

The Impact of Behavioral Screening and Employee Assistance Program (EAP) like Interventions
on Health Outcomes and Expenditures in a Healthcare and Employment Setting

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ABSTRACT

There is considerable evidence that employee assistance programs (EAPs) mitigate stress levels associated with common life struggles, which if unaddressed, may lead to chronic stress and disease (Attridge, 2012). There is also good evidence that Behavioral Screening and Intervention (BSI) programs, that screen and treat individuals for depression, substance use, and smoking improve health outcomes and reduce healthcare expenditures (Babor, McRee, Kassebaum Grimaldi, Ahmed, & Bray, 2007; Bray, Zarkin, Davis, Mitra, Higgins-Biddle, & Babor, 2007; Saitz, Saitz, Larson, LaBelle, Richardson, & Samet, 2008). We hypothesized that a hybrid model that combined EAP services with BSI would produce substantial positive health outcomes and reduce healthcare cost expenditures. We further hypothesized that such an approach would work equally well with patients in a community health center and employees at a workplace. The goal of this project was to demonstrate that these efforts could be carried out successfully in both settings and to either confirm or refute the hypothesis that such interventions would improve health outcomes and reduce healthcare expenditures.

The results of our research confirmed both hypotheses. Our short-term interventions resulted in profound improvements in multiple health outcome indicators, and these improvements were sustained over time. These outcomes were achieved in both settings. Outcomes included significant reductions in depression, smoking behavior, alcohol use, drug use and increased exercise and report of overall wellbeing. As we demonstrate in this report, the improvements in health outcomes observed, coupled with studies that clearly link and quantify the relationship between such improvements and reduced healthcare costs, enable us to project specific healthcare cost savings that will result from these interventions.

PROJECT OVERVIEW

Invest EAP is a public, not-for-profit Employee Assistance Program (EAP) that operates within the State of Vermont's, Division of Vocational Rehabilitation (VR), which itself is located within the Department of Disabilities, Aging and Independent Living. Invest EAP provides services to a broad cross section of the public and private sectors in Vermont; approximately 20% of the State's entire population is covered. Invest EAP obtained two Vermont Health Care Innovation Project (VHCIP) grants to examine the health and cost impact of providing Behavioral Health Screening and Intervention (BSI) coupled with EAP services to individuals in two distinct settings. One project focused on providing these interventions to patients at a community health clinic and the other project focused on providing these interventions to employees at a private employment setting. We provided behavioral treatment to 150 patients during the 1-½ years of the project.

Project 1: Resilient Vermont – Northern Counties Health Care

This project focused on a Federally Qualified Healthcare Center (FQHC), Northern Counties Health Care, in St. Johnsbury, Vermont. In this project, we posited that if an EAP can benefit employees at a workplace in terms of improving health outcomes and reducing expenditures, why couldn't it benefit all individuals – employed or not – in the same way? Why not offer “EAP-like” services at a community healthcare center and measure outcomes? The services offered at this health center were different than standard EAP services in that they involved conducting behavioral screening and commensurate treatment for items for which the patient screened positive. Most patients at the center for other health care needs were provided a brief behavioral health screening when they visited the health center. The screening identified

patients at-risk for unhealthy eating habits and lack of regular exercise, depression, alcohol use problems, drug use, smoking behavior, and a range of typical EAP life management personal issues, such as relationship issues, parenting difficulties, legal problems and high stress/anxiety. A specially trained health coach – the EAP licensed mental health counselor *with comprehensive training* in Motivational Interviewing – provided services to at-risk individuals and referral services if needed. Community Connections, a program run by the local hospital, provided help with daily life resource issues such housing, transportation and budgeting, resources that are normally provided by EAP. Community Connections is located literally across the street from the community health center. Additional legal referrals were provided through the main Invest EAP office referral system.

In addition to the risk screening data, the study design specified collection of self-report questionnaire data from each participant at four points in time: (1) at the first clinical session; (2) at the end of the treatment experience (typically 2 to 3 months after the first session); (3) at a 3-month follow-up after the end of treatment; and (4) at a 6-month follow-up.

Additional qualitative impressions about this project from multiple vantage points were obtained by recording short interviews with approximately 10% of project participants and numerous healthcare professionals at the center. The interviews were conducted after the intervention and a synopsis of this narrative feedback will provide impressions of the impact of our assistance.

Project 2: Behavioral Screening and Intervention – King Arthur Flour Company

Our second project focused on employees at the King Arthur Flour (KAF) company, the nation's oldest flour production company, operating for over 200 years. Invest EAP currently provides employee assistance services to employees at KAF. In this project, we used a

similar process and measures as described in the Resilient Vermont project described above. Our EAP counselor, a licensed clinical social worker, also received *comprehensive training* in Motivational Interviewing provided treatment for employees who screened positive for being at-risk for screened issues. As with the Resilient Vermont project we collected health outcome data at four points in time: (1) when we first saw people; (2) at the end of the treatment experiences; (3) a 3-month follow-up visit and (4) at a 6-month follow-up visit. Our expectation was that we would see improvement after treatment and over time (3-month and 6-month follow-ups).

INTRODUCTION

The Vermont Healthcare Innovation Project provided two grants to Invest EAP to evaluate the effectiveness of an innovative intervention combining aspects of behavioral screening, Motivational Interviewing, Collaborative Care and EAP at two different settings. As detailed above, one project focused on providing these services to patients at a community health center, and the other on providing these services to employees at a private sector company. Services were offered in person and on-site at each respective setting. Three general types of clinical problems were considered most relevant to the project's aims. The first problem area involved general stress and healthy living goals (global health, personal/life management issues, nutrition and physical exercise). The second problem area involved mental health issues (emotional distress and symptoms of depression). The third clinical area was addictions (smoking cigarettes, alcohol misuse and use of drugs). Although a range of clinical severity can be present for each problem area, this project focused on community samples of adults and thus we assumed this group would have mostly mild or moderate levels of problem severity that are appropriate for brief interventions in applied (non-hospital) settings.

Many adults suffer from emotional issues, family and home life conflicts, mental health concerns, substance abuse problems, and other health disorders that can interfere with their health and work performance. Employee assistance programs (EAPs) are employer- or group-supported programs designed to help employees resolve these kinds of issues. Most frequently, though by no means exclusively, the EAP is used for assistance with mild to moderate problems that cause acute stress (e.g., family/marital relationship issues, work problems, and legal or financial concerns); individuals in need of treatment of more serious mental health and substance abuse disorders are provided appropriate referrals. The goal of EAPs is to have a positive effect

on restoring the health and well-being of the employee, which in turn results in reduced long-term healthcare expenditures and a return to higher productivity, and improvement overall organizational performance.

The interventions used in this study were provided by licensed mental health counselors employed by Invest EAP in Vermont. These counselors were also highly trained in motivational interviewing. Most of the clinical contact between the EAP counselors and study participants occurred during face-to-face sessions provided on site at each specific location. King Arthur Flour employees also had the option of meeting our counselor at our offices if they chose this added degree of confidentiality.

LITERATURE REVIEW

For each outcome area, we first examined the general prevalence rates in society, the types of burden they create when left untreated or poorly managed (i.e., costs in health care services and workplace lost performance), the most effective support and treatment intervention approaches, and the typical financial cost-savings when treatment interventions are provided.

Behavioral Health: Prevalence. A rate of 25% (1 in every 4 employees) is estimated to be at some level of distress and thus relevant as potential users of EAP counseling and coaching services. This estimate is based on a total of different specific diagnostic risk components commonly found among reasons why people seek help from the EAP (see Attridge, Servizio, Sharar, & Mollenhauer, 2015). This 25% rate is comprised of: mental health/emotional disorders (7% of the total 25%), substance abuse/other addiction disorders (3%), high stress (4%), personal relationship problems (marital, romantic, family) (4%), personal or family financial/legal issues (4%) and work difficulties (3%). This total takes into account the assumed comorbidity or overlap among this set of issues when a person has more than one issue, and that roughly only 1 in 3 people who are at risk typically take any action to seek help.

In a longitudinal study of StayWell health risk appraisal (HRA) surveys and health care claims data from over 21,000 employees from multiple employers in US (Nyce, Grossmeier, Anderson, Terry, & Kelley, 2012), found that 13.5% of working employees were at high risk for “stress” (Almost always felt troubled by stress and did not handle stress well); 21.0% of working employees were at moderate to high risk for “depression” (Some indication of current depression (i.e., over past 2 weeks) but did not report chronic depression (i.e., feeling depressed most of the time); and 10.0% of working employees were at moderate to high risk for “alcohol misuse.”

Mental Health: Prevalence. According to national epidemiological studies in 2009 and

2010, 20% of adults in the United States had any kind of mental illness. About 1 in 4 of this group also had a substance abuse problem. However, 5% of the general total population had the most serious kind of mental illness. Given that some people with serious mental illness do not work, this means that about 15% of the adult population had a moderate to mild form of mental illness. Additionally, about 6.1% of all adults have a substance abuse problem. These prevalence rates are higher for younger people (age 20s and 30s) and for women. Other data shows that 9.5% of full-time employed workers in US have a substance abuse disorder.

There is a growing literature that suggests that depression can be prevented in adults and children. The most effective interventions reported in the literature to date have a screening and treatment component. People are screened for subsyndromal depression, which is the existence of some depressive symptoms but an insufficient number to warrant a full diagnosis of a major depressive disorder (MDD), and subsequently given psychotherapy (usually cognitive-behavioral) to prevent the onset of full depression. Indicated interventions are targeted at people with existing signs or symptoms of the disorder. Existing reviews of these interventions find that indicated interventions in particular can be effective in reducing the onset of depression by 25–50%. For example, see the discussion of 29 trials of preventive interventions for mental disorders by Muñoz, Cuijpers, Smit, Barrera, & Leykin (2010). Another meta-analysis literature review examined 21 comparisons of treatment group vs. usual care control group and found that for every 22 at-risk cases for depression in targeted intervention (most often CBT counseling), can prevent 1 case of major depression. (Cuijpers, van Straten, Smit, Mihalopoulos, & Beekman, 2008).

Mental Health: Treatment Effectiveness. This under-use of talk therapy is a concern when there are thousands of studies supporting the clinical effectiveness of psychotherapy

(Lipsey & Wilson, 1993) and it is also far less costly to administer than psychiatric and pharmacy-based treatments. Indeed, hundreds of clinical trials for depression and anxiety disorders show that modern evidence-based treatments, especially cognitive behavioral therapy (CBT), are as effective as drugs in the short run, and more effective at preventing relapse (The National Institute for Clinical Excellence in the United Kingdom, 2008

EAP Counseling Effectiveness. The evidence shows that EAPs are often effective in improving the personal and clinical issues that prompted using the service. Recent literature reviews of workplace counseling research studies concluded that there was consistent evidence for the effectiveness of EAP clinical counseling services (Csiernik, 2011; McLeod, 2010). Improvements due to individual level EAP interventions have been measured from counselor assessments conducted at case open and case close points in time for each client user of the service and also through self-report surveys of clients after their use of the EAP (Dersch, Shumway, Harris, & Arredonondo, 2002; Harris, Adams, Hill, Morgan, & Soliz, 2002; Philips, 2004).

Basic clinical indicators of mental health and well-being are also commonly used in evaluating EA clinical services. For example, a study by the largest internal EAP in the world (Federal Occupational Health) with data from over 59,000 employees of the U.S. government, found that Global Assessment of Functioning (GAF) scores improved over 10% on average from case open to case close (Selvik & Stephenson, 2003). Other measures of patient functioning have been incorporated with similar success into counselor-based assessments and follow-up surveys (Greenwood, DeWeese, & Inscoe, 2005; Harris, Adams, Hill, Morgan, & Soliz, 2002). EAPs also routinely show positive outcomes for employers in areas of job performance, such as reductions in absence days and improvements in work productivity. In his recent literature

review of 12 EAP outcome studies from the UK, McLeod concluded that workplace counseling has a “consistent and significant impact on important dimensions of work behaviour” (2010, p. 245).

Cost Burden. Depression is among the most burdensome disorders worldwide, giving rise to considerable adverse effects on activities of daily living for extended periods of time (Bruffaerts et al., 2012). In the United States, depression is a leading cause of disability for people aged 15–44 years, resulting in almost 400 million disability days per year, substantially more than most other physical and mental conditions (Merikangas, Ames, Cui, et al, 2007). A recent study examined changes in the US between 2005 and 2010 (Greenberg, Fournier, Sisitsky, Pike, & Kessler, 2015). It estimated the incremental cost of people with depression at \$210.5 billion in 2010, with 47% attributable to direct costs, 5% to suicide-related costs, and 50% to workplace costs. In this analysis, presenteeism accounted for approximately 3 quarters of workplace costs and represented 37% of the overall economic burden of individuals with depression. In each study year, the equivalent of approximately 32 incremental workdays (256 hours) was lost due to presenteeism by the average individual with major depression (Greenberg et al., 2015).

Improved overall health and well-being is related to future health care utilization and cost. Large-scale studies have consistently indicated that individual well-being (as measured by surveys of health risks) is associated with concurrent health costs and is a strong predictor of future health care costs (Anderson, Whitmer, Goetzel, et al. 2000; Edington, 2009; Harrison, Pope, Coberley, & Rula, 2012; Pronk, Goodman, O’Connor, & Martinson, 1999). A common finding is that the highest individual-level medical costs were associated with stress and depression risks (Goetzel, Anderson, Whitmer, Ozminkowski, Dunn, & Wasserman, 1998; Nyce,

et al., 2012). Thus, well-being improvement efforts from mental health and wellness coaching represent a promising approach to decrease future health care utilization and expenditures.

Early studies demonstrated a link between lifestyle-related health risks and employee productivity (Boles, Pelletier, & Lynch, 2004; Burton, Chen, Conti, Schultz, & Edington 2006; Wright, Beard, & Edington. 2002). Wellness programs have been linked to improved employee productivity, reduced absence, and improved employee performance with consistent evidence that the impact on productivity-related costs may exceed that on direct healthcare costs (Christensen, Overgaard, Hansen, Sogarrd, & Holtermann, 2013; Goetzel, Henke, Tabrizi, et al., 2014; Mitchell, Ozminkowski, & Serxner, 2013; Sears, Shi, Coberley & Pope, 2013; Shi, Sears, Coberley, & Pope, 2013).

Expected Cost-Benefit

As with other areas of occupational health and wellness, it is important to be able to show the value of providing services beyond just user satisfaction and clinical outcomes. Over the past 20 years, several dozen studies have demonstrated the financial cost-benefit of EAPs (see reviews by Attridge, 2010, 2011; Blum & Roman, 1995). These studies have examined savings from a range of outcomes including health care claims costs, disability claims costs, avoided employee turnover and workplace performance costs due to lost productivity and missed days at work. The common finding is that use of EAPs by employees with more severe clinical issues have contributed to long-term net reductions in overall health care costs for individual employees and their families that far exceed the cost of the EAP services, even when including the short-term increases in the costs of providing appropriate professional treatment for alcohol/drug and mental health disorders. Also, two separate large-scale randomized workplace depression treatment effectiveness trials have been carried out in the US to evaluate the cost-effectiveness of

expanded treatment from an employer perspective (Rost, Smith, & Dickinson, 2004; Wang, Simon, Avorn, et al, 2007). Both trials had positive returns-on-investment (ROI) to employers. A substantial expansion of worksite depression care management programs has occurred in the US subsequent to the publication of these trials. Yet the proportion of people with depression who receive treatment remains low.

Expected Results

Our expectation was to find significant improvement in outcome measures immediately after treatment (start of case compared to end of case) that also persisted over time after treatment ended (3-month and 6-month follow-ups).

The project's duration was too short and the number of participants too few to be able to examine actual healthcare claims record data and test for a change in health care use and cost data from archival records. However, in the analysis, we planned to link any demonstrated improvements based on the questionnaire data to other research studies that have measured changes in healthcare expenditures and use external outcome effects to estimate changes in healthcare expenditures that may reasonably be attributed from any improved health outcomes demonstrated in this project.

Changes within each person over time in their work performance can be directly calculated from the questionnaire date. These results can be converted into hours of avoided further work loss from employee productivity and absence. External research on wages and benefits for Vermont workers can then be used to estimate financial value of work hours and a total work performance outcome economic benefit figure calculated for the project.

METHODOLOGY

Research Study Design

The research design was non-experimental, prospective, longitudinal design involving a single-group for the intervention and a 1 x 2 x 4 design, with one group who received the intervention (EAP counseling) and no control/comparison group that did not receive counseling, with participants coming from two project delivery sites in the same state, and repeated measurement over multiple points. The following time points were enacted for the data collection:

Pre (Baseline) at Start of Case (Survey 1 or S1)

Post 1 at End of Case (Survey 2 or S2)

Post 2 Follow-up 1 at 3-months after end of case (Survey 3 or S3)

Post 3 Follow-up 2 at 6-months after end of case (Survey 4 or S4)

Risk Screening for Behavioral Health Risks. An initial risk screening was done to qualify people to be eligible to participate in the study and start to get the counseling intervention. The 2-page screening instrument contained 14 items (involving 22 distinct responses). The screening items identified risks in the areas of diet/nutrition, physical exercise, depression, smoking, alcohol, drugs, personal life concerns, work absence, work presenteeism, work productivity, and nuisance health problems (See Appendix A for specific items and scoring). It was given to people at the health clinic who were there for routine and emergent medical services and was given to KAF employees who voluntarily chose to participate in this widely-promoted company-wide wellness initiative. The screening responses were scored by staff and if the person scored above the cutoff level for one or more of the risk screening measures, then he or she was invited to participate in further counseling.

