

# Modelling Adherence to the Treatment of Cervical Cancer

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**Abstract:** Background. Cancer Cervical Uterine is a disease That Explains the vulnerability in Which women are in reproductive health With an impact on occupational health and public health, even When In Mexico the prevalence rate is lower than the other Member Countries OECD, ITS impact on Human Development and Local Development shows the Importance That the disease has on Communities rather than in cities Where policies of prevention through screening and medical examination seemed to slow the trend but show a lack Opportunities and capabilities of health centers in rural areas. Objective. Establish the reliability, validity and correlations Between variables Reported in the literature Regarding ITS weighting in a public hospital. Method. A non-experimental, cross-sectional and exploratory study with a nonrandom selection of 104 Patients from a public hospital in the State of Mexico was held. Scale Variables psychosocial determinants of treatment adherence Uterine Cervical Cancer built. Results. From a structural model [ $\chi^2 = 490.330$  (28 gl)  $p = 0.000$ ; GFI = 0.927; CFI = 0.970; RMSEA = 0,003]se Showed relationships in adjustment paths Determining Which Had an impact on knowledge treatment adherence behavior ( $\beta = 0.50$ ). Conclusion. the boundaries of design, sampling and analysis of the study are noted and recommended to include organizational and psychological variables supported in theories of Organizations and theories of personality.

**Keywords:** Public Health, Deliberation, Beliefs, Knowledge, Treatment Adherence

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## 1. Introduction

Cervical cancer is a disease with a high prevalence between the member countries of the Organization for Economic Co-operation and Development (OECD). During the period from 2019 to 2021, Mexico occupied the penultimate (20 out of 100 requests for diagnosis) site linked to cervical cancer diseases in one led by the United States of America (85 out of 100 requests) list [1]. The prevalence of cervical cancer in the OECD is a public health problem, with emphasis on the female sector of the population and its impact on occupational and reproductive health and emerging issues among member countries [2].

Psychological and social studies on public health have established three phases on a) prevention or primary stage

in which the system to reduce risk by promoting styles of life free of violence; b) secondary prevention consists of immediate attention from an early warning; c) tertiary prevention or response indicated by long - term treatment and rehabilitation, conflict transformation and reconciliation [3].

Thus, the theory of reasoned action, theory of planned behavior and theory of adherence explain the dependency relationships between psychosocial determinants involved in each of the stages of primary, secondary and tertiary care [4].

The theory of reasoned action, *grosso modo*, argues that the behavior expected in each of the phases of care is determined by perceptions of control, beliefs, norms,

attitudes and intentions [5]. It is a predictive model of behaviors that reduce risks around a public health problem from increased preventive skills such as searching for information and requests for medical tests [6]. Such skills are mediated by provisions for personal health and rational decision making [7].

However, the generality of information concerning a disease is not always linked to specific decisions and specific behaviors [8]. Therefore, psychosocial studies delineated reasoned action model in a planned behavior [9].

The theory of planned behavior assumes that individuals process information surrounding a disease in a way that increases their perceptions of control of the situation. In this sense, people categorize information and link planned strategies to reduce risks of a diagnosed disease and if adherence to a biomedical treatment [10].

Unlike the model of reasoned action, planned behavior model includes a close link between perceptions of control regarding real control of their situation as in the case of treatment adherence [11].

Even the planned behavior is the result of a specific control under that is not enough to assume an ability to carry out rehabilitation, it is essential to locate this ability in the same period of disease and not just as an experience years ago [12].

Although the theory of planned behavior explains in more detail the relationship between psychosocial variables that affect treatment adherence, some reported in the state-of-the-art findings show that there is an interrelationship between psychosocial factors regarding biomedical, institutional variables and cultural [13].

Thus, the theory of treatment adherence warns the importance of organizational culture on perceptions of control theory of planned behavior identified as major factors in adherence to treatment [14].

This is because the model of adherence to treatment of the assumption that intercultural values facilitate treatment adherence in settings and institutions where they work people of different nationalities and different [15].

That is, to the extent that a culture potentiates rights to reproductive and occupational health, increases self-care values and the perception of control over personal situation [16].

The aim of this study is i) to establish the reliability and validity of scales measuring perceptions, beliefs, values, motives, knowledge, attitudes, intentions and behaviors related to adherence to treatment of cervical cancer and ii) establish dependency relationships between the variables determining adherence to treatment of cervical cancer.

The research question that the study seeks to answer is: What are the differences and similarities between the relations of theoretical dependence of variables determining treatment adherence regarding correlations weighted?

Therefore, the null hypothesis concerns the adjustment of relations of theoretical dependence on the estimated and the alternative hypothesis is that the theoretical structure is different than the weighted structure correlations [17].

