Adherence model to cervical cancer treatment in the Covid-19 era

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Abstract

Cervical Uterine Cancer is a disease that explains the vulnerability in which women are in terms of 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 of the OECD, its impact on Human Development and Local Development shows the importance that the disease have in communities more than in cities where prevention policies through check-ups and medical examinations seem to curb the trend, but show the lack of opportunities and capacities of health centers in rural areas. To establish the reliability, validity, and correlations between the variables reported in the literature with respect to their weighting in a public hospital. A non-experimental, cross-sectional and exploratory study was carried out with a non-probabilistic selection of 104 patients from a public hospital in the State of Mexico. The Scale of Psychosocial Variables Determinants of Adherence to Treatment of Cervical Uterine Cancer was constructed. From a structural model, it was demonstrated the adjustment of the trajectories of determining relationships in which knowledge influenced the behavior of adherence to treatment. The limits of the design, sampling and analysis of the study are noted and it is recommended to include organizational and psychological variables supported by theories of organizations and theories of personality.

Keywords: Belief, COVID-19, Deliberation, Knowledge, Public health, Treatment Adherence

Introduction

As of March 2021, three million have died in the world and 500 in Mexico due to the SARS CoV-2 pandemic and the Covid-19 disease[1]. The impact of the health crisis on the treatment of cancer patients is estimated at 30 million deaths globally and 1.5 million locally for this year. In this scenario, the policies of confinement and social distancing have influenced mistrust towards health professionals and have inhibited adherence to cancer treatment[2].

Cervical cancer is a disease with a high prevalence among the member countries of the Organization for Economic Cooperation and Development (OECD)[3]. During the period from 2001 to 2011, Mexico ranked second to last (20 out of 100 requests for diagnosis) for diseases linked to

cervical cancer in a list led by the United States of America (85 out of 100 requests)[4]. 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 as emerging problems among the member countries[5].

The objective of this study is 1) to establish the reliability and validity of scales that measure perceptions, beliefs, values, motives, knowledge, attitudes, intentions and behaviors related to adherence to cervical cancer treatment and 2) to establish dependency relationships among the determining variables of adherence to cervical cancer treatment.

The research question that the study aims to answer is: What are the differences and similarities between the theoretical dependency relationships of the variables determining adherence to treatment with respect to the weighted correlations?

The premise that supports this research suggests that the confinement and social distancing strategies emanating from the Mexican government's risk communication has inhibited the trust of the governed towards their authorities, as well as towards health professionals[6]. It is estimated that in Mexico, an under-registration of cases due to deaths from atypical pneumonia prevails of up to 500 thousand by 2020, with resistance to going to hospitals being the main barrier[7]. In this scenario, adherence to treatment has been fully reduced to a minimum[8]. The social support that bases adherence to the treatment has been reduced by the distancing and confinement of people, as well as by the stigma and prejudice towards health professionals who have been perceived as carriers of the SARS CoV-2 coronavirus and sources of contagion of Covid-19 disease[9]. In this way, Information and Communication Technologies have been insufficient to replace the support and social support that distinguishes the Mexican health system[10]. Consequently, innovation in the public health system has emerged as a hallmark of professionals and families of cancer patients against the effects of the pandemic[11]. This process lies in the use of ICTs, as well as in the motivation of life by health personnel[12].

Theory of adherence to treatment

Psychological and social studies on public health have established three phases related to 1) primary prevention or the stage in which the system aims to reduce risks by promoting violence-free lifestyles; 2) secondary prevention consists of immediate attention based on an early warning; 3) tertiary prevention or long-term response indicated by treatment and rehabilitation, conflict transformation and reconciliation[13].

In this way, the theory of reasoned action, the theory of planned behavior and the theory of adherence to treatment explain the dependency relationships between the psychosocial determinants involved in each of the phases of primary, secondary and tertiary care[14].

