Adverse outcomes of critical illness from a dyadic perspective

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Rosendahl J, Brunkhorst FM, Jaenichen D, Strauss B. Physical and Mental Health in Patients and Spouses After Intensive Care of Severe Sepsis: A Dyadic Perspective on Long-Term Sequelae Testing the Actor–Partner Interdependence Model. *Crit Care Med* 2013; 41:69-75.

Key Words: Actor–Partner Interdependence Model; posttraumatic stress symptoms; health related quality of life; spouses

Introduction

Physical and psychological consequences are common in survivors of severe sepsis. Spouses are also affected from such a traumatic experience. As a couple, interactions between the dyads patient-spouse necessarily occur during recovery, which could positively or negatively influence the outcomes of both patients' and spouses'. This situation has led some researchers to consider the dyad patient-spouse as a unit of analysis in ICU research. To study the interaction between two people (a dyad), the Actor Partner Interdependence Model (APIM) has been proposed (1).

The APIM is a model designed to explore dyadic relations that involve the concept of interdependence in two-person relationships (actor and partner) (2). The model can be used to investigate interactions and measure the impact of one person's (actor) causal variable on his or her own outcome variable, and on the partner's outcome variable (1, 2).

To date, there is little literature considering the dyad patient-spouse as unit of analysis in the recovery from critical illness, particularly in survivors of severe sepsis. This study provides new knowledge that has the potential to help to inform research, education and clinical practice.

Objective: To explore physical and psychological outcomes of intensive care treatment due to severe sepsis in the dyad patient-spouse using the Actor–Partner Interdependence Model.

Methods: Prospective study including 55 dyads (survivors of severe sepsis and their spouses) who

requested advice from the German Sepsis Aid's National Helpline. Patients and/or spouses were contacted an average of 55 months after ICU discharge, and the outcomes were measured once. Symptoms of anxiety, depression and posttraumatic stress were assessed using the Hospital Anxiety and Depression Scale and the Post- traumatic Stress Scale-10 (German version), respectively. Health related quality of life was measured using the Short Form-12 Health Survey, and subjective physical health by means of the Giessen Subjective Complaints List-24. Multilevel modeling was used to test the Actor–Partner Interdependence Model. Ethical approval was gained to carry out this study.

Results: Symptoms of anxiety, depression and posttraumatic stress were reported by 42%, 40% and 69% of the patients and 33%, 26% and 62% of their spouses. Health related quality of life was poorer in this sample of patient-spouse dyads as compared to the normal German population. A significant dyadic association between patients and spouses regarding mental health was found. Anxiety and depression scores, posttraumatic stress symptoms, and health related quality of life (mental component) were significantly related between patients and spouses. Posttraumatic stress symptoms were related to the patients' and spouses' own mental health related quality of life (HRQOL) and also affected the health related quality of life (mental component) of the respective other.

Conclusion: Care after intensive care treatment should be considered for both patients and their spouses.

Critique

The issue of long-term psychological and physical consequences on the patient-spouse dyads after surviving intensive care treatment due to severe sepsis has been addressed in this study (1). This is one of the first papers using the Actor-Partner Interdependence Model (APIM) in this arena, a feature that makes this article very interesting.

A clear introduction about the psychological and physical problems faced by survivors of severe sepsis is provided, as is a description of the impact of these problems on their health-related quality of life (HRQOL). An explanation of the traumatic experience for the spouse of a patient in such a critical condition and the effect this may have on their psychological and physical health as well as HRQOL is also provided by the authors. Reference is made to the recently named concept of “Post-intensive care syndrome” (PICS) (3). The need for this study, aims and approach selected to investigate the issue are clear and well-argued. The setting, the procedures, the measures and the subjects of study are described, and the methodology identified as prospective. Ethical approval was gained to perform this study.

