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Monetary Valuation of Informal Care Based on Carers' and Noncarers' Preferences

Silvia Garrido-García, PhD[1,*], *Fernando-Ignacio Sánchez-Martínez, PhD*[1], *José-María Abellán-Perpiñán, PhD*[1], *Job van Exel, PhD*[2]

[1]Department of Applied Economics, School of Economics and Business, University of Murcia, Murcia, Spain; [2]Institute of Health Policy & Management (iBMG), Erasmus University, Rotterdam, The Netherlands

ABSTRACT

Objectives: To elicit willingness-to-accept (WTA) values for informal care based on the preferences of informal carers and noncarers. **Methods:** Two surveys were conducted with a sample of carers (n = 202) and a sample of noncarers (n = 200). Individuals in both groups were asked three questions in which they had to state the minimum monetary compensation they would require (WTA) if they had to look after a person described in a hypothetical scenario for one extra hour per day. Furthermore, carers were asked for the compensation they would demand if they had to be in charge of their actual care recipient for one extra hour per day. **Results:** No significant differences were found between the distributions of carers' and noncarers' WTA values. Overall, respondents' valuations were sensitive to and consistent with their preferences over the tasks to be carried out in the extra hour of informal care. On average, carers required a lower monetary compensation for one extra hour taking care of their loved one (mean/median WTA values €5.2/€4.5) than if they had to devote that time to look after the hypothetical care recipient (mean/median WTA values €6.4/€5.5). More than half of the carers stated the same value under the two caring situations, which suggests that carers' WTA values were influenced by their own experience providing informal care. **Conclusions:** Our results show that it is feasible to derive a monetary valuation for informal care from the preferences of noncarers.

Keywords: contingent valuation, economic evaluation, informal care, willingness to accept.

Introduction

The provision of informal care may cause a profound impact on the different dimensions of carers' lives. For instance, informal carers ("carers" hereafter) can bear substantial opportunity costs because of the time they have to give up in other activities, such as a paid job, family duties, social relationships, or leisure time [1,2]. Furthermore, carers may undergo great burden, physical and psychological problems, and even increased risk of mortality [3–7]. However, carers may also experience positive feelings as a result of the care they provide [8–10]. Despite the relevance of these costs and effects, economic evaluations of health care interventions usually ignore them [11], which is equivalent to view informal care as a costless resource [12]. This neglect can lead to wrong resource allocation decisions [13], by favoring those treatments that rely heavily on informal care.

Several methods can be used to derive a monetary value for informal care [14]. Traditionally, it has been recommended that the time spent providing informal care be monetized using either the opportunity cost method [15,16] or the proxy good method [17,18]. A major limitation of both methods is that they value exclusively the costs associated with the time invested in providing informal care, instead of its full impact on carers' lives [12]. Furthermore, neither of the two methods accurately assesses carers' and care recipients' preferences. Alternative methods have been proposed and applied, including the contingent valuation (CV) method [13,19], multiattribute stated preference methods, such as conjoint analysis [20,21] and discrete choice experiments [22], and the well-being valuation method [23].

The CV method can be applied by asking individuals about their maximum willingness-to-pay (WTP) value to obtain a potential benefit or, alternatively, about their minimum willingness-to-accept (WTA) value as a compensation for a potential loss. According to the standard economic theory, WTP and WTA values for a same good should be fairly close [24], unless the good represents a substantial proportion of subjects' income or the transaction costs are large [25]. Those studies that have elicited both WTA and WTP values for informal care have found small differences between the two values, with the WTA

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* *Address correspondence to:* Silvia Garrido-García, Departamento de Economía Aplicada, Facultad de Economía y Empresa, Campus de Espinardo, s/n, 30100 Murcia, Spain.

E-mail: silviagg@um.es.

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value being slightly higher than the WTP value [26,27]. In this regard, it has been argued that it is more appropriate to use WTA instead of WTP when subjects are asked to value a potential welfare loss, whereas WTP is more suitable when subjects have to value a potential welfare gain [28]. Given that the provision of informal care entails a sacrifice, it could be more appropriate and natural to value informal care using WTA rather than WTP values [13], although there is no formal consensus on this topic.

