

## Perceived physical health in family caregivers of Alzheimer patients: Mediator variables

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The aim of this work is to know the mediating role of such variables as social support and cope as other associated with Positive Psychology in family caregivers of Alzheimer patients. Method: Participants: 140 caregivers of Alzheimer patients. Instruments: Sociodemographic data; CBI Caregiver Burden Scale; COPE Coping Styles Scale; DUKE.UNC Social Support Scale; QOLLI-F, Quality of Life in Life Threatening Illness Scale–Family Carers Version; SHS, Subjective Happiness Scale; SWLS, Satisfaction with Life Scale. Results: The most relevant results refer to the partial mediating role of happiness, quality of life and life satisfaction variables between subjective burden and perceived physical health. Conclusions and discussion: Positive Psychology variables such as happiness, quality of life and life satisfaction have shown a mediating role between the perception that Alzheimer's caregivers have of care burden and physical health. We believe that this finding is an important step in the future development and implementation of intervention programs for caregivers that promote variables with positive connotation, because they would change the perception of their own burden and physical health, making them happier and with greater satisfaction and quality of life.

*Keywords:* Burden; perceived physical health, happiness; satisfaction with life; quality of life.

*Salud física percibida en cuidadores familiares de enfermos de Alzheimer. Variables mediadoras.* El objetivo de este trabajo es conocer el papel mediador de apoyo social y afrontamiento así como otras asociadas a la Psicología Positiva en cuidadores familiares de enfermos de Alzheimer. Método. Participantes: 140 cuidadores de enfermos de Alzheimer. Instrumentos: Registro sociodemográfico; CBI, Escala de Carga del Cuidador; COPE, Escala de Estilos de Afrontamiento; DUKE.UNC, Escala de Apoyo Social; QOLLI-F, Escala de Calidad de Vida en Cuidadores de Enfermos Graves; SHS, Escala de Felicidad Subjetiva; SWLS, Escala de Satisfacción con la Vida. Resultados. Las variables felicidad, calidad de vida y satisfacción con la vida ejercen un papel mediador parcial entre sobrecarga y salud física percibida. Conclusiones y discusión. Variables derivadas de la Psicología Positiva, tales como felicidad, calidad de vida y satisfacción con la vida han mostrado un papel mediador entre la percepción que los cuidadores de Alzheimer tienen de la carga en el cuidado y de su salud física. Consideramos que dicho hallazgo supone un importante paso adelante en la futura creación e implantación de programas de intervención en cuidadores que promocionen variables con connotación positiva, ya que modificarían la percepción que realicen de la sobrecarga y de su propia salud física, haciéndolos más felices y con mayor satisfacción y calidad de vida.

*Palabras clave:* Sobrecarga, salud física percibida, felicidad, satisfacción, calidad de vida.

Alzheimer's disease is the most common type of dementia whose clinical features focus on three main areas: cognitive, functional and psychological and behavioral alterations (Peña-Casanova, 1999). Family caregivers of Alzheimer patients suffer greater burden or higher subjective burden than other caregivers because of the high level of stress of the caring activity (Artaso, Goñi, and Biurrun, 2003; Muela, Torres, and Peláez, 2002; Rodríguez del Alamo, 2002; Mears and Sanchez, 2005).

Badia, Lara, and Roset's study (2004), with more than 250 informal caregivers of Alzheimer patients in Spain found that most caregivers showed moderate to severe burden, but more than 34.7% showed severe burden. Likewise, 84% suffered health problems, and that the time dedicated to the care was very high, with 72.1% spending more than 8 hours/day and 39.6% spending more than 20 hours/day. This study describes the caregivers of Alzheimer patients as people who spend many hours taking care of their relative, with a high subjective burden and health problems.

Age is a variable that appears to increase the likelihood of high subjective burden in the caregiver, especially for Alzheimer patients because the disease occurs in an evolutionary late stage so the caregiver, especially when he/she is the partner, is also of an advanced age. Novak and Guest (1992) justified the high levels of caregiver burden due to the higher probability of disease at this elderly age, reduced physical capacity and the perception that care is something out of their "life clock", when they no longer care for their children. Sometimes, greater burden has also been found in young women caregivers who have to combine various roles, as caregiver of a dependent person at home and full-time worker (Biurrun, Artaso, and Goni, 2003; Garcia and Maroto, 2004).