This group of researchers openly acknowledges important methodological limitations of this study and warns the readers about the interpretation of their results. One of the limitations mentioned is the low response rate, which may be due to the retrospective nature of the recruitment process used in this study (described in the method section). The researchers sent 1128 questionnaires to 564 contact addresses (one to the patient and other to the spouse). While the response rate reported was 25.5%, only 55 patient-spouse dyads were the subject of analysis, which represents an even lower response rate (9.8%). However, a sample size of 55 patient-spouse dyads in this population is, without a doubt, quite an achievement. The authors also acknowledge that selection bias could have influenced external validity of this study and that the use of a retrospective cohort did not allow a nonresponse analysis. It would have been beneficial if both the enrollment of the patients and the analysis of the data had been prospectively conducted.

Descriptive statistics were appropriately used to describe the sample, and comparisons between study sample and German normative samples were made for the study outcomes (physical and mental health as well as HRQOL). Statistical tests such as Wilcoxon’s signed rank test and Kendall t rank correlation coefficients were used correctly to examine differences in means

between patients' and spouses' mental health and the dyadic relation of physical and mental health between patients and spouses, respectively.

The findings of this study were clearly reported, using easy to understand tables and diagrams, and the implications of the main findings were considered in the discussion. The findings suggest dyadic association between patients' and spouses' mental health since symptoms of anxiety, depression, posttraumatic stress, and the mental component of SF-12 were significantly associated between patients and spouses. This dyadic association was also found significant for physical health (gastrointestinal complaints, musculoskeletal complaints, exhaustion and physical component of SF-12, except for cardiovascular complaints). With regard to the dyadic relationship of posttraumatic stress symptoms and mental component of SF-12 (mental HRQOL), a significant actor effect of posttraumatic stress symptoms of patients and spouses on their own mental HRQOL was revealed. It was also found that the patients' posttraumatic stress symptoms affected the mental HRQOL of their spouse significantly.

It would have been helpful if clarification was given in regard to the Posttraumatic Stress Scale-10 (the tool used to evaluate symptoms of posttraumatic stress) since two references were given for this tool (4, 5). These references describe similar tools, but they are not quite the same. While these instruments have the same 10 items, they have different scoring with the German version scoring used in this study (English version 1-7 vs. German version 0-3). The different scoring means that scores obtained from this cohort could not be compared to others where the English version scoring was used. Despite the different absolute scores, it is likely that comparison of the categorised scores might still be appropriate.

Unfortunately, the instrument used in this research, and the associated literature, is in German, which limits the appraisal of this paper in this methodological component. While it appears that the tool used in this study had been validated in the ICU population, additional information

regarding this aspect would have been very useful. The authors' explanation is particularly important since the prevalence of PTSS reported in their sample (patients and spouses) is about three times higher (around 60%) than the prevalence reported in other groups of both ICU survivors and the general population. However, this higher prevalence could be explained by the fact that the participants might have been experiencing distress; after all, they were recruited from the German Sepsis Aid's National Helpline (patients and relatives who contacted this organization for free advice) and so might represent a biased sample with higher stress levels than many ICU survivors. Another consideration for this higher prevalence is whether this tool is suitable for both patient and spouse. If this tool has not been validated to assess both patients and spouses, it might be "too sensitive" and as such has picked up many false positives. If it has been validated, clearly PTSS are an extremely important issue in this group of dyads (patients and spouses who are proactive in seeking help).

Participants of this study (patients and their spouses) reported significant long-term consequences of critical illness such as reduced HRQOL, symptoms of anxiety, depression, and posttraumatic stress. These findings are in line with current evidence in the critical care arena (6, 7, 8, 9, 10). Nonetheless, dyadic relations between patients and their spouses are just beginning to be explored in this discipline. These types of interrelations, however, have been studied in other populations (11,12, 13).

Considering dyadic relations in future research would greatly expand the critical care area of research. This approach would provide new information about others risk factors yet to be identified, providing a much bigger picture and better understanding of the issue. This knowledge could contribute to an improved recovery process of many families.

In the Australian context, this evidence is particularly valuable since post-ICU follow up clinics have not been introduced. The findings of this and future studies adopting a dyadic approach

could inform the need for, and provide the basis for the design and implementation of this type of service into the Australian health-care delivery environment.

Overall, this study provides valuable and significant evidence about the importance of approaching recovery from critical illness as a family process.

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