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## Evaluating the Impact of a Depression Care Management Program

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Evaluating the Impact of a Depression Care Management Program

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A DNP project submitted in partial fulfillment of the  
requirements for the degree of

Doctor of Nursing Practice

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Approved by: \_\_\_\_\_

Date: April 22, 2020

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### Abstract

Depression is a common mental health disorder that causes significant individual and societal burden. Depression care management programs use a collaborative approach to lessen these effects. Evaluating patient satisfaction and experience are essential to obtain a comprehensive view of program benefits. This program evaluation project evaluated the experiences of patients in a depression care management program provided by a healthcare system in Washington state. A mixed methods approach using opened ended question surveys, telephone interviews and PHQ-9 scores provided a deeper understanding of individual experiences. The analysis showed patients were highly satisfied with the program. Collectively, depression severity scores decreased however co-morbid conditions frequently impacted a patient's progression. This project demonstrates the value of a depression care management program from a patient's perspective. Program recommendations were designed to mitigate limitations and enhance depression care. Patient feedback is essential to assess the effects of a program and should be incorporated in future evaluations.

*Keywords:* Depression Care Management program, quality improvement, patient experience, patient satisfaction, co-morbid conditions.

## Table of Contents

Introduction.....	4
Background.....	4
Project Purpose .....	7
Methods.....	8
Project Design.....	8
Sampling Plan.....	8
Data Collection .....	9
Data Analysis.....	11
Ethical Considerations .....	16
Results.....	17
Discussion.....	24
Limitations .....	27
Recommendations.....	28
Conclusion .....	29
References.....	30
Appendix A.....	36
Appendix B.....	37
Appendix C.....	38

## Evaluating the Impact of a Depression Care Management Program

Depression is a pervasive mental health disorder and the leading cause of disability worldwide adding to the global economic burden of \$1 trillion in lost productivity each year (National Alliance on Mental Illness website, n.d., para. 11). In primary care, depression is one of the most common chronic health conditions and requires a comprehensive treatment approach (Unutzer & Park, 2012). Multifaceted challenges exist in this setting that prevent many patients from receiving adequate depression care (Unutzer & Park, 2012). Collaborative care for depression has been shown to improve clinical care outcomes and effectively address patient needs, successfully combating these challenges (Simon et al., 2011; Unutzer & Park, 2012). As the delivery of mental health in primary care continues to evolve with the adoption of new healthcare technology, active involvement of patient feedback is essential to maintain high quality, patient centered care (Roberge et al., 2016; Simon, 2019). The need to assess patient feedback led to this doctoral project that is aimed at conducting an evaluation of a healthcare system's Depression Care Management (DCM) program.

### **Background**

#### **Prevalence**

In the United States one person dies of suicide every 12.3 minutes and in Washington state suicide is the 2<sup>nd</sup> leading cause of death for 10 to 24-year-olds (Harborview Injury Prevention & Research Center website, n.d.). A common underlying condition affecting more than 67% of suicide victims is depression (Archer et al., 2012). In 2017, an estimated 17.3 million adults in the United States experienced at least one major depressive episode (National Alliance on Mental Illness website, n.d., para. 2). The prevalence of depression in primary care is

estimated between 8% and 14% with 45% of individuals who died by suicide having contact with a primary care provider within one month of suicide (Akincigil & Matthews, 2017, p. 660).

Evidenced based treatment for moderate to severe depression includes but is not limited to antidepressant medication (American Psychiatric Association [APA], 2010). However, approximately 50% of patients prematurely discontinue their antidepressant medication (Sansone & Sansone, 2012; Simon et al., 2011). Inadequate treatment of depression leads to high utilization of medical services. For example, the financial strain of depression in the United States increased 22%, or \$210.5 billion, between 2005 and 2010. This increase was due to direct medical costs accrued in this population (Chow, Doane, Sheehan, Alphas, & Le, 2019, para. 1).

### **Primary Mental Health Care**

The primary care setting is an ideal location for timely depression diagnosis and management (Akincigil & Matthews, 2017). Almost 30 million Americans receive antidepressant prescriptions each year, most often prescribed by their primary care provider (Unutzer & Park, 2012, p. 4). Antidepressant therapy has been shown to significantly improve quality of life and lead to depression improvement and remission (American Psychiatric Association, 2010; Garrison, Angstman, O'Connor, Williams, & Lineberry, 2016). Unfortunately, as little as 20-40% of patients receiving depression treatment in primary care show substantial clinical improvement (Unutzer & Park, 2012, p. 4). Furthermore, rates of medication adherence and follow-up care remain disturbingly low in this setting (Simon et al., 2011). Challenges to effective treatment in primary care include time constraints, conflicting demands, limited provider training and patient fear of stigma (Unutzer & Park, 2012). Reasons for patient nonadherence to medication vary and include concerns about side effects, fear of

addiction, forgetting to take medications, lack of sufficient patient education and poor patient follow up (Sansone & Sansone, 2012).

### **Collaborative Care**

Collaborative care programs are based on principles from the chronic illness care model (Unutzer, Harbin, Schoenbaum, & Druss, 2013). These programs track patient progress using validated clinical rating scales and adjust treatment if the patient isn't improving (Unutzer et al., 2013). Patient outreach and monitoring is delivered using telehealth technology, like telephone encounters and online messaging (Simon et al., 2011; Simon, 2019). Consistent evidence indicates that DCM programs are effective at reducing healthcare utilization and improving medication adherence, follow up care, patient satisfaction and depression clinical outcomes (Archer et al., 2012; Bjorkelund et al., 2018; Ludman et al., 2016; Meunier et al., 2014; & Simon et al., 2011).

### **Patient-Centered Care**

The Institute of Medicine's (IOM) report *Crossing the Quality Chasm: A new health system for the 21<sup>st</sup> century* identified 'patient-centeredness' as one of the six aims for healthcare improvement (Institute of Medicine [IOM], 2001). In this seminal report, patient-centered care is defined as providing care that is respectful and responsive to individual patient preferences, needs, and values, ensuring that patient values guide all clinical decisions (Institute of Medicine [IOM], 2001, p. 3). Furthermore, the Institute for Healthcare Improvement identified patient experience (including quality and satisfaction) as one dimension of the "Quadruple Aim" (Martin, Nelson, Lloyd, & Nolan, 2007). Patient centeredness and satisfaction are fundamental elements in health care and have been linked to higher quality care and better clinical outcomes (Crosier, Scott, & Steinfeld, 2011; Luxford, 2012). Perceptions of poor communication is

associated with elevated adverse events (Luxford, 2012). Therefore, healthcare organizations must promote active participation of patients during program implementation to guide changes and provide patient-focused care (Luxford, 2012; Roberge et al., 2016).

