Understanding Anxiety, Work and the Impact of Mental Health Counseling and Coaching in 20,725 Employee Assistance Program Clients in United States: CuraLinc Healthcare 2022-2023

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Abstract: This project provided real-world conditions with a national sample that allowed us to empirically investigate the role of anxiety among employee assistance program (EAP) users. This study is based on 20,725 clients who used a national EAP service during parts of 2022 and 2023 for mental health counseling (96%) or coaching (4%). All clients had completed a standardized measure for anxiety risk (GAD-2), depression disorder (PHQ-2), the extent of hazardous alcohol use (AUDIT-C), and two aspects of employee work performance (WOS absenteeism and presenteeism). The primary finding was 42% of EAP clients had a clinical level of anxiety symptoms at the start of use. This is about four times higher than the typical working adult in the United States. In addition, 30% had a clinical level of depression, and there was substantial comorbidity between anxiety and depression ($r = .54$). Only 13% of clients had alcohol misuse as a clinical problem and it had little overlap with anxiety ($r = .10$). Thus, anxiety is one of the most common psychiatric disorders among users of counseling and coaching services. Only 14% of clients contacted the EAP specifically for assistance with an anxiety related issue. Thus, three times as many clients were at risk for clinical anxiety than were interested in anxiety as their primary treatment goal. The background profile analyses revealed few meaningful associations between anxiety severity and factors of client age or gender, employer factors or aspects of EAP service use. Greater anxiety, however, was associated with greater work absenteeism ($r = .16$) and work presenteeism ($r = .25$). Clients at risk for anxiety had about three times the number of hours of lost work productivity in the past month before starting EAP use than the typical employee non-user of EAP (72 hours *vs*. 27 hours, respectively). Longitudinal results ($n = 772$) determined that EAP use was significantly associated with a 64% reduction in the severity of anxiety symptoms for the average client ($r = .56$). A reduction in anxiety symptoms was significantly correlated with a reduction in hours of lost work productivity ($r = .40$). Among the subsample of longitudinal clients who started out at clinical risk for anxiety ($n = 287$), the average case reduced their level of anxiety severity by 69% ($r = .83$). Also, a reliable change index analysis indicated that 88% of the clients initially at risk for anxiety had a clinically meaningful improvement in their symptoms and that 82% recovered to no longer be at risk after EAP use. The study findings replicate other research and provide a descriptive profile of anxiety in workers based on a large national sample.

Index Terms: absenteeism, anxiety, AUDIT-C, depression, employee assistance program, mental health, presenteeism, productivity, PHQ-4, Workplace Outcome Suite (WOS)

I. INTRODUCTION

CuraLinc Healthcare is an external vendor of employee assistance program (EAP) services in the United States. The company has published three research papers to date. The first was a study of the clinical outcomes (depression and alcohol) and work outcomes (absenteeism and productivity) for over 33,000 employee users of the EAP counseling service during the years 2017 to 2022 [1]. CuraLinc Healthcare also published a second study for over 1,000 employees who used a new mental health coaching service during the years 2020 to 2022 and its impact on depression and work outcomes [2]. The third study profiled counseling users who were formally referred to the EAP by their manager or supervisor at work due to job performance or other significant workplace concerns and compared them to the self-referral kinds of cases [3].

Examination of trends in our utilization data revealed that the top three presenting issues for why employees used the counseling historically had been stress, depression and anxiety (in that order). But for the first time starting in year 2020, anxiety topped depression and has been the second most common presenting issue ever since. Therefore, in the current study (the fourth in the series), we focused on using our data to better understand anxiety and its impact on work.

1.1. Understanding Anxiety

Defining Anxiety. Anxiety disorders are comprised of several subtypes, including generalized anxiety disorder, panic disorder, social anxiety disorder, specific phobias and separation anxiety disorder [4]. People with anxiety experience constant, chronic and unsubstantiated worry, often about health, family, money or work. Some of the symptoms of anxiety include feeling nervous, anxious or on edge; uncontrollable worry; worrying about many things; trouble relaxing; restlessness and inability to sit still; easily annoyed or irritable; and fear that something awful might happen. Like most mental health disorders, anxiety often starts in childhood before being first diagnosed in late adolescence or early adulthood [5]. Evidence indicates 30% to 50% of all anxiety disorders have a genetic component and thus heritability from parents to children can occur [6]. Most studies of clinical anxiety have found that the prevalence rate in women is about twice as high as in men [4,5]. Age differences also exist with most studies finding more anxiety among younger adults in their 20s compared to those in later decades of life with the lowest rates for people in the retirement years [5].

Measuring Anxiety Risk. Most studies that screen for risk of anxiety disorder in the population or measure anxiety symptoms as a clinical outcome use the Generalized Anxiety Disorder Screener (GAD-7) [7-9] or the brief two question version (GAD-2) [9]. The brief anxiety measure is part of the Patient Health Questionnaire four question scale [10,11], which also includes two items on depression disorder. The depression items on the PHQ-4 are taken from the full nine item scale (PHQ-9) [12,13].   Each of these anxiety and depression measures have been used in thousands of research studies and more generally in healthcare service delivery.

Prevalence of Anxiety in the United States. According to large population-based surveys, up to a third of people will be affected by an anxiety disorder during their lifetime [4]. The annual prevalence rate for anxiety disorder in the US depends on methodological differences in various studies but historically it has ranged from 6% to 10% of adults [14]. For example, estimates of mental health based on the 2019 US National Institutes of Health Survey (which had a 61% respondent participation rate) [15] found that 8.1% of adults had symptoms of anxiety disorder, 6.5% had symptoms of depressive disorder and 10.8% had symptoms of both. There are differences between countries and global regions in anxiety prevalence rates [14,16].

The COVID-19 pandemic has been associated in some studies with a doubling or tripling of prevalence rates for anxiety and other mental health disorders in the US and globally [17-21]. However, there are important criticisms of methodological issues and biased sampling involved in many of these studies that used online participant recruitment and data collection activities [22,23]. Thus, it appears the increase in prevalence rates of mental health problems (including anxiety) during the COVID-19 global pandemic were overestimated or only temporary occurrences according to other data. For example, a meta-analysis review of 65 different longitudinal cohort studies (mostly in North America and European countries) examining mental health prior to and again during the COVID-19 pandemic in 2020 came to the following conclusion [24]:

> …there was a significant but statistically small increase in mental health symptoms. Increases were larger and persistent for depressive symptoms, as opposed to smaller changes in anxiety disorder symptoms and measures of overall mental health functioning. The overall increase in mental health symptoms was most pronounced during the first two months after the WHO declared a pandemic (March, 2020), before decreasing and being comparable to pre-pandemic levels for most symptom types by mid-2020. (p. 574)

The largest and most methodologically sound study in the US is the Behavioral Risk Factor Surveillance System conducted by the Centers for Disease Control. It features a random sampling process and telephone surveys and has a participant response rate of over 50% [23]. Using this survey and a single item ("Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?" – which is highly correlated with the PHQ-4 standard screener scale), the results found an average of 9.8% of over 540,000 employed adults responding yes across the pre-pandemic years 2017 to 2019 and then only a very small increase to 10.8% for over 168,000 employed adults in 2020 during the first year of the pandemic [23]. The best available epidemiologic data suggests that about 1 in every 10 working adults in the US is at risk for anxiety disorder and a slightly lower rate for depression disorder, with both being slightly more common since the pandemic started.

Comorbidity of Anxiety with Depression. Most studies show a high overlap between anxiety disorders and other mental disorders, particularly depression [25-27]. For example, among Canadian workers in year 2019, there was a high rate of comorbidity with 81% of the workers who screened positive for anxiety also having screened positive for depression and risk status on these two disorders was highly correlated ($r = .68$) [16].

Comorbidity of Anxiety with Alcohol. Compared to the comorbiditty witth depression, other studies show a much smaller overlap between experiencing both anxiety disorders and substance use, particularly alcohol misuse [28,29]. For example, one study of US national data found that among those with anxiety disorder, 13% also had an alcohol use disorder [30].

Adverse Impacts of Anxiety. Anxiety disorders are associated with various adverse outcomes [31]. People with anxiety tend to have greater use of health care services [32]. Employees with anxiety tend to have greater workplace presenteeism (i.e., working while unwell), absenteeism and disability days off work [33-36]. For example, Milot [16] assessed mental health risks for anxiety (GAD-2) and depression (PHQ-2) in a random sample of 1,000 workers in Canada and found that a risk for clinical anxiety was positively associated with greater work presenteeism and worse work performance.

Treatment for Anxiety. Many studies show that psychological treatment for anxiety can be highly effective [26]. Despite the existence of effective psychotherapy or psychiatric medication treatments available for anxiety disorders, most adults with anxiety risks do not receive proper clinical care [37]. Substantial under-recognition and under-treatment of anxiety disorders has been demonstrated in primary care and many other settings. An alternative to care provided by the healthcare treatment system is brief counseling provided as an employee benefit from EAPs.

1.2. Anxiety and EAP Counseling

EAP is generally defined as a "set of professional services specifically designed to improve and/or maintain the productivity and healthy functioning of the workplace" [38]. Staffed mostly by masters-level licensed counselors and social workers, EAPs offer assessment and short-term counseling for individual employees who present with a range of behavioral health, personal life and work-related issues.

Anxiety as an Issue Among EAP Counseling Cases. An industry-wide study of utilization and outcome data from 35 different EAPs globally found that anxiety was the presenting issue for 7.7% of 29,094 counseling cases during years 2010-2020 who had used counseling services [39]. Trauma and PTSD (i.e., other aspects of anxiety) were presenting issues that accounted for another 1% of cases in the same study and depression was a presenting issue for 7.7% of cases.

Anxiety Risk Among EAP Counseling Cases. Findings from the analysis of the different topics among the presenting issues for EAP cases is different from having EAP cases complete a validated screening tool for anxiety disorder. When such data is examined, the impact of anxiety on users of EAP counseling is much greater. An older unpublished report by an external EAP provider in the US found that 27% of counseling cases in years 2013-2014 were at risk for clinical anxiety (GAD-2; however, the sample size was not disclosed) [40]. A more recent study by a different external EAP provider in the US found that 50% of 704 employees in years 2019-2020 had started counseling use at risk for clinical anxiety (GAD-7) [41]. A third study by a non-profit external EAP provider in the US found that 58% of 830 cases in years 2019-2021 were at risk for clinical anxiety (GAD-7) when starting their use of counseling [42].

Several other EAPs have collected data on their clients with the GAD measure, but the key finding of what percentage of the total clients had started use of the service at risk for clinical anxiety was missing from the reports. This omission was because either the authors did not analyze the data to find this statistic [43-45] or they did not include the full sample of clients in their study and instead focused only on the subset of users who had started EAP use at risk for anxiety and/or depression disorders [46-50].

Reducing Anxiety by EAP Use. Review of the literature identified nine longitudinal studies that tested if use of EAP counseling or coaching was associated with improvements in anxiety levels among clients. The three most scientifically rigorous studies all used research designs that involved comparison groups of other employees who did not use the EAP counseling but who had completed the same clinical risk and work outcome measures. Six other studies involved single group research designs that lacked a comparison group.

A prospective quasi-experimental study of the internal model EAP for the employees of the State of Colorado in the US compared 151 EAP clients with 187 non-users of the program who were matched to the counseling clients on numerous baseline variables including demographic, occupational, mental health, workplace functioning and other characteristics and measures. EAP users at 8 months follow-up had significantly reduced symptoms of anxiety by 32% (GAD-2) [43]. Moreover, this improvement for EAP cases was significantly better than what was experienced by the comparison group at 4 months later. The EAP cases also had significantly reduced work presenteeism and work distress and increased work engagement after use. Other analyses revealed the longitudinal improvements in anxiety was positively correlated with improvements in the work outcomes.

A second prospective quasi-experimental study was conducted in Canada with data from an external national EAP vendor [44]. Outcomes were compared between a group of 152 EAP clients and a comparison group of 152 non-EAP users that had been matched to the counseling group profile on numerous baseline variables (i.e., demographic, occupational, mental health risks, workplace functioning and other characteristics). At a 6 month follow-up, the EAP cases had significantly reduced symptoms of anxiety (GAD-2) compared to the non-EAP group. EAP cases also had significantly better improvements in work presenteeism and work distress, and increased work engagement than the comparison group. Longitudinal improvements in anxiety were correlated with improvements in work outcomes.

A third study featured a randomized control trial (RCT) prospective experimental study that was conducted in Malaysia of an EAP at one employer [45] and involving a small sample of 88 employees. Over a 3 month period the intervention group received a comprehensive stress management program that included healthy mental health module, anxiety management technique, mindfulness for stress and stress at work. The control group received no further intervention other than a general brochure on stress. The EAP cases demonstrated significant reductions in anxiety, depression and stress severity scores at a follow-up conducted at 3 months post intervention whereas the control group had no significant changes on these outcomes.

Another external vendor in the US conducted a series of six applied archival data studies using single-group longitudinal research designs to test for improvement in symptoms of anxiety – but only among subsamples of cases who had started EAP use with a screening result of being at risk for clinical anxiety and/or depression. Five of the studies focused on users of counseling services (all delivered via online video) and each study found significant overlap between anxiety (GAD-7) and depression (PHQ-9) at baseline and also found significant improvements in both of these mental health outcomes from before to after use [41,46-49]. Another study from this same EAP examined the effectiveness of coaching delivered via text messaging [50] and it also found significant improvements after use in the severity level of anxiety (GAD-7). These same studies also conducted analyses to determine the percentage of clients who had a "reliable change" in their level of anxiety symptoms from before for after EAP use. Those results for calculating a reliable change index score for each client [see 51-54] found the majority of the clients had reductions in their GAD-7 scores over time that exceeded chance levels based on the psychometric reliability for the scale and thus were classified as experiencing clinically meaningful change.

