Telephone-Based Psychiatric Referral-Care Management Intervention Health Outcomes

Faika Zanjani, Ph.D.,^{1,2} Heather Bush, Ph.D.,³
and David Oslin, M.D.⁴⁻⁶

¹Graduate Center for Gerontology, University of Kentucky,
Lexington, Kentucky.

²BIRCWH Scholar (Building Interdisciplinary Research Careers
in Women's Health), University of Kentucky, Lexington, Kentucky.

³Department of Biostatistics, University of Kentucky, Lexington,
Kentucky.

⁴Philadelphia VAMC, VISN 4 Mental Illness, Research, Education
and Clinical Center, Philadelphia, Pennsylvania.

⁵Section of Geriatric Psychiatry, Department of Psychiatry,
University of Pennsylvania, Philadelphia, Pennsylvania.

⁶Department of Psychiatry, Center for Studies on Addiction,
University of Pennsylvania, Philadelphia, Pennsylvania.

Abstract

Objective: This study examined the effectiveness of a telephone-based referral-care management (TBR-CM) intervention on psychiatric health outcomes. **Materials and Methods:** Between September 2005 and May 2006, primary care patients (n = 169) at the Philadelphia Veterans Affairs Medical Center completed a psychiatric interview over the telephone, of which 113 gave consent and were randomized into the TBR-CM usual care or intervention groups (n = 40 [39%] depression, n = 40 [39%] substance abuse, and n = 33 [22%] comorbid condition: depression and substance abuse). Usual care consisted of participants receiving a psychiatric appointment, followed up with standard institutional reminders. The intervention care group received the same, with the addition of brief motivational telephone sessions. Baseline and 6-month interviews were used to obtain study data. **Results:** Results indicated that there

was improvement in mental health functioning ($p < 0.0001$), depression ($p < 0.0001$), and binge ($p < 0.0332$) outcomes over the 6-month interview (78% retention). However, there was no change observed for physical health functioning and drinks per week outcomes. For mental health functioning, depression, and binge rates there were no randomization group assignment effects, indicating that the intervention care group did not show better health outcomes despite showing higher levels of psychiatric appointment attendance. **Conclusions:** Patients who are exposed to the intervention have similar health outcomes as patients in usual care. In conclusion, the TBR-CM intervention does not lead to relatively improved psychiatric health outcomes. Further research is necessary to examine the efforts needed to extend increased treatment engagement into improved health outcomes for intervention recipients.

Key words: telepsychiatry, telehealth, home health monitoring

Introduction

Mental health or substance abuse problems are compounded not only by the complexity in tailoring effective psychiatric treatments, but also by the difficulty in initiating patient engagement.¹ However, motivating individuals to attend treatment to manage their psychiatric health does not certify an enhancement in treatment benefits. Earlier research has indicated that interventions that increase treatment engagement can improve treatment outcomes.² However, the evidence to support this idea is limited, requiring further investigation about the relationship between treatment engagement interventions and treatment outcomes.

Some evidence in the literature indicates a positive treatment engagement effect. For instance, a referral management system linking emergency department patients with substance abuse

treatment found that in those patients who kept follow-up appointments, there was a reduction in substance use behaviors.³ However, positive health outcomes were not found in another study sample awaiting substance abuse treatment⁴ and in an adult psychiatric sample population awaiting their appointment.⁵ To truly evaluate the effectiveness of engagement interventions, it is keenly important to determine the psychiatric health outcome effects for treatment engagement interventions. This is important to differentiate the treatment engagement program's ability to truly engage patients to the point that treatment benefits can be achieved, as opposed to falsely increasing treatment rates for a segment of the population who would have not otherwise committed to their treatment. Most treatment engagement interventions do not follow through to determine whether improved attendance rate translates into psychiatric health benefits.¹

Consequently, the proposed study examines the psychiatric health outcomes of a referral management intervention entitled "telephone-based referral-care management" (TBR-CM).⁶ This intervention was modeled after brief motivational interviewing (BMI)⁷ that strategically focuses on individual patient experiences and attitudes, to increase psychiatric treatment engagement.