### **Depression Care Management Program**

The healthcare system's DCM program was designed to improve the depression health of patients who are prescribed antidepressant medication. Patients advance through specific clinical pathways as they receive care management services from a registered nurse (RN). A clinically validated behavioral health questionnaire containing the Patient Health Questionnaire-9 (PHQ-9) is used to monitor and advance these patients through each pathway. During the course of the program the RN provides a multitude of services including care coordination, provider consultation, emotional support, education and treatment plan adjustments to optimize antidepressant therapy. Telehealth, including phone outreach and online secure messaging, is utilized to provide these care management services. Once a patient is stabilized on antidepressant medication and their depression severity is reduced, as evidenced by PHQ-9 score reduction, they are discharged from the program.

### **Project Purpose**

The healthcare system had yet to conduct an evaluation of patients' experiences in the DCM program. Therefore, the aim of this project was to identify the program's strengths and limitations by systematically describing and analyzing patients' experiences. These experiences were defined as patients' impressions of the DCM program; their subjective assessment of depression symptom severity; and their reactions to program engagement methods. Investigating these specific patient experiences will provide insight into the factors that hindered program engagement and patient progression. The project's main objective is to provide recommendations



to mitigate the program's limitations in an effort to optimize patient centered care in depression management. This project will answer the following questions:

1. What are patients' impressions of the DCM program?
2. What were patients' assessments of their depression symptom severity as they progressed through the DCM program?
3. What factors impacted patients' progression through the DCM program?
4. What prevented patients from responding to the initial invitation email sent by the DCM program?

## **Methods**

### **Project Design**

This program evaluation used mixed methods. Combining data sets can produce a meaningful interpretation of a phenomenon and can strengthen the validity of project findings (Creswell & Plano Clark, 2011). This project was designed to improve depression care management by evaluating patient experiences using both quantitative and qualitative information. Depression symptomology (i.e. feelings of pessimism, amotivation) could have distorted a patient's assessment of care therefore a single data collection method would've been ineffective (Martino et al., 2011). Merging quantitative and qualitative data provided a better understanding of a patient's experience and helped identify key characteristics that facilitated or hindered a patient's progression through the DCM program.

### **Sampling Plan**

A convenience sampling method was used to recruit individuals  $\geq 18$  years of age who met enrollment criteria for the DCM program. Potential participants were identified from a report generated by the healthcare system's electronic medical record (EMR). Eligible patients were

then separated into two groups and for the purpose of this project will be called group one and group two. Specific criteria were used to filter patients into each group (See Table 1). Failure to meet inclusion criteria or patient declination would constitute exclusion from the project.

Table 1: *Group Specific Criteria*

	Program participation	Email invitation received between	Access to contact method
Group 1	Currently enrolled, completed or dropped out	May 2018 – October 2019	Enrolled in patient health portal to receive SM
Group 2	Opened initial email invitation but never responded; never participated in program	May 2018 – November 2018	Phone number listed in EMR

*Note.* SM (secure messaging); EMR (electronic medical record)

## Data Collection

Concurrent quantitative and qualitative data collection took place over a three-month period, from December 2019 - February 2020. Qualitative data consisted of a questionnaire for group one and phone interviews for group two. Open-ended questions were used to provide rich subjective information regarding patient experiences. A literature review and consultation with experts from the DCM program guided the development of questions. Quantitative data consisted of patients' PHQ-9 scores during the course of the program. These scores were frequently collected during the program and provided a good measurement for patient's depression symptom severity. PHQ-9 scores and demographic information, including age and gender, were only collected from group one participants. The project alignment table (See Appendix A) outlines the rationale and relationship between the project's objectives, data collection plan and outcome measures.

**Group one qualitative data collection.** Qualitative data collection for group one took place over the entire three-month period. An open-ended questionnaire was the major data

source. Other sources included care management chart notes. Patients were sent a secure message (SM) containing an explanation of project objectives and instructions regarding participation. The open-ended questionnaire was copied into the SM and patients were asked to reply to the message with their responses. The SM was sent to patients twice during the data collection period, once in December 2019 and once in January 2020. Patient responses were collected until February 2020; seven responses were received. Chart notes continued to be reviewed through March 2020.

An open-ended questionnaire containing four questions was developed for this project (See Appendix B-1). The questions were designed to explore patients' personal experiences while enrolled in the DCM program. At the end of the survey, patients were given an opportunity to provide additional comments. An extra question was included for a patient who dropped out of the program. All patient responses were used to understand the DCM program's strengths and limitations from a patient's perspective.

**Group one quantitative data collection.** Over a two-month time period, February - March 2020, a retrospective chart review was used to collect quantitative data from group one participants only. PHQ-9 scores were the major data source. Data collection was contingent on the patient agreeing to participate in the project by responding to the open-ended questionnaire. Once all responses were received (N = 7), PHQ-9 scores were collected from each patient's chart during the time they were actively participating in the DCM program.

The PHQ-9 is a self-report tool used to screen, diagnose, monitor and measure the severity of depression (PHQ-9, 1999). It consists of nine questions that ask a patient to select the frequency they've experienced depressive symptoms in the past two weeks (See Appendix C).

This tool has sound psychometric properties and is effective at detecting changes in depression over time (American Psychological Association, n.d.; Lowe, Kroenke, Herzog, & Grafe, 2004).

**Group two qualitative data collection.** Qualitative data collection for group two took place in January 2020 over three days. A telephone interview was the major data source. Due to previous unsuccessful attempts through secure messaging, group two participants were contacted by phone and provided a verbal explanation of project objectives and instructions regarding participation. Patients were either contacted in the morning on day one, in the afternoon on day two and/or in the evening on day three. Handwritten notes were taken to record responses. Patients were excluded from the project if they were contacted twice with no response or contacted once on day three with no response.