One of the theoretical models that focuses not only on the direct and indirect consequences of the duties of care, but also on the variables that can reduce the negative impact of these consequences, is the Pearlin Stress Model for the Caring Process (Pearlin, 1992; Aneshensel, Pearlin, Mullan, Zarit, and Whitlatch, 1995; Pearlin and Skaff, 1995; Gaugler, Zarit, and Pearlin, 1999). The model proposes two mediating variables that can significantly reduce the perceived burden and the effect that the burden can have on the caregiver's physical and mental health, referring to social support and coping skills variables. Coping actively with the stressors that are present in family caregivers is associated with better mental and physical health (Rogero-García, 2010; Korn et al., 2009). It is especially relevant in the study performed by Colmenero, Pelaez, and Grind (2002), where caregivers of Alzheimer patients with perceived high burden were those who most commonly used inadequate coping strategies compared to those with lower perceived burden. The other relevant variable in regards to mediating role is social support received by the caregiver from his close circle, making the task of care taking more bearable, and improving the caregiver's quality of life. (Belle et al., 2006). However, according to Smerglia, Miller, Sotnak, and Geiss (2007), although sometimes a specific type of social support has been shown to have a positive effect on the stress suffered by

caregivers, generally there has not been significant evidence of this variable buffering the impact of caring on the caregiver's physical health.

Positive psychological factors have an equally significant relationship with health as negative ones. Several studies have shown that staying optimistic, albeit unrealistically (Taylor et al., 1992; Reed, Kemeny, Taylor, and Visscher, 1999) and finding meaning in adversity (Bower, Kemeny, Taylor, and Fahey, 1998) are protective factors of physical health.

The informative and predictive value of positive factors was also found to be different from the negative ones. In a pioneering study, Danner, Snowdon, and Friesen (2001) analyzed the writings of some novices explaining their reasons for entering religious order decades ago. Although it was noted that the negative emotions contained in these writings had no predictive power, the group of novices who had had a more jubilant affection in their youth died 7.9 years later than the group with less positive emotionality. This demonstrated for the first time the effect of positive emotions on a strong health parameter: life expectancy. In another study, Harker and Keltner (2001) codified the emotional expressions of a group of graduates in the Class Graduation Photograph and correlated this data with information on their marital satisfaction and psychological wellbeing 30 years later. Those who showed a more positive expression in the photos did better on other variables measured when they were over 50 years old. These studies show that the effects of positivity may be less immediate and less visible than negativity because they could take longer to show or could be subtler (Gable and Haidt, 2005), hence the difficulties scientists have had to detect and analyze them.

It seems that not only social support and coping styles have mediating effects on the health of caregivers, but also variables associated with positive aspects of the task of caring. Therefore, the aim of this paper is first to confirm the mediating role of social support and coping styles between subjective burden and perceived physical health, and secondly to know the possible mediating role between positive variables in family caregivers of Alzheimer patients.

## **METHOD**

### *Participants*

The sample was composed of 140 family caregivers of Alzheimer patients from the Associations of Alzheimer Patients in the Valencian towns: Alcoy, Cocentaina, Muro de Alcoy, Ibi, and Villena. They were mostly sons/daughters (67.9%), women (68.6%), married (84.3%) and with an age range from 18 to 91 years old.