Retrospective Methodology for Exceptional Cases. As the data collection progressed over the course of the study, a small number of cases were able to complete the follow-up surveys but had missing data for the baseline survey at the start of the case. For these participants, either the S3 or S4 follow-up surveys were augmented to include an additional final section that repeated the questions in an attempt to collect the baseline data. The augmented survey included the following instructions: *Think Back. Now we'd like to ask you the same questions again, but this time, think back to how you would have answered these questions during the month before the first time you saw me.* It also used a slightly different recall period leading statement to most items: *For the 4 week period prior to your very first visit with me,....* This process, however, was used by only 4 cases.

Consent Forms

A research consent form was required for all study participants. The form used at each project site is presented in full-text below.

Health Coach Participation Agreement Form: Invest EAP Vermont Health Care Innovation Project. The State of Vermont is participating in a special project with our EAP that provides free health coaching. The purpose of the project is to figure out how best to help people live healthier, happier, longer lives. You can be a part of this effort. If you choose to work with the Health Coach beyond this first meeting, all we ask in return is that you complete a brief 5-minute follow-up survey at our last meeting and in 3 months and 6 months.

Health Coach Participation Agreement Form: King Arthur Flour Project. King Arthur Flour is participating in a special project with our EAP that provides free health coaching. The purpose of the project is to figure out how best to help people live healthier, happier, longer lives. You can be a part of this effort. If you choose to work with the Health Coach beyond this

first meeting, all we ask in return is that you complete a brief 5-minute follow-up survey at our last meeting and in 3 months and 6 months.

Time Period

The data collection phase of the study was conducted from June, 2015 through November, 2016.

Incentives for Survey Completion

A financial incentive for completing the first survey and subsequent surveys was provided to participants at both project sites. At the community healthcare setting a \$25 VISA gift card was provided for completing the first survey and an additional \$25 VISA gift card for each subsequent follow-up survey completed. In order to increase the number of study participants and especially those with follow-up data, this amount was later doubled to \$50 for all surveys collected after June 1, 2016. At the KAF project site participants were given a \$50 VISA gift card after completing the first survey and \$25 VISA gift cards for each subsequent follow-up survey completed.

Measures and Total Sample Characteristics

Demographic Factors. Items on background characteristics were taken from the demographics section of the Health and Productivity Questionnaire (HPQ), developed collaboratively by the World Health Organization (WHO) and Harvard University (Kessler et al, 2003).

Gender. The sample consisted of 38 male and 112 female respondents.

Age. Respondent age was measured in five categories of: Under 18 years; 18 to 34 years; 35 to 54 years; 55 to 64 years; and Age 65 or older. The average age was 46 years old for the study sample and each of these age categories were represented (see Table 3).

Race / Ethnicity. The race and ethnicity of respondent's was assessed with categories of: White; Hispanic or Latino; Black of African American; Native American; Asian / Pacific Islander; or Other / Mixed. The sample was almost all White (95%) with 7 cases total across other racial groups (see Table 3).

Household Income. Financial context was addressed with the following single item: "Please estimate your total household income before taxes during the past 12 months:" with categories of: Less than \$25,000; \$25,000 to \$34,999; \$35,000 to \$49,999; \$50,000 to \$74,999; \$75,000 or more. The sample included a wide range of income (see Table 3), with the average level being estimated at \$33,567 (using mid-points of these categories). The two project sites had very different income levels, with the community site much lower than the workplace site.

Living Arrangement. The home context of respondent's was measured with this item: "Please describe your living arrangement:" with six categories of: Single without children; With Spouse/Partner without children; With housemate(s)/other family without children; Single with children; With Spouse/Partner with children; or With housemate(s)/other family with children. The sample also had a diverse mix of these different living arrangements (see Table 3).

Intervention

Counseling by EAP staff. The clinical coaching services were provided to study participants in face-to-face sessions primarily by two licensed counselors at Invest EAP – one female and one male. The fidelity of intervention (who provided, number of sessions, time per session, how long in days from case open to case close, drop outs from treatment) was assessed at the end of case and follow-up surveys, using the set of items below:

S2) *Across all of the sessions, how long was the average clinical session for this client with the health coach/counselor?* (choose one of the time categories in 15 minute increments of 0-15 up to more than 1 hour).

S2) *Did you attend the last scheduled clinical session with your health coach/counselor?*
Yes - client did attend the final session or No - client did not show up for final scheduled session.

S2) *In total, how many sessions of clinical contact occurred between you and the health coach/counselor?* (enter a number: 1 to 10 or more).

Clinical Issue. S1 - *Which of the following was the main issue that you discussed with the health coach/counselor?* With options of: (1) Nutrition / Diet / Exercise; (2) Smoking; (3) Drinking; (4) Drug Use; (5) Depression; (6) Other (or none of the above). If the first option was selected, detail was asked: *Which of the following issue(s) did you work on with your health coach?* (1) Nutrition / Diet; (2) Exercise; of (3) Both Nutrition/Diet and Exercise.

Outcome Measures – Primary (Matched to Specific Clinical Issues)

Depression. Depression was assessed with the Patient Health Questionnaire 9-item scale (PHQ-9). This scale has been used in many research studies and has established validity and reliability (Kroenke & Spitzer, 2002; Martin, Rief, Klaiberg, & Braehler, (2006). The instructions state: *Over the last 2 weeks, how often have you been bothered by any of the following problems?* With response options of: (1) Not at all; (2) Several days; (3) More than half the days; and (4) Nearly every day. The items include: (a) *Little interest or pleasure in doing things*; (b) *Feeling down, depressed or hopeless*; (c) *Trouble falling or staying asleep, or sleeping too much*; (d) *Feeling tired or having little energy*; (e) *Poor appetite or overeating*; (f) *Feeling bad about yourself -- or that you are a failure or have let yourself or your family down*; (g) *Trouble concentrating on things, such as reading the newspaper or watching television*; (h)

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; and (i) Thoughts that you would be better off dead or hurting yourself in some way. Repeat at S2, S3, S4. The PHQ-9 is scored by adding together the 9 items. The scale at Time 1 had good internal reliability that was in the range found in other research studies ($\alpha = .88$). A score of 11 or more is considered positive risk status for depression. In the total study sample, 50% were at-risk for depression, with 58% of the NCHC site and 20% of the KAF site. The normative risk rate depression is between 7% and 10%.

Cigarette Smoking. The level of tobacco use was assessed with a single item, as suggested by Brown (2016): *In the past 4 weeks, how many cigarettes have you smoked?* With a fill in the blank response. Asked at S1, S3, and S4. S2 had an adapted time frame for recall period: *Since beginning to work with the health coach/counselor, ... [same response as S1]*. This item scored by adding up the number of cigarettes reported for a 4-week period (with a mathematical adjustment as needed for S2 data depending on if duration of date of case open to the date of the last session was longer or shorter than 4 weeks). A score of 1 or more cigarettes smoked is considered positive risk status for smoking cessation. In the total sample, 39% were smokers, with 48% of the NCHC site and only 7% of the KAF site. The normative prevalence rate for smoking is between 20% and 24%.

Risky Drinking. The National Institute on Alcohol Abuse and Alcoholism (NIAAA) recommends a single question screen for unhealthy alcohol use. The Alcohol Use Disorders Identification Test (AUDIT) has substantial measurement reliability and validity (Smith, Schmidt, Allenworth-Davies, & Saitz, 2009). Risky drinking was assessed with the following single item from the longer AUDIT questionnaire: *In the past 4 weeks, how many times did you*

have more than 4 standard drinks on one occasion for men OR more than 3 standard drinks on one occasion for women? _____. A graphic with colored images were used to show people examples of a “standard drink” – a can of regular beer at 12 fluid ounces and about 5% alcohol content level, a glass of malt liquor at 8-9 fluid ounces and about 7% alcohol content level, a glass of table wine at 5 ounces and about 12% alcohol content level, and a shot glass of hard liquor at 1.5 fluid ounces 80-proof and about 40% alcohol content level. Asked at S1, S3, and S4. S2 used an adapted time frame for recall period: *Since beginning to work with the health coach/counselor, ... [same response as S1]*. This item was scored by adding up the number of times of drinking reported for a 4-week period (with adjustment as needed for S2 data depending on if duration of case open date to case last session date is longer or shorter than 4 weeks). A score of 1 or more is considered positive risk status for alcohol misuse (i.e., binge drinking). In the total study sample, 31% were risky drinkers with 33% of the NCHC site and 20% of the KAF site. The normative rate for risky drinking is between 17% and 25%.

Drug Use. One item was used to assess the level of use of illicit drugs and misuse of prescription medications (based on Barclay, 2010). Single-item: *In the past 4 weeks, how many days did you use a prescription painkiller, stimulant, or sedative for a non medical reason OR smoke pot OR use a street drug?* With a fill in the blank response. _____. Asked at S1, S3, and S4. S2 adapted time frame for recall period: *Since working with the health coach/counselor, on average how many days **per week** did you use a prescription painkiller, stimulant, or sedative for a non medical reason OR smoke pot OR use a street drug?* This item scored by adding up the number of days of drug use reported for a 4-week period (with adjustment as needed for S2 data depending on if duration of case open date to case last session date is longer or shorter than 4 weeks). A score of 1 or more drug use days is considered at-risk for a drug problem. In the total

study sample, 21% were drug users, with 24% of the NCHC site and 10% of the KAF site. The normative rate for drug use is 9%.

Healthy Eating. Good eating habits were assessed with a single-item: How many days a week do you usually eat four 8-ounce cups of fruits and vegetables or more? With five response options: (1) 0 or 1 days per week; (2) 2 or 3 days; (3) 4 or 5 days; and (5) 6 or 7 days. Repeat at S2, S3, S4. These questions are based on CDC recommendations for daily fruit and vegetable intake (Moore & Thompson, 2015). A score of 4 or less is considered at-risk for poor nutrition. In the total study sample, 87% were at-risk, with 88% of the NCHC site and 83% of the KAF site. The normative rate for nutrition risk is approximately 90% (87% do not meet daily fruit recommendations; 91% do not meet daily vegetable recommendations).

Exercise. Level of regular physical activity was assessed with two items: (a) *In a typical week, how much moderate exercise (example: brisk walking) do you get?* With response options of: (1) Less than 30 minutes per week; (2) 30 to 59 minutes; (3) 1 to 2.5 hours; and (4) 2.5 hours or more. The second item asked: (b) *In a typical week, how much vigorous exercise (example: jogging) do you get?* With response options of: (1) Less than 15 minutes per week; (2) 15 to 29 minutes; (3) 30 to 74 minutes; and (4) 75 minutes or more. Repeat at S2, S3, and S4. These questions were based on the instrument employed in the Wisconsin Medicaid SBIRT study (Paltzer, et al., 2016). The two item scores are combined into a single score, with range from 2 to 8. A score of 5 or less is considered at-risk for not enough regular exercise. In the total study sample, 80% were at-risk, with 84% of the NCHC site and 70% of the KAF site. The normative rate for exercise risk is 82% (those who do not meet 2008 Federal Physical Activity Guidelines for Americans).

Nutrition/Exercise Action Taken. A final item was included at S2, S3, and S4, that focused on the use of recommended actions for nutrition and exercise. Single-item: *Concerning the area of Nutrition/Diet, Exercise or Other - Did you follow through on a referral or make progress on your own since your session(s) with health coach/counselor?* Response of Yes or No.

Outcome Measures – Secondary (General and Not Matched to Clinical Issues)

In addition to the above outcome measures, we also collected data on all participants in three other more general areas that represented secondary outcomes. These areas included general health, personal life concerns, and work performance.

Global Health. We used the 10 items of the Global Health assessment component of the Patient-Reported Outcomes Measurement Information System (PROMIS) questionnaires (Hays, Bjorner, Revicki, Spritzer, & Cella, 2009). The PROMIS Scales have established measurement reliability and validity (Cela et al., 2010; Magasi, et al., 2011). PROMIS is a National Institutes of Health (NIH) Roadmap initiative designed to improve self-reported outcomes using state-of-the-art psychometric methods (for detailed information, see www.nihpromis.org). Adapting the [World Health Organization's \(2007\)](#) tripartite framework of physical, mental, and social health, PROMIS has developed and calibrated item banks assessing emotional distress, pain, fatigue, physical functioning, social participation and other domains. Global health items are evaluations of health in general rather than specific elements of health. These items allow an efficient assessment of self-reported general health. Global health items are predictive of important future events such as health care utilization and mortality (Bjorner, Fayers, & Idler, 2005). There are three domains in the 10-item PROMIS global health measure: Physical Health, Mental Health and Social Health. These 10 items included:

PROMIS-1 General Health Status. *In general, would you say your health is:* Excellent (5), Very Good (4), Good (3), Fair (2) or Poor (1). Repeat at S2, S3, S4

PROMIS-2 Physical Health Status. *In general, how would you rate your physical health?* Excellent (5), Very Good (4), Good (3), Fair (2) or Poor (1). Repeat at S2, S3, S4.

PROMIS-3 Physical Activities of Daily Living. Single-item: *To what extent are you able to carry out your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair?* Response options of: Completely (5), Mostly (4), Moderately (3), A little (2), or Not at all (1). Repeat at S2, S3, S4.

PROMIS-4 Pain. Single-item: *In the past 7 days, how would you rate your pain on average?* With an 11-point response scale: No Pain = 0 1 2 3 4 5 6 7 8 9 10 = Worst imaginable pain. Repeat at S2, S3, S4. Following Hays et al. (2009), we recoded the pain intensity item from the 0–10 scale to 5 categories (similar to the other PROMIS items) based on grouping of 0–10 response options as follows: 0 = 1; 1–3 = 2; 4–6 = 3; 7–9 = 4; 10 = 5.

PROMIS-5 Fatigue. Single-item: *In the past 7 days, how would you rate your fatigue on average?* With 5-point response scale of: None (1), Mild (2), Moderate (3), Severe (4), and Very severe (5). Repeat at S2, S3, S4

PROMIS-6 Mental Health Status. Single-item: *In general, how would you rate your mental health, including your mood and your ability to think?* Excellent (5), Very Good (4), Good (3), Fair (2) or Poor (1). Repeat at S2, S3, S4

PROMIS-7 Emotional Distress. Single-item: Recent emotional problems were assessed with single-item: *In the past 7 days, how often have you been bothered by emotional problems such as feeling anxious, depressed or irritable?* With response options of: Never (5), Rarely (4), Sometimes (3), Often (2), or Always (1). Repeat at S2, S3, S4

PROMIS-8 Quality of Life. Single-item: *In general, would you say your quality of life is:* Excellent (5), Very Good (4), Good (3), Fair (2) or Poor (1). Repeat at S2, S3, S4.

PROMIS-9 Social Satisfaction. Single-item: *In general, how would you rate your satisfaction with your social activities and relationships?* Excellent (5), Very Good (4), Good (3), Fair (2) or Poor (1). Repeat at S2, S3, S4.

PROMIS-10 Social Activity. Single-item: *In general, please rate how well you carry out your usual social activities and roles. (This includes your activities at home, at work and in your community, and your responsibilities as a parent, child, spouse, employee, friend, etc.):* Excellent (5), Very Good (4), Good (3), Fair (2) or Poor (1). Repeat at S2, S3, S4.

PROMIS-10 Subscales. Two subscales of the PROMIS-10 were created for analyses in this study. The first measure featured physical health and included items 1 through 5 from above and the second summary measures included items 6 through 10. A factor analysis using the Principal Components method of extraction and correlated factors procedure was performed that specified a two-factor model. The results of this analysis confirmed the utility of these two scales. Two factors accounted for 58% of the variance and had Eigenvalues of 4.66 and 1.12. The two factors each had five items that loaded at between .45 and .85 on the appropriate factor and to a much lower degree on the other factor. As expected, the Physical Health and Mental Health scales were significantly correlated $r = .64$ with each other ($p < .001$). Both new measures and a total 10-item combined scale all had good internal reliability: The Physical Health Scale ($\alpha = .80$); Mental Health Scale ($\alpha = .80$); Total Scale ($\alpha = .86$).

Nuisance Physical Health. We also included a self-report measure, designed for the study, of nuisance or minor health issues, which are often associated with stress. Single-item: *During the past 4 weeks, how often have you been bothered by any of the following: the flu, a*

cold, headaches, sore throat, or stomach aches? (Please select the best answer). A 5-point response scale of: None (1); A little (2); Some of the time (3); Most of the time (4); and All of the time (5). Repeat Baseline at S3 and S4. S2 used the revised time frame recall period: “Since beginning to work with the health coach/counselor,”

Personal Life Concerns. Personal life concerns commonly reported by users of EAP counseling services were assessed with the question asked: *In the past 4 weeks, how concerned were you about:*, followed by a list of these seven items: (a) *family, relationships, or friendships;* (b) *legal issues;* (c) *money or financial issues;* (d) *stress or anxiety;* (e) *housing or transportation;* (f) *child care;* and (g) *caring for aging relatives.* Each item had the same 5-point response scale = Not concerned (1), Somewhat concerned (2), Moderately concerned (3), Very concerned (4) and Extremely concerned (5). These seven items were analyzed separately. The items were adapted from past research in EAP and workplace mental health services (Attridge, 2000).