Finally, a statewide non-profit EAP located in Vermont in the US collected assessments of multiple health risks and work outcomes using a survey conducted at 1 to 2 months after the final counseling session from 830 clients [42]. The clients were also asked to retrospectively report on the level of anxiety (GAD-2) and work factors for the time period just before starting use of the service and also to report on the same outcomes since the last use of the program. In the total sample, the average scores for anxiety were reduced by 44%. The percentage of the total cases at risk for clinical anxiety changed from 58% at Pre to 24% at Post. Other analyses revealed the improvement in anxiety level was positively correlated with the improvement in work productivity ($r = .49$).

These research studies on the users of EAP services involving validated measures of the severity of anxiety all have in common the following three findings: 1) comorbidity between anxiety and depression; 2) a significant reduction in the severity of anxiety after EAP use; and 3) that improvements in anxiety level after use were significantly associated with improvements in work outcomes after use (particularly for productivity or presenteeism).

1.3. Study Overview

This study is based on over 20,000 clients who used a national EAP service during parts of 2022 and 2023. All of the clients had completed a standardized risk screening measure for anxiety at the start of using either the counseling or coaching services. These same users also completed brief measures of depression disorder, the extent of hazardous alcohol use and two aspects of employee work performance (absenteeism and presenteeism). This study examines the level of risk for anxiety disorder among EAP users, explores possible correlates of anxiety with client demographics, employer context factors and various aspects of how and why the EAP services were used. We also obtained follow-up data on a longitudinal subsample and thus also could test for change over time in anxiety outcomes from before to after EAP use. This is a single-group non-experimental study design with longitudinal follow-up for relevant clients.

1.4. Research Questions

Theme 1 – Range of Severity for Anxiety and Clinical Risk Among EAP Users

RQ1: What is the range of severity for anxiety in the total sample of clients who use EAP individual services (i.e., counseling or coaching) and how many clients in the total sample are at risk for clinical anxiety?

RQ2: How many of the clients who were *at risk* for clinical anxiety (based on the screener questions) were specifically asking for assistance to address an anxiety-related issue? In other words, to what extent are those at risk for anxiety aware of having this behavioral health risk?

Theme 2 – Factors Associated with Anxiety

RQ3: In the total sample of users of the EAP, which factors are associated with anxiety?

- User demographic factors: Age, Gender
- Employer factors: Industry of employer; Counseling session limit model, Formal management referrals

- EAP use factors: Service type (coaching or counseling); Employee status, Modality of access; Presenting issue; Duration
- Behavioral health clinical risk factors: Depression, Hazardous alcohol use
- Work performance factors: Absenteeism hours, Presenteeism, Combined hours of lost productive time (LPT)

Theme 3 – Improvement in Anxiety After EAP Use

RQ4: In the full group of users of the EAP with longitudinal data (i.e., anxiety measures collected at both Pre and Post use), is the severity level of anxiety reduced after use for the typical client? And if so, do any other factors moderate this outcome?

RQ5: In the full group users of the EAP with longitudinal data, is the extent of improvement in anxiety level associated with the extent of improvement in work outcomes?

RQ6: In the subsample of the group of users of the EAP with longitudinal data who started their use *at risk* for clinical anxiety, how many clients were able to achieve a "clinically reliable" change in the severity of their level of anxiety symptoms after use?

II. METHODOLOGY

2.1. About the Service Provider

CuraLinc Healthcare is a global external vendor of EAP services, based in the United States. In business since 2008, it has served over 3,700 employer customers that offer the EAP as a benefit to over 6.5 million employees. This company specializes in delivering transformative workforce mental health programs by marrying technology and personalized advocacy to engage, empower and support employees throughout their care journey. The EAP benefit open to all covered employees and promoted through a variety of digital, interpersonal and workplace promotional practices. Most employees decide to use the service and become a client when they are interested in getting professional assessment and therapeutic support for a wide variety of behavioral health and work/life issues. As part of its ongoing business practices, this EAP routinely collects several kinds of data relevant to assessing the outcomes of the services.

2.2. Archival Real-World Use Data

The study featured data from clients who started their EAP use in the 11-month period of August of 2022 through June of 2023. For this study, we extracted the following information from the operational data system: name of employer customer, maximum counseling sessions allowed per treatment episode in the employer/customer contract, the source of referral to the EAP, the status of the user (i.e., employee or family member of the covered employee), the type of EAP service used (i.e., counseling or coaching), date of first use of the service, client age, client gender, primary issue presented at the start of use by the client (ex., anxiety, depression, stress, marriage, work, etc.), the modality of how the service was delivered via online video or in-person at the counselor's office, and for some users also the date of voluntary participation in the standard post use follow-up outcome survey.

2.3. Client Intake and Counseling/Coaching Interventions

The service was accessed in a variety of ways, most commonly by calling in to the service and talking on the telephone with a licensed mental health professional or by self-scheduling an initial session online. As per the CuraLinc clinical model, every employee who requested support was referred to a clinician with a specialty that matched their presenting issue or concern who also had confirmed appointment availability. As with all aspects of the EAP, the participant's personal choice is always a priority and thus users could choose counseling or coaching for any reason, even if their clinical symptoms were mild.

The counseling was most often delivered in either face-to-face sessions at the counselor's office or remotely via live secure video over the Internet. All counselors involved in the delivery of the clinical treatment services were fully licensed and trained professionals, with earned masters or doctoral degrees in social work, mental health or related fields.

For participants who chose coaching, the intervention included individual sessions that were solution-focused and addressed personal goal setting, practical problem-solving and skill-building. It is different from executive coaching, workplace coaching, life coaching or basic wellness health coaching. These participants had a personal preference for using the coaching over counseling and the assessment determined that, based on the relatively low clinical severity of the issue (and the absence of any risk or safety concerns), coaching could be appropriate. All coaching was delivered either in-person or remotely via live secure video over the Internet.

2.4. Measures

During the initial assessment, the multiple self-report measures were collected, either over the telephone or from a brief online survey. After the treatment phase was completed, the EAP conducted individual follow-ups with clients about 30 days after the last clinical

session to collect outcome measures and evaluate other quality of use metrics. Standardized measures of behavioral health and work outcomes were assessed using published and validated self-report scales. The health measures included symptoms of anxiety, depression and hazardous alcohol use. The work measures included hours of absenteeism, level of presenteeism and a post hoc derived measure of combined hours of lost work productivity. All measures had acceptable levels of psychometric validity and reliability.

Mental Health. The mental health disorders of anxiety and depression severity were measured using The Patient Health Questionnaire 4-item brief scale (PHQ-4) [9-11]. This scale combines two items from the Generalized Anxiety Disorder full 7-item scale (GAD-7) [7-9] and two items from the full Patient Health Questionnaire 9-item scale for depression [12,13]. The PHQ-4 has been used in many research studies and has established validity and reliability. The instructions state:"Over the last 2 weeks, how often have you been bothered by any of the following problems?" Each item (see below) has the same four response options of: (0) *Not at all*; (1) *Several days*; (2) *More than half the days*; and (3) *Nearly every day*. Our findings for the reliability of the GAD-2 and PHQ-2 were very similar to the levels found in other research on EAP counseling cases, which were also in the mid-80 range for both measures [see 42].

Anxiety. The GAD-2 is created by adding together the scores for the two anxiety items on the PHQ-4. The questions were: "Feeling nervous, anxious or on edge" and "Not being able to stop or control worrying." This scale ranges from 0 to 8. Higher scores on this measure indicate greater anxiety. Clinical at-risk status for anxiety was categorized as scores of 3 or higher [9-11]. This scale had excellent psychometrics with high internal consistency at both time points (Pre $\alpha = .89$, $n = 20{,}725$; Post $\alpha = .89$, $n = 772$) and a large and significant test-retest correlation over an average interval period of 84 days between Pre and Post ($r_{paired} = .44$; $n = 771$).

Depression. The PHQ-2 is created by adding together the scores for the two depression items on the PHQ-4. These questions were: "Little interest or pleasure in doing things" and "Feeling down, depressed, or hopeless." This scale ranges from 0 to 8. Higher scores on this measure indicate greater depression. Clinical at risk status for depression was categorized as scores of 3 or higher [9-11]. This scale had excellent psychometrics with high internal consistency at both time points (Pre $\alpha = .85$, $n = 20{,}725$; Post $\alpha = .85$, $n = 772$) and a significant Pre to Post correlation ($r_{paired} = .45$, $n = 771$).

Alcohol Misuse.   Developed by the World Health Organization, the Alcohol Use Disorders Identification Test is a 10-item scale (AUDIT-10) [55,56]. It also has a brief 3-item version called the AUDIT-C, which features only the first three items of the full scale that emphasize consumption level [57]. It is scored by adding together the scores for the following questions. Item 1: "How often do you have a drink containing alcohol?" 0 = *never*; 1 = *Monthly or less*; 2 = *2-4 times per month*; 3 = *2-3 times weekly*; 4 = *4 or more times per week*. Item 2: "How many drinks containing alcohol do you have on a typical day of drinking?" 0 = *1 or 2 drinks*; 1 = *3 or 4 drinks*; 2 = *5 or 6 drinks*; 3 = *7 to 9 drinks*; 4 = *10 or more drinks*. Item 3: "How often do you have 5 (for men under age 65) / 4 (for women and men over age 65) or more drinks on one occasion?" 0 = *never*; 1 = *less than monthly*; 2 = *monthly*; 3 = *Weekly*; 4 = *Daily or almost daily*. This last item assesses what is called "binge drinking*."* This scale score can range from 0 to 12 and higher scores on indicate more hazardous alcohol use. "At risk" clinical status is defined as a score of 3 or higher for women or 4 or higher for men [56,57]. This scale had high internal consistency at the start of EAP use (Pre $\alpha = .79$, $N = 19{,}824$) but lower reliability at Post ($\alpha = .57$, $n = 738$) due to a majority of participants at the follow-up with 0 ratings. The scale had a significant Pre to Post correlation ($r_{paired} = .47$, $n = 729$). Note that a small portion of EAP users declined to answer these questions about alcohol use ($n = 901$; 4.3% of total).

Work Absenteeism. Developed by Chestnut Global Partners [58], the Workplace Outcome Suite (WOS) is a validated questionnaire with five outcomes that has been used in over 40 EAP studies [39,43,44,58-61]. One of the five outcomes on the WOS is work absenteeism. Instructions were: "For the period of the past 30 days, please total the number of hours your personal concern caused you to miss work. Include complete eight-hour days and partial days when you came in late or left early." A fill in the blank field is used for the response. Unlike the other outcome scales in this study, this measure did not use a set of statements with the same ratings and thus, the internal reliability was not relevant to assess. Similar to past research using the WOS, the majority of all employees using the EAP reported zero hours of work absence at start of use (84%) and at the follow-up (97%).

Work Presenteeism - WOS. Originally a 5-item scale [58], this measure was shortened to a single item [61]. The single-item version of the Workplace Outcome Suite Presenteeism Scale is a widely used measure in the EAP field [39,43,44,58-61]. Instructions were: The following statement reflects what you may do or feel on the job or at home. Please indicate the degree to which you agree with each of the statements for the past thirty (30) days. Item: "My personal problems kept me from concentrating on my work." It has response options of: (1) *Strongly disagree*; (2) *Somewhat disagree*; (3) *Neutral*; (4) *Somewhat agree*; and (5) *Strongly agree*. It had a significant Pre to Post correlation ($r_{paired} = .30$; $n = 771$).

Hours of Lost Productive Time. We also wanted to determine how much total work productivity loss there was among users of the service. Seminal research conducted for the American Productivity Audit project [62] identified how a single simple metric can be used to index the dual impact of work absenteeism and work presenteeism. This metric is called lost productive time (LPT) and has been used in many EAP outcome studies [1-3,39,42,60]. It is measured in hours of scheduled work time that is unproductive per month. The WOS absenteeism and presenteeism items were used to create this measure. The WOS presenteeism item ratings were assigned new values, corresponding to different levels of work productivity on a 0 to 100% scale from low to high. The specific levels of estimated

work time that was productive were determined through past research [60]: *strongly agree* = 30% productive while working (i.e., a 70% unproductive or presenteeism level); *agree* = 50% productive; *neutral* = 70% productive; *disagree* = 90% productive; *strongly disagree* = 100% productive. The LPT hour estimate was calculated using the following steps for all cases with valid work data (for Pre period and again for Post period, if available). This math involved the following calculation steps:

- Step 1. Work schedule in month for enployee assumed to be 160 hours (i.e., full-time worker status of a 8-hour work shift X 5 day work week = 40 hours weekly X four weeks in month).
- Step 2. Hours of absenteeism = from user self-report on WOS measures (range 0 to 159).
- Step 3. Worked time = Step 1 minus Step 2.
- Step 4. Severity level of work presenteeism while working as percentage ranging from 0 to 100% of potential total work time lost due to impact of personal counseling issue of employee. This estimated level of unproductivity was caclulated as 100% minus level of presenteeism as % from recoding of the WOS measure.
- Step 5. Hours of presenteeism = Step 3 X Step 4.
- Step 6. Total LPT Hours = Add Step 2 absenteeism hours and Step 5 presenteeism hours.