### *Instruments*

Family caregivers completed the following scales, where reliability in the present sample is also consigned. The socio-demographic variables collected were age, gender, hours/day caring, months caring, severity of the disease in the Alzheimer relative and perception of physical health; CBI, Caregiver Burden Inventory (Zarit, Reever, and Bach-Peterson, 1980) assessed the perception of the caregiver burden ( $\alpha=.85$ ); Coping Styles Scale, COPE (Carver, 1997) evaluated active ( $\alpha=.87$ ) and avoidant ( $\alpha=.65$ ) coping styles; DUKE.UNC, Social Support Scale (Broadhead, Gehlbach, DeGruy, and Kaplan, 1988) measured perceived social support ( $\alpha=.89$ ); SHS, Subjective Happiness Scale (Lyubomirsky and Lepper, 1999) assessed subjective happiness ( $\alpha=.76$ ); QOLLTI-F, Quality of Life in Life Threatening Illness Scale–Family Carers Version (Cohen, Leis, Kuhl, Charbonneau, Ritvo, and Ashbury, 2006) evaluated the quality of life of caregivers of patients with severe disease ( $\alpha=.81$ ); and finally, SWLS, Satisfaction with Life Scale, (Diener, Emmons, Larsen, and Griffin, 1985) which assessed life satisfaction ( $\alpha=.82$ ).

### *Procedure*

In first place, we contacted the associations mentioned in the participants' description. Secondly, we got the informed agreement of those caregivers who expressed a desire to participate in the study. Then, the instruments described were provided to the family caregivers. An identification number was assigned to them in order to preserve the participants' anonymity. Once the scales were completed, the data was introduced in the statistical program SPSS 21 to perform subsequent analyses.

### *Data analysis*

This is a cross-sectional study where correlational, mediational and regression statistical analyses were performed using SPSS21 program.

## **RESULTS**

### *Correlation Analysis*

Correlations between the variables studied are presented in table 1. The analysis indicate that older caregivers perceived greater burden, worse perceived physical health, and lower social support, satisfaction and quality of life. The Alzheimer's patient phase has an impact in a logical and expected way: The more years, months and hours per day caring as objective caregiver burden, the poorer perceived health and lower satisfaction with life. Months/years caring is the variable that results in less relationship with other variables, except that the more the years and months caring, more hours will be devoted to the daily care and worse physical health will be perceived. The relationship between other variables results in three modes of relationship: first, positive relation between

subjective burden and coping styles, second, also positive relation among perceived physical health, social support, happiness, quality and life satisfaction, and finally negative relation between the first and the second group.

Table 1. Relationships between the variables

	1	2	3	4	5	6	7	8	9	10	11	12
1.Age	----											
2.Phase	-.01	----										
3.Months caring	-.04	.60***	----									
4.Hours/day caring	.11	.31***	.18*	----								
5.Physical health	-.35***	-.22**	-.19*	-.33***	----							
6.Burden	.21**	.05	.03	.25**	-.33***	----						
7.Active coping	-.05	.10	.06	.15	-.13	.33***	----					
8.Passive coping	.02	.13	.09	.08	-.21**	.38***	.44***	----				
9.Social support	-.22*	-.15	.11	-.26**	.20*	-.35***	-.07	-.20**	----			
10.Happiness	-.16	-.03	.02	.15	.32***	-.45***	-.12	-.26**	.48***	----		
11.Quality of life	-.23**	-.02	.03	-.23**	.36***	-.52***	-.17*	-.17*	.36***	.54***	----	
12.Satisfaction with life	-.20*	-.18*	-.02	-.26***	.41***	-.37***	-.01	-.18*	.54***	.55***	.44***	----

Note: \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

### Mediational analysis

Mediational analyses have only led to a partial mediation between subjective burden and perceived physical health (see figures 1, 2 and 3). Mediating variables have been happiness, satisfaction with life and quality of life. The three variables reduce the level of significance between subjective burden and perceived physical health, especially life satisfaction and quality of life that reduce the significance of the relationship from  $p < .001$  to  $p < .05$  and happiness only reduces the significance from  $p < .001$  to  $p < .01$  (see figure 2). This mediation indicates that these variables explain in part the effect of subjective burden on perceived physical health. In all three cases the Sobel test is significant: 2.21,  $p < .05$  for happiness; 2.76,  $p < .01$  for quality of life; and 3.17,  $p < .001$  for life satisfaction.