Work Performance. Several aspects of work performance were assessed, including work absence, work presenteeism and work productivity level. Work absence hours and work productivity level were included because they can directly inform the economic analysis of workplace savings from the study interventions. The hours of work absence and work performance are combined into a single metric of lost productive time (called LPT; see Stewart et al, 2003, American Productivity Audit studies).

Work Focus (Presenteeism). The level of focus while at work was measured by the single-item presenteeism question from the Workplace Outcome Suite (Lennox, Sharar, Schmitz, Goehner, 2010; Sharar & Lennox, 2014). A single-item: *During the past 4 weeks, how often did health issues or dealing with life problems (such as the above list of concerns) keep you from*

focusing fully on your work or daily tasks? With response options of: (1) None, (2) A little; (3) Some of the time; (4) Most of the time; and (5) All of the time. S1, S3 and S4. S2 = adapted time frame for recall period: If you work, since beginning to work with the health coach/counselor, [same response options as S1].

Work Absence. Hours of work absence were measured by the single-item absenteeism question from the Workplace Outcome Suite (Lennox, Sharar, Schmitz, Goehner, 2010; Sharar & Lennox, 2014). A single-item: *If you work, **during the past 4 weeks**, how often did health issues or dealing with life problems (such as the above list of concerns) cause you to be late to work, to leave work early or to miss a full day of work? Please fill in the total number of work hours missed: (use a whole number, i.e., 5 - enter 999 if do not work or missing data): _____.* S1, S3 and S4. S2 = adapted time frame for recall period: *If you work, since beginning to work with the health coach/counselor,*[same response options as S1]. This measure is scored by using the number of hours provided for Survey 1, 3, and 4 but converting S2 data to a standard 4-week period used in the other surveys (based on number of weeks between case open date and case last session date).

Work Productivity. A single-item was adapted for this study that is similar to the job performance single-item from the World Health Organization's Health and Productivity Questionnaire (HPQ; Kessler et al., 2003). Single-item: *During the past 4 weeks, how would you rate your overall ability to perform daily tasks and be productive at work or home given any life issues that may have impacted your focus or motivation? Please use the rating scale of 0 to 10, where 0 is the worst performance and 10 is the top performance = 0 1 2 3 4 5 6 7 8 9 10.* S1, S3 and S4. S2 = adapted time frame for recall period: *If you work, since beginning to work with the health coach/counselor, ...* [same response options as S1]. This item is scored by multiplying

the 0-10 rating by 10 to yield a 0-100% range rating for work performance (0 = 0; 1 = 10%, 2 = 20% and so on up to 10 = 100%). The difference from 100% can be converted to the number of work hours of unproductivity and how much this changes after use of EAP. For example, a full-time worker who has a typical 8-hour day for 5 days a week has 160 total possible work hours in a month. A rating of 80% for this worker would indicate 128 hours of productive work time (80% x 160) and 32 hours of unproductive time during scheduled work (20% x 160). The rating at case open S1 was compared to the same items asked at case close S2 and again at the follow-up surveys S3 and S4. This percentage of productive time is applied to the hours actually worked in the past 4 weeks after removing from the total work schedule the hours of missed work from employee absence.

This HPQ job performance item has been used in several large-scale research studies of depressed employees with scores on this item are typically in the high 70% to 80% range (Frey, Osten, Berglund, Jinnett, & Ko, 2015; Kessler et al, 2004). A similar 1-10 work productivity/job performance rating single-item measure has benchmarking data available from a national EAP with data from over 27,000 retrospective follow-up surveys (Optum EAP – Attridge, 2004). Most EAP cases in this study who had with a positive change in their level of work performance started with a rating of 4 or 5 before the EAP and rebounded to a rating of 8 or 9 after use of EAP. A small literature has established the validity of these kinds of self-report measures of work performance (Kessler et al., 2003, 2004; Jenkins, 2014).

Final Comment. An optional final comment was included in the S3 and S4 follow-up surveys. Single-item: *Do you have any comments about your experience with the health coach/counselor and how it has improved your situation or your health? _____.*

DATA MANAGEMENT & ANALYTIC STRATEGY

Data Collection Summary and Evaluation Final Sample

Inclusion criteria for the evaluation sample involved having completed both the first survey at case open and any one (or more) of the three other surveys (i.e., at the end of case, at the 3-month follow-up or at the 6-month follow-up). A total of 150 cases were included in the evaluation sample. Of these 150, 120 were from the Northern Counties Health Care (NCHC) project site and 30 from the King Arthur Flour (KAF) project site. Relevant to our research questions, only 42 of the 150 cases complete surveys for each of the four time points. Many of our participants at NCHC lacked adequate transportation, computer access and had other life challenges that posed barriers to the successful completion of all of surveys. Although it provides the best data to conduct tests of change over time and maintenance of improvement after counseling, using only this small sample size was unrealistic for use in conducting a comprehensive evaluation of the project.

Table 1

Methodological Characteristics of Study: Number of Cases and Timing of Data Collection

	NCHC	KAF	Total	Difference Test
Number of Cases				
Time 1 – Start of Case	120	30	150	
Time 1 & Time 2 – End of Case	84	29	113	
Time 1 & Time 3 – Follow-up at 3-Months	85	26	111	
Time 1 & Time 4 – Follow-up at 6-Months	49	16	65	
Time 1 & All of T2, T3 & T4	26	15	41	
Time 1 & Any of T2 or T3 or T4	120	30	150	
Number of Months Time Lag				
Number of Months Between T1 & T2 (SD)	3.06 (2.1)	> 2.11 (1.4)	2.86 (2.0)	$t(70_{adj}) = 3.04, p = .01$
range (minimum to maximum)	<1 to 11	<1 to 7.5	<1 to 11	
(If had >1 session)	n = 109	n = 30	n = 119	
Number of Months Between T2 & T3 (SD)	3.75 (1.0)	3.28 (0.6)	3.76 (1.0)	<i>ns</i>
range (minimum to maximum) Goal = 3	1 to 6	3 to 5	1 to 6	
	n = 68	n = 26	n = 71	
Number of Months Between T2 & T4 (SD)	7.06 (1.4)	6.56 (0.8)	6.95 (1.3)	<i>ns</i>
range (minimum to maximum) Goal = 6	5 to 11	6 to 9	5 to 11	
	n = 49	n = 16	n = 64	

We also explored how many cases represented different pairings surveys completed at the four time points in the study design (see Table 1). The first pairing of having completed both the case open and case close surveys had 113 total cases. This group offers a test of the change from case open to case close at results of change in outcomes immediately after receiving the counseling intervention. A second pairing of completed surveys at both the case close and the first follow-up at 3-months had 89 total cases. This pairing offers a test of the question of if the changes in outcome measures observed from the first pair could then be maintained over the next 3 months after the end of treatment. The third pairing of completed surveys at both follow-ups at 3-months and at 6-months had just 49 total cases. This pairing offers a test of the question of if the changes in outcome measures that were maintained during the 3 months after the end of treatment also were maintained even longer to 6-months after the intervention. This approach was used to test for change over time and for maintenance over time after counseling for the depression outcome measure.

Estimated Missing Data. To maximize the statistical power of a larger sample size to detect possible changes over time, we employed a standard analytic methodology in which the data from each case that was available at the case close, at the 3-month follow-up and at the 6-month follow-up were used to calculate the average score within each person (Schafer & Olson, 1998). Thus, new within-person average scores were created for all 150 cases in the study for each of the outcome measures. This step allowed us to conduct tests of the counseling impact using the full sample of all 150 cases and using the real data from each person without resorting to more biased options of estimation of missing end of case or missing follow-up data from their own data on the same measure from one or more the other time points (T2, T3, T4) or from an estimation derived from the study sample mean scores for that time period across the other

participants in the study. A final step was needed operationally to create the maximum sample size of 150 cases for conducting paired tests of changes in outcomes from before treatment compared to after treatment (using the new metrics of the within-person average of T2, T3, T4 survey data). This last step concerned when the case open data was missing and thus had to be estimated for a small number of cases for certain measures (as not all outcome measures had been initially included in the first survey at case open – if the outcome did not match their clinical issue - and in other cases the items simply were not answered and left blank). In these instances, the average study change in the total sample (as a percentage – the difference from S1 – S2 divided by S1) from case open to the case close survey was applied to the actual score at case close for the specific individual to estimate their case open scores.

Data Collection Timing Validation. The planned interval of time between each of the four surveys was examined in the evaluation sample. The bottom part of Table 1 shows the data on the number of months between different time points. The period of time between case open and case close was initially unknown – as it depended entirely on the clinical needs of the client and his/her interest in participating in as many counseling sessions as were necessary to properly address the particular issue involved. The availability of the counselor to have open appointments at the community clinic or the worksite also varied with the caseload of the total number of active clients at any particular month during the study period.

The time period between the case open and case close surveys averaged 2.86 months for the total sample. This was significantly longer in the NCHC group than in the KAF group ($M = 3.06$ vs. 2.11 , respectively, $t = 3.04$, $p < .01$). The range for this period was from only 1 month to 11 total months of elapsed time between the first session and all of the counseling sessions. Both

project sites had a wide range of the number of total months of counseling, with NCHC having 1 to 11 months and KAF having from 1 to 9 months.

The time period between the case close and the first follow-up surveys was planned at 3 months and the actual data averaged 3.76 months for the total sample. This period was similar in the NCHC site and the KAF site ($M = 3.75$ vs. 3.28 , respectively). The range for this period was from only 1 month to 6 total months of elapsed time between the final session and the first follow-up survey. Both project sites had a wide range of the number of total months for this period, with NCHC having 1 to 6 months and KAF having from 3 to 5 months.

The time period between the case close and the second follow-up surveys was planned at 6 months and the actual data averaged 6.95 months for the total sample (or $M = 3.19$ months after the first follow-up survey). This period was similar in the NCHC site and the KAF site ($M = 7.06$ vs. 6.56 , respectively). The range for this period was from 5 to 11 total months of elapsed time between the end of counseling and the second follow-up survey. Both project sites had a wide range of this period, with NCHC having 5 to 11 months after case close and KAF having from 6 to 9 months after case close.

To review, the intended timing intervals between the four data collection opportunities was largely achieved, at least on average in the study sample and to a similar degree within both the project sites. The only difference was that the period of counseling was about 3 months long in the NHCH group compared to about 2 months long in the KAF group. After the counseling concluded, the two follow-up surveys were completed at 4 and at 7 months later. Thus, for the typical study participant the entire course of the study took a total of about 10 months with the counseling experience taking about 3 months, the first follow-up at 4 months later and the final follow-up after another 3 months.

The Intervention Experience

Several aspects of the counseling process were also measured. This data is presented in Table 2 and provides a profile of what happened during the clinical experience for the study sample.

Table 2

Intervention Characteristics of Study: Clinical Experience with the EAP Counselors

	NCHC	KAF	Total	Difference Test
Sessions Per Case – <i>n</i> (%)				
Only 1 Session	11 (9%)	0	10 (7%)	<i>ns</i>
2 or More Sessions	110 (91%)	30 (100%)	140 (93%)	
Number of Sessions Per Case – Mean (SD)				
range (minimum to maximum)	4.15 (2.1) 1 to 10	4.21 (1.9) 2 to 9	4.16 (2.1) 1 to 10	<i>ns</i>
Session Time Duration Per Case (All Sessions)				
15 Minutes or less	4%	0%	2%	<i>ns</i>
30 Minutes	60%	47%	57%	
45 Minutes	23%	33%	25%	
60 Minutes or more	13%	17%	14%	
Estimated Number of Minutes (<i>Mean</i>)	36.9 (11.6)	40.3 (11.4)	36.9 (11.6)	<i>ns</i>
Total Clinical Contact Hours – Mean (SD)				
range (minimum to maximum) (# sessions X avg. # minutes per session)	2.63 (1.8) 0.4 to 8.0	3.16 (2.0) 1.0 to 8.0	2.74 (2.7) 0.4 to 8.0	<i>ns</i>
Primary Clinical Issue				
	<i>n</i> = 120	<i>n</i> = 30	<i>n</i> = 150	$\chi^2(4) = 58.78, p < .001$
Depression	69 (58%)	> 5 (17%)	74 (49%)	
Smoking	25 (18%)	> 1 (3%)	26 (17%)	
Drinking (Alcohol problem)	12 (10%)	> 3 (10%)	15 (10%)	
Diet Nutrition / Exercise	8 (7%)	< 20 (67%)	28 (19%)	
Drug Use	0	0	0	
Other	6 (3%)	1 (3%)	7 (2%)	

Counseling Sessions. The average number of counseling sessions provided per case was 4.16, with a range of 1 (only 7% of cases) to a high of 10 sessions. This means that clinical contact usually occurred about once every 3 weeks (considering the typical case lasted a total of 11.4 weeks). The average amount of time spent within each session ranged from less than 15 minutes (2% of cases), to half an hour (57%), to 45 minutes (25%), and the full hour-long appointment (14%). The typical case experienced 37 minutes of therapy time per each session. When the average number of total sessions was multiplied by the average number of minutes per session, the result was 2.74 hours (164 minutes) of total contact time per case. This represents a clinical “dosage” measure for use in exploring if clinical contact time was associated with outcomes. None of these variables measuring the number of sessions, length of time per session, or the total clinical contact time differed between the two project sites.

Primary Clinical Issue. Table 2 also presents the primary clinical issue selected by the client to focus on during the course of counseling. The designation of primary issue was inconsistent for some cases in the data from what was reported at the first session, at the close of case and on the follow-up surveys. That’s because participants at times changed the issue they wished to focus on. When such a discrepancy occurred, the final coding for issue type was made using the issue specified at the end of the case, as this point was closest in time to what had actually been happening during the clinical sessions. Among the 150 cases in the total sample, the most common issue was depression, which accounted for almost half of all cases (49% of the sample), followed by smoking cessation (17%), diet/nutrition or exercise (19%), drinking (10%), and Other (2%). No one selected drug use as the *primary* issue for counseling. This primary issue variable was used later in testing some of the results to explore if a primary outcome that

was matched to the issue had a stronger result among those cases who had that same issue as their primary focus during the counseling.

There were substantial differences in the mix of the clinical topics represented between the two project sites ($X^2[4] = 58.78, p < .001$). Among the 120 cases from the NCHC site, the most common issue by far was depression, which accounted for more cases (at 58% of the group) than all of the other issues combined: smoking cessation (18%), drinking (10%), diet/nutrition or exercise (7%) and Other (3%). The 30 cases in the KAF site had a very different profile, as establishing a healthy diet/nutrition or getting more physical exercise was the most common issue (67%), which was more popular than all of the other issues combined: depression (17%), drinking (10%), smoking cessation (3%), and Other (3%). These differences are in part attributable to the different demographic characteristics of these two populations and in part are a manifestation of how we promoted the program at KAF (as an opportunity to improve one's health and wellbeing).

As the counselors used a style of treatment that emphasized Motivational Interviewing techniques, the nature of the counseling provided contained common therapeutic action elements across the different clinical content issues of the different individual cases. Thus, the expectation was that outcomes could be achieved for both the primary clinical topic measure that matched up with clinical issue and also in the other outcome measures too. Supporting this expectation is the well-documented fact of some degree comorbidity existing between different mental and physical health issues in up to half of the general population, such that they occur together for the same person. In our data the PROMIS mental health and physical health subscales, for example, were highly correlated with each other. In addition, the data in the study sample revealed a similar pattern of many cases having multiple risks or "dual problems." When assigned a status

of “at-risk” (1) or “not at-risk” (0) for each of the primary outcome measures linked conceptually to the six primary clinical issues (based on the cut-off scores on each measure), the typical client had 3 different areas of risk.

Comparison of Project Sites at Baseline

Before conducting tests of changes in outcomes over time, the two project sites were first compared for possible differences in the individual background characteristics and the outcome measures at case open. These comparisons are listed in Table 3.

