LifeWorks
by Morneau Shepell

INTERNATIONAL EAP ASSOCIATION

Workplace Outcome Suite© (WOS) Annual Report 2020

Part 1 - Decade of Data on EAP Counseling Reveals Prominence of Presenteeism

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Mark Attridge, PhD, MA, President, Attridge Consulting, Inc., Minneapolis, MN, United States. He created the master dataset in SPSS, developed new metrics and analytic techniques for problem status and LPT, reviewed the literature, performed statistical analyses, wrote the text, and created the tables and figures.

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REPORT 2: Morneau Shepell. (2020). *Workplace Outcome Suite (WOS) Annual Report 2020: Part 2 - Profiles of Work Outcomes on 10 Context Factors of EAP Use.*

EAPs that contributed data to the WOS benchmarking project

The leadership team at Morneau Shepell and the Employee Assistance Professionals Association extend our thanks to the EAP external vendors and employers with internal or hybrid employee assistance programs who collected WOS data at pre and post use of their counseling services and submitted the de-identified raw data to the WOS archive over the years since 2010. All of the EAPs listed below are based in the USA (with the state listed) unless otherwise noted.

Vendors of EAP:

United States of America

Best Care (Nebraska)*

Cascade Centers (Oregon)*

Child & Family Services (New York)

Concern (California)

Continuum (Nebraska)*

E4 Health (Texas)

Empathia (Wisconsin)

Employee Resources System (Illinois)

HelpNet (Michigan)

KGA (Massachusetts)

McLaughlin Young Group (North Carolina)*

New Avenues (Indiana)*

Southwest EAP (Arkansas)*

Work Life (Hawaii)*

Workplace Collaborative (industry group)

International

Benestar (New Zealand)*

Chestnut Global Partners China (China)*

Hellas EAP (Greece)

Village FSC (Brazil)

Employers with EAP:

United States of America

Archer Daniels Midland Company (HQ Illinois)

BayCare Health (Florida)

Dupont Company (multi-national; HQ Delaware)

Carolinas Health Care (North Carolina)

Caterpillar Company (multi-national; HQ Illinois)

City of Baltimore (Maryland)

Federal Occupational Health (Maryland)

Lifesolutions - UPMC (Pennsylvania)

Mayo Clinic (Minnesota)

National Institutes of Health (NIH; Maryland)

Ohio State University (Ohio)*

Order of St. Francis HealthCare (Illinois)

Parkview Health (Indiana)*

Partners Healthcare System (Massachusetts)

Sharp Electronics Company (HQ New Jersey)*

Texas Children's Hospital (Texas)

University of Rochester (New York)

Wake Forest Baptist Health (North Carolina)

**** Provided new data added this year. HQ = company headquarters site location***

Foreword by Morneau Shepell

This is the fourth in the series of annual reports on the Workplace Outcome Suite (WOS). The 2020 Report is the second year that Morneau Shepell has had the privilege of collaborating with Dr. Mark Attridge on its completion. Historically, organizations in our industry have been reluctant to share data with each other, but outcome measures reported by consistent, validated tools like the WOS benefit us all. We encourage the companies that purchase EAP's and brokers who sell EAP services to support this tool and use it as a way of demonstrating the importance and value of EAP services to their clients. These findings create a narrative about the valuable work we do to improve employee wellbeing. The story becomes significantly more compelling with more data, more organizations using the tool, and more geographical reach. Fortunately, usage of the WOS is increasing since it was introduced in 2010, and as such, this year's report is more robust than ever representing over 35,000 counseling cases globally.

On June 1st we launched an updated website for the WOS as a center or excellence to support the Employee Assistance industry in responding to questions both around the data and operationally for those who are considering using this tool: LifeWorks.com/WOS

We thank all those who contributed data this year towards another compelling annual report. Thank you to Dr. Mark Attridge for his continued dedication to this project, to Dr. Ivan Steenstra for his role as subject matter expert and consultant on this edition, and to all of the organizations that have been using this tool and sharing their data in support of this ongoing research.

Barbara Veder, MSW, RSW
Vice President, Global Clinical Services, Research Lead and Chief Clinician
Morneau Shepell
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Foreword by EAPA

The Employee Assistance Professionals Association (EAPA) has endorsed and promoted the WOS as a best practice for measuring and evaluating work-related outcomes of services provided by EAPs. With access to thousands of employee assistance professionals across the globe, and by way of our deep commitment to the highest standards of practice, EAPA believes the WOS, when properly implemented, further demonstrates the workplace focused value and utility of providing employee assistance services. These outcome measures provide an evidence base on which to build additional measures of the effectiveness of the full range of EAP services.

Greg DeLapp, MHS, CEAP
Chief Executive Officer
Employee Assistance Professionals Association
Arlington, Virginia, United States

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Executive summary

The Workplace Outcome Suite (WOS) industry profile is made up of data contributed by multiple providers worldwide since year 2010. This white paper is the forth in an annual series of reports on the Workplace Outcome Suite that first started in 2016. This study looks at six outcomes from the WOS: (1) Work Presenteeism, (2) Work Absenteeism, (3) Workplace Distress, (4) Work Engagement, (5) Life Satisfaction, and (6) a new measure that combines the results of the absenteeism and presenteeism data converted into hours of Lost Productive Time (LPT) at work.

This report features 35,693 employees with self-reported data collected at before and after a counseling intervention provided by an employee assistance program (EAP). The data was collected over a period of 10 years, between 2010 and 2019. A total of 38 different sources provided valid data on all five WOS measures, with 20 EAP vendors, 17 employer-based programs and one industry group of external vendors in the United States. Although 26 different countries are represented, 95% of the total cases are from only four countries with almost three-fourths of the total from just one country - the United States (72%). China (22%) and New Zealand (3%) both had more than a 1,000 cases, with the remaining 3% of cases spread across 23 other countries (from two vendors and two large multi-national corporations). Within the United States, all five regions of the country were represented and profiled.

The typical client in this study was a 36-year old female living in the United States who worked for the government. She referred herself to an external vendor of EAP services seeking support for an anxiety issue. The clinical phase involved three sessions with a counselor over a six week period. WOS data was collected at before the first clinical session and again at about three months after the last session.

