Research Article

Modeling Adherence to Cancer Treatment in the Covid-19 Era

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Abstract

Cancer is a disease that explains the vulnerability 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, Modelling variables reported in the cancer literature regarding its weighting in a public hospital. 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 built. From a structural model showed relationships in adjustment paths determining treatment adherence behavior. 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

Introduction

Cervical cancer is a disease with a high prevalence between the member countries of the Organization for Economic Co-operation and Development (OECD).

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) Estonia, Lithuania and Iceland lead the number of cancer deaths among the countries that make up the most developed economies in the world.

Lastly, Turkey, Luxembourg and Chechnya have the lowest death rates per 100,000 inhabitants.

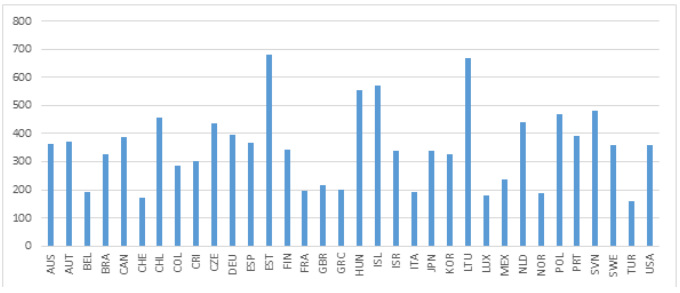

Figure 1. Deaths from cancer.

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.3 Chile leads the cases of life expectancy with cancer for everyone hundred thousand inhabitants followed by Spain and France, although the last places are occupied by Mexico, Italy and Hungary (Figure 2).

Figure 2. Life expectancy of cancer patients.

Brazil, Mexico and Lithuania lead the cases of the most loss of years of life due to premature deaths from cancer. In the last places are Switzerland, Japan and Luxembourg (Figure 3).

Consequently, policies to mitigate and contain cancer diseases and deaths associated with the pandemic should focus on reducing the death rate by age group, as well as managing quality of life, including adherence to the treatment of the disease.

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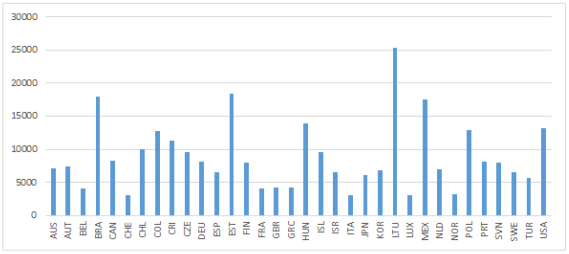

Figure 3: Potential years of life lost.

Cancer and Covid-19 explain a cluster of deaths in emerging countries in their economic development with respect to developed countries in their health services, promotion, self-care and adherence to treatment.7 The objective is to modelling perceptions, beliefs, values, motives, knowledge, attitudes, intentions and behaviors related to adherence to treatment of cervical cancer, establish dependency relationships between the variables determining adherence to treatment of cervical cancer.

Are there significant differences between the structure of adherence to treatment reported in the literature with respect to the observations made in the present work?. The premises that guide this work allude to the establishment of the relationship between cancer and Covid-19. It is an agenda focused on health promotion, risk prevention, self-care and adherence to treatment. The axes, trajectories and relationships between the categories allude to an effect of the pandemic on the saturation of hospitals and the prioritization of diseases directly related to Covid-19. Consequently, containment and mitigation policies focused on distancing and confinement impacted adherence to cancer treatment in an ambivalent way. In other words, the infections, diseases and deaths caused by the pandemic also had an impact on the social care of cancer [1]. Consequently, adherence to cancer treatment was determined directly and indirectly by health policy, mainly by social communication of the management of the health crisis. In this sense, information processing explains adherence to the treatment of diseases associated with the precariousness of medical care.