Table 3

Characteristics of Sample: Demographic Factors By Project Site

	NCHC	KAF	Total	Difference Test
Sex	<i>n</i> = 120	<i>n</i> = 30	<i>n</i> = 150	<i>ns</i>
Female – count (%)	87 (73%)	25 (83%)	112 (75%)	
Male	33 (27%)	5 (17%)	38 (25%)	
Race	<i>n</i> = 120	<i>n</i> = 30	<i>n</i> = 149	<i>ns</i>
White – count (%)	113 (94%)	30 (100%)	143 (95%)	
Asian	1 (1%)	-	1 (<1%)	
Black	1 (1%)	-	1 (<1%)	
Native American	2 (2%)	-	2 (1%)	
Other	3 (3%)	-	3 (2%)	
Household Income Level Annual	<i>n</i> = 120	<i>n</i> = 30	<i>n</i> = 150	$X^2 = 62.73, p < .001$
< \$25,000 (est. 15.0k)	79 (66%)	> 0	79 (53%)	
\$25,000 to \$34,999 (est. 30.0k)	14 (12%)	> 2 (7%)	16 (11%)	
\$35,000 to \$49,999 (est. 42.5k)	13 (11%)	< 5 (17%)	18 (12%)	
\$50,000 to \$74,999 (est. 62.5k)	10 (8%)	< 14 (47%)	24 (15%)	
\$75,000 or more (est. 85.0k)	4 (3%)	< 9 (30%)	13 (9%)	
Estimated Average	\$26,021	< \$63,750	\$33,567	$t(148) = 10.14, p < .001$
Household Living Arrangement	<i>n</i> = 120	<i>n</i> = 30	<i>n</i> = 150	<i>ns</i>
Married without children	29 (24%)	12 (40%)	41 (27%)	
Married with children	29 (24%)	12 (40%)	41 (27%)	
Single without children	30 (25%)	5 (17%)	35 (23%)	
Single with children	18 (15%)	1 (3%)	19 (13%)	
Other without children	11 (9%)	0	11 (7%)	
Other with children	3 (3%)	0	3 (2%)	

Table 3 - Continued

Characteristics of Sample: Demographic Factors By Project Site

	NCHC	KAF	Total	Difference Test
Marital Status	<i>n</i> = 120	<i>n</i> = 30	<i>n</i> = 150	<i>p</i> < .001
Married	48%	< 80%	55%	
Not married	52%	> 20%	45%	
Parent Status	<i>n</i> = 120	<i>n</i> = 30	<i>n</i> = 150	<i>ns</i>
Children live at home	42%	43%	42%	
No children	48%	47%	48%	
Age (Years)	<i>n</i> = 120	<i>n</i> = 30	<i>n</i> = 150	<i>ns</i>
18 to 34 years (est. 26)	32 (27%)	5 (17%)	37 (25%)	
35 to 54 years (est. 45)	48 (40%)	16 (53%)	64 (43%)	
55 to 64 years (est. 60)	29 (24%)	7 (23%)	36 (24%)	
65 or more years (est. 70)	11 (9%)	2 (7%)	13 (9%)	
Estimated Average	45.85	47.00	46.08	<i>ns</i>

The people from the two project sites were similar on some factors and were different on other important characteristics. The community clinic and the private employer groups were similar on demographic characteristics of sex (both about three-fourths female), age (an average age 46 or 47 years), race (both almost all White race), and having children living at home (both sites about 42%). But the two locations differed on factors of marital status (KAF 80% married vs. 48% in NCHC) and annual household income (KAF about three times as high as NCHC: approximately \$64,000 vs. \$26,000, respectively). However, given the income question asked for household income, having more people in the KAF group being married and thus with spouses who could contribute additional income to the household it makes sense to find KAF site was higher in joint income level as well. Another dramatic difference was that all of the 30 cases in the KAF site were employed, whereas only 46 of the 120 (38%) in the community clinical sample were employed (this was determined by if the person answered the item on absence from work or indicated it was not applicable). Overall, the community sample was much less healthy and lower functioning, compared to the employer sample, on almost all of primary measures and secondary outcomes measures used in the study (see Tables 3, 4 and 5). This profile difference is also evident in the mix of health problems selected by clients for emphasis during the clinical sessions (see Table 2). The majority of the employer sample was interested in better nutrition and exercise with fewer KAF cases trying to get help for mental health or addiction issues. The opposite pattern of primary issues was evident among the community clinic sample – which was mostly concerned with depression, smoking and drinking problems.

Table 4

Characteristics of Sample: Primary Outcomes at Baseline Time 1 By Project Site

	NCHC		KAF	Total	Difference Test
Primary Outcomes - Specific Clinical Issues	<i>n</i> = 120		<i>n</i> = 30	<i>n</i> = 150	
Healthy Eating (1-4)	2.31 (0.89)	<	2.67 (0.86)	2.38 (0.90)	p < .05 KAF healthier
Physical Exercise (2-8)	3.64 (1.73)	<	4.45 (1.81)	3.80 (1.77)	p < .05 KAF healthier
Depression (PHQ-9) (0-27)	12.47 (6.56)	>	6.77 (3.50)	11.33 (6.48)	p < .001 KAF healthier
Stress (1-5)	3.34 (1.10)	<	2.87 (1.07)	3.25 (1.11)	p < .05 KAF healthier
Smoking (Cigarettes per Month)	164 (319)	>	50 (201)	141 (302)	p < .10 KAF healthier
Hazardous Drinking (Days Month)	2.80 (1.27)	<	3.17 (1.06)	2.87 (1.23)	p < .001 KAF healthier
Drug Use (Days per Month)	4.08 (9.31)		1.27 (5.52)	3.52 (8.71)	ns
At-Risk for Above Measures:					
Healthy Eating (Cases Risk Status)	88%		83%	87%	ns
Physical Exercise (Cases Risk Status)	84%	>	70%	81%	p < .10 KAF healthier
Depression (Cases Risk Status)	58%	>	20%	50%	p < .10 KAF healthier
Stress (Cases Risk Status)	51%	>	23%	45%	p < .001 KAF healthier
Smoking (Cases Smoker Status)	48%	>	7%	39%	p < .001 KAF healthier
Hazardous Drinking (Cases User Status)	33%	>	20%	31%	p < .10 KAF healthier
Drug Use (Cases User Status)	24%	>	10%	21%	p < .10 KAF healthier
At-Risk Total (sum of 7 risks) (Mean SD)	3.85 (1.27)	>	2.33 (1.24)	3.55 (1.26)	p < .001 KAF healthier

Table 5

Characteristics of Sample: Secondary Outcomes at Baseline Time 1 By Project Site

	NCHC		KAF	Total	Difference Test
PROMIS – General Health	<i>n</i> = 120		<i>n</i> = 30	<i>n</i> = 148	
Mental Health Subscale (5-items; 5-25 score range; $\alpha = .80$)	12.46 (3.89)	<	17.63 (3.03)	13.51 (4.30)	$p < .001$ KAF healthier
Q2 – Quality of Life	2.64 (0.95)	<	3.70 (0.79)	2.86 (1.01)	$p < .001$ KAF healthier
Q4 – Mental Health	2.43 (1.05)	<	3.23 (0.86)	2.59 (1.06)	$p < .001$ KAF healthier
Q5 – Satisfaction with Social Life	2.44 (1.02)	<	3.57 (0.82)	2.67 (1.08)	$p < .001$ KAF healthier
Q9 – Carryout Social Life	2.77 (1.00)	<	3.63 (0.77)	2.95 (1.02)	$p < .001$ KAF healthier
Q10 – Emotional Problems (reversed)	2.80 (1.27)	<	3.17 (1.06)	2.87 (1.23)	$p < .001$ KAF healthier
Physical Health Subscale (5-items; 5-25 score range; $\alpha = .79$)	14.75 (3.93)	<	18.17 (2.93)	15.45 (3.99)	$p < .001$ KAF healthier
Q1 – General Health Status	2.61 (0.91)	<	3.13 (0.73)	2.72 (0.90)	$p < .001$ KAF healthier
Q3 – Physical Health	2.34 (0.98)	<	2.83 (0.87)	2.44 (0.98)	$p < .001$ KAF healthier
Q7 – Carryout Physical Tasks	3.47 (1.25)	<	4.47 (0.97)	3.68 (1.26)	$p < .001$ KAF healthier
Q9 – Fatigue (reversed)	2.82 (0.84)	<	3.33 (0.76)	2.93 (0.85)	$p < .001$ KAF healthier
Q10 – Pain (re-scored 1-5; reversed)	3.46 (0.98)	<	4.40 (0.97)	3.65 (1.30)	$p < .001$ KAF healthier
Total Scale (10-items; 10-50 score range; $\alpha = .86$)	27.16 (6.89)	<	35.80 (5.31)	28.91 (7.45)	$p < .001$ KAF healthier
note: higher scores indicate better health					
Nuisance Health (1-5 higher = unhealthy)	2.62 (1.22)	>	2.13 (1.22)	3.65 (1.30)	$p < .001$ KAF healthier

Table 5 - Continued

Characteristics of Sample: Secondary Outcomes at Baseline Time 1 By Project Site

	NCHC		KAF	Total	Difference Test
Personal Life Concerns	<i>n</i> = 120		<i>n</i> = 30	<i>n</i> = 150	
Stress	3.34 (1.10)	>	2.87 (1.07)	3.25 (1.11)	<i>t</i> (149) = 2.12; <i>p</i> < .05
Money	2.98 (1.15)	>	2.30 (1.32)	2.85 (1.21)	<i>t</i> (149) = 2.82; <i>p</i> < .01
Relationships / Family	2.85 (1.31)	>	2.10 (1.13)	2.70 (1.30)	<i>t</i> (149) = 2.89; <i>p</i> < .01
Housing	2.07 (1.21)	>	1.27 (0.64)	1.91 (1.17)	<i>t</i> (149) = 3.48; <i>p</i> < .001
Legal	1.84 (1.23)	>	1.20 (0.61)	1.71 (1.21)	<i>t</i> (149) = 2.66; <i>p</i> < .01
Elder Care	1.68 (1.19)		1.87 (1.36)	1.71 (1.22)	<i>ns</i>
Child Care	1.33 (0.90)		1.23 (0.77)	1.31 (0.87)	<i>ns</i>
Total Scale (7-items; 7-35 score range; $\alpha = .76$)	16.09 (5.29)	>	12.83 (3.79)	15.44 (5.18)	<i>t</i> (149) = 3.17; <i>p</i> < .01

note: higher scores indicate greater concern.

Work Functioning (Employed Only)	<i>n</i> = 46		<i>n</i> = 30	<i>n</i> = 76	
Productive at Work (0-10 rating)	5.46 (2.07)	<	7.20 (2.02)	6.14 (2.21)	<i>t</i> (75) = -3.16; <i>p</i> < .01
Work Absence (Hours per month)	11.22 (22.35)	>	1.23 (3.48)	7.28 (18.14)	<i>t</i> (75) = 2.42; <i>p</i> < .05
Unproductive Work Time (Hours per month)	65.51 (28.46)	>	44.11 (30.88)	57.06 (31.09)	<i>t</i> (75) = 3.10; <i>p</i> < .01
Lost Productive Time – combined absence hours and unproductive hours	76.73 (35.46)	>	45.34 (32.61)	64.34 (37.47)	<i>t</i> (75) = 3.89; <i>p</i> < .01

NOTE: KAF healthier than NCHC in all tests that were significant

Implications for Analysis. Despite these differences in the backgrounds, level of risk factors, and therapeutic focus during the intervention period with the counselor, the counseling activity itself was quite similar (see Table 2). In addition, the tests of most of the outcomes for change over time also had few interaction effects for time and project site – which indicated that even though the two groups often differed substantially at baseline on the many health outcome measures, the percentage or magnitude of improvement in health and work outcomes was similar. In other words, both project sites had a similar pattern of the degree of change over time after the counseling on most of the outcomes. A challenge methodologically for even conducting tests of outcomes using project site as a between subjects factor was small sample size for KAF. Having only 30 people from the employer site prevented project site as a variable (NCHC =1 and KAF = 2) to be included directly in the statistical tests, as number of relevant case were reduced even further when establishing the risk only subgroups needed for tests of change in the primary outcomes. All of the data from both project sites are included in the analyses, but having so few cases violated the convention of needing a minimum of 30 cases in each group to conduct valid tests of possible between group differences on outcomes. Indeed, some of the risk group only analyses were conducted mostly with participants from the community sample (i.e., outcomes of smoking, drinking, and drug use each had less than 10% of cases from the KAF site).

Statistical Effect Sizes. The magnitude of a finding is measured not only by if it reaches a level of statistical significance beyond what would be expected due only to change probabilities (such as the result was expected to occurred simply due to chance in only 1 in 100 repeated testing instances = $p < .01$ level result). But significance is affected by the sample size as well as how big a difference there is between groups or between repeated time periods. As

our study sample is small at 150 people and even less for certain analyses involving subsamples, it is wise to also consider what is called the statistical “effect size” for a result. Effect sizes are a single numerical score – a Cohen *d* statistic – that can range from zero to over 2.0. These can be compared across different findings and sample sizes. Based on the work of Cohen (1988) and Sawilowsky (2009), the conventional categories for judging the relative strength of different effect sizes are as follows: $< .20$ = very small; $.20$ to $.49$ = small; $.50$ to $.79$ = medium; $.80$ to 1.19 = large; 1.20 to 1.99 = very large; and > 2.00 = huge.

RESULTS

Results –Quantitative Data Analyses

The longitudinal change in outcomes was tested in two sets of the outcome measures. The first set included all of the outcomes that had cost savings implications and used scoring cut-offs to identify the portion of the sample who was at *high risk* compared to those below the clinical threshold cut off and who were thus designated a status of not at risk. The next set of tests compared change over time in all of the cases in the study sample (not separated into risk or not at risk groups) on the secondary outcome measures. These outcomes included: 1) global health measures (PROMIS total and for mental health and physical health, nuisance health); 2) personal life concerns (family/relationships, money, legal, housing, childcare, and eldercare); and 3) level of function for performing work and daily tasks (presenteeism level, work absence hours, work productivity, and a combined metric of lost productive time). All of the statistical comparisons were conducted using a two-part repeated measures approach with a pre and post design. The Before Counseling data was compared to the same person's After Counseling data (created from an mathematical within-person average of their available data from S2, S3, S4).

Part1: Results for Primary Outcomes

Change over time was then tested separately on each of the primary outcomes only within the subgroup in the study sample who was *at risk at baseline*. These outcomes included: 1) the behavioral health lifestyle management outcomes of healthy eating (nutrition from regular diet of vegetables and fruits) and getting enough regular moderate and vigorous physical exercise; 2) the mental health measures of depression and stress/anxiety; and 3) the addiction-related measures of smoking, hazardous binge drinking, and drug use.

Risk Profile of Total Sample. At Time 1, the most common responses were of eating servings of fruits and vegetables only 2 or 3 days a week. When considering anything less than 6 days a week as a cut off criteria for risk, almost 9 in every 10 people in the sample did not have healthy eating. Thus, poor nutritional habits were the most common risk factor in the total sample, at 87% of the cases being at risk. Lack of frequent physical exercise was the next most common health risk at 81% of cases. Next were the two mental health risk factors of depression (50%) and high stress/anxiety (45%). The most common PHQ-9 scores were in the 10-14 score range, which indicated a moderate level of depression for most people in the study. When considering a PHQ-9 score of 11 or higher as a cutoff for risk, half of the sample had elevated depression risk when they started the counseling. The high rate for depression risk may be due in part to the sample being three-fourths female and, in general, women tending to have higher prevalence rates for depression than men. The addiction related outcomes also were at elevated levels in the study sample, with 39% being smokers, 31% hazardous drinkers, and 21% drug users. Each one of the risks are represented at higher rates in this study than what is found in most other large scale normative population studies (Nyce, et al., 2012; Goetzl, Pei, Tabrizi, et al., 2012; O'Donnell, Schultz, & Yes, 2012). The study was characterized by high incidence rates of all seven of the risk factors examined. This context provided sufficient sample sizes to conduct the tests of interest.

For the seven risk areas, a composite score was created that added together the individual risk status scores (0 = not at risk or 1 = at risk). For the total sample at the start of the study, the range on this risk total score was 0 to 7, with a mean average of 3.55. The median was 3, indicating that the typical case in the study sample had 3 different kinds of health risks. The distribution of number of total risks included: 0 risks = 1 person or <1%; 1 risk = 6%; 2 risks =

15%; 3 risks = 29%; 4 risks = 23%; 5 risks = 17%; 6 risks = 7%; and all 7 risks = 2 people or 1.3%. This result reflects the high degree of comorbidity of different risk factors. A finding that is noted in many other health studies. It also underscores the relevancy of our including measures from several different domains for inclusion in the study.

Results for Healthy Eating Risk – At Risk Group. Counseling interventions resulted in statistically significant improvements in healthy eating behavior from pre- to post-treatment. Improvement of eating healthy over time after counseling was tested with a sample of 131 of 150 total cases who were high in risk for healthy eating (106 cases from NCHC and 25 cases from KAF). As expected, scores were positively correlated over time indicating some consistency over time within person in their eating habits (paired $r = .37, p < .05$). We observed a 16% average increase over time in the mean scores for healthy eating and this was statistically significant and represented a “small” effect size ($d = .46$; see Table 6).

Table 6

Change Over Time Results for Cases At Risk on Primary Outcomes with Health Care Cost Implications

Outcome	Measure	At Risk Status			Before EAP	After EAP	Change	Statistical Test of Change	
		Risk Criteria	%	<i>n</i> of cases	Mean (SD)	Mean (SD)	%	Paired <i>t</i> -test of difference	Effect Size <i>d</i>
Higher scores indicate better health: Goal to increase scores									
HEALTHY LIFESTYLE OUTCOMES									
Healthy Eating	Rating (range 1-4)	Score < 4	87%	131	2.14 (0.69)	2.48 (0.78)	16% Better	$t(130) = -4.24, p < .001$ (paired $r = .37$)	.46 Small
Physical Exercise	Rating (range 2-8)	Score < 6	81%	122	3.10 (1.02)	4.28 (1.67)	38% Better	$t(121) = -7.76, p < .001$ (paired $r = .30$)	.83 Large
Lower scores indicate better health: Goal to decrease scores and reduce risk									
MENTAL HEALTH OUTCOMES									
Depression	Symptoms on PHQ-9 (range 0-27)	Score > 10	50%	75	16.57 (4.66)	8.26 (6.10)	50% Better	$t(74) = 11.49, p < .001$ (paired $r = .30$)	1.51 Very Large
Stress	Rating (1-5)	Score > 3	45%	68	4.26 (0.44)	2.98 (1.04)	30% Better	$t(67) = 9.28, p < .001$ (paired $r = -.02$)	1.56 Very Large
ADDICTION-RELATED OUTCOMES									
Smoking	Cigarettes smoked past month	Score > 0	39%	59	359 (394)	247 (282)	31% Better	$t(58) = 1.88, p = .08$ (paired $r = .11$)	.33 Small
Hazardous Drinking	Binge drinking days past month	Score > 0	31%	46	7.62 (9.34)	5.04 (7.71)	34% Better	$t(45) = 2.45, p < .01$ (paired $r = .66$)	.30 Small
Drug Use	Drug use days past month	Score > 0	21%	32	16.50 (12.09)	11.13 (11.39)	33% Better	$t(31) = 2.30, p < .05$ (paired $r = .37$)	.46 Small

Results for Physical Exercise – At Risk Group. Counseling interventions resulted in statistically significant improvements in exercise behavior from pre- to post- treatment. The extent of improvement (or worsening) of exercise over time was tested with a sample of 122 of 150 total cases who were high in risk for insufficient physical exercise (101 cases from NCHC and 21 cases from KAF). As expected, scores were positively correlated over time indicating some consistency within person in their exercise habits (paired $r = .30, p < .05$). There was a 38% average increase in mean scores for exercise habits over time and this was statistically significant and represented a “large” effect size ($d = .83$; see Table 6).