Figure 1. Mediating role of happiness between burden and physical health

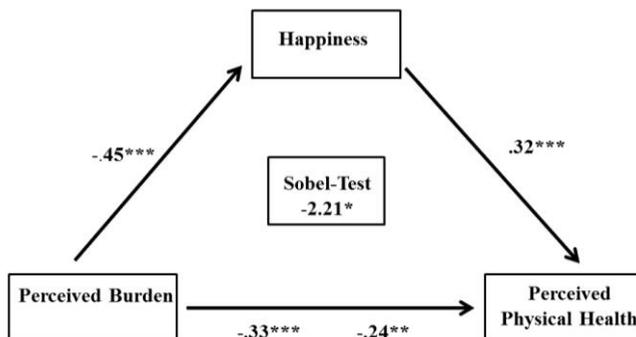


Figure 2. Mediating role of satisfaction with life between burden and physical health

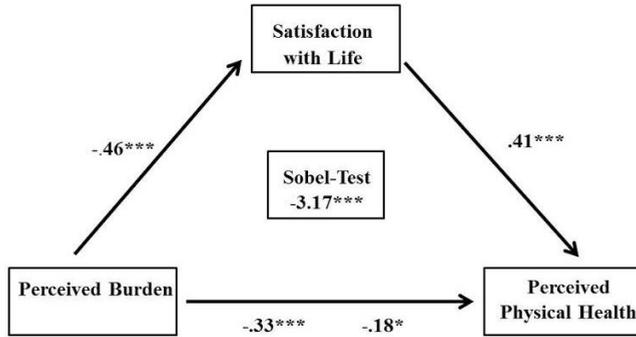
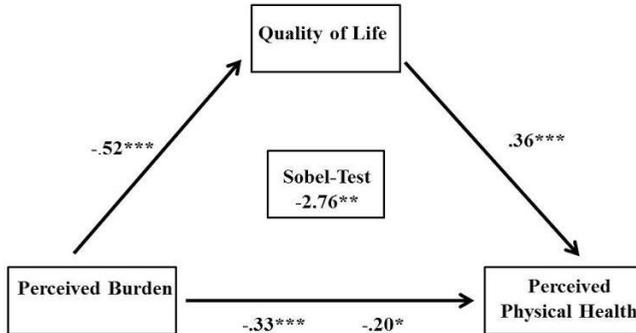


Figure 3. Mediating role of quality of life between burden and physical health



### Regression Analysis

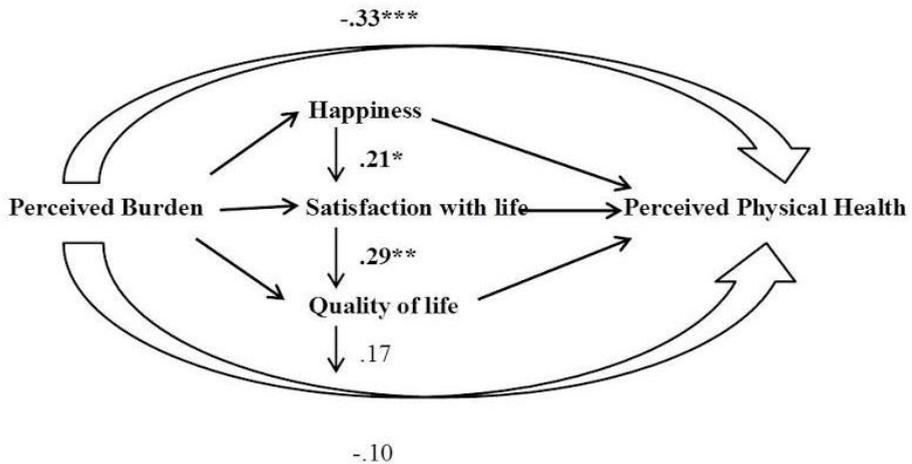
When in a stepwise regression analysis the four predictor variables are introduced (subjective burden, satisfaction with life, happiness and quality of life, see table 2), we find that they explained 22% of variance, with an  $F_{(4,135)}=9.35$  ( $p<.001$ ) and subjective burden and satisfaction with life with the highest effect. Burden reduced its effect when happiness was introduced; showing a moderate effect, but the effect was not significant when satisfaction with life was introduced. The most relevant result from the regression analysis is that subjective burden showed the highest predictive power ( $\beta=-.33$ ;  $p<.001$ ) on perceived physical health, but it loses its predictor power when entering in the analysis happiness, satisfaction with life and quality of life, ( $\beta=-.10$ , non-significant). A schematic representation is shown in figure 4.