Main findings

Brief counseling from EAPs was associated with statistically significant improvements on all five WOS outcomes. Large size statistical effects were found for improvement on a composite measure of all five outcomes and for the specific outcomes of work presenteeism and life satisfaction. A medium size statistical effect was found for reducing work absenteeism. Small size statistical effects were found for the more organizationally-influenced WOS outcomes of work engagement and workplace distress. Work presenteeism is the outcome that most defines the employee who uses an EAP, both in terms of the initial impact (work deficit) when distressed before use and also the improvement after counseling.

When absenteeism and presenteeism were converted into hours of lost work productivity, the average employee case had 63 hours of unproductive time when in distress before EAP use. Yet, at the follow-up after counseling, this was reduced by 43% to 36 hours. Other research showed the typical worker is unproductive for 27 hours per month. Thus, the EAP user had more than double the amount of lost productive time when first seeking assistance compared to the average employee. However, after counseling had ended, 75% of this initially very high level of lost productivity at work had been restored.

The effectiveness of EAP counseling is robust across almost all of the contexts with data to test. The extent of improvement from before to after counseling on WOS measures was generally consistent across client age and sex, across the clinical factors of the type of issue, the number of clinical sessions used, the total duration of the time period of the treatment period, and the source of referral into the EAP, and across different employer conditions of industry and whether the EAP was provided by an external vendor, internal staff, or a hybrid model.

Key facts and findings from the 2020 annual report

1. **More EAP cases with longitudinal data on the WOS.** This year's report has 11,330 more cases than last year's total of 24,363 valid cases. A group of 13 different EAPs contributed new data this year. Almost all of this new data came from users in the United States, China, and New Zealand. Most of the new cases (87%) were from vendors of EAP with another 13% of cases from employer-based EAPs.

2. **Continued focus on WOS-5 brief measure.** All of the cases added this year had used the brief measure (WOS-5) with no cases using the 9-item or original 25-item versions of the WOS. Therefore, this report focuses on the data for the five single items that comprise the brief version of the WOS. The older data on absenteeism collected using the longer versions of the WOS that ask for hours absent in five different contexts of missing work was still included in the analyses, but was adapted by using only the data from the three items that match the WOS-5 instructions for defining absenteeism.

3. **Further support for psychometric validity and reliability of WOS measures.** Correlational tests conducted in this largest sample to date continue to find only moderate associations between the five WOS outcome measures. Scores on each WOS measure are also somewhat stable over time. See Appendix B for details. Other tests found greater initial impact on the two WOS outcomes influenced most by workplace conditions or by organizational culture (workplace distress and work engagement) among cases who used the EAP to address a work-focused issue. This matching of WOS outcomes and clinical issues offers support for the construct validity of the measures. Client age and sex were mostly unrelated to the WOS measures, which is evidence supporting the discriminant validity of the measures.

4. **Depression.** A special study (see Appendix D) found that employees with clinical depression who were starting a long-term depression care management program had more extreme deficits in all five WOS outcomes compared to employees who used EAP counseling for issues other than depression. EAP cases with depression as their reason for using the EAP did have some similarities with the participants in the care management program (presenteeism and life satisfaction) but were relatively worse on outcomes of absenteeism, workplace distress and work engagement. Overall, these findings are evidence of the substantial impact that depression has on work outcomes.

5. **Cases with longitudinal WOS data found to be representative of EAP cases in general.** Two mini-studies examined data from select EAP vendors to explore the representativeness of cases participating in the WOS longitudinal research (see Appendix C). The results determined that the samples of employees who completed the WOS at pre and at post use of counseling were generally similar in age and sex and in the mix of different reasons for using the EAP when compared to other employees at the same source EAPs who did not complete follow-up data or did not complete any WOS data.

6. **WOS measures show risk management role of EAPs**. The risk-management approach to interpreting WOS results involves rescoring the item ratings to identify how many cases (as a percentage of the total) had a problem with an outcome before counseling and then how many cases were still at problem status at the follow-up. This approach found risk reduction results for all WOS outcomes.

7. **Work outcomes proven relevant to most users of EAP counseling.** Only one in every six users (16%) sought assistance from the EAP for issues related directly to work - either as work stress (11%) or for other more specific work or occupational issues (5%). And yet three fourths of all EAP cases (75%) began their counseling at a problem level on at least one of the four WOS work outcomes. This finding reveals the hidden negative impacts of employee mental health, relationship and life issues on core aspects of work functioning experienced by employees who seek professional counseling.

8. **WOS presenteeism item re-scored into estimated hours of unproductive time.** The agree-disagree 1-5 ratings on the presenteeism item were converted to estimated levels of productivity while at work (on a scale of 0-100%). The combined hours of lost work productivity from presenteeism and from absenteeism were then compared over time. Normative levels of missed work and of productivity level (0-100%) for EAP users and typical employee was determined from two literature reviews and used to interpret the new WOS results for productivity level and combined hours of LPT.

9. **Estimated ROI for EAP Counseling in United States.** The hours of lost work time can also be converted into dollars associated with the business value of an hour of productive work. WOS data from external vendors in the United States was used to provide a profile of the initial impact of employee distress on work performance and how it changed after use of EAP counseling and the estimated cost savings associated with the improvement. With realistic variations in EAP price and employee compensation - but other aspects being equal - the ROI ranged from 3:1 for small size employers, 5:1 for medium size employers and to 9:1 for large size employers. The typical counseling case yielded cost savings ranging from about $2,000 to $3,500 per case. Most of this cost savings was from the improvements in work presenteeism and far less from reduced absenteeism (87% vs. 13%). Also, the level of EAP clinical case utilization needed for a ROI of $1:1 was only 1 in every 100 employees - regardless of company size. Thus, the business case for EAP is solid even at very low levels of utilization.

10. **More cases with data on context factors of EAP use.** The number of cases with data on client demographic factors (age and sex), the source of referral into counseling, the type of clinical issue or reason for counseling, and the industry of the employer was up about 50% over last year. Having more data on these factors allowed for more accurate profiling of how EAPs are used and for testing for potential differences on workplace outcomes among various subgroups of the context factors. The results, however, found very few meaningful differences in workplace outcomes by these factors.