CV has been found to be sensitive to carers' characteristics and, allegedly, it reflects their preferences [13,27]. In addition, compared with other stated preference methods (conjoint analysis and discrete choice experiments), the CV method seems to be less burdensome and to lead to higher response rates. A drawback of this method, however, is that it mainly focuses on money and some carers may find it difficult and even unethical to indicate how much money they would be willing to pay (or to accept) to spend less (or more) time assisting a loved one. As a result, CV may lead to strategic or protest answers [21]. Moreover, CV studies can be affected by different types of biases and anchoring effects [29].

When a stated preference method, such as CV, is used to value informal care, a key issue is to decide who should be asked. The most straightforward way is to ask actual carers because they are the best informed subjects and they are used to make decisions concerning informal care [20]. For that reason, stated preference studies until now have focused on the carer's perspective [13,19,22]. In addition, some CV studies have elicited monetary values for informal care from both carers' and care recipients' viewpoints [26,27], in an attempt to reflect the interdependency between the preferences of the two groups. Another alternative is to elicit preferences from the general public, much as is done for the valuation of health-related quality of life for use in economic evaluations taking the societal perspective. Hitherto, however, no study has used this approach. There are several reasons why it is important to consider public's preferences for informal care [30]. First, the general population comprises potential, actual, and former carers or care recipients. Furthermore, people who are neither informal carers nor care recipients (who will be called "noncarers" throughout this article) may be more objective (although presumably less informed) than are carers and care recipients [14].

The main motivation of this study was to obtain a monetary value for informal care on the basis of stated preferences of a sample of noncarers. As such, this study can be regarded as the first attempt to estimate a monetary value for informal care assuming a societal perspective. In addition, this study compares noncarers' valuations with those elicited by asking actual carers and also examines whether carers' valuations in reference to a hypothetical caring scenario are influenced by their own caring situation.

Methods

Samples

The data used in this study come from a survey that was specifically designed for the monetary valuation of informal care. The questionnaire was administered face to face at respondents' home (located throughout the region of Murcia, in south-eastern Spain), and respondents received no reward of any kind. Before the final survey, a pilot study was conducted with a convenience sample ($n = 66$) of students and teachers at the University of Murcia.

Two independent samples were selected (one of informal carers and another of noncarers), with a target size of 200 respondents in each group. The sample of noncarers was composed of 200 subjects, who were selected according to a quota system based on sex and age, so as to resemble the Spanish adult general population in terms of these characteristics. To select this sample, the citizens listed in the telephone directory of the most populated city in the region of Murcia were taken as the target population and then potential respondents were approached by using random digit dialing. The sample of carers comprised 202 individuals, being recruited in different settings (primary care centers, hospitals, and day care centers). No quotas were used for this group.

Questionnaire

Two different versions of the questionnaire were designed, one for each sample. Both versions started with a set of three core questions intended to elicit respondents' WTA for one additional hour of care per day under the hypothetical scenario presented in Appendix 1 in Supplemental Materials found at http://doi.org.10.1016/j.jval.2015.05.001. This scenario described the health state of a person with disabilities in terms of a dependency health state classification system called DEP-6D [31]. This instrument is used to characterize dependency states, which is done by means of six dimensions (number of levels in parentheses): eat (3), incontinence (3), personal care (4), mobility (4), housework (3), and mental health problems (4). For each dimension, level 1 represents the mildest degree of dependency, whereas the upper level stands for the highest degree. The chosen dependency state was that coded as "334332." In addition, the hypothetical scenario detailed the number of hours per day to be invested in four different types of caring tasks (assistance in personal care, mobility, housekeeping, and practical activities) to satisfy the daily life needs of the hypothetical care recipient.

The first WTA question (labeled "$\text{WTA}_{\text{general}}$") was posed without specifying the task to be performed in the extra hour of care. The full wording of this question is presented in Appendix 2 in Supplemental Materials found at http://doi.org.10.1016/j.jval.2015.05.001. Given that the hypothetical situation entailed the provision of four types of activities, respondents were asked to rank them, from the least preferred one to the most preferred one. Then, two further WTA questions were posed in the same terms as the $\text{WTA}_{\text{general}}$ question, except for the fact that respondents were asked about the monetary compensation they would demand for one additional hour of care undertaking the least preferred task (labeled $\text{WTA}_{\text{worst}}$) and the most preferred task (WTA_{best}). Henceforth, the abbreviation "$\text{WTA}_{\text{hypothetical}}$" will be used in allusion to $\text{WTA}_{\text{general}}$, $\text{WTA}_{\text{worst}}$, and WTA_{best} as a whole. Before formulating the $\text{WTA}_{\text{general}}$ question, carers were explicitly asked to abstract from their own caring situation when answering the three $\text{WTA}_{\text{hypothetical}}$ questions.