The theory of reasoned action, *roughly,* maintains that the expected behavior in each of the phases of attention is determined by perceptions of control, beliefs, norms, attitudes and intentions[15]. It is a predictive model of behaviors that reduce the risks around a public health problem based on the increase in preventive skills such as searching for information and requests for medical examinations. Such abilities are mediated by dispositions in favor of personal health and rational decision making[16].

However, the generality of the information concerning a disease is not always linked to specific decisions and specific behaviors. Consequently, psychosocial studies delineated the reasoned action model into planned behavior[17]. The theory of planned behavior assumes that individuals process the information surrounding a disease in a way that increases their perceptions of control of the situation. In this sense, people categorize the information and link it with planned strategies to reduce the risks of a diagnosed disease and, where appropriate, adherence to biomedical treatment[18].

Unlike the reasoned action model, the planned behavior model includes a close link between perceptions of control with respect to a real control of their situation, such as adherence to treatment[19]. Even the planned behavior is the result of a specific control by it is not enough to assume an ability to carry out rehabilitation, but it is essential to locate this ability in the same period of time of illness and not only as an experience years ago[20]. Although the theory of planned behavior explains in more detail the relationships between psychosocial variables that affect adherence to treatment, some findings reported in the state-of-the-art show that there is an interrelation between psychosocial factors with respect to biomedical, institutional and biomedical variables. cultural[21].

In this way, the theory of adherence to treatment notices the importance of organizational culture over the perceptions of control that the theory of planned

behavior identifies as preponderant factors in adherence to treatment[22]. This is so because the model of adherence to treatment assumes that intercultural values facilitate adherence to treatment in contexts and institutions where people of different and diverse nationalities work[23]. That is, to the extent that a culture enhances the rights to reproductive and occupational health, it increases the values of self-care and the perception of control of the personal situation[24].

Studies of adherence of treatment

Studies of adherence to treatment have shown that family, work, professional and hospital social support contribute significantly to the rehabilitation of the patient[25]. In the case of family support, the main predictor of the self-care decision, it is known that when the patient perceives a stable relationship with her partner and verifies her support through the supply of medications, as well as monitoring the intake[26]. In contrast, when the patient perceives that their relationship is not stable or serious, it will be her closest family members who will influence the monitoring and follow-up of her case[27].

Unlike family support that is based on trust and fraternity, job support suggests functional support in the face of quarantine or convalescence[28]. If the work climate is predominantly supportive, then adherence to treatment will be prolonged due to the accumulation of emotional motivation that coworkers impart to the patient and her self-care[29]. If the work environment is focused on the task and the achievement of objectives, then adherence to treatment will be conditioned by the patient's self-efficacy[30]. That is, a complex role will lead to long-term adherence.

Although family and work support lie in monitoring and follow-up, professional support is more focused on the transfer of knowledge when the patient perceives that his illness will be prolonged or terminal[31]. Consequently, the formation of intellectual capital is generated before a risk event and intensifies during an illness or work accident[32]. This discharge of the specialized professional function activates the patient's self-care by focusing it on his illness, but if his relationship is null or unstable, then his confinement at work will be affected and with it her adherence[33]. An acceleration of self-care may occur, although if the disease is terminal. it will lead to an ambivalent adherence[34].

Hospital support interacts to a lesser extent with family, work and professional support, although it is a determining factor in adherence to treatment[35]. If self-care is the result of close, formative and systematic support, then Hispanic nursing and psychology care may activate protocols that free the patient from shared activities[36]. In this scenario of minimal risk, adherence is a means to a hospital end, such as reducing the percentage of beds occupied in intensive care[37].

Modelling of variables of adherence treatment

The theoretical, conceptual and empirical frameworks related to adherence to treatment suggest axes, trajectories and relationships between the variables that configure the deliberation, planning and systematization of self-care, as well as the family, work, professional and hospital supports that mediate the impact of the environmental demands on self-care[38].

The axis that goes from the saturation of hospitals to self-care suggests that adherence is determined by the social support of health professionals[39]. That is, if they work properly immunized, then confidence in their role will intensify until they achieve self-care as a complement to the virtuous circle of assertiveness between the parties involved.

