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## **Building the Health Capability Set in a Purépecha Community to Assess Health Interventions**

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**Abstract.** Health capabilities can be viewed as the ability and opportunity to achieve health states according to the different styles of life valued by people. This paper contrasts and explores the dimensions that could be included in the health capability set to assess health interventions in Cuanajo, Mexico, expanding upon a previous work and using in-depth semi-structured interviews. Cuanajo is a semirural indigenous Purépecha community located in western Mexico. While the final objective is to generate measures of outcomes in economic evaluations of health interventions to be carried out in this community, this study reinforces the dimensions that could be employed in the final step. These are: 1) physical, taking into account activities of daily living enabled by different health statuses; 2) mental, in the form of how positive feelings contribute to achieving health functioning; 3) social, considering how a minimal social life takes into account how relations with partners, family members, and friends provide love and support; 4) health agency, incorporating health knowledge and knowledge about how traditional medicine can affect or contribute to achieving health; 5) material conditions, which include housing facilities and monetary resources; and 6) community, how social pressure and security affect health functioning.

**Keywords:** Health Capabilities, Mexico, Purépecha community, health interventions, Capability Approach, rural

When evaluating the impact of health interventions in different societies, effectiveness is assessed by using mortality and morbidity indicators, or a combination of both, in the form of a Health-Related Quality of Life (HRQL) indicator. Such indicators, however, tend to underestimate the impact of the intervention because they are primarily health centered, understanding health in biomedical terms. This means that it would be better to have a HRQL indicator that adds something more than health alone.

Considering the particular case of Cuanajo, a semirural indigenous Purépecha community situated in the lake and mountainous areas in the Mexican state of Michoacán, assessment of health interventions should follow this idea because of its unique characteristics. Located in the municipality of Pátzcuaro, Cuanajo had 4,758 inhabitants in 2010 (Instituto Nacional de Estadística y Geografía [INEGI], 2010), of which more than 80% were considered as Purépecha taking into account the household head. The Purépechas (also known as P'urhépecha) are an indigenous people with the characteristic that each member is a p'urhé (which means 'people'). This implies self-affirmation as human beings (Comisión Nacional para el Desarrollo de los Pueblos Indígenas [CDI], 2009). The Purépecha population is about 213,478 (INEGI, 2010). Due to its close proximity to both the cities of Morelia and Pátzcuaro, Cuanajo is not considered as a marginalized region, in contrast with other Purépecha communities located in the mountains. There has been a loss of Purépecha identity in the last decades in Cuanajo, which is why less than 39% of the people, only the oldest ones, can currently speak the Purépecha language (see Table 1 in Appendix).

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Economic activity in Cuanajo is mainly based on the production of artisanal furniture, the sale of plants, and embroidery. In addition, migrant remittances from the United States sent by relatives are important. At the present time, logging by people from outside the region has caused a scarcity of the wood used for furniture, which in turn poses a threat to family incomes.

Concerning people's health and as a consequence of the combination of their traditional heritage and the modern lifestyles learned, a set of diseases and unhealthy conditions threatens their life. First, diseases such as diabetes and high blood pressure are becoming common, since these are related to modifications in eating habits as people increasingly substitute their traditional food based on grains, vegetables, and meat for high-calorie foods. Second, the abuse of alcoholic beverages rooted in traditional Purépecha celebrations is a well-known problem among the community that not only affects men and women of all ages. Third, proliferation of street-youth gangs have emerged as imitations of gangs from the Mexico-U.S. border—learned when trying to get to the United States or “cruzar al otro lado”—threatens the security and peace of the community.

The Capability Approach (CA) suggests that people's quality of life is assessed by the freedom to achieve a set of interrelated beings and doings, called functioning, that constitutes the opportunity to lead one type of life or another (Sen, 1992). Thus, an indicator based on the so-called capability set could be used to monitor and evaluate progress in the health-related well-being of Cuanajo. However, each particular assessment exercise requires a set of specific capabilities. Therefore, health capabilities (Ruger, 2010a; 2010b), which are the corresponding freedoms in the health domain, should be used to evaluate people's HRQL. From an economic perspective, they represent a great opportunity to construct indicators that may be used in Economic Evaluations of Health Interventions (EEHI). In the context of Cuanajo, health capabilities will represent the freedom in the form of the ability and opportunity to achieve health states according to the different kinds of life valued by people.