2.5. Determination of Valid Study Participants

Users of the EAP for other kinds of services than counseling and coaching were excluded (i.e., management consultations, group-level crisis event response, trainings, self-care educational resources, and so on). The minimum criteria for inclusion was having valid data on the anxiety level measure at the start of service use and data on the specific profile factor(s) examined.   The minimum criteria for inclusion in the longitudinal test samples was having the anxiety level measure collected at both Pre and Post periods.

Based on past research using the WOS [1-3,39,42,60], employees who were not working were judged as irrelevant to answer questions about absence from work or their level of presenteeism while working. This criterion was operationalized by excluding all clients who reported 160 or more hours of absence in the past 30 days (i.e., an amount that exceeded a standard U.S. full-time schedule of 8-hour daily work shift performed five days per week). Any cases who reported missing 160 or more hours were excluded from analysis of the work outcomes (both absenteeism and presenteeism). This not working group, however, was very rare in the study data, being only 9 employees at the start of use and none at Post among the clients with longitudinal data.

2.6. Profile of Study Sample at Pre

The total sample included 20,725 users of the EAP. These users had access to the EAP benefit from 1,477 different employers located throughout the United States. The study sample reflects a broad range of employers and employees and different ways the service was used (see Appendix A). Most of the EAP users were employees (95%), although 5% of study sample were a family member of an employee with the EAP benefit. The vast majority of users choose to use a licensed mental health counselor (96%), while 4% used a professional coach to address non-clinical issues involving emotional fitness or mild mental health concerns (see our other paper profiling users of coaching [2]). The vast majority (97%) of users were self-referrals into the service, with only 3% being formally referred to use EAP counseling by their manager at work (see our other paper profiling this group [3]). The modality of how the counseling was delivered was split between in-person at the counselor's office (52%) or online video (48%). Most of the clients were females (63%; males 37%). The age of clients ranged considerably from late teens to over 80, but the average was about 40 years old. The reason given for why these clients wanted to use the service included over 30 different specific kinds of issues. The most common issues for EAP use involved mental health topics (43%), followed by personal stress and work/life issues (35%), marriage and family issues (15%), work-related issues (6%); or substance use involving alcohol, drugs or other addictions (1%). Participants had a use model determined by their employer that limited the maximum number of counseling sessions allowed per treatment episode. This limit ranged as follows: 3 session limit = 8%; 4 sessions = <1%; 5 sessions = 31%), 6 session = 26%; 7 sessions = <1%; 8 sessions = 24%; 9 sessions = <1%; 10 sessions = 9%; or unlimited sessions = <1%). Most clients engaged in multiple counseling treatments or coaching sessions over a two-month period, with the average being 54 days (range 1 to 187; median 60).

2.7. Longitudinal Follow-up

The follow-up measurement after use was completed at approximately 30 days later than the date of the final counseling session or about 7 days after the final coaching session. The longitudinal sample of 772 clients represented about 5% of total relevant EAP participants (see Appendix B). This follow-up group had a mix of different industries represented by their employers: 17% blue collar work, 15% manufacturing, 14% healthcare, 13% retail and restaurants 13% public sector, 12% finance and insurance, 7% education, 4% technology and 4% other. The longitudinal group was characterized by being mostly employees (97% *vs*. 3% family members), users of counseling rather than of the coaching services (91% *vs*. 9%, respectively), self-referral into the EAP (75% *vs*. 35% formal management referral), delivery modality of online video (51% *vs*. 49% in-person), female (52% *vs*. 48% male), and an average age of 40 years. The range of

presenting issues among longitudinal clients included mental health (38%; 13% anxiety, 16% depression, or 16% other mental health issues), marriage and family issues (29%), personal stress and work/life (10%), work stress (10%), and substance use (13%). The average counseling session limit model purchased by the employer was a maximum of 6 sessions. Most of these clients used the EAP for an average 54 days (range 1 to 187).

Of interest is how well the longitudinal group represented the full sample. Preliminary tests compared the follow-up group with other clients who did not participate in the follow-up who had used the service for a long enough to qualify for the follow-up activity (see Appendix B). The results indicated that the follow-up group was indeed a fair representation of the larger study sample on almost all factors tested (i.e., non-significant or trivial differences on EAP service type, client age, gender, employee status, industry, session model, access modality, anxiety as presenting issue, level of anxiety severity, level of depression severity, work absenteeism hours and work presenteeism – but the follow-up group had relatively more clients who were formally referred to use the EAP by the manager at work and had relatively more clients with substance use as their presenting issue).

2.8. Data Analysis Plan

The general goal was to provide descriptive statistics on the range of severity of anxiety and to conduct tests that explored if anxiety level at the start of EAP use was significantly associated with a variety of other factors available in the operational data. All analyses were conducted using the Statistical Package for the Social Sciences (SPSS) Version 27. Correlational analyses were conducted with Pearson tests. Analyses with categorical variables were conducted with chi-square (χ^2) nonparametric test procedures. Tests of mean differences were performed using one-way or factorial analysis of variance (ANOVA) procedures. The tests of improvement over time (Pre to Post) with mean scores on the anxiety severity measure were conducted using a repeated measures analysis of variance procedure (RM-ANOVA) with covariates or chi-square McNemar tests for change in anxiety risk status.

For the sub-group of cases at risk for anxiety, we also used a more sensitive analysis developed by Jacobson and Truax [51] that tested for the extent of clinical improvement achieved based on the Reliable Change (RC) index methodology [52,53]. The development of certain statistics needed for the RC index analyses were derived from data specific to our study (see Appendix C). In addition, we calculated the number of at risk cases who demonstrated "reliable recovery" [54] which is defined as when the case experienced *both* a clinically reliable improvement (based on the size of the difference between their Pre and Post scores) and recovery on the clinical symptom measure (i.e., changed from above the clinical cut-off score threshold at Pre to below the threshold at Post).

2.9. Statistical Power and Effect Sizes

With such a large sample size, the level of statistical power [63] to detect a small size effect in repeated measures tests at $p < .05$ chance level was very high at .99. Given the very large samples involved in the tests with the baseline data, we had extremely high levels of statistical power and thus also the ability to declare even very small differences found as being "significant" at beyond chance levels (i.e., $p < .05$). Thus, we adopted a commonly used interpretative tool within the social sciences of comparing the statistical effect sizes of certain results. Following Gignac and Szodorai's meta-analysis review of research results in psychology [64], we converted various metrics of statistical effect size (Cohen's *d*, partial eta squared η_p^2) into a single effect size of the standardized correlation coefficient (*r*) and considered *r* of .30 or higher to indicate a large effect, *r* of .20 to .29 a medium size effect, *r* of .10 to .19 as a small size effect, and *r* less than .10 to be a trivial difference even if significant beyond a chance level.

III. RESULTS

PART 1: Anxiety Among EAP Users

As shown in Figure 1, each score on the risk measure for anxiety was represented in the study sample of EAP users. Thus, the full range possible on this scale was achieved, ranging from 20% of clients with the lowest possible score to 16% of clients with the highest possible score. When starting EAP use, 42% of clients (*n* = 8,698 of 20,725) were classified as being at risk for anxiety on the GAD-2 standardized screening measure. Thus, the answer to our first research question is that yes anxiety is relevant to EAP users as more than 4 out every 10 clients were at-risk for clinical anxiety disorder.

This program utilization data indicated that 14% of the total sample reported that anxiety was their primary reason for seeking professional support. Having anxiety as the presenting issue was the same for the users of counseling (14%; *n* = 2784/19097) and the users of coaching (13%; *n* = 109/817). Compared to the other findings presented above, three times as many EAP clients were at risk for clinical anxiety than the number who were seeking support specifically for an anxiety related issue (see Figure 1).
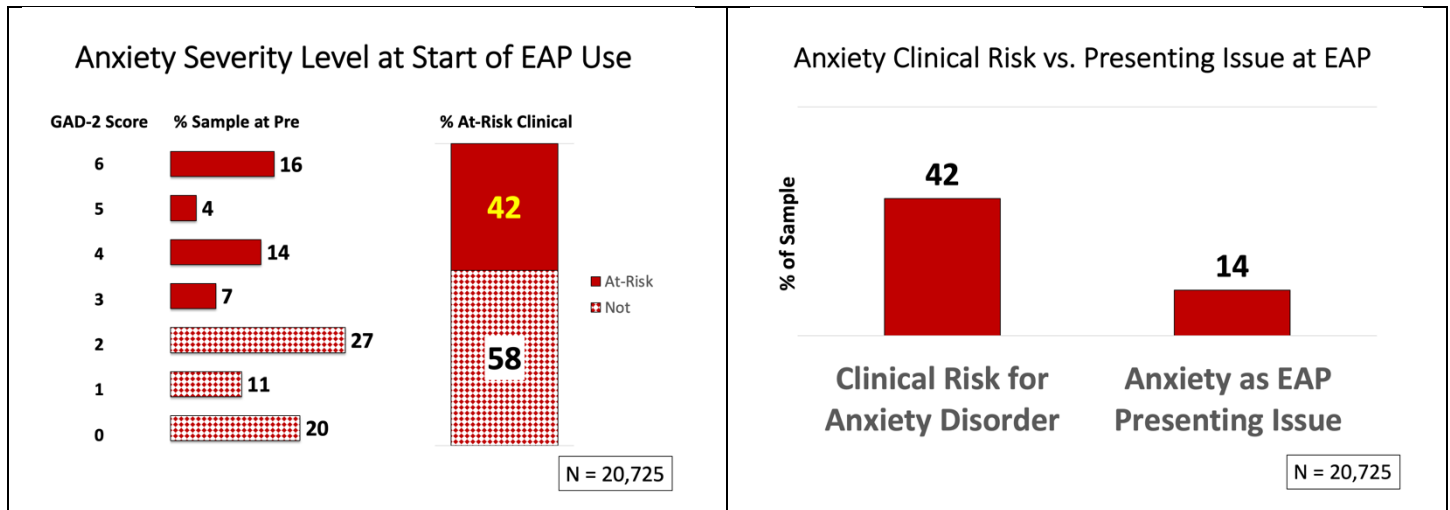
Figure 1. Level of anxiety symptoms, clinical risk status of anxiety, and presenting issue of anxiety in EAP clients.

The overlap of clinical anxiety status with anxiety as the presenting issue was significant and a small size statistical effect (see Appendix D). Overall, about 1 in every 10 EAP users (9%) were both at risk for clinical anxiety and used the EAP to address an anxiety issue (see Figure 2). Among the subsample of clients at risk for clinical anxiety, 21% ($n = 1836/8698$) sought support specifically for an anxiety related mental health issue. This rate was more than twice as high when compared to the users who were not at risk for anxiety (9%; $n = 1057/12026$) but had anxiety as their presenting issue. These findings provide an answer to our second research question that suggests most EAP clients who were at risk for clinical anxiety (based on the GAD-2) may have been unaware of the severity of their condition, as evidenced by the majority of this at-risk group (79%; $n = 6862/8689$) seeking support for an issue *other than* anxiety. Or perhaps they were aware of their high anxiety, but another presenting issue was prioritized as the focus of therapy with the EAP.
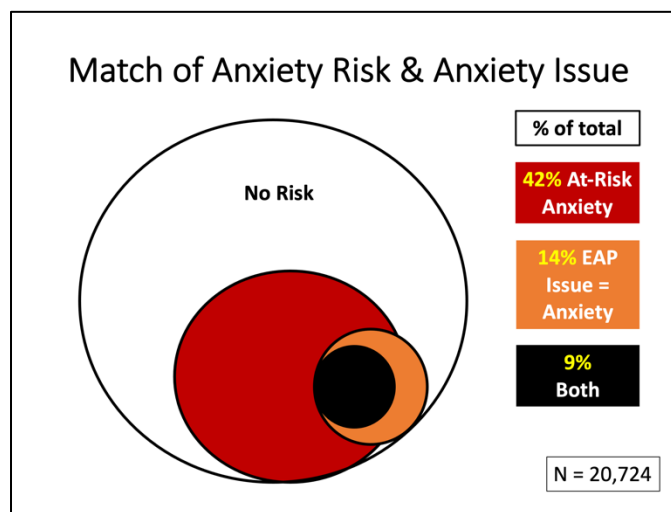

Figure 2. Overlap of clinical anxiety with primary presenting issue of anxiety.

PART 2: Correlates of Anxiety

The level of anxiety when starting EAP use was also examined for how much, if at all, it was also associated with user's demographic characteristics (age & gender), with employer-related context factors (industry and session limit model), and with EAP service utilization factors (six variables). The statistical details for these findings in tests conducted without controlling for other factors are shown in Appendix E Table E1. Of the ten factors, three were not significant and/or had near zero effect sizes, another six factors had significant but trivial size effects, and only one (type of presenting issue) had a meaningful association with anxiety. Each factor was also further tested using a multivariate ANOVA model that controlled for any shared influences on anxiety level or clinical risk status associated with the other factors. Note these tests involved a slightly smaller sample size ($n = 19,417$) as some factors had missing data. These results are shown in detail in Appendix E Table E2. The adjusted results are the more accurate findings and are featured below.

