D. Disagree

SD. Strongly disagree

	STATEMENT	SA	A	NN	D	SD
1	Men and women with intellectual disabilities who have been caught having sexual intercourse should be kept apart.					
2	People with intellectual disabilities found masturbating should be stopped.					
3	People with intellectual disabilities have the right to have children.					
4	Teenagers with intellectual disabilities should be able to have a private time with the opposite sex.					
5	Homosexuality among people with intellectual disabilities should be allowed.					
6	People with intellectual disabilities have the right to their own sexual life provided that they do not harm or hurt others.					
7	People with intellectual disabilities should be allowed to obtain or purchase birth control when they wish.					
8	People with intellectual disabilities have the right to make their own decisions about their sexual life.					
9	Males with intellectual disabilities are more promiscuous than other males.					
10	Positions used in sexual relationships should never be discussed not even in response to a question from a person with intellectual disabilities.					
11	People with intellectual disabilities often have stronger sex drive than others.					
12	I should worry that homosexual people with intellectual disabilities can corrupt other people with intellectual disabilities.					
13	People with intellectual disabilities should have some place for their private sexual behavior (masturbation).					
14	Women with intellectual disabilities are more promiscuous than other women.					
15	Most adult males with intellectual disabilities seek some kind of sexual pleasure.					
16	Men and women with intellectual disabilities should be kept apart as much as possible.					
17	People with intellectual disabilities have less need for sex than others.					
18	Married couples with intellectual disability should have residential facilities made available to them.					

19	Homosexual behavior in people with intellectual disabilities should be forbidden.					
20	Most adult women with intellectual disabilities seek some kind of sexual pleasure.					
21	The government should pay for birth control for people with intellectual disabilities who are sexually active.					
22	Adults with intellectual disabilities have the right to have sex if they wish.					