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### Electronic reference

Charlene Chang and Sarah Green, « "Agua con azúcar y un chin de sal": Implications of Self-Care Practices and Health Perceptions of Hypertension in the Dominican Republic », *Field Actions Science Reports* [Online], Special Issue 13 | 2015, Online since 14 April 2015, connection on 15 April 2015. URL : <http://factsreports.revues.org/3938>

Publisher: Institut Veolia  
<http://factsreports.revues.org>  
<http://www.revues.org>

Document available online on: <http://factsreports.revues.org/3938>  
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## **‘Agua con azúcar y un chin de sal’: Implications of Self-Care Practices and Health Perceptions of Hypertension in the Dominican Republic**

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**Abstract. PURPOSE:** Hypertension is a highly prevalent cardiovascular risk factor that has become increasingly important in global health.<sup>1,2</sup> Understanding the social, political, and economic production of distress and disease has been identified as an important areas to inform responses to health disparities.<sup>3</sup> While effective chronic disease management could lead to a considerable decrease in morbidity and mortality related to hypertension, poor treatment adherence remains a significant barrier to effective hypertension management in the Dominican Republic and in the U.S. Using Kleinman’s Explanatory Model of Illness (1978)<sup>4</sup>, this pilot study explores: 1) Dominican health beliefs, perceptions, and self-care practices related to *la presión*; 2) the individual strategies that contribute to the management of *la presión*; 3) the personal and social meaning of *la presión*.

**METHODS:** A post explanatory mixed methods approach was used to collect qualitative and quantitative data. Using non-probability purposive sampling, 15 Key Informant interviews, 49 semi-structured participant interviews, and 79 medical chart reviews were conducted from July to August 2011 in 4 rural communities in the Puerto Plata region of the Dominican Republic.

**RESULTS:** Among study participants, 31% demonstrated improvements from baseline blood pressure readings from uncontrolled to controlled blood pressure, while 33% of participants demonstrated no change from uncontrolled baseline blood pressure readings. 40.5% indicated eating, drinking, or doing something else besides taking medication. In response to an open-ended question about causes of *la presión*, heat was mentioned by 36% of study participants. Responses indicated that there is a high degree of awareness of *la presión* within their community.

**Keywords.** Blood pressure, Hypertension, Mixed methods, Health beliefs, Self-care, Perceptions, Dominican Republic

<sup>1</sup>Abegunde, D.O., Mathers, C.D., Adam, T., et al. (2007). The burden and costs of chronic diseases in low-income and middle-income countries. *Lancet*, 370(9603), 1929-38.

<sup>2</sup>World Health Organization (2011). WHO/ISH Hypertension Guidelines. Accessed: [http://www.who.int/cardiovascular\\_diseases/guidelines/hypertension/en/](http://www.who.int/cardiovascular_diseases/guidelines/hypertension/en/)

<sup>3</sup>Sargent, C. & Larchanché, S. (2011). Transnational Migration and Global Health: The Production and Management of Risk and Access to Care. *Annual Reviews of Anthropology*, 40:345-61.

<sup>4</sup>Kleinman A., Eisenberg L., Good B. Culture, illness, and care: clinical lessons from anthropological and cross-cultural research. *Ann Intern Med* 1978;88:251-88.

## 1. Background

Hypertension is a highly prevalent cardiovascular risk factor that has become increasingly important in global health (Abegunde, 2007; WHO, 2011). While effective chronic disease management could lead to a considerable decrease in morbidity and mortality related to hypertension, poor treatment adherence remains a significant barrier to effective hypertension management in the Dominican Republic and in the United States (U.S.). According to the Pan-American Health Organization (PAHO), a study on cardiovascular risk factors in the Dominican Republic indicated that 65% of individuals with hypertension were not receiving any treatment and 55% had a family history of hypertension (PAHO, 2011). To date, the prevalence of hypertension among adults in the Dominican Republic is about 16.8% (PAHO, 2007), while the prevalence among Dominicans in the U.S. were among the highest compared to other Hispanic groups (U.S. born, 22%; foreign-born, 25%) (Pabon-Nau, et al, 2010). In 2007, cardiovascular disease was the leading cause of deaths (36.5%) in the Dominican Republic. Guidelines on hypertension indicate that it is a highly prevalent cardiovascular risk factor worldwide because of contributing risk factors such as obesity (WHO, 2011).

