



## Sustainable water consumption: The perspective of Hispanic consumers



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### ABSTRACT

This study aims to explore the role of Hispanic consumers' beliefs on water, drought and relevant resources in shaping their perceptions, self-reported behavior, and behavioral intention toward sustainable water consumption that embraces not only habitual activities of water conservation but also proactive actions that consumers take in their purchase decisions. We developed a comprehensive model depicting how water beliefs (utilitarian water belief, ecological water belief, perceived drought severity, and water resource concern) affect attitude, subjective norm, perceived control, and moral obligation toward sustainable water consumption, which in turn affects sustainable water consumption behavior and sustainable water appliance adoption intention. Data were collected through an online survey with a sample of 825 Hispanics in the United States. Model testing results indicated the significant effects of utilitarian water belief, ecological water belief, and water resource concern on Hispanic consumers' perceptions and behaviors toward sustainable water consumption. Theoretical and practical implications are discussed.

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### 1. Introduction

As climate change increasingly affects rain and weather patterns, the importance of drought and water issues has captured consumers' attention (Dascher, Kang, & Hustvedt, 2014). Consumers' awareness has provided new opportunities for consumer advocates and policy makers to encourage consumption practices that reduce water usage. With the political climate in drought-prone regions progressively highlighting conservative water consumption, government agencies like the U.S. Environmental Protection Agency (EPA) actively run comprehensive water conservation programs. Most major cities in the U.S. incentivize the adoption of sustainable water options through rebates and giveaways and try to foster water conservation through mandatory restrictions (e.g., watering schedules, residential car washing bans), education programs (e.g., WaterWise seminars, conservation brochures), and services (e.g., free irrigation checkups, minor plumbing fixes).

The opportunity to reduce the impact of consumer behavior on water supplies is important not only in the consumer usage phase;

there are also opportunities for consumers to make purchase decisions based on the amount of water required to produce products or what the product will require to operate post-purchase. For instance, the Water < Less™ jeans from Levi's are produced using an average of 28% less water, saving over 172 million liters of water during production annually (Levi's, 2015). Apparel retailer, H&M lets consumers know about its partnership with the World Wildlife Fund which focuses specifically on the availability of water resources in water-stressed regions (H&M, 2015). Coca-Cola touts about meeting its goal of replacing 100% of water extracted for drink production with clean water (Coca-Cola, 2016). There has also been a significant growth of markets available for water-efficient household products including appliances, fixtures, and other household technologies. With the success of the Energy Star® appliance models, which are independently certified appliances that save energy without compromising features or functionality (Energy Star, 2015), companies are beginning to produce larger lines of WaterSense® products. WaterSense® is a partnership program sponsored by the EPA that seeks to protect and ensure the future of American water supply by promoting and enhancing the market for water-efficient products (U.S. General Services Administration, 2015).

Despite the current political climate and market situations promoting consumers' choice of water-efficient options, there is a

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lack of empirical studies on consumers' beliefs regarding drought and water as the underlying factors affecting their decisions on sustainable water consumption. For this study, we define *sustainable water consumption* in an expansive manner. It refers to a broad range of consumer behaviors related to water not only to habitual actions of water conservation, such as reducing the use of water while conducting household tasks, but also to proactive behaviors like making purchase decisions with a consideration of the amount of water required throughout the product lifecycle. Proactive methods of sustainable water consumption include choosing water-efficient products, supporting brands that take water-conscious initiatives in their production, and considering the use of water that might be required for the maintenance of products before making a purchase. A unique contribution of this study is that it conceptualizes sustainable water consumption as embracing proactive actions that consumers can embed in their purchase decisions beyond changing household habits to reduce their use of water.

The purpose of this study is to understand the role of Hispanic consumers' beliefs related to drought and water resources in shaping perceptions and behaviors related to sustainable water consumption. We focus on Hispanics because of their significance to the national economy as consumers. Hispanics, as an ethnic group, are the largest minority population in the U.S., constituting 17.1% of the population (U.S. Census Bureau, 2014a; 2014b). From the 2000 census to the 2010 census, the Hispanic population in the country grew by 43% from 35.3 million to 50.5 million people. Understanding the role of Hispanics as not only passive consumers but also proactive citizens in the U.S. becomes more significant in the future than it is today. In addition, many Hispanic consumers live in regions that are facing serious challenges from climate change, including droughts, recorded-high heats, and water shortages. Hispanics' environmental attitudes may be different from that of non-Hispanic Americans (Schultz, Unipan, & Gamba, 2000), however, results from previous studies that looked at environmental topics are not consistent when it comes to predicting behaviors for this ethnic group (Burger & Greenberg, 2006; Campbell, Johnson, & Larson, 2004). The previously stated reasons explain why Hispanics should be the focus of water consumption research, yet there are a lack of recent empirical studies that comprehensively examine sustainable water consumption focusing on this ethnic group as consumers. By addressing the gap that remains in the literature, this study contributes to building upon the body of knowledge on Hispanics with a study focused on the urgent issue of water consumption.