The payment vehicle used in the WTA questions consisted of a set of cards, each one representing a different amount of money (€0, €1, €2, €3, €4, €5, €6, €8, €10, €12, and €15 per hour). The cards were shuffled and subsequently presented to respondents. Therefore, although all participants were faced with the same number of cards and the same sums in each WTA question, the order of appearance varied randomly between questions and subjects. For each bid, respondents had to choose one of the following options: 1) "It would be definitely high enough"; 2) "It would be definitely not high enough"; or 3) "I am not sure whether it would be high enough or not." In a follow-up question, respondents who stated that €15—that is, the highest amount of money—would be definitely not high enough were directly asked to specify the minimum amount of money they would require. Conversely, those who stated that €0—that is, the lowest sum—would be definitely high enough were subsequently asked why they needed no monetary compensation at all (see Appendix 2 in Supplemental Materials).

In the sample of carers, the $WTA_{hypothetical}$ questions were followed by several care-related questions (i.e., number of hours of care, caring tasks, care-related quality of life, etc.). Care-related quality of life was assessed using the CarerQol-7D questionnaire [32,33]. After completing this part of the questionnaire, carers were asked to rate on a vertical 0 to 100 scale how satisfied they were with the care they provided. They were also asked if they had thought of their care recipient when answering the $WTA_{hypothetical}$ questions. Next, carers were asked to state the minimum compensation they would demand if they had to spend one extra hour per day looking after their own care recipient, using an open-ended format. For short, this valuation will be labeled "WTA_{own}" in what follows.

Both the questionnaires for carers and noncarers ended with a set of questions regarding demographic and socioeconomic factors, health, and life satisfaction. Health-related quality of life was assessed using the six-dimensional health state short form (derived from short-form 36 health survey) descriptive system, whereas overall life satisfaction was measured on a 0 to 100 vertical scale.

Data Analysis

Before all data analyses, each WTA measure was converted into a continuous variable by taking the midpoint between the lowest sum of money that each respondent stated would be definitely high enough compensation and the highest amount that would be definitely not high enough (or the respondent did not know whether it would be high enough or not). We constructed the WTA variables in such a way because we considered that respondents' true WTA ranged between the two values that were taken to compute the midpoint. Alternatively, as sometimes done in previous work [34,35], we could have constructed the WTA variables using only the definitely sure yes responses. In this regard, we conducted a sensitivity analysis in which the WTA variables were defined as the lowest sum that would be definitely high enough compensation.

In case of zero WTA values, the reasons behind them were examined to distinguish between "protest" zeros and "true" zeros. We considered as true zeros those values due to the following reason: "Providing one additional hour of care per day would not involve so much effort so as to need to be compensated for it." On the contrary, zero WTA values were regarded as protest zeros when they were justified by the reason "It is a matter of consciousness; I would feel pangs of remorse if I accepted any money for looking after a loved one." When zero values were justified by other reasons (detailed in an open-ended response option), it was assessed whether they were true or protest zeros. Respondents who gave a protest zero in any of the three $WTA_{hypothetical}$ questions and those carers who gave a protest answer in the WTA_{own} question were excluded from further analyses.

Differences in WTA values at the aggregate level were tested using the *t* test and the Wilcoxon signed-rank test (for within-group comparisons) and the *t* test and the Mann-Whitney *U* test (for between-groups comparisons). Comparisons at the individual level were tested using the McNemar test and the Fisher exact test (for within-group and between-groups comparisons, respectively).

To analyze the factors associated with WTA, an ordinary least squares regression analysis was performed, with WTA in natural logarithm (ln) as the dependent variable. This analysis was undertaken separately for each sample and for each WTA variable. The Ramsey test for omitted variables was performed and, to correct for heteroskedasticity, the regressions were run with robust standard errors.

Results

Sample Characteristics

The 202 carers and the 200 noncarers who participated in the study fully completed the questionnaire. Table 1 displays the characteristics of the two samples. The age and sex composition of the sample of noncarers resembled that of the Spanish adult general population. The main differences between our sample of noncarers and the Spanish adult general public were observed in terms of socioeconomic factors (i.e., education, employment, and income). The sample of carers was not intended to be representative of the Spanish population of informal carers.

