

Who turns to acupuncture?

The role of mistrust of rationality and individualist success

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### **Abstract**

**Objective:** In our postmodern society, people tend to abandon conventional medicine for alternative medical systems such as acupuncture. What are the reasons for this defiance regarding modern rationality and individualist success? Who turns to acupuncture?

**Method:** In this study ( $N = 89$ ), we examined whether world views opposed to the predominance of rationality (i.e. mistrust of science, spirituality, paranormal beliefs) and individualist success or consumerism (i.e. power, achievement, and materialism), typically associated with the postmodern era, might explain this attraction toward acupuncture. Participants were recruited through forums on the internet interested in CAM and completed the questionnaire voluntarily.

**Results:** Attraction to acupuncture related negatively with materialism and achievement as well as positively with spirituality, paranormal beliefs, and mistrust in science. Spirituality, paranormal beliefs, and low achievement were the main predictors of attraction to acupuncture and explained 44% of the variance. The mistrust in science mediated the relationship between spiritual and paranormal beliefs and the attraction toward acupuncture. Low achievement explained the link between low materialism and positive attitudes toward acupuncture.

**Conclusion:** The general mistrust of our rational and individualist modern society is indeed an important predictor of attraction toward acupuncture, besides demographic variables.

**Keywords:** acupuncture, CAM, paranormal beliefs, spirituality, values, trust in science

## Who turns to acupuncture?

### The role of mistrust of rationality and individualist success

In the last decades, the use of complementary and alternative medicine (CAM) such as acupuncture has grown constantly.<sup>1</sup> In 2002, 36% of adults in the United States reported to have used CAM during the past 12 months.<sup>2</sup> Accordingly, researchers began investigating the pathways leading to the choice of alternative medicine and attempting to define a profile of CAM users.<sup>3,4</sup> While at first only demographic profiles, health status, and expectations or beliefs about medicine were investigated<sup>5,6</sup>, a growing body of literature is now trying to explain the success of CAM by looking at more general values, beliefs, or world views rather than superficially describe the users. Nevertheless, most researchers investigate potential predictors (e.g., personality, values, or beliefs) of CAM attraction separately without integrating them in a coherent theoretical framework.<sup>7,8,9</sup> Finally, most of the studies investigated different predictors of CAM attraction but did not provide us with mechanisms that might explain the observed relationships. In this study, we argue that the postmodern thesis might be a valuable framework in investigating the success of CAM. World views associated with the postmodern era including a growing mistrust of rationality, science, consumerism, and individualist success (e.g., attraction to spiritual or paranormal beliefs, low interest in materialist values, and mistrust of science) were investigated. Moreover, mediation models were tested in order to better understand the attraction for and use of CAM.

### **Defining complementary and alternative medicine (CAM)**

In general, complementary and alternative medicine is defined as a group of very diverse medical and health care systems, treatments, therapies, and products beyond the scope of conventional medicine. More precisely, the National Center for Complementary and Alternative Medicine in the United States defines CAM as “healthcare practices that are not an integral part of conventional medicine”. This definition of CAM allows a great diversity of

practices, from prayer therapy to complex medical systems such as the traditional Chinese medicine, to be classified under the same umbrella. Nevertheless, most of these alternative medical systems or therapies share some characteristics, beyond their exclusion of conventional medicine: the use of complex interventions, individualized diagnosis and treatment, and the treatment of the “whole” person.<sup>2</sup>

CAM involves a quite different understanding of the biological processes as well as a different way to process information in general.<sup>3,9</sup> Past studies have indeed showed that American adults who held a holistic view of health were more likely to turn to CAM<sup>6</sup>, that CAM users refer to their intuition when explaining why they turned to CAM<sup>10</sup>, and that CAM beliefs were related to intuitive thinking.<sup>11</sup> To avoid any possible confusion and diversity caused by the term “complementary and alternative medicine”, we focused on a prototypical alternative therapy included in the Traditional Chinese medical system: acupuncture. Acupuncture presents the specific and distinctive aspects of CAM and exemplifies the holistic approach of patients and treatments.

