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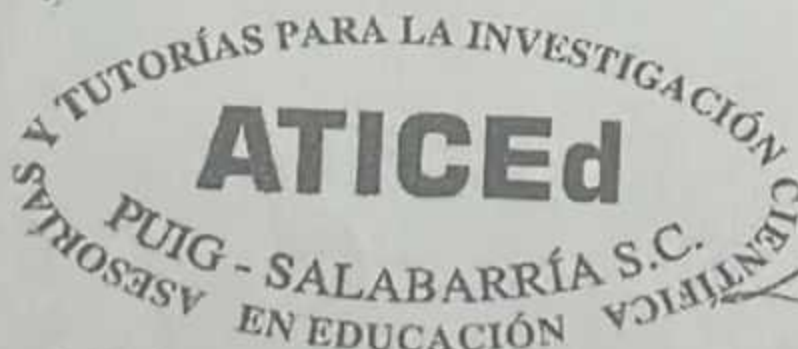
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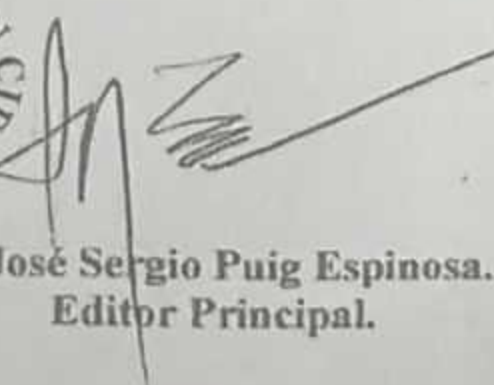
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RESEARCH METHODOLOGY AND DATA ANALYSIS

# Validation of Instruments for the Investigation of Sexuality in Vulnerable Groups



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**RESEARCH METHODOLOGY AND DATA ANALYSIS**

**VALIDATION OF INSTRUMENTS  
FOR THE INVESTIGATION  
OF SEXUALITY  
IN VULNERABLE GROUPS**

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FOR THE INVESTIGATION  
OF SEXUALITY  
IN VULNERABLE GROUPS**

**LUBIA DEL CARMEN CASTILLO ARCOS**  
**EDITOR**



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*Chapter 6*

**VALIDATION OF SCALE OF UNCERTAINTY  
IN PREGNANT ADOLESCENTS  
IN MEXICAN POPULATION**

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**ABSTRACT**

To perform pregnancy care, social and family support is required, but without a doubt, the acceptance of pregnancy and psychological and emotional stability are necessary to perform the relevant care. On many occasions, the adolescent does not have any or some of these factors, coupled with the lack of information and/or experience, therefore, she often has uncertainty about the symptoms of pregnancy and how she can deal with them. Uncertainty arises in the adolescent when she does not know how to minimize these risks or how to detect them in a timely manner. For the professional practice of nursing, it is relevant to measure the

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uncertainty that the adolescent presents in this stage of life, in order to identify risk factors and be able to reduce them, in addition to performing more effective Nursing interventions in this regard. Objective: Adaptation of the Cambridge Worry Scale scale in pregnant adolescents.

Methods: Descriptive correlational study. Sample of 439 adolescents under 18 years of age who attended prenatal control in a third level care institution in northwestern Mexico. Probabilistic sampling. Instrument: Cambridge Worry Scale (CWS). Analysis of data. SPSS was used, descriptive statistics were performed and the internal consistency of the instrument was determined by means of the Cronbach's alpha coefficient. Subsequently, the exploratory and confirmatory factor analysis was performed. Results: When analyzing the 16 items, a Cronbach alpha of 0.846 was found. An average of 35.25, variance of 272.8 and a standard deviation of 16.52 between the items are reported. Four factors were identified: Health (Cronbach's alpha 0.731) Socio-medica (Cronbach's alpha of 0.758), relationships (Cronbach's alpha of 0.635) and socio-economics (Cronbach's alpha of 0.741). Conclusions: The Cambridge Worry Scale (CWS) instrument is validated in the Mexican population, specifically in pregnant adolescents.

**Keywords:** validation studies, uncertainty, adolescent

## INTRODUCTION

The World Health Organization (WHO, 2020) estimates that annually, 16 million adolescents between the ages of 15 and 19 years give birth and a 95% of these births occur in developing countries, representing 11% of all births in the world. In Mexico, the National Institute of Statistics and Geography (INEGI, 2019) reports that the rate of births to teenagers mothers under the age of 20 years of age was 17.2 in 2014.

The Pan American Health Organization (PAHO, 2015) reports that e l early pregnancy has risks for the health of mother and child, in addition to impact on education and future prospects of adolescent girls. Within these consequences may include preeclampsia, inadequacy of the adaptive immune mechanism, prematurity, intrauterine growth retardation, premature detachment of the placenta, anemia, urinary tract infections, bleeding, pelvic

and/or tightness cephalopelvic disproportion (Salazar, Alvarez, Maestre, Leon and Pérez, 2006).

