# Correlates of memory loss and depression among myocardial infarction patients in Al-Qassim, Saudi Arabia



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*Background:* After myocardial infarction (MI), patients have an elevated risk for depression, which has a negative impact on morbidity and mortality for patients. As depression and memory function are associated, we examined them in the context of one another. Our objectives were to determine the proportion of patients with either depression only, memory loss only, or both depression and memory loss and to examine the correlates with each outcome.

*Methods:* This study was a cohort of 264 patients who had myocardial infarction. Data sources included medical records and phone interviews.

Results: The participants' mean age was 62  $\flat$  12.2 years and mean body mass index was 28.4  $\flat$  5.8 kg/m<sup>2</sup>. Of the participants, 6.4% had memory loss alone, 23.17% had depression alone, and 6.1% had combined memory loss and depression. Activity level and poor health were significantly associated with depression only (p < 0.05). Poor health was significantly associated with combined memory loss and depression (p < 0.05).

Conclusion: Activity level and poor health were identified as correlates of depression as well as combined memory loss and depression. Future studies should aim to improve screening for depression among post-MI patients and develop appropriate interventions to raise the level of activity.

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Keywords: Depression, Memory loss, Cardiovascular disease, Myocardial infarction, Patients

#### Introduction

Depression and myocardial infarction (MI) are likely to be associated 'reciprocally' with each other [1,2]. Patients have a high incidence

of depression post-MI and depressive symptoms are strongly associated with morbidity and mortality of MI patients [1,3]. Both biological and lifestyle mechanisms have been proposed to explain the role of depression in the prognosis of MI patients. Biological mechanisms include but are

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not limited to hyperactivity of the hypothalamicpituitary-adrenocortical axis and immune function whereas lifestyle mechanisms suggest that depressed patients are less likely to adhere to medication and physical rehabilitation and to quit smoking [4].

Approximately 30% of patients, who were not depressed previously, are diagnosed with depression after an MI event, indicating a post-MI increased risk of depression [4,5]. A host of patient (e.g., young age, female), psychosocial (e.g., poor coping skills, medication nonadherence, and social isolation), and disease characteristics (e.g., MI severity, previous depression, and anxiety) have been identified as risk factors for depression among MI patients [6]. Several studies have suggested that psychological disorders, including depression, should be screened and treated more systematically among MI patients [1,4,6,7].

In addition to the development of depression, memory function (and decline) might be an important health sequela in MI patients [8]. The trajectory of memory decline in post-MI patients has not yet been studied. However, there is a body of literature to suggest that traumatic, stressful life events reduce the autobiographical memory function rendering it 'overgeneral' and less specific [9–12]. Post-MI depression and memory decline are likely to go hand in hand as data indicate that an 'overgeneral' autobiographical memory may predict the course of depression [9]. Results showed that more generalized memories (i.e., fewer specific memories) were associated with higher depressive symptoms at follow-up.

Because of the interrelationship between memory function and depression and the increased risk for depression among patients following MI, we assessed both psychological conditions in a sample of MI patients. Our objectives were to determine the proportion of patients with either depression only, memory loss only, or both depression and memory loss. Furthermore, we aimed to examine the correlates with each outcome and to determine whether the correlates for each outcome were unique or shared.

#### Materials and methods

#### Study design and sample

This was a cross-sectional study of patients. We reviewed medical records of patients who were diagnosed with myocardial infarction from 2008 to 2015 and had been treated at Prince Sultan Cardiac Center (PSCC) in King Fahad Specialist Hospital located in Al-Qassim, Saudi Arabia.

#### Abbreviations

MI myocardial infarction PHQ2 Patient Health Questionnaire CVD cardiovascular disease

HADS Hospital Anxiety and Depression Scale

Inclusion criteria were patient records with a diagnosis of MI during the study period 2008–2015, either male or female. Exclusion criteria were patient records of patients who were already deceased prior to 2015. The study protocol was approved by the Medical Ethical Review Committee in Qassim Region.

#### Data collection

The data collection was completed in two phases. During the first phase, the research assistants identified the medical records of patients that met the eligibility criteria, then extracted the relevant data (described below) and coded it into an electronic database. The phone numbers were extracted from the records and the research assistants contacted the patients via phone. Research assistants described the study's purpose and procedures. Once the patient agreed, he/she provided informed consent, verbally, to participate in the follow-up interview. Interviews took 20–30 minutes on average. There were eight research assistants involved in the data collection, each of them completed data extraction from the medical records and the follow-up interviews with the patients.

#### Assessment tools

The form used for data extraction from the medical records included the following: (1)

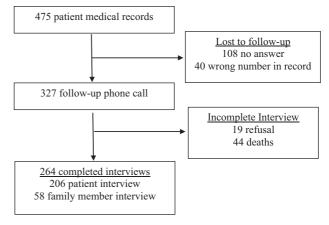


Figure 1. Flow chart for analytic sample.

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