More formally, health functioning reflects both a person's achieved health state, and their actions to maintain health. Thus, health capabilities “represent a person's overall freedom[s] to achieve health functioning” (Ruger, 2010b, p. 77). The Health Capability Set (HCS) is then formed by the achieved and potential health functioning when a person has the freedom to choose health states in accordance with the kind of life that he or she values. Despite that, we seek a means to measure and compare the HCSs of different people and there is no convincing way of doing so. Thus, for operational purposes both health functioning and health capabilities are defined in the same space, the HCS will be constituted by health functioning vectors, which can be used as a proxy (Ruger, 2010b), and health-related resources, a simplification of Ruger's (2010a), Health Capability Profile (HCP), that will be designed as a guide to construct the HCS. Accepting that the final assembly of the HCS must incorporate some form of public reasoning with open impartiality to avoid localism, previous work in the form of both philosophical and practical reasoning can help in this task.

The purpose of the long-term work is to generate an instrument that considers the main dimensions that must be incorporated in the HCS in order to construct a HRQL indicator for people in Cuanajo. Specifically, in this stage, the present work applies some kind of practical reasoning as a means to identify the relevant dimensions that could be subjected to later public reasoning.

## Methods

The interview guide was generated based on a previous list of dimensions obtained by means of theory and objective lists that imply some form of philosophical reasoning (Télez, 2015), but includes more general questions in order to allow the emergence of new dimensions. In total, 13 in-depth interviews among adult members of the community of Cuanajo were performed, considering mainly a purposive sample but attempting a variation among interviewees. Although the snowball technique was employed to contact potential interviewees, the final selection was done by means of assure maximal variation via a random exercise. In this sense, the sample has a variation of individuals aged 21 to 60 years old with different health conditions, education levels, and occupations (see Table 2).

Table 2.

*Characteristics of the sample interviewed in Cuanajo*

Age	Gender	Health status	Education	Occupation
21	Male	Good	Incomplete high school	Retailer (cyber café)
24	Female	Good	Incomplete primary	Homemaker
25	Male	Colitis	Complete high school	Office worker
28	Female	Gallbladder stones	Bachelor degree	Homemaker
31	Male	Good	Complete secondary	Carpenter
34	Female	Gastritis/Back problems	Complete secondary	Carpenter/homemaker
39	Female	Diabetes	Complete primary	Homemaker/plants
41	Female	Diabetes	Incomplete primary	Artisan
42	Female	Good	Bachelor degree	Nurse
43	Male	Good	Incomplete high school	Carpenter/retailer
43	Male	Good	Incomplete primary	Carpenter
55	Male	Good	Complete primary	Carpenter/retailer
60	Female	Diabetes	Bachelor degree	Retired/homemaker

From this sample, seven women and six men were interviewed in order to understand what health means for them, why they value health, what aspects they consider are important to achieving health, and finally what they value in life. Through these 13 semi-structured interviews, which lasted between 30 and 65 minutes, it was possible to exercise some forms of practical reasonings (Alkire, 2002) in order to identify the relevant dimensions of the HCS. Data were processed and analyzed using MAXQDA software.

The dimensions identified in the previous work (Télez, 2015) share similarities with Ruger's HCP (2010a) but in a synthesized version, including the health component and both