11. **Benchmarking with WOS outcome data.** The ability to use the WOS data as normative scores and provide benchmarks for work outcomes offers a value to the EAP industry. It is important to compare standardized outcomes part of reporting for purchasers of EAP services. The examination of 15 different clinical issues revealed that the mental health issues of depression and grief tended to impact work outcomes the most at baseline before counseling. Other exploratory analyses compared 20 different external vendors and also a dozen employer-based programs on key outcomes. The results found large variation between EAP providers when ranking them from highest to lowest on key metrics.

12. **Revised measure released - WOS-2020.** An updated version of the brief measure is included in this report - along with scoring instructions. The work absenteeism item now is answered by choosing from five categories of different amounts of absence (based on levels determined from research). Also included is an additional item on the level of work productivity in general rated on a scale from 0 to 10. A new screener item is included to confirm if the person had worked in the past month and is relevant to answer the WOS at all.

13. **Bibliography of WOS Research.** Over the past decade, scholars have produced many journal articles, research papers and conference presentations. A list of 40 works are provided - many with weblinks for no-cost access from the EAP Digitial Archive (www.eaarchive.org) and other sources.

Chapter 1 - Profile of study sample

This chapter profiles the EAP user experience based on ten context factors. It examines how EAP counseling is provided – at least among the convenience sample of vendors, employers, and consortiums that have shared this context data over the past ten years. The data offers a picture of who uses counseling, why it is used, and in what context it was provided. This wide variety of users offers a diverse set of conditions to examine the outcomes of brief counseling from EAPs. However, other than country and model of EAP service delivery, the sample sizes with valid data for the different context factors varied from 54% of cases to only 5% (see Figure 1.1 on next page).

Country. *N* = all cases. A total of 26 different countries were represented, but 97% of the cases came from just three countries: United States (72%), China (22%), and New Zealand (3%). The remaining 3% of the sample were spread across 23 other countries.

Region of US. *N* = 24,680 (96% of all cases from the US). Five regions of the US were also examined (based on US Census definition). The percentage of cases in each region: Northeast (17%); South (26%), Midwest (33%), West (22%) and Pacific (1%).

Model of EAP Delivery. *N* = all cases. Most of the total individual cases in the study sample (70%) were from external vendors. About 1 in every 8 cases (13%) were from internal staff model programs at large employers (Pompe, Jacobson Frey, Sharar, Imboden & Bloom, 2017). About 1 in every 6 cases (17%) were from EAPs with the employer hybrid model (17%). Of the 18 hybrid or internal staff model EAPs, eight were based in hospitals or health systems with the goal of primarily serving the internal employees.

Table 1.1 *EAP delivery model crossed with EAP market type (number of EAPs and number of cases)*

	Market Type			
EAP Delivery Model	**External Vendor of EAP**	**Large Employer with EAP**	**Hospital-Based Local EAP**	**% cases**
External Vendor	24,960 (20 EAPs)	N/A	?	70%
Employer Hybrid	0	5,800 (6 EAPs)	214 (2 EAPs)	17%
Internal Staff	0	936 (4 EAPs)	3,703 (6 EAPs)	13%
Total cases (EAPs)	24,690 (20)	6,816 (10)	3,917 (8)	
% of total cases	70%	19%	11%	100%

Industry. *N* = 19,215 cases. A wide variety of industries were represented among the employers who sponsored the EAP services. This included: government (29%); health care (26%); manufacturing (18%); technology (12%); colleges & universities (5%); lower-wage industries (6%; including subtypes of service and hospitality; administrative/clerical; and customer service) and higher wage industries (4%; including finance/banking/insurance; professional; and executive).

Client Age. *N* = 14,843 cases. Age ranged from 18 to 72 years old, with an average of 36 years old.

Client Sex. *N* = 14,262 cases. About twice as many women as men used the EAP (68% > 32%).

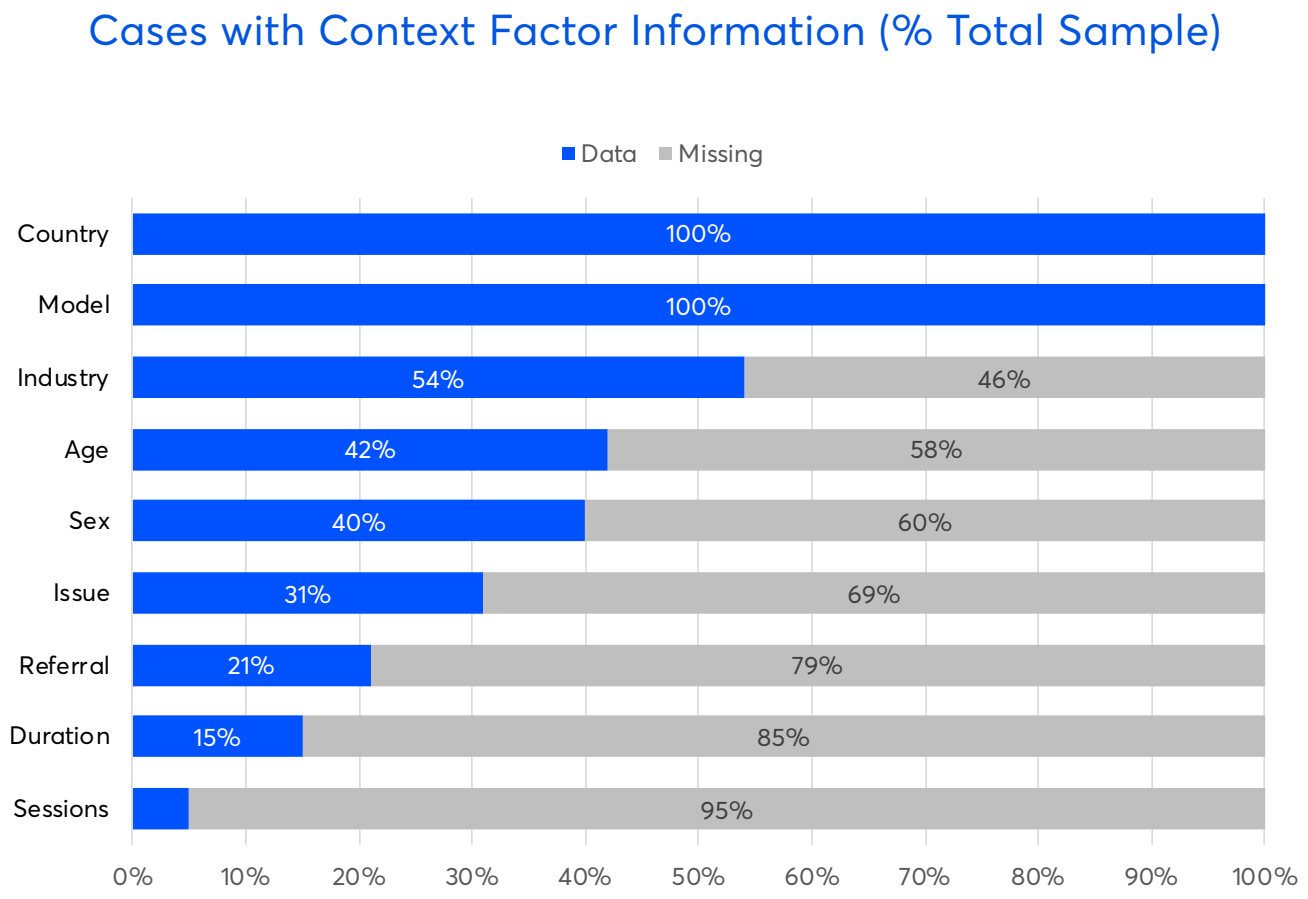
Clinical Issue. *N* = 11,122 cases. Mental health issues or personal stress was the most common clinical area with 44% of all cases. Specific issues within this category included anxiety (12% of all cases), depression (12%), behavior conduct (7%), personal stress (7%), grief (5%), and violence or trauma (2%). Almost 1 in every 3 cases (30%) used the EAP for difficulties with a personal relationships (marriage or family issues. Work stress (11%) and occupational issues (5%) combined to be the third most popular area (16%). Alcohol misuse and drug problems (Roman, 1990) accounted for only about 1 in every 20 cases (4%). Other personal life issues (legal, financial, medical) accounted for the final 6% of cases.

