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TITLE: Incidence and Psychophysiology of Post-Traumatic Stress  
Disorder in Breast Cancer Victims and Witnesses

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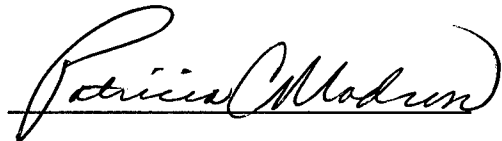
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<b>13. ABSTRACT (Maximum 200)</b>  The objectives are a.) to evaluate the incidence of post-traumatic stress disorder (PTSD) in breast cancer patients and "witnesses" (i.e., significant others), and b.) to validate interview-based diagnoses by measuring physiologic responses during script-driven imagery of patients' and witnesses' personal experiences with breast cancer. The rates of lifetime PTSD observed for the breast patients (26%) and witnesses (24%) are concordant with the rates of PTSD from other traumatic events. However, the percentages of lifetime PTSD cases that are current among the patients (35%) and witnesses (33%) are lower than seen with other traumatic events. These data suggest that breast cancer can lead to PTSD in patients and witnesses, but these PTSD patients are more likely to recover from their PTSD than other traumatized persons. Preliminary statistical analyses support the hypothesis that physiologic responses during personal imagery of breast-cancer-related experiences are greater in breast cancer witnesses with PTSD than in breast cancer witnesses who never had PTSD. A one-year no-cost extension has been granted for further analyses of the data and the preparation of publications.			
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FOREWORD

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#### 4. TABLE OF CONTENTS

INTRODUCTION	5
BODY OF REPORT	6
CONCLUSIONS	6
REFERENCES	7

Principal Investigator: Roger K. Pitman, M.D.

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5. INTRODUCTION. While it is clear from research during the past two decades that extreme, acute stressful events such as military combat or violent rape can and do produce post-traumatic stress disorder (PTSD), the ability of less acute stressors to produce this disorder remains unclear. The stressful experiences of having breast cancer diagnosed and treated in oneself or one's loved one are cases in point. Such experiences are often accompanied by subjective reactions of fear, helplessness, and horror, which are elements in diagnostic criteria for PTSD set forth in the *Diagnostic and Statistical Manual of Mental Disorder*, fourth edition (DSM-IV; American Psychiatric Association, 1994). However, although a lesion on a mammogram may represent as much of a threat to a woman's survival as a rapist's knife at her throat, the threat posed by the lesion is less immediate and less palpable.

The objectives of this project are a.) to evaluate the incidence of PTSD in breast cancer patients and their "witnesses" (i.e., significant others), and b.) to attempt to validate interview-based diagnoses of PTSD by using a psychophysiologic technique previously shown by the PI and colleagues (Orr & Pitman, 1993; Orr et al, 1993; Pitman et al, 1987, 1990; Shalev et al, 1993) to significantly discriminate research subjects with PTSD and without PTSD. In the present project, this is being done by measuring psychophysiologic responses during script-driven imagery of the most stressful aspects of patients' and witnesses' personal experiences with breast cancer in themselves or their loved ones.

The project's hypotheses are: A.1.) the incidence of diagnosed PTSD in breast cancer patients is comparable to the incidence of PTSD resulting from other, previously studied, traumatic events; A.2.) the incidence of diagnosed PTSD in breast cancer witnesses is comparable to the incidence of PTSD resulting from other, previously studied, traumatic events; B.1.) physiologic responses during personal imagery of breast-cancer-related experiences are greater in breast cancer patients with PTSD than in breast cancer patients without PTSD; B.2) physiologic responses during personal imagery of breast-cancer-related experiences are greater in breast cancer witnesses with PTSD than in breast cancer witnesses without PTSD; C.1.) PTSD breast cancer patients' physiologic responses during personal imagery of their breast-cancer-related experiences are comparable to other, previously studied, PTSD subjects' physiologic responses during personal imagery of their traumatic experiences; and C.2). PTSD breast cancer witnesses' physiologic responses during personal imagery of their breast-cancer-related experiences are comparable to other, previously studied, PTSD subjects' physiologic responses during personal imagery of their traumatic experiences.

Principal Investigator: Roger K. Pitman, M.D.

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6. BODY OF REPORT. The project is proceeding as proposed, although recruitment has not fulfilled projections. Despite our strenuous efforts, we have not received the cooperation we had hoped from local physicians in referring suitable subject candidates to us from their busy office practices.

As of the end of the project's 04 year, we had conducted personal interviews on 76 breast cancer patients. From the psychodiagnostic standpoint, using the Clinician-Administered PTSD Scale (CAPS; Blake et al, 1995), 7 (9%) met DSM-IV criteria for current PTSD related to their breast cancer experiences; 13 (17%) patients met DSM-IV criteria for past but not current (i.e., lifetime) PTSD; 56 (74%) patients met DSM-IV criteria for neither current nor past (i.e., never) PTSD. As of the end of the project's 03 year, we had conducted personal interviews on 49 witnesses. Four (8%) met DSM-IV criteria for current PTSD related to their experiences of their significant others' breast cancer: 8 (16%) met DSM-IV criteria for past PTSD; 37 (76%) met criteria for neither current nor past PTSD.

As of the end of the project's 04 year, we had studied 59 breast cancer patients and 38 witnesses in the psychophysiology laboratory. We applied to these subjects' responses an *a priori* discriminant function derived from the physiologic responses of 46 PTSD subjects and 48 non-PTSD subjects who had experienced other traumatic events and previously been studied in the same procedure. Of the 5 patients diagnosed current PTSD, 2 (40%) were physiologic responders. Of the 12 patients diagnosed past PTSD, 2 (17%) were physiologic responders. Of the 42 patients diagnosed never PTSD, 9 (21%) were physiologic responders. Of the 1 witness diagnosed current PTSD, 0 (0%) was a physiologic responder. Of the 7 witnesses diagnosed past PTSD, 2 (12%) were physiologic responders. Of the 30 witnesses diagnosed never PTSD, 5 (17%) were physiologic responders.

Preliminary statistical comparisons of the physiologic responses of the current-PTSD vs. never-PTSD breast cancer patients during personal script-driven imagery of their breast cancer experiences yielded  $F(4,42)=6.1$ ,  $p<.001$ . Univariate tests yielded: for heart rate response,  $t(45)=3.7$ ,  $p<.001$ ; for skin conductance response,  $t(45)=4.1$ ,  $p<.001$ ; for frontalis EMG response,  $t(45)=1.3$ ,  $p=.21$ ; for corrugator EMG response,  $t(45)=4.2$ ;  $p<.001$ .

7. CONCLUSIONS. The rates of lifetime PTSD for the breast patients (26%) and witnesses (24%) are generally concordant with the rates of PTSD from other traumatic events. However, the percentages of lifetime PTSD cases that are current among the patients (35%) and witnesses (33%) are lower than seen with other



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traumatic events. These data suggest that breast cancer can lead to PTSD in patients and witnesses, although these PTSD patients are more likely to recover from their PTSD than other traumatized persons who develop PTSD. The preliminary statistical analyses support hypothesis B.2, i.e., that physiologic responses during personal imagery of breast-cancer-related experiences are greater in breast cancer witnesses with PTSD than in breast cancer witnesses who never had PTSD.

A one-year no-cost extension has been granted for further analyses of the data and the preparation of publications.

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