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Improving Hope in Hopeless Patients With Ischemic Heart Disease

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Purpose:

Hopelessness has been identified in 27% of patients with ischemic heart disease (IHD), can persist for up to 12 months after hospital discharge (Dunn et al., 2017), and is associated with a 3.4 times increased risk of mortality or nonfatal myocardial infarction (Freedland et al., 2009; Pederson et al., 2007). Conversely, the concept of hope has been linked with positive health outcomes in chronically ill populations (Duggleby, et al., 2012; Madan & Pakenham, 2014). Hope is defined as a positive motivational state or trait consisting of a sense of successful agency (goal-directed energy) and pathways (one's capacity to generate a plan to reach goals) (Snyder, 2000). State hope is one's goal directed thinking in any given moment and situation, whereas trait hope is a person's disposition or general way of goal directed thinking (Snyder, 2000). State and trait hope have not been examined in IHD patients. The purpose of this study was to 1) describe state and trait hope in a sample of hopeless IHD patients and 2) evaluate the preliminary efficacy of a 6-week intervention, called *Heart Up!*, in improving state hope in hopeless IHD patients. This study was based on Self-Determination Theory (SDT) (Deci & Ryan, 2008) and Cohen's Stress and Coping Social Support Theory (Cohen, Gottlieb & Underwood, 2001). The *Heart Up!* intervention's motivational interviewing session, based on SDT, provided a supportive environment to enhance competence, autonomy, and relatedness, leading to intrinsic motivation. The *Heart Up!* intervention's text messages were developed based on SDT and within Cohen's social support category of emotional support, focusing on encouragement.

Methods:

Patients hospitalized for an IHD event at a single hospital in the Midwestern United States were screened for hopelessness. Patients who reported moderate to severe state hopelessness, and who had a cellphone with text messaging capability, were eligible for the study. Patients consenting to the study were randomized to one of 3 groups; 1) motivational social support (MSS) from a nurse, 2) MSS from a nurse with social support from a significant other (SOS), or 3) attention control (AC). The MSS and MSS-SOS groups participated in a motivational interviewing session with a nurse in week 1, followed by daily, automated text messages from the nurse for 6 weeks. The MSS-SOS group also received text messages from their significant other. The AC group participated in a question-answer session with a trained data collector. Data were collected at baseline (week 1 after hospital discharge) and at 8 weeks. Patients were screened for hopelessness using the state subscale of the State-Trait Hopelessness Scale (Dunn et al., 2014). The Snyder Trait and State Hope Scales (Snyder, 2000) were used to measure hope.

Results:

Thirty patients with moderate to severe state hopelessness were enrolled into the pilot study and 67% (n= 20) completed the study. State hope significantly improved in the 20 patients from baseline (mean= 30.6, SD= 10.03) to 8 weeks (mean= 35.75, SD 7.95, p= 0.005). There was no significant improvement in trait hope. The amount of change in state hope was significantly associated with baseline levels of hope, with less hopeful individuals more likely to show larger gains (p= 0.004). Patients in the MSS group (n= 7) showed a significant improvement in hope (4.43 points; p= 0.04), after adjusting for baseline hope levels,

whereas neither of the other treatment groups had statistically significant change ($p= 0.47$ for MSS-SOS and $p= 0.051$ for the AC group).

Conclusion:

This pilot study is the first of its kind to describe state and trait hope in IHD patients, while more specifically examining hope levels in hopeless IHD patients who received an emotional support intervention. Hopeless IHD patients receiving emotional support from a nurse had significant improvement in state hope, as compared to patients receiving support from both a nurse and significant other or those in an attention control group. An emotional support intervention from a nurse may be effective in improving a hopeless patient's positive motivational state. The significant findings in this small sample provide the scientific premise for a larger trial. The Global Hearts initiative from the World Health Organization and its partners calls to reduce the global threat of cardiovascular disease, including IHD (World Health Organization, 2016). Because hopelessness is predictive of decreased survival (Freedland et al., 2009) and increased adverse clinical events (Pederson et al., 2007), further examination of interventions to promote hope in IHD patients is needed globally.

Title:

Improving Hope in Hopeless Patients With Ischemic Heart Disease

Keywords:

Health promotion intervention, Heart disease and Hope

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Abstract Summary:

This pilot study is the first of its kind to describe state and trait hope in hopeless patients with ischemic heart disease. A significant improvement in state hope in patients who received an emotional support intervention (Heart Up!) will be discussed.