Perceived Progress Over Time Among Those with Eating/Exercise Issue. Those who had a primary clinical issue of Healthy Eating and/or Physical Exercise were asked at the end of counseling and again at each follow-up survey, if they had followed through on a referral from the counselor or made progress on their own since the session(s) with health coach/counselor. Here are the results. Of the 24 cases who answered this item at end of the therapy, 96% indicated that they had either followed through on a referral provided or had made progress on their own, answering “Yes”. Of the 23 cases who answered this item at the 3-month follow-up, 83% said Yes. Of the 12 cases who answered this item at the 6-month follow-up, 83% said Yes. Thus, the vast majority of cases in smaller subgroup this issue reported taking action a referral and/or making progress.

Results for Depression – At Risk Group. Counseling interventions resulted in statistically significant improvements in reported depression from pre- to post-treatment. The repeated measures testing for depression was done on a sample of 75 cases who were at high risk for depression at the start of the study (69 cases from NCHC and 6 cases from KAF). As expected, scores were positively correlated over time indicating some consistency within person

in their level of depression symptoms (paired $r = .30, p < .05$). There was a 50% average reduction over time in mean depression scores and this was statistically significant and represented a “very large” effect size ($d = 1.51$; see Table 6).

Results for High Stress/anxiety – At Risk Group. Counseling interventions resulted in statistically significant improvements in the reduction of stress/anxiety from pre- to post-treatment. The repeated measures testing for stress/anxiety was done in a sample of 68 cases who were at high risk for stress/anxiety at the start of the study (61 cases from NCHC and 7 cases from KAF). The 30% average reduction over time in mean stress/anxiety scores was statistically significant and represented a “very large” effect size ($d = 1.56$; see Table 6). Scores for stress/anxiety were uncorrelated over time indicating a lack of consistency within person in their level of stress/anxiety and also evidence for the substantial degree of within-person change from before to after counseling (i.e., the largest effect size of all the outcomes tested was found for stress/anxiety).

Results for Smokers. Counseling interventions resulted in statistically significant improvements in smoking behavior from pre- to post-treatment. The repeated measures testing for smoking was done in the group of 59 people who reported smoking 1 or more cigarettes at least one of the four surveys (57 cases from NCHC and just 2 cases from KAF). The number of cigarettes smoked was only slightly correlated over time indicating little consistency within person in their smoking behavior (paired $r = .11, ns$). Treatment resulted in a 31% average reduction over time in the number of cigarettes smoked in the past month and this was statistically significant and represented a “small” effect size ($d = .33$; see Table 6).

Among the 28 smokers who also had smoking as their clinical issue ($n = 27$ from the NCHC site and just 1 from the KAF site), the average total number of cigarettes smoked was

reduced from $M = 501$ ($SD = 494$) at before to $M = 205$ ($SD = 269$) at after counseling. This average change in mean scores over time was significant (paired $t[27] = 3.06$, $p < .01$). This 46% improvement in the average number of cigarettes smoked per month after counseling is a medium effect size ($d = .73$). This results is meaningful when considered on a daily basis, as the number of cigarettes smoked changed from 12.0 per day in the month before counseling to 8.2 per day in month after counseling. Furthermore, 4 of 28 cases (14%) reported quitting smoking (or at least reducing use to zero during the later time period) after the counseling.

In stark contrast, among the 31 smokers who did *not* have smoking as their clinical issue ($n = 30$ from the NCHC site and just 1 from the KAF site), the average total number of cigarettes smoked in the past month *increased* slightly from $M = 230$ ($SD = 212$) at before to $M = 284$ ($SD = 293$) at after counseling. This average change in cigarettes smoked was not significant (paired $t[30] = <1$, *ns*). Thus, for those not trying to quite or reduce their level of smoking while they worked on another topic in therapy (i.e., depression = 22 cases; risky drinking = 4; diet/exercise = 3; other = 2), their use of nicotine increased from 7.7 cigarettes smoked per day in the month before counseling to 9.5 cigarettes smoked per day in month after counseling.

Results for At Risk Drinkers. Counseling interventions resulted in statistically significant improvements in drinking behavior from pre- to post-treatment. The repeated measures testing for drinking was done in the subsample of the 46 people who reported one or more binge drinking episodes at before use of counseling (42 cases from NCHC and 4 cases from KAF). The group of drinkers was further split into two subgroups of those who had drinking reduction/cessation as a primary focus for their health coaching/counseling sessions ($n = 15$) and those who had a different clinical issue other than drinking ($n = 31$). Using the total number of drinking episodes per month as the outcome, this count was compared within person

for change from the month before counseling to the month after counseling (as a composite score averaged across the three time points of case close, 3-month follow-up, and 6-month follow-up). As expected, scores were positively correlated over time indicating consistency over time within person in their number of binge drinking days (paired $r = .66, p < .05$). We observed a 34% average decrease over time in binge drinking days per month (2.6 fewer days) after treatment and this was statistically significant and represented a “small” effect size ($d = .30$; see Table 6).

As with smoking, this finding for reduced drinking was stronger when the focus of the counseling was on the issue of drinking. Among the 15 cases who had drinking as their primary clinical issue, the net reduction was 3.5 fewer misuse days per month, compared to the net reduction of 2.5 fewer days among the other 31 at risk drinkers who did *not* have drinking as their clinical issue.

Results for Drug Users. Counseling interventions resulted in statistically significant improvements in drug use behavior from pre- to post-treatment. The repeated measures testing for drug use was done in the subsample of the 32 people who reported one or more drug use days in the month before use of counseling (29 cases from NCHC and 3 cases from KAF). As expected, scores were positively correlated over time indicating some consistency over time within person in their drug use (paired $r = .37, p < .05$). We observed a 33% average decrease over time in drug use days per month (5.3 fewer days) following counseling and this was statistically significant and represented a “small” effect size ($d = .46$; see Table 6).

Summary of Primary Outcomes. All seven of the outcomes examined among those who were at high risk showed significant improvements after counseling. The two outcomes for mental health (depression and stress/anxiety) had the greatest change over time. This makes sense as the intervention of evidenced-based therapy used is well suited to addressing these

mental health problems. Counseling is also relevant to assisting people who struggle with chronic addictions. These two issues were also significantly correlated at baseline ($r = .49, p < .001$), which indicates they reflect some similar symptoms of mental health distress. The comorbidity of depression and stress/anxiety is also commonly found in past research studies. In contrast, the positive impact on eating and exercise behaviors from counseling was hoped for but not expected to be a large size effect (compared to other more wellness directed kinds of “wellness” types of interventions with far more emphasis on nutrition, physical fitness, and lifestyle change rather than on more psychological concepts). So this is not a surprising set of findings, but to yield such a large size effect is important and shows the high potential for replicating this level of success with other similar populations.

The analyses with the addiction related outcomes are, of course, only relevant to testing with at risk cases who demonstrate the problem behaviors that are the target of change. But for the other types of outcomes, it is true that the kind of analytical approach used in this study does provide a greater chance of yielding a decline after the intervention when only cases who are at high risk at the start were included in the test group (rather than the full sample). Yet though they were above the cut off score thresholds, many of the cases in each at risk group were not at the more extreme levels of the problem. Our analytical approach of focusing on tests of change over time among only those initially at risk is also commonly used in other epidemiological research on health behaviors and costs. Furthermore, other tests (not shown here) conducted in the full sample do show statistically significant (but with more modest size) improvements over time for all of the healthy eating and exercising behavior and mental health outcomes.

Special Analyses for Depression

The mental health problem of depression was the most commonly selected clinical issue by the study participants. The analyses in the preceding section conducted on those cases initially at risk for depression yielded a very large effect for improvement after counseling. Thus, the significance of depression to the project merited a more extensive investigation of the data. Other tests were performed using different parts of the data: 1) the total sample (risk and not at risk combined full sample); 2) in three different logical pairings over time that specifically test the major research questions of the project; and 3) examining other factors that influenced the findings for improvement in depression symptoms.

Improvement Over Time for Depression – Adjusted Full Sample. The repeated measures testing for depression was done in the total sample of 150 cases comparing the score at the time before counseling with the composite score for after counseling (averaged across the three time points of case close, 3-month follow-up, and 6-month follow-up). The mean scores for depression were positively correlated over time (paired $r = .53, p < .001$), which demonstrates the overall similarity in the relative ranking of people within the distribution of depression scores at Before Counseling and at within the distribution of depression scores at After Counseling. More importantly, the average change in mean scores over time was significant (paired $t[149] = 11.26, p < .001$). This 48% reduction in the average level of depression symptoms during the period after counseling is a large effect size (Cohen $d = .89$). Expressed another way, the percentage of cases in the total sample at-risk for depression was reduced from 50% to 18% from before to after counseling, resulting in 48 fewer cases of the original 75 high risk cases moving to a lower level of risk. On a standardized basis, this result estimates that 32

out of every 100 counseling cases in this kind of population are changed from high risk to low risk for depression.

Improvement Over Time for Depression – Different Pairs of Surveys. Depression was the most common issue treated for the study sample and is one of the most important outcomes to understand for its larger role in overall health and wellness. Therefore, we also conducted a series of statistical tests using the available data at different pairings of the four time points in the study that represent direct tests of the specific research hypotheses posed for the project. The primary expectation was that the level of depression symptoms would decrease from the start of the counseling to the end of the counseling (Pair 1 of Time 1 and Time 2) and then that this positive effect would be maintained over time, from the end of counseling to the first follow-up (Pair 2 of Time 2 and Time 3) and then also maintained further from the first follow-up to the second follow-up (Pair 3 of Time 3 and Time 4). As noted earlier, however, the specific individual cases are not the same in each of these three tests, as many cases did not provide data at all four of the assessment points.

Start of Case vs. End of Case. The first pairing of measures represented a total of 113 of the 150 cases in the study. The mean scores for depression were positively correlated over time (paired $r = .60, p < .001$). The average level of depression at the start of counseling was above the risk cutoff – at $M = 11.26 (SD = 6.58)$. In contrast, the average level of depression at the end of counseling period was below the risk cut off – at $M = 5.37 (SD = 5.40)$. This change in mean scores over time was significant (paired $t[112] = 11.40, p < .001$). This 52% reduction in the average level of depression symptoms during the period after counseling is a large effect size (Cohen $d = .96$). Thus, the first research hypothesis was strongly confirmed in the results of this

test as such a large difference was obtained in the expected direction of less depression after the counseling treatment.

End of Case vs. First Follow-up. The second pairing of measures at Time 2 and Time 3 represented a total of 77 of the 150 total cases in the study. As expected, the mean scores for depression were positively correlated over time within each client (paired $r = .64, p < .001$). The average level of depression at the end of counseling was, as predicted, very similar to the level of depression three months later at the first follow-up, T2 $M = 5.66$ ($SD = 5.80$) and T3 $M = 5.57$ ($SD = 5.37$). These two mean scores did not differ in the statistical test (paired $t[76] = <1, ns$).

First Follow-up vs. Final Follow-up. The third pairing of measures at Time 3 and Time 4 represented a total of 50 of the 150 total cases in the study. As expected, the mean scores for depression were positively correlated over time within each client for the two follow-up periods (paired $r = .82, p < .001$). The lower level of depression at the 3-month follow-up was, as predicted, similar to the level of depression at the final follow-up, T3 $M = 5.48$ ($SD = 5.61$) and T4 $M = 4.62$ ($SD = 5.55$). The difference between these two mean scores approached significance in the statistical test (paired $t[49] = 1.82, p = .08$), such that the final assessment period had a somewhat lower level of depression than at the 3-month follow-up.

Taken together, this pattern of findings from the three paired tests fully supports the set of core hypotheses of the project. The baseline elevated level of depression was substantially reduced after counseling (symptom severity was cut in half and reduced from an at-risk to not at-risk level for most cases) and this improvement was maintained over both of the follow-up points spanning an additional 6 months of time after the end of the counseling.

Correlates of Improvement Over Time for Depression. Using data from the full sample of 150 cases, the extent of improvement (or worsening) of depression symptoms over time was

calculated as a difference score for each case (i.e., their averaged score after counseling derived from their available depression PHQ-9 data from the surveys at T2, T3, and T4 was subtracted from their PHQ-9 score at baseline before counseling). This difference score variable had a mean of 5.4 ($SD = 5.90$) and ranged from a high of +23.0 to a low of -13.0, representing either a reduction in depression symptoms (a positive score), no change (zero difference) or an increase in depression symptoms (a negative score).

This difference score measure was tested for its association with project site and a variety of other measures, including: demographic factors (age, sex, race, income, married, children at home), general health (PROMIS-10), and clinical experience factors (clinical dosage, clinical closure, clinical duration, clinical issue match = depression). Four of these 12 factors were significantly correlated with improvement over time in depression. Greater improvement in depression occurred more often among cases in the NCHC project site than in the KAF site ($r = -.20, p < .05$), among those with lower household income ($r = -.21, p < .05$), among those in worse general health at baseline ($r = -.33, p < .01$). This set of findings means that improvement in depression occurred to a greater extent among cases who were in worse health and with less financial resources before starting counseling (as the NCHC site was much less healthy on many factors compared to the KAF site and also it had about one-third the income, on average, of the KAF group). However, the extent of the reduction in depression over time that occurred was both statistically significant in both of the project sites and both sites had large size effects (Cohen $d = .98$ for NCHC and $.81$ for KAF). In addition, having a primary clinical issue of depression as the main focus of therapy during the counseling sessions was significantly and positively associated with a greater degree of improvement over time in depression symptoms ($r = .20, p < .05$). Interestingly, the other factors specific to aspects of the duration and total

amount of client-counselor contact time during the counseling phase of the study were not associated with the degree of improvement in depression.

Part 2: Results for Secondary Outcomes

Now we can address our second set of outcome measures. In these analyses, we compared change over time using data from all of the cases in the study sample (not just the at risk subgroups). These outcomes represented other areas of behavioral health represented indirectly in aspects of global physical and mental health, personal life concerns related to other EAP clients, and work performance.

General Health. Counseling interventions resulted in statistically significant improvements in general health as measured by the PROMIS-10 from pre- to post- treatment. The mean scores for the 10-item total index of *global health* were positively correlated over time (paired $r = .59, p < .01$). We observed a 17% average increase over time in mean scores on this measure of general health and this was statistically significant and represented a “medium” effect size ($d = .70$; see Table 7). Each of the subscales for this index was also tested separately. The five items on the physical aspects measured perceived general health status, physical health status, ability to carry out everyday physical activities, pain and fatigue. The mean scores for the PROMIS 5-item index of *physical health* were positively correlated over time (paired $r = .58, p < .01$). The 16% average increase over time in mean scores on this measure was statistically significant and represented a “medium” effect size ($d = .62$; see Table 7). The five items on the mental aspects measured perceived mental health status, emotional distress, ability to carry out social roles and activities, satisfaction with social roles and activities, and overall quality of life. The mean scores for the PROMIS 5-item index of *mental health* were positively correlated over time (paired $r = .52, p < .01$). The 17% average increase over time in mean scores on this

measure was statistical significant and represented a “medium” effect size ($d = .59$; see Table 7).

These results show that both subscales and the combined total scale all had positive and significant improvements after counseling.