Referral Source Into EAP. *N* = 7,580 cases. The vast majority of cases were self-referrals (85%). Referral from a supervisor at work accounted for about 1 in every 10 cases. Least common was a referral from a family member or other sources – at 5% of all cases.

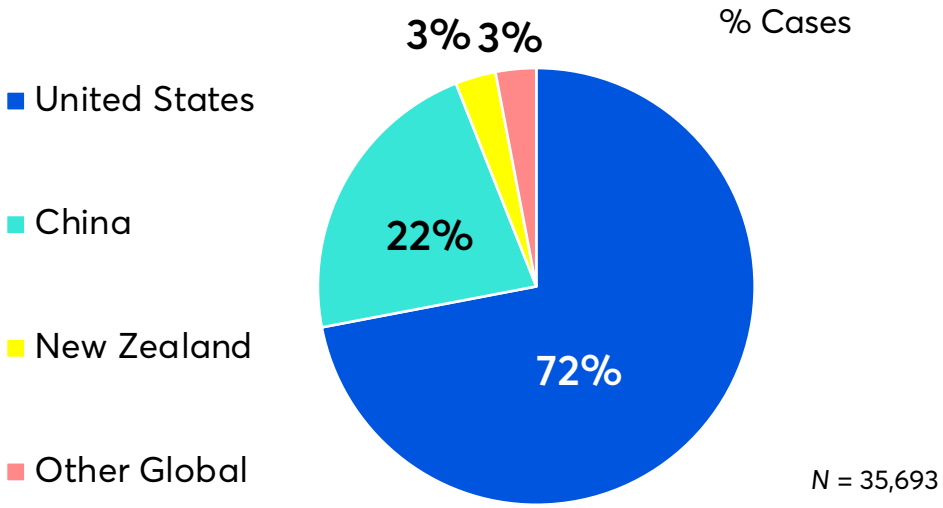
Clinical Duration. *N* = 5,796 cases. The average case participated in counseling for about six weeks (median 42 days; mean = 54 days; range 1 to 365 days). This data is from three EAPs in US (two vendors and one internal staff program).

Clinical Sessions. *N* = 1,885 cases. The average case had 3.2 sessions of EAP counseling (range 1 to 6). This data is from one external vendor in US.

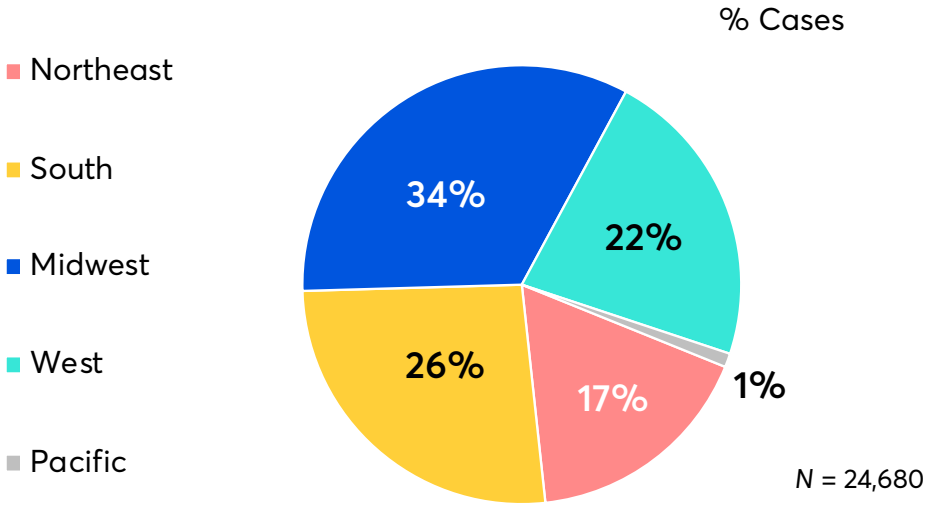
Figure 1.1 *Percentage of all cases with valid data on each context factor*



