Willingness to Engage in Traditional and Novel Depression Treatment Modalities Among Myocardial Infarction Survivors

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INTRODUCTION

Depression is a known risk factor for morbidity and mortality following myocardial infarction (MI).¹ Several groups, including the American Heart Association, recommend depression screening and treatment post-MI.² Yet, fewer post-MI survivors receive depression treatment than general depressed populations.³ To inform implementation efforts, we assessed depression treatment attitudes, acceptability, and willingness (by modality) among MI survivors with elevated depressive symptoms.

METHODS

From May 2013 to July 2013, YouGov, a non-partisan online polling firm, administered English and Spanish surveys to 1500 US opt-in survey panel participants reporting MI diagnosis by a healthcare professional. Sampling targets were based on age, sex, and race distribution of MI in the 2010 National Health Interview Survey (NHIS) using a two-step sample matching method that drew a random sample from the target population and then created a matched set of survey respondents to these marginals (response rates 45.8% English; 16.2% Spanish).³ We restricted analyses to participants with elevated depressive symptoms (Patient Health Questionnaire-8 ≥ 10). We elicited medical history and current/past depression treatment use, attitudes (i.e., importance of dealing with MI-related stress, interest in talking about one's feelings (including if offered at no cost), and willingness by modality (defined as ≥ 3 [very/somewhat interested] on a 4-point Likert scale): face-to-face counseling, antidepressants, group therapy

(including social groups, e.g., exercise), remote therapy (telephone or video counseling), and self-help (here online or smartphone application-delivered). We used sampling weights based on 2010 NHIS age, gender, and race distributions of MI to calculate weighted percentages. Weighted multivariable logistic regression determined the association between key demographic characteristics (age, gender, race/ethnicity) and treatment willingness adjusting for income, education, and history of depression based on a priori hypotheses.

RESULTS

Overall, 352 (weighted percentage 23.7%) of 1500 MI participants had elevated depressive symptoms: average age (standard error) 59.6 (0.69) years; 50.4% were female, and 23.9% non-white; 79.6% reported a history of hypertension, 78.7% high cholesterol, 47.3% heart failure, and 44.3% diabetes; 69.5% had prior depression (Table 1). Overall, 20.0% were currently receiving therapy, but 72.6% were somewhat/very interested in talking about their feelings and 95.2% felt it was important to deal with MI-related stress/feelings. Of 246 (71.2%) individuals not offered counseling at the time of their MI, 74.2% would have gone if offered at no cost.

Overall, 88.3% of currently depressed post-MI survivors were willing to receive ≥ 1 treatment modality; 72.1% face-to-face counseling, 58.8% antidepressant medication, 58.2% group-based treatment (47.9% social groups like exercise/cooking; 45.7% group therapy), 48.8% remote (42.1% phone counseling; 32.9% video), and 46.7% self-help (42.2% online materials; 21.9% apps) (Fig. 1). Individuals ≥ 65 years old (vs. < 65 years) were less willing to participate in ≥ 1 modality (80.1% vs. 93.1%, AOR = 0.27, 95%CI 0.11 to 0.65), particularly face-to-face therapy (62.1% vs. 78.2%; AOR = 0.54, 95%CI 0.31–0.95), remote counseling (34.8% vs. 57.2%; AOR = 0.42, 95%CI 0.25–0.70), and self-help (35.1% vs. 53.6%; AOR = 0.47, 95%CI = 0.28–0.81). Willingness

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Table 1 Characteristics and Attitudes of Adult Survivors of Myocardial Infarction (MI) with Elevated Symptoms of Depression

Characteristic (N = 352)	N (weighted %)
Demographics	
Age (year), M (SD)	59.6 (0.69)
Female	178 (50%)
Non-Hispanic black	54 (14%)
High school education or lower	63 (17.9%)
Income of < \$20,000	83 (25.4%)
Self-reported MI history	
Coronary artery bypass grafting (CABG), percutaneous transluminal coronary angioplasty (PTCA), or stent	230 (64.0%)
More than one prior MI	144 (40.9%)
Number of MIs, M (SE)	1.9 (0.1)
Medical history (Has a doctor or nurse ever told you that you have...?)	
High blood pressure (BP)	285 (79.6%)
or hypertension	
High blood cholesterol	271 (78.7%)
Heart failure	171 (47.3%)
Diabetes	158 (44.3%)
Kidney problems (infection, stones, nephritis, failure, stones, transplant, dialysis)	109 (31.4%)
Peripheral artery disease (clogged arteries in the legs)	77 (20.8%)
Stroke or transient ischemic attack (TIA)	91 (24.1%)
Psychiatric history	
Depression	241 (69.5%)
Anxiety	205 (57.7%)
Currently in therapy	76 (20%)
At time of heart attack, offered counseling or talk therapy to talk about feelings related to heart attack and coping?	106 (28.8%)
Depression treatment attitudes	
Interested in talking about feelings	257 (72.6%)
Important to deal with stress/feelings related to heart attack	333 (95.2%)
Important to recovery to take care of stress and feelings related to heart attack	98 (86.3%)
If counseling or talk therapy had been offered at the time of your heart attack or now at no cost, would you go? (of those not offered counseling at time of heart attack (n = 246))	179 (74.2%)

did not differ by gender but non-whites (vs. whites) were particularly interested in group therapy (71.7% vs. 54.0%, AOR = 2.58, 95%CI 1.34–4.97).]—>

DISCUSSION

Depression treatment post-MI improves quality of life and perhaps long-term cardiac outcomes. We demonstrate that despite positive attitudes and general willingness, only 20% were currently in therapy, perhaps due to suboptimal guideline implementation/symptom recognition (< 30% were offered treatment peri-MI), low motivation (only 9% [self-help apps] to 40% [face-to-face therapy] were *very interested*), and access/cost (74% would have gone if offered at no cost). Consistent with prior research, participants preferred face-to-face counseling,⁴ but we demonstrate that half would use remote modalities. Additionally, 90% were somewhat/very interested in ≥ 1 modality, suggesting that expanding treatment options may result in higher engagement. Despite the emergence of mobile applications, however, interest in self-help apps was low, even in this online cohort.

This study was limited by retrospective, self-reported data, opt-in survey methodology, and inclusion of individuals with online access. Telehealth acceptability may also have shifted since survey conduct in 2013. Nonetheless, the majority of Americans use the Internet and we applied a rigorous survey methodology⁵ with response rates consistent with prior online surveys. Our results highlight the importance of patient preference, technology, and accessibility⁶ in depression treatment implementation among MI survivors. Further research is needed to understand gaps between generally positive treatment

Acceptability for Depression Treatment Modalities in Depressed Myocardial Infarction U.S. Adults

Figure 1 Willingness for depression treatment modalities among ever/currently depressed US adults with a history of myocardial infarction by age, gender, race/ethnicity.

attitudes and low treatment initiation rates and to test engagement interventions, particularly in older MI patients.

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Data Availability Dr. Nathalie Moise had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Compliance with Ethical Standards:

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