Theory of treatment adherence

Psychological and social studies on public health have established three phases on

prevention or primary stage in which the system avoca to reduce risk by promoting styles of life free of violence

secondary prevention consists of immediate attention from an early warning;

tertiary prevention or response indicated by long - term treatment and rehabilitation,

Conflict transformation and reconciliation.10 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. 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. 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 [2]. Such skills are mediated by provisions for personal health and rational decision making .

However, the generality of information concerning a disease is not always linked to specific decisions and specific behaviors. Therefore, psychosocial studies delineated reasoned action model in a planned behavior. 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. 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. 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 [3]. 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. 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. 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. 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.

Studies of treatment adherence

Adherence to cancer treatment has been associated with the mitigation and containment policies of the pandemic from the confinement and social distancing strategies that led to the interruption of cancer treatment. However, adherence to treatment, as it is linked to institutional policies such as health promotion and the prevention of accidents and diseases, would be linked to confinement and social distancing as preventive measures against contagion, illness and death from Covid-19. These are variables such as self-care that derive from policies of distancing and confinement, but being interrupted by the pandemic, it suggests the reactivation of adherence to treatment through the dissemination of detection, treatment and immunization tests as the first link in the cancer social care chain. However, adherence to treatment does not precede planning for the

prevention of illnesses and accidents. rather, it is the result of a social, family, professional and biomedical support or support strategy. This distinction suggests that both distancing and confinement are ideal scenarios for the emergence of adherence to treatment, not as a preventive indicator but as a reactive feature of rehabilitation.

Methods

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. 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. Operational definitions were established from the allusive psychosocial characteristics

searching and management of information related to cervical cancer

check the application and / or medical examination

confirmation of the initial diagnosis;

drug intake

The Delphi technique for homogenisation of the meanings of words included in the items of the scale was used. The surveys were conducted in the office of general hospital social work. 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 [4]. 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. Adequacy parameters and sphericity (Barttlet test and Kayser Meyer Olkin) were estimated to carry out the estimation of validity.27 Factor analysis was carried out considering the number of items and sample size. In this regard, an exploratory analysis with promax rotation and obliquity criterion was performed. subsequently conducted a confirmatory analysis least squares. Setting parameters and residual for the null hypothesis were calculated.

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 (Table 1).

Table 1: descriptive instruments.

R	M	SD	F1	F2	F3	F4	F5	F6	F7	F8
r1	4,35	1.32	,543							
r2	4,65	1,54	,654							
r3	4,39	1,52	,439							
r4	4,12	1,57		,536						
r5	4,09	1,29		,652						
r6	4,65	1,25		,453						
r7	4,87	1,86			,621					
r8	4,90	1,09			,562					
r9	4,35	1,64			,439					
r10	4,12	1,32				,619				
r11	4,38	1,45				,630				
r12	4,65	1,21				,621				
r13	4,76	1,82					,630			
r14	4,98	1,95					,672			
r15	4,65	1,67					,653			
r16	4,46	1,53						,562		

r17	4,31	1,06									,621					
r18	4,30	1,75									,603					
r19	4,57	1,32										,623				
r20	4,39	1,42										,663				
r21	4,36	1,54										,580				
r22	4,12	1,65													,631	
r23	4,21	1,29													,503	
r24	4,32	1,43													,604	

Elaborated with data study; R = Reactive, M = Mean, SD = Standard Deviation, Extraction method: principal axes with promax rotation and obliquity criterion. sphericity and adequacy ⌈χ2 = 247.23 (56 gl) p = 0.000; KMO = 0,702⌋. M = average, 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 = 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).

The parameters of adequacy and sphericity ⌈χ2 = 247.23 (56 gl) p = 0.000; KMO = 0,702⌋permitieron carry out the assessment of the validity of constructs. Thus, eight factors related to perceptions (31% of the total variance explained), beliefs (24% of the total variance explained), values (17% of total vairanza 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 and these with the beliefs. In contrast the values and beliefs had a near zero spurious relationship. In the establishment of model trajectories of determining relations of behavior adherence to treatment, knowledge determined the conduct of adherence to treatment, followed by intentions and the reasons. As for determining relations paths of behavior adherence to treatment, the route from belief to knowledge and from these to the behavior explains the deliberate process adherence to treatment. 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 (Table 2).

