Rural-Urban Differences in Environmental Concern, Attitudes, and Actions

Jaime Berenguer, José A. Corraliza, and Rocío Martín

Universidad Autónoma de Madrid, Spain

Abstract. Pro-environmental orientation constitutes one of the basic referents of modern culture. However, this pro-environmental orientation of a general nature does not permit us to predict pro-environmental behaviors. In order to explain this incongruence, it is necessary to take into account the sociostructural factors and socialization experiences through which people form their environmental values, attitudes, and behaviors. In this study we compare the values, attitudes, and behaviors of a rural sample and an urban sample, measured by means of three scales: the New Ecological Paradigm Scale, a moral obligation scale specifically designed for this study, and a scale of pro-environmental behavioral intentions. The results indicate high levels of environmental concern and low levels of pro-environmental behavior in both samples. On comparing the two samples it was found that those living in cities assume a larger number of environmental responsibility values but show less pro-environmental orientation when the attitude and behavioral intention scales are used. People living in the rural context present more attitudes of environmental responsibility and greater consistency on expressing behavioral intentions compatible with the protection of the environment.

Keywords: Environmental concern, environmental attitudes, environmental behavior

One of the most characteristic features of modern society is that the level of environmental concern is high and generalized (Hodgkinson & Innes, 2000). This has been reflected in studies carried out with all types of samples and in a variety of cultures: North American (Scott & Willts, 1994), Swedish, Lithuanian, and Latvian (Gooch, 1995) or Spanish (Corraliza et al., 2002), to cite some examples. These high indices of concern are a reflection of the importance that citizens attribute to environmental problems, as well as an indicator of the growing awareness of the impact of human activity on the environment in general, and the transformation of ecosystems in particular (Milbrath, 1989).

Despite the large number of studies and their theoretical variety (Berenguer, 2000; Stern, 1992), among them we can identify two basic lines of research (Dietz, Stern, & Guagnano, 1998). One of these research lines has concentrated its efforts on identifying the sociodemographic factors associated with environmental concern (e.g., gender, age, educational level or political ideology). A second one has focused on the more purely psychological determinants (i.e., values, attitudes, and beliefs) of such environmental concern. The results with both approaches have been abundant and quite varied. In the case of the sociodemographic studies, they can be grouped around six basic issues (Dietz et al., 1998) that refer to variables such as age and cohort; education, political ideology, and place of residence; race and ethnic group; income, social class, occupation, and industrial sector; gender; and finally, religion. As a result, we find – within what has come to be called western civilization – that young women, with high educational level, liberal ideology, living in cities and actively involved in organized religion represent, from a sociodemographic perspective, the *ideal profile* of the person concerned about the environment (Dietz et al., 1998; Fransson & Gärling, 1999; Samdhal & Robertson, 1989; Van Liere & Dunlap, 1980).

As regards the second line of research on environmental concern (psychological determinants), authors agree that such research has developed on the basis of three types of orientation that determine the subject's motivation to be concerned about the environment (Axelrod & Lehman, 1993; De Young, 1996; Stern, Dietz & Kalof, 1993): (1) orientation toward the environmental values within one's own society, (2) orientation toward care of the environment as the reflection of altruistic behavior, given the impact that its deterioration may have on the people that are important to us, and (3) orientation driven by egoistic motives, given the enjoyment of the comfort

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and convenience obtained from the exploitation of natural resources.

The present study aims to explore the links between certain social structures and environmental concern, attitudes, and actions. In sum, we shall explore the relationships between place of residence (i.e., rural vs. urban) and environmental values, specific attitudes, and behaviors. In order to explain environmental behavior, it is necessary to understand the social context in which individuals develop it (Corral-Verdugo, 2001; Vorkinn & Riese, 2001). This aspect has already been discussed by various authors who point out the need to pay more attention to the particular features of group and cultural characteristics with respect to environmental evaluation, interpretation, and behavior (Olli, et al., 2001; Stern, Dietz & Guagnano, 1995; Tanner & Foppa 1996; Zelezny et al., 2000).

