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Attitudes towards condoms in the academic context: adaptation and validation of an instrument

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ABSTRACT

Objective: To translate the Attitudes Towards Condoms Scale and adapt it to European Portuguese. **Method:** A methodological study developed through translation and cultural adaptation and further proof of the psychometric properties. Convenience sample. The participants were 237 students of a Portuguese university, with mean age of 21.86 years old (SD=2.21). There was translation and back-translation. Data was collected on a campus in the setting of a night academic party. The ethical requirements were met. **Results:** The translated instrument is clear and understandable. There was content and appearance validity, as well as construct and criterion validity. Reliability was tested, with satisfactory inter-item correlations between .071 and .647. The item-total correlations varied between .312 and .719, revealing homogeneity of the instrument. For the internal consistency, the Cronbach's alpha coefficient was .880. **Conclusion:** The instrument's version proves to be valid and reliable. The psychometric properties support the original validity of the construct. A version that allows for multicenter studies in the Lusophony was obtained.

Descriptors: Safe Sex; Condoms; Young; Adolescent; AIDS; Students.

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INTRODUCTION

The condom is a contraceptive method and a means of protection against Sexually Transmitted Infections (STIs). It is disseminated in the mass media toward the use by adults and is currently in subjects of sexual education in different countries. The World Health Organization (WHO) considers the usefulness of this information, both for commercial sex, as for children's learning, in particular in the school phase prior to active sexual life[1,2]. Studied in different perspectives[3-5] and languages, the method is also the theme in the Lusophone literature[3-5]. In fact, unprotected sex is a frequent behavior among young people and/or university students in several Lusophone countries[6-9].

In Portugal, the theme of condoms and their use is contemplated in the sexual education programs according to ministerial guidelines (i.e., Law 120/99, Decree-law No. 259/2000, Law No. 60/2009, and Ordinance 196-A/2010 of the Ministry of Education), opening the knowledge to young people in compulsory schooling. Despite the pressures arising by confessional guidelines[10], the embarrassment of 15 years of waiting was surpassed, differing from Law n. 3/84 of March 24th, which stated in its first paragraph that "the State guarantees the right to sex education, as a component of the fundamental right to education". As a result of compulsory school curriculum, most of the current university students were exposed in their adolescence to education about safe sex and about the prevention of STIs. Other newer and appealing forms are currently used to inform young people, using the digital media[11].

The attitudes towards condom use can be assessed through various types of instruments, but the scales are probably the most widely used. Possessing psychometric properties defined, they establish a latent variable, which, with a set of manifested variables, reveal the indicators of predisposition to act in a certain way. The use of scales facilitates the interpretation of phenomena, since the evaluation is conducted on tested parameters. The scales determine rules for the associations between indicators, allowing observing the stability and validity, among other properties necessary to preserve. In fact, the interpretation of the phenomena varies with the cultures, socially dominant values, age, experience and, among other things, the immediate environment that surrounds data collection. Thus, to preserve the essence of the instruments but, at the same time, achieve measures that can assess the phenomenon in different contexts, it is necessary to carry out the adaptation. The transcultural adaptation requires several steps[12] and has advantages in the safe methodology offered to researchers. It saves time, deepens the knowledge under the same model or vision of the phenomenon. The validation is ethically desirable, since it regards the author's original idea and, in empirical terms, allows comparing samples of other origins or nationalities. Some authors argue that, even when used in the same culture, each study, given the various contexts

surrounding the subject, justifies the observation of the properties of the measure[13].