internal and external factors. This simplification is needed in order to generate an instrument such as those used in typical EEHI, for example the EQ-5D (EuroQol Research Foundation, 2015) or the ICECAP-O and ICECAP-A instruments (Al-Janabi, Flynn & Coast, 2012). These dimensions are: physical, mental, and social for the health component; health agency as an internal factor (besides the health component); and material conditions and community functioning for external factors. While it was recognized that these dimensions do not constitute a definite list, it is argued that they represent objective and subjective elements that can integrate the HCS. In particular, the physical dimension considers the ability to do Activities of Daily Living (ADL) (Hausman, 2010), and mental and social dimensions are concerned with the ability to have positive feelings and the ability to have the personal relationships one wants, respectively (Seligman, 2010). Health agency, material, and community dimensions coincide with Ruger's HCP (2010a,) and also take into account what the right to health approach says (Office of the United Nations High Commissioner for Human Rights [OUNHCHR], & World Health Organization [WHO], 2008). It is worth mentioning that mental, social, health agency, and community dimensions have been identified as very relevant in the case of Mexico because their improvement can lead to expanding people's capabilities (Pick & Hietanen, 2015). Even though the interview guide was elaborated taking into account these previous dimensions, interviews were open enough so as to enable the emergence of new categories in a similar way as grounded theory (Merriam, 2009). In addition to what interviewees reported, statistical data obtained from the 2010 population and housing census (INEGI, 2010) and from that observed *in situ* concerning health capabilities, were employed to build the HCS.

## Results

Even if the importance of dimensions previously established was confirmed through interviews, it was possible to identify emergent sub-dimensions together with the attached value provided by the community of Cuanajo. Concerning the health component, everybody relates health to physical or bodily well-being and most of the people reinforce the emotional aspect of the mental dimension. One respondent stated that:

[Health] is the proper functioning of the body, for me it is to be well in all aspects of the physical body but also of the mind... Emotions, I think this is important too because if you are not emotionally well you can neglect everything.

People value and seek to be healthy and do activities to achieve this. Additionally, it is identified that having poor health reduces the freedom to achieve valuable things. One respondent stated "playing soccer is important for me because it helps me to be fit, because I do not become old. I feel it is good to run, because I feel... better physical and emotional performance." Another indicated "I could not crave money or fortune... what I truly wish is only well-being... not to feel physical pain, I want to feel what I feel know, well, joy, being happy." Another stated "I have gallbladder stones; I was diagnosed when I was eight months pregnant... It is painful, very annoying and doesn't allow me to carry out my responsibilities with my daughter and husband."

Most people recognize that having a positive attitude and having sources of distraction also contributes to improving bodily health. Love and support from their partners, family, and friends is considered as a very relevant dimension that affects health for all interviewees, as referenced in the following comments.

Being at home doing my girdles [a kind of craft] bores me and raises my blood sugar... and even if I take my pills, they do not work... When I'm thinking about going out to talk and to hit the bottle with my [girl] friends, I'm very happy. I take a bath even with cold water and I feel it's getting late to go out. I forget to take my pills and I'm from here to there... I don't feel sick or anything related to diabetes...

My family is the most important thing, I like to take care of my children, to take them to the school, I like it a lot... I would like to have better communication with my mother; for example, when we were young I would have liked to talk to her about sexuality, we could not talk about that with our parents, they scolded us. But now, we need to teach our children.

[To stop smoking] I would need professional help, isn't? As it happens with the AA [Alcoholics Anonymous] group. I stopped drinking thanks to this group; I enjoy going there because there are truly friends.

Concerning health agency (i.e., health knowledge, effective decision-making about health, self-management and self-regulation skills, the ability to control personal and professional situations to pursue health, and the recognition that good health is the right choice; see Ruger, 2010b, p. 147), people mention that it is important to do physical activity and to have good nutrition. However, when they feel ill, they do not seek medical advice immediately, preferring to medicate themselves. For example, one respondent stated "I barely do exercise but I know that it helps [to be healthy], I also know that I have to drink water, eat properly and healthy, avoid fatty meals." Another stated "when I feel ill, I do not go to the doctor immediately, I buy some pills and that's all... Those that are always advertised... Only when I feel really bad do I go to the doctor." One interview indicated, "I have many [ill related] problems, the first one is related to diabetes, which has affected my vision; anyway, I'm fighting against this disease... I consume the very basics: fresh vegetables, avoid fats and barely eat tortillas." Finally, one stated:

Here we work in the fields and I think that we do not take care about us as people in the city do... We eat vegetables and almost never consume sodas and fatty food because we live outside [Cuanajo] and there are not many stores there so we can't buy many things.