That is why at the global level created the prenatal control program, with the aim of providing quality care to pregnant women. Prenatal control is intended for the detection and control of obstetric risk factors, prevention, detection, and treatment of anemia, preeclampsia, cervicovaginal infections and urinary infections, hemorrhagic complications of pregnancy, intrauterine growth retardation and other intercurrent diseases with pregnancy (Secretariat of Health, 2015).

The care of pregnancy requires to perform many specific activities, for example, eating a balanced diet, moderate exercise, consumption of folic acid and vitamins, administration of vaccines, periodic assessment of the general state of the mother and baby, weight control, monitoring of fetal development, among many other care. In all the activities necessary for the care of pregnancy affects the family support, social and of the couple, as well as various individual factors, among which is the uncertainty, the meaning and coping with pregnancy. This care is necessary regardless of the age of the mother, but acquire special relevance during adolescence because it is considered a vulnerable group to be found in the stage of physical and emotional development.

To carry out, all activities necessary for the care of pregnancy, undoubtedly influences the uncertainty that may have the mother of the unborn child, regardless of the age of the mother. The uncertainty in adolescent pregnancy is a lack or loss of control (Dalton, 2014). Therefore, it is defined that the uncertainty of the adolescents during your pregnancy, it refers to the doubts and concerns to confront, handle or accept your pregnancy and the possibility of an uncertain future for her and her son.

Depends in large measure on the level of uncertainty that has the teenager, to carry on activities in the care of pregnancy, therefore, the nursing staff, who has an active participation within the prenatal control, must have measurement instruments that allow you to measure the uncertainty and subsequently make timely interventions.

Therefore, the overall objective of this study is to evaluate the psychometric properties of the scale Cambridge Worry Scale in the specific population of pregnant teenagers in Mexico.

## **Frame of Reference**

For the measurement of uncertainty intends to adapt the scale Cambridge Worry Scale (CWS) in the Mexican population. The scale was designed by Green, Kafetsios, Statham and Snowden (2003) to evaluate the content and scope of the maternal concerns in pregnancy. It is a self-administered questionnaire and can be used throughout pregnancy; contains 4 main components: medical concerns, socio-health concerns itself, socio-economic concerns des and concerns of relationships. It is made up of 16 items with six points Likert-type scale ranging from is not a concern (0) up to greater concern (5). This paper reports a Cronbach's alpha of 0.80 at the global scale.

There have been various versions of the CWS from the German version of the original, in several populations of the world and have been reported levels of acceptable internal consistency; for example, Carmona, Peñacobabridge, Marin and Carter (2012) conducted the Spanish version in 285 pregnant women, making a reduction of 16 to 13 items and reporting a Cronbach's alpha of 0.83 at the global scale and 4 factors: concern relationships ( $\alpha = 0.70$ ), socio-economic concerns ( $\alpha = 0.74$ ), social concerns and medical ( $\alpha = 0.71$ ) and health concerns ( $\alpha = 0.79$ ).

Petersen, Guethlin, Genischen, Paulitsch and Jahn (2009) carried out the German version of the scale CWS, developed in 344 pregnant women and reporting a Cronbach's alpha of 0.80. They found 4 factors: social and medical concerns; socio-economic concerns and relationships; concerns of the baby's health; concerns of the mother and others. Show 17 items that make up the scale.

Considering that the uncertainty of the teenager during pregnancy, is defined as the doubts and concerns to confront, handle or accept your pregnancy and the possibility of an uncertain future for herself and her son;

it is proposed to the Mexican version of Cambridge Worry Scale (see appendix A).

## **METHODS**

### **Study Design**

The present study was correlational descriptive study (Burns and Grove, 2016).

### **Participants and Sampling**

The population consisted of pregnant adolescents under age of a state in the north east of the country who attended a prenatal care in an institution of third level of attention. The method of systematic random sampling was,  $k = 3$ . They chose the first element of the sample, selected a number of random way of 1 to 3 and from this number is home each day by inviting to participate every third teen who attended the consultation to complete the total of the sample. The sample was formed by a total of 439 participants, which was determined in the nQuery Advisor program, through a multiple linear regression test with an interval of 95% of trust, with a power of 90% test for a coefficient of determination of the medium of the .05.

Inclusion criteria. Pregnant teenagers who attended a accompanied by at least one of their parents or guardians and that his mother is alive at the time of filling of the instruments.

Exclusion criteria. Adolescents who do not know how to read and write.

### **Instruments**

Identification Card. Includes demographic data such as the age of the teenager, weeks of pregnancy, marital status, educational level, number of pregnancies, number of abortions, among others.