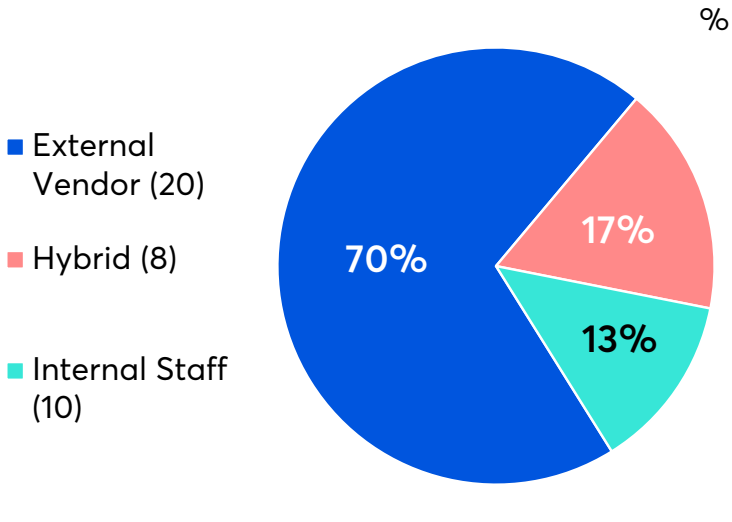
Country of EAP Client



Region of Country of EAP Clients in United States



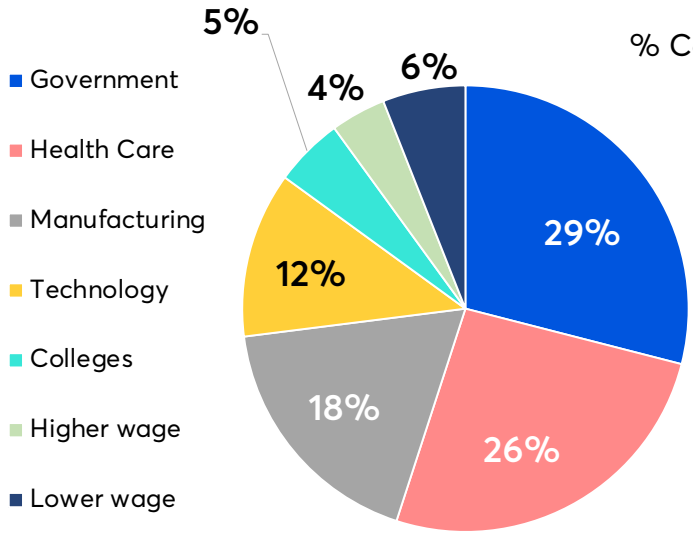
Delivery Model for EAPs



11% of all cases were from Hospital-based EAPs

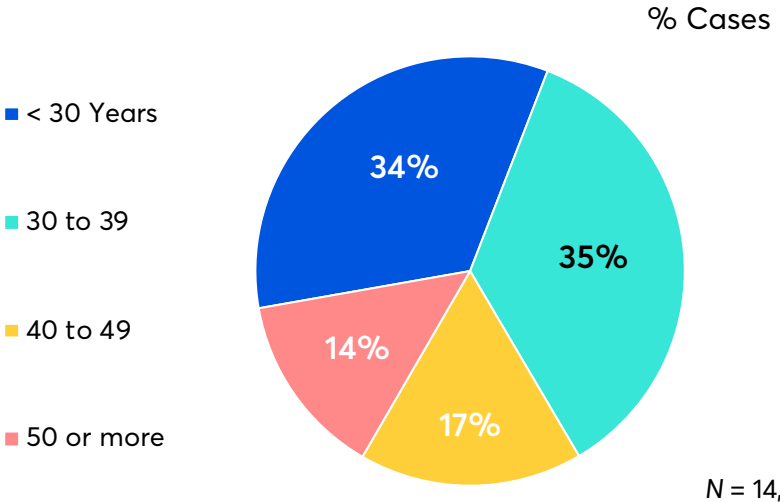
n = 8 EAPs:
2 hybrid
6 staff

Industry of Employer



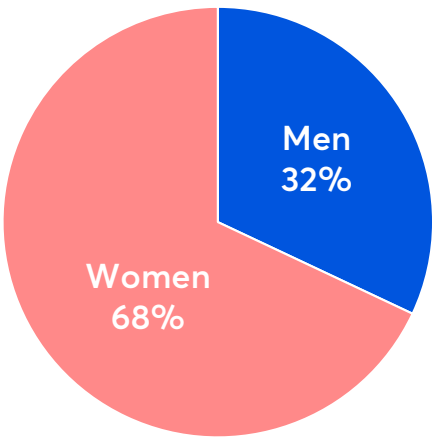
N = 19,215
[Other 16,478 mixed from EAP vendors]