## 2. Method

A non - experimental, cross - sectional and exploratory study with a nonrandom selection of 104 patients from a public hospital in the State of Mexico was made. 60% finished primary school, 21% high, 12% high school and 7% entered a form of higher education. 64% have lower monthly income to 3,500 pesos (average = 3300 and Standard Deviation = 124.34), 22% entered between 3500 and 7000 pesos (average = 5612 and Standard Deviation = 234.23) and 14% enter more 7000 pesos (average = 7541 and Standard deviation = 245.35) per month. 35% are single, 40% are married and 25% are separated or divorced.

It was used constructed Scale Psychosocial Determinants of adherence to treatment from the definitions reported in the literature [18]. It includes 32 items that measure eight dimensions related perceptions, beliefs, values, motives, knowledge, attitudes, intentions and behaviors regarding adherence to treatment of cervical cancer [19].

Operational definitions were established from the allusive psychosocial characteristics a) searching and management of information related to cervical cancer; b) check the application and / or medical examination; c) confirmation of the initial diagnosis; d) drug intake; e) assisting rehabilitation or therapy sessions [20].

The Delphi technique for homogenisation of the meanings of words included in the items of the scale was used [21]. The surveys were conducted in the office of general hospital social work [22]. It was guaranteed in writing the confidentiality of the results and reported that they do not affect the quality of care or payment of medical services [23]. The information was processed in the Statistical Package for Social Sciences (SPSS for its acronym in English) and Structural Analysis of Moments (AMOS by its acronym in English).

An analysis of internal consistency with Cronbach 's alpha parameter was performed [24]. Adequacy parameters and sphericity (Bartlett test and Kayser Meyer Olkin) were estimated to carry out the estimation of validity [25]. Factor analysis was carried out considering the number of items and sample size [26]. In this regard, an exploratory analysis with promax rotation and obliquity criterion was performed. subsequently conducted a confirmatory analysis least squares [27]. Setting parameters and residual for the null hypothesis were calculated [28].

## 3. Results

The internal consistency of the overall scale (alpha = 0.882) and the subscales of perceptions (alpha = 0.892), values (alpha = 0.881), motives (0.856), attitudes (alpha = 0.801) and intentions (alpha = 0.841) reached values optimal, but in the case of belief subscales (alpha = 0.643), knowledge (alpha = 0.656) and behavior (alpha = 0.612) had sufficient values (see Table 1).

**Table 1.** Reliability.

Subscale	M	SD	Alpha
Perception	24.38	12.14	.892
Values	21.32	10.31	.881
Motives	20.43	18.43	.856
Attitudes	24.31	17.42	.801
Intentions	27.41	11.23	.841
Beliefs	29.30	19.43	.643
Knowledge	27.41	16.41	.656
Behavior	22.47	18.67	.612

Note: Elaborated with data study. N = 100 Patients, M = Mean, SD = Standard Deviations.

Extraction method: principal axes with promax rotation and obliquity criterion. sphericity and adequacy [ $\chi^2 = 247.23$  (56gl)  $p = 0.000$ ; KMO = 0,702]. M = Mean, SD = Standard Deviation; F1 = Perceptions (21% of the total variance explained), F2 = Beliefs (19% of the total variance explained), F3 = Values (17% of the total variance explained), F4 = Reasons (14% of the total variance explained), F5 = Knowledge (11% of the total variance explained), F6 = Attitudes (7% of the total variance explained), F7 = Intentions (5% of the total variance explained), F8 = Conduct (3% of the variance Total explained). Alpha values correspond to the consistency of the subscale removing the reagent (see Table 2).

**Table 2.** Validity.

Factor	A (KMO)	S (Bartlett's test)	TVE
Perceptions	.762	[ $\chi^2 = 12.13$ (13 df) $p < .05$ ]	21%
Beliefs	.659	[ $\chi^2 = 16.21$ (16 df) $p < .05$ ]	19%
Values	.702	[ $\chi^2 = 15.21$ (12 df) $p < .05$ ]	17%
Reasons	.698	[ $\chi^2 = 16.21$ (13 df) $p < .05$ ]	14%
Knowledge	.643	[ $\chi^2 = 16.21$ (13 df) $p < .05$ ]	11%
Attitudes	.704	[ $\chi^2 = 11.21$ (13 df) $p < .05$ ]	7%
Intentions	.782	[ $\chi^2 = 10.21$ (16 df) $p < .05$ ]	5%
Behavior	.698	[ $\chi^2 = 14.32$ (15 df) $p < .05$ ]	3%

Note: Elaborated with data study, N = 100 patients, A = Adequation, S = Sphericity, TVE = Total Variance Explained.