### **Who becomes interested in CAM?**

The rise of CAM was first explained as a consequence of the ageing population and the growing emphasis on chronic illness such as chronic pain. Conventional medicine might indeed be perceived as less efficient in confronting that kind of lifestyle-related morbidity compared with CAM.<sup>12</sup> Consistently, previous research has found that CAM users were more likely to be older<sup>9</sup> and women<sup>5</sup>, have poorer health-status<sup>6</sup>, and to have experienced less satisfaction with conventional medicine.<sup>13</sup> Nevertheless, according Pettersen and Olsen, these kinds of demographic variables explain very little of the variance in CAM attitudes compared to world views and beliefs.<sup>14</sup>

According several authors, dissatisfaction with conventional medicine or demographic variables are not the main reasons one turns to alternative medicine.<sup>6,9,14</sup> People use CAM

mostly because these health systems are more congruent with their values and beliefs. Some researchers have argued that this rise in the demand for CAM might be explained by the so-called postmodern thesis.<sup>12</sup> The postmodern thesis posits that a social change has occurred in which faith and trust in science has declined.<sup>15</sup> People in this postmodern era have turned to less materialist concerns, green movements, or new spiritual movements and look for alternative medical systems in accordance with their new value system and world views.<sup>16</sup> There is a struggle for re-enchantment in the postmodern era which doubts about the ability of science to find the absolute truth. Other research indirectly supports this postmodern thesis by showing how world views characterizing the postmodern era relate to CAM attraction.

In this line, the use of, and attraction toward, CAM has been found to relate strongly to negative attitudes toward medical science and paranormal beliefs in several studies.<sup>3,7,9,17,18</sup> Furthermore, Astin found that CAM use was associated with valuing sustainability, human rights, peace and altruism but not materialism<sup>6</sup>. Nevertheless, Saher and Lindeman found only a weak association between self-transcendence values (i.e. Universalism and benevolence) and attitudes toward CAM which disappeared when controlling for other variables such as paranormal beliefs.<sup>3</sup> Finally, researchers have also tested the potential impact of personality traits on CAM attraction, with the results being quite scarce and mixed. In one study, Honda & Jacobson found a positive association between openness to experience and the use of CAM therapies.<sup>8</sup> Nevertheless, Furnham found no relationship between the Big Five personality traits and attitudes toward CAM.<sup>7</sup>

### **The present study**

In the present study, we tested the potential impact of world views typically associated with the postmodern era (i.e. mistrust of rationality and individualist success) on the attraction to acupuncture.<sup>12</sup> In accordance with the literature and our hypothesis, we tested the role of paranormal beliefs in the attraction to acupuncture.<sup>3</sup> Furthermore, to avoid being restricted to

paranormal beliefs, we additionally included spirituality as a potential predictor of attitudes toward acupuncture since (1) the turn to spirituality rather than traditional religions is one of the characteristics of the postmodern era and (2) spirituality is linked to paranormal beliefs and has often even been conceived as a dimension of the latter but is more normative.<sup>19</sup> Finally, mistrust of science was measured as a potential predictor of attraction to acupuncture. Nevertheless, contrary to what has already been tested in the literature, the attitude toward science in general (not only medical science) was measured.<sup>7,17</sup> The attitudes toward medical science might be too specific and easily negatively correlated with attitudes toward acupuncture.

In addition to the mistrust toward rationality, we also hypothesized that people might turn to acupuncture because they value less the individualist ideal of success and consumerism. Following Astin, universalism, low achievement, and low materialism were hypothesized to predict attraction toward acupuncture.<sup>6</sup> Even if Saher and Lindeman found only weak associations between self-transcendent values and attitudes toward CAM in their study, they looked at self-transcendent (universalism and benevolence) values in general and did not investigate the specific effect of universalism.<sup>3</sup> Furthermore, we measured the extent to which participants valued achievement since this value is less emphasized in the postmodern era and correlate negatively with spirituality. Finally, in order to control for the potential impact of personality and demographic variables, we additionally measured openness to experience (since it was the only personality trait found to relate to CAM beliefs<sup>8</sup>), age, and gender.

## **Method**

### **Participants**

Participants ( $N = 89$ ; 62% women) were recruited through forums on the internet interested in CAM and took part in the study voluntarily. These forums gather people who are

interested in complementary and alternative medicine without being regular practitioners or users. The study was posted on forums and advertised as a research investigating the rise of CAM such as acupuncture. The participants who agreed to participate took the survey online. Participants self-identified as French ( $N = 43$ ), Belgian ( $N = 36$ ), North African ( $N = 7$ ), or European ( $N = 2$ ). Mean age was 33.15. Around 76% of the participants had never tried acupuncture, 13% had tried only once, and 11% used acupuncture several times a year. Nevertheless, almost 65% of the respondents reported to know at least one of their acquaintances who has been treated by acupuncture. These participants were quite representative of the targeted population for this study since they were likely to be open to acupuncture (and CAM in general) but were not experts or practitioners.