In this study we have chosen place of residence as a fundamental social structure. Despite the fact that one of the principal developments of the study of environmental concern has focused on defining the relationships between sociodemographic variables and environmentalism, studies of how it is affected by place of residence have been scarce (Arcury & Christianson, 1993) and inconsistent. While some studies have argued that environmental concern is higher in cities (Van Liere & Dunlap, 1981), that urban residents are more concerned about the over-exploitation of natural resources (Arcury & Christianson, 1990), and that the perception of environmental problems increases with size of place of residence (Samdahl & Robertson, 1989), others have found that, after controlling for the rest of the sociodemographic variables, there are no attitudinal or behavioral differences between the two types of sample (Arcury & Christianson, 1993). In any case, and by way of summary, it can be affirmed that the results overall establish a positive relationship between pro-environmental attitudes and actions and the urban context, and a negative one between pro-environmental attitudes and actions and the rural environment (Corral-Verdugo, 2001). With regard to place of residence, Corral-Verdugo (2001) points out that: ". . . with rare exceptions, it is typical of these studies that the authors do not bother to explain why the inhabitants of rural areas or small communities are not so concerned with environmental problems, nor so oriented toward proecological actions." (p. 168).

The basic objective of this work is to provide an explanation of the relationships between place of residence and level of environmental concern, attitudes, and behaviors.

Method

Sample

Two samples were stratified according to place of residence (rural-urban), controlling the variables gender and age. A total of 185 (rural: $N = 90$, urban: $N = 95$) subjects participated.

The rural sample was made up of people living in villages of less than 1,000 inhabitants in the *Serranía de Cuenca*[1], a mountainous region in central Spain (Municipal census 2000, National Institute of Statistics, 2001). These villages are characterized by being situated in areas of great natural variety (forests, varied wildlife, water resources), and a long way from large towns or cities (Madrid is the nearest large city and is 200 km from Cuenca). The urban sample was taken from Madrid, whose population is around 3 million (Municipal census 2000. National Institute of Statistics, 2001).

Description of the Instrument

A 38-item questionnaire was designed following the proposal of Dietz et al. (1998) in order to evaluate four main areas of the study: structural variables (age, sex, place of residence, and occupation; total of 4 items), environmental concern (general concern, 2 items; environmental values – New Ecological Paradigm Scale [NEPS] –, 15 items; and specific concern, 1 item where the participants had to select two problems), specific attitudes (moral obligation, 8 items), and environmental behaviors (8 items).

Structural Variables

Given the importance of sociodemographic variables for a comprehensive understanding of environmental behavior, we opted to evaluate four of them. We selected place of residence (rural-urban) for its importance as the location in which individuals form their values, attitudes, and environmental behaviors (Brulle, 1985; Tanner & Foppa 1996; Vorkinn & Riese, 2001; Zelezny et al., 2000). Gender and age were chosen because they are the only variables that have an empirical tradition for explaining environmental concern (Dietz et al., 1998). Given the large body of research in the literature on the influence of gender and age on environmental attitudes and behavior (for a review, see Zelezny, Chua, & Aldrich, 2000), these two variables will only be considered when

1 Barajas de Melo: 732 inhabitants, Buenache de la Sierra: 119 inhabitants, Carrascosa: 101 inhabitants, Las Majadas: 373 inhabitants, Tragacete: 364 inhabitants, Uña: 141 inhabitants, Villalba de la Sierra: 547 inhabitants.

they are relevant due to their possible interactions with the variable place of residence. As far as gender is concerned, in general researchers agree on the fact that levels of both environmental concern and pro-environmental behavior are higher in women (Zelezny et al., 2000). With regard to age, the results are not clear, and depend more on the behaviors considered for evaluating attitudes and behavior (Corral-Verdugo, 2001). Finally, participants were asked about their occupation, by means of an open question.

Environmental Concern

Environmental concern was assessed using three different measures. First of all, general level of environmental concern was evaluated. Participants had to reply to two questions using a seven-point scale, with 1 = not at all, and 7 = totally (*To what extent are you concerned about the situation of the environment in general?* and *To what extent do you consider yourself in favor of the defense of the environment?).*

Another measure of environmental concern was obtained by means of the NEPS (Dunlap et al., 2000). The NEPS is the corrected version of the *New Environmental Paradigm Scale* (NEP; Van Liere & Dunlap, 1978), the most widely used environmental concern instrument (Bragg, 1996).