3.2.1. Anxiety and Demographic Factors

The study sample included a mix of clients of different ages and genders which provided reliable test conditions of these demographic factors. The percentage of clients within each subgroup for age and gender are presented in Figure 3. The tests found that the level of anxiety was only weakly associated with age and gender, as both factors had trivial size effects. The different age groups differed from each other to a very small extent (at risk for anxiety ranged from 40% to 42%). Overall, slightly more female users of the EAP were at risk for anxiety than males (44% > 39%, respectively). The interaction of client age and gender created eight subgroups (ex., females under age 30) and this combined effect for differences in anxiety risk was also a trivial size effect ($F = 3.60$, $p = .01$; $r = .03$).
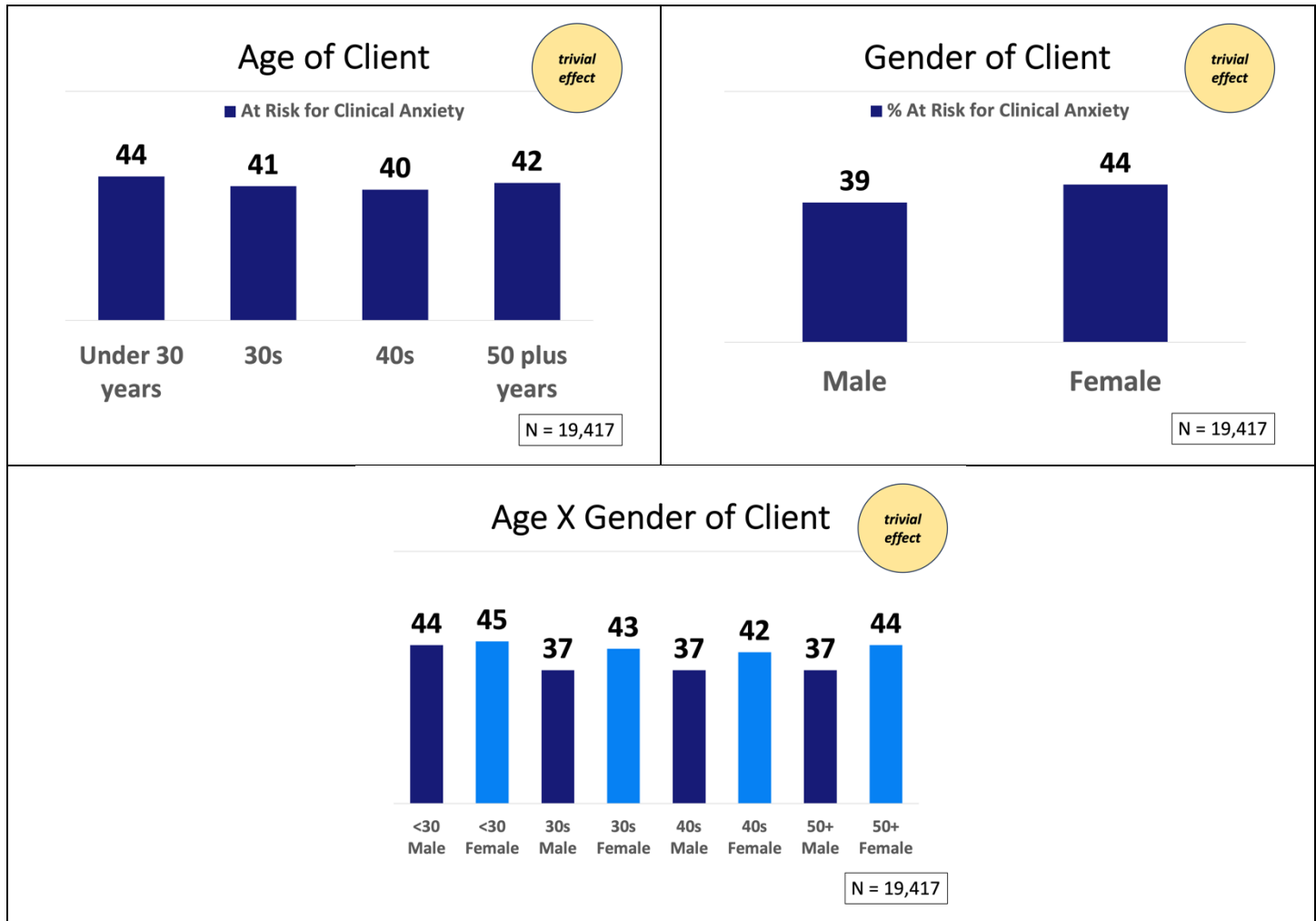
Figure 3. Percentage of users at risk for clinical anxiety by client age and gender (adjusted multivariate results).

3.2.2. Anxiety and Employer-related EAP Factors

Tests found that both of the employer-related factors were only weakly associated with anxiety level at Pre and were trivial size effects. The adjusted results for the percentage of clients who were at risk for anxiety within each subgroup for these employer factors are presented in Figure 4. The range across different industries was a high of 47% at risk for anxiety among the EAP users who worked in the retail or restaurant industry category to a low of 37% at risk among those who worked in the technology industry. Differences by session limit were not associated with the level of anxiety for the EAP user (at risk ranged from 40% to 44%).
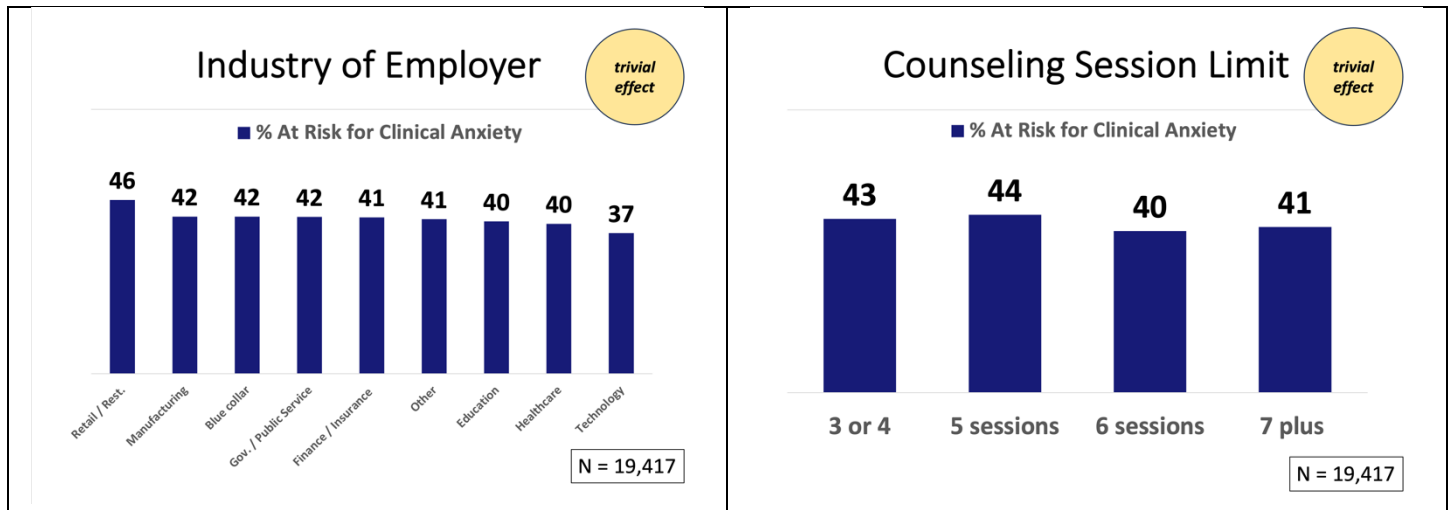
Figure 4. Percentage of users at risk for clinical anxiety by employer factors (adjusted multivariate results).

3.2.3. Anxiety and EAP Use Factors

Other tests explored if anxiety was related to how and why the EAP was used. The tests found that all but one of the six utilization related factors had either non-significant differences or significant differences with only trivial effect sizes. The adjusted results for the percentage of clients who were at risk for anxiety within each subgroup for these use factors are shown in Figure 5.
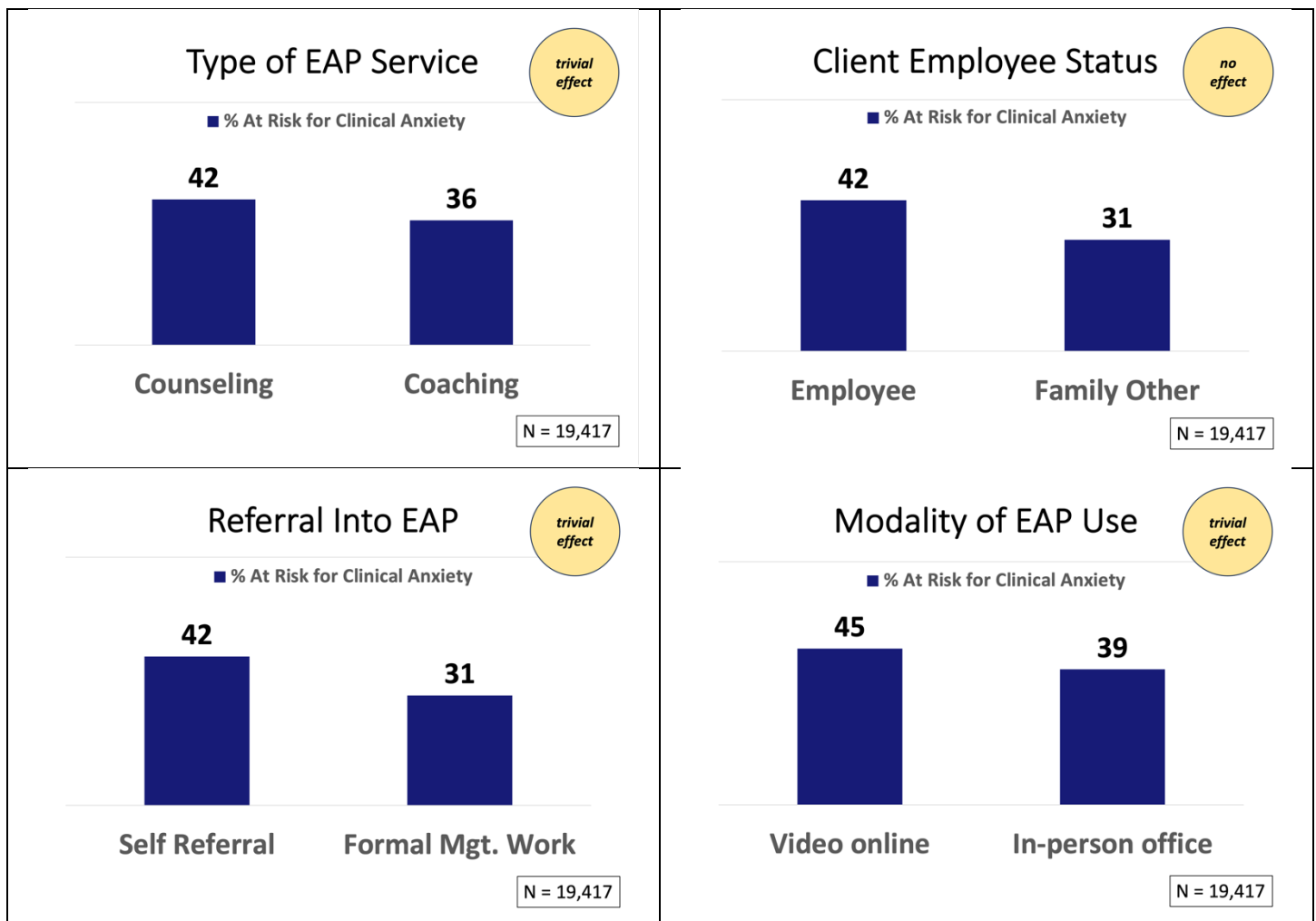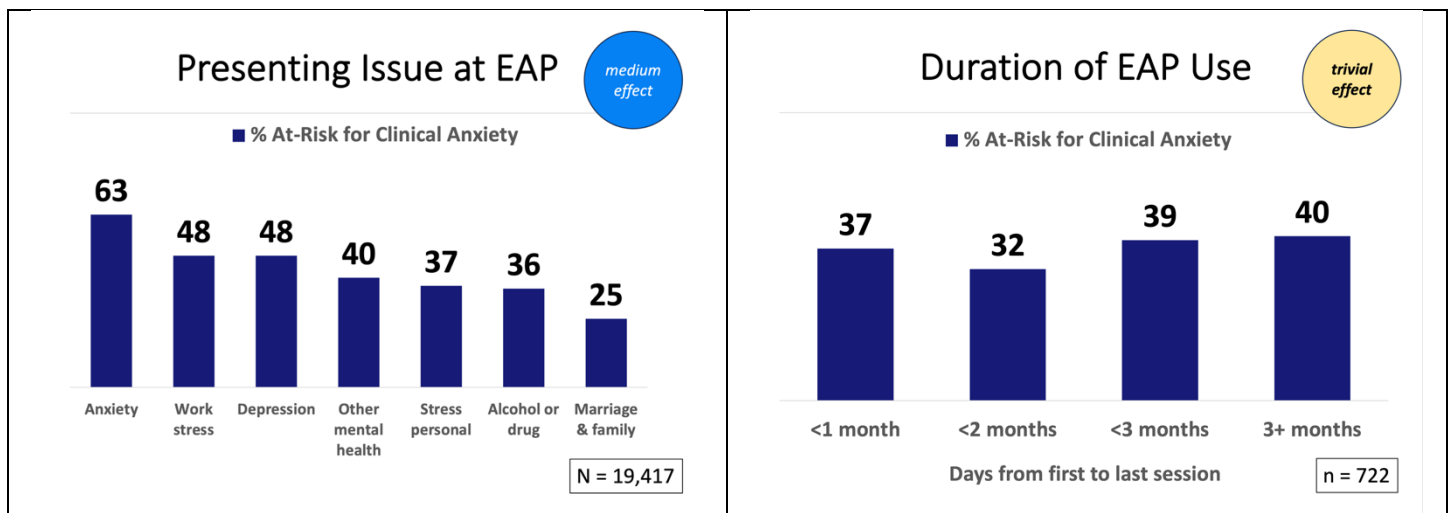
Figure 5. Percentage of users at risk for clinical anxiety by EAP use factors (adjusted multivariate results).

