

Specification a Model of Water Consumer in the COVID-19 Era

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Abstract

Background: Theoretical, conceptual and empirical frameworks warn welfare; the impact of environmental, interpersonal and subjective factors; intrapersonal dimensions such as; optimism, commitment, meaning, positivity and achievement as indicators reflecting welfare; the association between intra and inter factors such as altruism, affinity, austerly or cooperation.

Objective: Specify a model of relations between welfare dependency reflective, its dimensions and indicators.

Method: Documental study with a selection of sources repositories indexed in Latin America considering the variables of global, national and local context.

Results: The specified model included two hypotheses concerning intra and inter-dimensional inflicted by the alleged correlations between affinity, commitment, optimism, achievement, austerly, positivity, altruism and cooperation.

Discussion: Under the studies of welfare have not addressed the influence of the media in establishing an agenda supply and water rates, it is necessary to include the variable hyperopia, need for information and helplessness in a comprehensive model that explains scenarios public policies, conflict and welfare.

Keywords: Water resources; Availability; Supply shortages; Savings; and Welfare

Introduction

The aim of this study is to specify a model for the study of welfare in terms of water supply in peripheral areas of Iztapalapa, Mexico City (center of the country).

A documentary study was conducted with a selection of indexed sources considering the variables determining learned helplessness around tandem water in a locality with low per capita availability.^[1]

Hypotheses paths dependency relationships between variables from models reported in the literature were established.

Finally, the scope and limits specified with respect to the revised model findings were discussed. The model allows the study specified balances and prospective scenarios of water shortages, increased tariffs, subsidies and waivers payment in areas with low rates of human development and high level of welfare.

Mexico is intermediate in the list of countries with water availability below 1000 cubic meters per capita. Israel is the country with the greatest shortage and Iceland tops the list with

a volume of 120,000 cubic meters per capita. The intermediate water availability in Mexico does not inhibit the use of bottles in the case of Mexico City (formerly Federal District) approaches to 353.8 pesos per year per person.

This means that, despite having an intermediate availability per person, buying bottled water reflects a shortage in delegations such as Iztapalapa, entity where shortages, food shortages and no water supply is higher than other entities Mexico's capital.^[2]

In short, the equitable distribution of water seems to be the global, national and mayoral problematic, but the effect of such distribution on the expectations of the inhabitants supposed scenarios such as;

- water shortages, policies tandem, spreading conflict and learned helplessness;
- lack of provisions, allowances and forgiveness, spreading conflict and welfare;

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- supply rate increase, spreading conflicts and water comfort.

These are scenarios in which the diffusion of scarcity and shortages, subsidies, cancellations or rate increases is illustrated as conflicts between users and authorities that generate despair and welfare citizenship. Theoretical, conceptual and empirical frameworks warn welfare; the context has an impact on the internal and interpersonal in structures of individuals; induction of welfare from domestic and interpersonal strategies change; internal change as a determinant of social welfare. The decision to support a green campaign depends on the systematic dissemination of water availability and supply alternative candidate. Conflicts not only inhibit the governance of natural resources in general and water resources in particular, but also generates an opposite process to the welfare and helplessness that would be to assume that the environmental problems not they have a solution and that the government's actions regarding environmental protection are insufficient to guide development towards sustainability. Although the state of knowledge raises personal welfare and environmental, situational factors is the cognitive structure which regulates external factors and define each stage in human development. It is the case of the theory of lifestyles which formulates six stages of human development predominating birth, growth, exploration, stability, maintenance and decline.^[3] Regarding styles of consumption in general and water consumption, the theory of lifestyles argues that regardless of water availability, public policy and media coverage, socialization based on age will determine consumption of water. In this sense, a teenager who is in an exploratory stage justify their consumption by assuming high availability or low and carry out the steps to consume a greater or lesser extent the amount of water allocated to their locality, residence or person. Thus, welfare according to the theory of lifestyles, depends on the stage that society assigns to the individual considering his age and the group to which it belongs or wants to belong. Therefore, a teenager would have a personal wellness if you consume enough water to explore life, emotions, sexuality or reason at the expense of social welfare which provides only a limited amount of water per person.^[4]

In a situation of scarcity, shortage and tariff increases, emotional and social welfare it would result in a change process. It is a process in which the dissemination of information, building skills, generating empathy, increased resources and common opportunities and changing systems of community work affect interpersonal and individual changes that anticipate the emotional and social welfare. If welfare is induced, then the factors of positivity, engagement, relationships, meaning and achievement can always determine that the individual establishes the need for change and adoption of a system of strategies to guide their decisions and actions to a common problem as shortage, food shortages or increased tariffs for each volume of water consumption. From model positivity is built from a shortage and from an abundance of resources; commitment involves monitoring the availability of resources and the expectations of a

community; relations refer to negotiations with those who control the resources; the meaning of resources involves hydration or its importance in hygiene; and achievement refers to austerity, optimization, reuse or recycling of water-related products. However, the determinants of welfare have not been linked to the effects of systematic dissemination of news concerning shortages, shortages, tariffs, conflict and participation relating to drinking water.^[5]