The intervention was developed as a supplementary clinical service to the Behavioral Health Lab (BHL, www.va.gov/visn4mirecc/bhl/),⁸ a telephone-based clinical service that assists primary care clinicians bridge the gap between primary and psychiatric services by evaluating and managing psychiatric symptomology. TBR-CM utilizes telephone-based BMI sessions to discuss (a) psychiatric symptom(s), (b) psychiatric consequences, (c) treatment benefits, and (d) treatment attendance planning, to mechanistically improve motivation and reduce perceived barriers to psychiatric treatment attendance.

The key components of BMI that were modeled for this intervention were the concise and brief presentation of the problem, and the discussion and resolution of the ambivalent nature of behavioral change, with the overall direction guided by the patient. In the past, BMIs have been effectively used to combat excessive alcohol consumption,^{9–12} asthma,¹³ negative behavioral outcomes,¹⁴ smoking,^{15–17} pain,¹⁸ substance use,^{19–21} and treatment nonadherence.²² The diversity of BMI applicability demonstrates the versatility of the BMI intervention system and provides justification for extension into the domain of psychiatric treatment engagement.

To examine the effectiveness of TBR-CM, a randomized, controlled trial was conducted in a sample of adult male veterans displaying depression and/or substance abuse, warranting specialty psychiatric treatment. Initial findings were able to confirm that participants randomized to the intervention group, receiving the TBR-CM

intervention, had higher rates of psychiatric treatment engagement, defined as attending the initial scheduled psychiatric appointment.⁶ This subsequent study sought to examine if increased psychiatric treatment engagement would lead to positive treatment outcomes. In the present study, it is hypothesized that individuals who were randomized to receive the intervention would have improved psychiatric health outcomes, compared with participants exposed to usual care. The results of this investigation would add to the limited evidence available about the relationship between psychiatric treatment engagement interventions and treatment outcomes.

Materials and Methods

This study was conducted within the Mental Illness Research, Education, and Clinical Center at the Philadelphia Veterans Affairs Medical Center (PVAMC) in collaboration with associated primary care clinicians. Best practice recommendations require that PVAMC patients be screened annually for selected psychiatric symptoms. PVAMC primary care clinicians can refer patients who screen positive for psychiatric symptoms such as depression and substance abuse, to the BHL for further evaluation. BHL psychiatric status evaluations are then used as a tool for patient psychiatric treatment management planning.

From September 2005 to May 2006, all veteran patients, who completed a BHL evaluation, were eligible for study participation. A total of 169 primary care patients at the PVAMC completed a psychiatric diagnostic interview and were identified as in need of psychiatric care. Study participants were required to (a) be 18 years of age or older, (b) demonstrate severe depression disorder (as indicated by Patient Health Questionnaire score >20), alcohol abuse/dependence, and/or report regular illicit drug use in the past year (greater than 10 times, excluding marijuana), as determined by the BHL, (c) accept a referral to specialty psychiatric care, and (d) not be active in psychiatric treatment within the past 12 months. Participants who did not speak English fluently and those with severe cognitive impairment were excluded from participation, determined by brief memory test score (>16). Inclusion/exclusion study criteria were designed to capture a representative sample of patients in need of psychiatric treatment that would not interfere with any preexisting treatment.

From the total number of eligible participants, 42 (24%) refused study participation and 14 (8%) refused a psychiatric appointment. With the exception of nonrandomized patients being less likely to smoke ($n = 69$ [60%] vs. $n = 24$ [43%]; $\chi^2 = 5$; $df = 1$; $p < 0.03$), there were no other demographic or psychiatric diagnostic differences between randomized and nonrandomized eligible patients. From the

