Family Caregivers of Liver Transplant Recipients: Coping Strategies Associated With Different Levels of Post-traumatic Growth

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ABSTRACT

Objective. Analyze the influence of 2 variables (post-traumatic growth and time since liver transplantation) on coping strategies used by the transplant recipient's family members.

Methods. In all, 218 family members who were their main caregivers of liver transplant recipients were selected. They were evaluated using the Posttraumatic Growth Inventory and the Brief COPE. A 3 × 3 factorial analysis of variance was used to analyze the influence that post-traumatic growth level (low, medium, and high) and time since transplantation (≤3.5 years, >3.5 to ≤9 years, and >9 years) exerted on caregiver coping strategies.

Results. No interactive effects between the two factors in the study were found. The only significant main effect was the influence of the post-traumatic growth factor on the following variables: instrumental support ($P = .007$), emotional support ($P = .005$), self-distraction ($P = .006$), positive reframing ($P = .000$), acceptance ($P = .013$), and religion ($P = <.001$). According to the most relevant effect sizes, low post-traumatic growth compared with medium growth was associated with less use of self-distraction ($P = .006$, $d = -0.52$, medium effect size), positive reframing ($P = .001$, $d = -0.62$, medium effect size), and religion ($P = .000$, $d = -0.66$, medium effect size), and in comparison with high growth, it was associated with less use of positive reframing ($P = .002$, $d = -0.56$, medium effect size) and religion ($P = .000$, $d = 0.87$, large effect size).

Conclusion. Regardless of the time elapsed since the stressful life event (liver transplantation), family members with low post-traumatic growth usually use fewer coping strategies involving a positive, transcendent vision to deal with transplantation.

ORGAN transplantation is an exceptional life event that although involving risks means hope of recovering one's health [1]. Family members who undertake the role of caregivers may experience situations of terrible uncertainty: death of the family member if the organ does not arrive in time, acute and chronic graft rejection, recurrence of the disease, among others [2,3]. This is added to all the other responsibilities of the caregiver (children's education, work, economy, etc), which can lead them to experience, from the first stages of liver transplantation, anxiety levels even higher than the patients themselves experience [4,5]. Nevertheless, in such situations there can also be post-traumatic growth, which refers to positive psychological change conferred after a stressful life event or traumatic experience [6,7]. For example, liver (pre- and post-transplantation) and lung

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(pretransplantation) patient caregivers realized some benefits, including what is important in life, being able to provide physical help or emotional support to the patient, discovering inner strength, and being able to spend more time with the patient [8,9].

In clinical practice, it is important to know what type of coping strategies are associated with the various levels of post-traumatic growth of transplant recipient caregivers, because it makes more complete psychological intervention possible. To the best of our knowledge, in the scope of liver transplantation, there has been only one previous study analyzing this association, considering the level of post-traumatic growth of patients [10]. It was concluded that a high level of growth was associated with more use of healthy coping strategies, basically active coping and support (instrumental and emotional) [10]. To cover the gap existing in the area of caregivers, we proposed to analyze whether their level of post-traumatic growth influences the coping strategies they use considering the time elapsed since the stressful life event (liver transplantation of a family member).

METHODS

Selection and Description of Participants and Statistical Techniques

After this study was approved by the Ethics Committee of the Virgen del Rocío University Hospital of Seville, a group of 218 family members (48 men and 170 women) with a mean age of 53.07 (standard deviation = 12.62 years) was selected. All of them were the main caregiver (71.1% partner, 19.7% child, 4.1% sibling, 3.7% parent, and 1.4% other) of a liver transplant recipient (retransplanted patients were eliminated) from a donor cadaver. Of the caregivers, 88.1% had a stable partner, and 54.6%, 22.9%, and 22.5% had low, medium, and high education levels, respectively. They were evaluated using the Posttraumatic Growth Inventory [6,11] and the Brief Cope [12,13].