The theory of agenda welfare, unlike the induced welfare and lifestyles, says that the media disseminate and establish welfare issues if they agree to the construction of a media, civil, political and social agenda. In this regard, studies of systematic dissemination of an agenda whose themes are shortages, food shortages, tariffs, conflicts and saving water on the opinions of hearings have shown;

- greater persuasion argued scientifically messages;
- an influence that does not change with time;
- an incidence remains constant despite counterarguments;
- an effect that spreads in lifestyles savings.

From the theoretical, conceptual, empirical and mathematical delimitation it is possible to establish a model for the study linked to the management and use of water resources being. There are two hypotheses concerning the effects of public policies of drinking water inferred from personal and interpersonal factors. Each factor includes four indicators that reflect the impact of the management and administration of drinking water. In the case of the subjective dimension, water problems is taken as an opportunity for those who have an affinity for nature, have developed an optimism about the conservation of natural resources, make a commitment to owning communities the resources and their conservation to ensure the survival of those who suffer or face a high shortage and prolonged shortage of water supply, as well as those who transferred optimization strategies, reuse and recycling of water to the generations of infants and young.^[6] If the individual dimension refers to cognition factors inherent in abstracting information concerning the availability of resources, then the inter subjective dimension refers to factors that explain the associative relationships between users of drinking water. It is a dimension in which aid to those suffering from water shortages and poor quality of it, reveals the positive expectations of a civilian sector and a strategic system of austerity that affects the cooperation around the water supply. The specified model, unlike the welfare model, connects personal capacities and inter-strategies as a response of civil society to public policies and increased rates tandem.

Materials and Methods

An exploratory study was carried out using water has been studied preferably in situations of scarcity, shortage, unhealthy and famine, but not under the risk of contagion when interacting with sources of potential infection. Starting from the premise around which the effects of the pandemic will be prolonged, a cross-sectional observation was carried out. Regarding the measurement of these effects, it was

considered pertinent to establish the cognitive determinants of residential water consumption. The sample consisted of 100 professional student practitioners and social servants (M = 24,3 SD = 1,3 and M = 9'087,23 SD = 345,45 USD) from health institutions in central Mexico, considering their assignment to health centers nominated for the care of cases of infection, illness and death by COVID-19.^[7]

The Water Consumption Scale was used, which includes dimensions related to catchment (record of continuous or intermittent supply), storage (sink, cistern, water tank), use (washing of utensils, personal hygiene, toilet, hand washing), reuse (yard washing, wax or motor transport) and recycling (rain or supply filtration), considering the meter and the consumption receipt. The link of the questionnaire was sent to the email of the professional practitioner and social server, as well as the guarantee of confidentiality, anonymity and protection of the answers to the questionnaire, as well as the

warning that the survey does not carry remuneration. The data were processed in the statistical package for social sciences version 2.0 considering the requirements for structural analysis; normality, adequacy, sphericity, homoscedasticity and linearity, as well as subsequent factorial analysis of principal axes with promax rotation, relationships between factors and structural equation model, assuming the fit and residual for the null hypothesis test.^[2]

Results

The values that demonstrate normality, adequacy, sphericity, homoscedasticity and linearity obtained scores higher than the essential minimums This is so because the responses of the respondents to the questionnaire reflect the validity of the previously established instrument. In addition, they suggest the possibility of observing relationship structures or trajectories between the dimensions studied[Table 1].

Table 1. Descriptive of instrument

Q	C	M	SD	F1	F2	F3	F4
q2	Sink	3,45	1,13	,562			
q3	Cistern	4,53	1,21	,673			
q4	Tank	3,12	1,98	,408			
q5	Utensils	12,3	1,32		,384		
q6	Personal	10,2	2,42		,451		
q7	Toilet	20,3	1,31		,621		
q8	Hand	2,34	,781		,540		
q9	Yard	7,54	2,12			,439	
q10	Wax	6,82	3,21			,320	
q11	Car	20,8	4,36			,391	
q1	Supply	3,71	1,21				,328
q12	Pluvial	43,2	10,4				,439
q13	Meter	230,1	15,4				,430
q14	Bill	124,3	13,2				,567

Note: Elaborated with data study; Q = Question, C = Category, M = Mean, SD = Standard Deviation, Adequation (KMO = ,876), Sphericity [$\chi^2 = 15,21$ (15df) $p < ,05$], Homocedasticity (Leven's = 16,21) F1 = Catchment (14%% total variance explained and alpha with ,780), F2 = Storage (10% total variance explained), F3 = Use (7% total variance explained), F4 = Reuse (5% total variance explained), F5 = Recycling (2% total variance explained), F6 = Consumer & Spenditure (1% total variance explained).