A telephone interview script with a single open-ended question was developed for this project (See Appendix B-2). The question was designed to elicit a patient's reason for not clicking on the hyperlinked questionnaire. All patient responses were used to understand and improve the DCM program's engagement methods.

### **Data Analysis**

Qualitative and quantitative data were organized into a Microsoft Excel sheet. Responses to questionnaires and telephone interviews were analyzed to understand patients' impression of the DCM program (questionnaire) and their reaction to the program's engagement methods (telephone interview). MAXQDA2018 software was then used to further organize, link and analyze patient responses. PHQ-9 scores were analyzed to understand the patients' assessment of their depression symptom severity as they progressed through the program. Descriptive statistics were then employed to describe changes in PHQ-9 scores overtime. After independent analysis

was completed, data triangulation of qualitative and quantitative information was used to reveal the final project findings.

**Qualitative analysis.** Content analysis served as the method for qualitative inquiry. This method is used for identifying, analyzing, organizing, describing and reporting themes found in a data set (Nowell, Norris, White, & Moules, 2017). Inductive reasoning was used for a conventional approach to content analysis. This approach is used when a project's aim is to describe a phenomenon, in this case the impressions and reactions of patients (Hsieh & Shannon, 2005). Coding categories emerged directly from the raw data during analysis. To ensure trustworthiness in content analysis of group one and two's data, the qualitative process was guided by five phases: (1) Familiarization, (2) coding, (3) generating themes, (4) reviewing and naming themes, and (5) defining themes (Lincoln & Guba, 1985; Nowell et al., 2017, table 1). The application of each phase is presented in tables 2-6.

**Phase 1 familiarization.** Patient responses were recorded verbatim into an excel spreadsheet representing the initial familiarization with the data. Responses were then uploaded into MAXQDA and cross checked with raw data. Both platforms were used to review responses several times in order to obtain a comprehensive view of the information. Notes were taken to document potential codes for each survey and interview question.

Table 2: *Familiarization: Group One & Two*

Phase 1: Familiarization				
Group One				
SURVEY QUESTIONS	1	2	3	4
POTENTIAL CODES	Patient specific, compassionate, collaborative, consistent promotes self-	Medication options, supportive, guided discovery, enhances	Flexible, Adaptive to patient needs, explanation	Ignored, medication ineffective

	awareness, adaptive	knowledge, comprehensive
<b>Group Two</b>		
INTERVIEW QUESTION	1	
POTENTIAL CODE	Email timing, # of emails, forgot, uninterested, link problem, computer problem, Insurance, loves giving input, insurance change	

**Phase 2 coding.** MAXQDA’s automated coding function was used to develop preliminary codes for each survey and interview question. Automated codes and potential codes from phase 1 were compared and refined (i.e. codes mentioned once were discarded). These question specific codes were blended together into one large group.

Table 3: Coding: Group One & Two

Phase 2: Coding				
<b>Group One</b>				
SURVEY QUESTION	1	2	3	4
MAXQDA AUTO CODES	Nurse, frequent, communication	Medication, options, helped, alternatives	Directed, flexible, contact	Annoyed, health, antidepressant
BLENDED PHASE 1 CODES & MAXQDA CODES	Empathic, active listening, communication, trusting relationship, coordinated, consistent, shared decision making, supports self-management, collaborative, options, explanation			
<b>Group Two</b>				
INTERVIEW QUESTION	1			
MAXQDA AUTO CODES	Emails, forgot, computer			
BLENDED PHASE 1 CODES & MAXQDA CODES	Emails, forgot, disinterest, insurance, technology, computer, link, timing			

**Phase 3 generating themes.** A final set of blended codes were selected and grouped together based on similar attributes. To ensure accuracy, patient responses were reviewed again and compared to selected attributes. During this process, preliminary themes started to emerge.

Table 4: *Generating Themes: Group One & Two*

Phase 3: Generating Themes				
Group One				
FINAL BLENDED CODE SET	Empathic, active listening, patient specific, consistent, shared decision making, supports, self-management, trust, ignored, influence, effective interactions, care transitions, coordination			
GROUPED ATTRIBUTES	Empathic, active listening, patient specific, consistent	Shared decision making, supports self-management, trust	Ignored, influence, effective interactions	Care transitions, coordination
PRELIMINARY THEMES	Communication	Decision Support; Collaborative Care	Overlooked	Access to Care
Group Two				
FINAL BLENDED CODE SET	Emails, communication, disinterest, forgot, technology problems			
GROUPED ATTRIBUTES	Emails, communication	Disinterest, forgot	Technology problems, insurance change	
PRELIMINARY THEMES	Virtual Communication & Timing	Disinterest	Technology Problems	

**Phase 4 reviewing and naming themes.** To establish referential adequacy, preliminary themes and their corresponding attributes were compared to the raw data. Attributes were renamed and finalized. Themes were renamed using succinct phrases that represented their specific attributes.

Table 5: *Reviewing and naming theme - Group One & Two*

Phase 4: Reviewing and Naming Themes			
Group One			
FINAL THEMES	Care Partnership	Holistic Communication	Comorbidity Importance

FINAL ATTRIBUTES	<i>Shared decision making, Self-management, Support and Trusting relationships</i>	<i>Empathic, Active listening, Personalized, Responsiveness and Inclusive</i>	<i>Passive listening; knowledge deficit</i>
<b>Group Two</b>			
FINAL THEMES FINAL ATTRIBUTES	Invitation Challenges <i>Overlooked virtual communication, Absent initiation and Lack of appeal Telecommunication problem</i>		

**Phase 5 defining themes.** A definition for each theme was formulated to fully understand the data. The final set of themes were separated into two categories: program strengths and limitations.

Table 6: *Defining themes - Group One & Two*

Phase 5: Defining Themes	
<b>Group One</b>	
THEME	DEFINITION
Care Partnership (Strength)	A supportive alliance between a provider and patient that includes trust, guidance, self-discovery and shared decision making that directs depression care.
Holistic Communication (Strength)	Empathic interactions between patient and provider that is inclusive, responsive and attentive to patient needs providing a foundation for reflection and growth.
Lost in translation (Limitation)	Ineffective communication that leads to patients feeling ignored and unaware of program benefits. It risks a reduction in high quality patient-centered care.
<b>Group Two</b>	
THEME	DEFINITION
Invitation Challenges (Limitation)	Challenges encountered by patients that prevented them from responding to the initial invitation email.