Because Cuanajo is still an indigenous community, people usually substitute prescribed medicine with traditional treatments such as plants and herbs. As they themselves recognize, whilst these treatments sometimes work, they do not always. "My mother has knowledge about home remedies and she prepares me herbal infusions. When the condition becomes worse, I go to the doctor to get a prescription and to be checked." Another indicated "pills irritate my stomach... you will say that we are very traditional but I need plants because they are more natural than pills." One stated "I almost never go to the doctor, I usually use home remedies," while another noted "sometimes I also pull out the amargoso [a bitter plant] that is around there and cook it with water and that's all, because I have even stopped my medicines [for diabetes]." Finally, one stated

I have substituted many medicines for alternative medicine... They are natural, natural plants... Here in Cuanajo there are a lot of plants, and there are old ladies who are dedicated to studying them and healing with them. When you feel bad, they pass

the plant above your body in order to know if your body will accept or will reject it... Then they make the diagnostic and give you a prescription saying “you have to take this and to do this.”

As external factors that compose the HCS, material conditions such as having a concrete house, flooring, and access to food were considered very important among the deprived people. For instance, one indicated “I would like to have my dwelling made of concrete with a firm floor in order to avoid bugs and diseases” while another stated

Right now, we do not have material things, we don't have money to have a better house... It lacks everything, it doesn't have a firm floor, it has an earthen floor, we don't have a door [it has a long plank of wood with plastic]. I'm very unhappy to be poor, sometimes we do not have money even to eat, sometimes we do not have firewood to cook... sometimes my children do not have shoes, it makes me feel really bad. I would like to have a decent house in order for my children to live well. At this moment there are many fleas inside but if I had a firm floor and a door, then dogs could not get inside and leave fleas.

Access to health care services for deprived people is not as available as they would like it to be, despite the Popular Insurance Program (Seguro Popular) implemented by the Mexican government as part of the anti-poverty program Oportunidades (now Prospera). People prefer to go to the cities of Pátzcuaro and Morelia to have private health care. For example, one noted “I have the Seguro Popular, but I frequently go to private doctors in Morelia or Pátzcuaro because here there is nobody who treats us.” Another stated “recently we got the Seguro Popular but we have never used it... I use alternative medicine and I think it is better for me; actually I have stopped taking many of my medicines.”

Security is also mentioned as important among local people, which is more related to proliferation of youth gangs in imitation of gangs from the Mexico-U.S. border. For example, one stated “nowadays, I don't like street-youth gangs... From five years ago until now... They fight between themselves but also attack other people.” Another said

Insecurity makes me unhappy because here there are groups of lads that go out not to have healthy fun but to beat people up even if they do not confront them ... They feel lords of the neighborhood or the street and attack you.

Finally, it is interesting to mention that alcoholism is the main health problem in the community that unambiguously constrains the HCSs of the inhabitants. Even though alcoholism is present in all societies around the globe, it is well documented that it was present in the Purépecha society before the Spanish conquest (Ruiz, 2000; Ochoa & Sanchez, 2011) as a way to celebrate their gods and war victories. Nowadays in Cuanajo, men start drinking before the age of 14 years old and keep doing it for the rest of their lives, and it is also a problem among women. According to interviewees, they drink because there is the social pressure to do so and because they want to be part of the community. While they generally recognize that it is healthier not to drink, they continue to do so. For instance, one stated “I used to binge-drink to please my buddies, to be accompanied and all that stuff.” Others report

What I can see here is that if you get drunk you are... you are everybody's friend because they see that you are just like them; if you behave differently they reject or discriminate you. I'm very quiet and with different ideas and tastes so I cannot go out... I'm afraid to go out.

That mentality bothers me a lot, they [people of Cuanajo] spend a lot of money in organizing parties, get indebted but cannot invest in their children's education... They neglect their children and that is the reason of the proliferation of gangs... In the parties, the most important thing is to get drunk... men are drunk and are lying on the floor, they do not take care of their children, children's moms are sometimes drunk too, dancing around... The poor children are crying and crying because they want to go to sleep.