Age of EAP Client



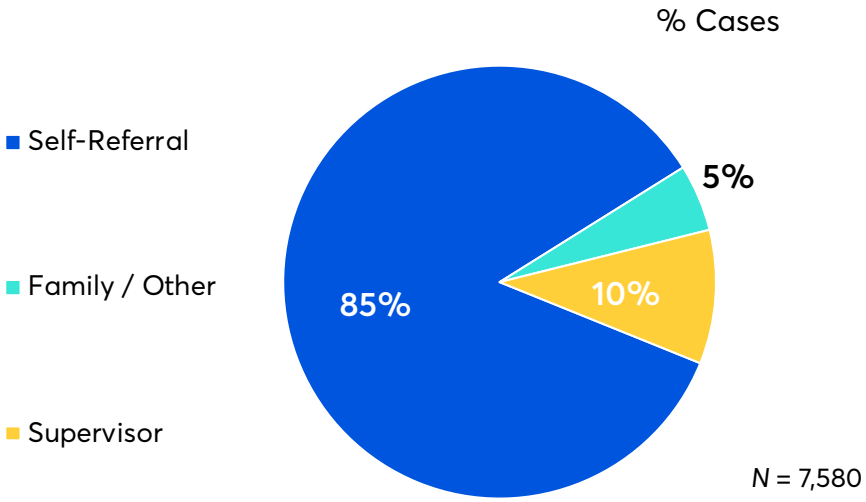
N = 14,843

Sex of EAP Client

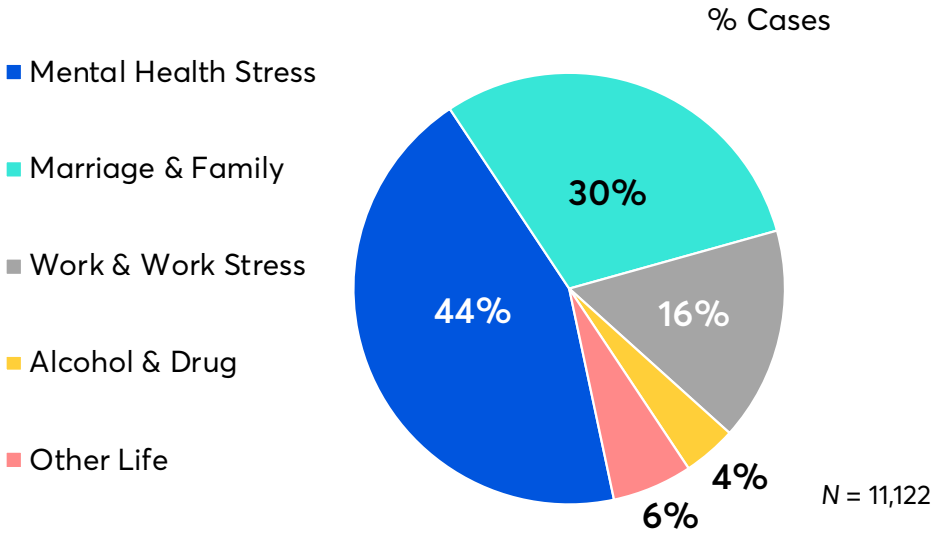


N = 14,262

Source of Referral into EAP



Clinical Issue (Reason for EAP Use)



Summary - Chapter 1

This study has data on the EAP user experience for 10 context factors. However, other than country and the model of EAP service delivery, the sample sizes with valid data for each context factor varied from 54% of all cases to only 5%. The typical client in this study was a 36 year old female living in the United States who worked for the government. She referred herself into an external vendor of EAP services seeking support for an anxiety issue. The clinical phase involved three sessions with the counselor over a six week period. WOS data was collected at before the first clinical session and again with a follow-up survey completed at about three months after the last session.

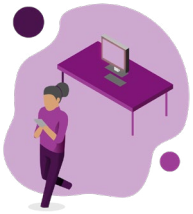
Please note there is an entire 39-page companion report that presents all of the details on profiles of the ten context factors and describes the similarities and differences on the WOS outcomes and LPT outcomes for subgroups within each context factor.

Chapter 2 - What is the WOS?

The Workplace Outcome Suite© is a self-report measure of change that examines five key aspects of workplace functioning: *Work Absenteeism, Work Presenteeism, Work Engagement, Workplace Distress, and Life Satisfaction.* It is the only publicly available outcome instrument that has been psychometrically validated and tested for use in EAP settings. It is an easy-to-administer tool that uses a short, precise, and easy-to-administer survey to collect EAP specific outcome data both at start of the counseling and at a follow-up (usually at two or three months) after the last clinical session. The WOS was first developed by Chestnut Global Partners (CGP) Division of Commercial Science in 2010. The WOS has been owned by Morneau Shepell since December of 2017 when it acquired CGP.

Work Absenteeism is the missed time away from regularly scheduled work. This is defined as complete work days and also as partial days when the employee arrived late work or left early. Absenteeism is measured on the WOS with a fill in the blank with specific numbers of hours absent in the past 30 days.

Work Presenteeism is when an employee is physically present on the job but is not working at their normal level of job performance because of some health or personal issue (Johns, 2010; Lohaus & Habberman, 2019). The WOS Presenteeism measure is designed to assess the effectiveness of EAPs aimed at personal problems that may not require the employee to miss work, but rather fail to be productive in the daily tasks at hand, even if the task is not cognitively taxing. Presenteeism assesses whether the employee is doing what he or she is supposed to do at work, rather than being distracted by a problem. Presenteeism is measured on the WOS with a 1-5 rating scale.



Lost Productive Time (LPT) is the result of combined absenteeism hours and estimated hours of unproductivity while working due to presenteeism (Stewart et al., 2003). This outcome is not measured by specific items on the WOS, rather it is derived mathematically from using the combined data from the WOS work absenteeism and work presenteeism items. LPT is measured in hours of time per month.

Workplace Distress is the feeling an employee has about the conditions of the work environment. It is not designed to evaluate the underlying cause of the distress, but only to measure the reduction in distress caused by the EAP intervention. Employees with high scorers on the WOS workplace distress item may be clinically depressed, unhappy with their boss, dissatisfied with their chances for promotion, or even unhappy because of the demands the jobs places on their home life. However, the construct is directed at the feeling only and, as such, should be able to detect improvement in the employee's mental state linked to improvement in the working environment. This is measured on the WOS with a 1-5 rating scale.

Work Engagement refers to the extent to which an employee is invested in his or her job. Conceptually, work engagement has three core components: cognitive, emotional, and behavioral (Attridge, 2009; Schaufeli et al, 2017). Engaged employees work hard at their jobs, take their work home with them and are excited about being at work. They also tend to think about work even when they are at home and not formally working. The investment these employees put into their work goes beyond the normal level of high job satisfaction to the point where they view the job as a reflection of who they are and taking pride in their job. Work engagement is measured on the WOS with a 1-5 rating scale.

Life Satisfaction is a straightforward measure that addresses satisfaction with one's life. As a general construct (Diener et al., 1985), life satisfaction is useful in addressing the broader impact of workplace problems on one's general well-being and can be used to place the problem in a "life" context. In the context of EAP counseling, this measure functions as a proxy for level of overall distress. Life satisfaction is measured on the WOS with a 1-5 rating scale.

What do the different colors indicate for each of the WOS measures?

- Work Absenteeism is colored red because this outcome involves a stoppage of work - like the red color featured on a stop sign for traffic.
- Work Presenteeism is colored blue because this is the color of blue is linked to depression (" feeling blue"), which is a clinical issue strongly linked to a decreased (depressed) level of work performance.
- Lost Productive Time (LPT) at work is colored purple because this color is the derived from mixing together the colors of red and blue and the outcome of LPT is calculated from adding together the data from the work absenteeism and work presenteeism outcomes.
- **Workplace Distress** is colored black because this outcome involves a feeling of dread about going to the workplace – and black presents a dark or ominous psychological state.
- Work Engagement is colored green because this outcome involves having a growth-oriented approach to one's work and this theme is depicted by the color green because green represents healthy plants and nature.
- Life Satisfaction is colored yellow/orange because it reflects a positive and happy perspective on life and happiness is often associated with the colors of yellow or orange.