**Quantitative analysis.** Descriptive statistics were used to analyze all data using Microsoft Excel. PHQ-9 scores from group one participants were organized according to date. Scores were filtered into specific timeframes: intake, 1-2 months, 3-4 months, and 5-6 months. Figure 1 depicts these scores plotted on a line graph (Figure 1). Group mean scores were then calculated for each timeframe and also plotted on a line graph (Figure 2). The set of scores from patient G were excluded from the mean analysis because there were only two data points: intake and 1-2 months.

**Mixed methods analysis.** The mixed method analysis consisted of comparing qualitative and quantitative data from group one participants. After independent analysis was completed, the findings were further examined to determine how they would be combined. Data triangulation was used to discover mutually supported findings. Triangulation refers to using multiple data collection methods or multiple sources of data to obtain a comprehensive understanding of the phenomenon of interest (Heale & Forbes, 2013). Qualitative data sources consisted of findings from individual questionnaire responses and chart notes. The quantitative data consisted of findings from PHQ-9 scores. Each patient's scores were graphed separately and matched to their questionnaire responses and chart notes (Table 9). Merging independent findings provided a deeper understanding of patients' experiences.

### **Ethical Considerations**

The protocols and conduct of this project were submitted to the healthcare system's Institutional Review Board (IRB) and Seattle University's IRB. The project was designed to improve the healthcare system's processes with the goal of improving patient care therefore it was approved as exempt per federal regulations 45 CFR 46 (Protection of Human Subjects, 2018). Despite exemption status, steps were taken to notify patients of pertinent project

information (Office of Human Research Protections [HHS], n.d.). All participants were provided with an explanation of the project's purpose. No monetary and/or other incentives were provided. The project investigator and professional mentors complied with all regulations to maintain participant confidentiality.

## Results

Qualitative and quantitative data were collected from multiple sources (See Table 7). Content analysis, descriptive statistics and data triangulation offered a complete evaluation of the DCM program from the patient's point of view.

Table 7: *Data Sources, Sample and Analysis*

Data Sources	Assessment	Analysis Method	Sample
Online survey	DCM program impression	Content Analysis	N = 7
Individual PHQ-9	Depression severity	Descriptive Statistics	N = 7
Mean PHQ-9	Depression severity	Descriptive Statistics	N = 7
Chart notes, PHQ-9, survey	Impact of DCM program	Data Triangulation	N = 7
Individual Interviews	Barriers to program engagement	Content Analysis	N = 14

### Group One

The majority of participants in group one were female. The sample consisted of five women and two men with an average age of 49 years old and a range between 21-75 years of age. DCM program enrollment time varied between 2-8 months. Patient A dropped out at 8 months and Patient B completed the program at 3 months.

**Qualitative findings.** Three major themes were found from the online questionnaire responses: Care partnership, holistic communication and lost in translation. Relevant patient

quotes are provided below. These findings were used to answer the following project question:  
What are patients' impressions of the DCM program?

**Care partnership.** Care partnership incorporated shared decision making, self-management, support and trusting relationships.

*"We were able to determine that I needed an increase in dosage of my medications."*

*"The best part is being able to bounce ideas off each other about ways to help me."*

*"[the nurse] helps me troubleshoot how I'm feeling and gives some options regarding medication adjustments."*

*"Feeling as though someone was looking out for me with the consistent check-ins."*

*"the monthly contact (and more, as needed) is a good reminder to actively think about your progress, where you want to be, etc. It keeps one from slipping through the cracks and just accepting treatment as is...depression management is never as simple as diagnosis/prescription/set it and forget it."*

**Holistic communication.** Holistic communication included empathy, active listening, personalization, responsiveness and inclusion in care.

*"[the nurse] gets back to me promptly and I don't feel like a burden. She is helpful, caring and listens with no judgement."*

*"It's helped me during my worst times..."*

*"The nurse was diligent and kept looking until a solution was found and followed up with me regularly."*

*"It's helped me be more thoughtful and aware of my mental health."*

*"I probably wouldn't have reached out so the fact that I am contacted first makes care easier."*

***Lost in translation.*** Information lost in translation included passive listening and knowledge deficit.

*“The original doctor I went to zeroed in on the depression screening and ignored my actual health complaints, which have since continued and gotten worse. It made me resentful and really annoyed that I’d been honest on the depression screening, because I wasn’t getting help with my health which has led to not being able to work out at all, being sick constantly and therefore more depressed.”*

*“Not doing well. I had high hopes that my antidepressant would work and just sort of gave up when it didn’t.”*

*“I had no idea I was in [the program].”*

**Quantitative findings.** Individual PHQ-9 scores from six participants are graphed in Figure 1. Scores from patients A, B, C, D and F decreased by at least two points in 6 months. Patient E’s scores increased by three points at 6 months. The group’s mean PHQ-9 scores is graphed in Figure 2. At six months, there was a net score decrease of 23% indicating that the majority of patients’ depression symptoms were improving. These findings were used to answer the following project question: What were patients’ assessments of their depression symptom severity as they progressed through the DCM program?