### Measures

**Attraction to acupuncture.** Attitudes toward acupuncture were measured with 18 items (Likert scale ranging from 1 = *totally disagree* to 5 = *totally agree*). The scale was created to assess the openness to, and beliefs about, acupuncture (e.g., “If I had the opportunity, I would be willing to try acupuncture”, “Acupuncture can treat some disorders”). This scale was inspired from Vincent and Furnham’s scale investigating attitudes toward alternative medicine in general.<sup>4</sup> Satisfactory reliability ( $\alpha = .82$ ) and a six factors structure explaining 64% of variance was found. The frequency with which participants use acupuncture was additionally measured using a single item rated on a 5-point Likert scale (ranging from 1 = *I never use acupuncture* to 5 = *I use acupuncture as a treatment five times a year or more*).

**Spirituality.** Spirituality was measured using the Spiritual Transcendence Scale.<sup>20</sup> Participants had to rate their degree of agreement with 15 items on a Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree* ( $\alpha = .83$ ).

**Paranormal beliefs.** The Revised 18-items Paranormal Beliefs Scale was used to measure paranormal beliefs.<sup>21</sup> Respondents were invited to rate their agreement with the items on a 5-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree* ( $\alpha = .91$ ).

**Mistrust of science.** The extent to which participants display a negative and distrustful vision of science was measured with 5 items (e.g., “Science removes his humanity to the world”, “The progress of mankind can only be achieved by science(r)”) created for this study (Likert scale ranging from 1 = *totally disagree* to 5 = *totally agree*). A two factor structure explaining 59% of the variance was found representing the non-reversed and reversed items. Reliability was moderate possibly because of the limited number of items used to capture such a complex concept ( $\alpha = .56$ ).

**Materialism.** The Values-Oriented Materialism Scale was used to measure materialism.<sup>22</sup> The 13 items ( $\alpha = .85$ ) rated on a Likert scale ranging from 1 = *totally disagree* to 5 = *totally agree* designed to assess the success (appreciate individuals’ success through material possessions) and centrality (material possessions are at center of life) dimensions of materialism were used. The two factors representing each dimensions explained 50% of the variance and strongly correlated ( $r = .60, p < .01$ ).

**Universalism and achievement.** The values of universalism and achievement were measured using the relevant items from the Portrait Values Questionnaire.<sup>24</sup> For each portrait describing a person’s values, participants had to rate how similar they were to the person (Likert scale ranging from 1 = *not at all like me* to 6 = *totally like me*). Whereas universalism was measured with 6 items, 4 items assessed Achievement ( $\alpha$ s = .80, .86).

**Openness to experience.** Openness to experience was measured using the 12-item scale from the NEO-Five Factor Inventory.<sup>23</sup> Reliability for this scale was satisfactory ( $\alpha = .60$ ).

## Results

Correlations of acupuncture measures with all the other variables are reported in Table 1. In general, the measures of acupuncture were positively associated with spirituality and paranormal beliefs. Furthermore, negative correlations were found between the measures of acupuncture and trust in science, materialism (except for the practice of acupuncture), as well as achievement. Finally, no significant correlations were found between openness to experience, universalism, and the attraction for acupuncture (attitudes toward, and practice of, acupuncture).

To better understand which variables were the main predictors of attraction for acupuncture, hierarchical multiple regressions were conducted. In the first step, age and gender were included as predictors whereas, in the second step, spirituality, paranormal beliefs, trust in science, materialism, and achievement were introduced in the model. As an outcome variable, we computed the measures of attitudes toward, and practice of, acupuncture together, providing us with a unique integrated score of attraction for acupuncture ( $r = .44, p < .001$ ). The 19 items (18 items from the attitudes toward acupuncture scale and 1 item assessing practice of acupuncture) were then averaged and demonstrated a good reliability ( $\alpha = .83$ ). Results of the regression analysis are reported in Table 2. The demographics (age and gender) were found to be significant predictors of attraction for acupuncture and explained 25% of the variance. The attraction for acupuncture increased as a function of age and gender (older people and women were more likely to be attracted to acupuncture). When the other predictors were included in the model, the percentage of explained variance increased to 44%. Spirituality, paranormal beliefs, and achievement were found to be additional significant predictors of the attraction to acupuncture. The more people were spiritual, believed in the paranormal, and the less they valued achievement, the more susceptible they were to the attraction of acupuncture.