WTA Values in Reference to the Hypothetical Scenario

As can be seen from Table 2, the overall rate of zero WTA values provided to the three $WTA_{hypothetical}$ questions was relatively low in the two samples (i.e., $<10\%$ of responses except in the WTA_{own} question). However, 22 (10.9%) carers stated a protest zero in the WTA_{own} question. All these responses were excluded from the analyses involving the respective variable. There were no significant differences between the two samples with regard to the proportion of protest zeros obtained in the $WTA_{hypothetical}$ questions. The number of true zeros was even lower.

To be consistent with respondents' preferences for different caring activities, the ordinal ranking of the three $WTA_{hypothetical}$ values should, in a strict sense, satisfy the following condition (at least at the aggregate level): $WTA_{best} < WTA_{general} < WTA_{worst}$.

Table 3 presents the main descriptive statistics for each $WTA_{hypothetical}$ variable. Within each group, the comparison among the mean/median values of the three variables satisfied the expected criterion of logical consistency at the aggregate level. The within-group differences were statistically significant in the three cases. Carers' mean WTA values were only marginally lower than noncarers' mean WTA values. Median WTA_{best} and WTA_{worst} values were also lower among carers than among noncarers, while equal median $WTA_{general}$ values were obtained in the two groups (€5.5). The maximum WTA value was €20 in all cases except for the maximum WTA_{best} value elicited in the sample of carers, which was lower (€13.5). Consistent with these results, no significant between-groups differences were found for any of the three $WTA_{hypothetical}$ variables. Had we opted for defining the WTA variables as the lowest sum that would have been definitely high enough compensation, the mean/median WTA values would have been between €0.5 and €1 higher than those given in Table 3.

Only 8 carers (4.3%) and 12 noncarers (6.4%) provided an inconsistent response at least once (meaning that either WTA general $> WTA_{worst}$ or $WTA_{general} < WTA_{best}$ or $WTA_{worst} < WTA_{best}$). Almost a quarter of the subjects in each group provided the same value in all the three $WTA_{hypothetical}$ questions. The proportion of subjects who equated WTA_{worst} with WTA_{best} (~25% in each sample) was considerably lower than that of those who equated $WTA_{general}$ with WTA_{worst} (~40%), on the one hand, and $WTA_{general}$ with WTA_{best} (~50%), on the other hand.

Comparison between Carers' WTA Values under the Hypothetical and Actual Situations

Common descriptive statistics for carers' $WTA_{general}$ and WTA_{own} values are presented in Table 4. The information is given for the whole sample of carers and also for two subgroups: those who said that they thought of their own care recipient when they answered the three $WTA_{hypothetical}$ questions and those who did not. First, considering the whole sample of carers, the mean/median WTA_{own} values were significantly lower than the mean/

Table 1 – Respondents' and Spanish population's characteristics.

Characteristic	Carers (n = 202)	Spanish informal carers[*]	Noncarers (n = 200)	Spanish general public[†]
General characteristics				
Age (y), mean ± SD	47.8 ± 12.8	52.9	42.3 ± 15.4	46.1
Sex: Women (%)	68.3	83.6	50.0	50.9
Marital status (%)				
Married/living with a partner	68.3	76.2	57.0	56.7
Single	21.8	14.8	32.0	31.8
Divorced	6.4	2.1	5.5	4.1
Widowed	3.5	5.1	5.5	7.4
Child(ren) < 18 y at home (%)	27.7	36.1	30.0	NA
Educational attainment (%)				
Illiterate or low	45.1	60.1	38.5	30.1
Medium	28.2	10.5	26.0	45.1
High	26.8	7.0	35.5	24.7
Employment status (%)				
Employed/self-employed	45.5	26.0	55.0	43.7
Unemployed	20.8	7.3	19.5	16.5
Homemaker	22.8	44.2	9.0	25.8
Student	2.0	1.4	5.5	
Other situations	8.9	21.1	11.0	14.0
Monthly household income (€) (%)				
<900	10.9	NA	11.5	23.5
901–1500	33.2	NA	31.0	28.0
1501–2000	31.2	NA	30.0	19.4
>2000	24.8	NA	27.5	29.1
Mean ± SD SF-6D utility score	0.87 ± 0.13	NA	0.88 (0.12)	NA
Mean ± SD life satisfaction score	73.6 ± 16.2	NA	73.3 (15.6)	NA
Care-related aspects				
Experience as informal carer (%)			36.5	NA
Knew some carer (%)			74.5	NA
Mean ± SD duration (y)	3.4 (1.1)	5.5		
Mean ± SD hours (per day)	4.5 (3.2)	10.6		
Mean ± SD frequency (d/wk)	5.1 (2.3)	NA		
No assistance from others (%)	11.9	47.2		
More than one care recipient (%)	10.9	15.4		
Care recipient is[‡] (%)				
Parent	53.0	57.2		
Partner	6.9	16.8		
Son/daughter[§]	5.0	NA		
Sibling	5.9	3.0		
Grandparent	16.8	5.5		
Other	12.4	16.6		
Cohabit (%)	47.0	60.7		
Number of care recipient's disabilities (%)				
1	5.5	NA		
2	6.4	NA		
≥3	88.1	NA		
Type of disability[ǁ] (%)				
Physical	94.6	NA		
Cognitive	62.9	NA		
Physical and cognitive	57.9	NA		
Mean ± SD CarerQol weighted score	85.2 ± 13.8	NA		
Mean ± SD satisfaction with care score	77.8 ± 18.2	NA		