However, another axis emerges as a determinant of adherence and self-care[40]. It is about social entrepreneurship that consists of a solidarity response between health professionals and civil society organized around human rights and guarantees of access to tests, treatments and vaccines against Covid-19[41]. It is a scenario where social support is inherent to the knowledge management and transfer skills of students and health professionals who organize to encourage family, work, professional and hospital support in favor of adherence to treatment and self-care[42].

Both axes are structured in social variables such as beliefs and values; cognitive variables such as attitudes, knowledge, perceptions and intentions; as well as behavioral variables such as skills and self-care[43]. It is a composition of observable, comparable and predictable factors of both axes: that of the effects of confinement and social distancing policies versus the axis of solidarity entrepreneurship between health sectors and civil society[44].

Materials and Methods

Therefore, the null hypothesis deals with the adjustment of the theoretical dependencies with respect to the estimated correlations and the alternative hypothesis states that the theoretical structure is different from the weighted structure.

A non-experimental, cross-sectional and exploratory study was carried out with a non-probabilistic selection of 104 patients from a public hospital in the State of Mexico. 60% finished primary school, 21% secondary school, 12% high school and 7% entered a higher education modality. 64% have lower incomes 3500 weights (M = 3300 and SD = 124.34) monthly, 22% enters between 350 0 and 7000 weights (M = 5612 and SD = 234.23) and 14% over 7000 enters weights (M = 7541 and SD = 245.35) to the month. 35% are single, 40% are married and 25% are separated or divorced.

The Psychosocial Determinants of Treatment Adherence Scale was constructed from the definitions reported in the literature[45]. It includes 32 items that measure eight dimensions related to perceptions, beliefs, values, motives, knowledge, attitudes, intentions and behaviors related to adherence to cervical cancer treatment.

The operational definitions were established from the psychosocial features allusive to 1) the search and management of information related to cervical cancer; 2) the request for a check-up and / or medical examination; 3) confirmation of the initial diagnosis; 4) the intake of medications; 4) attending rehabilitation or therapy sessions.

The Delphi technique was used to homogenize the meanings of words included in the scale items[46]. The surveys were administered in the social work office of the general hospital[47]. The confidentiality of the results was guaranteed in writing, and it was reported that they would not affect the quality of care or payment for medical services[48]. The information was processed in the Statistical Package for Social Sciences (SPSS) and Analysis of Structural Moments (AMOS).

The parameters were estimated following the recommended equations for their estimation (see Table 1)

Table 1. Parameter estimation

Parameter	Definition	Equation
M	Mean	$M = \dfrac{\sum fx}{\sum f}$
SD	Standard Deviation	$SD = \sqrt{\dfrac{\Sigma\lvert\mu - \mu\rvert}{n}}$
KMO	Kayser Meyer Olkin	$KMO = \Sigma j \neq k \Sigma_{jk}^{r2} / \Sigma j \neq k \Sigma \dfrac{r2}{jk} + \Sigma j \neq k \Sigma \dfrac{p2}{jk}$
Crombach's Alpha	Instrument consistency	$\alpha = \dfrac{k}{k-1}\left(1 - \dfrac{\Sigma Vi}{Vt}\right)$
Sphericity	Barttlet's Sphericity Test	$\chi^2 = \dfrac{(N-k)In(S_p^2) - \Sigma_{i=1}^{k}(n_i-1)In\left(S\frac{2}{t}\right)}{1 + \frac{1}{3(k-1)}\left(\Sigma \frac{k}{i=1}\left(\frac{1}{ni-1}\right) - \frac{1}{N-k}\right)}$
SEM	Structural Equation Modeling	$y_1 = y_{11}\chi_1 + \zeta_1$
X^2	Chi Squared	$\chi_c^2 = \Sigma\dfrac{(Oi - Ei)}{Ei}$
GFI	Goodness of Fit Index	$1 = \dfrac{\upsilon(\Sigma^{-1}S - 1)^2}{\upsilon(\Sigma^{-1}S)^2}$
CFI	Comparative Fit Index	$CFI = 1 - \dfrac{\chi_M^2 - df_M}{\chi_B^2 - df_B}$
RMSEA	Root Mean Squared Error of Approximation	$RMSEA = \dfrac{\frac{\chi^2}{df}}{N-1} - 1$