In the 1990s, two English-language authors[14] built the Sexual Risk Scale [SRS], which, by its characteristics such as number of items, dimensions or subscales, psychometric properties or accessibility of concepts, is well accepted both in the original language as in other populations[15-17]. It is still current, as highlighted by recent studies[15-17]. The SRS has six dimensions and, through one of the subscales, it assesses the attitudes toward condoms (ATC). The psychometric qualities of the ATC are robust, both in the original study as in subsequent ones[14,16,17]. In our country, the ATC were applied in two studies, one at the University of Coimbra[4] and the other at the University of Algarve[5], but as possible to search in the white literature, the validation in university population, with framing in night academic parties, is not performed. However, academic parties are known to propitiate attitudes that can cause less convinced and unprotected sex[18]. Instruments are necessary to study in these contexts the predisposition regarding the use of condoms. Rapid implementation tools, such as the ATC, evaluate attitudes in the immediacy of any decision about (un)safe sex. Thus, it will be advisable to observe their properties in the Portuguese population, because duly validated instruments offer more possibilities for researches and provide better results. Considering its present and future usefulness, the present study aims to 1) translate to Portuguese the SRS attitudinal dimension that corresponds to the ATC subscale, 2) describe the psychometric properties, and 3) observe its suitability for the university population.

METHOD

A methodological study of transcultural adaptation. The questionnaire was applied in the first half of 2018, at the University of Évora in Portugal, in the area of the night academic party of *queima das fitas*. The first section of the questionnaire requested sociodemographic data (i.e., gender, age), schooling, and type of current affective-sexual relationship. The second section contained two scales presented in Likert items, one about the transmission of the Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS)[19] and another about attitudes toward condoms[14].

The sample is consecutive, by convenience, and is made up of approximately 260 students, from the guidance of the authors[20]. The approach of potential participants occurred on the campus, in the *Queima-das-Fitas* party area, at night and during three days. The invitation to participate was initiated through eliminatory questions, only continuing if the potential participants self-reported as university students, configuring the inclusion criterion. A total of 320 individuals were approached, assessing 266 students. The sample achieved was 237 subjects with all the variables answered, thus rejecting 10.9% of the data collected. Their ages varied

between 19 and 28 years old (M=21.86; SD=2.21), 108 being men (45.6%) and 129, women (54.4%).

The questionnaire was preceded by the informed consent, with the participants confirming their agreement. The study is part of an academic project of research-action, submitted for consideration of the Ethics Committee of the University of Évora, under registration 13009 with a positive opinion.

Regarding the instruments, the knowledge about Human Immunodeficiency Virus (HIV), through the HIV Knowledge Questionnaire (HIV-KQ-18) was studied, which is a brief measure comprising a set of 18 items, presented in the form of a three-position index (i.e., true, false, I don't know). Of the 18 questions, 12 relate to the transmission of HIV through sexual relations, believing that those who have more awareness and knowledge about this route of transmission will have more favorable attitudes towards condoms. The incorrect and "I don't know" answers receive a score of 0 and the correct answers, a score of 1. The maximum score is 18 points, resulting from the sum of the correct answers. In the original study by the authors of the scale, internal consistency ranged between .75 and .89, considering three samples of participants[19]. In the current study, a coefficient KR-20=.87 showed good internal consistency (i.e., greater than.75). The instrument is public and electronically accessible[21].

Also in relation to the measures, attitudes towards safe sex were observed through the Attitudes Towards Condom Scale, referred to in this study with the acronym ATCS. It is an instrument in the English language developed by American authors[14]. It is composed of 13 items, with statements like "the idea of using a condom is not pleasant for me" (item 8). The items are presented in a Likert scale, with five positions, ranging from 1 (strongly disagree) to 5 (strongly agree). The score is obtained by their sum, after reversal of items 1, 3, 5, 6, 7, 8, 9, 11, 12 and 13. Higher scores indicate more favorable attitudes towards protected sex. The sub-scale currently in analysis incorporates a scale of 38 items, the Sexual Risk Scale[14].

In the original validation study, the ATCS showed a Cronbach's α coefficient of .90 in the test pilot with 296 students; in the final study, conducted with 200 pre-graduate students, the value of Cronbach's α was.88[14]. For the current study, the authors were requested permission to use the instrument by e-mail, obtaining a positive response.