When I was diagnosed as diabetic, a lady told me to drink a beer on an empty stomach, and I did it... Perhaps it [diabetes] was under control because when I went later to the doctor, she asked me "what did you do because you are better" and I told her "well, the beer." They don't believe me.

It [alcohol] doesn't help me but what happens is that when I go out I find my [girl] friends and they tell me "come on! have a drink" and I tell them "No, thank you, not now," but they insist and make fun of me, then I say "Ok give it to me!"

### Discussion

According to this study, it is possible to argue that the dimensions previously established through philosophical reasoning are not very different from the ones obtained here and that are important for this community. Nevertheless, there are some particularities that emerged in the interviews that need to be remarked upon.

In the health component, the physical dimension in the form of ADL is considered important but not as expected. This can be attributed to the fact that in general the interviewees did not have severe disabilities. As Table 1 also shows, the proportion of people in Cuanajo with some kind of disability is slightly smaller than the corresponding proportion for the entire state of Michoacán. This, however, does not mean that the dimension could be neglected because this would imply discriminations against people with disabilities. On the other hand, being emotionally well is considered as part of the health domain, reinforcing the idea that the mental dimension can be related to how positive feelings contribute to achieving health functioning. Concerning the social domain of health, it was identified that love and support obtained from relatives, friends, and also self-help groups is important as a means to achieving emotional health and to take care of one's body. This would support the idea that the social dimension of health should be included, but only as a minimum social life.

Health agency, considered as an internal factor, should also be included since it was found that even though people know what they have to do in order to preserve their health, they often do not do it. This fact was supported by a nurse's testimony in relation to a small clinic linked to the Seguro Popular. She remarked that people in the community like to buy *junk food* such as fatty meals and sugary drinks, women give their children Maruchan soups during the day, and in the



evening they buy enchiladas instead of preparing meals based on vegetables. On the other hand, it is important to note how the use of plants and herbs emerged in the interviews as a means of treating illnesses, which implies that this dimension must also encourage the use of evidence-based traditional medicine.

External factors in the HCS emerged as very important for the community. Due to the fact that the target population of the Seguro Popular are the most economically deprived and lack formal insurance (approximately 80% in Cuanajo, see Table 2), the group of people interviewed with these characteristics were already affiliated with this insurance. Among these people, it was found that having easy access to quality health care services is considered very important. This dimension should not only take into account the number of affiliated people, but the quality of the service. According to the interviewees, particularly those who are economically deprived, living conditions is a very important domain that constrains the ability to be healthy. This result is reinforced through analyses of official data. For example, Table 2 reveals that more than 56% of Cuanajo's dwellings have earthen floors. Finally, and considering that alcoholism is the main health-related problem in the community, it is very important to highlight how social pressure was mentioned unanimously by all the interviewees as the principal cause. This finding is very important because it implies that the community domain must take account of the social pressure exercised in order to monitor and evaluate health-related interventions. In this domain, a dimension related to security in the community must also be incorporated as a means to having both the perception of the general population but also that of the young people involved in street-gangs.

While the domains obtained in this exercise could be employed to construct the HCS for this community, the final dimensions must be selected through public reasoning with open impartiality considering its importance in the practice of democracy, related closely to the topic of justice in the CA (Sen, 2009). Thus, the next step is to exercise public reasoning using deliberative groups and public debates while taking into account a positionally independent objectivity perspective in order to avoid some forms of parochialism.