Management of hypertension has been shown to prevent and minimize cardiovascular diseases, but it remains inadequately managed. Barriers to treatment adherence in the U.S. have been shown to involve finances, level of knowledge about the disease, medication side effects, the doctor-patient relationship, and logistical difficulties (Ogedegbe, 2004; Turner, 2009). There is an extremely limited body of literature that addresses barriers to hypertension management in the Dominican Republic. In addition, less is known about the health beliefs and perceptions of hypertension that may influence self-care practices and hypertension management among Dominicans in the U.S. and in the Dominican Republic. Important in this exploration is the embedded understanding of the social, political, and economic production of distress and disease, which have been identified as important areas to inform responses to health disparities in global health (Sargent & Larchanché, 2011).

Research on immigration and chronic diseases have examined the role of cultural beliefs and behaviors in the use of health interventions and treatment outcomes through the examination of immigrants' explanatory models of illness (Sargent & Larchanché, 2011). Particularly among immigrants (both documented and undocumented) in the U.S., barriers to health care utilization include language barriers, fears of the potential risks in health services use, and problems with insurance coverage (Sargent & Larchanché, 2011). Therefore, the exploration of related health beliefs and self-care practices surrounding hypertension in the Dominican Republic offers potentially significant implications to improve hypertension management among Dominicans and foreign-born Dominicans in the U.S.

Using Kleinman's Explanatory Model of Illness (1978), this paper highlights individual responses and strategies to manage *la presión* (hypertension) in four rural communities

in the Puerto Plata region of the Dominican Republic. The responses from these individuals help to begin to illustrate: (1) Dominican health beliefs, perceptions, and self-care practices related to *la presión*; (2) the individual strategies that contribute to the management of *la presión*; (3) the personal and social meaning of *la presión*.

## 2. Methods

This pilot study was conducted using a post explanatory mixed methods approach, informed by both inductive and deductive paradigms to understand Dominican health beliefs related to *la presión* (the why & in what context) (Guba & Lincoln, 1994). Over the course of 2 months, data collection was performed in sequential and overlapping stages due to limitations in resources, time, and physical access to more rural communities. Data collection and recruitment was developed into two stages where qualitative and quantitative data was obtained.

In the first stage, non-probability purposive sampling was used for the recruitment of study participants and Key Informants, who were affiliated with an international non-profit health organization based in the Puerto Plata region (Bernard, 2011:143-45). Qualitative data was collected using Key Informant and semi-structured participant interviews. A total of 15 Key Informant interviews were conducted using critical-case sampling (Bernard, 2011:146) of community health workers, family members of participants, organization staff, and affiliated health providers. Key Informant interviews were conducted using open-ended questions in a semi-structured interview format. Study participants were recruited using the following inclusion criteria: age 18 and older, enrollment in the organization's Chronic Disease Management Program, and residence in one of the four communities where the organization provides health services. Among study participants, a total of 49 semi-structured interviews were conducted, which included basic demographic data. Study participants were asked several questions that were adapted from Kleinman's Explanatory Model of Illness (1978), which included causes of their problem, symptoms of their problem, treatment related to their problem, and fears about their sickness. Interviews were audio recorded when consent was given, and written notes were taken during the interviews. All interviews were conducted in Spanish and coded using recurrent themes raised in interviews. Demographic data were compiled in tables and charts for illustrative purposes.

The second stage of the pilot study involved the collection of strictly quantitative data through a medical chart review using medical records gathered by the organization. Data on systolic and diastolic blood pressure, age, weight, gender, and prescription information were collected from a total of 79 medical chart reviews. The pilot study received Institutional Review Board approval from the University of California, Los Angeles. Data and methodological triangulation was achieved using multiple methods and the collection of a variety of data sources (e.g. medical charts and interviews). Descriptive data was compiled from information obtained in through the medical chart review. Management of hypertension was operationalized using blood pressure (systolic and

diastolic) data using readings from baseline enrollment in the Chronic Disease Management Program and the most recent blood pressure measurement documented. Among patients with hypertension, those with blood pressure readings of less than 140/90 were identified as 'controlled' while those with readings of greater or equal to 140/90 were identified as 'uncontrolled'. Among patients with hypertension and diabetes, those with blood pressure readings of less than 130/80 were identified as 'controlled' while those with readings of greater or equal to 130/80 were identified as 'uncontrolled'. Blood pressure reading guidelines were informed by the National Heart, Lung, and Blood Institute (2003).

