RESEARCH ARTICLE

Confirmatory factorial model of the interruption of pregnancy against COVID-19

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Abstract: The objective of the present study was to establish the exploratory factorial structure of instruments that measured psychological-cultural variables around intentions and experiences related to the interruption of pregnancy. A non-experimental, exploratory and cross-sectional study was carried out with a non-probabilistic selection of 100 students. The adjustments of the theoretical relationships with respect to the weighted relationships were estimated using two structural models, one cultural and the other cognitive. The values factor explained 41% of the variance ($\alpha = 0.732$). The belief factor explained 33% of the variance ($\alpha = 0.705$). The perceptual factor explained 28% of the variance ($\alpha = 0.721$). The motive factor explained 23% of the variance ($\alpha = 0.742$). The attitudinal factor explained 17% of the variance ($\alpha = 0.701$). The normative factor explained 14% of the variance ($\alpha = 0.758$). The intentional factor explained 9% of the variance (α 0.784) and the experiential factor explained 7% of the variance ($\alpha = 0.791$). However, the fit and residual parameters [$\chi2 = 356.46$ (67df) p = 0.067; GFI = 0.990; CFI = 0.975; RMSEA = 0.000] of the structural model of dependency relationships between indicators and cultural factors evidenced the spurious incidence of perceptions about experiences of termination of pregnancy ($\beta = 0.27$). In contrast, the adjustment and residual statistics [$\chi2 = 145.25$ (46df) p = 0.035; GFI = 0.970; CFI = 0.985; RMSEA = 0.003] of the cognitive model showed the significant effect of attitudes on intentions to terminate pregnancy ($\beta = 0.68$).

Keywords: psychological-cultural factors, interruption of pregnancy, path analysis, COVID-19

1 Introduction

The interruption of pregnancy is one of the issues that causes and will continue to cause controversy due to the contrast between current realities and taboos fueled by the remnants of tradition and customs [1]. The fundamental one is the influence of the Catholic Church on collective behavior, especially by censoring a more open debate that allows generating and solving broader problems such as extreme poverty, violation of human rights in various ways [2]. To this, you can add the pregnancies that are generated from, for example, pregnancies resulting from rape. Well, according to the Catholic Church, with the fertilization of the ovum, a life is inaugurated that is neither that of the father nor that of the mother, but that of a new human being that develops by itself [3].

The other leviathan that plagues the issue of the interruption of pregnancy is the criminalization of abortion, because due to a greater strength of the Catholic Church and a greater rootedness of the customs and traditions of the family and of society, it led to criminalize the interruption of pregnancy. pregnancy in some countries [4]. However, the criminalization of the interruption of pregnancy has not combated the high number of clandestine curettage, which often ends with irreversible damage and frequently the death of women [5].

International organizations have dealt with this issue from different fronts. On the one hand, we find the international precepts and agreements that have been approved for the defense of life in its various manifestations, and on the other, we even find the same legislation that is concerned with the rights of women, especially the rights reproductive [6]. Situation that must be analyzed carefully, so as not to fall into contradictions in the legislation of each country [7].

In Mexico, the issue of abortion as a legal matter has a tradition of more than a century, because since the Penal Code of 1871, it had already been included as part of: "Crimes against persons, committed by individuals" [8]. This structure was maintained over the years, going through the Codes of 1929, 1931. Perhaps the most recent novelty in terms of the interruption of pregnancy, is the reform that was made in the government of the Federal District in 2007 to the Penal Code for the Federal District. Well, somehow, it meant the beginning of the decriminalization of abortion through the legal interruption of pregnancy before the twelfth week of gestation [9].

With the previous reform, the interruption of pregnancy in recent years has become a public problem [10]. With this, the private and public space have been confronted, fundamentally, because it is about the decision of women on a public issue fed by social groups such as religion or family, regulated under legal elements that have been established by the State [1]. This is precisely what makes up a thorny field of study, since a fair mean of the different actors leaves all the actors unsatisfied, since the definition of the interruption of pregnancy as a public problem is not necessarily religious, ethical or legal [12].

However, it is essential to investigate its constitution process, since it can be raised from general issues such as human reproduction, the exercise of sexuality, human freedom, public health or the right to life [13]. But it can also be constituted from some more specific issues such as problems during pregnancy, cases of rape, due to health risks for women, non-consensual artificial insemination, imprudent abortion, due to genetic malformations, due to lack of resources of the parents, among others. others [14].

To be inserted in this discussion, it is essential to have knowledge about a conceptual framework, both medical and legal, that establishes the field of abortion. Among them, we find the topic of conception, fertilization, pregnancy, abortion, legal abortion [15].