The parameters of adequacy and sphericity [ $\chi^2 = 247.23$  (56gl)  $p = 0.000$ ; KMO = 0,702] carry out the assessment of the validity of constructs.

Thus, eight factors related to perceptions (21% of the total variance explained), beliefs (19% of the total variance explained), values (17% of total variance explained) reasons (14% of the variance extracted Total explained), knowledge (11% of the total variance explained), attitudes (7% of the total variance explained) intentions (5% of the total variance explained) and behavior (3% of the total variance explained).

The values were associated positively and significantly with perceptions (cov = 0.603) and these with the beliefs (cov = 0.409). In contrast the values and beliefs had a near zero (cov = 0.124) spurious relationship (see Table 3).

**Table 3.** Covariances.

	F1	F2	F3	F4	F5	F6	F7	F8
F1	1.876							
F2	.329	1.879						
F3	.409	.124	1.760					
F4	.603	.312	.246	1.765				
F5	.302	.267	.218	.204	1.954			
F6	.318	.205	.189	.234	.154	1.864		
F7	.362	.215	.145	.312	.203	.244	1.805	
F8	.278	.328	.248	.275	.114	.217	.204	1.768

Note: Elaborated with data study; F1 = Perceptions, F2 = Beliefs, F3 = Values, F4 = Reasons, F5 = Knowledge, F6 = Attitudes, F7 = Intentions, F8 = Behaviors

In the establishment of model trajectories of determining relations of behavior adherence to treatment, knowledge determined the conduct of adherence to treatment ( $\beta = 0.498$ ), followed by intentions ( $\beta = 0.417$ ) and the reasons ( $\beta = 0.215$ ). As for determining relations paths of behavior adherence to treatment, the route from belief to knowledge ( $\beta = 0.480$ ) and from these to the behavior ( $\beta = 0.500$ ) explains the deliberate process adherence to treatment (see Table 4).

**Table 4.** Regression.

Relations	$\beta$	R	R <sup>2</sup>	R <sup>2</sup> <sub>adj</sub>
F8 $\leftarrow$ F1	.214	.197	.038	.035
F8 $\leftarrow$ F2	.320	.231	.053	.050
F8 $\leftarrow$ F3	.213	.175	.030	.025
F8 $\leftarrow$ F4	.215	.195	.038	.035
F8 $\leftarrow$ F5	.498	.342	.116	.110
F8 $\leftarrow$ F6	.178	.143	.020	.015
F8 $\leftarrow$ F7	.417	.320	.102	.100
F7 $\leftarrow$ F1	.238	.214	.045	.040
F7 $\leftarrow$ F2	.109	.102	.010	.005
F7 $\leftarrow$ F3	.135	.124	.015	.010
F7 $\leftarrow$ F4	.176	.156	.024	.020
F7 $\leftarrow$ F5	.170	.162	.026	.020
F7 $\leftarrow$ F6	.136	.120	.014	.010
F6 $\leftarrow$ F1	.218	.210	.044	.040
F6 $\leftarrow$ F2	.324	.321	.103	.100
F6 $\leftarrow$ F3	.306	.302	.091	.090
F6 $\leftarrow$ F4	.321	.317	.100	.090
F6 $\leftarrow$ F5	.256	.253	.064	.060
F5 $\leftarrow$ F1	.326	.297	.088	.080
F5 $\leftarrow$ F2	.480	.365	.133	.130
F5 $\leftarrow$ F3	.376	.325	.105	.100
F5 $\leftarrow$ F4	.325	.328	.107	.100
F4 $\leftarrow$ F1	.275	.273	.074	.070
F4 $\leftarrow$ F2	.295	.260	.067	.060
F4 $\leftarrow$ F3	.204	.203	.041	.040
F3 $\leftarrow$ F1	.231	.234	.054	.050
F3 $\leftarrow$ F2	.321	.312	.097	.090
F2 $\leftarrow$ F1	.326	.325	.105	.100

Note: Elaborated with data study; F1 = Perceptions, F2 = Beliefs, F3 = Values, F4 = Reasons, F5 = Knowledge, F6 = Attitudes, F7 = Intentions, F8 = Behaviors.

This means that the processing of information concerning the Uterine Cervical Cancer to be reduced to belief and then be assimilated as knowledge on the behavior preponderantly affects adherence to treatment of the disease in the study sample.

Finally, the adjustment parameters and residual [ $\chi^2 =$

490,330 (28 gl)  $p = 0.000$ ; GFI = 0.927; CFI = 0.970; RMSEA = 0,003] allowed to set the contrast of the null hypothesis was accepted (see Figure 1). This means that the dependency relationships between eight variables reported in the prior art correspond to estimates in determining relations model.