At this level of analysis the most relevant aspect is to identify the cultural values that define the relationship between the human being and the natural world, and which, in the end, will determine his or her behavior. As stressed by other authors, we are talking about a way of examining environmental values and beliefs using the notion of social paradigm by which a group is described according to its way of seeing the world (Gooch, 1995). Thus, the study of values is important because they correspond to qualitative aspects of people's preferences, goals, and lifestyles (Berenguer et al., 2001; Martín, Corraliza, & Berenguer, 2001; Newman, 1986) and serve to guide their course of action (Cotgrove, 1982).

The NEPS (Dunlap et al., 2000) has 15 items covering five facets of an ecological worldview: the reality of limits to growth – 3 items (e.g., *We are approaching the limit of the number of people the earth can support*), antianthropocentrism – 3 items (e.g., *Humans have the right to modify the natural environment to suit their needs*), the fragility of nature's balance – 3 items (e.g., *The balance of nature is very delicate and easily upset*), rejection of exemptionalism – 3 items (e.g., *Humans will eventually learn enough about how nature works to be able to control it*), and the possibility of an ecocrisis (e.g., *Humans are severely abusing the environment*). The eight odd-numbered items were worded so that agreement indicates a proecological worldview, and the seven even-numbered ones so that disagreement indicates a proecological worldview. Participants had to reply to 15 items with the question wording: "*Listed below are statements about the relationships between humans and the environment*," and to indicate their response using one of five options: *strongly agree*, *mildly agree*, *unsure*, *mildly disagree*, or *strongly disagree*.

We also assessed participants' specific concerns. The need to evaluate specific concerns about certain environmental aspects seems to us especially relevant, since several studies have demonstrated the importance of the attentional salience of some environmental problems, for various reasons, (risk, social tension related to an environmental problem, media treatment, etc.), and which lead people to actually carry out pro-environmental behaviors (Arcury & Christianson, 1993; Baldassare & Katz, 1992; Der-Karabetian et al., 1996; Kottak & Costa, 1993; Samdahl & Robertson, 1989; Vogel, 1996).

Participants were presented with a list of 10 environmental problems that took into account three basic issues: conservation (reduction of energy resources, scarcity of water, deforestation, desertification, extinction of the species, exhaustion of resources), pollution (accumulation of waste, air pollution, climatic change), and population. The differentiation of environmental problems in basic issues was proposed by Van Liere and Dunlap (1981). These authors pointed out that *environmental concern* may be a fairly broad concept, but is best represented by concern about *pollution* and *natural resources*. We decided to use these basic issues and introduce one new one (*population*). To select how to place the problems in the categories we drew up a list of 32 environmental problems and presented it to 10 independent judges (introductory psychology students at the Universidad Autonóma de Madrid), who classified the problems in one of the three categories proposed. We selected those problems with an interjudge agreement of over 90%. The 10 specific environmental problems selected were added to the questionnaire and the participants were asked to indicate the two they considered most serious. In this question participants had the opportunity of suggesting other problems not included in the list.

Environmental Behaviors

We measured a total of 8 environmental behaviors (*Buy products that protect the environment, Buy household goods that save energy, Drive at 90 km/h to save fuel, Switch off light whenever leaving a room, Switch off heating in unoccupied rooms, Seal doors and windows to avoid heat escape, Save water, Take bags from home when going shopping*) taken from the study by Corraliza

and Berenguer (2000). Given that the sample was stratified according to place of residence, and with the aim of controlling the differences in infrastructure and facilities between them, we selected behaviors that depended directly on the subject's intention, and for which other factors, outside the subject's control, did not mediate in behavioral intention. Specifically, we controlled aspects of a contextual nature (Stern, 2000). Participants had to indicate on a seven-point scale, from 1 = *never* to 7 = *always*, the extent to which they carried out the behaviors listed (*How frequently do you carry out each of these behaviors . . .?*).

Specific Attitudes

The specific attitude measure assesses the moral obligation to carry out the specific behaviors listed in the measure of environmental behaviors, using a seven-point "Moral Obligation" scale, where 1 = *not at all obliged* and 7 = *totally obliged* (*To what extent do you consider yourself morally obliged to carry out the following behaviors . . .?*).

The feeling of moral obligation (Schwartz, 1973, 1977; Schwartz & Howard, 1980) has been used in a large number of works related to environmental behavior, given the strong predictive power of Schwartz's model. This is because, on the one hand, it combines specific measurement of the behavior relating values to the object behavior, and on the other, it takes into account the more rational component of the decision focused on knowledge of the consequences that the behavior may have for the subject him/herself (Gutiérrez, 1996). This is illustrated by the examples of research related to environmental behavior, at a general level (Widegren, 1998), or with specific themes, such as recycling (Hopper & Nielsen, 1991) or energy saving (Black et al., 1985).