Table 1. Study Sample Characteristics

	TOTAL N = 113	USUAL CARE N = 56	INTERVENTION N = 57	P-VALUES
Demographics				
Age, years (mean/standard deviation)	52.8 (11.5)	51.4 (10.7)	54.3 (12.2)	0.18
Sex (% male)	95.5%	92.9%, n = 52	98.3%, n = 56	0.16
Marital status (% married)	32.7%	33.9%, n = 19	31.6%, n = 18	0.79
Living environment (% alone)	15.9%	14.3%, n = 8	17.5%, n = 10	0.91
Race (% White)	30.0%	30.4%, n = 17	31.6%, n = 18	0.88
Hispanic (% Hispanic)	2.7%	1.8%, n = 1	3.5%, n = 2	0.51
Smoke status (% smoking)	61.1%	62.5%, n = 35	59.7, n = 34	0.75
Perceived support (% loved and cared for great deal [highest value])	31.0%	32.1%, n = 18	29.8%, n = 17	0.95
Paid work (% yes)	24.8%	32.1%, n = 18	17.5%, n = 10	0.11
Financial situation (% "not making ends meet")	49.6%	57.1%, n = 32	42.1%, n = 24	0.11
Psychiatric diagnoses (% yes)				
Severe depression	79.7%	76.8%, n = 43	82.5%, n = 47	0.45
Drug abuse	26.6%	25.0%, n = 14	28.1%, n = 16	0.71
Alcohol abuse/dependence	45.1%	42.9%, n = 24	47.4%, n = 27	0.52
Generalized anxiety	62.0%	57.1%, n = 32	66.7%, n = 38	0.30
Posttraumatic stress	56.6%	53.6%, n = 30	59.7%, n = 34	0.51
Mania	23.0%	19.6%, n = 11	26.3%, n = 15	0.40
Psychosis	19.5%	21.4%, n = 12	17.5%, n = 10	0.60
Panic	17.7%	21.4%, n = 12	14.0%, n = 8	0.30
Six-month treatment outcomes				
Attended initial psychiatric appointment (% yes)	—	32%, n = 18	70%, n = 40	<0.0001
Total number of psychiatric appointments attended (mean/standard deviation)	—	1.8 (2.6)	3.1 (2.5)	0.008

total number of eligible patients, 113 (67%) were consented and evenly randomized into either usual care or intervention care group. Table 1 depicts the study sample characteristics, based on the complete set of research variables, to examine whether the randomization was successful. Because there were no significant differences across the usual care and the intervention groups, including differences in depression, substance abuse, and other psychiatric comorbidities, it can be safely concluded that randomization was achieved.

This sample size is sufficient to detect a 0.25 effect size across randomization groups, for a repeated measures within factor design. The diagnostic distribution for the sample was $n = 40$ (39%) depression, $n = 40$ (39%) substance abuse, and $n = 33$ (22%) co-occurring depression and substance abuse (comorbid condition). Approximately 78% ($n = 88$) of the sample was able to complete follow-up interviews. Those patients lost to follow-up were less likely to be married ($n = 3$ [12%] vs. $n = 34$ [39%]; $\chi^2 = 6$; $df = 1$; $p < 0.02$) and more likely to report using illicit drugs ($n = 11$ [44%] vs. $n = 19$ [22%]; $\chi^2 = 5$; $df = 1$; $p < 0.03$); there were no other demographic or psychiatric diagnostic differences. The research algorithm is depicted in Figure 1.

Fig. 1. Research algorithm.

CONSENT

Following the BHL evaluation, eligible participants were given a complete oral description of the study and asked to verbally consent their participation over the telephone. The PVAMC Institutional Review Board approved the use of oral consent because of time constraints within the study design (i.e., requiring written consent would skew the results to those patients who could attend a consent session prior to their treatment attendance and thus reduce generalizability) given that minimal risk was associated with study participation.

RANDOMIZATION

The participants were equally randomized to either the usual (control) or intervention care (TBR-CM) group based on computerized assignment plan for 120 participants, developed through SAS 9.1 and implemented by blinded research assistants. Randomization was stratified, based on the three most populous diagnostic groups: severe depression, substance abuse, or the comorbid condition (both severe depression and substance abuse). Stratification by diagnostic groups was implemented to ensure a balanced representation of the major diagnostic groups across randomization; target enrollment for each diagnostic group was 40 participants.

USUAL CARE PROCEDURES

The participants assigned to usual care received routine clinical care. This care dictates that after a psychiatric appointment is scheduled, the BHL summary report is sent to the patient's primary care clinician, a letter is mailed to the patient's home with upcoming appointment information, and an automated call, not by a live person, is placed 2–3 days prior to the appointment, stating address, date, and time of the psychiatric appointment. The participants in usual care were not systematically contacted regarding missed psychiatric appointments.

TBR-CM INTERVENTION PROCEDURES

The participants assigned to the intervention group received the same initial treatment as those in the usual care group, with the addition of TBR-CM intervention. As part of the intervention, the participants underwent at least one phone intervention session (maximum two sessions, each lasting on average 15 min, 2 weeks prior to appointment) with a behavioral health specialist. The behavioral health specialist was a part of a group of registered nurses with several years of experience conducting BMI and disease

management; the nurses were supervised weekly and evaluated on a regular basis by a BMI-trained psychiatrist.