Cambridge Worry Scale in the Mexican version. The scale was used Cambridge Worry Scale (CWS) in its Mexican version. Which is a self-administered scale and composed of 16 items with six points Likert-type scale ranging from is not a concern (0) up to greater concern (5). In studies related reports a Cronbach's alpha of 0.80-0.83. Some items are "housing," "birth" and "economic problems" (Appendix A). To get the highest score of the scale, we calculated the average of each response, which will indicate the level of concern that presents the pregnant teen, where lower scores mean less uncertainty of the teen for your pregnancy.

The original scale of Cambridge Worry Scale was conducted in the English language, for which he was needed its translation into Spanish language, procedure performed through the Black-Translation method in three phases (Burns and Grove, 2016). The first phase consisted in the translation of the instrument into Spanish by a professional translator, which is health care professional with extensive experience. The second stage was carried out the translation back into English of the Spanish version by a health professional residing in the United States whose native language was English. In the third stage was carried out the review and comparison of translations carried out by two experts in the topic of pregnancy in adolescents in order to obtain the final version.

## **Procedure for Data Collection**

This study was authorization requested the Committee of Bioethics in Research in Health Sciences Center for Research and Development of Health Sciences (CIDICS) of the Universidad Autónoma de Nuevo León. As well as the managers of a health institution of the third level of attention and its Committee on Ethics in Research. Two interviewers were trained with bachelor's degree in nursing for data collection. They went to the Ob and they explained the purpose of the study to the head of nurses and the reception staff of the department. We selected the participant number three in the query (randomly selected number previously), and from it the

following participants were selected from one of three daily until completing the sample size.

To the adolescent s explained to her and at least one of their parents or guardians, the purpose of the study and were invited to participate in the same, emphasizing that the time to answer the instruments is free. So if they agreed to participate were granted the consent form to parents and the consent informed the teenager to read it and sign it. They are clearly explained to the parents of the teenager that the information that answered her daughter in the questionnaires is completely confidential and that no one could know their answers more than the members of the research team.

Once signed the consent and the consent was provided with the teenager the questionnaires for measuring and a pencil; he was invited to sit in a chair and exclusive table for the filling of the instruments, which was placed inside the waiting room to the consultation; in this way he ensured the confidentiality of the information of the teenager, in addition to accord more comfort.

## **Ethical Considerations**

The present study attachment to in accordance with the rules of procedure of the General Health Law in the field of Research for Health (Secretariat of Health, 2014).

## **Data Analysis**

The statistical analysis was performed using the statistical package or Statistical Package for Social Sciences (SPSS), version 21 for Windows. Descriptive statistics was used to obtain data for frequencies, averages, percentages and distributions of the socio-demographic data. It was determined the internal consistency of the instruments by means of the coefficient of Cronbach's alpha. Subsequently the exploratory and confirmatory factorial analysis by the method of removal by Principal

Component Analysis and the Varimax rotation method with normalization Kaiser-Meyer-Olkin and the test of sphericity of Barlett and Maximum Likelihood from the root of correlations.

RESULTS

Socio-Demographic Data

The average age of the participants was 4.05 years (range 11 to 17, =1.03), 19.40% of pregnant teenagers do not have partner currently, the 56.50% is a housewife and the 22.10% does not work or study. With regard to schooling, 36.50% indicated that it has completed secondary school and the 53.30% has its incomplete studies. Most of the participants was during the third trimester of gestation (59.90%, *Average* =28.89 weeks =8.59) and the 56.70% did not plan your pregnancy.

Descriptive Statistics of the Variables

For the uncertainty of pregnancy are reported an average of 2.01 (see Table 1), which indicates that adolescent girls, in general has little uncertainty in your pregnancy.

Table 1. Uncertainty in the adolescent pregnancy

Min	Max	X	Mdn	Sd	D <sup>a</sup>	p
0	5	2.01	1.94	1.08	1.33	057

Note: n = 439, Min = minimum, Max = maximum, X = average, Mdn = median, Sd = standard deviation, D<sup>a</sup> = the Statistical Kolmogorov-Smirnov test, p = value of p.

**Table 2. Internal Consistency of the subscales of CWS**

Instrument ( $n = 439$ )	Reagents	$\alpha$
Cambridge Worry Scale: Mexican Version	16	.909
Socio-economic	6	.823
Sociomedical infrastructure	5	.816
Health insurance	3	.826
Relationships	2	.701

Note:  $n$  = total sample,  $\alpha$  = Coefficient of Cronbach's Alpha.

### Mexican Version of Cambridge Worry Scale

The tests were obtained of Kaiser-Meyer-Olkin and the test of sphericity of Barlett, the study of the identity matrix and the matrix of correlations and the significance of the Questionnaire Cambridge Worry Scale in the Spanish version ( $KMO = .908$ ,  $Chi^2 = 3180.90$ ,  $df = 120$ ,  $p = 000$ ), noting that the data presented a normal distribution.