The specific items and response options are listed in Table 2.1 on the next page.

What does it mean to be at "problem status" on a WOS measure?

The problem status analytical approach was introduced in the 2018 WOS Annual Report and featured in a recent peer-review published research article (Attridge et al., 2018). It uses the meaning embedded in the labels on the response scales of WOS items to determine a more clinically relevant sub-portion of the employee population who are at a "problem level" on the outcome. This method simply asks how many employees (as a percentage of all cases) have a problem on a particular outcome when first seeking counseling and then how many still have a problem at the follow-up after counseling has concluded? The expectation is that the prevalence rate of the more severe levels on these outcomes would go down after counseling when employees had experienced some clinical improvement.

Conceptually, this approach borrows from the wellness field's emphasis on prevention and finding employees who are at-risk for a health issue and then trying to reduce those risks through education and coaching. The results can be used to demonstrate the role of EAP counseling in the risk management of behavioral health issues for work organizations (Attridge, Sharar, Veder & Steenstra, 2020). How this approach is enacted operationally for each WOS measure is shown below.

Table 2.1 *WOS-5 brief measure items with response options and recoding for problem status*

Item on WOS-5	Rating scale	Problem status
WORK ABSENTEEISM: *"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."* ___	**5 = Absent 25 to 159 hrs** **4 = Absent 9 to 24 hours** **3 = Absent 4 to 8 hours** 2 = Absent 1 to 3 hours 1 = No Absence (0 hours)	**Problem** **Problem** **Problem** Not a problem Not a problem
WORK PRESENTEEISM: *"My personal problems kept me from concentrating on my work."*	**5 = Agree Strongly** **4 = Agree Somewhat** 3 = Neutral 2 = Disagree Somewhat 1 = Disagree Strongly	**Problem** **Problem** Not a problem Not a problem Not a problem
WORKPLACE DISTRESS: *"I dread going in to work."*	**5 = Agree Strongly** **4 = Agree Somewhat** 3 = Neutral 2 = Disagree Somewhat 1 = Disagree Strongly	**Problem** **Problem** Not a problem Not a problem Not a problem
WORK ENGAGEMENT: *"I am often eager to get to the work site to start the day."*	5 = Agree Strongly 4 = Agree Somewhat 3 = Neutral **2 = Disagree Somewhat** **1 = Disagree Strongly**	Not a problem Not a problem Not a problem **Problem** **Problem**
LIFE SATISFACTION: *"So far, my life seems to be going very well."*	5 = Agree Strongly 4 = Agree Somewhat 3 = Neutral **2 = Disagree Somewhat** **1 = Disagree Strongly**	Not a problem Not a problem Not a problem **Problem** **Problem**

Validity and reliability of WOS measures

Other more detailed finding are presented in Appendix B that examine the psychometric properties of the WOS measures. Data from past research and analyses of the current data show that these measures have adequate validity and reliability. Correlational tests between the measures have results in expected patterns and these patterns at baseline were replicated in data at the follow-up period. Even though it was not an ideal test condition, other correlational tests found modest consistency in scores over time from pre to post use of the EAP.

Two new mini-studies of the WOS archive data also indicated that the cases featured in the longitudinal study were similar (or had small differences) on demographic factors, clinical issues, and initial level of WOS score severity compared to other groups of employees who used EAP counseling but only had completed the WOS at the start of counseling or had not completed the WOS at either time point. This is evidence supporting the representativeness of the WOS study sample as a reflection of other EAP cases. See the detailed findings presented in Appendix C.

A special study was updated from last year's annual report with data collected from employee users of a depression management long-term program (by Homewood Health in Canada) indicated that (as expected) employees with more severe clinical status were worse in level of work functioning as measured by the WOS than were employees who used EAP counseling (from the WOS study). See the detailed findings presented in Appendix D.

Summary - Chapter 2

The five outcomes measured by the Workplace Outcome Suite include work absenteeism, work presenteeism, workplace distress, work engagement and overall life satisfaction. The single items are rated on a 1-5 scale of agreement-disagreement and can be further coded into simply indicating if the level of outcome severity was at a problem level or not. The five measures can also be combined in a composite score. The WOS measures reflect experiences of employees for the past month and thus are appropriate for use in conditions of repeated testing over time for the same person (e.g., to compare levels of work outcomes at before and after use of EAP counseling). Each outcome has distinct meaning conceptually and empirically in statistical tests of psychometric validity and has modest reliability over time in how consistently the items were answered. Examining the reasons why employees used the EAP revealed that even when employees were not using the EAP for work-related issues, most cases nonetheless tended to have problems on one or more work function outcomes. These findings are evidence for the relevance of collecting data on work outcomes for EAP counseling cases.