The multiple edges and positions from which it is analyzed give rise to controversies due to moral, ethical, legal and religious conflicts. Regardless of the position, it is essential to recognize that it is part of our social reality, whether it is legally acceptable or not [16]. From the controversies, knowledge is little and institutional recognition is even more so [17]. Knowledge of abortion has been slow and gradual in Mexican society, since it is considered illegal, there is no institutional way to establish a registry [18]. Well, the National Institute of Statistics and Geography (INEGI), only keeps records when this is considered a crime. The efforts of civil society are insufficient to maintain the registry, even more so when it comes to clandestine abortions [19].

In the arena of the dispute, in which abortion is defined as a public problem, each of the "interested" actors tries to establish a public agenda based on their positions and interests [20]. However, the actors in the process of defining the problem do not necessarily reflect the social representations that the various sectors of the population have, especially since there is a multiplicity of mixtures of social scenarios [21].

Studies of the request for induced abortion or termination of pregnancy warn of three determining factors; a) socioeconomic, since as poverty intensifies, sexuality increases, unwanted pregnancies increase and clandestine abortion practices are exacerbated; b) religious as inhibitors of sexuality and once an unwanted pregnancy occurs, abortion; c) normative-values in which the family and groups close to requesters of termination of pregnancy influence the decision [22].

The medical literature on abortion warns of a propensity for abortion practice based on beliefs, attitudes and knowledge of both patients and doctors. It is a cultural system (see Figure 1) in which the knowledge of health professionals is influenced by their beliefs and attitudes [?].

In this way, the actors; health professionals, patients and family members, constitute a system of adherence or repulsion to the interruption of pregnancy [23].

In the case of studies with couples, abortion depends on the type of relationship [24]. If it is significant, then the decision to request an abortion is negotiated, agreed upon and co-responsible [25]. If the relationship is short-lived and without any commitment, then the decision is made by the parents of the couple [26]. In other words, the determinants of abortion are based on a cultural system of values, norms, and beliefs that explain the mediation of attitudes and intentions in the request for termination of pregnancy [27].

The literature has established the dependency relationships between psychological-cultural variables such as norms, values, perceptions and experiences. The established model includes three hypotheses in which values are the determining factor of experiences, but also this factor of moral and ethical principles that guide behavior affects the experiences of pregnancy termination through norms and perceptions.

The model explains those cases in which social values, disseminated in local uses and customs, as well as in parenting, friendship and courtship styles, directly and indirectly affect the experiences of pregnancy interruption.

In contrast, the specification of a model of cognitive dependency relationships would explain decision-making around pregnancy termination as the result of deliberate, planned and systematic information processing (beliefs) that would be mediated by dispositions in favor of termination of pregnancy. termination of pregnancy (attitudes) and the reasons (motives) for carrying out an intentional abortion.

Therefore, the establishment of the factorial structure of both models of dependency relationships between indicators and psychological-cultural factors will allow the contrast of both models with the purpose of influencing reproductive health policies in community health centers.

2 Methods

2.1 Hypothesis and research design

Formulation: What are the psychological dimensions surrounding the request for termination of pregnancy?

Null hypothesis: Theoretical psychological dimensions—values, beliefs, perceptions, motives, attitudes, norms, intentions, and experiences—fit the weighted dimensions.

Alternate hypothesis: Theoretical psychological dimensions are different from the weighted dimensions.

Design: A correlational and cross-sectional study was carried out.

Sample: A non-probabilistic selection of 210 students from a public university in Huehuetoca, State of Mexico, was carried out. 45% are men and 65% are women; with a mean age (M = 19.21, SD = 0.81) and income (M = 718 USD, SD = 1.92 USD).

Instrument: Scales of Variables related to the Interruption of Pregnancy.

2.2 Measures

2.2.1 Scales

Value scale: It includes seven items around the principles that guide the decision to terminate the pregnancy and five response options ranging from 0 = "it is not at all like my situation" to 5 = "it is very similar to my situation".

Belief Scale: It includes seven questions about the processing of information related to the interruption of pregnancy and two response options ranging from 0 = "false" and 1 = "true".

Perceptions Scale: It includes seven items regarding expectations when requesting the termination of pregnancy and five response options ranging from 0 = "not at all likely" to 5 = "very likely".

Motive Scale: It includes seven questions about the reasons for requesting a termination of pregnancy and five response options ranging from 0 = "not at all like my situation" to 5 = "very similar to my situation".

Attitude Scale: It includes seven items regarding the provisions for requesting the termination of pregnancy and five response options ranging from 0 = "not at all in agreement" to 5 = "strongly in agreement".