Table 7

Change Over Time Results for Total Sample on Secondary Outcomes

Outcome	Measure	Higher Score Indicates:	Before EAP	After EAP	Change	Statistical Test of Change	
			Mean (SD)	Mean (SD)	%	Paired <i>t</i> -test of difference	Effect Size <i>d</i>
GENERAL HEALTH MEASURES							
Global Health - General	PROMIS-10 Total (range 10-50)	Healthy	28.77 (7.56)	33.71 (6.32)	17% Better	$t(149) = -9.50, p < .001$ (paired $r = .59$)	.70 Medium
Global Health - Physical	PROMIS-5 Physical (range 5-25)	Healthy	15.35 (4.05)	17.87 (4.04)	16% Better	$t(149) = -8.34, p < .001$ (paired $r = .58$)	.62 Medium
Global Health - Mental	PROMIS-5 Mental (range 5-25)	Healthy	13.46 (4.29)	15.79 (3.56)	17% Better	$t(149) = -7.32, p < .001$ (paired $r = .52$)	.59 Medium
Nuisance Health	Rating (range 1-5)	Unhealthy	2.52 (1.24)	2.02 (0.1)	20% Better	$t(149) = 4.64, p < .001$ (paired $r = .31$)	.45 Small
PERSONAL LIFE CONCERNS							
Family/Relationships	Rating (1-5)	Unhealthy	2.70 (1.30)	2.11 (1.04)	22% Better	$t(149) = 5.73, p < .001$ (paired $r = .43$)	.50 Medium
Money	Rating (1-5)	Unhealthy	2.85 (1.30)	2.68 (1.50)	6% Better	$t(149) = 1.37, ns$ (paired $r = .42$)	.12 Very Small
Legal	Rating (1-5)	Unhealthy	1.71 (1.21)	1.55 (0.91)	10% Better	$t(149) = 1.82, p = .07$ (paired $r = .47$)	.15 Very Small
Housing	Rating (1-5)	Unhealthy	1.91 (1.17)	1.78 (1.04)	7% Better	$t(149) = 1.25, ns$ (paired $r = .44$)	.11 Very Small
Eldercare	Rating (1-5)	Unhealthy	1.71 (1.22)	1.47 (0.85)	14% Better	$t(149) = 2.56, p < .01$ (paired $r = .41$)	.22 Small
Childcare	Rating (1-5)	Unhealthy	1.31 (0.88)	1.16 (0.45)	11% Better	$t(149) = 2.28, p < .05$ (paired $r = .39$)	.20 Small

Note: $N = 150$ for all tests. The paired r is the correlation over time of the same measure at Before and After.

Nuisance Health. The question asked: *During the past 4 weeks, how often have you been bothered by any of the following: the flu, a cold, headaches, sore throat, or stomach aches?* The most common responses for the single item on nuisance health were in the 2 to 3 range of the 5-point scale, indicating low to moderate levels of minor health issues for most people in the study. The mean scores for nuisance health were positively correlated over time (paired $r = .31$, $p < .01$). There was a 20% average reduction over time in mean scores for these nuisance health issues and this was statistically significant and represented a “small” effect size ($d = .45$; see Table 7).

This set of finding for the three PROMIS scale measures of general health and nuisance health was as expected and it also reflects that these four measures share some variance (all are significantly correlated with each other, $r = .35$ to $.58$) and are measuring similar aspects of general health status.

Personal Life Concerns. This section includes the six other items that were collected together with the item on stress (that was already presented earlier as a primary outcome). Table 7 displays the descriptive findings for these items. These items were rated on a 1-5 scale. Of these practical life issues, the most commonly reported personal problems were for money (34% at top two ratings of “very concerned” or “extremely concerned”) and family/marital relationships (34%). Less common were the other items on legal issues (14%), housing (13%), caring for elderly family members (13%), and caring for children (5%). Although all issues had lower levels of concern after counseling than at before counseling, only three of the five had enough change to be significant (see Table 7). Due to the focus of our interventions on other screened behavioral issues, few participants chose to specifically focus on one of these issues. The 20% average reduction over time in mean scores for Family/Relationships represented a

“medium” effect size ($d = .50$). The 14% average reduction for eldercare represented a “small” effect size ($d = .22$). The 11% average reduction for childcare represented a “small” effect size ($d = .20$). These findings also support the general effectiveness of the counseling provided to assist these people in more practical aspects of their home and family lives that can influence their state of mental and physical health as well.

Work Focus (Presenteeism). The question asked: *How often did health issues or dealing with life problems keep you from focusing fully on your work or daily tasks?* It was answered on a 5-point scale. About 1 in 3 people (36% endorsed the top two ratings of “all of the time” or “most of the time”). The mean scores for this item were positively correlated over time (paired $r = .39$, $p < .01$). The 20% average reduction over time in mean scores on this measure was statistically significant and represented a “medium” effect size ($d = .55$; see Table 8). Thus, the use of the counseling helped these clients to be more focused while at work or performing daily tasks.

Table 8

Change Over Time Results for Functioning at Work/Daily Tasks Outcome Measures

Outcome	Measure	Higher Score Indicates:	Before EAP	After EAP	Change	Statistical Test of Change	
Total Sample N = 150							
Work / Daily Task Focus (Presenteeism)	Rating (1-5)	Unhealthy	2.97 (1.17)	2.34 (0.99)	20% Better	$t(149) = 6.04, p < .001$ (paired $r = .39$)	.55 Medium
Productive at Work or Home	Rating (0-10) 0 Worst - 10 Top	Healthy	5.32 (2.64)	6.91 (02.04)	30% Better	$t(149) = -7.41, p < .001$ (paired $r = .39$)	.67 Medium
Employed Only N = 76							
Work Absence	Hours per month	Unhealthy	7.28 (18.14)	6.25 (12.16)	14% Better	$t(75) = <1, ns$ (paired $r = .68$)	.05 Very Small
Productive at Work	Rating (0-10) 0 Worst - 10 Top	Healthy	6.14 (2.21)	7.43 (1.79)	21% Better	$t(75) = -5.30, p < .001$ (paired $r = .47$)	.63 Medium
Lost Productive Time – combines absence hours and unproductive hours	Hours per month of <u>un</u> productive time	Unhealthy	64.34 (37.47)	44.98 (31.33)	30% Better (19 less hours)	$t(75) = 4.93, p < .001$ (paired $r = .52$)	.52 Medium

Work Productivity. Health can also affect one's ability to be productive when at work. The question on this topic asked: *how would you rate your overall ability to perform daily tasks and be productive at work or home given any life issues that may have impacted your focus or motivation?* The response options ranged from 0 (for worst performance) up to 10 (for top performance). The typical person in the study was at about a 5 when first coming to see the counselor. After counseling, this had increased to almost 7 on the 0-10 scale. This 30% average increase over time on this measure was statistical significant and represented a "medium" effect size ($d = .67$; see Table 8). The use of the counseling helped these clients to be recover from low productivity.

Work Absence. Health can also affect one's ability to simply show up for work. The question on this topic asked: *how often did health issues or dealing with life problems cause you to be late to work, to leave work early or to miss a full day of work?* The response was open for the person to list the number of hours (if any). Answers to this item were limited to the 76 employed cases of the 150 total cases in the study. The typical employee in the study did not report missing any work, either at before counseling (63% had zero absence hours) or after counseling (505). Across all of these cases who worked, the number of hours of absence per month decreased from an average of 7.28 to 6.25 from before to after counseling. This change, although in the predicted direction, was a very small size effect that was not significant ($d = .05$).

Lost Productive Time. The final outcome in the domain of work is how many hours of productive time is lost to a worker's health. This metric starts with considering all of the hours in a month of work. We assume this is the 160-hour standard full-time schedule. [On the survey we did not ask people how many hours they were scheduled to work.] From this potential, the hours lost to absence are deducted. From the 160-hour schedule, we deduct the hours of absence

at baseline (which was 7.3 hours). Next, we use the work productivity 0-10 rating results to determine how much of the remaining time at work was unproductive time. The 0-10 rating reflects the full range of work productivity and when multiplied by 10, it becomes a metric of 0% to 100% of work time. The result for the baseline level was at 64% level of work productivity. The amount of unproductivity is the difference between this level and the maximum of 100%. In our data, it is 36% of the time worked that was unproductive (100% – the 64% at baseline). To get the number of hours of unproductive time, we multiplied the hours worked of 153 by 36%. This amount of unproductive time (55 hours) is combined with the absence hours (7) to yield the total Lost Productive Time (LPT) result (roughly 62+ hours).

As shown in Table 8, the study findings across all relevant data determined a result of 64.3 hours of LPT before counseling (which is about 40% of the full-time possible in a month!) and 45 hours of LPT after counseling. The net difference is approximately 19 hours (or about two and a half full work days) that was restored after getting helped by the EAP counseling. This 30% average decrease over time in LPT among the 76 employed cases was statistical significant and represented a “medium” effect size ($d = .52$; see Table 8).

Summary of Results for Secondary Outcomes. The findings in this section show that use of EAP counseling had a positive impact on improving general physical and mental health, reducing nuisance health symptoms, reducing concerns in important areas of personal and family relationships, and on the presenteeism and productive time aspects of work. The amount of absence from work, which was low overall, was not reduced appreciably after counseling. Calculations of Lost Productive Time showed a statistically significant reduction following counseling.

Results Part 3 - Health Care Economic Cost Savings Estimation Analysis

The findings on the primary outcomes were used in an estimation model for the health care cost savings likely from these changes in health risks. We determined a financial cost estimate for each outcome from research studies that have examined health care claims data and other econometric sources. The typical annual excess costs in health care delivery and services (i.e., summary of costs for use of visits to doctors, ER, hospital, pharmacy and outpatient and inpatient mental health providers) for each outcome area is listed in Table 9. In these other studies, the analytical approach uses very large samples of people and calculates the actual paid costs in the health care records for the average of the entire sample and then also for different subgroups of people in the sample based on their status of having or not having different health risk factors (determined from a self-report responses to a health risk appraisal [HRA]). We used these results to establish the percentage that people with certain risk factors (i.e., for the specific outcome in our study) were different from the average person. This excess cost amount represented as a percentage over average costs for an individual. According to the 2015 Healthcare Cost and Utilization Report from the Health Care Cost Institute, Health care spending averaged \$5,141 per individual in 2015. Then we used various evidence-based estimates of the excess costs attributable to the different risk factors. Two studies provided most of the default cost inputs for our model: 1) claims data findings from a Health Enhancement Research Organization multi-employer database of over 92,000 U.S. employees and their study of 10 modifiable behavioral health conditions by Goetzl and colleagues (2012) and 2) claims data findings from the University of Michigan multi-employer database study of over 200,000 U.S. employees by O'Donnell and colleagues (2012).

- Physical Exercise risk was associated with 10.9% excess annual health care costs (based on average of 9.2% from Goetzel study and 12.6% from the O'Donnell study);
- Depression risk was associated with 40.6% excess annual health care costs (Goetzel study);
- Stress risk was associated with 15.5% excess annual health care costs (based on average of 7.0% from Goetzel study and 24.1% from the O'Donnell study);
- Smoker risk was associated with 14.5% excess annual health care costs (based on average of 12.4% from Goetzel study and 16.6% from the O'Donnell study);
- Binge Drinking Alcohol risk was associated with 66.4% excess annual health care costs (Alridge et al, 2016)
- Drug risk was associated with 53.7% excess annual health care costs (O'Donnell study);
- Healthy Eating risk was associated with 10% excess annual health care costs (based on estimate from the U.S. Preventive Services Task Force, Pignone et al, 2005; & claims cost research by Finkelstein et al., 2005).

Our approach to determining the cost for each risk outcome for the average case in our study was as follows (see Table 9): Column A = The percentage of cases in our study that were at risk for the health issue; Column B = The number of cases in our study sample at risk (based on A x 150 cases total); Column C = The percentage of excess costs due to the risk factor in annual health costs (based on data from research literature); Column D = The result of C x the annual basis cost of \$5,141 for average person health care costs; Column E = from this higher cost figure, we only count the part that can be expected to change after treatment (based on the study results for the percentage of change in each outcome shown in Table 8); Column F = The reduction in excess costs for all of the cases at risk in the study was then adjusted by the prevalence in our

sample (A x E) to yield a Per Average Case financial estimate for each risk factor outcome.

Table 9

Estimated Savings in Annual Health Care Total Costs Based on Improvements to Primary Outcomes

Outcome	Only Cases in At Risk Group						All Cases
	% of Study Total Sample	Number Cases At Risk	Additional Higher Annual Health Care Costs Per Each Case At Risk (as a % of average cost) (from the literature)	Additional Higher Annual Health Care Costs Per Each Case At Risk (on basis \$5,141)	Study Result Effectiveness in Reducing Problem Severity Level Among the High Risk Cases	Estimated Cost Reduction from Clinical Improvement	Cost Savings Adjusted for Average Case
Eating	87%	131	10.00%	\$514	16%	\$82	\$72
Exercise	81%	122	10.90%	\$560	38%	\$213	\$172
Depression	50%	75	40.60%	\$2,087	50%	\$1,044	\$522
Stress	45%	68	15.50%	\$797	30%	\$239	\$108
Smoking	39%	59	14.50%	\$745	31%	\$231	\$90
Drinking	31%	46	66.40%	\$3,414	34%	\$1,161	\$360
Drug Use	21%	32	53.73%	\$2,762	33%	\$912	\$191
Total							\$1,515

The results for this analysis estimate that this intervention had potential for reduced future annual cost reductions expected to normally occur for these kinds of conditions. More specifically, the estimated annual savings in health care costs for each health risk were:

- Depression = \$1,044
- Drinking = \$1,161
- Drug Use = \$912
- Stress = \$239
- Smoking = \$231
- Exercise = \$213
- Diet = \$82

This ordering of risks according to cost savings emphasizes the problems of depression, drinking and drug use as much more costly for health care treatment on a yearly basis than the other kinds of risks examined in our study. This analysis suggests the priority for these more severe kinds of behavioral health risks to be emphasized in other future health screening projects.

When these dollar estimated for each of the seven risks are combined and appropriately weighted (mathematically reduced) for their incidence rate in the study sample, the adjusted average per case is a total savings of \$1,515 in health care costs.

Estimated Workplace Cost Savings in Avoided Future Employee Lost Productive Time

The finding of 19 less hours of unproductive time per month from comparing before counseling to after counseling can be used to estimate possible dollar savings to the employers of the people who participate in counseling from the EAP in these naturalistic community clinic and workplace settings. The course of counseling took about 3 months from case open to case close. So, for a full 12-month year, there are 9 other months that did not involve counseling activity.

The average of 19 fewer hours of work loss per 1 month can be extended to the other 9 months. This results in **171 hours** for the year. Next, we must apply a financial dollar value to each hour of work. The following math example illustrates the steps involved in this kind of savings calculation.

Hourly Compensation Rate. To start, one needs to assign a dollar amount to an hour of work. Data from this study for the 76 cases who were employed showed the average *household* annual income to be \$45,559. But 70% of the cases in this employee only group were married and thus likely that their spouse also worked and added to the household income total. Taking this adjustment into account reduces the average worker annual income to around \$30,000. Assuming full-time status and typical 40 hour a week schedule (40 hours x 50 weeks worked = 2000 hours), this converts to an hourly average wage of \$15.00. This finding is similar to the most recent data from May of 2015 from the US Bureau of Labor Statistics, the average amount of employee personal wages in the State of Vermont, across all occupations, which was a median of \$17.81 (mean of \$22.15). However, this figure excludes the additional dollar cost for employer-paid benefits (based on BLS data from New England area averages in 2016 of \$27.81 for paid wages and \$11.45 for employer-paid benefits = 41% x wage is benefit amount). Thus, for this study total hourly compensation was \$15.00 wages + \$6.15 benefits (41% x 15.00) = \$21.15 total.

Productivity Multiplier. What is a day of work worth in dollars? Some analysts treat work absence and lost productivity as worth only the sum of the hourly compensation rate applied to a typical day of work (Trogon, Finkelstein, Reyes, & Deitz, 2009). But this ignores the value of the lost productivity when the employee is not at work. According to interviews with managers, the value of missed work and lost work productivity varies across jobs types, the

extent to which the worker functions as part of a team, the time sensitivity of the worker's output to company goals, and how soon the employee can be replaced. This value is expressed as a multiplier of the daily compensation rate. The multiplier typically ranges from 1.00 to 2.00 or more. This same value of work applies to estimating the cost of impaired work performance while on-the-job (called presenteeism).

For example, in a study of 800 managers (representing 35 job types in 12 industries), the median average compensation multiplier for a 3-day absence was 1.28 - with a range from 1.00 to 4.47 and mean of 1.44 (Nicholson et al., 2006; Table 4). In a replication study of 790 managers (representing 22 job types in 12 industries), the median average compensation multiplier for a 3-day absence was 1.25 - with a range from 1.05 to 2.04 and mean of 1.39 (Pauly et al., 2008; Table 2). Other studies in the applied health care intervention area have used a productivity multiplier (Attridge, 2015; Frey, Osten, Berglund, Jinnett, & Ko, 2015; Mitchell, Ozminkowski & Serxner, 2013). A conservative multiplier is 1.25.

Thus, using the \$21.15 per hour compensation rate for employees in this study X 1.25 multiplier from the research literature yields a figure of **\$26.44 value per hour** for an hour of work productivity.

The financial savings result from work performance gains from this study was calculated as follows: The typical employee in this study had an estimated 171 hours of lost productive time avoided in the 12 months inclusive of the counseling experience. At \$26.44 for the fully-loaded value per hour of productive work, the LPT savings per case per year was **\$4,521**. This study sample had 76 of 150 cases as employees. For the 76 employees together this adds up to a grand total of \$343,596 dollars in workplace cost savings.

Results – Part 4. Qualitative Comments

Client Comments. Optional comments were also collected as part of the surveys at both of the follow-up points. The data is from 82 of the 130 cases from the NCHC site who provided optional open text comments. These are listed in Appendix B. Also, 27 of the 30 cases from King Arthur Flour site provided optional open text comments. These are listed in Appendix C.

A dominant theme found in many of these comments reflects the generally successful outcome of the counseling for the individual users of the service. It was at provided at no cost. It was convenient to use being at the local health clinic or their worksite. Some noted the respectful, positive and supportive approach of their counselor and the value of being listened to (rather than being told what to do by a health professional). Some noted the willingness to be flexible in scheduling and being available for counseling during difficult personal circumstances for the client.