Source: Prepared from the literature review

An internal consistency analysis was performed with Cronbach's alpha parameter[49]. The parameters of adequacy and sphericity (Barttlet and Kayser Meyer Olkin test) were estimated to be able to carry out the

estimation of validity[50]. The factor analysis was carried out considering the number of items and the sample size. In this sense, an exploratory analysis was performed with a promax rotation and obliquity

criterion. subsequently, a confirmatory analysis with least squares was carried out[51]. The adjustment and residual parameters were calculated for the null hypothesis test.[52, 53]

Results and Discussion

The internal consistency of the general 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 the subscales of beliefs (alpha = 0.643), knowledge (alpha = 0.656) and behaviors (alpha = 0.612) had sufficient values (see Table 1).

Table 1. Description, reliability and validity of the instrument

R	Items	M	SD	A	F1	F2	F3	F4	F5	F6	F7	F8
	Perceptions subscale			0.892								
r1	When looking for information from the CACU I will have more options	3.24	1.04	0.843	0.521							
r2	When requesting a CACU exam I will be more uneasy	3.57	1.05	0.891	0.532							
r3	When taking the medicines, I will have more anxiety	3.12	1.06	0.835	0.591							
r4	By going to therapy I will reduce my depression	3.05	1.15	0.821	0.562							
	Belief subscale			0.643								
r5	Finding information about CACU increases anxiety	1.23	0.16	0.654		0.481						
r6	Requesting a CACU Diagnosis Reduces Depression	1.35	0.18	0.615		0.492						
r7	Taking medicine increases hope	1.26	0.31	0.632		0.472						
r8	Attending rehab exhausts the person	1.28	0.01	0.647		0.453						
	Subscale of values			0.881								
r9	A person seeking information about CACU	1.92	1.95	0.861			0.403					
r10	A person requesting a CACU study	1.23	1.46	0.805			0.491					
r11	A person attending rehab	1.84	1.36	0.832			0.467					
r12	A person taking anti-CACU medications	1.36	1.38	0.843			0.478					
	Motives subscale			0.856								
r13	He sought information from CACU to avoid concerns	3.24	1.43	0.814				0.592				
r14	I request a CACU study to reduce my anxiety	3.57	1.59	0.836				0.546				
r15	I go to rehab sessions to increase my hope	3.41	1.37	0.892				0.587				
r16	I take anti-CACU medications to live longer	3.92	1.31	0.841				0.526				
	Knowledge subscale			0.656								
r17	Seeking CACU Information Raises Hope	1.01	0.32	0.632					0.481			
r18	Request a CACU study reduces depression	1.04	0.46	0.651					0.456			
r19	Going to rehab reduces worry	1.05	0.58	0.694					0.436			
r20	Taking CACU Medications Increases Fear	1.02	0.68	0.605					0.382			
	Attitudes subscale			0.801								
r21	The information about the CACU is understandable	3.05	1.01	0.843						0.301		

		M	SD	α							
r22	The CACU study application is economical	3.46	1.23	0.856						0.465	
r23	Rehabilitation assistance is exhausting	3.68	1.25	0.867						0.572	
r24	Taking anti-UAC drugs is frustrating	3.32	1.46	0.832						0.396	
	Intentions subscale			*0.841*							
r25	I would seek information to prevent CACU	3.82	1.32	0.8432							0.302
r26	I would request studies to cure myself of CACU	3.46	1.47	0.842							0.546
r27	I would go to rehab to live longer	3.58	1.36	0.894							0.568
r28	I would take anti-CACU medications to avoid surgeries	3.15	1.31	0.856							0.476
	Behavior subscale			*0.612*							
r29	Minutes of reading information about the CACU	9.24	1.13	0.601							
r30	reqest of study CACU	1.32	1.15	0.631							
r31	So stents to rehabilitation sessions	5.47	1.58	0.673							
r32	Number of daily medications against CACU	1.02	1.30	0.621							