Norms Scale: It includes seven reagents about uses and customs related to the interruption of pregnancy and five response options ranging from 0 = "nothing similar to my situation" to 5 = "very similar to my situation".

Intentions Scale: It includes seven items on decision-making related to pregnancy termination and five response options ranging from 0 = "not at all likely" to 5 = "very likely".

Scale of Experiences: It includes seven items around actions aimed at the termination of pregnancy and two response options ranging from 0 = "I have not had that experience" and 1 = "I have had that experience".

2.2.2 Analysis

Procedure: Preliminary interviews were conducted to explore norms, values, perceptions, beliefs, attitudes, motives, intentions, and actions around the request for induced abortion. Once the conceptual dimensions were established, the items were constructed. Subsequently, it was massively applied and the items were excluded. Once the scales were established, their final application was carried out. At the time of handing in the questionnaires, they were informed that their responses would not have an indirect or direct, negative or positive impact on their grades. Subsequently, the data was processed in the Statistical Package for Social Sciences (SPSS) and Analysis of Structural Moments (AMOS).

Analysis: Dependency relationships were established between each of the variables following the established hypotheses. Once a significant relationship between each of the variables was verified, the model and its adjustment with indices and residuals were estimated.

Normality: The normal distribution was estimated with the multivariable kurtosis parameter assuming that a value less than five is evidence of normality and the Bootstrap sampling and significance statistic with a value close to zero.

Reliability: Internal consistency was estimated with the subscale item correlation for which an α value greater than 0.60 and less than 0.90 was assumed as evidence of reliability. Items that lowered the required threshold were discarded.

Validity: The Kayser Meyer Olkin (KMO) parameters and the Bartlet test were weighted to establish adequacy and sphericity, while the factor-item correlation from an Exploratory Factor

Analysis of principal axes with promax rotation and obliquity criteria was considered as evidence of construct validity if the value is greater than 0.300

Structure: An exploratory factor analysis was carried out, considering values below 0.90 and above 0.40 as evidence of a dependent relationship, while values close to zero were assumed to be spurious relationships. In contrast, values greater than 0.90 were considered as evidence of collinearity and multicollinearity.

Adjust: The hypothesis contrast was performed with the chi square statistic whose value and level of significance close to zero were assumed as evidence of acceptance of the null hypothesis. On the contrary, values greater than 0.05 were considered as evidence of acceptance of the alternative hypothesis. However, since the sample consisted of 100 students, the chi-square parameter turned out to be sensitive to the size of the sample. This is how the Goodness of Fit Index (GFI) and the Mean Square Error of Approximation (RMSEA) were included.

3   Results

Table 1 shows the reliability ($\alpha = 0.746$) and the validity of the instrument that measured and established eight factors. The first included items V2, V3, V4 and V5 related to values which explained 41% of the variance ($\alpha = 0.732$). The second factor referred to beliefs included items C3, C4 and C7 explaining 33% of the variance ($\alpha = 0.705$). The third perceptual factor included symptoms P4 and P5, explaining 28% of the variance ($\alpha = 0.721$). The fourth factor related to motives included items M2, M3 and M5, explaining 23% of the variance ($\alpha = 0.742$). The fifth attitudinal factor included items A4 and A6, explaining 17% of the variance ($\alpha = 0.701$). The sixth normative factor included indicators N5 and N6 explaining 14% of the variance ($\alpha = 0.758$). The seventh factor included the items of intentions I2 and I4 explaining 9% of the variance (α 0.784) and the eighth experiential factor included items E2, E4, E5 and E6 explaining 7% of the variance $\alpha = 0.791$).

In this way, the eight factors obtained αs between 0.60 and 0.75, which were considered as sufficient evidence of internal consistency.

In summary, Table 1 shows the normal distribution, reliability and validity required for the contrast of the model of relationships specified in seven hypotheses. That is, the kurtosis values indicate the distribution of the responses of the respondents in such a way that it allows inferring the consistency of these same results in other samples or latitudes in which the eight factors will emerge forming a structure of dependency relationships. Precisely, the empirical test of these hypotheses is presented below.