Results

We shall present the results of the analyses following the logic proposed by the model of Dietz et al. (1998); that is, we shall study the characteristics presented by the rural and urban samples in environmental concern, specific attitudes, and behaviors.

Environmental Concern

In this first group of analyses we examine whether the levels of environmental concern are different in the two samples, and if they really are higher in the urban context than in the rural one, as suggested by the data from other studies. Three different environmental concern measures will be used: a *general measure of concern*, a *measure of general environmental values* (NEPS), and a *measure of specific concern*.

General Concern

First of all we checked the level of environmental concern and the extent to which participants in each sample (rural and urban) considered themselves to be in favor of the defense of the environment. Next, we determined whether there were significant differences between them, calculating the difference of means for independent samples.

The data show that both samples have high levels of concern for the environment (rural M = 5.98; urban M = 5.75), and that they consider themselves in favor of its defense to a great extent (rural M = 6.13; urban M = 6.07). There were no significant differences between the two groups. Thus, we can see that, as occurs in the majority of studies, levels of concern for the environment are high. We can also see that in rural and urban settings people show themselves to be equally concerned for the situation of the environment, as well as in favor of defense of the environment.

Evaluation of Environmental Values by Means of the NEPS

The next step was to evaluate environmental concern at a general level using the measure of internalized values provided by the NEPS. We compared the difference of means for independent samples, with place of residence as group variable and score in the NEPS as criterion variable. The results show significant differences in the means of the two groups (rural M = 50.97, urban M = 54.47), t (180) = –3.04, $p < .003$. As other studies have also indicated, the level of environmental concern measured with the NEPS is higher in urban samples.

Having confirmed this effect, we assessed whether the measure on the NEPS interacted with the structural variables gender and age, by means of a Factorial Analysis of Variance. No interaction effects were found.

Given that the NEPS takes into consideration different dimensions of the values related to the environment, and does not show a stable pattern of dimensions – since these can change depending on the sample being evaluated (Dunlap et al., 2000) –, we fet it important to identify in which specific aspects of the NEPS the differences between the two samples occurred. We, therefore, decided to compare the group means for each one of the items of the NEPS (see Table 1)[2].

Table 1. Differences between NEPS scale items according to place of residence.

	Rural	Urban	*t*	*p*
We are approaching the maximum number of people the Earth can support	2.55	3.64	–2.053	.05
Human ingenuity will avoid us making Earth uninhabitable*	3.64	3.09	2.930	.005
Earth has a sufficient quantity of natural resources if we know how to use them*	4.73	4.09	4.342	.000
The so-called "ecological crisis" faced by humanity has been exaggerated*	3.33	2.28	5.224	.000
Human beings are here to dominate the rest of nature*	2.67	1.99	3.084	.005

* Higher score signifies lower NEPS correspondence. *N* rural = 90 and *N* urban = 95

We found that, of the 15 items making up the NEPS, there were significant differences in only 5 of them, and in all of these 5 items city-dwellers scored higher; we can suppose that they are more concerned about the environment because of having better interiorized the values of the New Ecological Paradigm.

Bearing in mind these results, and given that some authors stress the influence that use of the natural world as a means of livelihood (economic dependence on the environment) has on feelings of concern for the environment, we also checked the extent to which these differences in the NEPS were maintained when taking into account the type of occupation. We, therefore, took the variable occupation and divided it into two categories depending on whether the professional activity involved economic dependence on the environment or not. We decided to consider as "economic dependence on the environment" any professional activity related to the primary economic sector. The professional activities included in this category were farmer, shepherd, woodcutter, and gamekeeper. We considered as "no economic dependence on the environment" any professional activities related to the secondary and tertiary economic sectors (26 different activities were included).

We are aware that it would have been interesting to show the interaction between place of residence (urban-rural) and occupation (economic dependence on the environment or not) as group variables and the score on the NEPS as criterion variable. However, it would be difficult to find an employment category in the urban context representing the same kind of qualitative relationship to the environment that farmer, shepherd, woodcutter, or gamekeeper have in the rural context. In the rural sample the relationship between work and environment was direct, but this was not the case in the urban sample. We decided that none of the urban work categories represented economic dependence in the way that rural categories did[3]. Given that it was impossible to take into account the category of urban-economic dependence on the environment, we decided to calculate environmental concern by taking occupation (i.e., economic dependence on the environment) as group variable and the score on the NEPS as criterion variable for the rural sample. No differences were found.