The only EAP use factor use that had a meaningful association with severity of anxiety symptoms was the type of presenting issue for why the EAP was used. We expected to find that clients with a presenting issue of anxiety would have greater severity of anxiety than clients with other issues. On average, when adjusted for other factors, the rank order of presenting issues from most to least highest average scores on the GAD-2 were: (1) anxiety issue; (2) work stress issue; (3) depression issue; (4) other mental health issue; (5) personal stress issue; (6) substance use issue; and (7) marital relationships and family issue. As shown in Figure 5, the range for the percentage of each presenting issue group that were at risk for clinical anxiety ranged from 63% to only 25%. Finding that clients who presented at the EAP asking for assistance with anxiety had the most cases at risk for anxiety (compared to clients with other issues) also provides evidence for the construct validity of the GAD-2 measure.

3.2.4. Comorbidity of Anxiety Clinical Risk and Clinical Risks for Depression and Alcohol Misuse

Comorbidity of Anxiety and Depression. In our data, as expected, anxiety severity was significantly and strongly correlated with depression severity at both Pre ($r = .54$, $p < .001$, $N = 20,725$) and Post ($r = .69$, $p < .001$, $n = 772$) use of the EAP. When starting EAP use, 30% of clients were classified as being at risk for depression on the PHQ-2 standardized screening measure.   Among the subgroup of cases at risk for clinical anxiety, just over half (56%; $n = 4879/8698$) were also at risk for clinical depression. This comorbidity of clinical anxiety with clinical depression was a significant finding with a large size statistical effect (see Appendix D). Overall, about one in every four EAP users (24%) were at risk for both anxiety and depression disorders (see Figure 6).
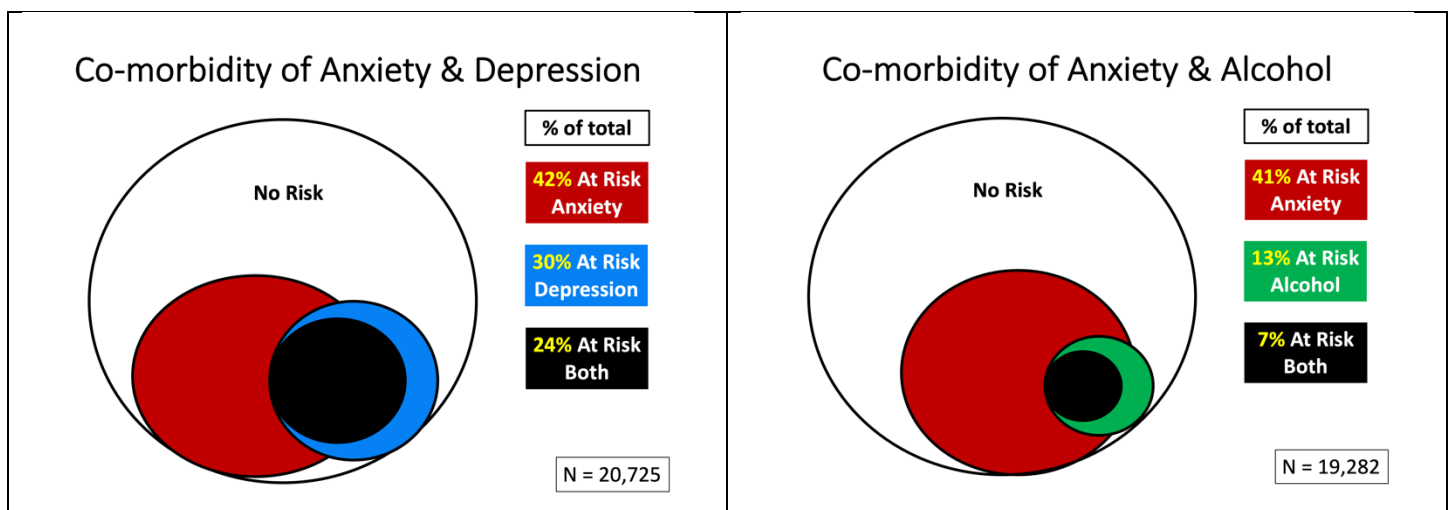
Figure 6. Comorbidity of clinical anxiety with clinical depression (left); comorbidity with hazardous alcohol use (right).

Comorbidity of Anxiety and Alcohol Misuse. Anxiety severity was significantly but weakly correlated with level of alcohol misuse at both Pre ($r = .10$, $p < .001$, $N = 19,824$) and Post ($r = .11$, $p < .001$, $n = 738$) use of the EAP. When starting EAP use, 13% of clients

were classified as being at risk for hazardous alcohol use on the AUDIT-C standardized screening measure. Among the subgroup of cases at risk for clinical anxiety, 16% (n = 1294/7889) were also at risk for alcohol misuse. The comorbidity of clinical anxiety with hazardous alcohol use was significant but was a trivial size statistical effect (see Appendix D). Overall, about 1 in every 15 EAP users (7%) were at risk for clinical levels of both anxiety and alcohol misuse (see Figure 6).

3.2.5. Anxiety and Work

From the earlier results with the type of presenting issue, we learned that after the issue of anxiety, work related issues were the second most common issue to have a high percentage of clients at risk for clinical anxiety (see Appendix E Table E2). Thus, almost half of the employees seeking support for a work or job stress issue also had a clinical level of anxiety. At the start of EAP use, among the clients who were working, anxiety severity was significantly correlated with all three work performance measures (N = 20,576, all $p < .001$). The greater the severity of anxiety the more often the employee had missed work in the past month (r = .16). The greater the severity of anxiety the more the employee was unable to concentrate at work in the past month (r = .25). The greater the severity of anxiety the more unproductive work time was experienced in the past month (r = .26). Thus, having anxiety was related to more work absenteeism, work presenteeism and lost productive work time among users of the EAP.

Looking at these relationships more closely, the clients who were at risk for clinical anxiety had more hours of absenteeism, presenteeism and total lost productive time when compared to the other clients not at risk. More specifically, the reported hours of absenteeism for the group who were at risk for anxiety was M = 5.00 (SD = 13.56) and for those not at risk for anxiety it was M = 2.36 (SD = 9.12); $F(1,20575)$ = 277.38, $p < .001$, r = .12. The estimated hours of presenteeism while working was M = 67.05 (SD = 38.82) for the employees who were at risk for anxiety, compared to M = 50.29 (SD = 38.20) for those who were not at risk for anxiety: $F(1,20575)$ = 951.76, $p < .001$, r = .21. The difference between these groups in the estimated combined hours of absenteeism and presenteeism was M = 72.05 (SD = 40.71) for those at risk for anxiety compared to M = 52.65 (SD = 39.72) for those not at risk: $F(1,20575)$ = 1169.97, $p < .001$, r = .23.

To understand these results, it is helpful to know the level of work loss reported by employees in general that do not use the EAP. Other research on general samples of employees offers a normative level of LPT of about 27 hours per month (23.6 hours of presenteeism and 3 hours of absenteeism) [see review in 60]. Thus, both groups of EAP users were far above the normal level lost productive time for employees in general. Indeed, EAP users who were not at risk for anxiety had about twice as many hours of LPT as the typical employee and the EAP users at risk for anxiety had about three times as the LPT as the typical employee (see Figure 7).
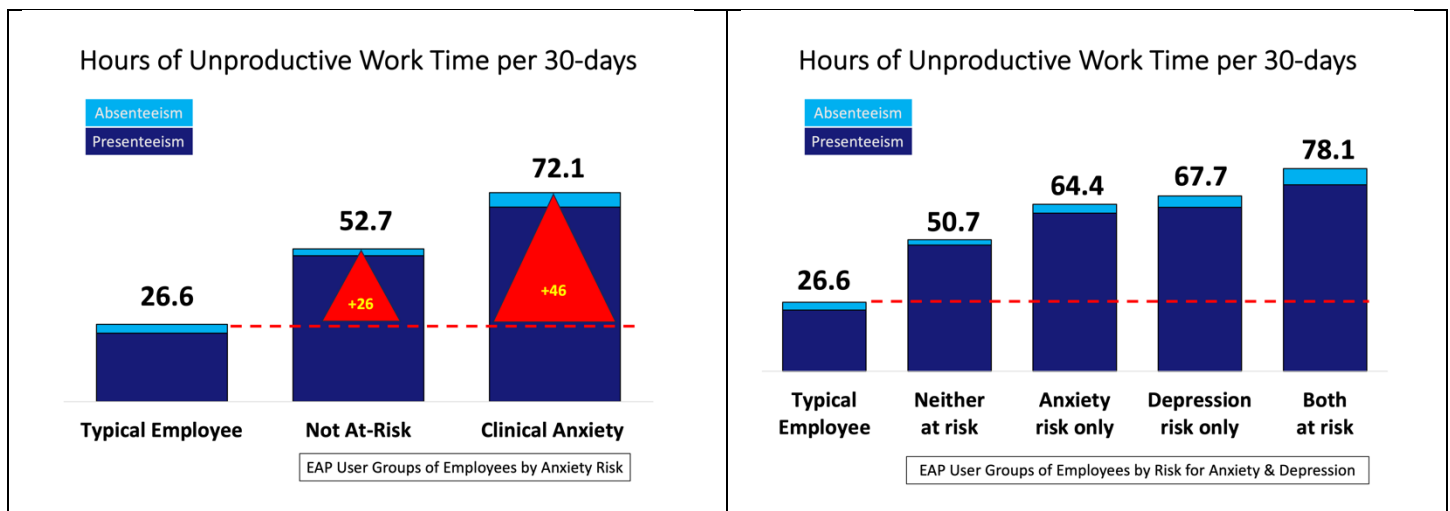
Figure 7. Anxiety severity associated with hours of lost productive work time in month before starting EAP use: Anxiety risk groups (left) and groups based on the interaction of anxiety risk and depression risk (right).

Finally, as the results presented earlier indicated substantial comorbidity between anxiety and depression, we explored how the work performance measure of hours of lost productive time differed by groups of employee users of the EAP who were at risk on both of these common mental health disorders. Table 1 presents the math details for each component of the LPT measure for various groups of EAP users based on their status of being at risk or not at risk for both anxiety and depression.

Table 1. Hours of lost productive time (LPT) by clinical risk status for anxiety and depression.

Components of LPT	US Norms	EAP Users				
		Total this study	Not at risk for both disorders	Anxiety risk only	Depression risk only	Both disorders at risk
EAP user *n*:		20,576	10,583	3,784	1,376	4,833
Hours of total scheduled work		160	160	160	160	160
Hours unproductive due to missed work (absenteeism)	3.00	3.46	2.09	3.44	4.44	6.21
Hours actually worked	157	156.54	157.91	156.56	155.56	153.79
% worked time being productive	85%	63%	69%	61%	59%	53%
% worked time being unproductive (presenteeism)		37%	31%	39%	41%	47%
Hours unproductive while working (presenteeism loss)	23.6	57.31	48.60	60.92	63.22	71.85
Hours of lost productive time combined (LPT)	**26.6**	**60.77**	50.69[d]	64.36[c]	67.66[b]	78.06[a]
% of work schedule being not absent and productive	82%	62%	68%	60%	58%	51%

Note: superscript letters designate subgroups with average ratings of severity of anxiety that differed significantly ($p < .05$) from each other in post-hoc S-N-K tests.

The average employee user of EAP in this study had 61 hours of LPT. But this average statistic hides some substantial differences between subgroups of EAP users based on their mental health risk profile. Those who were the healthiest and not at risk for either disorder, had the fewest hours of LPT (at 51 hours). Next were the two groups who were at risk for only one of the disorders: 64 hours for those only at risk for anxiety and 68 hours for those only at risk for depression. The most hours of LPT – at 78 hours – was among those who were at risk for *both* anxiety and depression. The details are presented in Table 1 and Figure 7. An ANOVA test determined this was a significant result with a medium effect size: $F(1,20575) = 557.46$, $p < .001$, $r = .28$. Also, post-hoc tests revealed that each of these four groups differed significantly from the other three in hours of LPT.

*3.2.6. Summary of Correlates of Anxiety with EAP Use Factors*

The findings exploring possible correlational relationships between the level of anxiety among EAP users found mostly trivial or non-significant results. This was true for ten of the factors and although some interesting associations with anxiety were discovered, these were ultimately very small effects with little practical or clinical impact. Work absence had a small size correlation with anxiety. Work presenteeism and differences in the reason why the EAP was used both had medium size correlations with anxiety. And only the behavioral health risk factor of depression had a large correlational relationship with anxiety. This last finding indicates why it is important for employee mental health support services to include both anxiety and depression in behavioral health risk screening activities. These findings are shown in rank order in Figure 8. Thus, the answers for our third research question depended on which factors were considered with work impairment and depression being the strongest correlates of anxiety.