## 2. Literature review

### 2.1. Theoretical framework for sustainable consumer behavior

The body of literature examining sustainable consumer behavior has blossomed in the 30 years since early studies such as Seligman et al. (1979) explored the attitudes of people likely to engage in environmental behavior or Dunlap and Van Liere (1978) which laid out a measure of environmental attitudes. One strong line of research has focused on adapting the theory of planned behavior (TPB; Ajzen, 1991) to explain the intention to engage in a whole variety of sustainable behavior. These studies have moved assertively away from the original model in an effort to better explain behaviors such as the purchase of energy efficient light-bulbs and recycling (Harland, Staats, & Wilke, 1999; Nigbur, Lyons, & Uzzell, 2010; do Valle, Reis, Menezes, & Rebelo, 2004). Adaptations to the original model which contained three variables (attitude, subjective norm, and perceived behavioral control) include the addition of moral obligation (Chan & Bishop, 2013), self-

identity (Sparks & Shepard, 1992), and utilitarian outcomes (Fransson & Gärling, 1999). Other researchers, such as Stern (2000) or Klöckner (2013) have focused on including variables, such as beliefs and values, which they characterize as antecedents to specific variables tied to behaviors. A large body of research dedicated to environmental behaviors agrees that nonspecific environmental constructs (such as altruism) do not directly predict specific environmental behaviors (such as recycling) but are mediated by more specific constructs that evaluate the behavior (attitude towards recycling) (Kaiser, Wölfing, & Fuhrer, 1999; Vining & Ebreo, 1992). For this reason, while the conceptual model of this study includes some variables that are in the TPB, the addition of variables such as utilitarian water belief, ecological water belief, perceived drought severity, water concern, and the inclusion of two measures of self-reported behavioral constructs, is intended to allow a view of the better and logical "flow" of variables that explain the core concept of interest—sustainable water consumption (see Fig. 1).

### 2.2. Utilitarian water belief and ecological water belief

Motivations (Corral-Verdugo, 2002), skills (Corral-Verdugo, 2002), and normative or facilitating situations (Aitken, McMahon, Wearing, & Finlayson, 1994) have been found good predictors of water consumption, however, environmental beliefs have also been identified as an important potential predictor (Gray, 1985; Scott & Willits, 1994). Corral-Verdugo, Bechtel, and Fraijo-Sing (2003) split environmental beliefs, specifically those related to water and conservation behavior, into utilitarian and ecological water beliefs. *Utilitarian water belief* causes the individual to view water purely as a resource that exists to be used by humans in an arbitrary way. On the other hand, those with *ecological water belief* view water as a limited resource that humans have a responsibility to conserve. In the only previous study that looked at Hispanics and water consumption, Corral-Verdugo et al. (2003) used a sample of 512 Mexican citizens living in the two largest cities in the state of Sonora, Mexico. They found that utilitarian water belief positively influenced water consumption rates (measured by the daily mean time in minutes spent on activities such as taking a shower, washing dishes, watering plants, and brushing teeth) and ecological water belief was negatively related to water consumption rates. The items measuring these two variables, utilitarian water belief and ecological water belief, were adapted as important constructs of interest in this current study.

The expected influence of utilitarian water belief or ecological water belief on Hispanic consumers' perceptions, self-reported behavior, and behavioral intention toward sustainable water consumption is not uniform. It is expected that Hispanics' utilitarian water belief negatively affects their favorable attitudinal stance and interest in water conservation (i.e., sustainable water consumption *attitude*), the feeling of pressure from other people to engage in water conservation (i.e., sustainable water consumption *subjective norm*), and their inner sense of responsibility that conserving water is a moral thing to do (i.e., sustainable water consumption *moral obligation*). It is also plausible that utilitarian water belief negatively affects the extent of water conservation behavior a consumer states he/she is currently engaging in at home as well as selecting products with water consciousness in mind (i.e., sustainable water consumption *behavior*) or behavioral intention to adopt water-saving or water-conservation household products such as appliances or related fixtures in the near future (i.e., sustainable water appliance adoption *intention*). It should be noted that behaviors for this study refer to "self-reported" behaviors. Meanwhile, the feeling that water is intended for human use (i.e., utilitarian water belief) should positively impact perceptions of control over decisions, such as how much water they use or what types of water appliances they

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