Table 2:Relations between factors.

	F1	F2	F3	F4	F5	F6	F7	F8	F1	F2	F3	F4	F5	F6	F7	F8
F1	1,0								1,9	,54	,53	,41	,54	,53	,53	,51
F2	,45*	1,0								1,8	,62	,30	,63	,42	,48	,40
F3	,50**	,52*	1,0								1,7	,42	,66	,43	,47	,64
F4	,62*	,64*	,41*	1,0								1,6	,58	,59	,53	,50
F5	,36***	,40***	,47**	,38*	1,0								1,8	,61	,37	,48
F6	,40*	,37*	,52*	,52*	,52**	1,0								1,6	,52	,49
F7	,61*	,32*	,55*	,61**	,62*	,57***	1,0								1,9	,42
F8	,55*	,33*	,48***	,59*	,48*	,62*	,50*	1,0								1,7

Elaborated with data study; F1 = Perceptions, F2 = Beliefs, F3 = Values, F4 = Reasons, F5 = Knowledge, F6 = Attitudes, F7 = Intentions, F8 = Conduct; * p < ,01; ** p < ,001; *** p < ,0001

The structure suggests determining relationships between the factors that together with the relationships between these eight factors and their indicators open the discussion around the observation of both aspects in a model of structural equations estimated by unweighted and partial minimum squares (Figure 4).

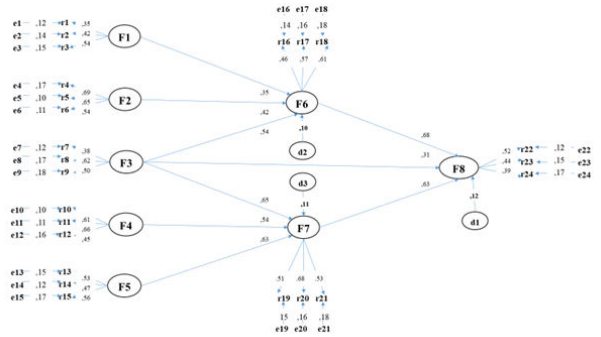

Figure 4: Structural equation modeling.

Elaborated with data study; R = Reactive, F = Factor, F1 = Perceptions, F2 = Beliefs, F3 = Values, F4 = Reasons, F5 = Knowledge, F6 = Attitudes, F7 = Intentions, F8 = Conduct; e = error measurement indicator, d = disturbance measure factor. Finally, the adjustment parameters and residual $\lceil\chi 2$ = 49.30 (28 gl) p = 0.000; GFI = 0.97; CFI = 0.97; RMSEA = 0,003 allowed to set the contrast of the null hypothesis was accepted. This means that the dependency relationships between eight variables reported in the prior art correspond to estimates in determining relations model.

Discussion

In relation to the theory of adherence to treatment, which emphasizes the ambivalence between health promotion and confinement, as well as risk prevention and social distancing, the present work reveals that the predictive structure of adherence to treatment depends on cognitive variables such as perceptions, beliefs, knowledge and intentions, although normative dimensions also influence the self-care process in the face of the pandemic in general and cancer in particular. 28 Lines of study related to the distinction between the provisions towards the health crisis, the management of Covid-19 and the strategy of adherence to cancer treatment will allow the establishment of an agenda for discussion and joint responsibility among the parties involved.

Regarding the studies on adherence to treatment that predict this phenomenon from the promotion of health and self-care, the present study emphasizes the importance of psychological variables such as perceptions, attitudes, beliefs, knowledge and intentions to determine specific behaviors adherence to treatment, although social, cultural and normative variables complement this predictive process. 29 In other words, research on adherence to treatment is mediated by factors that reduce or increase the effect of risk communication on cancer patient self-care [5].

Conclusion

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. 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.

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