Then, there was the translation of the instrument. The ATCS was translated into Portuguese independently by a certified translator and a health professional proficient in the English language. Later, both discussed the terms in approximation to the meanings of the original instrument. This first version in Portuguese underwent back-translation to English by a bilingual person, a professor of the English language. Another certified translator carried out a new translation into Portuguese. To conclude, an expert in the area of sexuality and a psychologist analyzed the version and, aiming at semantic, idiomatic, and

conceptual equivalence, they suggested modifying two items for the colloquial language. Therefore, in item 1, the original sentence "*é incômodo usar preservativo*" ("condoms are uncomfortable") became the "*é uma trabalheira usar preservativo*" ("condoms are hard to use"), since the term "*incômodo*" in Portuguese may be understood, in this situation, as physical discomfort. In item 11, the sentence "*os preservativos interferem com o romance*" ("condoms interfere with romance") became "*os preservativos estragam o romantismo da relação*" ("condoms ruin the relationship romance"), since the term "interfere" means change and does not characterize the situation as negative/positive. In the pre-test, applied to 10 nursing students, no other suggestions were made.

The Statistical Package for the Social Sciences®, version 24, was used in the analysis of the descriptive and inferential statistics.

The psychometric properties were observed, determining 1) internal consistency through the Cronbach's Alpha coefficient; and 2) stability, through the split-half coefficient and discriminant validity. In addition to the descriptive statistics, the statistical tests of Kolmogorov-Smirnov and Pearson's correlation were applied.

RESULTS

In relation to their academic level, the participants presented as follows: approximately 75% (155;74.9%) attended the Bachelor's degree, approximately 23% (n=47;22.7%) Masters or Doctorates, and five (2.4%) other courses (i.e., post-graduate studies).

Table 1 shows the type of relationships with sexual-affective partners declared by the participants. It reveals that 49.3% (n=117) are in monogamous relationships (i.e., formal and non-formal). The lowest representation is in multiple relationships (n=17; 7.2%), as shown in Table 1.

Table 1 – Type of sexual-affective relationships. Évora, Portugal, 2018

Variable	n	%
Has a partner, as a couple (Formal Relationship)	79	33.3
Has a partner, but not as a couple (Non-Formal Relationship)	38	16.0
Has sexual relations with partners/others (Multiple Relationship)	17	7.2
Has no partner, but has a relationship with someone (Commitment Relationship)	26	11.0
Has no partner, nor relationship with someone specifically (Current Abstinence)	77	32.5
Total	237	100.0

Source: Elaborated by the authors, 2018.

The normality of the distribution concerning the ATCS variable, resulting from the mean

of the items after reversal of the indicated ones, was verified by the Kolmogorov-Smirnov test, considering the participants' gender. The normality of distribution is present in men's ($KS=0.67_{(108)}$; p=.200) and women's ($KS=0.75_{(129)}$; p=.070) groups.

In the current study, ATCS reveals a mean of 49.71 (SD=8.58) points, with a minimum of 24 and a maximum of 65 points. The highest mean is in item 10 and the lowest, in item 6. Table 2 shows the descriptive statistics.

Table 2 – Central tendency measures of the items of the Attitudes Towards Condoms Scale. Évora, Portugal, 2018