TBR-CM was designed to initially assess a holistic depiction of each participant's treatment goals and symptom verification. The discussion then focused on the participant's attitudes surrounding (i) personal consequences of depression/substance use, (ii) positive consequences of depression/substance use reduction/control, and (iii) positive/negative consequences of attending psychiatric treatment. Individual barriers to treatment were also assessed to facilitate proactive problem-solving to aid participants with overcoming factors that may impede their psychiatric treatment attendance. The final component is an agreement outlining the participant's intent to attend their psychiatric appointment. The entire intervention is laid out in a workbook form (manualized and piloted), to guide the session and allow the notation of individual information discussed during the phone session. Following the session, the completed workbook, including the signed agreement, with a cover letter containing information about the upcoming psychiatric appointment, is mailed to the patient only (workbooks available at www.va.gov/visn4mirecc/bhl/). Intervention participants who attended their first psychiatric appointment received a closure letter reinforcing their continued treatment attendance using motivational components aimed at attending future appointments. Only for those who did not attend their first psychiatric appointment, a new psychiatric appointment was scheduled and the intervention was reimplemented. The second iteration of the intervention focused on overcoming barriers that contributed to earlier psychiatric appointment nonadherence. This follow-up session was also accompanied with a supporting workbook and signed agreement, which was mailed to each study participant. Regardless of the attendance status for the second psychiatric appointment, a closure letter supporting continued treatment participation was mailed to each study participant, with no further contact by the behavioral health specialist. The participants who were unable to be contacted for the intervention were sent letters informing them that a behavioral health specialist is attempting to make contact, and also reminder letters were sent to them prior to their scheduled psychiatric appointment(s).

RESEARCH ASSESSMENTS

The measures included in the BHL telephone evaluation served as the baseline and the 6-month follow-up interviews. These measures included the PHQ-9 for depression levels.²³ The MINI International Neuropsychiatric Interview²⁴ modules for mania, psychosis, panic disorder, generalized anxiety disorder, posttraumatic stress disorder,

and alcohol abuse/dependence,²⁵ and a measure of alcohol use using a 7-day timeline follow-back²⁵ was together used to assess for psychiatric morbidity/comorbidity. The reporting of past and current use of illicit substances was used to determine substance use behaviors. The Medical Outcomes Study (SF-12²⁶) was used to assess mental health component summary (MCS) and physical health component summary (PCS) functioning. The blessed memory test²⁷ was used to assess severe cognitive deficits for study eligibility. The baseline and follow-up interviews are conducted by research assistants and take ~30 min to complete. For detailed descriptions of BHL procedures, see the study by Oslin et al.⁸ or the BHL operations manual (available upon request to author).

DATA ANALYSIS

Separate linear mixed model analyses were analyzed in SAS 9.1. Time and randomization assignment and their interaction served as the primary independent variables. Secondary analyses included the original effects with the addition of interaction effects for psychiatric treatment attendance, diagnostic group, and age group on psychiatric health outcomes. The dependent variables were the following selected psychiatric health outcomes: MCS functioning, PCS functioning, depression level, drinks per week, and binge rates, measured at baseline and then again at 6 months.

Results OVERVIEW

Table 2 depicts the overall mean level estimates, showing time and time by randomization assignment effects across selected psychiatric health outcomes.

PSYCHIATRIC HEALTH OUTCOMES

Mental health functioning. There was a significant main effect for time (f -value = 16.45; p = 0.0001), indicating an overall improvement in mental health functioning over time, with no randomization assignment effect. When examining secondary analyses, there were no significant interaction effects identified for mental health functioning with treatment attendance, diagnostic group, or age group.

Physical health functioning. There were no significant time effects for randomization assignment, treatment attendance, diagnostic group, or age group identified in the primary or secondary analysis for physical health functioning, therefore indicating no change in physical health functioning over time.