**PART 3. Improvement in Anxiety After EAP Use: Longitudinal Tests**

The final part of the paper examines the research questions concerning change over time in the level of anxiety severity. These tests used the sample of EAP users who had also participated in the follow-up survey conducted.   The 772 EAP users with the anxiety severity measure collected at both Pre and Post are featured in this part of the results.

3.3.1. Longitudinal Change in Anxiety – All Cases

A repeated measures ANOVA test with covariates found a significant and large size statistical effect for a reduction in the severity of anxiety symptoms for the typical EAP user, $F(1,769) = 358.19$, $p < .001$, $r = .56$. The difference over time in mean scores was $M = 2.28$ (SE = 0.07) at Pre to $M = 0.80$ (SE = 0.04) at Post (see Figure 9). This difference in mean scores was a 64% relative decrease in anxiety symptom severity. Note this test statistically controlled for the influences on anxiety of referral type of formal management and presenting issue of substance use.   In this follow-up sample, 37% of clients were at risk for clinical severity at the start of EAP use ($n = 287/772$). This percentage changed to only 8% ($n = 60$) later at 30 days after the final session of EAP use. This reduction in the prevalence rate of at risk status was significant and a large size statistical effect, McNemar nonparametric test $\chi^2(1,772) = 72.90$, $p < .001$, $r = .31$.
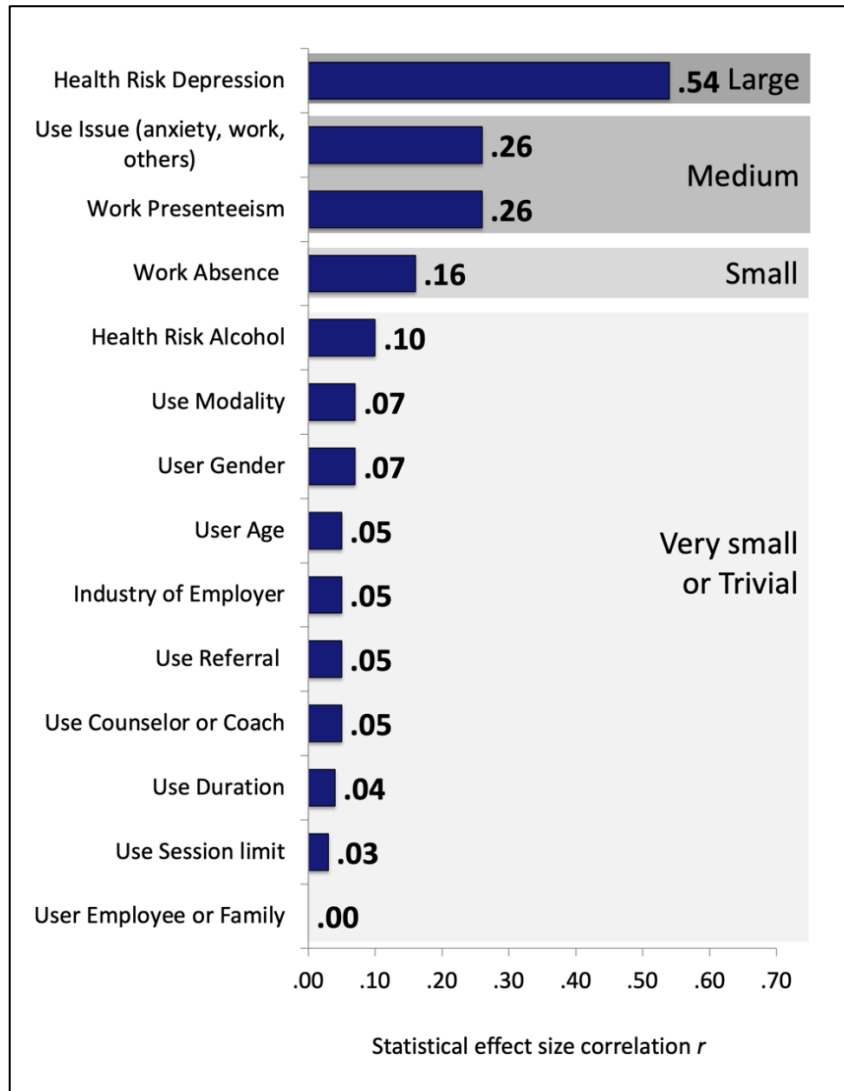
Figure 8. Summary of factors associated with anxiety ranked from least to most by effect size *r*.
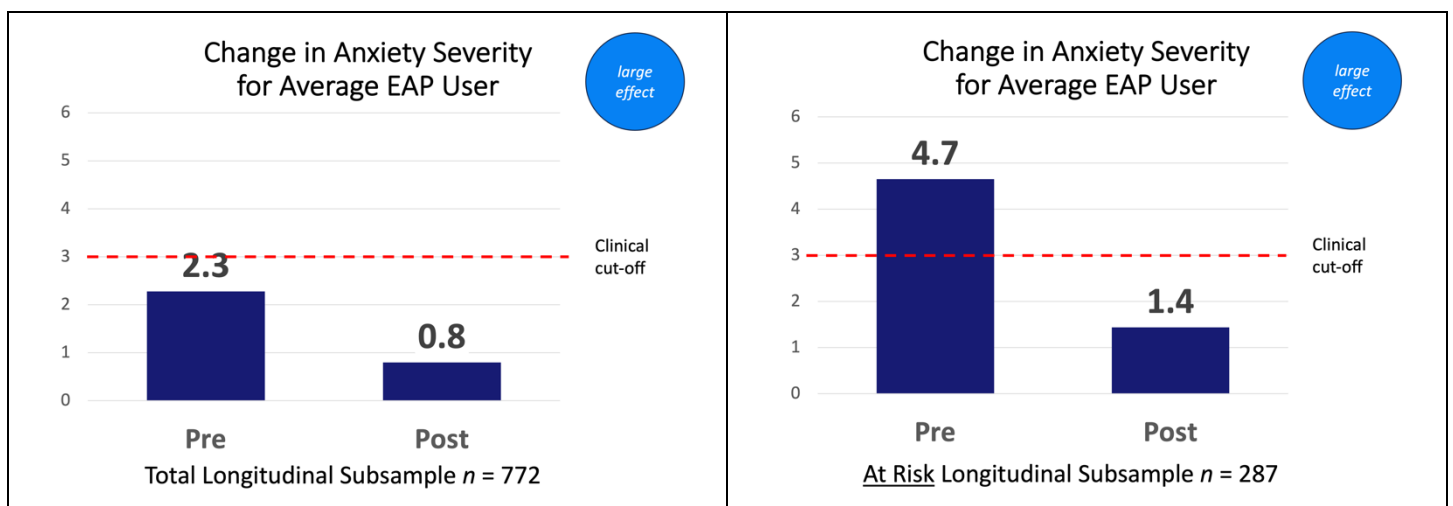
Figure 9. Longitudinal reduction in anxiety symptom severity for the typical client: Total sample and at risk only subsample.

Whether or not the client had started out their use of the EAP at risk for clinical anxiety was, of course, highly significant as a moderator factor for the extent of improvement in anxiety severity level after use among those in the longitudinal sample: $F(1,767)$ 344.26, $p <$ .001, $r = .56$. This result makes sense when the higher the starting severity score then the more room it has to go lower at the follow-up point (i.e., clinical at-risk users had scores of 3, 4, 5 or 6 on the 0-6 scale; whereas pre-clinical clients had scores of 0, 1, or 2). In contrast, having client's presenting topic being an anxiety issue match the outcome measure of anxiety severity did not matter much. The RM-ANOVA test for presenting issue of anxiety (*vs.* other issues) was not significant: $F(1,767) = 0.42$, $p = .52$, $r = .03$. Similarly, the strong result for differences in reduction in severity level after use by clinical risk status (at risk at Pre or not) was not improved when adding the variable of the presenting issue for the client also being anxiety: interaction effect $F(1,767) = 0.20$, $p = .89$, $r = .00$.

3.3.2. Longitudinal Change – Moderator Tests

The gentle reader will recall that in the results presented in Part 2 we found no meaningful correlates of anxiety level at Pre with the client's demographic, employer-related, or EAP use factors (other than presenting issue which included anxiety). In the follow-up sample, none of these factors moderated the extent of improvement in anxiety from Pre to Post use of the EAP. Given the comorbidity between anxiety and depression in the longitudinal group ($r = .59$, $p < .001$), it was possible that depression may also influence the improvement in anxiety from before to after use. The level of depression risk at the start of use was indeed a meaningful moderator. We found that the greater the severity of depression symptoms at the start of use, the more that the severity of anxiety was reduced after use: $F(1,767) = 150.51$, $p < .001$, $r = .41$. In contrast to depression, in the longitudinal sample anxiety severity was only weakly related to alcohol misuse ($r = .10$, $p = .01$). When also accounting for the level of depression severity at Pre, the level of hazardous alcohol use at Pre had only a trivial size effect as a moderator of the extent of change in anxiety severity level: $F(1,725) = 4.23$, $p = .04$, $r = .08$. In summary, other than comorbidity with depression, there were no other moderators of the improvement in anxiety.

3.3.3. Longitudinal Change – Clinical Anxiety Cases

Although the above findings of a reduction in the severity of anxiety for the typical EAP user is a positive finding, the goal of reducing anxiety severity is most relevant to the subgroup of clients who started their EAP use having a clinical (moderate or more severe) level of anxiety. The subsample of EAP users who had anxiety measured at both Pre and Post and who had started their use being at risk for clinical anxiety was 287 people. Among these clients, about half (54%; $n = 154$)) also were at risk for depression at Pre. We tested for change in their anxiety severity scores for using a repeated measures ANOVA test (with the covariate of referral type) and found a significant and very large size effect for the reduction in the severity of anxiety symptoms for the typical EAP user who had been at risk for clinical anxiety: $F(1,284) = 631.61$, $p < .001$, $r = .83$. The mean scores on the GAD-2 for this at-risk group changed from $M = 4.65$ (SE = 0.07) at Pre to $M = 1.44$ (SE = 0.09) at Post (see Figure 9). This difference in mean scores was a 69% relative decrease in anxiety risk for those who started their EAP use at a clinical level of symptom severity.

3.3.4. Reliable Change – Clinical Anxiety Cases

It was also of interest to explore the changes in risk status at an individual case-by-case level. Results using the Reliable Change index methodology found that 88% ($n = 252$ of the 287) of the cases who started counseling with clinical anxiety succeeded in having a reliable improvement (i.e., a reduction in their symptom scores from Pre to Post that was larger than chance level based on the measurement reliability of the GAD-2 measure). Fortunately, only 1% of cases ($n = 2$) had a reliable deterioration in their anxiety symptoms (i.e., they got more severe after counseling). Another 11% of the at-risk cases ($n = 33$) failed to have a reliable change in either direction up or down. These results are shown in Figure 10. Of this at-risk group, 82% ($n = 234$) were no longer at risk for anxiety anymore at the follow-up. In addition, almost 4 out every 5 of these at-risk anxiety cases (79%; $n = 228$) achieved the best possible combined therapeutic result of "reliable recovery" after counseling in which their symptom score at Pre declined at beyond a chance level amount at Post *and* their Post score was below the at-risk cutoff level at Post.

3.3.5. Anxiety Improvement and Work Improvement

Among the subsample of employees who were working at both time periods, had anxiety severity data, and had work LPT data at both time periods ($n = 771$), we explored the final research question of if the employee had reduced their anxiety severity after EAP use did they also experience a reduction in hours of lost productive work time? To test this idea, we first created two new variables that were difference scores within person of the anxiety severity measure (i.e., GAD-2 score at Pre minus GAD-2 score at Post) and the LPT hours measure (i.e., total hours at Pre minus total hours at Post). The test result yielded a positive and significant correlation for the direction of change between these two difference score measures, $r = .40$, $p < .001$. This finding was a large size statistical effect. Thus, the clients who had improvement after EAP use in anxiety severity tended to also have improvement in their work performance.
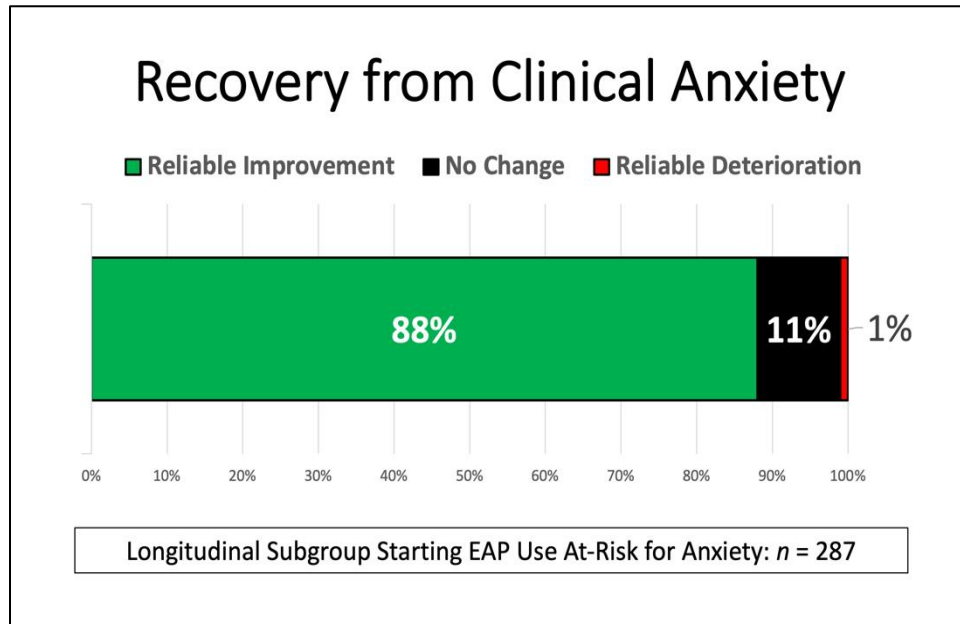
Figure 10. Change in severity level of anxiety for cases clinically at risk at start of EAP use.

