The Norm Activation Model Predicting Water Consumption: Mediation versus Moderation Model

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Introduction

The Norm Activation Model (NAM: Schwartz, 1977) has been broadly applied for predicting a number of proenvironmental behaviors. According to the NAM, proenvironmental behavior can be explained by three psychological dimensions related to environmental problems: Personal Norms (PN), Awareness of Consequences (AC), and Ascription of Responsibility (AR).

Referring to the study on prosocial behaviors carried out by De Groot and Steg (2009), we tested here two alternative interpretations of the NAM, i.e. the mediator vs. the moderation model. The former claims respectively that AC is an antecedent of AR, AR is an antecedent of PN, and PN influences environmental behavior, whereas the latter assumes that the influence of PN on the proenvironmental behavior is moderated by AC and AR.

We expected that the mediation model is better than the moderator model in predicting the target proenvironmental behavior, i.e. "real" water consumption at the household level.

Participants and Procedure

Participants in the study were 501 households in San Marcos, California, recruited from a larger survey sample of 1600 households.

Measures

Those households that provided signed access to their annual water usage from the local water company were included in the study. Thus, we relied on an "objective" measure of water consumption.

Personal Norms (PN) about water problems were measured with 7 items (*e.g., I feel a personal obligation to save as much water as possible*; α=.91, *M*=3.93, *SD*=.72).

Ascription of Responsibilities (AR) was measured with 3 items (*e.g., I feel personally responsible for overusing fresh water*; α=.59, *M*=3.17, *SD*=.81).

Awareness of Consequences (AC) was measured with 4 items (*e.g., Overusing fresh water is a problem for society*; α=.81, *M*=3.90, *SD*=.76).

Results

Following the procedure suggested by MacKinnon and Fairchild (2009), we found support for the mediation model. After controlling for AR, PN significantly and negatively predicted water consumption (adj.R^2=.04, $F_{2,317}$=7.22, p<.001). Also, AR significantly and positively predicted PN (adj.R^2=.20, $F_{1,494}$=120.62, p<.001). The Goodman version of the Sobel Test supported the mediation of PN in AC-water usage relationship (t=-3.51, p<.001).

After controlling for AC, AR significantly and positively predicted PN (adj.R^2=.39, $F_{2,492}$=157.52, p<.001). Also, AC significantly and positively predicted AR (adj.R^2=.24, $F_{1,493}$=160.19, p<.001). The Goodman version of the Sobel Test supported the mediation of AR in AC-PN relationship (t=4.44; p<.001).

As regards the moderation model, multiple regression analyses showed that the relationship between PN and water usage was not moderated by neither AC nor AR.

Discussion

Results support the mediation path of NAM for a proenvironmental behavior like water consumption, thus confirming the findings of De Groot and Steg (2009) on a different target behavior. It seems that one

must be aware of an environmental problem before feeling responsible to engage in such behavior. In turn, responsibility feelings activate feelings of moral obligation to act proenvironmentally. Finally, personal norms induce proenvironmental behavior.