The experiences related to the termination of pregnancy were determined by the expectations surrounding the request for assisted abortion ($\beta = 0.27$), although these perceptions were determined to a lesser extent by the values ($\beta = 0.12$). In other words, the values seem to reduce the influence of a psychological factor such as perception in relation to the experience of requesting an induced abortion (see Figure 1).
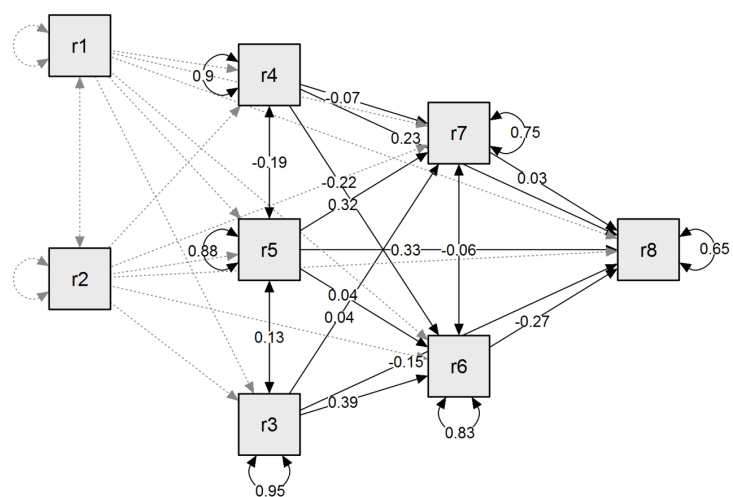

Figure 1   Path analysis

Values even reduce the effect of norms on experiences ($\beta = 0.26$), even though values determine norms ($\beta = 0.45$), these principles that guide women's behavior have less influence than perceptions and norms about pregnancy termination experiences ($\beta = 0.21$).

Table 1 Psychometric properties, descriptive, reliability and validity of the scales

Subscale	M	SD	C	F1	F2	F3	F4	F5	F6	F7	F8
Values (α = 0.68 and 41% of the explained variance)											
A woman who comes alone for a uterine curettage	3.01	0.82	2.14								
A man forcing a woman to request an abortion	2.93	0.73	2.83	0.712							
A family meddling in a curettage	2.81	0.71	2.84	0.415							
A couple supporting an induced abortion	2.71	0.82	2.94	0.832							
A woman directing a uterine curettage	3.71	0.39	2.73	0.713							
A child who gives his opinion about induced abortion	2.71	0.46	2.83								
A girl performing a curettage on her doll	2.81	0.31	2.84								
Beliefs (α = 0.71 and 33% of variance explained)											
Double condom use prevents pregnancy	1.71	0.37	2.75								
Sexual intercourse is decided by the woman	1.27	0.36	2.73								
Induced abortion is illegal in public hospitals	1.39	0.82	2.95		0.680						
Women have the right to choose about their own body	1.01	0.81	2.86		0.491						
Contraceptives make sexual intercourse uncomfortable	1.72	0.93	2.94								
Intercourse interruptus prevents pregnancy	1.42	0.49	2.03								
Abortion is justified if risks of death are expected in childbirth	1.57	0.57	2.01		0.824						
Perceptions (α = 0.69 and 28% of variance explained)											
Courtship will be unnecessary to have consensual sex	3.81	0.71	2.73								
I will request an interruption of pregnancy if it is consensual	2.31	0.29	2.01								
I will have sex only if the relationship with my partner is serious	1.82	0.49	2.05								
Uterine curettage is the most common risk of abortion	3.49	0.57	2.05			0.491					
Termination of pregnancy in utero is a cause of death	2.37	0.72	2.96			0.284					
I will request contraceptives if the health centers give them away	2.81	0.61	2.73								
Friendship will be unnecessary for the use of contraceptives	1.80	0.83	2.71								
Reasons (α = 0.72 and 23% of the explained variance)											
Abortion induced by lack of communication	1.92	0.71	2.95								
Request for abortion due to economic problems	3.14	0.87	2.05				0.491				
Assisted abortion for marital or partner infidelity	2.93	0.77	2.09				0.592				
Unemployment Abortion Request	1.64	0.73	2.03								
Study Abroad Induced Abortion	2.15	0.28	2.83				0.492				
Terminally ill abortion request	1.03	0.49	2.50								
Assisted abortion for insanity or insanity	1.46	0.75	2.63								
Attitudes (α = 0.63 and 17% of variance explained)											
Consensual dating sex involves a serious commitment	3.13	0.93	2.84								
Casual Relationships Complicate Abortion Decisions	3.54	0.72	2.57								
Contraceptives are used by unstable couples	2.57	0.49	2.01								
The legalization of abortion benefits promiscuous couples	3.59	0.39	2.63					0.491			
Condom use is a personal decision	3.81	0.61	2.73								
The request for induced abortion is a right of women	1.50	0.49	2.58					0.713			
Intercourse interruptus strengthens courtship	2.80	0.28	2.48								
Norms (α = 0.73 and 14% of the explained variance)											
My friends prevent pregnancy by using a condom	2.91	0.84	2.52								
My friends approve of the use of contraceptives	1.93	0.69	2.83								
My family is open to me having premarital sex	1.82	0.58	2.93								
My friends have casual relationships	2.67	0.64	2.30								
My family is in favor of life against abortion	3.81	0.55	2.49						0.629		
My family is open to me experimenting with our sexuality	2.94	0.38	2.73						-0.827		
My friends are against premarital sex	1.04	0.58	2.48								
Intentions (α = 0.76 and 9% of explained variance)											
I would use a condom if my partner was more committed to me	1.21	0.59	2.41								
I would have casual relationships if my partner allowed it	1.04	0.73	2.52							-0.412	
I would request a pregnancy termination if I had money	1.05	0.59	2.53								
I would interrupt my pregnancy if my partner betrayed me	1.04	0.49	2.40							0.719	
I would use contraceptives if my partner was open-minded	1.06	0.29	2.51								
I would meet several people for sexual pleasure	1.09	0.49	2.51								
I would look for sexual relations in unstable people	1.82	0.39	2.84								
Experiences (α = 0.60 and 7% of the explained variance)											
I supported the request for uterine curettage	1.04	0.42	2.04								
I requested information on induced abortion	1.05	0.84	2.83								0738
I got a religious talk about uterine curettage	1.16	0.34	2.04								
I attended the conference on induced abortion	1.52	0.49	2.94								0.826
I requested a consultation for uterine curettage	1.27	0.58	2.03								0.476
I processed the uterine curettage	1.26	0.28	2.57								0.604
I promoted uterine curettage among my acquaintances	1.03	0.48	2.51								