Item	Mean	Standard Deviation
1. Condoms are hard to use*	2.08	1.07
*1.É uma trabalheira usar preservativo**		
2. People can get the same pleasure from "safer" sex as from unprotected sex.	3.05	1.21
2. As pessoas podem ter o mesmo prazer tanto no "sexo seguro com preservativo" como no sexo inseguro sem proteção		
3. Using condoms interrupts sex play*	2.49	1.05
*3. Usar preservativos interrompe o jogo sexual**		
4. The proper use of a condom could enhance sexual pleasure.	2.84	.94
4. O uso adequado do preservativo pode aumentar o prazer sexual		
5. Condoms are irritating*	2.37	1.04
*5. Os preservativos são irritantes**		
6. I think "safer" sex would get boring fast*	1.73	1.03
*6. Eu acho que o "sexo seguro" é algo que se torna aborrecido**		
7. "Safer" sex reduces the mental pleasure of sex*	2.02	1.10
*7. "Sexo seguro" reduz o prazer mental de praticar sexo**		
8. The idea of using a condom doesn't appeal to me*	2.05	1.14
*8. A ideia de usar preservativo não é agradável para mim**		
9. Condoms ruin the natural sex act*	1.75	.82
*9. Usar preservativo destrói o ato sexual**		
10. Generally, I am in favor of using condoms.	4.44	.82
10. Em geral, eu sou a favor dos preservativos		
11. Condoms ruin the relationship romance*	2.00	1.01
*11. Os preservativos estragam o romantismo da relação**		
12. The sensory aspects (smell, touch, etc.) of condoms make them unpleasant*	2.21	1.04
*12. O cheiro, aspeto, toque dos preservativos tornam este método contraceptivo desagradável**		
13. With condoms, you can't really "give yourself over" to your partner*	1.90	1.01

*13. Com preservativo, a pessoa não pode realmente envolver-se, dar-se profundamente ao parceiro**	

*Reversed item

Source: Elaborated by the authors, 2018.

The ATCS shows a weak negative association with age ($r_{(237)}$=-.156; p=.016). Using the Student's t-test, women have significantly more favorable attitudes towards condoms than men ($t_{(235)}$=-2.401; p=.017). Considering the type of relationship with sexual partners, apparently, students with formal and non-formal monogamous relationships, and the abstinent, are those who have more favorable attitudes towards condoms. In contrast, students in relationships with little affective bound (i.e., relationships without a commitment and with multiple partners) have less favorable attitudes (Figure 1).

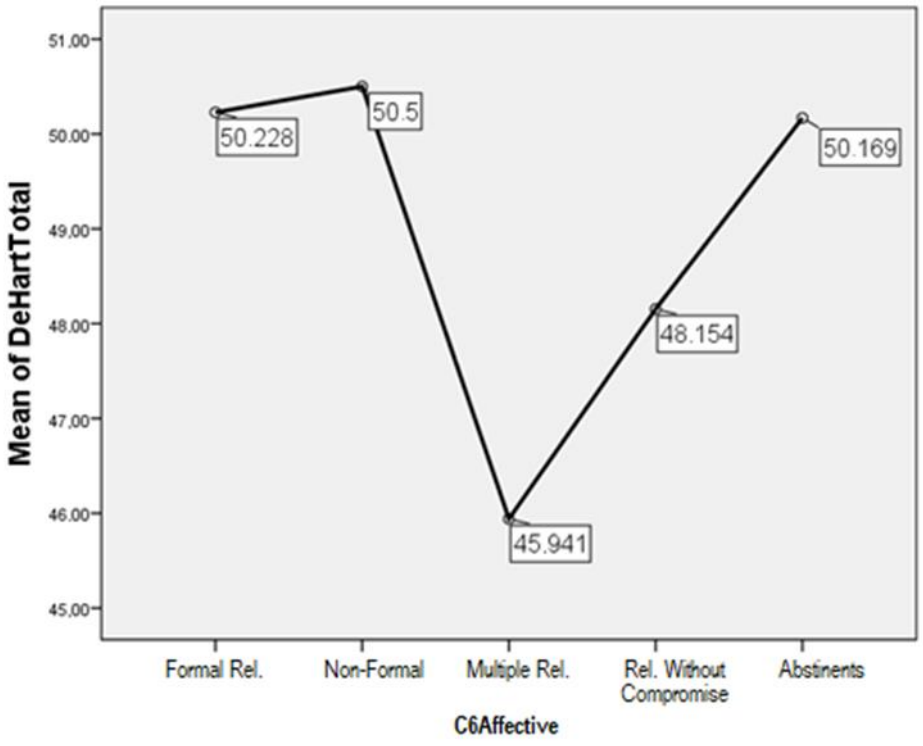

Figure 1 – Attitudes towards condoms as the type of sexual-affective relationship. Évora, Portugal, 2018

Source: Elaborated by the authors, 2018.