NA, Not available; SF-6D, six-dimensional health state short form (derived from short-form 36 health survey).

[*] The characteristics of the Spanish informal carers come from the Survey on Informal Care 2004 [36].

[†] The characteristics of the Spanish general population were obtained from the Living Conditions Survey 2009 [37].

[‡] In those cases in which the carer was in charge of more than one person, we considered the relationship with the main care recipient.

[§] The statistics for the Spanish population of informal carers do not detail the proportion of informal carers who look after a son or a daughter. These carers (among others) are included in the category "Other."

[ǁ] The category "physical disability" refers to vision loss, hearing loss, mobility impairment, difficulties in carrying out personal care activities, and difficulties in performing housework. The category "cognitive disabilities" includes memory loss, learning disabilities, intellectual disabilities, communication disorders, and relational problems.

Table 2 – Classification of responses: Frequencies (proportions).

	WTA_{best}	$\text{WTA}_{\text{general}}$	$\text{WTA}_{\text{worst}}$	WTA_{own}
Carers ($n = 202$)				
Positive values	182 (90.1)	182 (90.1)	184 (91.1)	171 (84.7)
True zeros	6 (3.0)	5 (2.5)	4 (2.0)	9 (4.5)
Protest zeros	14 (6.9)	15 (7.4)	14 (6.9)	22 (10.9)
Noncarers ($n = 200$)				
Positive values	185 (92.5)	185 (92.5)	187 (93.5)	
True zeros	3 (1.5)	2 (2.1)	2 (1.0)	
Protest zeros	12 (6.0)	13 (6.5)	11 (5.5)	

WTA, willingness to accept.

median $\text{WTA}_{\text{general}}$ values. The same overall profile (i.e., WTA general higher than WTA own) was replicated in the two groups of carers. The difference between $\text{WTA}_{\text{general}}$ and WTA_{own} was smaller among those carers who thought of their loved one than among those who did not.

Based on individual-level data, Table 5 details the number and percentage of carers who stated lower and higher values in the $\text{WTA}_{\text{general}}$ question than in the WTA_{own} question, and of those who gave the same value in both situations. A noteworthy finding is that more than half of the carers (52%) demanded the same compensation for one additional hour of care per day looking after their own care recipient as if they had to take care of the person described in the hypothetical scenario. Not surprisingly, the proportion of carers who reported the same amount of money in the two questions was significantly higher among those who thought of their own care recipient when answering the $\text{WTA}_{\text{hypothetical}}$ questions (56%) than among those who did not (40%) ($P = 0.084$). Only a small fraction of carers (5.6%) stated a lower value in the $\text{WTA}_{\text{general}}$ question than in WTA_{own} question. Conversely, a considerable proportion of carers (42.4%) reported a higher value in the former question than in the latter.

Regression Analysis

Table 6 presents the ordinary least squares estimates for the variables WTA_{own} and $\text{WTA}_{\text{general}}$. Because these variables were expressed in natural logarithms (ln), the analysis was restricted to positive WTA values (see Table 2 for details). The Ramsey test revealed no evidence of omitted variables for any model. The regressions for WTA_{best} and $\text{WTA}_{\text{worst}}$, which are available on request to the authors, yielded similar results, with some minor differences.