In the Table 2 shows the values of Cronbach's alpha of each the subscales of the Cambridge Worry Scale: Mexican Version, which are considered acceptable.

Table 3 shows the confirmatory factor analysis carried out by the method of removal by principal components and the Varimax rotation method with Kaiser Normalization and Maximum Likelihood to the Questionnaire Cambridge Worry Scale and subscales. Thrown into a structure of 4 factors that explain 65.11% of the total variance.

In the first factor loaded 6 items and is referred to as the "socio-economic development"; the second factor is comprised of 4 items and is referred to as the "Sociomedical infrastructure"; the third factor is defined by 4 items and is called the "health"; the fourth factor is composed of 2 items and is called the "relations." All factors are satisfied by the same items that specifies the original instrument, with the exception of item 16 "the possibility of losing the baby," which, due to the factor loading expressed, it was decided to leave it in the third factor.

**Table 3. Factor analysis of the Questionnaire Cambridge Worry Scale**

Item (n = 439)	Factors			Removal	
	1	2	3	4	
4. Your relationship... husband...	.793				.692
5. Your relationship... family...	.782				.709
1. Housing	.708				.593
2. Economic problems	.640				.526
3. Legal Problems	.638				.515
15. Your partner will be with you...	.544				.509
13. Faced with the new baby		.775			.701
12. Birth		.757			.760
10. Arriving at the hospital		.699			.628
11. Review of genitals		.655			.585
16. The possibility of losing the baby			.781		.638
7. The health of someone...			.719		.686
9. The possibility of a...			.707		.691
6. Your Health			.678		.710
8. Problems of work/school				.796	.769
14. Leave your work/school				.768	.703
% Of the variance	20.92	14.36	16.31	10.33	
% Accumulated	20.92	38.48	54.78	65.11	

**DISCUSSION**

The majority of pregnant adolescents who participated in the present study had no partner and not planned their pregnancy; which is consistent with the majority of authors on this subject (Lavielle-Sotomayor, Jimenez-Valdez, Vazquez-Rodríguez, Aguirre-Garcia, Castillo-Trejo and Vega-Mendoza, 2014; Munares-Garcia, 2013; Panduro, Jiménez, Perez, Panduro, Peraza and Quezada, 2012; Alarcón, Coello, Cabrera and Monier, 2009).

To analyze the frequency with which the uncertainty, it was found that sometimes the teenagers have uncertainty in your pregnancy, this being a

result contrary to established by Handley (2012), who reported that the uncertainty occurs frequently during teenage pregnancy. The results found in the present study indicate that the main causes of uncertainty in pregnancy are the possibility of some problem with your baby, the birth and the possibility of losing the baby, which is consistent with Peñacoba-Bridge, Carmona and Marin (2011); Petersen, Guethlin Genischen Paulitsch and Jahn (2009). In turn, Peñacoba-Bridge, Carmona and Marin (2011) specify that the possibility of losing the baby occurs most often during the first quarter, compared with the third quarter, where the main concerns reported by Petersen, Guethlin, Genischen, Paulitsch and Jahn (2009) are faced with a new baby and go to the hospital. In the present study, it is not possible to make difference of averages for comparisons among the three trimesters of gestation, due to the fact that the sample was not representative per quarter, given that the vast majority of adolescents who attended prenatal care were in the third trimester of pregnancy.

## **CONCLUSION**

The scale of Cambridge Worry Scale: English Version shows values of Cronbach's alpha test, acceptable and presents acceptable psychometric properties, thus it can be considered validated in the specific population of pregnant teenagers in Mexico.

## **APPENDIX A**

### **Mexican version of Cambridge Worry Scale**

La mayoría de nosotros nos preocupamos por algo. Esta lista no sea la intención de darle más cosas para preocuparse, solo quiero saber si alguna de estas cosas le preocupan o no. Por favor marque un número para cada uno para mostrar la cantidad de preocupación que es para usted en este momento,

de 0 si no es preocupación, 5 si es algo en que usted se preocupe extremadamente demasiado.

	0	1	2	3	4	5
1. Vivienda						
2. Problemas económicos						
3. Problemas legales						
4. La relación con su esposo o pareja						
5. La relación con su familia y amigos						
6. Su salud						
7. La salud de alguien importante para usted						
8. Problemas de trabajo						
9. La posibilidad de algún problema con su bebé						
10. Llegar al hospital						
11. Examen pélvico						
12. Nacimiento						
13. Afrontarse con el nuevo bebé						
14. Dejar su trabajo						
15. Su pareja estará con usted en el nacimiento						
16. La posibilidad de perder el bebé						

Sí hay algo que le preocupa, o si le gustaría decir algo más acerca de esto, por favor use este espacio para decirlo.

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