IV. DISCUSSION

4.1. Summary of Findings

This project provided real-world conditions with a national sample that allowed us to empirically investigate the role of anxiety among EAP users. The most important finding was that more than 4 in every 10 EAP clients has a clinical level of anxiety. Thus, anxiety is one of the most common psychiatric disorders in this population of users of counseling and coaching services. Overall, about 3 in every 10 EAP clients had a clinical depression risk–and there was also substantial overlap between anxiety and depression. Alcohol misuse was far less common of a clinical problem, affecting about 1 in every 8 clients, and it had little overlap with anxiety. Despite the high prevalence of clinical anxiety risk, only 14% of clients contacted the EAP specifically to seek assistance with an anxiety related issue. Thus, about three times as many clients were at risk for clinical anxiety than were interested in anxiety as the topic of their treatment. The user profile analysis revealed few meaningful associations between anxiety and other aspects of EAP service use, industry or client demographics. Greater anxiety was associated with worse work performance – especially when combined with depression risk. The good news is that the counseling and coaching provided by the EAP was highly effective (i.e., large size statistical effects) in reducing the severity of anxiety symptoms for the average client and especially for those clients who started out their use being at clinical risk for anxiety. Also interesting was the finding that improvement in anxiety was linked with improvement in work performance.

4.2. Literature Context

This is one of the few applied research studies to measure anxiety risk in almost all of the service users of a large EAP vendor on a routine basis. The prevalent rate of anxiety risk found in the study of 42% is similar to the other two recent EAP studies using the same risk screener scale [41,42]. All of these rates for users of the EAP far exceed the recent prevalence data on the national average of around 11% for working adults in general in the US [23]. Few other studies in EAP have examined the possible correlates of anxiety with client age and gender or other aspects of how and why the counseling was used [40]. Our finding of a major overlap between anxiety and depression also replicates past studies of EAP users [43-49] and of the general population [4,5,10,11,16,25,36]. Similar to other studies in EAP with longitudinal data, client age and gender and EAP use factors were found to not moderate the change in clinical outcome of anxiety [42-49]. One study has found very small size differences in the extent of improvement in anxiety after use for groups of EAP counseling cases who differed on racial/ethinic background [49]. Our finding that a reduction in anxiety risk was associated with a reduction in lost work productive time adds to the larger literature finding improvements in mental health and wellbeing measures after counseling use also tend to be associated with improvements in work outcomes [41,43,44,65,66]. Within the at risk longitudinal subsample, our results of 88% of these clients having a clinical outcome of reliable improvement in anxiety severity after use is relatively higher than that reported in several other studies which conducted the same tests among EAP counseling cases (68% [46]; 70% [47]) or coaching clients (69% [50]).

4.3. Limitations

This study presents applied research conducted in real world context of a popular kind of employee benefit. Thus, it has high validity and applicability to the national employee population context in the United States. This study does however have certain limitations. For the tests of longitudinal change in anxiety, we used a single-group study design and did not utilize an RCT design. Thus, our results for improvement in anxiety after EAP use should thus be interpreted with caution as other factors may also have contributed to the change other than use of the counseling and coaching. That most users of this particular EAP found the counseling and coaching services to be effective in reducing anxiety levels does not mean that all EAPs would have the same level of success and thus replications of this approach in other programs is encouraged. Another potential limitation is asking employees to report on their work and behavioral health symptoms. Other more objective records or external sources of these outcomes could have potentially provided more accurate measurements than our use of a self-report approach. Yet, a small literature that exists has found that employee self-reports for health risks [13,68-76] and for work absence and performance [77-81] do tend to match other records of the same factors.

V. Conclusion

Although EAP counselors are trained to be able to effectively support employees with a wide range of mental health, work and family issues, this study indicates that anxiety issues should become more of a focus in the workplace mental health benefits area for both the routine screening for behavioral health risk factors and for its treatment as a primary or secondary issue. Employers should also pay more attention to anxiety disorders – both for workplace prevention and treatment efforts – as our findings document the adverse impact of anxiety on work productivity and also to a lesser extent in work absence. Fortunately, other findings from the study also suggest that this adverse impact of anxiety on work performance outcomes can be reversed when the counseling or coaching is effective in reducing anxiety levels among employees.

APPENDIX A

Table A1. Profile of study sample at start of EAP use.

Factor	*n* count	% of clients
Age of client	20,192	
Under 30 years	4,425	22%
30-39 years	6,089	30%
40-49 years	4,718	23%
50 plus years	4,960	25%
Gender of client	20,176	
Female	12,645	63%
Male	7,531	37%
Industry of employer	20,725	
Retail/Restaurant	3,440	17%
Financial/Insurance/Mgt.	3,171	15%
Education	1,552	7%
Healthcare	3,358	16%
Other	698	3%
Blue collar	3,921	19%
Manufacturing	2,193	11%
Gov./Public Service	1,262	6%
Technology	1,130	5%
Contracted session limit	20,452	
3 or 4 sessions of counseling	1,708	8%
5 sessions limit	6,427	31%
6 sessions limit	5,431	27%
7 sessions to unlimited	6,886	34%
Employee status of client	20,725	
Employee with EAP benefit	19,796	95%
Family of covered employee	929	5%
EAP service type used	20,725	
Counseling	19,908	96%
Coaching	817	4%

Referral source into EAP	20,725	
Self / family / other	20,105	97%
Formal management at work	620	3%
Total		
Modality to access EAP	20,725	
In-person (face to face)	10,824	52%
Online video	9,901	48%
Total		
Presenting issue	20,724	
Anxiety	2,893	14%
Work stress	1,196	6%
Depression	3,074	15%
Other mental health	2,994	14%
Stress personal / other	7,266	35%
Substance use (alcohol /drug)	245	1%
Marital or family relationship	3,056	15%
Total		
Duration of EAP use (if have post data)	772	
1-30 days	223	29%
31-59 days	304	39%
60-89 days	123	16%
90 plus days (max 187 days)	122	16%
Average:	54 days	

APPENDIX B

Tests of Representativeness of the Subsample with Longitudinal Data

The tests for change in anxiety from Pre to Post require a subsample of EAP users with longitudinal data. But for these tests to be valid, the longitudinal group needed to be a fair representation of the full study sample. When compared on all available measures and service use factors, the longitudinal user subsample should have reasonably similar profile to those users who did not participate in the follow-up. The Pre only (no follow-up) group was constructed for such analysis by selecting only the clients who had a reasonable chance to participate in the follow-up survey activity. This criteria was operationalized by determining the typical duration of EAP use episode (in days per case) among the longitudinal subsample of counseling cases and then adding the 30 days post use waiting period for when the survey would be offered. This analysis identified an average period of 54 use days of counseling. We then added 30 days for follow-up to determine a cutoff of 84 days minimum since the specific start date of EAP use for each case and the final calendar date in June 2023 when the data for the study was produced. For the coaching clients, this date difference period minimum was 60 days (53-day episode of care for typical EAP use among coaching clients with longitudinal data plus 7 days for follow-up). Applying these criteria to the data yielded a total of 14,027 clients who were logically relevant to compare against the longitudinal sample in profile representativeness tests. Thus, 5,926 other clients were excluded from this comparison as their service use episode was too soon to be relevant for follow-up data collection activity. This also means that 5.2% of relevant users participated in the follow-up (772 clients at Post / 14,799 total clients relevant to Post measurement).

We then conducted tests with dependent measures of the demographic factors, employer factors, EAP use factors, and the clinical risk (anxiety, depression, alcohol) and work measures (absenteeism, presenteeism, and LPT Hours) from the start of use time period for the Pre-only group ($n = 14,027$) and the longitudinal group ($n = 772$). These tests found only trivial differences (i.e., effect size r was < .10) between the Pre only group and the longitudinal group on 12 of the 14 variables compared. However, relative to the Pre only group, the longitudinal group did have far more cases who were formally referred by their manager to use the EAP ($\chi^2[1,14799] = 2680.08$, $p < .001$, $r = .43$ large size effect) and the longitudinal group also had a higher mix of substance use reasons for why the counseling was used ($\chi^2[1,14798] = 156.32$, $p < .001$, $r = .14$ small size effect). More specifically, being formally referred to the EAP by a manager at work comprised 35.1% of the clients in the longitudinal group ($n = 271/772$) but only 1.4% of clients the Pre-only group ($n = 202/14027$). Also, having alcohol or drug as the presenting issue accounted for 6.0% of the longitudinal group ($n = 46/772$) but only 0.9% of the Pre-only group ($n = 131/14026$). Within the longitudinal group, substance use also was much more common issue among the formal management referral cases than among self-referral cases (16.6% *vs.* 0.2% respectively). In summary, the longitudinal group was a fair representation of the larger study sample on almost all factors examined. However, the tests of longitudinal change after EAP use for anxiety level were conducted using statistical controls for both referral type and presenting issue of substance use as covariate factors. Note that our finding that formal management referral cases have more substance abuse presenting issues than self-referral cases has been found in past research on EAPs [3,67].

When this profile analysis set of statistical tests was repeated for only those clients who were *at risk* for anxiety at the start of use, these tests also found only trivial differences between the Pre-only group ($n = 5,905$) and the longitudinal group ($n = 287$) on 13 of the 14 variables compared. However, the longitudinal group did have more cases who were formally referred by their manager to use the EAP: follow-up 24.4% *vs*. 0.9% not ($\chi^2[1,6192] = 783.21$, $p < .001$, $r = .36$ large size effect). Therefore, tests of longitudinal change after EAP use for anxiety level among those initially at risk for anxiety were conducted using referral type as a covariate.

APPENDIX C

Reliable Change Index for Anxiety on GAD-2

For the 287 cases with clinical symptoms of anxiety at the start of EAP use and longitudinal follow-up data, the Reliable Change (RC) index was calculated. We used the study-specific standard deviation (SD) of the GAD-2 at Pre of 1.21. However, the test-retest correlation of these scores within our at-risk sample ($r = .22$) was diluted by the EAP intervention experience that occurred between Pre and Post. Following Hageman and Arrindel [52], the Cronbach alpha coefficient for this scale in our full sample at Pre ($n = 20,725$, $\alpha = .890$) was used instead of the test-retest r for the reliability level for the GAD-2 scale. Using these inputs, the RC index for anxiety was calculated as follows for the Standard Error (SE) and the difference in SE (SE*diff*):

SD of GAD-2 scores at Pre = 1.21
Reliability of GAD-2 scores at Pre = .890
SE = 1.21 x (square root of 1.00 - 0.89)
SE = 1.21 x (square root of 0.11)
SE = 1.21 x 0.332
SE = 0.401
SE squared = 0.401 x 0.401 = 0.161
SE*diff* = square root of (2 x SE squared)
SE*diff* = square root of (2 x 0.161)
SE*diff* = square root of 0.322
SE*diff* = 0.567

RC index score for each case in the group at risk for anxiety was then calculated in three steps: 1) taking the difference between the Pre and Post scores on anxiety risk; 2) dividing that difference by the RC index of 0.567; and 3) comparing that number to the 5% chance probability cutoff of 1.96. If a case had RC effect score greater than 1.96, that client was classified as having a reliable improvement (or a reliable deterioration for a negative RC effect score > -1.96). For example, a case had a Pre score of 4 and a Post score of 2, the difference was 2. When this difference was divided by RC index of 0.567 the result is 3.53. This final number is greater than the 1.96 probability cut-off and thus this case is declared as having a reliable improvement in their anxiety. Thus, any score difference equal to 2 or greater on the GAD-2 was considered a reliable difference.

APPENDIX D

Table D1. Overlap of risk for clinical anxiety at Pre use and depression, alcohol and anxiety as the presenting issue for EAP use.