Content Outline:

I. Introduction

A. Hopelessness

1. Definition

2. Prevalence and persistence in patients with ischemic heart disease (IHD)

3. Effects on patient outcomes

B. Hope

1. Definition

2. Associations with positive health outcomes in chronically ill

3. State versus trait hope

4. Lack of research in IHD patients

II. Study purpose

III. Theoretical framework

A. Self-Determination Theory

B. Cohen's Stress and Coping Social Support Theory

C. Development of the *Heart Up!* intervention components

IV. Methods

- A. Sample size and setting
- B. Eligibility criteria
- C. Screening for hopelessness
- D. Enrollment and randomization to three groups
 - 1. Motivational social support from nurse
 - 2. Motivational social support from nurse and significant other
 - 3. Attention control

V. Data collection and instruments

- A. State-Trait Hopelessness Scale
- B. Snyder Trait and State Hope Scales

VI. Results

- A. Enrollment and attrition
- B. Patient characteristics
- C. State and trait hope levels baseline to 8 weeks: full sample
- D. Change in state and trait hope levels in each group
- E. Limitations
 - 1. Small sample size
 - 2. One hospital in Midwest United States

VII. Conclusions

- A. Pilot study as first of its kind in describing state and trait hope in IHD patients
- B. First study to examine hope levels in hopeless IHD patients
- C. A motivational social support intervention from a nurse as potentially effective in improving a patient's positive motivational state
- D. Significant findings provide the scientific premise for a larger trial
- E. Global Hearts initiative from the World Health Organization to reduce the global threat of

cardiovascular disease, including IHD

F. Because hopelessness is predictive of decreased survival and increased adverse clinical events

further examination of interventions to promote hope in IHD patients is needed globally

First Primary Presenting Author

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Professional Experience: 2015 - present: Associate Professor, Michigan State University, College of Nursing, East Lansing, MI; 1997 - 2015: Professor, Hope College, Department of Nursing, Holland MI; 1992 – 1997: Cardiovascular Research Clinical Nurse Specialist, Spectrum Health, Grand Rapids MI; 1987 – 1992: Cardiac Rehabilitation Coordinator, Spectrum Health, Grand Rapids MI; Developed, tested, and published the State-Trait Hopelessness Scale, now used in 7 countries; Author or coauthor of 14 peer-reviewed publications primarily related to hopelessness in patients with cardiac disease; Numerous presentations at peer-reviewed scientific meetings; Recipient of numerous external and internal research grants; Multiple national and regional awards and citations for research with cardiac patients; Numerous audiovisual interviews, and newspaper and internet media coverage.

Author Summary: Dr. Susan Dunn is an Associate Professor in the College of Nursing at Michigan State University. She is considered an expert on the concept of hopelessness. She developed, tested, and published the State-Trait Hopelessness Scale, now used in 7 countries. Dr. Dunn has authored numerous peer-reviewed publications, primarily related to hopelessness in patients with ischemic heart disease. She is the recipient of numerous grants and has received national-level awards and citations for her work.

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Professional Experience: Dr. DeVon has 30 years experience in cardiovascular nursing, education, and clinical research. Dr. DeVon served as a consultant on the current pilot study that examines hope in patients with ischemic heart disease.

Author Summary: Dr. DeVon's research has focused on multiple aspects of the symptoms of acute coronary syndromes (ACS) and has resulted in a gender-based conceptual model of symptoms and an ACS symptoms instrument that have advanced knowledge of symptoms and resulted in numerous grants from the National Institute of Nursing Research.

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Professional Experience: Since completing his Ph.D. in Statistics in 2005, Dr. Tintle has received numerous federal and private grants to fund his research, awards for his research and mentoring of undergraduate students, published numerous peer-reviewed research articles and has served on numerous national service committees in the areas of statistics education and statistical genetics. He has collaborated on Dr. Susan Dunn's research with hopelessness in cardiac patients for 10 years.

Author Summary: Dr. Nathan Tintle has acted as the lead biostatistician on numerous projects, including leading and directing a research group pursuing biostatistical methods developments throughout this time. He has served as PI on several current and past NIH and NSF funded projects. The results of his research include numerous peer-reviewed publications as the biostatistician, as well as first and senior authored publications on related methodological developments.