Since significant correlations were found between trust in science and (a) spirituality ( $r = -.32, p = .002$ ) as well as (b) paranormal beliefs ( $r = -.32, p = .002$ ), two simple mediation analysis were conducted with spirituality and paranormal beliefs as predictors, trust in science as a mediator, and the general attraction to acupuncture as an outcome.<sup>25</sup> Bootstrap analysis revealed that the indirect effect of (a) spirituality and (b) paranormal beliefs through trust in science on the attraction to acupuncture was significant, (a) IE = .09, SE = .05, 95% CI = [.02, .25], (b) IE = .09, SE = .05, 95% CI = [.01, .23]. Standardized regression coefficients for these models are reported in Figure 1. Finally, as a significant correlation was found between materialism and achievement ( $r = .33, p = .002$ ), a third simple mediation analysis was conducted with materialism as predictor, achievement as mediator, and positive attitudes toward acupuncture as outcome. In accordance with previous studies, materialism is known to be associated with and evoke achievement goals and motivation.<sup>26,27,28</sup> Individuals who value materialism are indeed known to pursue self-enhancement and achievement, or more specifically materialistic achievement.<sup>29</sup> As expected, materialism has been found to have an indirect effect on positive attitudes toward acupuncture through achievement, IE = -.10, SE = .05, 95% CI = [-.24, -.02]. Standardized regression coefficients are reported in Figure 2.

### Discussion

In this study, in accordance with previous findings, we highlighted that demographic variables were not sufficient in explaining the attraction to acupuncture. In line with our hypothesis, the mistrust of rationality and individualist success or consumerism were found to be important predictors of attraction to acupuncture. People who are spiritual, not materialist, and who endorse paranormal beliefs are indeed more likely to be attracted to acupuncture. Furthermore, when looking at the mechanisms, mistrust of science was found to partially explain the relationship between the attraction to acupuncture and spiritual/paranormal beliefs. People who endorse spiritual and paranormal beliefs are indeed less inclined to trust

science, which in turn increases the attraction to acupuncture. In addition, an indirect relationship linking materialism and attraction to acupuncture through achievement was found. Individuals who are not materialistic tend indeed to value achievement less and, subsequently, are more inclined to hold positive attitudes toward acupuncture. Nevertheless, personality was not a significant predictor of attraction to acupuncture. Taken together, these findings seem to support the postmodern thesis<sup>12</sup> that world views (including beliefs or values) associated with the postmodern era might explain the rise of, and attraction to, acupuncture and maybe, more generally, to CAM.

Despite the efforts made to design a well-thought and coherent survey, this study is of course subject to some limitations. First, our sample was not huge in size and provided us with few regular practitioners of acupuncture. This prevented us from using more sophisticated data analysis such as structural equation modeling which could be of interest to test the various simple mediation models in a single more complex model. Second, this study focused on acupuncture and did not take other types of CAM into consideration. The use of a single and specific type of CAM might be seen as a strength but also as a weakness. On one hand, focusing on a specific type of CAM avoids possible confusion caused by the term “complementary and alternative medicine”. On the other hand, by choosing a single type of CAM, the generalizability of the findings to other types of CAM is questionable. One should then be particularly cautious in not over-interpreting the present results as applying necessarily to CAM in general. Nevertheless, as previously stated, the particular alternative therapy included in this study (acupuncture) perfectly exemplifies the specific and distinctive aspects of CAM. Similar patterns of results might thus be expected when investigating other specific types of CAM.

This paper provides a new and comprehensive insight into the rise of, and attraction to, acupuncture over the last decades. The recent attraction to acupuncture was not only

explained by demographic variables such as age or gender but also by a mistrust of our modern, rational, and individualist society (mistrust of science, increase of paranormal beliefs and spirituality, low concern for achievement and materialism. In this study, a first attempt to highlight the mechanisms explaining the attraction for acupuncture was made. The mediation models provide us with interesting information, but we should keep in mind that mistrust in science only partially mediated the relationship between paranormal/spiritual beliefs and the attraction toward acupuncture. These results leave room for other investigations to attempt to complete our understanding of the impact of postmodern world views on attraction to acupuncture. To conclude, it is our conviction that, in our postmodern era, therapists and practitioners of conventional medicine should be aware of the reasons why people turn to CAM such as acupuncture. A better understanding of this phenomenon could indeed provide the health practitioners with tools to better respond to this new demand and to better meet the concerns of their patients.