Focusing first on the estimates for carers' WTA values, those with higher care-related quality of life (as assessed by the CarerQol weighted score) and those who received no assistance from other carers stated lower average WTA_{own} and $\text{WTA}_{\text{general}}$ values. With the exception of these two determinants in common, WTA_{own} and carers' $\text{WTA}_{\text{general}}$ were explained by different factors. On the one hand, WTA_{own} increased with the number of hours of care and the level of education attained, whereas married carers stated, on average, lower WTA_{own} values than did the rest of the carers. The relationship between WTA_{own} and education could be explained by the opportunity costs associated with informal caring: given that carers with a high level of education have more job opportunities, they are expected to require a higher compensation for their time. On the other hand, neither the number of hours nor education was significantly associated with $\text{WTA}_{\text{general}}$. Instead, $\text{WTA}_{\text{general}}$ had an inverted *U*-shaped relationship with carers' age, whereas this association was not significant in the case of WTA_{own}.

Another interesting fact is that carers who thought of their own care recipient when they answered the $\text{WTA}_{\text{hypothetical}}$ questions provided lower average values than did those who did not, although this effect was significant only in the $\text{WTA}_{\text{general}}$ question.

No significant relationship was found between income and any of the WTA values elicited in the sample of carers. Nonetheless, this lack of significance does not invalidate our estimates, insofar the alleged positive relationship between income and WTA is less evident than it is between income and WTP because WTP is limited by budgetary constraints and WTA is not [25].

Conversely, turning to the regressions for noncarers, $\text{WTA}_{\text{general}}$ rose with income. This is a robust finding because it was also replicated with $\text{WTA}_{\text{worst}}$ and WTA_{best}. Age again had a *U*-shaped relationship with $\text{WTA}_{\text{general}}$, with this variable declining up to approximately 46 years and increasing beyond that age. In addition, $\text{WTA}_{\text{general}}$ was, on average, significantly lower among men and among respondents who had been informal carers in the past than among those who did not have that experience.

Discussion

Previous studies investigating the value of informal care have mostly elicited values from carers and sometimes from care recipients. Valuations from the general public, arguably more appropriate for use in economic evaluations taking a societal perspective, have so far been ignored. In this regard, we consider that this study contributes to the literature on the valuation of

Table 3 – WTA values: Descriptive statistics and tests of differences.

	WTA_{best} (€/h/d)	$\text{WTA}_{\text{general}}$ (€/h/d)	$\text{WTA}_{\text{worst}}$ (€/h/d)
Carers			
Mean ± SD	5.3 ± 2.6	6.4 ± 3.21	7.5 ± 3.0
Median	4.5	5.5	7.0
Maximum	13.5	20.0	20.0
N	187	187	187
Noncarers			
Mean ± SD	5.6 ± 3.0	6.5 ± 3.2	7.9 ± 3.1
Median	5.5	5.5	9.0
Maximum	20.0	20.0	20.0
N	187	187	187
Between-group differences (P values)*			
t test	0.354	0.718	0.263
Mann-Whitney *U* test	0.604	0.657	0.205

WTA, willingness to accept.

* The within-group differences between any two of the three $\text{WTA}_{\text{hypothetical}}$ variables were statistically significant ($P = 0.000$ in all cases).

Table 4 – Comparison between carers' $\text{WTA}_{\text{general}}$ and WTA_{own}: Descriptive statistics and tests of differences.

	All carers	The carer thought of his or her care recipient[*]	
		Yes	No
$\text{WTA}_{\text{general}}$ (€/h/d)			
Mean ± SD	6.4 ± 3.1	6.1 ± 2.9	7.3 ± 3.5
Median	5.5	5.5	5.5
Maximum	20.0	13.5	20.0
N (%)	187	137 (73.3)	50 (26.7)
WTA_{own} (€/h/d)			
Mean ± SD	5.2 ± 2.8	5.0 ± 2.5	5.7 ± 3.4
Median	4.5	4.5	5.5
Maximum	13.5	13.5	13.5
N (%)	180	135 (75.0)	45 (25.0)
Difference: $\text{WTA}_{\text{general}} - \text{WTA}_{\text{own}}$ (€/h/d)			
Mean ± SD	1.2 ± 2.1	1.1 ± 1.8	1.7 ± 2.8
Median	0.0	0 .0	1.0
N (%)[†]	179	134 (74.9)	45 (25.1)
Between-group difference (*P* values)[‡]			
t test		0.095	
Mann-Whitney *U* test		0.194	

WTA, willingness to accept.

[*] This division was made depending on whether the carers thought of their own care recipient when they answered the $\text{WTA}_{\text{hypothetical}}$ questions or not.