### 3. Results

#### 3.1 Perceptions and beliefs around la presión

In response to an open-ended question about causes of *la presión*, heat was mentioned by 36% of study participants. Participants were asked open-ended questions regarding their perception of the community's awareness of *la presión*. Responses indicated that there is a high degree of awareness of *la presión* within their community. Among the 89.8% of those who indicated that people in their community were aware of *la presión*, 38.6% identified that people in their community suffered from it, and 20% of responses associated *la presión* with death. Responses related to heat and community awareness included: "*cuando se hace calor, se sube la presión*" (when it gets hot, the blood pressure increases), "*el caribe es caliente y comemos mucha sal y grasa*" (the Caribbean is hot and we eat a lot of salt and grease), "*se mata la presión*" (high blood pressure can kill you), "*la hace daño*" (it can harm you), "*necesita tranquilizarse porque se mata muy pronto*" (you need to be calm because it can kill you quickly), "*es peligroso*" (it's dangerous), "*por el calor, la gente sufre de la presión*" (because of the heat, people suffer from high blood pressure), "*todo el mundo tiene la presión*" (everyone has *la presión*).

#### 3.2 Strategies for managing la presión

Responses related to activities that participants did to help with the management of *la presión* included an array of items. Since all study participants enrolled in the Chronic Disease Management Program received hypertension medication from the organization at no cost, taking medication was accounted for in the prompt when participants were asked about other strategies they employed. Of the 42 participants, 40.5% indicated eating, drinking, or doing something else besides taking medication. Among those who indicating they did something else beside taking medication, the following were most frequently mentioned: drinking *agua con azúcar y (un chin) de sal* (a blend of sugar and water blend mixed with a little salt) (29.4%), drinking *agua* or *agua frío* (water or cold water) (29.4%), drinking *té de ani* or *té de chinola* (anise tea or passion fruit tea) (17.6%), drinking *agua vanilla con azúcar* (water and vanilla blend with sugar) (29.4%). Other less frequently mentioned responses included *bañarse* (take a bath), *té de cundeamor* (bitter melon tea), *aceite con*

*naranjas* (oil mixed with oranges), *noni* (tropical fruit noni), *descansa* (rest), *bebe/come cosa fresca* (drink or eat something cool/refreshing).

#### 3.3 Hypertension management

Results from the medical charts review illustrates a dichotomous distribution between participants with controlled versus uncontrolled blood pressure. Among the 49 study participants, 31% demonstrated improvements from baseline blood pressure readings from uncontrolled to controlled blood pressure, while 33% of participants demonstrated no change from uncontrolled baseline blood pressure readings. Among participants who had controlled blood pressure readings at baseline, 10% of those had uncontrolled blood pressure and 12% of those maintained control of their blood pressure at their most recent readings. Participants who had uncontrolled blood pressure also exhibited the following characteristics: lives alone, never attended school, unable to read, takes prescription pills two times per day versus once a day. Descriptive comparisons between participants by gender and ethnicity did not reveal noticeable differences in blood pressure control. A higher frequency of participants who have attended at least 1 year of school had controlled blood pressure. The average years of education among the entire sample of participants were 3.48 years with a median of 3 years.

### 4. Discussion

Results from the pilot study revealed a number of themes related to hypertension management in the Dominican Republic that have rarely been discussed in current literature. The term *la presión*, used considerably more commonly than *hipertensión*, was used to refer to hypertension (as a chronic illness) and having high blood pressure (as a short-term somaticized experience), is term with meaningful implications within this context. The term and condition of *la presión* encompasses an extremely dynamic set of health beliefs and perceptions that include emotions such as anxiety, stress, exhaustion, and makes implicit reference to the socioeconomic and political environment in which they live in. The concept of heat and water in the majority of responses related to *la presión* evokes underlying meanings related to the humoral theory that require further exploration and analysis.

Themes related to Dominican health beliefs, perceptions, and self-care practices as identified within literature include: the significant role of family in health and self-care practices; the utilization of plant remedies; the concept of hope and resiliency in health perceptions and health beliefs; the influences of hot-cold theory; the integrative use of formal and informal services; and influences of Afro-Caribbean syncretic folk beliefs. One of the key indicators of Dominican health practice and self-care decisions is the major theme of valuing generic (folk) and professional care practices to promote health. Schumacher (2010) found little distinction and boundary between "professional, generic, spiritual, and remedy-based" care practices. This seamless co-existence between informal and formal services, traditional/folk medicine and biomedicine is another strong characteristic of Dominican

self-care practice and the fluidity in employing strategies across the continuum. Use of plant remedies, family members or neighbors, and hypertension medication were identified tools employed by some individuals within the pilot study. There is potential in the coordination of treatment using professional, traditional, spiritual and remedy-based practices among Dominicans and foreign-born Dominicans in the U.S. in hypertension management. The implications of utilizing mixed methods in Dominican health practices leads to the question of how much collaboration exists between biomedical providers, traditional/spiritual healers, and communication between patients and providers of home remedies.