Furthermore, we calculated the differences of means (in the rural sample) for the two groups item-by-item in the NEPS. No differences were found.

Specific Concern

The next step was to study the difference in the perception of specific problems, taking as groups for comparison the scores on general concern, on the NEPS, and place of residence. The aim of these analyses was to determine whether the perception of certain aspects of the environment as problematic depends mainly on the level of concern evaluated by means of general concern and the NEPS, or on place of residence.

The first task consisted in dividing the sample into three groups: people with low, medium, and high scores (according to centiles 25 and 75) in the variables of general concern and total scores recorded on the NEPS. Having obtained these three groups, and given the nominal level of measurement of specific concern, we compared the distribution of the samples using a contingency table to calculate Pearson's χ^2. The distributions did not differ. Using the same procedure, we obtained the distribution independently for the rural and urban subsamples. Again, no significant differences were obtained. Thus, people do not differ with regard to their perception of the relative seriousness of environmental problems, either as a function of level of concern or according to the NEPS.

Once we had discarded the possibility of differences in specific concern as a function of these concern measures, we moved on to checking what would occur when the group variable was place of residence. In this case the

2 In the NEPS scale, even-numbered items are presented negatively, so that high scores on even items signify a lower level of pro-environmentalism.

3 Rural (28 primary sector, 26 secondary and tertiary sector, 36 inactive). Urban (1 primary sector, 70 secondary and tertiary sector, 24 inactive).

Table 2. Differences in perception of specific environmental concern according to place of residence.

	Place of residence		
	Rural	Urban	Total
Reduction of energy resources	6	2	8
Shortage of water	38	27	65
Deforestation	31	26	57
Desertification	12	13	25
Extinction of animal and plant species	23	17	40
Accumulation of waste	17	9	26
Air pollution	26	44	70
World population growth	2	5	7
Exhaustion of natural resources	11	24	35
Climatic change	14	23	37
Total	180	190	370

distributions did differ significantly[4], χ^2 (N = 370, 9) = 20.38, $p < .016$ (Table 2).

As can be seen, the greatest differences between the two groups were for shortage of water, which scored higher in the rural context, and air pollution, exhaustion of natural resources and climatic change, which scored higher in the urban context.

We studied the relationship between specific concern and economic dependence on the environment. Again, the analysis took into account only the rural sample, since for the urban sample it was not possible to prove economic dependence on the environment. The distributions did not differ.

Next, we determined whether the differences between place of residence and specific concern were maintained when they were grouped according to basic issue. To this end, the environmental issues we distinguished were as follows: conservation, pollution, and population growth. The population issue was eliminated, given its low frequency and its possible influence on the Pearson χ^{-2} statistic. Thus, we calculated the distribution differentiating between conservation and pollution. We found a significant difference (at the level of a trend) between the two samples, χ^2 (N = 363, 1) = 3.207, p = .07.

This appears to indicate that, at least at the level of a trend, those living in rural settings are more concerned about conservation issues than city-dwellers, while those from urban contexts are more worried about pollution issues than those in the villages. It should be borne in mind that the number of options for conservation and pollution was not the same, and this aspect may have influenced the result.

Specific Attitudes

Having determined the differences between rural and urban contexts in environmental concern, we moved on to the study of specific attitudes, again as a function of place of residence. It should be remembered that while there are studies that compare environmental concern or behavior levels in rural and urban samples, the same does not occur in the case of specific attitudes. It will be recalled that we evaluated eight behaviors, so that the specific attitudes refer to these eight specific behaviors.

In order to carry out the analyses we decided to compare specific attitudes. We calculated the sum of all specific attitudes, which we called the *Moral Obligation Index* (Cronbach's α of 0.848). We also compared the specific attitudes one-by-one.

We calculated the differences between the rural and urban setting in the Moral Obligation Index. To this end we carried out a difference of means test for independent samples. The results show that there were significant differences between the two samples (rural M = 45.67, urban M = 41.99) t (179) = 2.355, $p < .05$.