Figure 1. Individual Scores

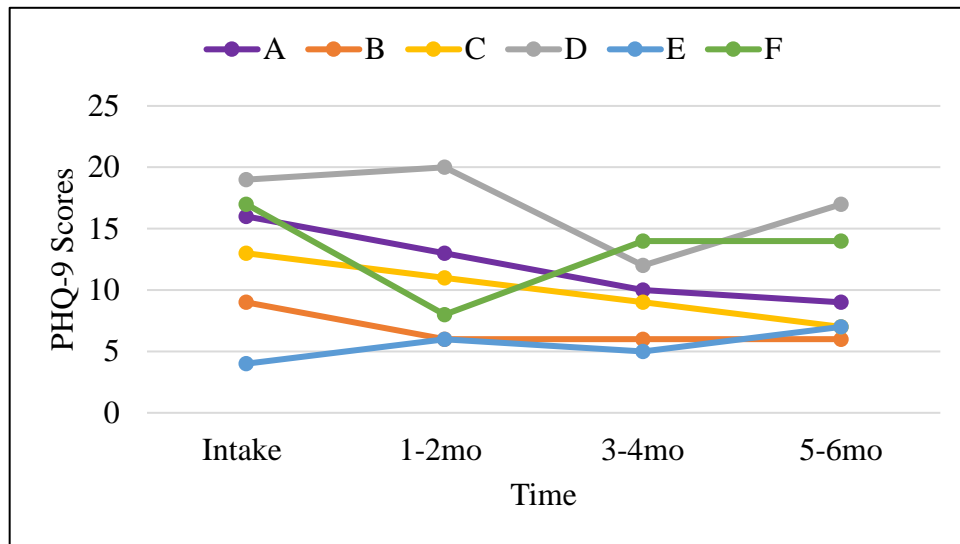
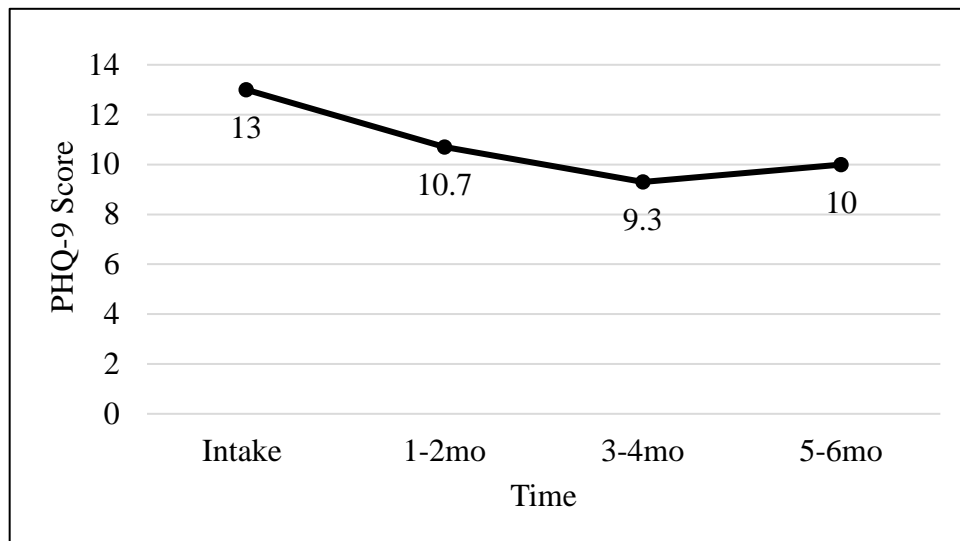


Figure 2. Group Mean Scores

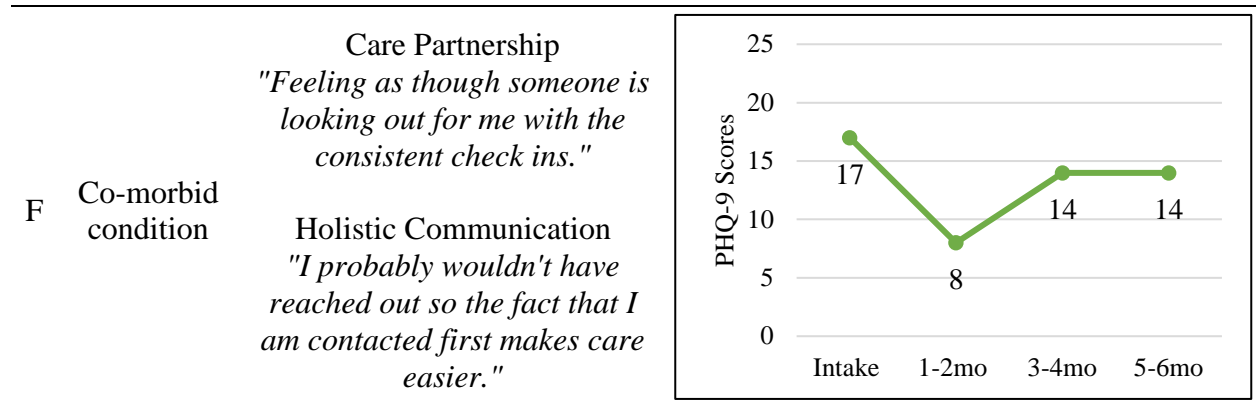
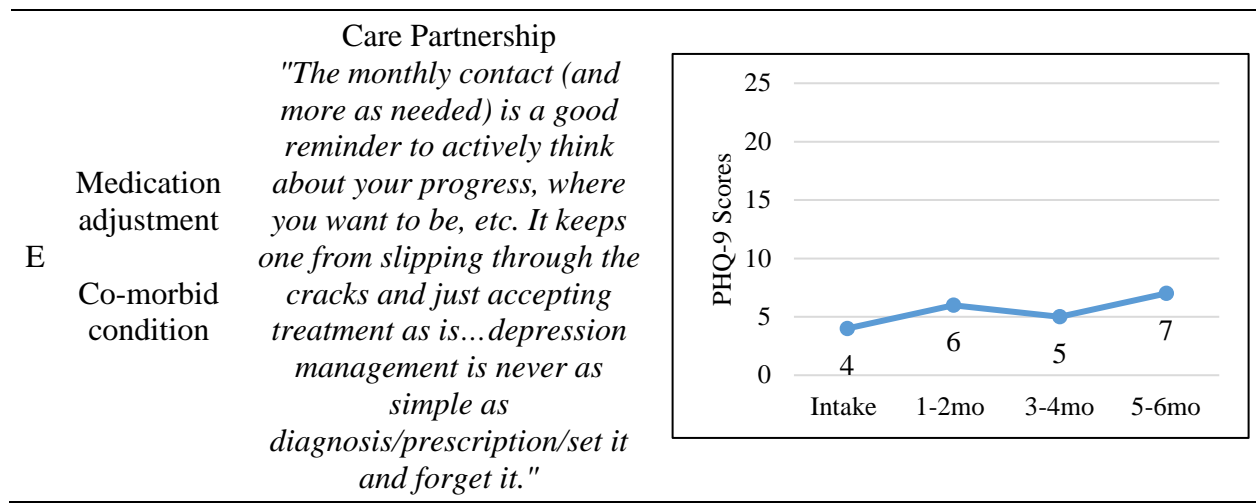
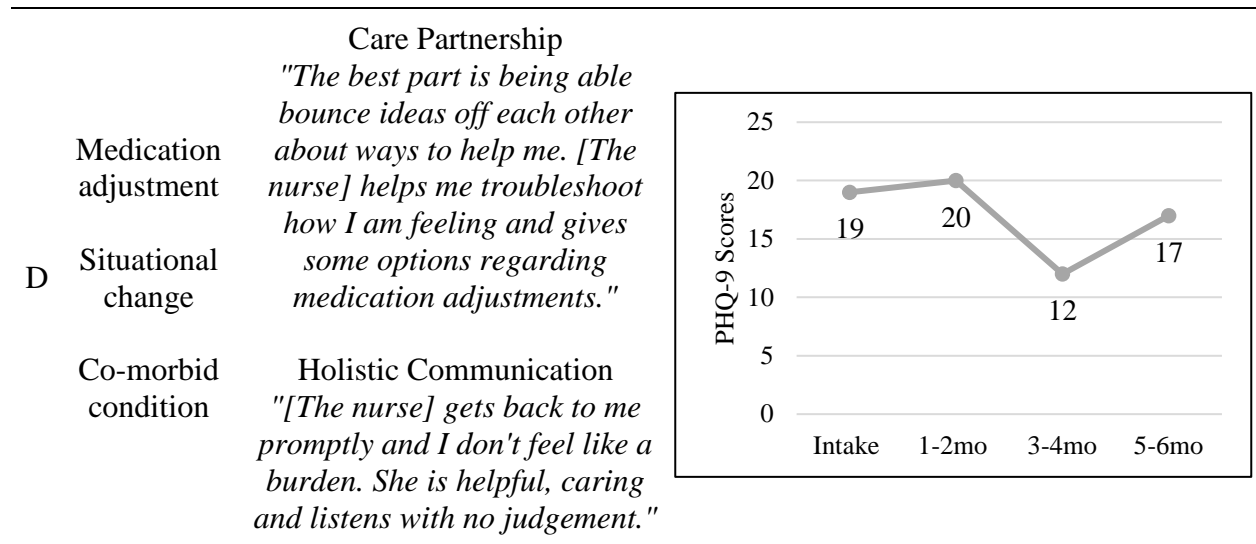