### **Conclusion**

Because health capabilities incorporate not only biomedical issues but also social and environmental aspects that affect health, they constitute a promising framework to generate measures of outcomes in EEHI to be carried out in the community of Cuanajo. The need to operationalize the CA in general and the health capabilities framework in particular implies that simplifications are required in developing instruments to be used in large-scale projects but preserving the guide provided by Ruger's HCP. In this work, as a previous step to the final selection of dimensions, it was possible to reinforce through practical reasoning that the tentative dimensions previously identified must be included in the HCS. According to this study, it is possible to conclude that six major dimensions should be discussed and valued through deliberative groups using participatory techniques in the next step: 1) physical, 2) mental, 3) social, as a minimal social life, 4) health agency, 5) material conditions, and 6) community. In particular, it can be argued that the health agency and community dimensions need special attention in order to construct sub-indicators that take into account particularities of this indigenous community, such as knowledge of evidence-based traditional medicine, social pressures, and security concerns. This study findings have significant relevance to any human service personnel working with the community, including social workers.

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## Appendix

Table 1.

*Comparison of population and dwelling characteristics in the state of Michoacán, Cuanajo and Rural Cuanajo in 2010*

Group	Description	Frequency			Percentage		
		Michoacán	Cuanajo	Rural Cuanajo	Michoacán	Cuanajo	Rural Cuanajo
Population	Total	4,351,037	4,758	2,492	100.00	100.00	100.00
By gender	Male	2,102,109	2,319	1,237	48.31	48.74	49.64
	Female	2,248,928	2,439	1,255	51.69	51.26	50.36
By age	0-17	1,630,927	1,751	963	37.48	36.80	38.64
	18-59	2,280,983	2,500	1,285	52.42	52.54	51.57
	60+	439,127	507	244	10.09	10.66	9.79
By ethnicity	Can speak Purépecha	136,608	1847	918	3.14	38.82	36.84
	Can speak only Purépecha	16,613	117	46	0.38	2.46	1.85
By disability	Household head is Purépecha	206,119	3839	1976	4.74	80.69	79.29
	ADL <sup>a</sup> disability	212,874	167	90	4.89	3.51	3.61
	Motor disability	120,894	90	52	2.78	1.89	2.09
	Visual disability	57,350	45	24	1.32	0.95	0.96
	Communicative disability	18,077	15	8	0.42	0.32	0.32
	Hearing disability	24,592	16	11	0.57	0.34	0.44
	b-ADL <sup>b</sup> disability	9,929	10	3	0.23	0.21	0.12
	Cognitive disability	9,702	7	2	0.22	0.15	0.08
	Mental disability	19,223	7	2	0.44	0.15	0.08
	Non-disabled population	4,063,589	4568	2392	93.39	96.01	95.99
By schooling	Illiterate 15+ population	305,178	488	290	7.01	10.26	11.64
	No schooling 15+ population	332,949	502	278	7.65	10.55	11.16
	Average schooling 15+ population (years)	7.42	6.12				
By health access	Affiliation to social security	1,930,320	3024	1629	44.36	63.56	65.37
	-IMSS <sup>c</sup>	944,255	859	393	21.70	18.05	15.77
	-ISSSTE <sup>d</sup>	249,190	72	24	5.73	1.51	0.96
	Total (occupied)	1,063,163	1,121	572	100.00	100.00	100.00

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Dwellings							
	Have earthen floor	109,379	628	359	10.29	56.02	62.76
Material conditions and services	Have electricity	1,044,515	1,107	565	98.25	98.75	98.78
	Have piped-in water	935,651	914	408	88.01	81.53	71.33
	Have toilet/latrine	1,013,707	1,110	565	95.35	99.02	98.78
	Have flush to pipe sewer system	944,928	453	149	88.88	40.41	26.05
	Have car	483,119	298	141	45.44	26.58	24.65
	Have computer	221,817	47	9	20.86	4.19	1.57
Assets	Have land telephone	387,881	325	139	36.48	28.99	24.30
	Have mobile telephone	632,042	244	112	59.45	21.77	19.58

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<sup>a</sup>ADL=Activities of Daily Living; <sup>b</sup>b-ADL=Basic ADL such as eating, dressing, and bathing;

<sup>c</sup>IMMS=Instituto Mexicano del Seguro Social; <sup>d</sup>ISSSTE=Instituto de Seguridad y Servicios Sociales para los Trabajadores del Estado

Source: Compilation based on Sistema de Información territorial ITER (INEGI, 2010)