Within the rural sample, the relationship between occupation as group variable and Moral Obligation Index as criterion variable was analyzed. There were no significant differences between the two groups.

Furthermore we calculated the differences of means

Table 3. Differences of means in specific attitudes according to place of residence.

	Rural	Urban	*t*	*p*
Buy products that protect the environment	6.17	5.72	n.s	n.s
Buy household goods that save energy	6.05	5.81	n.s	n.s
Drive at 90 km/h to save fuel	4.49	4.15	n.s	n.s
Switch off light whenever leaving a room	6.21	5.80	n.s	n.s
Switch off heating in unoccupied rooms	6.24	5.13	4.12	.000
Seal doors and windows to avoid heat escape	5.74	5.41	n.s	n.s
Save water	6.64	6.17	2.58	.01
Take bags from home when going shopping	4.08	3.86	n.s	n.s

N rural = 90 and N urban = 95

4 N = 370 because each participant (90 rural and 95 urban) indicated the two most important problems.

between the rural and urban contexts one-by-one for each specific attitude (see Table 3).

As can be seen, the differences in specific attitudes are not large, and even though after the NEPS results we might expect specific attitudes (moral obligation) to be higher in the urban sample, this was not the case. In fact, the significant differences found indicate that moral obligation is greater in the rural sample.

Environmental Behaviors

We continued by analyzing environmental behaviors considering the variable place of residence. In carrying out the analyses, we decided to compare environmental behaviors on two levels: index of behaviors (Cronbach's α of 0.754) and factors obtained from factor analysis of the behaviors.

In order to study the differences between the two groups, we carried out a difference of means test for independent samples[5] (see Table 4).

The results show that people living in rural areas are, overall, more behaviorally responsible than those living in cities, even though these results are at the level of a trend, since they come from a one-tailed analysis. Nevertheless, these differences do stand out clearly on comparing the two samples in the conservation behaviors factor. No differences were found in the pollution factor.

We calculated the interaction between occupation (i.e., economic dependence on the environment) and index of behaviors in the rural sample. There were no significant differences between the two groups.

Finally, we calculated the Regression Models of Pro-environmental Behavior in the total sample. To do so we used as predictor variables: structural variables (gender, age, place of residence and occupation – economic dependence on the environment), environmental concern variables (general concern and NEPS), and specific attitudes (Moral Obligation Index). As criterion variables we used the index of behavior and the behavior factors (conservation and pollution). In order to carry out the analyses we used the stepwise linear regression method (see Table 5).

As can be seen, the effects of the predictor variables vary across the criterion variables, even though the predictor variable "Moral Obligation Index" is consistent in all the prediction patterns and presents the highest beta weights in all of them. The concern variable appears as a predictor in the index of pollution behaviors. At the other extreme would be the variables age, gender, occupation and NEPS, which remain excluded in the regression equation. We, thus, find empirical evidence of the predictive power of the moral obligation feelings indicator above that of all others.

Table 4. Differences of behavioral means in rural and urban contexts.

	Means			
	Rural	Urban	*t*	*p*
Index of behaviors	38.02	35.31	1.70	.05*
Conservation behaviors	.242	–.242	3.261	.001
Pollution behaviors				n.s.

*one-tailed. *N* rural = 90 and *N* urban = 95

Table 5. Regression models of pro-environmental behavior.

	Index	Conservation behaviors	Pollution behaviors
Age			
Gender			
Place of residence		–.173*	.165*
Occupation			
Favors defence of environment			
Concerned	.192**		.202*
NEP scale			
Moral Obligation Index	.525**	.359**	.391**
R^2 adjusted	.391	.172	.242
N	162	162	162

*$p < .05$. **$p < .01$. The values represent beta weights in the final step.

Another relevant result was that of the variable place of residence, which appeared as a predictor variable in the factors of conservation (higher in rural sample) and pollution (higher in urban sample). It will be recalled that on evaluating specific concern we found differences between the two samples that were not attributable to concern, whether this was measured with general concern or with the NEPS. Considering once more Table 5, we can confirm that, indeed, people in rural contexts are more concerned with issues related to conservation, while city-dwellers are more worried about pollution, especially air pollution.