Once the requirements for the analysis of the factors were established, their relationships were estimated, considering the four dimensions established in the preliminary analyzes. Such a structure suggests the modeling of factors to explain a social phenomenon known as sustainability behavior[Table 2].

Table 2. Relations between factors

	M	SD	F1	F2	F3	F4	F1	F2	F3	F4
F1	23,12	14,23	1000				1,893	,546	,653	,512

F2	29,34	17,43	,652	1000		1,856	,546	,657
F3	20,34	10,32	,493	,439	1000		1,892	,605
F4	21,35	18,42	,591	,621	,549	1000		1,978

Note: Elaborated with data study; M = Mean, SD = Standard Deviation, F1= Catchment, F2 = Storage, F3 = Use, F4 = Reuse, F5 = Recycling, F6 = Consumer & Spenditure, * p < , 01; ** p < ,001; *** p < ,0001.

The purpose of estimating the structural equations model was to investigate the common second order factor that the literature identifies as a deliberate, planned and systematic behavior of water saving, resource conservation and promotion of activities that favor the sustainability of the management system. water supply and consumption[Figure 1].

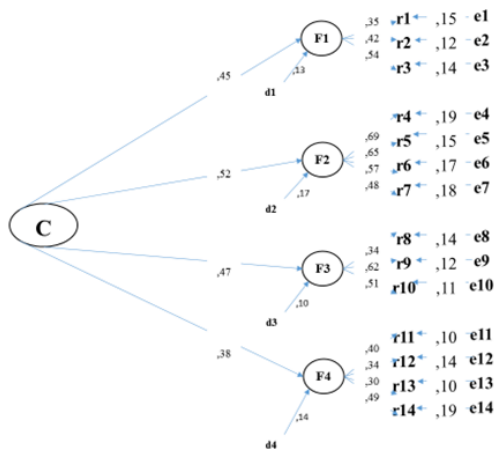


Figure 1: Structural equation modeling.

Note: Elaborated with data study; Q = Question, F1= Catchment, F2 = Storage, F3 = Use, F4 = Reuse, F5 = Recycling, F6 = Consumer & Spenditure, e = Error, measurement indicator, d = Disturbance measurement factor

The adjustment and residual parameters [$\chi^2 = 17,21$ (14df) $p < ,05$; CFI = ,978; GFI = ,997; RMSEA = ,007] suggest the non-rejection of the null hypothesis, which indicates significant differences between the theoretical dimensions with respect to the model established in the present work. This is so because the behavior for sustainability has been approached from different approaches and thus multiple dimensions have been observed.[5]

Discussion

The contribution of this study to the state of the question lies in the testing of a behavioral model for the sustainability of residential water consumption, as well as the self-management of other related activities. The configuration of an explanatory structure of the phenomenon known as behavior for sustainability is distinguished by the self-registered measurement of consumers, as well as by their

degree of risk in health services in the face of the pandemic. The results are not different from other studies in which the behavior for water sustainability is presented with multiple dimensions, but the contribution lies in the fact that the respondents were carrying out their professional functions in areas of high risk of contagion and exposure to the coronavirus. This is relevant considering the studies that warn of the social stigma towards health professionals who are identified and perceived as potential sources of contagion. In this sense, water consumption should have been high and justified by this stigma, but the evidence suggests that their behaviors were not modified. Furthermore, the emergence of a second order factor explains the configuration of the structure observed in a water conservation system.56 This is so because the professional training of intellectual capital includes social responsibility as the foundation of professional and institutional management.[2]

Conclusion

The contribution of this work to the state of knowledge lies in the specification of a model for the study of subjective, community, social, political and economic well-being around the conservation of water resources in areas with high scarcity, shortages, poor health and increased rates. However, the specified model does not address the effect of media on audiences that, in the case of availability per capita, is the incidence of issues concerning lifestyles of comfort and extravagance hegemonic regarding austerity. In this sense, the specified model could include the variable need for information as a determinant of the intention to vote in favor of environmental proposals. However, if the campaigns have a bias that places the responsibility to political or partisan adversary, then it can lead to conflicts between supporters of an opposing those who administer the water service proposal. Even the systematic dissemination of natural disasters in the media poses risks and threats that inhibit civil participation and justify inaction or conflicts such as closing avenues, boycotts networks supply, road blockages or sequestration facilities or pipes, although farsightedness or inaction justified by the remoteness or likelihood of occurrence of natural disasters and administration corrupt is also a central issue in the entities with shortage and continuous supply shortages. Therefore, future research should connect to the specified model with economic, political and social in order to anticipate likely scenarios of scarcity, shortages, suffering or welfare variables.[7]

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