Extraction method: Main axes with promax rotation and obliquity criterion. Multivariate Kurtosis = 2.394; KMO = 0.719; X^2 = 3.719, 15df, p = 0.000, F1 = Values (41% of the total variance explained), F2 = Beliefs (33% of the total variance explained), F3 = Perceptions (28% of the total variance explained), F4 = Motives (23% of the total variance explained), F5 = Attitudes (17% of the total variance explained), F6 = Norms (14% of the total variance explained), F7 = Intentions (9% of the total variance explained); F8 = Experiences (7% of the total variance explained). M = Mean, SD = Standard deviation, C = Kurtosis

The fit and residual parameters [$\chi 2$ = 356.46 (67df) p = 0.067; GFI = 0.990; CFI = 0.975; RMSEA = 0.000] show the acceptance of the null hypothesis regarding the adjustment of the theoretical psychological-cultural relationships with respect to the estimated relationships.

If perceptions were determinant of pregnancy termination experiences, then it seems clear that those who intend to abort are making decisions in a deliberate, planned and systematic way.

In this sense, the attitudes towards the interruption of the pregnancy are the predominant

determinants of the intentions to carry out the request for induced abortion (β = 0.68). This is that attitudes transfer the effect of beliefs –processing surrounding information regarding the consequences of abortion on personal health–, since dispositions are affected by beliefs (β = 0.59).

However, the motives or reasons for abortion, despite the fact that the decision to terminate the pregnancy involves deliberation and planning, have a lesser impact than attitudes, since their relationship with intentions and beliefs is spurious (β = 0 .20 and β = 0.17 respectively).

The fit and residual parameters [$\chi 2$ = 145.25 (46df) p = 0.035; GFI = 0.970; CFI = 0.985; RMSEA = 0.003] show that the dependency relationships between indicators and cognitive factors established by the theory adjust to the dependency relationships established in the weighting.

4   Discussion and conclusion

The contribution of this study to the state of knowledge and the literature consulted lies in the establishment of an exploratory factorial structure of dependency relationships between indicators and psychological-cultural factors as determinants of intentions and experiences related to the interruption of pregnancy.

However, the findings of this research: 1) were carried out in a context of high youth population density and high birth rate, as is the case of Huehuetoca, State of Mexico; 2) it was carried out under a non-experimental design and with a non-probabilistic selection of students from a public university; 3) was weighted under the criteria of obliquity, main axes and promax rotation of an exploratory factorial analysis without considering the measurement errors inherent to the context, the sampling and the conceptualization-operationalization of the variables.

Therefore, it is necessary to empirically test the specified and weighted models with a confirmatory factor analysis of principal components, variable rotation and least squares technique to establish the dependency relationships between indicators and factors considering 1) the size of the sample and 2) the specification of relationships between cognitive variables without considering cultural variables such as values and norms; 3) the incidence of measurement errors.

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