Table 2. Lineal regression with perceived physical health as dependent variable and perceived burden, happiness, satisfaction with life and quality of life as predictive variables

Standardized Beta Coefficients				
	Burden	Happiness	Satisfaction with life	Quality of life
Step 1	-.33***			
Step 2	-.24**	.21*		
Step 3	-.16	.09	.29**	
Step 4	-.10	.03	.27*	.17

Note: \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Figure 4. General Mediation Scheme



## DISCUSSION AND CONCLUSIONS

Time caring for an Alzheimer patient, measured in months and years, does not seem to have an important health effect as measure of objective burden. According to our results, hours of daily caring has been the variable more relevant for health as a measure of objective burden, since we have found an association between hours caring every day and worse perceived physical health. Likewise, the lack of relationship between months/years caring with subjective burden supports the thesis of Novak and Guest (1989) on the adaptation of caregiver with time to their care duties, being the first days or weeks of caring those with greater impact on the caregiver (Lanzón and Díaz, 2014).

Hours a day dedicated to the care of a relative with Alzheimer's disease has resulted in an objective burden variable with significant impact on the other variables. We confirm the findings of Badia et al. (2004), in the sense that the higher number of hours per day dedicated to caring occurs when the Alzheimer patient relative is in a more advanced stage of their disease, and the caregiver has been responsible for them during

months or years, with the accompanying perception of burden and poorer health. This study extends these results to variables associated with Positive Psychology, in the sense that these caregivers also obtained less social support, quality of life and satisfaction with life.

Regarding the analysis of the subjective burden, we found that the greater the burden suffered by the caregiver, the greater the coping styles that were presented especially the avoidant coping style confirming the results of Colmenero et al. (2002) about the increased use of inadequate coping styles of caregivers of Alzheimer patients with high levels of subjective burden. Coping styles and social support appeared to be particularly important variables for their mediating role in the Pearling Stress Model for the Caring Process (Pearling 1992; Aneshensel et al., 1995; Pearlin and Skaff., 1995; Gaugler et al., 1999), but although we found less social support and coping styles when subjective burden is high, our results did not confirm this mediating role. However, we found a partial mediating role of variables associated with Positive Psychology, such as happiness, quality of life and satisfaction with life. These variables produced a reduction in the level of significance in the relationship between subjective burden and perceived physical health. Satisfaction with life is especially important, because it produced greater change in the relationship.

Psychology for many years has focused only on the study of human pathology, leading to a theoretical framework of pathogenic character. The exclusive focus of psychology in the negative, has led to assume a model of human existence that has forgotten and even denied the positive characteristics of human beings (Seligman and Csikszentmihalyi, 2000) and it contributed to a pessimistic view of human beings (Gilham and Seligman, 1999). Happiness, optimism, sense of humor and satisfaction have been ignored, or when explained it has been done in a superficial way. From the "formal" constitution of Positive Psychology (Seligman, 1999) many studies have focused on these variables, although, as the same Seligman pointed out, positive variables were already present in research in Psychology before World War II. After this, different circumstances led psychology to focus solely on mental disorder and human suffering (Seligman and Csikszentmihalyi, 2000).

The results found in his work support the important role that variables associated with Positive Psychology, as life satisfaction, happiness and quality of life, individually or altogether, exert an important mediating role between burden and perceived physical health in caregivers of Alzheimer's patients, thus confirming other studies that have also given a mediating role to these variables referring to physical health (Taylor, Kemeny, Aspinwall, Schneider, Rodríguez, and Herbert, 1992; Reed, Kemeny, Taylor, and Visscher, 1999).

Our work presents data that goes beyond the usual results in the study of caregivers of Alzheimer patients. Based on two variables with a negative connotation such

as subjective burden and poor perceived physical health, both with high levels in caregivers, our results have concluded that positive variables can lead to a mediating role between burden and perceived physical health.

From here we can propose the convenience of including positive variables such as increasing the quality of life, satisfaction and happiness of caregivers to reduce the impact that the burden of caring can have on the caregiver perception of health.

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