Factors		Anxiety Risk (GAD-2)		
		Not at risk	At risk	Total
Presenting Issue for EAP Use	Not anxiety	52.9% ($n = 10969$)	33.1% ($n = 6862$)	86.0% ($n = 17831$)
	Anxiety issue	5.1% ($n = 1057$)	**8.9%** ($n = 1836$)	14.0% ($n = 2893$)
	Total	58.0% ($n = 12026$)	42.0% ($n = 8698$)	$N = 20,724$
	Chi-square test:	$\chi^2(1,20724) = 637.74$, $p < .001$, $r = .18$ small		
Depression (PHQ-2)	Not at risk	52.3% ($n = 10641$)	18.4% ($n = 3819$)	69.8% ($n = 14460$)
	At Risk	6.7% ($n = 1386$)	**23.5%** ($n = 4879$)	30.2% ($n = 6265$)
	Total	58.0% ($n = 12027$)	42.0% ($n = 8698$)	$N = 20,725$
	Chi-square test:	$\chi^2(1,20725) = 4,753.94$, $p < .001$, $r = .48$ large		
Alcohol Hazardous Use (AUDIT-C)	Not at risk	52.7% ($n = 10169$)	34.2% ($n = 6595$)	86.9% ($n = 16764$)
	At Risk	6.3% ($n = 1224$)	**6.7%** ($n = 1294$)	13.1% ($n = 2518$)
	Total	59.1% ($n = 11393$)	40.9% ($n = 7889$)	$N = 19,282$
	Chi-square test:	$\chi^2(1,19282) = 131.49$, $p < .001$, $r = .08$ trivial		

APPENDIX E

Details of Comparisons of Anxiety Levels at Pre by Other Factors

Table E1. Level of anxiety at start of EAP use compared by other factors: Detailed results for unadjusted tests.

Factor	n cases	% of cases	Average Level M (SD) Range: 0-6	Clinical Status % (n at risk)	Interpretation by effect size
Age of client					
Under 30 years	4,425	22%	**2.85** (2.04) [a]	**46.5%** (2,058)	
30-39 years	6,089	30%	2.61 (2.01) [b]	41.4% (2,519)	
40-49 years	4,718	23%	2.57 (2.04) [b]	40.0% (1,885)	Trivial effect
50 plus years	4,960	25%	2.57 (2.08) [b]	40.8% (2,024)	
Total	20,192		$F(3,20191) = 83.94$, $p < .001$, $r = .05$	$\chi^2(3,20192) = 48.92$, $p < .001$, $r = .04$	
Gender of client					
Female	12,645	63%	**2.75** (2.05)	**43.9%** (5,500)	
Male	7,531	37%	2.41 (2.02)	37.7% (2,838)	Trivial effect
Total	20,176		$F(1,20175) = 132.25$, $p < .001$, $r = .08$	$\chi^2(1,20176) = 425.46$, $p < .001$, $r = .06$	
Industry of employer					
Retail/Restaurant	3,440	17%	**2.85** (2.05) [a]	**46.3%** (1,592)	
Financial/Insurance/Mgt.	3,171	15%	2.67 (2.04) [b]	43.1% (1,367)	
Education	1,552	7%	2.64 (2.03) [b]	42.5% (659)	
Healthcare	3,358	16%	2.64 (2.02) [b]	41.6% (1,397)	
Other	698	3%	2.56 (1.95) [b]	40.7% (284)	Trivial effect
Blue collar	3,921	19%	2.54 (2.05) [b]	40.7% (1,595)	
Manufacturing	2,193	11%	2.57 (2.08) [b]	40.0% (877)	
Gov./Public Service	1,262	6%	2.53 (2.06) [b]	39.7% (501)	
Technology	1,130	5%	2.50 (2.02) [b]	37.7% (426	
Total	20,725		$F(8,20724) = 7.51$, $p < .001$, $r = .05$	$\chi^2(8,20725) = 46.08$, $p < .001$, $r = .02$	
Contracted session limit					
3 or 4 sessions of counseling	1,708	8%	2.68 (2.05) [ab]	42.7% (730)	
5 sessions limit	6,427	31%	2.74 (2.06) [a]	44.0% (2,828)	
6 sessions limit	5,431	27%	2.54 (2.03) [c]	40.1% (2,180)	Trivial effect
7 sessions to unlimited	6,886	34%	2.61 (2.02) [bc]	41.3% (2,844)	
Total	20,452		$F(3,20451) = 10.47$, $p < .001$, $r = .00$	$\chi^2(3,20452) = 20.04$, $p < .001$, $r = .02$	
Employee status of client					
Employee with EAP benefit	19,796	95%	2.64 (2.04)	42.0% (8,313)	
Family of covered employee	929	5%	2.64 (2.05)	41.4% (385)	No effect
Total	20,725		$F(1,20724) = 0.01$, $p = .93$ ns, $r = .00$	$\chi^2(1,20725) = 0.11$, $p = .74$ ns, $r = .00$	
EAP service type used					
Counseling	19,908	96%	2.65 (2.06)	42.0% (8,364)	
Coaching	817	4%	2.28 (1.52)	40.9% (334)	Trivial effect
Total	20,725		$F(1,20724) = 25.83$, $p < .001$, $r = .00$	$\chi^2(1,20725) = 0.43$, $p = .52$ ns, $r = .00$	
Referral source into EAP					
Self / family / other	20,105	97%	**2.66** (2.04)	**42.4%** (8,532)	
Formal management at work	620	3%	1.80 (1.97)	26.8% (166)	Trivial effect
Total	20,725		$F(1,20724) = 107.17$, $p < .001$, $r = .07$	$\chi^2(1,20725) = 60.58$, $p < .001$, $r = .05$	

Trivial effect

Modality to access EAP					
Online video	9,901	48%	**2.79** (2.08)	**45.8%** (4,533)	
In-person (face to face)	10,824	52%	2.50 (2.00)	38.5% (4,164)	
Total	20,725		$F(1,20724) = 104.35$, $p < .001, r = .07$	$\chi^2(1,20725) = 113.69$, $p < .001, r = .07$	
Issue at start of EAP use					
Anxiety	2,893	14%	**3.68** (1.83) [a]	**63.5%** (1,836)	
Work stress	1,196	6%	**2.96** (2.11) [b]	**48.1**% (575)	
Depression	3,074	15%	**2.89** (2.07) [b]	**47.6%** (1,463)	
Other mental health	2,994	14%	**2.57** (2.06) [c]	**40.9%** (1,225)	Medium effect
Stress personal / other	7,266	35%	**2.46** (1.97) [c]	**38.0%** (2,760)	
Substance use (alcohol /drug)	245	1%	**1.95** (2.00) [d]	**27.8%** (68)	
Marital or family relationship	3,056	15%	**1.82** (1.84) [d]	**25.2%** (771)	
Total	20,724		$F(6,20723) = 252.18$, $p < .001, r = .26$	$\chi^2(6,20724) = 1027.69$, $p < .001, r = .18$	
Duration of EAP use (if had Post data)					
1-30 days	223	29%	2.49 (2.09)	39.9% (89)	
31-59 days	304	39%	2.22 (1.96)	32.6% (99)	
60-89 days	123	16%	2.06 (2.36)	37.4% (46)	No effect
90 plus days (max 187 days)	122	16%	2.61 (1.83)	43.4% (53)	
Total	772		$F(3,771) = 1.49$, $p = .23$ ns, $r = .08$	$\chi^2(3,772) = 5.53$, $p = .14$ ns, $r = .03$	

Note: ANOVA tests. SD = standard deviation. Superscript letters designate subgroups with average ratings of severity of anxiety that differed significantly ($p < .05$) from each other in post-hoc S-N-K tests. Trivial size statistical effects are $r < .10$.

Table E2. Level of anxiety at start of EAP use compared by other factors: Detailed results for adjusted tests with covariates.

		Anxiety		
Factor	*n* cases	Average Level M adjusted (SE) Range: 0-6	Clinical Status % (adjusted)	Interpretation by effect size
Age of client				
Under 30 years	4,221	2.75 (0.03)	44.2%	
30-39 years	5,815	2.59 (0.03)	41.0%	
40-49 years	4,559	2.59 (0.03)	40.3%	Trivial effect
50 plus years	4,822	2.61 (0.03)	41.7%	
Total	19,417	$F(3,19417) = 6.72$, $p < .001, r = .05$	$F(3,19417) = 5.71$, $p < .001, r = .03$	
Gender of client				
Female	12,145	2.74 (2.05)	43.5%	
Male	7,272	2.45 (0.02)	38.5%	Trivial effect
Total	19,417	$F(1,19417) = 95.74$, $p < .001, r = .07$	$F(1,19417) = 48.64$, $p < .001, r = .05$	
Industry of employer				
Retail/Restaurant	3,276	2.84 (0.04)	46.0%	
Manufacturing	2,091	2.67 (0.04)	41.6%	
Gov./Public Service	1,158	2.61 (0.06)	41.5%	
Financial/Insurance/Mgt.	3,000	2.61 (0.04)	41.4%	
Blue collar	3,747	2.59 (0.03)	41.6%	Trivial effect
Other	653	2.57 (0.08)	40.9%	
Education	1,436	2.56 (0.05)	40.3%	
Healthcare	3,049	2.56 (0.04)	39.7%	
Technology	1,007	2.47 (0.06)	37.2%	
Total	19,417	$F(8,19417) = 6.56$, $p < .001, r = .05$	$F(8,19417) = 5.13$, $p < .001, r = .04$	

Contracted session limit				
3 or 4 sessions of counseling	1,622	2.67 (0.05)	42.5%	
5 sessions limit	6,107	2.73 (0.03)	43.6%	
6 sessions limit	5,138	2.54 (0.03)	39.9%	Trivial effect
7 sessions to unlimited	6,550	2.59 (0.03)	41.0%	
Total	19,417	$F(3,19417) = 9.37$, $p < .001, r = .03$	$F(3,19417) = 5.99$ $p < .001, r = .03$	
Employee status of client				
Employee with EAP benefit	18,706	2.63 (0.02)	41.2%	
Family of covered employee	711	2.61 (0.08)	41.7%	No effect
Total	19,417	$F(1,19417) = 0.42$, $p = .84$ ns, $r = .00$	$F(1,194175) = 0.07$, $p = .80$ ns, $r = .00$	
EAP service type used				
Counseling	18,776	2.65 (0.01)	41.8%	
Coaching	641	2.06 (0.08)	36.3%	Trivial effect
Total	19,417	$F(1,19417) = 53.39$, $p < .001, r = .05$	$F(1,19417) = 7.91$, $p = .005, r = .00$	
Referral source into EAP				
Self / family / other	18,809	2.65 (0.01)	42.0%	
Formal management at work	608	2.01 (0.08)	31.3%	Trivial effect
Total	19,417	$F(1,19417) = 60.01$, $p < .001, r = .05$	$F(1,19417) = 28.22$, $p < .001, r = .03$	
Modality to access EAP				
Online video	9,281	2.77 (0.02)	45.1%	
In-person (face to face)	10,136	2.50 (0.02)	38.5%	Trivial effect
Total	19,417	$F(1,19417) = 88.62$, $p < .001, r = .07$	$F(1,19417) = 88.72$, $p < .001, r = .07$	
Issue at start of EAP use				
Anxiety	2,661	**3.66** (0.04)	**62.8%**	
Work stress	1,122	**2.99** (0.06)	**48.2%**	
Depression	2,886	**2.92** (0.04)	**48.0%**	Medium effect
Other mental health	2,757	**2.54** (0.04)	**40.2%**	
Stress personal / other	6,852	**2.44** (0.02)	**37.4%**	
Substance use (alcohol /drug)	237	**2.44** (0.13)	**36.1%**	
Marital or family relationship	2,902	**1.80** (0.04)	**25.3%**	
Total	19,417	$F(6,19417) = 232.29$, $p < .001, r = .26$	$F(6,19417) = 1027.69$, $p < .001, r = .18$	
Duration of EAP use (if had Post data)				
1-30 days	205	2.34 (0.14)	36.6%	
31-59 days	286	2.21 (0.12)	32.3%	
60-89 days	118	2.37 (0.18)	38.5%	No effect
90 plus days (max 187 days)	113	2.44 (0.18)	40.1%	
Total	722	$F(3,722) = 0.44$, $p = .72$ ns, $r = .04$	$F(3,722) = 0.98$, $p = .40$ ns, $r = .06$	

Note: Multivariate ANOVA tests included covariates for all of the other factors. Note that duration of EAP use was not included as a factor because of the very small sample size involving the longitudinal data source for this factor. SE = standard error of mean. *ns* indicates $p > .05$ and not significant. Trivial size statistical effects are $r < .10$.

Author Contributions: MA performed the statistical analyses of the aggregated dataset, conducted the literature review and drafted the manuscript. DP developed the study design, selected the measures involved and coordinated the data collection. All authors discussed the results and contributed to the final manuscript.

Conflict of interest/Competing interests: MA is an independent research scholar and consultant who received financial support from CuraLinc Healthcare for preparing this research manuscript. MA has also occasionally worked on other research projects for this company. DP in a senior executive for CuraLinc Healthcare company.

Institutional Review Board Statement: No formal ethical approval of the study was required due to the retrospective archival naturalistic design of the study. All clients who used the service and completed the outcome measures participated voluntarily and had their personal identity protected as all unique identifiers were removed from the data prior to analysis. The privacy of users of the EAP was protected by having all program use and survey data de-identified before being shared with the independent consultant (first author) who conducted all analyses. There was no direct cost to the users of the service in this study, as access to the EAP was sponsored by their employer. The clients participated voluntarily and were not paid for being in the research study. All counselors involved in the delivery of the clinical treatment services were fully licensed and trained professionals. All of the coaches were certified professionals. All aspects of this evaluation project and preparation of the manuscript followed the ethical guidelines of the American Psychological Association [82].

Informed Consent Statement: As this was an applied study of archival anonymized data collected from routine use of the service, collecting additional informed consent to participate in research from individual participants was not required beyond what was in their initial consent agreement for terms of service use with CuraLinc Healthcare. The real-world conditions for this study are similar to other applied studies published in peer-review journals that have examined the effectiveness of archival data collected by employee assistance programs [1-3,39-50, 59-61,66,67].

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