Table 2. Psychiatric Health Outcomes: Main Effect Randomization Group (Mean/Standard Error)

	TOTAL SAMPLE		USUAL CARE		INTERVENTION	
	BASELINE N= 113	FOLLOW-UP N= 88	BASELINE N= 56	FOLLOW-UP N= 44	BASELINE N= 57	FOLLOW-UP N= 44
Functioning						
Mental functioning ^a	31.0 (1.24)	37.4 (1.31)	30.8 (1.75)	37.3 (1.84)	31.2 (1.75)	37.5 (1.86)
Physical functioning	36.8 (1.29)	36.5 (1.34)	38.5 (1.83)	38.6 (1.89)	35.0 (1.83)	34.3 (1.91)
Depression ^a	18.8 (0.57)	12.4 (0.64)	18.8 (0.81)	11.9 (0.91)	18.9 (0.81)	12.9 (0.91)
Alcohol use						
Total drinks in last week	16.3 (2.19)	14.9 (2.40)	15.0 (3.11)	10.9 (3.41)	17.5 (3.08)	18.9 (3.37)
Binge rate ^a	25.3 (3.25)	17.2 (3.32)	23.4 (4.63)	11.80 (4.72)	27.2 (4.55)	22.6 (4.68)

^aMain effect for time.

Depression levels. There was a main effect for time (f -value = 76.81; $p < 0.0001$), indicating an overall decrease in depressive symptoms, with no randomization assignment effect. When examining secondary analyses, there was a time $\times$ diagnostic group effect (f -value = 19.05; $p < 0.0001$), indicating no change in depression symptoms in the substance group, which was expected, considering that patients in this group did not present with severe depressive symptoms. There were no significant time interaction effects with treatment attendance or age group identified for depressive levels.

Drinks per week. There were no significant time effects for randomization assignment, treatment attendance, diagnostic group, or age group identified in the primary or secondary analysis for drinks per week, therefore indicating no change in drinks per week over time.

Binge rates for last 3 months. There was a main effect for time (f -value = 4.73; $p = 0.0332$), indicating an overall decrease in binge rates, with no randomization assignment effect. When examining secondary analyses, there were no significant interaction effects identified for binge rates with treatment attendance, diagnostic group, or age group.

Discussion

This study aimed to examine if increased treatment engagement would lead to positive treatment outcomes. In the present study, it

was hypothesized that individuals who were randomized to receive the intervention would have improved psychiatric health outcomes, compared with participants exposed to usual care. Results indicated that over time there was evidence for improvement in mental health functioning, depression, and binge rates; however, there were no randomization assignment effects, implying that randomization group assignment did not differentially affect psychiatric health outcomes. Follow-up analyses indicated no effects on psychiatric health outcomes, based on individual treatment attendance, psychiatric diagnostic group, and age group status.

This research adds to the limited support available about the relationship between psychiatric treatment engagement interventions and treatment outcomes. The results of this investigation support that screening primary care patients for psychiatric symptoms and linking them into psychiatric treatment will lead to improved psychiatric health. Further, the TBRCM intervention based on BMI leads to increased treatment engagement, but this study highlighted that increased treatment engagement did not necessarily lead to improved psychiatric health outcomes above and beyond usual care levels. This latter finding is unexpected and leads to the need for further investigation. One direction to consider for future research is the need for a life coach approach²⁸ when considering psychiatric referral management. As designed, TBR-CM contacts patients only prior to treatment attendance; no further contacts are made once a patient

engages in psychiatric treatment. Therefore, it is possible that patients who are engaged in psychiatric treatment as a result of the TBR-CM program require increased support through motivational life coaching to help patients remain engaged in treatment and pursue their treatment goals. Further, these findings support the need to engage depression and substance abuse patients, in addition to comorbid patients who experience higher rates of symptoms and subsequently require complex treatment management.^{29–32}

Overtime, depression, substance abuse, and comorbid patients showed improved psychiatric health as indicated through the evidence presented in this study, but it is important first to expose such patients to psychiatric health management opportunities. These findings should be taken into consideration by caring clinical staff and friends/family of similar patients. Although in this sample the TBR-CM intervention clearly increased engagement in psychiatric treatment and led to nondifferentiated psychiatric health outcomes, this study comprised a conservative sample size of mostly male veterans, motivated and committed to the study research aims. It is possible that these results will not generalize beyond this sample, as veterans are a unique participant population and the PVAMC is a unique healthcare system. Further research is suggested to investigate whether TBR-CM is equally beneficial to the general population, specifically women, nonveterans, and individuals experiencing psychiatric symptoms outside of depression and substance abuse. As a result, future studies need to evaluate TBR-CM's effectiveness in a larger demographically diverse population. Also, further examination of patients who did not engage in psychiatric treatment and those patients who engaged in psychiatric treatment but did not show improved psychiatric health outcome is necessary. One suggested direction to investigate would be to implement a stage of change module into TBR-CM.³³ Evidence is needed to examine whether those patients who did engage in treatment, after being exposed to the intervention program, displayed an absence of commitment to treatment despite attending their psychiatric appointment. It is possible that individuals in a noncommittal stage of change need exposure to an enhanced TBR-CM program to reach improved health outcomes.