(Behavior subscale values: r29 = 0.382, r30 = 0.346, r31 = 0.594, r32 = 0.321)

Source: Elaborated with data study; Extraction method: main axes with promax rotation and obliquity criterion. sphericity and adequacy $\lceil \chi2 = 247.23$ (56gl) $p = 0.000$; KMO $= 0.702 \rfloor$. M = Mean, SD = Standard deviation; F1 = Perceptions (31% of the total variance explained), F2 = Beliefs (24% of the total variance explained), F3 = Values (17% of the total variance explained), F4 = Motives (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 = Behaviors (3% of the variance total explained). The alpha values correspond to the consistency of the subscale removing the reagent. CACU = Cervical Uterine Cancer

The suitability and sphericity parameters $\lceil \chi2 = 247.23$ (56gl) $p = 0.000$; KMO $= 0.702 \rfloor$ allowed to carry out the estimation of the validity of constructs. In this way, eight factors related to perceptions (31% of the total variance explained), beliefs (24% of the total variance explained), values (17% of the total variance explained), reasons (14% of the variance explained total explained), knowledge (11% of the total explained variance), attitudes (7% of the total explained variance), intentions (5% of the total explained variance) and behavior (3% of the total explained variance).

Table 2. Covariances between exogenous variables

	F1	F2	F3	F4	F5	F6	F7	F8
F1	1,750							
F2	,357	1,875						
F3	,421	,564	1,923					
F4	,564	,346	,437	1,746				
F5	,643	,421	,589	,679	1,906			
F6	,431	,567	,432	,603	,378	1,863		
F7	,536	,432	,376	,572	,570	,512	1,723	
F8	,347	,431	,579	,458	,432	,657	,483	1,932

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

Values associated positively and significantly with perceptions (cov = 0.603) and these with beliefs (cov = 0.409) (see Table 2). In contrast, values and beliefs had a spurious relationship close to zero (cov = 0.124). In the establishment of the model of trajectories of determinants of the behavior of adherence to treatment, knowledge determined the behavior of adherence to treatment (β = 0.498),

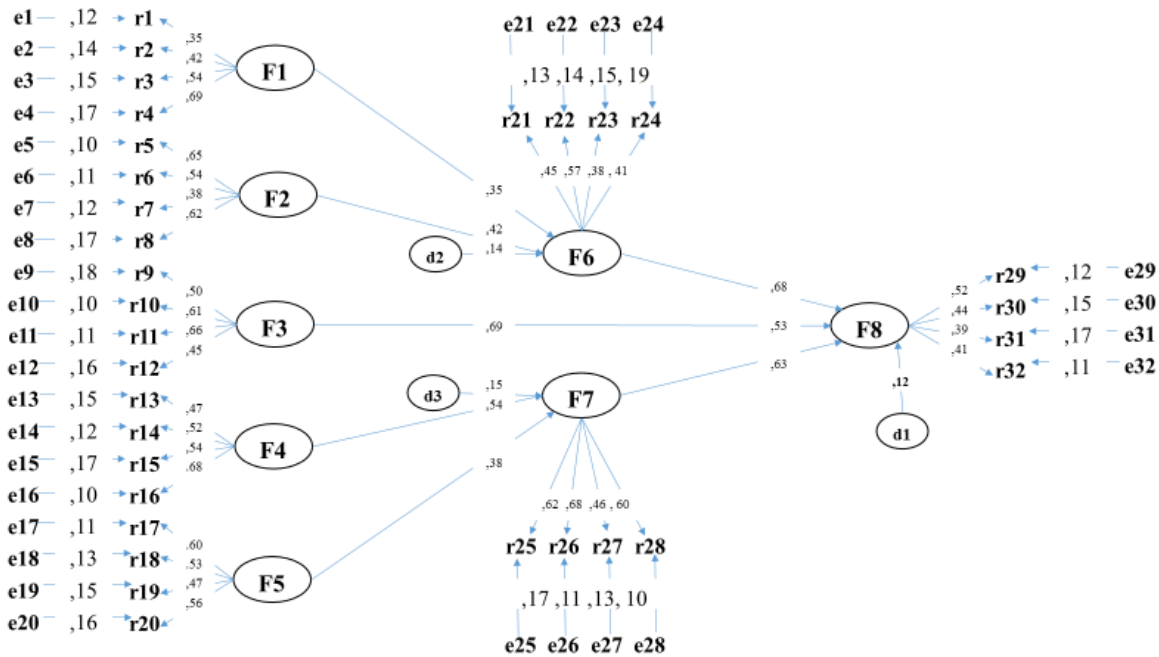followed by intentions (β = 0.417) and motives (β = 0.215) (see Fig.1).