The ATCS presents a weak positive correlation, but significant, with the HIV-KQ-18 scale ($r_{(237)}$=.166;p=.010).

Below is the reliability analysis, through the observation of inter-item and item-total statistics also considering internal consistency.

The application of the ATCS showed a good Cronbach's α coefficient with a value of .880. In the impossibility to perform test-

retest reliability, because the sample was for single data collection, the Split-half test with Spearman-Brown correction was chosen. It revealed a Cronbach's alpha of .778 for the set of items 1,2,3,4,5,6,7 and a Cronbach's coefficient of .821 for the set of items 8,9,10,11,12,13. The inter-item correlations have values between .071 and .647 (Table 3).

Table 3 – Inter-Item correlation matrix. Évora, Portugal, 2018

	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	Item 11	Item 12	Item 13
Item 1	.348	.421	.183	.381	.351	.399	.436	.377	.238	.431	.439	.356
Item 2		.375	.319	.405	.235	.316	.419	.286	.259	.348	.285	.248
Item 3			.349	.453	.237	.292	.312	.372	.111	.419	.271	.251
Item 4				.308	.071	.162	.254	.191	.111	.163	.180	.149
Item 5					.374	.452	.541	.474	.199	.308	.441	.295
Item 6						.551	.460	.633	.369	.404	.341	.499
Item 7							.554	.629	.287	.398	.432	.521
Item 8								.647	.314	.436	.494	.356
Item 9									.389	.547	.408	.512
Item 10										.376	.308	.328
Item 11											.573	.490
Item 12												.397

Source: Elaborated by the authors, 2018.

In the item-total statistics, the value of the Cronbach's alpha coefficient varies between .864 and .883. It would not change substantially if removing any manifested variable. On the other hand, the item-total correlations vary between .312 (i.e., item 4) and .719 (i.e., item 9), according to Table 4.

Table 4 – Item-total statistics. Évora, Portugal, 2018

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1	.568	.871
Item 2	.495	.876
Item 3	.499	.874
Item 4	.312	.883
Item 5	.607	.869
Item 6	.580	.870
Item 7	.650	.866
Item 8	.685	.864
Item 9	.719	.865
Item 10	.416	.878
Item 11	.635	.867

Item 12	.594	.869
Item 13	.565	.871

Source: Elaborated by the authors, 2018.

DISCUSSION

The current sample with 237 participants, although not random, complied in size, which is a practice in validation studies. As the authors' review, which indicates a mean number of 207 participants, most studies of validation recruit 100 to 250 cases[20]. On the other hand, the lost cases in the present study, representing approximately 11% of the contacts in a first approach, did not jeopardize the study according to the previous criterion. Also in relation to the number of lost questionnaires, with dispersed missing and not on specific items, did not bring other weaknesses. The number of participants is an important aspect, given its diversity in data analysis. In this study, the set of university students varied in age, in the academic cycle, in the type of sexual-affective relationships and with an approximate representation on gender, makes it appropriate to the validation process in this sample, an aspect that is simultaneously corroborated by the Kolmogorov-Smirnov test, when observing the normality of distribution. In fact, attitudes towards condoms are topics of interest for this age group, which is sexually active, experiencing sexuality in different types of relationships, affectively unstable or in search of intimacy attempts. The descriptive statistics revealed that, on average, all the reversed items score below position 3 on the Likert scale, whereas items 2, 4, and 10 approach or exceed this position. On the other hand, the highest standard deviation values arise in items 2, 7, and 8, with greater dispersion. Notably, those items are connoted with eroticism, perhaps revealing the different status of affective-sexual development. In fact, the sample shows participants in phase of both formal and non-formal monogamy, but also sequential monogamy and polygamy. Said in another way: exclusive relationships, sequential relationships, and multiple relationships. The affective-sexual development and the formation of the couple, though not formal, translates into relational maturity of the pair, an aspect that can contribute to a more positive attitude towards condoms, although they might not be used. This interpretation of the results suggests that the instrument is understandable and allows recording the diversity, contributing to the face validity or apparent validity, a fact that also supports the opinion of experts and the pre-test referred to in the method section. Furthermore, there is content validity, which, without statistical proof, is based on the theoretical construction of items by the original authors[14]. Content validity and face validity are realized in the semantics of the contents of the manifested variables of the ATCS.