Recorded Interviews. In addition to the comments, we also arranged for interviews with clients and some staff at the Northern Counties Health Care project site. The sample included 11 nurses, two physicians, and 5 staff (including the office manager) and 22 clients. All had worked with the counselor at the site (SH). These were conducted during August of 2016 and each interview were about 5 to 10 minutes in length. The interviews were unstructured and the interviewer was the program counselor (SH).

Themes of the comments from the clients echoed many of the same sentiments as were expressed in the over 100 written comments made on the evaluation surveys. Every one of the 22 client interviews was positive about the process and therapeutic outcome of the counseling experience. Some noted the difficult and distressing conditions that many of these people lived in at the time of the counseling and how talking to the counselor to get an unbiased and practical

response to the options to make the situation better was appreciated. The ability to see the counselor more than once and over several months as needed was particularly helpful to some cases with more complicated and ongoing issues with depression and their family/home life. Most of the client interviews also offered praise for being able to have contact with the counselor that was done in the non-stigmatizing context of the health care clinic – rather than a separate office just for psychological services – which was a more intimidating path to needed counseling services.

The interviews with the staff at the project also revealed some of the same mostly positive themes confirming the unique nature of the project. The use of the brief screening questionnaire generally went well in practice over the year and a half of the project duration. But at the start, there were some logistical elements to work out on how the screening process was initiated and maintained as part of the regular patient contact and support process. Having only one counselor from the EAP was a limitation noted among many of the nurses and staff. The positive patient reaction to counseling was sometimes put on hold until appointments were available with the counselor. The doctors noted the effectiveness of the role of the counselor in the medical practice and use of offering support and follow-up for many cases and the more psychological approach for the patients. Many of the patients likely would not have found other counseling if it had not been provided onsite at the clinic. Overall, the medical providers and clinic staff appreciated having a resource for their patients that addressed the behavioral health side of medical issues.

DISCUSSION

The discussion focus on several areas. The first part reviews the major findings of the study. Next, the operational challenges are described for each project site. Lessons learned are also described and future directions considered based on the success of the study and how it was implemented. The sustainability of the projected is discussed in closing this section.

Review of Study Findings

All seven of the primary outcomes examined among those who were at high risk showed significant improvements after counseling. The strongest impact found was for depression and stress/anxiety. These were also two areas of substantial distress at the start of counseling and likely a reason for seeking out the therapy. The major hypotheses of the study were supported in the tests of depression (which was the issue selected most often by the clients for attention during the treatment phase) that used different cohorts of the study in a longitudinal basis: 1) The extent of depression symptoms was dramatically reduced (by 50%) from the at risk level at before counseling to not being at risk by the end of the counseling sessions; and 2) this reduced level of depression was then maintained both at the three month and at the six month follow-ups after counseling had ended. Thus, once the problem was successfully reduced, it tended not to flare up again and re-occur. This persistence of the therapeutic effect long after counseling suggests that the clients may have learned some skills and techniques to manage these mental health challenges on their own without the counselor.

Other small but significant outcomes were obtained for over three-fourths of the sample at high risk with the lifestyle factors of eating more nutritious foods more often and exercising more regularly. Both of these self-care kinds of healthy habits also contribute to lowering stress and reducing depressive symptoms. Predicted changes were also found with all three of the

addiction related outcomes. However, the counseling was only effective on smoking and drinking use outcomes when the focus of the therapy was specific to these problems.

Results for the entire sample showed that EAP counseling had a positive impact on improving general physical and mental health, reducing nuisance health symptoms, reducing concerns in important areas of personal and family relationships, and on the presenteeism and productive time aspects of work.

We used the extent of improvement in these many health risk areas to estimate an average savings per case of \$1,515 for health care. For the 150 people in the study this adds up to a grand total of \$227,250 dollars in health care cost savings. We also estimated a per person savings of \$4,521 in avoided further work productivity losses for employees in the study. When combined for the 76 employed cases it is a total of \$343,596 dollars in workplace cost savings. The combined estimated savings from health care and workplace cost savings areas adds up to over a half million dollars (\$570,846).

The qualitative data findings also revealed the therapeutic value of the counseling services both to the individual patients of the clinic and to the workers at the bakery company. The comments also described the important operational advantages to the health care clinic providers and staff of having a trained and licensed counselor on the premises and available to support the behavioral health needs of the caseload of clients – many of whom were low-income and in need of behavioral health services.

Project Challenges, and Effects of Implementation Strategies

As with any new project implemented into an established setting, this project encountered some challenges. When concerns were identified both Invest EAP staff and the on-site employees worked together to address them. Over the course of the project a number of the

identified concerns were successfully resolved, but one element, at the healthcare setting, remained an issue throughout the project. This element, how patients who screened positive and were introduced by the clinic staff to the counselor for a chance to begin intervention work (“introduction rate”) required a number of adjustments throughout the length of the project. This is addressed in more detail below.

Northern Counties Health Care Site

At the healthcare center site, the project introduced a series of new procedures that needed to be implemented and adapted by different center staff. Communication was a key factor and Invest EAP and NCHC management worked diligently to introduce, educate and assist health care employees about the flow of the project. Multiple meetings were set up with staff to engage them in the process from the beginning. The early meetings consisted of explanation of the research design; sharing of documentation that would need to be collected; and solicitation of input regarding the actual hiring of a Counselor for specific site.

As with most FQHC settings, staff were already very busy. Understandably, some staff were feeling that they had enough to accomplish and were apprehensive about an additional burden of a new project with different procedures to learn and implement. Once the counselor was on site full-time there continued to be a lot of coordinated communication between her and staff members, both formally and informally. Although the conceptual clinic flow with regard to screening and referral to the counselor was efficiently designed and widely agreed upon, there were still adaptation challenges that limited the number of participants enrolled.

In an effort to address these issues, the Invest EAP project manager reviewed what was happening “on the ground” and collected metrics to identify where some hurdles were in getting patients referred to this program and to refine the data collection procedures. Early metrics

identified that a good amount of screens were given to patients but only a small number of those patients who scored positive were actually introduced to the counselor. Breaking down the specifics of flow identified multiple factors that contributed to this.

For the most part patients filled out the screening form sometime between the reception desk distribution and while in the examination room awaiting the nurse or other provider to arrive. Because the screen was completed and then reviewed during this time there was actually a very small window of time during which a patient whom scored positive could be identified as “positive” by the nurse and introduced to the counselor. The time frame typically consisted of time after the nurse did her usual medical work and before the provider arrived. Nurses also tried for the introduction following the provider/patient interaction.

Nurses with a patient warranting an introduction attempted to alert the counselor and bring her to the patient or take the patient to the counselor’s office. The physical set up of the health care center was one factor that limited the ease with which this occurred. The counselor office was located in an office not readily able to be seen from some examination rooms (some examination rooms were merely down the hall; others were on a different floor of the building). Actions initiated to facilitate introductions included a pager to alert Counselor to come to a certain room, a phone call, and physically walking to the counselor’s office. Ultimately, most success was achieved when introductions were made only on the floor where the counselor was located.

To further facilitate the ease with which nurses could find the counselor for introductions the counselor minimized time spent in her office and became more visible on the floor by spending free time at the nurse’s station. Her work schedule was also posted in multiple places

and displayed the open times she was available for an introduction as well as the times she was in session.

These all worked with varying degrees of success but challenges continued as the counselor was at times “busy/not available” when the actual window for introduction was needed. There was one Counselor and multiple nurses making these introductions. Inevitably, the counselor may be talking with one patient when the timing for an additional introduction was attempted by another nurse. Staff reported frustration in making these introductions to the counselor. Patients had limited interest in staying beyond their appointment time due to transportation, other scheduled events, etc. In one attempt to remedy this, a second Counselor was brought on site one day a week thus increasing the opportunity of having a second person to introduce a patient to if the first one was already occupied. This had limited success probably due to the scheduling for that particular day, Friday, a day which turned out to have fewer patients coming into the clinic.

The idea of having an overlap of two people (the counselor and another to cover the time when Counselor was occupied) seemed to have potential. In the third quarter of 2016 it was decided to bring on a liaison to help facilitate introductions. This liaison was scheduled during the busiest parts of most days of the week and directly overlapped with the counselor being on site. This person was instrumental in helping with those situations of a nurse needing to get a patient to the counselor for an introduction. The liaison was able to navigate the coordination of this (literally find where the counselor was currently located, check availability, and so on) and in addition she had the skill set to engage patients in small talk long enough to encourage them to sometimes wait for a short period of time until the counselor was available for an introduction. If

this project were to be undertaken in the future this implementation strategy would be one to be considered.

Though this was an ongoing challenge for the project the realization that patients had the opportunity to complete a screening and be introduced at that point in time, right where they were, in-person with a skilled Counselor showed significant findings and impacted participants in meaningful ways, as reported elsewhere in this report.

King Arthur Flour Site

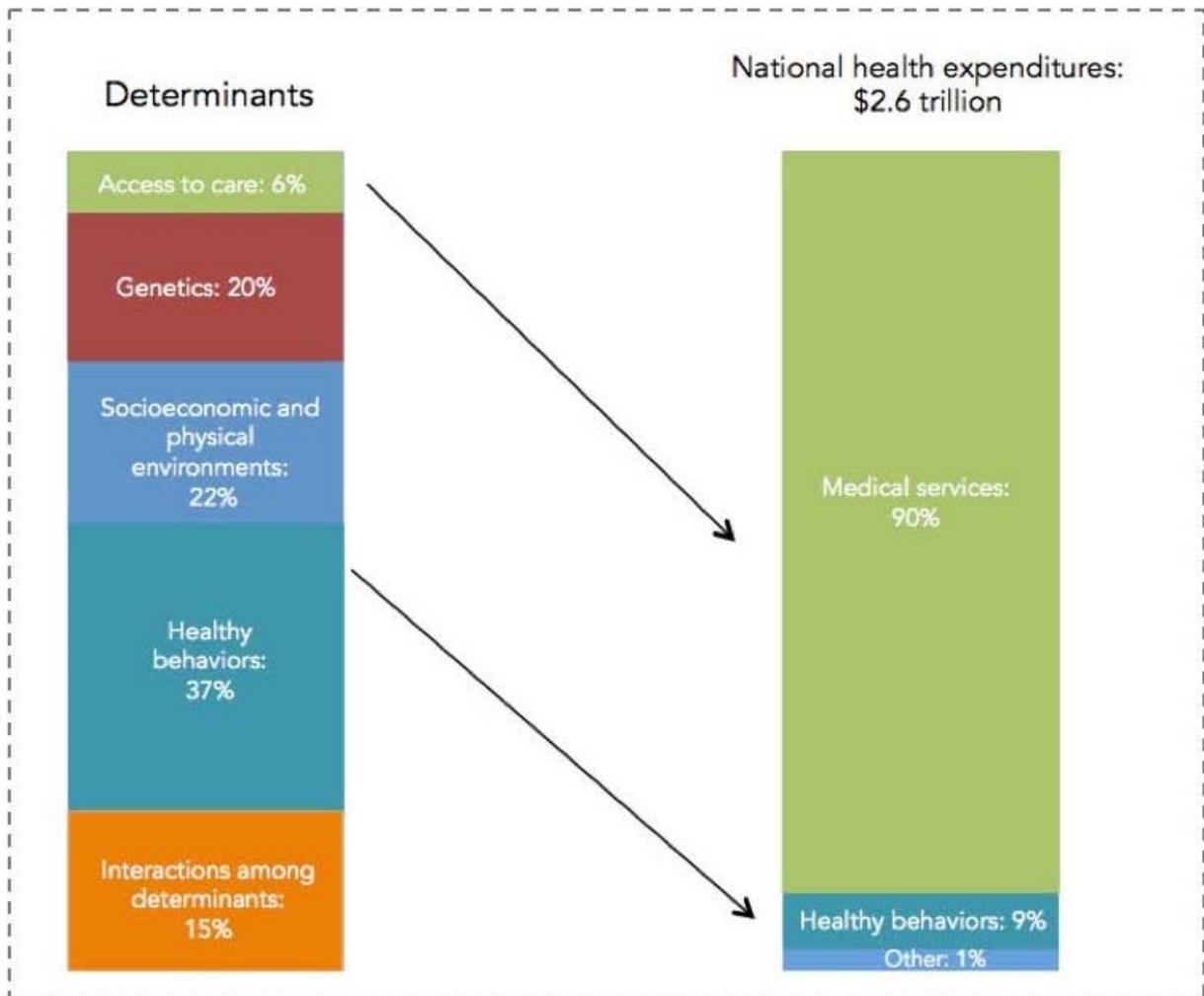
The challenges faced at this site were far fewer. The flow worked better as the project was seen as a very natural extension of the EAP services already provided to these employees by Invest EAP. None-the-less, after first introducing the project to employees through brochures and posters, few employees chose to participate. After a couple of months, Invest EAP decided a more robust promotion was required. We obtained permission to present at one of the companies “town meetings”, regular gatherings of most the employees. We provided employees with a detailed overview of the project and attempted to motivate people to take advantage of this opportunity to improve their overall health and well-being. We explained that this was different from normal EAP, which employees regard more as a place to resolve specific life problems. Rather, we explained that this was an opportunity to review their overall health and wellbeing, and then, only if they chose, to work with our counselor on reducing barriers to improving health behaviors and developing plans to improve their overall health.

We handed out water bottles containing pedometers and a card telling them how to sign up for this program. We also explained that there was a monetary incentive. We invited out local counselor to be a part of this presentation so that all employees would know who they were scheduled an appointment with. We also set up a secure, confidential means for people to sign up

for appointments online, and offered appointments both at several local KAF manufacturing sites and at our own local offices, about 15 minutes away. These interventions worked and employees began calling us and signing up online for appointments.

Lessons Learned and Future Directions

This project was in part predicated on the fact that spending a modest amount of healthcare dollars on preventing unhealthy behaviors can result in vastly improved health outcomes, and in turn, reduced healthcare expenditures. The Network for Excellence in Health Innovation estimates that a majority of health is determined by our environments and behaviors, as shown in chart below. As depicted, only about 6 percent of the production of health was attributable to medical care or access to medical care. This of course is in sharp contrast with our spending: almost 90 percent of our national health expenditure is spent on medical services. At the same time, 59 percent of the production of health was attributable to a combination of healthy behaviors (37%) and the socioeconomic and physical environment (22%). This too is in sharp contrast to our spending - where only 10% of our health care expenditures target these kinds of determinants of health. As our findings in this applied research project clearly demonstrate, a very modest investment in counseling using EAP-like clinical interventions that target these determinants of health can result in significant positive health outcomes and commensurate reductions in healthcare expenditures.



The spending mismatch: Health determinants vs. health expenditures.

Healthy People/Healthy Economy: An Initiative to Make Massachusetts the National Leader in Health and Wellness. 2015.

Data from NEHI 2013. <http://www.tbf.org/tbf/56/hphe/Health-Crisis>. Accessed May 30, 2016.

Further, since the 1700's our healthcare delivery system has been largely centralized and focused around large hospitals. While this makes sense when it comes to providing highly specialized care for serious illnesses, it may not make the sense when it comes to the most efficient delivery of prevention oriented services to the entire population. In fact, the further we can move from a centralized point of care, be it hospitals, or for that matter community health clinics, the more we are likely to reach the broadest cross section of the population that would benefit from such interventions. Consider for example the screening and intervention we provided at the King Arthur Flour site. Although our research design and funding necessitated on

our focusing our efforts on a small number of employees, ideally such an intervention would be comprehensively provided to all employees. Such an intervention would stand to reach more people in a much less costly manner than providing these services at primary care location. The more common approach used widely to incorporate screening and brief intervention into medical settings, while laudable, has some downside. People most often go to health clinics for one of four reasons: (1) An acute illness; (2) treatment for a chronic health condition; (3) an annual physical, or (4) for the treatment of stress that has somaticized into a reported physical symptom.

Let's consider each in turn:

1. If individuals are coming to a clinic with an acute problem, whether that be a broken arm or high fever, it is not an appropriate time to conduct a behavioral health screening and intervention.

2. If individuals are coming to a clinic with a chronic health condition, we have waited too long to screen them. Not that we can't still help them, but the screening and intervention would have been far more effective and resulted in greater healthcare cost savings if offered far sooner.

3. The Society for Internal Medicine has stated that we should curtail annual physicals for most people (excepting populations that are at risk for specific reasons). Numerous international studies have demonstrated that there is no correlation between such physical annual exams and positive health outcomes, despite an annual cost in the U.S. of over \$10 Billion. Further, the vast majority of Americans do not get an annual physical anyway, and those who are likely to most at greatest risk of behavioral health problems are least likely to schedule an annual physical. Therefore, planning to link behavioral health screening to physical exams makes little sense.

4. If people are visiting health clinics to resolve stress-related conditions, we have (1) again waited too long before intervening with these individuals and (2) needlessly incurred high costs by attempting to serve them in such a costly setting.

Therefore, it may be more proactive to serve people in their workplace and community before they are in need of a doctor. There are numerous ways to do this and the best approach will vary with the particular population targeted. We have demonstrated that employed individuals can easily be screened and treated confidentially through their place of employment. Unemployed individuals could be screened and served at one of any number of community settings, from community action agencies to community gathering sites such as a post office or bank.