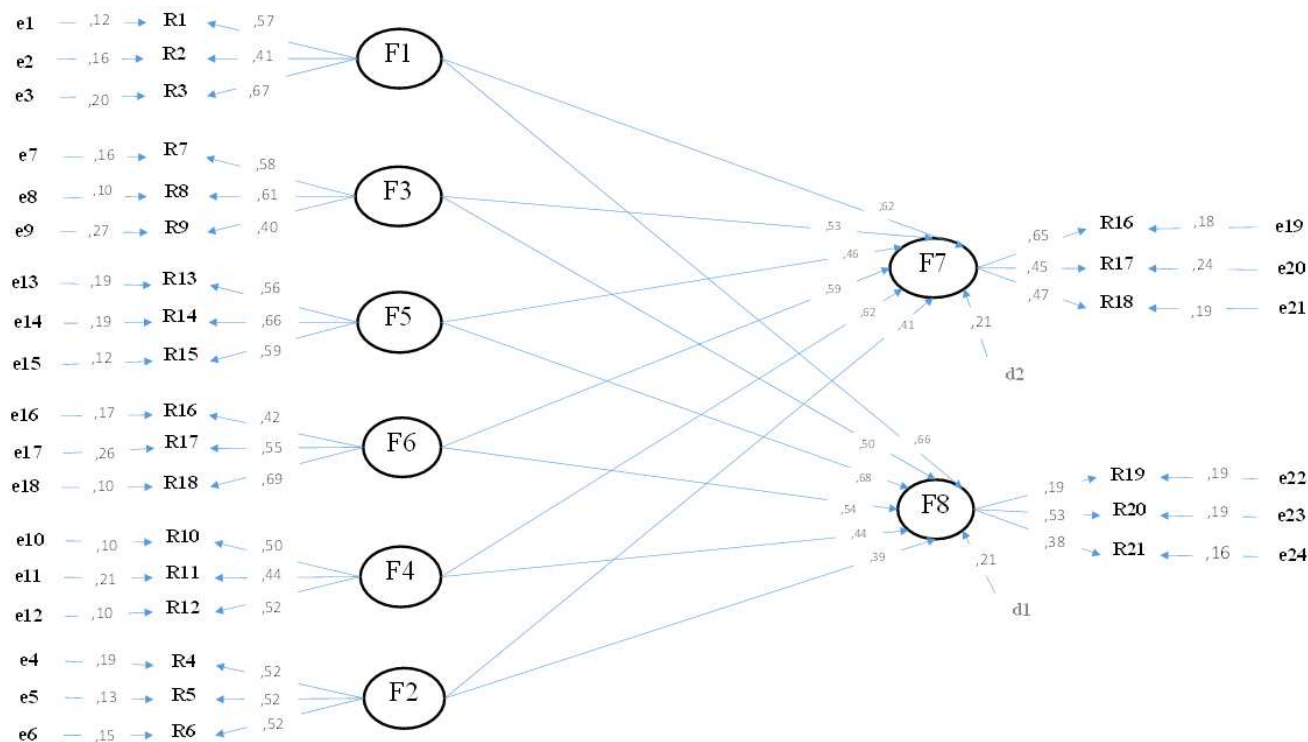


Figure 1. Structural equation modelling.

Note: Elaborated with data study; F1 = Perceptions, F2 = Beliefs, F3 = Values, F4 = Reasons, F5 = Knowledge, F6 = Attitudes, F7 = Intentions, F8 = Behaviors, e = Error measurement indicator, d = Disturbance measurement factor.

## 4. Discussion

The contribution of this study is to have established reliability and validity of an instrument that measures determinants of treatment adherence behavior psychosocial variables.

However, no experimental design, selection probabilistic and exploratory factor analysis represent limits that affect the findings of this study [29]. It is therefore necessary to carry out an experimental study with a probabilistic sample and confirmatory factor analysis to demonstrate the direct effect of beliefs on behavior and determining indirect relationship through knowledge.

Under that model determining relations can be included other organizational and psychological variables such as work environment, commitment, innovation, self - concept, self - efficacy, locus of control, assertiveness or anxiety a new specification supported by organizational theories and necessary theories of personality.

## 5. Conclusion

Adherence to treatment is an emerging strategy after the

confirmation of a diagnosis or the first symptom identifiable as a significant problem by the patient. The modeling of its determinants anticipates risk scenarios that inhibit or promote that underlying disposition. The application of this finding to public policy suggests an agenda focused on the determinants that will promote self-care even before the symptoms of a disease.

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