**Mixed method findings.** Questionnaire responses and graphed PHQ-9 scores were the primary data source. Chart notes were investigated to further understand factors that facilitated or hindered patient progression. The main finding that emerged during analysis was the importance

of comorbidities. The findings are detailed in table 3 and were used to answer the following project question: What factors impacted patients’ progression through the DCM program?

Table 9: *Mixed Method Findings*

Pt	Chart Note	Themes: <i>Quotes</i>	PHQ-9 Graph										
A	<p>Dropped out at 8 months</p> <p>Medication adjustment</p> <p>Co-morbid condition</p>	<p>Lost in translation</p> <p><i>“Not doing well. I had high hopes that my antidepressant would work and just sort of gave up when it didn’t.”</i></p>	<table border="1"> <caption>PHQ-9 Scores for Patient A</caption> <tr><th>Time Point</th><th>PHQ-9 Score</th></tr> <tr><td>Intake</td><td>16</td></tr> <tr><td>1-2mo</td><td>13</td></tr> <tr><td>3-4mo</td><td>10</td></tr> <tr><td>5-6mo</td><td>9</td></tr> </table>	Time Point	PHQ-9 Score	Intake	16	1-2mo	13	3-4mo	10	5-6mo	9
Time Point	PHQ-9 Score												
Intake	16												
1-2mo	13												
3-4mo	10												
5-6mo	9												
B	<p>Completed at 3 months</p>	<p>Care Partnership</p> <p><i>“We were able to determine that I needed an increase in dosage of my medications.”</i></p>	<table border="1"> <caption>PHQ-9 Scores for Patient B</caption> <tr><th>Time Point</th><th>PHQ-9 Score</th></tr> <tr><td>Intake</td><td>9</td></tr> <tr><td>1-2mo</td><td>6</td></tr> <tr><td>3-4mo</td><td>6</td></tr> <tr><td>5-6mo</td><td>6</td></tr> </table>	Time Point	PHQ-9 Score	Intake	9	1-2mo	6	3-4mo	6	5-6mo	6
Time Point	PHQ-9 Score												
Intake	9												
1-2mo	6												
3-4mo	6												
5-6mo	6												
C	<p>None</p>	<p>Holistic Communication</p> <p><i>“It’s helped me be more thoughtful and aware of my mental health.”</i></p>	<table border="1"> <caption>PHQ-9 Scores for Patient C</caption> <tr><th>Time Point</th><th>PHQ-9 Score</th></tr> <tr><td>Intake</td><td>13</td></tr> <tr><td>1-2mo</td><td>11</td></tr> <tr><td>3-4mo</td><td>9</td></tr> <tr><td>5-6mo</td><td>7</td></tr> </table>	Time Point	PHQ-9 Score	Intake	13	1-2mo	11	3-4mo	9	5-6mo	7
Time Point	PHQ-9 Score												
Intake	13												
1-2mo	11												
3-4mo	9												
5-6mo	7												



	<p><b>Care Partnership</b>  <i>"A medication was found that doesn't exacerbate my symptoms from another disorder I have."</i></p>											
	<p><b>Holistic Communication</b>  <i>"The nurse was diligent and kept looking until a solution was found and followed up with me regularly."</i></p>											
G	<p><b>Medication adjustment</b></p>	<table border="1"> <caption>PHQ-9 Scores Data</caption> <thead> <tr> <th>Time Point</th> <th>PHQ-9 Score</th> </tr> </thead> <tbody> <tr> <td>Intake</td> <td>9</td> </tr> <tr> <td>1-2mo</td> <td>14</td> </tr> <tr> <td>3-4mo</td> <td></td> </tr> <tr> <td>5-6mo</td> <td></td> </tr> </tbody> </table>	Time Point	PHQ-9 Score	Intake	9	1-2mo	14	3-4mo		5-6mo	
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3-4mo												
5-6mo												
	<p><b>Co-morbid condition</b></p> <p><b>Lost in Translation</b>  <i>"The original doctor zeroed in on the depression screening and ignored my actual health complaint which have since continued and gotten worse. It made me resentful and really annoyed that I'd been honest on the depression screening, because I wasn't getting help with my health..."</i>  <i>"I had no idea I was in [the program]"</i></p>											

**Group Two**

The majority of participants in group two were female. The sample consisted of nine women and five men with an average age of 40 years old and a range of 21-73 years of age.