A 3 × 3 factorial design was used to analyze the influence on coping strategies used by caregivers of 2 factors: (1) post-traumatic growth: 3 subgroups of caregivers were created based on their total Posttraumatic Growth Inventory scores: low (n = 75), medium (n = 71), and high (n = 72), corresponding to 34.4%, 32.6%, and 33% of the sample, respectively, and (2) time elapsed since the stressful life event: 3 caregiver subgroups were created based on the time elapsed since the patient had received the liver transplant: ≤3.5 years (n = 73), >3.5 to ≤9 years (n = 72), and >9 years (n = 73), corresponding to 33.5%, 33%, and 33.5% of the sample, respectively. Criteria for inclusion were age over 18 years, informed consent given, and not having any difficulty in understanding the evaluation instruments.

In the statistical analysis a 3× 3 factorial analysis of variance (ANOVA) was applied to assess the influence that 2 independent factors (each on 3 different levels: post-traumatic growth [low, medium, and high] and time elapsed since the stressful life event [little, medium, and much]) had on the coping strategies used by family members. A Pearson χ^2 test (qualitative variables) and one-way ANOVA (quantitative variables) were applied to compare the sociodemographic variables in the various subgroups. Cohen w (for qualitative variables) and Cohen d (for quantitative variables) were computed for effect size. Data were analyzed with IBM-SPSS 22 statistical software package (SPSS, Inc, Chicago, III, United States) for Windows PC.

Table 1. Caregiver Coping Strategies: Differences According to Their Level of Post-traumatic Growth and Time Elapsed Since the Stressful Life Event (3 × 3 Factorial Analysis of Variance)

	Main Effects		
	Post-traumatic Growth $F_{(2,209)}$ (P)	Time $F_{(2,209)}$ (P)	Interactive Effects $F_{(4,209)}$ (P)
Active coping	2.19 (.114)	0.34 (.713)	1.04 (.390)
Planning	2.73 (.067)	0.15 (.860)	1.19 (.317)
Instrumental support	5.05 (.007)	0.49 (.613)	1.49 (.207)
Emotional support	5.44 (.005)	0.03 (.969)	1.83 (.123)
Self-distraction	5.21 (.006)	0.14 (.869)	1.49 (.205)
Venting	0.30 (.739)	0.04 (.960)	0.38 (.822)
Disengagement	0.32 (.728)	0.60 (.551)	0.18 (.951)
Positive reframing	8.70 (.000)	1.14 (.322)	1.13 (.341)
Denial	2.19 (.115)	0.98 (.377)	0.77 (.543)
Acceptance	4.40 (.013)	1.42 (.244)	1.27 (.282)
Religion	15.21 (.000)	1.05 (.351)	0.31 (.869)
Substance use	0.07 (.933)	0.10 (.906)	1.98 (.099)
Humor	2.70 (.070)	0.10 (.904)	1.20 (.311)
Self-blame	0.34 (.715)	0.31 (.735)	1.50 (.204)

RESULTS

There were no differences in sociodemographic variables among the various subgroups formed for each factor: (1) post-traumatic growth: age (P = .485), sex (P = .014, w = 0.20, small effect size), marital status (P = .638, w = 0.06, null effect size), education (P = .591, w = 0.11, small effect size), and relationship (P = .735, w = 0.15, small effect size), and (2) time elapsed since the stressful life event: age (P = .260), sex (P = .296, w = 0.11, small effect size), marital status (P = .848, w = 0.04, null effect size), education (P = .186, w = 0.17, small effect size), and relationship (P = .085, w = 0.25, small effect size).

Table 1 shows the results of the 3 × 3 factorial ANOVA. As may be observed, no interactive effects were found between the 2 factors studied. Of the main effects, only influence of the post-traumatic growth was significant in the following variables: instrumental support (P = .007), emotional support (P = .005), self-distraction (P = .006), positive reframing (P = .000), acceptance (P = .013), and religion (P = .000). Specifically, as shown in Fig 1, considering the most relevant effect sizes, we find that low post-traumatic growth, compared with medium growth, is associated with less use of self-distraction (P = .006, d = −0.52, medium effect size), positive reframing (P = .001, d = −0.62, medium effect size), and religion (P = .000, d = −0.66, medium effect size) and, compared with high growth, is associated with less use of positive reframing (P = .002, d = −0.56, medium effect size) and religion (P = .000, d = −0.87, large effect size).

DISCUSSION

The most relevant results showed that, regardless of time elapsed since the stressful life event, the caregivers with the