Figure 1. Structural equation modelling

Source: Elaborated with data study; F1 = Perceptions, F2 = Beliefs, F3 = Values, F4 = Motives, F5 = Knowledge, F6 = Attitudes, F7 = Intentions, F8 = Behaviors; e = error measurement, d = Disturbance

Regarding the trajectories of relationships determining the behavior of adherence to treatment, the path that goes from beliefs to knowledge (β = 0.48) and from knowledge to behavior (β = 0.50) explains the deliberate process adherence to treatment. In other words, the processing of information concerning Uterine Cervical Cancer, when reduced to beliefs and then assimilated as knowledge, has a preponderant influence on the behavior of adherence to the treatment of the disease in the study sample.

Finally, the adjustment and residual parameters ⌈χ2 = 490.330 (28 gl) p = 0.000; GFI = 0.927; CFI = 0.970; RMSEA = 0.003 ⌋ allowed to establish the contrast of the null hypothesis that was accepted. In other words, the dependency relationships between eight variables reported in the state of the art correspond to the estimates made in the determining relationships model.

Discussion

The contribution of this work to the state of the question lies in the contrast of a model of adherence to cancer treatment in the face of the health crisis caused by the SARS Cov-2 coronavirus and the Covid-19 disease. Faced with the distancing and confinement of people, adherence to treatment was influenced by factors that explain the undertaking of social support; family, work, professional and hospital, as well as the climate of relationships, tasks, supports and innovations that prevail in public health centers.

In relation to the theoretical frameworks that anticipate risk behaviors focused on deliberation, planning and systematization of self-care[54], the present work established two axes, trajectories and relationships between eight factors that explain and anticipate adherence to treatment, indicated by self-care. Research lines concerning the decomposition of factors depending on the predominant social support will anticipate scenarios and cases of confidence in the quality of the hospital service and the self-efficacy in the monitoring of the treatment.

Regarding the empirical evidence that highlights the prediction of social support; family, work, professional and hospital on self-care, the present study assumes eight factors that reflect and determine such relationship[55]. Even

sociodemographic and socio-educational variables could anticipate scenarios of unbalanced social support that affects adherence to treatment, as well as the monitoring and follow-up of self-care.

Regarding the modeling of the axes, dimensions, trajectories and relationships of the variables allusive to adherence to treatment, where the following stand out: 1) the impact of government communication on the management of the pandemic through the confinement and distancing of people and 2) social entrepreneurship as a reaction to incited cases of infections, diseases and deaths[56], the present work decomposed both phenomena into eight factors. Attitudes were found to be determinants of self-care but encouraged by perceptions of risk and beliefs about the information disseminated in the media. Study lines related to the experimentation of confinement and risk scenarios will allow anticipating the responses of social support, adherence and self-care in a health crisis.

Conclusion

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

However, the non-experimental design, the non-probabilistic selection and the exploratory factor analysis imply limits that affect the findings of the present study. Therefore, it is 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 the indirect determining relationship through knowledge.