**Qualitative findings.** Individual interviews highlighted several rationales for not clicking on the hyperlink to complete the questionnaire. These reasons were grouped together into a category called invitation challenges. Relevant patient quotes are provided below. These findings were used to answer the following project question: What prevented patients from responding to the initial invitation email sent by the DCM program?

**Invitation challenges.** Invitation challenges included overlooked virtual communication, environmental factors and telecommunication problems.



*“I probably saw it and forgot to fill it out.”*

*“...I probably saw it, opened it and totally spaced filling it out.”*

*“I was dealing with a lot and I felt like I was just kind of not in a place to do it.”*

*“I’ve been putting myself on the back burner.”*

*“...due to family member illness I have not been able to pay attention to my emails.”*

*“...I had seen that as a follow up to a previous medical plan that I’m no longer on.”*

*“My depression is very light and so I don’t need a lot of follow up.”*

*“I clicked on the link and tried to submit it but had problems.”* The patient was unable to recall exact problem with submission.

*“I didn’t see the link.”* The initial email was missing the questionnaire link.

*“I’m not computer savvy. I prefer printed or mailed information.”*

### **Discussion**

This mixed methods program evaluation aimed to explore patients’ experiences in the DCM program. The findings for this project were drawn from the analysis of quantitative and qualitative data. Content analysis and data triangulation produced a deeper understanding of the program’s strengths and limitations. This section summarizes project findings and details recommendations to mitigate program limitations.

Two major program strengths emerged from the collection of patient quotes: Care partnership and holistic communication. The DCM program contains attributes that align with features from patient-centered care as defined by the IOM (2001) including respect and responsiveness. Holistic communication was a prevalent theme in questionnaire responses. Patients felt the nurse was attentive to their specific needs which guided their overall treatment plan. This is critical in depression care as patient preferences strongly influence acceptance and

adherence to treatment (Rossom et al., 2016). Patients valued the consistent check-ins and treatment guidance they received during the program. These features encouraged active participation in care and these patients are more likely to receive guideline-concordant care (Martino et al., 2011). The majority of patients felt supported and empowered through a care partnership that was developed with the nurse. This relationship provided them with a sense of security and was rooted in trust which is apparent in the following remarks: “It keeps one from slipping through the cracks...”; “Feeling as though someone was looking out for me...”; “It has helped during my worst times...”; and “I probably wouldn’t have reached out so the fact that I am contacted first makes care easier.”. The DCM program provides a safety net for patients who are reluctant to discuss their emotional distress with a primary care provider due to time constraints, conflicting demands and/or fear of stigma (Unutzer & Park, 2012).

The program had a positive effect on the majority of patients’ depression severity scores consistent with the evidence that collaborative care programs improve depression clinical outcomes (Archer et al., 2012; Bjorkelund et al., 2018; Ludman et al., 2016; Meunier et al., 2014; & Simon et al., 2011). Some individuals experienced increasing severity and spikes in symptoms due to medication adjustments, situational factors and/or symptoms related to co-morbid conditions. Despite these small setback’s these patients were continually satisfied with care and felt the program was helpful. Patient satisfaction is linked to quality care, better clinical outcomes and is a key element in the Quadruple Aim (Crosier, Scott, & Steinfeld, 2011; Luxford, 2012; Martin, Nelson, Lloyd, & Nolan, 2007). Solely relying on the clinical assessment of symptoms may not be indicative of whether the patient is improving or feeling better.

The primary program barrier impacting patient progression was the presence of comorbid conditions. The co-occurrence of depression and other disorders is common and negatively

impacts quality of life, causes functional impairments and increases mortality (Kang et al., 2015). More than half the patients in group one had a chronic physical or mental health disorder co-occurring with their depression. Symptom severity scores frequently increased during an exacerbation of symptoms caused by another disorder. Two patients who experienced spikes in depression severity suffered from other mental health conditions that may have required a higher level of care or adjunctive treatment (i.e. psychotherapy).

Increasing PHQ-9 scores prompt a change in antidepressant treatment (i.e. increase dosage, switching medication) which is challenging in co-occurring disorders as medication side effects may further exacerbate symptoms from the secondary condition. Furthermore, this alteration may not have an effect and may actually worsen a patient's depression symptoms because their other disorder was not adequately treated. This was apparent from the following patient quote:

*“The original doctor I went to zeroed in on the depression screening and ignored my actual health complaints, which have since continued and gotten worse. It made me resentful and really annoyed that I'd been honest on the depression screening, because I wasn't getting help with my health which has led to not being able to work out at all, being sick constantly and therefore more depressed.”*

Ineffective communication led to the patient feeling that her other health concerns were disregarded because she told the truth about her emotional distress. Perception of poor communication can lead to adverse events (Luxford, 2012) and in this case the patient's physical symptoms got worse and her depression increased. Another patient, who also suffered from a chronic comorbid condition, prematurely dropped out of the program because she was discouraged when her antidepressant medication was ineffective. During the program, her PHQ-

9 scores indicated her depression was improving even though she continued to struggle with symptoms from another disorder. Post program participation, she was experiencing exacerbations of both her disorders suggesting that the addition of the DCM program helped her depression despite the comorbid condition. Before she dropped out of the program her PHQ-9 score indicated her depression severity was low however the patient felt her antidepressant was ineffective. Considering symptoms from both her conditions when trying to understand what was contributing to her impression that the medication was ineffective, may have aided in treatment modification and possibly reduced the risk of her dropping out of the program. Patients enrolled in the DCM program who suffer from co-occurring conditions may not experience or maintain a reduction in depression severity despite antidepressant treatment. They can experience spikes in depression symptoms due to an exacerbation of another disorder. These patients require increased attention to both disorders and/or possible referral to a higher level of care.

Prominent themes emerged during the evaluation of patient rationales for not clicking on the program's invitation hyperlink. Most patients forgot to respond to the initial outreach but stated they would have been interested in participating in the program. In addition, patients felt that environmental factors (i.e. family illness, life transition and personal need) prevented them from responding. Two individuals had telecommunication problems including submitting the link and seeing the attached link. The timing of this project's follow-up was two years past the date of the initial invitation therefore patients may not have remembered the specific reasons they chose not to engage.