**Author disclosure statement**

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Table 1

*Coefficients of Correlation Between All Variables*

	Attitudes toward acupuncture	Practice of acupuncture
Spirituality	.31**	.23*
Paranormal beliefs	.18+	.30**
Mistrust of science	-.25*	-.29**
Materialism	-.22*	-.01
Universalism	.05	-.04
Achievement	-.25*	-.20+
Openness to Xp	.14	.05

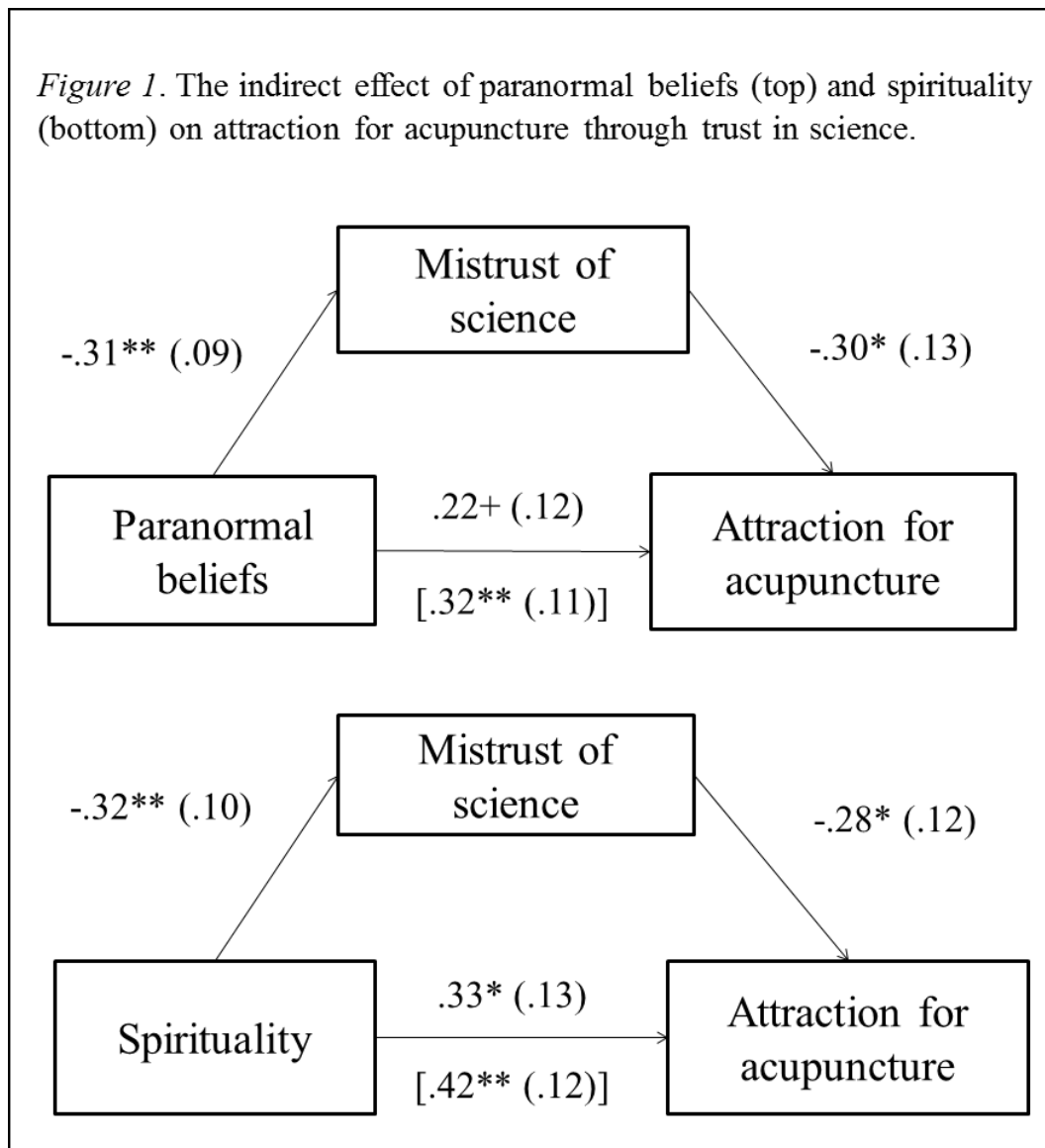
+ $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .

Table 2

*Hierarchical Multiple Regression of the Attraction for Acupuncture (attitudes toward and practice of acupuncture) on Age, Gender, Spirituality, Paranormal Beliefs, Mistrust of Science, Materialism, and Achievement*

Predictors	Attraction for acupuncture		
	$\beta$	<i>t</i> -test	<i>p</i>
Step 1			
Age	.36	3.73	.000
Gender (1 = men, 2 = women)	.35	3.61	.001
$R^2 = .25$			
Step 2			
Age	.25	2.48	.015
Gender (1 = men, 2 = women)	.29	3.33	.001
Spirituality	.22	2.19	.032
Paranormal beliefs	.19	1.95	.051
Mistrust of science	-.07	-0.76	.448
Materialism	-.03	-0.29	.769
Achievement	-.24	-2.33	.022
$R^2 = .44$			

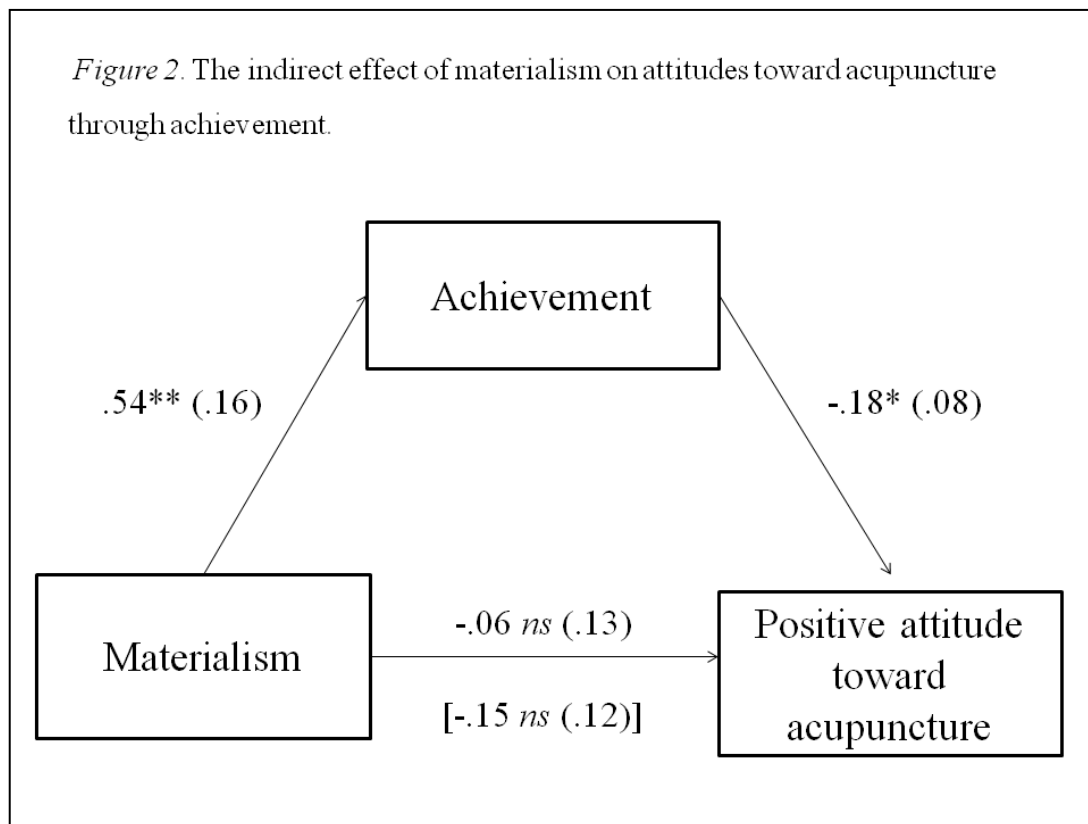
Figure 1. The indirect effect of paranormal beliefs (top) and spirituality (bottom) on attraction for acupuncture through trust in science.



+  $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .

Note. Numbers in paths represent unstandardized regression coefficients. Standard errors are in parenthesis. The total effects (c) are in brackets.

Figure 2. The indirect effect of materialism on attitudes toward acupuncture through achievement.



\*\*  $p < .01$ . \*  $p < .05$ .

*Note.* Numbers in paths represent unstandardized regression coefficients. Standard errors are in parenthesis. The total effect (c) is in brackets.