Conclusions

The referral management intervention (TBR-CM) increased attendance at the initial scheduled psychiatric appointment and the total number of psychiatric appointments attended during the following 6 months; this led to nondifferentiated psychiatric health outcomes. TBR-CM can be tailored to a wide array of individuals,

shown by the intervention's effectiveness across diagnostic and age groups. Overall, TBR-CM is a useful clinical service helping patients initiate psychiatric treatment via the telephone and is a program that can be incorporated into clinical care, specifically in an integrative care model such as the BHL. However, more research is needed to extend improved treatment rates into improved psychiatric health outcomes.

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Disclosure Statement

No competing financial interest exists.

REFERENCES

1. Lefforge NL, Donohue B, Strada MJ. Improving session attendance in mental health and substance abuse settings: A review of controlled studies. *Behav Ther* 2007;38:1–22.
2. Zanjani F, Mavandadi S, TenHave T, Katz I, Durai NB, Krahn D, Llorente M, Kirchner J, Olsen E, Van Stone W, Cooley S, Oslin DW. Longitudinal course of substance treatment benefits in older male veteran at-risk drinkers. *J Gerontol Med Sci* 2008;63:98–106.
3. Bernstein E, Bernstein J, Levenson S. Project ASSERT: An ED-based intervention to increase access to primary care, preventive services, and the substance abuse treatment system. *Ann Emerg Med* 1997;30:181–189.
4. Donovan DM, Rosengren DB, Downey L, Cox GB, Sloan KL. Attrition prevention with individuals awaiting publicly funded drug treatment. *Addiction* 2001;96:1149–1160.
5. Kitcheman J, Adams CE, Pervaiz A, Kader I, Mohandas D, Brookes G. Does an encouraging letter encourage attendance at psychiatric out-patient clinics? The Leeds PROMPTS randomized study. *Psychol Med* 2008;38:717–723.
6. Zanjani F, Miller B, Turiano N, Ross J, Oslin D. Effectiveness of telephone based referral-care management, a brief intervention designed to improve engagement in depression and substance treatment. *Psychiatr Serv* 2008;59:776–781.
7. Rollnick S, Miller WR. What is motivational interviewing? *Behav Cogn Psychother* 1995;23:325–334.
8. Oslin DW, Ross J, Sayers S, Murphy J, Kane V, Katz IR. Screening, assessment, and management of depression in VA primary care clinics: The behavioral health laboratory. *J Gen Intern Med* 2006;21:46–50.