Regardless of the venue, training, or lack of it, may be the largest single barrier to effective interventions of this kind. This is especially true in rural states such as Vermont. Behavioral health providers in Vermont may have been to one or two workshops in Motivational Interviewing and believe this to be sufficient. It is not. In our experience it takes a minimum of one week of training coupled with a year of intensive supervision and review and feedback of session recordings before someone can attain a high level of proficiency. Such proficiency is important in order to produce the outcomes reported herein. Few practitioners in Vermont are trained at this level. Further, training in the Impact or Collaborative Care models for the treatment of depression is also critical and wanting. Lastly, few behavioral practitioners in Vermont are skilled at understanding when a substance issue warrants pharmacological intervention and when it does not. This is another important facet of training to which we must attend.

Lastly, most SBIRT screening programs are limited by either a focus on drug and alcohol use or by limited treatment interventions (they are often screening and referral programs). We have demonstrated how screening for a number of additional items, including depression, stress (anxiety), smoking, exercise, nutrition, legal, financial, relationship and other family problems can pay great dividends. If clinicians who perform these trainings have adequate training in evidence-based treatment approaches, much can be accomplished through relatively inexpensive short-term interventions short of referral to a specialist. Obviously, individuals with serious behavioral issues, including major depression, must be referred for longer-term care even if short-term counseling is provided. Despite the positive health outcomes demonstrated in this project, no one is claiming that such serious mental health issues can be resolved within the confines of such short-term interventions. Any attempt to limit interventions in this way would surely backfire and result in much higher healthcare expenditures later.

Project Sustainability

We identified training as a critical component that needs to be adequately addressed for the proper implementation of projects of this sort. To this end, with the support of the Vermont Healthcare Innovation Project, we recently invited an expert trainer in Motivational Interviewing (MI) from Idaho to We hope to follow this training up with a series of weekly or monthly supervision calls during the year. This will better position us to be able to begin implementation of these new efforts. Additional training initiatives will also be required.

Invest EAP is a partner with Blue Cross Blue Shield of Vermont. We are currently talking with Blue Cross Blue Shield, several large health insurance trusts and hospitals about the prospect of implementing the type of expanded screening and behavioral intervention demonstrated in this project in multiple settings throughout Vermont.

Regardless of the support of large healthcare organizations, we will likely proceed to offer expanded behavioral screening and intervention services to our EAP accounts as a logical expansion of EAP services. Our accounts represent approximately 160,000 Vermonters, including both employees and their eligible household members. If a reasonably high number of our accounts buy into this service, it will make a huge contribution to improved health outcomes in Vermont. The healthcare cost savings coupled with large productivity savings that our findings project, will greatly interest employers to make relatively small investments in this program for the prospect of a gaining such significant returns.

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Appendix A

Screening Form

Name: _____ Date: _____ Date of Birth: _____ Doctor: _____

- How many days a week do you usually eat four 8-ounce cups of fruits and vegetables or more?
 0 or 1 2 or 3 4 or 5 6 or 7
- In a typical week, how much moderate exercise (example: brisk walking) do you get?
 Less than 30 minutes 30-59 minutes 1-2.5 hours 2.5 hours or more
- In a typical week, how much vigorous exercise (example: jogging) do you get?
 Less than 15 minutes 15-29 minutes 30-74 minutes 75 minutes or more
- Have you smoked a cigarette, even one or two puffs, within the last three months?
 Yes No
- Over the past 2 weeks, how often have you been bothered by any of the following problems?

	Not at all	Several Days	More than Half the days	Nearly Every Day
a) Little interest or pleasure in doing things	0	1	2	3
b) Feeling down, depressed or hopeless	0	1	2	3

For Question 6 (Definition of "standard drink"):

12 fl oz of regular beer	=	8-9 fl oz of malt liquor (shown in a 12 oz glass)	=	5 fl oz of table wine	=	1.5 fl oz shot of 80-proof spirits ("hard liquor"—whiskey, gin, rum, vodka, tequila, etc.)
						
about 5% alcohol		about 7% alcohol		about 12% alcohol		about 40% alcohol
The percent of "pure" alcohol, expressed here as alcohol by volume (alc/vol), varies by beverage.						

For men only

- 6a. In the past 3 months, how often did you have more than 4 standard drinks on one occasion?
 Never Once or twice 3-5 times 6-20 times More than 20 times

For women only

- 6b. In the past 3 months, how often did you have more than 3 standard drinks on one occasion?
 Never Once or twice 3-5 times 6-20 times More than 20 times

>> Over

For everyone

7. In the last twelve months, did you ever drink alcohol or use drugs more than you meant to?

Yes No

8. In the last twelve months, did you ever feel you should cut down on your drinking or drug use?

Yes No

9. In the last twelve months, did you use a prescription painkiller, stimulant, or sedative for a non-medical reason OR smoke pot OR use a street drug?

Yes No

10. During the past 4 weeks, how concerned were you about:

	Not Concerned	Somewhat Concerned	Moderately Concerned	Very Concerned
a. Family, Relationship, or Friendships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Legal issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Money or financial issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Stress or anxiety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Housing or transportation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Child care concerns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Caring for aging relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. **If you work**, during the past 4 weeks, how often did health issues or dealing with life problems (such as the above list of concerns) cause you to be late for work, to leave work early or to miss a full day of work?

Please fill in the total number of work **hours** missed: _____

12. During the past 4 weeks, how often did health issues or dealing with life problems (such as the above list of concerns) keep you from focusing fully on your work or daily tasks? (Please check the best answer)

All of the time Most of the time Some of the time A little None

13. During the past 4 weeks, how would you rate your overall ability to perform daily tasks and be productive at work or home given any life issues that may have impacted your focus or motivation? Please use the rating scale of 0 to 10, where 0 is the worst performance and 10 is the top performance.

Worst											Best
0	1	2	3	4	5	6	7	8	9	10	

14. During the past 4 weeks how often have you been bothered by any of the following: the flu, a cold, headaches, sore throat, stomach aches)? (Please check the best answer)

All of the time Most of the time Some of the time A little None

Appendix B

Optional Comments from NCHC Participants

User Comments on EAP Counseling Experience: Project Site 1 – Northern Community Health Care

Do you have any comments about your experience with the health coach/counselor and how it has improved your situation or your health?
very valuable and convenient to see SH at the healthcare clinic.
Haven't changed my mind regarding gift certificate. I don't want one!
I can say she doesn't give up on you she tries to support you no matter what and forgive me when I missed appointments
real good , pulled out of deep depression, feel a lot better about myself and life
SH really helped me talk out my issues of life and showed me that I can live a better life than I was.
very helpful
She helped me think of things to do to ease or comfort some of my pain in the leg and shoulder. Thank you.
Meeting with the health coach made me realize I needed to find a more long term therapist to help me through some tough times I was going through.
I hate to hear that SH is leaving. She done good for me. I been going to counselor for 20 years and the way it looks I have to live with bipolar. And some day I feel I was I was GONE.. They have try everything for me.
I really wish I had been able to meet with her and spend some more sessions time with her. I think the program is great and extremely beneficial.
she was very polite and gave some good advice.
Meeting with the counselor allowed me to vent to an impartial person who could look at my situation with a fresh perspective. She also helped me to focus on things that would be good for me to do. Some of the things I have not done yet but are still in my future plans....goals.
Meeting with my health coach helped me work thru a difficult time and validate my feelings and emotions. She helped to push me towards exercise which always makes me feel better. I am in a better emotional state while dealing with my husband's illness. I am not feeling guilty or feeling as angry towards family members who have let me down. I do catch myself being a bit of a martyr at times so I am working on that. I don't want to alienate friends who have been sticking by me.
I love her to pieces and she has helped me tremendously throughout this experience
she is always a great support for me. thank you SH!
improved health by helping me find healthy options when I have urges to smoke
I had a great session with SH. Really interesting conversation.
"I feel so much better. This was a beneficial stepping stone to long term help. motivational stuff sticks in my mind.
the motivation and ideas for dealing with life issues has helped me tremendously deal with new issues that have come up and put them in perspective so that I do not allow them to hurt my own mental help
SH helped me realize how I can help myself.

I really liked LOVED, as a matter of fact, working with SH!! Instantly, I felt like SH was a person that I had known 'all my life!' what a blessing, to have these special coaches at the Dr's office. As I struggle with aging, like everyone else, certain parts of that are pretty frightening & to have another woman to talk to about these issues is key. It's more than key, this is necessary for all of us regardless of income race religion etc. In essence I feel that by having a coach, SH that is (:) yay!), my life was & is enriched in areas I never imagined. We all need 'people' in our proverbial corners & SH added to my small group of those. Please keep her around this area as her knowledge of women's issues alone is needed whether people realize it at the time or not. I thank God that I was asked those silly little questions by my PC!

she has given me many wonderful tools & it's up to me as to how & when to use them. if SH wasn't in my life I surely wouldn't have gained self confidence & self awareness! I think very doc office should have a "SH"! God sent me an angel when I found her, here at Dr. Krauss. Truly, thank you very much!

SH has been very friendly

SH helped me through a hard time with my family and breaking up with my boyfriend.

SH was great, I just wasn't at a place to quit back then.

she is a nice and concerned lady- very nice but never met her in person which she would like to meet me and me her.

SH was very easy to talk to and I felt I finally had someone to listen to me.

I am learning to keep myself towards the top of my priority list.

she is good

enhances my focus on what I'm doing.

Most of my pain was from my ankle that was broken 30 years ago. Dr. X ordered a "Brace" for me. I have no pain now! SH articulates beautifully and when I had a session I felt completely uplifted.

SH has helped me tremendously.

I enjoyed our time spent talking. It was helpful and SH was a wonderful listener

It was easy to talk about my feelings with SH.

she is great, very helpful. she has helped me focus on my issues.

SH helped me deal with my family during a really hard time.

taking the survey makes you think about how you feel and what is going on in your life, very helpful

Thank you so much for all the support and referrals.

made me laugh

I am feeling good with SH.

SH is someone whom I can talk with whenever I have life issue.

I was going threw a lot of different things and a few deaths and bad stuff she helped me get threw and move on.. but I do need to find a long term therapist to work with she has told me.

SH helped me look at my problems in a different way and to find the best solution that will work for me. she was very friendly and supportive when i needed help dealing with my emotions.

Yes. If i had to site the main points that I came away with, it would be " don't sweat the little things" and "your efforts are never in vain". So, leave the dirty dishes for now, and spend time with your 87 yr. old mom, and find something, anything, positive to think and say yourself and others.

As a recovering alcoholic, my Sobriety means everything to me, and the kind of help offered by SH and others , I will gladly accept every chance I get. Many may have the knowledge needed by people like me , however , not all have the ability to offer it so it might sink in. SH , in my opinion , does .

I think it was nice to have someone to talk to seeing that insurance doesn't cover anything. I can't afford to go to the Dr.
"Kinda fine to talk to."
I am very glad I met you , I am so glad I could talk with you , you helped my son and me.
SH is a rock star! I feel lucky and fortunate to have opportunity to participate in this program; Thank you. This program should find a way to sustain, it has opened up a lot of my own self direction in a good way.
Very comfortable we were able to get me moving and to get out, I feel much better.
I'm a tricky case. I have lost weight on my own. I don't know what phase I was in that I haven't smoked a cigarette since last Thanksgiving. I don't use illegal drugs. My attempt to cut down drinking has actually resulted in more drinking. I am actively working on that. I have lost ten lbs. due to Mediterranean diet mention from Diane Matthew's nurse. That has been the biggest change in my life other than quitting smoking. Exercise? That is always the big challenge. I've had less interest in daily life, which may be a result of my being officially disabled. I am looking for work, and find it difficult to self schedule.
helpful- since working with SH I've felt encouraged and self-empowered to deal with my life problems
working with my health coach helped me develop tools and thought strategies that I use to keep myself "on track", working towards solutions of my problems.
This program was incredibly helpful. I gained many insights that help me daily and in the long term. My coach was wonderful.
Very nice to have a conversation with her.
it helps to get another opinion
My time with the counselor promoted me to set goals and get out more. It was a positive push in the right direction to be more social. I'm trying to maintain it. Not easy.
it was good but not too much
I love talking w/ you b/c you make good things seem possible.
Focus on whole family dynamic, situation has helped immensely.
her interest in my art work really helped my self esteem...she was very helpful in reminding to be creative and use creative outlets
I will miss seeing SH. SH has been more fun than most other therapists.
SH is very positive, she helps keeps things in perspective for me. Very helpful, positive attitude is everything!
I liked...no loved being counseled by SH. I can relate to all things with her and she helped me see I'm not all alone in these feelings.
Thanks for the opportunity!
I wish this program could more often. It is like having a accountability partner. To help stay on the straight narrow.
talking with you helped id smoking triggers, cutting down.
IT'S ALWAYS GREAT TO TALK TO SOMEONE WHO IS WILLING TO LISTEN TO YOU! :)
very positive!! made me feel better!! :)
the network at community connections has helped me in my sobriety considerably - they are an Amazing Team!
SH was very helpful answering questions I had and very friendly
yes has helped a lot
SH has been wonderfully helpful. I have lost 25 pounds and this has made me feel so much better. It's been a joy working with her and a comfort to know that she is there when I need her.

<p>It has been great seeing SH. She has been a tremendous help. I feel that I have benefitted from my time with her.</p>
<p>Very thankful for the counseling that I've received. I was in a very bad place and little by little I am improving. Things are finally starting to move in the right direction!! :)</p>
<p>I had a very good experience with my life coach/counselor. I was in a dark place & my life coach/counselor has been a tremendous benefit to me. I still have a ways to go, but for the first time I feel optimistic about my future!</p>
<p>Very thankful the time I spent with my life coach. She was excellent!!! She always went the extra mile and met me where I was at emotionally. So glad there are people like her out there! She was a tremendous asset in helping me to get back on the path to recovery!</p>
<p>SH worked getting legal help.</p>
<p>SH was very kind and listened to my unique problems which is all I needed her to do.</p>
<p>SH has been wonderful. She has definitely helped. The reason i have put down some things as still going through a lot is because i am on short term disability trying to get a diagnosis.</p>
<p>feel relief after talking. definitely helpful</p>
<p>good experience.</p>

Appendix C

Optional Comments from KAF Participants

User Comments on EAP Counseling Experience: Project Site 2 - King Arthur Flour

Do you have any comments about your experience with the health coach/counselor and how it has improved your situation or your health?
Talking with AK was eye-opening and encouraging. Diet/exercise etc are always on my mind now- but health issues have limited my ability to do as much as I would like to do.
Talking with A helped me recognize/face some of my nutrition issues & helps me almost daily make better choices than before. His objectivity opened my eyes & his understanding was comforting. A worthwhile program!!
I enjoyed the conversation and it moved me to join Weight Watchers and I'm feeling good about that.
Working with A on both nutrition /exercise and financial wellness has motivated me to keep forging ahead while also keeping my goals realistic. It has been a worthwhile experience
AK was pleasant to talk to and a good listener
it had been great, then the holiday season came and things got a little crazy. Hoping to get back on the exercise and water wagon this week!
Stress at work is still causing the overeating situation. I am sleeping better but find that Sunday nights are the worst as far as getting and staying a sleep.
Took his advise on how to get to sleep easier. Sleep much improved.
I feel I made wonderful progress on the areas that I worked with AK. If I find myself starting to slip, I think about our conversations and it helps me get back on track.
I'm maintaining my commitment pretty well. getting through the holidays is a little hard with all the options for desserts.
I enjoyed this process. I am now getting more exercise and I feel more fit. I still have a ways to go, but I will keep at it
I liked being with AK. I looked forward to seeing him. I've learned to make people understand me when I speak since I have trouble talking they have to listen very closely to me. But if they will do so the can understand me.
A was very supportive and talking to him has helped me set a path toward overall improvement. Though things might remain hard for a while
The discussions were definitely helpful. I have gotten more help and am actively working on improving my mental well being.
It always helps to verbalize goals to someone else and have them ask you how you're doing. It keeps you honest and motivated.
Having the coach gave me motivation because I knew I'd be talking with someone and I didn't want to disappoint. Lately I've been preoccupied with other things in my life and have let my exercise regime slip.
I'm much more conscious about how much sugar, salt I eat every day. I've bought a mountain bike and have begun riding 1-2 miles 2-3 days/week. I've also been doing lots of stretching and getting exercise by doing outdoor yard work and clearing brush, and taking 2 mile walks 1-2 times a week.
Seeing the counselor has helped me think about my eating & exercise habits more but I have not made any significant changes.
A got me moving! I have lost 10 pounds since we started. I have been a little slower in movement this cold winter but i can't wait to get up and go as soon as it warms up. With out this program I would still be sitting around doing nothing. My family has benefited well as a person I am better! I will keep working on everything and continue to become healthy! P.S. My one drink was from new Years. :)
This experience was great. AK gave me small steps to take and build upon so that I could keep the changes manageable.
A was really helpful in giving me the tools I need to limit my evening wine.
improve awareness for my goals and tips on how to accomplish them
I had a very pleasant and helpful experience with AK And I am glad that I did this with him

I gained a lot from my coach and his concern for my well being was very much appreciated. I am grateful for this program being offered to us employees.

AK gave me some good ideas of things to work on and focus on while trying to feel better.

Thanks for all of your help AK. You helped me navigate through a really difficult time and talk me through the best resources for me at the time.