### **Limitations**

Depression is a self-limiting disorder due to the vegetative symptoms possibly preventing patients from participating in this program evaluation. The sample size was small therefore it

may not represent information that is generalizable to all DCM program participants. Self-reported data has inherent limitations as participants may have responded in a socially desirable manner on the phone and through secure messaging. Furthermore, longitudinal effects due to this project's timeframe prevented the collection of data from patients during different time intervals (i.e. pre and post evaluation).

### **Recommendations**

Improving screening for comorbid physical and mental health conditions during enrollment is essential to provide high quality patient centered care in the DCM program. Improved screening may consist of looking for “red flags” (i.e. chronic pain, unexplained somatic symptoms and PTSD) during program engagement by conducting a patient chart review; adding extra screening tools specific to common co-occurring disorders in the behavioral health questionnaire; or developing a care management EMR alert that is triggered when an eligible patient has a history of a comorbid condition. Documenting these “red flags” or alerts in the care management notes can prompt the care team to evaluate and consider contributing comorbid factors when assessing individual patient progress.

Expanding care management programs for other mental health disorders (i.e. PTSD) or disorder classifications (i.e. Anxiety disorders to include generalized anxiety, PTSD, OCD, etc.) would be highly beneficial. All patients despite their diagnosis would benefit from the support provided by the DCM program however each diagnosis requires treatment that may differ from depression. By implementing separate care management programs, the healthcare system can increase access to mental health care that is comprehensive, and patient centered.

Patient feedback is essential to fully understand how a patient is responding to treatment. PHQ-9 scores provide an accurate clinical analysis of depression symptom severity however

these scores do not provide a full assessment of patient progress. Gathering intermittent patient feedback about the program provides important information to the care team and offers an opportunity for patients to reflect on their progress. An example of program feedback is a questionnaire that is sent out every two months to assess features that have helped the patient and things they would like to improve.

To improve program engagement, individualized outreach methods and educational materials are necessary as each patient has a specific learning style and communication preference. Customizing outreach will increase patients' awareness of program features allowing them to fully benefit from the program. An example of tailoring to specific patient needs is providing a pamphlet to eligible patients in the primary care office that summarizes the DCM program. Then in the invitation email or phone call the healthcare professional can assess how the patient would like to receive educational information (i.e. written or video) and how they would like to interact with the care team (i.e. secure messaging or phone call). Furthermore, interpreters or bilingual team members are needed to help patients who speak different languages navigate the DCM program.

### **Conclusion**

In summary, the project findings demonstrate that patients' value the care provided by the healthcare system's DCM program. Telehealth allows the patient to feel supported and connected during depression treatment. Future projects should take place to evaluate patients' experiences at different time intervals (i.e. pre-, active and post enrollment) as new iterations of the DCM program are implemented to further understand the patients' journey and maintenance factors. Patient feedback must be incorporated to continually improve the program's patient centeredness.

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## Appendix A

<b>PROJECT ALIGNMENT TABLE</b>			
<b>PROJECT QUESTIONS</b>	<b>PROJECT OBJECTIVES</b>	<b>DATA COLLECTION METHOD</b>	<b>OUTCOME EVALUATION</b>
What are patients' impressions of the DCM program?	Evaluate the program's strengths and limitations	Group 1 Questionnaire	Thematic Analysis: Identify major qualitative themes from patient responses
What were patients' assessments of their depression symptom severity as they progressed through the DCM program?	Evaluate program effects on depression symptom severity	Collect PHQ-9 scores from intake to 8 months	Graph and analyze individual and mean PHQ-9 scores
What factors impacted patients' progression through the DCM program?	Evaluate facilitators and barriers to patient progress	Group 1 questionnaire, chart notes and individual PHQ-9 scores	Data triangulation
What prevented patients from responding to the initial invitation email sent by the DCM program?	Evaluate reasons why patients never clicked on the hyperlink to complete the DCM questionnaire	Group 2 Telephone Interview	Thematic Analysis: Identify major qualitative themes from patient responses

## Appendix B

### (1) Group One Questionnaire

Question 1: (program strength): What is (or was) the best part of the depression care management program?

Question 2: (program strength) In what ways has (or did) the depression care management program helped you?

Question 3: (program weakness) What changes would improve the depression care management program?

Question 4: Do you have any additional comments?

Question 5 only asked patient who dropped out: (program weakness) *Select all that apply* - Why did you stop participating in the depression care management program?

- a. I stopped taking my medication.
- b. I never planned on taking medication.
- c. I was more interested in therapy rather than medication.
- d. I had a bad experience with medication.
- e. I was unsure about the purpose of the depression care management program.
- f. My depression got better, and I didn't need it?
- g. My insurance changed.
- h. I prefer to manage my medication with my provider.
- i. It wasn't helping me.
- j. It's another reason. Please specify \_\_\_\_\_.

### (2) Group Two Interview Script

*Intro: "Hello, my name is Natalie. I'm a registered nurse and doctoral student calling from (medical institution's name). I'm reaching out to patients who were invited to participate in the antidepressant medication follow up program. I'm working with this program to improve their online communication. Would you be willing to answer one question that will take less than 5 minutes of your time?" (If yes, ask): "Is this a good time for you to talk?" (If yes, continue to question), (If not a good time, ask): "Could I call at a better time for you? What time?"*

*Question: You were sent an email through (medical institution's name)'s website. You were asked to click on a link and fill out a questionnaire about your antidepressant prescription and symptoms. (Medical Institution's name) did not receive a response from you to this questionnaire. We are interested in know if there were issues with (medical institution's name) communication or the link, or if there were other reasons you didn't click on the link to complete the questionnaire."*

## Appendix C

<b>PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)</b>				
<b>Over the last 2 weeks, how often have you been bothered by any of the following problems?</b> <i>(Use "✓" to indicate your answer)</i>				
	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3
FOR OFFICE CODING <u>  0  </u> + <u>      </u> + <u>      </u> + <u>      </u> =Total Score: <u>      </u>				
<b>If you checked off <u>any</u> problems, how <u>difficult</u> have these problems made it for you to do your work, take care of things at home, or get along with other people?</b>				
<b>Not difficult at all</b> <input type="checkbox"/>	<b>Somewhat difficult</b> <input type="checkbox"/>	<b>Very difficult</b> <input type="checkbox"/>	<b>Extremely difficult</b> <input type="checkbox"/>	

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