9. Aharonovich E, Hatzenbuehler ML, Johnston B, O'Leary A, Morgenstern J, Wainberg ML, Yao P, Helzer JE, Hasin DS. A low-cost, sustainable intervention for drinking reduction in the HIV primary care setting. *AIDS Care* **2006**;18:561–568.
10. Heather N, Rollnick S, Bell A, Richmond R. Effects of brief counseling among male heavy drinkers identified on general hospital wards. *Drug Alcohol Rev* **1996**;15:29–38.
11. Hulse GK, Tait RJ. Six-month outcomes associated with a brief alcohol intervention for adult in-patients with psychiatric disorders. *Drug Alcohol Rev* **2002**;21:105–112.
12. White HR, Mun EY, Pugh L, Morgan TJ. Long-term effects of brief substance use interventions for mandated college students: Sleeper effects of an in-person personal feedback intervention. *Alcohol Clin Exp Res* **2007**;31:1380–1391.
13. Borrelli B, Riekert KA, Weinstein A, Rathier L. Brief motivational interviewing as a clinical strategy to promote asthma medication adherence. *J Allergy Clin Immunol* **2007**;120:1023–1030.
14. Bell KR, Temkin NR, Esselman PC, Doctor JN, Bombardier CH, Fraser RT, Hoffman JM, Powell JM, Dikmen S. The effect of a scheduled telephone intervention on outcome after moderate to severe traumatic brain injury: A randomized trial. *Arch Phys Med Rehabil* **2005**;86:851–856.
15. Colby SM, Monti PM, Barnett NP, Rohsenow DJ, Weissman K, Spirito A, Woolard RH, Lewander WJ. Brief motivational interviewing in a hospital setting for adolescent smoking: A preliminary study. *J Consult Clin Psychol* **1998**;66:574–578.
16. Ramseier CA, Bornstein MM, Saxer UP, Klingler K, Walter C. Tobacco use prevention and cessation in the dental practice. *Schweiz Monatsschr Zahnmed* **2007**;117:253–278.
17. Valanis B, Lichtenstein E, Mullooly JP, Labuhn K, Brody K, Severson HH, Stevens N. Maternal smoking cessation and relapse prevention during health care visits. *Am J Prev Med* **2001**;20:1–8.
18. Rau J, Ehlebracht-König I, Petermann F. Impact of a motivational intervention on coping with chronic pain: Results of a controlled efficacy study. *Schmerz* **2008**;22:575–585.
19. D'Amico EJ, Miles JN, Stern SA, Meredith LS. Brief motivational interviewing for teens at risk of substance use consequences: A randomized pilot study in a primary care clinic. *J Subst Abuse Treat* **2008**;35:53–61.
20. Grenard JL, Ames SL, Pentz MA, Sussman S. Motivational interviewing with adolescents and young adults for drug-related problems. *Int J Adolesc Med Health* **2006**;18:53–67.
21. Stotts AL, Schmitz JM, Rhoades HM, Grabowski J. Motivational interviewing with cocaine-dependent patients: A pilot study. *J Consult Clin Psychol* **2001**;69:858–862.
22. Bernstein J, Mutschler P, Bernstein E. Keeping mammography referral appointments: Motivation, health beliefs, and access barriers experienced by older minority women. *J Midwifery Womens Health* **2000**;45:308–313.
23. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: Validity of a brief depression severity measure. *J Gen Intern Med* **2001**;16:606–613.
24. Sheehan DV, Lecrubier Y, Sheehan KH, Amorim P, Janavs J, Weiller E, Hergueta T, Baker R, Dunbar GC. The Mini-International Neuropsychiatric Interview (M.I.N.I.): The development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD 10. *J Clin Psychiatry* **1998**;59:22–33.
25. Sobell LC, Sobell MB. Timeline follow-back: A technique for assessing self-reported alcohol consumption. In: Litten R, Allen J, eds. *Measuring alcohol consumption*. Totowa, NJ: Humana Press Inc., **1992**:41–65.
26. Ware JE, Kosinski M, Keller SD. A 12-item short-Form Health Survey: Construction of scales and preliminary tests of reliability and validity. *Med Care* **1996**;34:220–233.
27. Zillmer EA, Fowler PC, Gutnick HN, Becker E. Comparison of two cognitive bedside screening instruments in nursing home residents: A factor analytic study. *J Gerontol* **1990**;45:P69–P74.
28. Draine J, Herman DB. Critical time intervention for reentry from prison for persons with mental illness. *Psychiatr Serv* **2007**;58:1577–1581.
29. Clark RE, Xie H, Brunette MF. Benzodiazepine prescription practices and substance abuse in persons with severe mental illness. *J Clin Psychiatry* **2004**;65:151–155.
30. Fleck MP, Horwath E. Pharmacologic management of difficult-to-treat depression in clinical practice. *Psychiatr Serv* **2005**;56:1005–1011.
31. Thase ME. New approaches to managing difficult-to-treat depressions. *J Clin Psychiatry* **2003**;64 Suppl 1:3–4.
32. Tylee A, Haddad M. Managing complex problems: Treatment for common mental disorders in the UK. *Epidemiol Psychiatr Soc* **2007**;16:302–308.
33. Prochaska JO, DiClemente CC. Stages and processes of self-change of smoking: Toward an integrative model of change. *J Consult Clin Psychol* **1983**;51:390–395.

Address correspondence to:

Faika Zanjani, Ph.D.

Graduate Center for Gerontology

University of Kentucky

900 South Limestone

306B Wethington Health Science Building

Lexington, KY 40536

E-mail: f.zanjani@uky.edu

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