Construct validity refers to the ability of an instrument to measure the latent variable, which is intended to measure. In the current study, the measure, a subscale, is one-

dimensional, not applying Main Component Factor Analysis (MCFA). Using the split-half method, there was a satisfactory value in the Cronbach's alpha coefficients in both sets of items (i.e., .745 and .849), as well as in the correlation between the two forms (i.e.,.735). In the validation processes between languages, it is important to obtain robust values in the split-half test and the association between the two parties, in order to ensure that the original instrument is respected and simultaneously understood in a similar way, in another environment. This means that the understanding of the current subjects does not differ from the original idea, in addition to evaluating this idea. The use of the split-half method does not affect the interpretation of construct validity, but, on the contrary, can have advantages regarding the test-retest, given the participant's memory bias, or even by the possibility of disturbance by some event within the time interval. The attitudes are exactly one of the constructs more vulnerable to the space of time between the two applications[22].

The validity criterion, which consists of the degree of effectiveness to predict a specific performance[23] was observed through concurrent validity. Testing the relation between the ATCS and HIV-KQ-18, there was a positive but weak correlation. Paradoxically, the low correlation value gives sustainability to the interpretation of concurrent validity. That is, although in the logic of the relationship between concepts, those who have more knowledge about the transmission of HIV through unprotected sex are believed to have more favorable attitudes towards the use of condoms, there were weaknesses and even controversy on the empirical results. Some authors state that high knowledge is in university populations with unsafe sexual practices thus being at high risk, while other authors record positive influences between knowledge and safe sex[16].

The reliability of the ATCS was observed through internal consistency. This property, which shows the ability of the instrument, regarding inter-items, showed good results. Concerning item-total correlations, there is homogeneity in the scale, since they have similar values. Of the 78 possible correlations, the value of 23 correlations was below .30 and no correlation was above.80. That is, the correlations were balanced, neither too low nor too high that would assume the overlap or redundancy of manifested variables. Item 4 was the one that showed weak correlations with the others, contributing the least to the central measure. However, its exclusion from the scale was not considered. Indeed, in addition to the current validation being a process as most conservative as possible, in order to comply with the original idea, the value of the Cronbach's alpha coefficient would also not suffer an important change. Therefore, the items have a good estimate of measure reliability.

CONCLUSION

The current version of the ATCS appears to be an appropriate measure for the evaluation of attitudes towards the use of condoms in the setting of an academic

party. Following the guidance of authors, the method applied offered safety to the process. Construct validity, criterion validity, and reliability proved to be robust in the properties evaluated. Thus, it is the process that allows, through the manifested variables, reaching a latent variable, with expression in the academic context. The lack of possible measures to implement it in the Lusophony is believed to have contributed to the development of knowledge, particularly for studies on young people, in which part of the population has no stable sexual-affective relationships. The study of the topic needs development and greater availability of translated and validated instruments, facilitating research.

Regarding the content of the instrument under validation, considering the academic career, which, in the current participants, would be at least licentiate studies, in addition to the history of sexual education provided to the students of this generation, more valued attitudes towards condoms would be expected. This refers to the importance of the continuity of the themes of condom use and STI prevention, perhaps also supported by projects focused on the academic community.

The limitations of the present study relate to the application of the scale at a single moment, with no opportunity to assess its repeatability. On the other hand, the fact that the sample was by convenience prevents the generalization of results.

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