Finally, we calculated the correlations between the different environmental measures of environmental concern and attitudes. To do so, we calculated partial correlations between the variables: general concern, score on the NEPS and score on the Moral Obligation Index. The effect of the variable not being measured was controlled in each case. The results indicate that the partial correlation between general concern and the NEPS is $r = .1870$, $p < .01$ ($n = 181$); that of general concern with the Moral Obligation Index, $r = .4073$, $p < .000$ ($n = 181$); and that of the NEPS with the Moral Obligation Index, r = n.s.

5 It should be borne in mind that we are talking about self-reported behaviors.

Discussion and Conclusions

For some authors, the understanding of environmental behavior necessarily involves developing theoretical frameworks that combine the study of social structures and of the more strictly psychological variables of the individual. Nevertheless, and in spite of this necessity, there have been few attempts to develop models combining the two perspectives.

In the present work we have tried, with a basically descriptive approach, to establish a relationship between social structural variables and environmental values, beliefs, and behaviors. With this aim, we used the variable place of residence. The differentiating factor rural-urban represents a good example of how the perception of environmental aspects can be influenced by the different interaction processes emerging between the group, the individual, and the environment. We realize the limitations of the study we are presenting. In future studies the sample should be larger and improved. The urban sample should include people who depend economically on the environment. However, we have to take into account the difficulty of obtaining an employment category in the city representing the same kind of qualitative relationship with the environment as a farmer, shepherd, or woodcutter have in the rural context. These data should be considered more as a starting point in the study of the relationships between social structures and environmental values, attitudes, and behaviors than as a point of arrival.

In this study, some of the clichés in this field of research have been confirmed. On the one hand, the high level of concern about the environment and the extremely low level of responsible behaviors; on the other, that city-dwellers score more highly on the NEPS than people living in rural settings.

The overall results of our study call into question some of the other clichés in relation to place of residence, such as the greater responsibility of city-dwellers at an attitudinal level and as regards pro-environmental behaviors. They also suggest the importance of social structures in the explanation of environmental beliefs and behavior. As referred to above, our data show that while there is greater concern about the environment in cities when it is evaluated by means of the NEPS, this is not the case when it is assessed through other measures of general environmental concern. It is, therefore, necessary to differentiate between what the NEPS evaluates (environmentalist beliefs) and general and specific concern about the environment.

Despite the lack of correlation between the NEPS and pro-environmental behavior, according to the results presented here, the validity of the NEPS is not questioned. What is proposed is that this inconsistency is due fundamentally to the fact that this scale assesses *a specific type of environmental concern*.

Contributing an explanation of the type of concern assessed by the NEPS seems to be relevant for at least two reasons: first, because of the incongruence between the data from the NEPS and the self-reported data on specific attitudes and behaviors; and second, because of the weakness of the NEPS in predicting pro-environmental behavior.

The NEPS indicates that people living in the city are more *environmentally concerned* than those living in the rural context. However, the analysis item-by-item of the NEPS indicates that the differences between rural and urban samples, and between people who depend economically on the environment or not, are not extensive and generalized, but rather concentrated in specific aspects basically related to the seriousness of the environmental crisis and the way of understanding the *uses* made of the environment.

In fact, the other measures on specific attitudes and environmental behaviors we used in the study suggest that it is precisely those living in the rural environment that have a more well-developed sense of moral obligation to care for the environment, and that behave more responsibly. These results are especially noteworthy if we take into account the score on the NEPS for each sample and that, as many studies show, it is in the urban context where educational level and access to information is greater. We should recall that NEPS has been used on numerous occasions as a predictor variable for environmental behavior.

Thus, our data confirm that, contrary to what is generally suggested in the literature, moral obligation and level of pro-environmental behaviors are higher in the rural context than in the urban one. Thus, while in cities the values are more salient, in villages the specific attitudes and behaviors are more relevant. Our data also confirm that the perception of the seriousness of specific environmental problems is more closely linked to place of residence than to general measures of concern or environmental values.

Thus, it is necessary to identify the variables mediating between value, attitude, and behavior that cause them to be modified in this way (for a review, Berenguer & Martín, 2002; Hines, Hungerford, & Tomera, 1987; Stern, 2000).

Some concepts may help explain this. For example, the first aspect to consider is the role of the NEPS and what it really measures. In this regard we would echo the words of Lutz et al. (1999), when they argue that:

> ". . . as a result, rural residents may place less value on the intrinsic importance of wilderness than on its use for economic and other purposes" (p. 260).