By other organizational and psychological variables such as work climate, commitment, innovation, self-concept, self-efficacy, locus of control, assertiveness or anxiety can be included in the model of determining relationships, a new specification based on organizational theories and personality theories.

Authors' Declaration

- Conflicts of Interest: None.
- We hereby confirm that all the Figures and Tables in the manuscript are ours. Furthermore, any Figures and images, that are not ours, have been included with the necessary permission for re-publication, which is attached to the manuscript.
- Authors sign on ethical consideration's approval.

- Ethical Clearance: The project was approved by the local ethical committee in Universidad Autónoma del Estado de México, México.
- The authors declare to follow the Helsinki protocol for studies with humans in vulnerable situations and exposure to health risks. Number of authorization: ATN-MLQS-2020-001

Authors' Contribution Statement

M. L. Q.-S.: Coordinated the project and preparation of the article; J. C.-G. & J. M. B. A.: Managed the resources of the field work and elaborated discussion of results; J. H. V. & G. B.-R.: Managed documentary resources and developed theoretical, conceptual and empirical framework; Managed project resources and advised on the research report.; F. E. M. & A. S. S.: Managed computer resources and developed methodological section and statistical results; Celia Y. Q.-C. & R. M. R.-O.: Managed data processing and advised surveys and statistical analysis. M. d.R. M.-G. & C. G.-L.: Performed data analysis and prepared results and discussion section, collaborated in the methodological section and conclusions.

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نموذج للالتزام بعلاج سرطان عنق الرحم في عصر كوفيد -19

ماريا لويزا كوينتيرو-سوتو [1] ، خافيير كارون-غيلين [2] ، خوسيه ماركوس بوستوس-أغوايو [3] ، خورخي هيرنانديز فالديز [4] ، جيلبرتو بيرموديز-رويز [5] ، فرانسيسكو إسبينوزا موراليس [6] ، أرتورو سانشيز سانشيز [7] ، سيليا يانيث كويروزا- كامباس [8] ، روزا ماريا رينكون-أورنيلاس [9]، ماريا ديل روزاريو مولينا-غونزاليس [10]، كروز غارسيا-ليريوس [11]

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الخلاصة

سرطان الرحم العنقي هو مرض يفسر الضعف الذي تعاني منه النساء من حيث الصحة الإنجابية مع تأثيره على الصحة المهنية والصحة العامة , فعندما يكون معدل الانتشار في المكسيك أقل من البلدان الأعضاء الأخرى في منظمة التعاون الاقتصادي والتنمية ، فإن تأثيره على التنمية البشرية والتنمية المحلية يظهر أهمية المرض في المجتمعات أكثر من المدن حيث يبدو أن سياسات الوقاية من خلال الفحوصات الطبية تكبح هذا التوجه ، لكنها تظهر نقص الفرص والقدرات في المراكز الصحية في المناطق الريفية. لإثبات الموثوقية والصلاحية والارتباطات بين المتغيرات المذكورة في الجانب النظري فيما يتعلق بوزنهم في مستشفى عام. تم إجراء دراسة غير تجريبية ، مقطعية واستكشافية مع اختيار غير احتمالي لـ 104 مرضى من مستشفى عام في ولاية المكسيك. تم إنشاء مقياس المتغيرات النفسية والاجتماعية للالتزام بعلاج سرطان الرحم العنقي. من النموذج الهيكلي ، تم إثبات تعديل مسارات تحديد العلاقات التي تؤثر فيها المعرفة على سلوك الالتزام بالعلاج. يلاحظ حدود تصميم الدراسة وأخذ العينات وتحليلها ويوصى بتضمين المتغيرات التنظيمية والنفسية المدعومة بنظريات المنظمات ونظريات الشخصية.

الكلمات المفتاحية: الاعتقاد، كوفيد-19، التداول، المعرفة، الصحة العامة، الالتزام بالعلاج.