[†] The statistics provided for the comparison between $\text{WTA}_{\text{general}}$ and WTA_{own} are restricted to those carers who did not report a protest zero in any of the two cases.

[‡] The within-group difference between $\text{WTA}_{\text{general}}$ and WTA_{own} was statistically significant in the two samples ($P = 0.000$).

informal care, inasmuch it has been the first one to obtain monetary values based on noncarers' preferences, in particular using the WTA technique. Furthermore, this study compared the WTA values provided by noncarers with those elicited from a sample of actual informal carers, using the same study protocol.

Overall, our results show that it is feasible to value informal care in monetary terms by asking noncarers. On the one hand, all noncarers answered the three WTA questions and the proportion of protest zeros was relative low. On the other hand, only a few noncarers provided inconsistent responses. It is worth remembering that the questionnaires were interview-based rather than paper- or Web-based, which adds to the reliability of our results. The least satisfactory finding in this sample was that nearly a quarter of the noncarers reported the same value in all the three WTA questions. However, a similar response profile was found in the sample of carers. Thus, the observed differences between the two groups were not statistically significant, suggesting that insensitivity to the quality of the caring task was not a factor (at least not completely) attributable to the lack of experience of noncarers, but to the CV exercise itself. It resembles the well-known phenomenom of scope insensitivity [40].

The comparison between carers' WTA values framed to the hypothetical scenario ($\text{WTA}_{\text{general}}$) with WTA in reference to the actual caring situation of each carer (WTA_{own}) revealed significant differences between the distributions of the two variables, with mean/median WTA_{own} values being lower than mean/median $\text{WTA}_{\text{general}}$ values. In light of this result, it can be hypothesized that the positive aspects associated with the provision of informal care could weigh more heavily in the WTA_{own} question than in the $\text{WTA}_{\text{general}}$ one. This assumption is supported by the fact that carers were more prone to state a protest zero in the former question than in the latter, which might suggest that moral

Table 5 – Comparison between carers' $\text{WTA}_{\text{general}}$ and WTA_{own} values at the individual level: Frequencies (proportions).

	All carers	The carer thought of his or her care recipient		Between-group differences (P values)[*]
		Yes	No	
$\text{WTA}_{\text{general}} < \text{WTA}_{\text{own}}$	10 (5.6)	7 (5.2)	3 (6.7)	0.714
$\text{WTA}_{\text{general}} = \text{WTA}_{\text{own}}$	93 (52.0)	75 (56.0)	18 (40.0)	0.084
$\text{WTA}_{\text{general}} > \text{WTA}_{\text{own}}$	76 (42.4)	52 (38.8)	24 (53.3)	0.116
N (%)	179	134 (74.9)	45 (25.1)	

Note. The statistics provided for the comparison between $\text{WTA}_{\text{general}}$ and WTA_{own} are restricted to those carers who did not state a protest zero in any of the two questions.

WTA, willingness to accept.

[*] *P* values from the Fisher exact test.

Table 6 – OLS regressions for WTA.

Variables	Carers				Noncarers	
	Ln(WTA_{own})		Ln($WTA_{general}$)		Ln($WTA_{general}$)	
	Coefficient	RSE	Coefficient	RSE	Coefficient	RSE
Constant	2.802[*]	0.877	1.912[†]	0.862	0.642	0.771
Hours per week	0.004[†]	0.002	0.003	0.002		
No assistance	–0.302[‡]	0.118	–0.214[‡]	0.094		
Cohabit	–0.132	0.090	–0.105	0.083		
CarerQol	–0.010[*]	0.003	–0.008[‡]	0.003		
Thought			–0.146[†]	0.076		
Age	0.006	0.016	0.029[†]	0.017	–0.031[†]	0.019
Age^2	–0.005	0.017	–0.032[†]	0.017	0.034[†]	0.019
Female	–0.105	0.079	–0.023	0.082	–0.138[†]	0.082
Married	–0.196[‡]	0.083	–0.127	0.080	0.107	0.105
Educ01	–0.221[‡]	0.103	–0.074	0.097	–0.113	0.101
Educ2	–0.198[‡]	0.099	–0.153	0.099	0.061	0.095
Income (ln)	–0.027	0.109	0.027	0.103	0.271[‡]	0.109
Experience					0.207[‡]	0.088
SF-6D					–0.336	0.401
N	170		174		185	
Adjusted R^2	0.180		0.137		0.103	
Ramsey test (P values)	0.357		0.817		0.187	