That is, the NEPS would evaluate a specific type of environmental concern: intrinsic concern, intrinsic value, the environment more in relation to the discourse of what it "ought to be," "the ideal" – a concern of urbanites, of people who live neither in nor from the country as such, and for whom its uses are more those of leisure and contemplation than of survival. This is an abstract concern that does not affect their *lifestyle,* that of the city-dweller. The urbanite's lifestyle, unlike that of the country-dweller, is not endangered, and, therefore, is not evaluated by the NEPS. As Baldassare and Katz argue:

> ". . . the perception of environmental problems as a threat to *personal well-being* (our italics), a very personal measure of environmental concern, is a significant factor in adopting environmental practices." (1992; p. 604).

In this case, well-being depends on quite different aspects. Nevertheless, the "truly environmental," that is, the level of moral obligation and the level of pro-environmental behavior (conserving resources and not polluting the everyday environment) are lower in the urban context.

Thus, if the NEPS measures "intrinsic concern" about the environment, then moral obligation would represent "extrinsic concern," and, unlike the former, would fit with the *modus vivendi* of the city. That is, the NEPS evaluates use of the natural environment in city-dwellers, but not their urban environment, their true *ecological niche*.

In this case, moral obligation reflects the interiorized social norm. This is an interiorization that takes place in sociophysical scenarios of behavior that facilitate or inhibit, that is, compatible or incompatible with the development of a real rural or urban ecological awareness. It is not surprising, then, that in the urban ecological niche feelings of moral obligation are more diffuse than in the rural context, given (as we know from Schwartz's model) the importance of sociophysical scenarios in the rationalization of behavior and in the formalization of attribution patterns. It is, therefore, necessary to generate spaces that cannot be rationalized (Blamey, 1998), that oblige internal attribution, and thus, the discourse of moral obligation (Thogersen & Grunert-Beckman, 1997) and the ascription of responsibility on the part of citizens – that oblige scenarios compatible with environmental behaviors (Kaplan, 1983).

In stating the above, we are suggesting not that the NEPS is an inadequate instrument (let us not forget that a large proportion of studies argue that the influence of environmental values is confined mainly to attitudes), but rather that it is inappropriate for predicting environmental behavior – a fact also borne out in the literature. This may be because of, not only the mediating effect of other variables, but also the fact that it measures an abstract or intrinsic type of environmental concern that does not correspond to the behavioral ambit of either the city-dweller (for whom this concept falls short) or the country-dweller (for whom the concept is too general). Thus, it is insufficient for explaining their behavior. We are, therefore, faced with both a problem of mediation of other variables and a problem of adequacy of the instrument.

In sum, we are talking about two types of environmental concern, one intrinsic and the other extrinsic, which must be differentiated, and that are determined by the social and physical characteristics of the subject's life space– that is, of the subject's environmental *reality*, of his or her experiences with the environment, of the links with his or her immediate environment and of the cultural relationship with it.

From an applied perspective, these results suggest the need to stress that environmental concern has several levels of analysis, and that values do not necessarily predict either attitudes or behavior. Behavior depends to a greater extent on specific attitudes or on direct experience with the natural world and it is necessary to construct intervention models, designed for education, consciousness-raising and land management, which take into account the needs and customs of the environment's users. Besides intrinsic concern there is another type, extrinsic concern, and the former does not really predict behavior.

To sum up, our data show us that between the group and the individual there are intermediate structures that should be considered as explanatory referents of pro-environmental beliefs and behaviors. Therefore, some of the measures we use for evaluating environmental concern are oriented by dominant environmental beliefs, values, and issues for differentiated social groups. In this case, it has been shown how the NEPS is especially useful for registering environmental values that are relevant for city-dwellers, but that it is not so useful for identifying pro-environmental beliefs and behaviors among those living in rural areas. This confirms, moreover, the relevance of one's relationship with and experience of the natural world for defining environmental beliefs: As the classic authors of ecological psychology wrote, if you want to explain an action, go to the place where it occurs (Barker, 1968). In this study, the different experience of nature in rural people and urbanites shape different ways of thinking and feeling about the environment. Methodological instruments should be more sensitive to these differences.

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Address for correspondence

Jaime Berenguer Santiago
Facultad de Psicología
Universidad Autónoma de Madrid
E-28049 Madrid
Spain
Tel. +34 91 497-3255
Fax +34 91 497-5215
E-mail jaime.berenguer@uam.es