#### 4.1 Network of Support

Similar to findings in this pilot study, individuals with hypertension who were living alone, never attended school, and taking medication more than once a day were more likely to have uncontrolled blood pressure. Key informant interviews with community health workers, patients, and family members of patients acknowledged the importance of having a support system to assist as daily or weekly reminders for participants to take their medication. This was especially true for participants age 60 and older who were living alone or taking more than one pill a day. The absence of a supportive individual, education, and managing medication more than once a day speak to the important role of family members or other supportive individuals, including community health workers in the management of hypertension. Schumacher (2010) also found that family presence was essential for meaningful care experiences and practices among rural Dominicans. Findings from Schumacher (2010) suggest that in self-care, consultation and support from family is common practice and in fact, essential to meaningful care experiences.

#### 4.2 Utilization of herbal and plant remedies

The use of herbal and plant remedies is documented as a widely used form of self-care among Dominicans (Vandebroek et al., 2010), and is a practice that is vital to sustaining and defining cultural identity (Brosi et al., 2007). Use of herbal and plant remedies by participants in the pilot study as a strategy to manage their high blood pressure was noticeable. The use of plants, vegetation and home remedies to promote health and well-being was also identified in an ethn nursing study exploring meanings, beliefs, and practices of care among rural Dominicans (Schumacher, 2010). Literature on plant remedy use among Dominicans support similar findings from this pilot study. Other herbal preparations used among Dominicans (in the U.S. and the Dominican Republic) include the *botella*, a bottled herbal mixture containing a combination of plant parts, spices, and other non-plant ingredients, *bebedizos* (medicinal brews), and *baños* (aromatic baths) (Vandebroek et al., 2010). Brendbekken (1998) found that not all conditions are treated with mixtures and observed that among rural people in the Dominican Republic, “the more complex a health problem, the more plants are combined”. Ososki, et al. (2002) conducted a literature review of

ethnobotany in the Dominican Republic and found 87 species reported in Dominican literature for treatment and conditions that range from abnormal uterine bleeding, chronic pelvic pain, menopausal hot flashes, anxiety, and infertility. However, Ososki et al. (2002) only identified plant use among Dominicans in the U.S. and in the Dominican Republic for women’s health conditions and not for hypertension. The study, however, does further validate the role of plant remedies for health conditions among Dominicans in both the U.S. and in the Dominican Republic.

#### 4.3 Influences of political economy

Sargent & Larchanché (2011) point to the influences of political economy as central to understanding health systems. Constructing relevant and effective programs for hypertension management and other chronic diseases for Dominicans involves nuanced assessments of the social and historical context of the community. Results from this pilot study add to the significance of understanding economics and politics in shaping the health status of immigrant populations and patterns of health service utilization (Sargent & Larchanché, 2011). The influence of economics and politics on the health of Dominicans is an area that requires further exploration. Findings here related to the use of the sugar and water blend with added salt are anecdotally suggestive of individual responses to dehydration and heat stress. In addition, the apparent awareness of the negative impact of *la presión* within the communities in the pilot study and its relation to access and utilization of health services is another topic that deserves further exploration. These terms such as *infarto*, *calor*, *la presión*, *dolor de cabeza*, and *agua con azúcar y un chin de sal* make up a unique vocabulary of illness that perhaps influences the utilization of health services and self-care strategies among Dominicans and Dominican immigrants.

Findings from this pilot study include limitations to external validity of results to other communities. Additional limitations include accuracies in translation of responses when an interpreter was used for Haitian Creole and errors in blood pressure readings due to cuff size. Study participants who were recruited for participation are also unique to the communities due to services provided by the non-profit health organization, including the assistance of community health workers, cost-free prescription medication, and enrollment in the organization’s Chronic Disease Management Program. Pilot study participants are not a representative sample of individuals with hypertension in the Dominican Republic. Findings from this pilot study serve to provide and highlight gaps in literature and areas for future investigation. The pilot study was also conducted in a highly resource limited setting, which altered the sequence of data collection due to weather and inaccessibility of roads to more distant and rural communities.

Findings are suggestive of the underlying economic and social contexts that influence the self-care practices and perceptions related to hypertension within these communities. Understanding the dynamic influences and differences between these factors among foreign-born and U.S. born Dominicans in their unique social, political and economic

contexts provide significant implications to inform chronic disease management programs targeting hypertension and areas for future exploration.

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