Notes. No assistance: 1 = the carer did not receive assistance from other carers; 0 = otherwise.
Cohabit: 1 = the carer and the care recipient cohabited; 0 = otherwise.
CarerQol: CarerQol weighted score. It was derived using the Dutch tariff for the CarerQol [38], the only one for this instrument that is available until now.
Thought: 1 = the carer thought of his or her own care recipient when answering the $WTA_{hypothetical}$ questions; 0 = otherwise.
Experience: 1 = the noncarer had previous experience providing informal care; 0 = otherwise.
SF-6D: SF-6D utility index. It was obtained using the Spanish tariff for the SF-6D [39].
Educ01: 1 = the respondent was illiterate or had a low level of education; 0 = otherwise.
Educ2: 1= the respondent had a medium level of education; 0 = otherwise.
OLS, ordinary least squares; RSE, robust standard error; SF-6D, six-dimensional health state short form (derived from short-form 36 health survey); WTA, willingness to pay.
[*] $P < 0.01$.
[†] $P < 0.1$.
[‡] $P < 0.05$.

concerns were more likely to arise when carers were asked about their own situation than when they had to deal with a hypothetical scenario. Despite the significant differences at the aggregate level, it should be remarked that more than 50% of the carers stated the same value in the $WTA_{general}$ question as in the WTA_{own} one. To a great extent, this result might be associated with the difficulty that most carers found to abstract from their own caring situation when they had to deal with the hypothetical scenario, although all of them answered the $WTA_{general}$ question at the beginning of the survey.

Compared with previous WTA research, the values reported in this article are substantially lower, even if we express them in purchasing power parity. For instance, a CV study with a sample of Dutch informal carers [27] obtained a mean WTA value of €10.5 per extra hour a week. Notwithstanding, it should be noted that these values are not directly comparable with ours because the aforementioned CV study posed the WTA question on a weekly basis (i.e., an additional 1 h/wk of informal care), whereas we used a daily basis (i.e., an increase of 1 h/d). Therefore, our values were expected to be higher than those of the Dutch study, not lower. A possible explanation for these smaller values is that respondents' WTA answers were anchored in the minimum hourly wage for domestic workers in Spain (€5.05 per hour in 2014) [41], which are far below than that in other developed countries. On the contrary, both the reference public price for home assistance services in the region of Murcia, where all the respondents lived (€14 per hour worked) [42], and the average hourly salary in Spain (€14.57 in 2012) [43] are much higher than our mean WTA values and, accordingly, they do not seem to have been reference points for the WTA responses.

Below we will mention some limitations of the study, which should be viewed as potential paths for future research. First, the two samples had a relatively small size, the sample of carers was not representative of the Spanish population of informal carers, and the sample of noncarers was representative of the Spanish adult general public only regarding age and sex. More important, despite the fact that care recipients also belong to the general population, they were excluded from the sample of noncarers. This was done in an attempt to obtain more objective valuations than in previous studies. Because the care recipients were not represented in any of the two samples, it would be wrong to derive a public's WTA value for informal care by aggregating the carers' and the noncarers' WTA values elicited in this study. Our findings, however, show that it is feasible to obtain a monetary value for informal care from a sizeable sample of the general public (comprising informal carers, care recipients, and other groups of the society) using the same protocol of this study.

A further shortcoming is that the $\mathrm{WTA}_{\mathrm{hypothetical}}$ values are contingent upon the presented scenario, which was the same for all respondents. Our intention is to develop a multiattribute system able to describe various caring situations on the basis of the tasks to be provided, the time to be invested in each task, and the health state of the care recipient. This would enable us to estimate a set of values for each possible situation. In addition, all WTA values were elicited for an increase of 1 h/d in informal care and, therefore, no scope effects were tested. Future studies could examine the sensitivity of WTA responses to the amount of additional time to be spent providing informal care and also to the time frame used (e.g., two extra hours per day, one extra hour per week). Another limitation stems from the procedure used to derive the WTA values. Although we tried to avoid the presence of starting point bias by randomizing the order in which the different cards were displayed to respondents, we cannot discard the possibility that the answers were somewhat influenced by the first amount of money shown.

To conclude, the results obtained in the sample of noncarers were reasonably consistent and did not differ significantly from those elicited in the sample of carers. Thus, a logical and interesting extension of this research would be to obtain a monetary value for informal care based on the stated preferences of a representative sample of the general public.

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Supplemental Materials

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