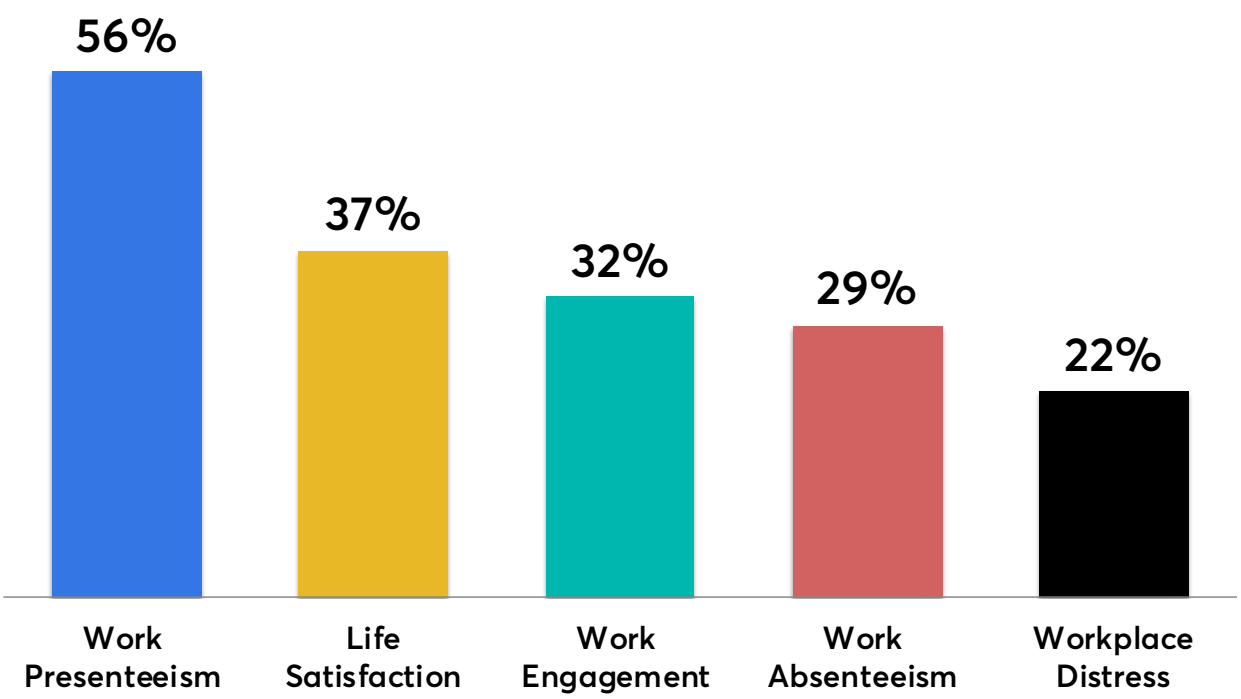
Chapter 3 - Impact of employee distress on work outcomes

How much are WOS outcomes impacted by employee distress?

The month just before starting counseling is the period of time relevant to responses on the first set of WOS outcomes (i.e., the data for Pre EAP use in the Pre-Post study design). This is the period when the employee's level of personal distress is likely to be at its peak and results in the need for the worker to finally take action and seek out help from an EAP counselor. The stigma often associated with mental health disorders (Hanisch et al., 2016) suggests that the level of distress experienced by the employee must be severe enough to overcome the psychological barrier of defining oneself as a person who needs professional help. Given this context, a relevant question is which of the different outcomes assessed by the WOS are most impacted by the initial distress experienced by the employee?

The results for data at Pre EAP use found that work presenteeism was the outcome with the greatest percentage of cases at problem status - with more than half of all cases (56%) saying their issue was making it difficult to concentrate on work. Next was being dissatisfied with the life overall (at more than a third of cases (37%). In the context of EAP counseling use, this item on life satisfaction may be functioning as an indicator of the level of clinical distress. About a third of cases (32%) were not engaged in their work. Missing a half day or more of work time occurred for about 1 in every 4 cases (29% absenteeism problem). Finally, a feeling of dread when going to the workplace (workplace distress) was the outcome impacted the least, with about 1 in every 5 cases (22%) being at the problem level. These findings are shown in Figure 3.1.

Figure 3.1 *Percentage of all cases at before use of EAP with WOS outcomes at problem level*



What explains the differences between the five WOS measures?

One explanation involved digging deeper into why employees used counseling and matching up certain WOS outcomes with reasons for counseling use that were more aligned from a conceptual perspective.

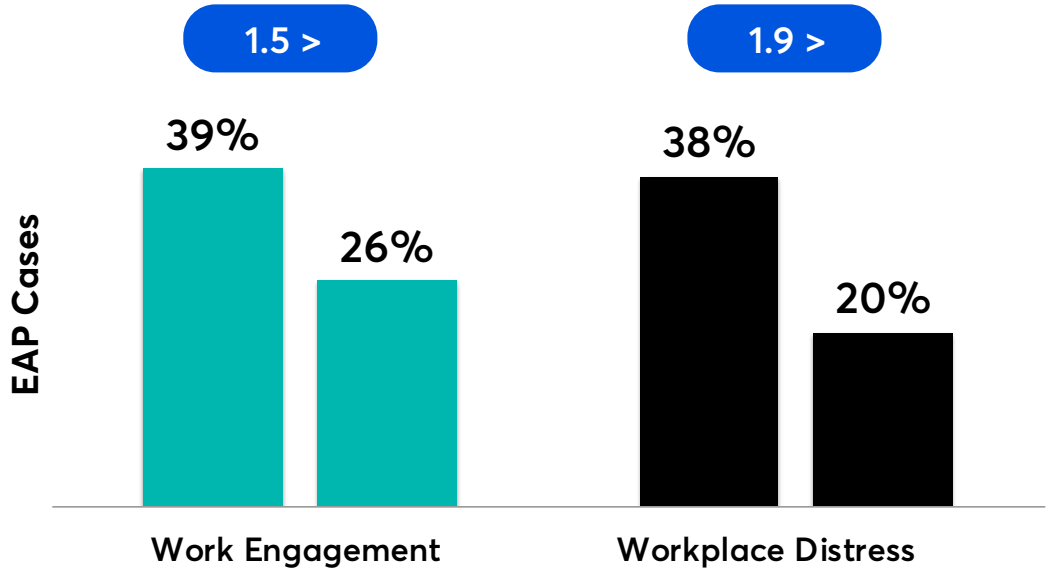
Work stress (11%) and occupational issues (5%) combined to be 16% of all cases. The other 84% of cases had other issues unrelated to work. Compared to the employees with other issues, employees with a work-focused issue were 1.9 times as likely to have a problem initially with the workplace distress outcome (38% vs. 20%, respectively). Also, compared to employees with any other issue, employees with a work focused issue were also 1.5 times more likely to have a problem initially with work engagement (39% vs. 26%, respectively). The chi-square statistics for these two tests were:

- X^2 (1, N = 11,088) = 302.87, p < .0001 for Work Engagement Problem X Work Issue or Not
- X^2 (1, N = 11,088) = 127.35, p < .0001 for Workplace Distress Problem X Work Issue or Not

In contrast, the other three WOS outcomes had lower percentages of cases at problem level among the work issue group than among the other cases: Work presenteeism: 47% vs. 58%; Life satisfaction: 27% vs. 37%; and Work absenteeism: 35% vs. 39%. The conclusion is that although the two WOS workplace-themed outcomes had the lowest levels of problem status at the start of counseling when examined across all users of the EAP, they were significantly more relevant to EAP users who had sought assistance for work issues or for work stress.

Figure 3.2 *Employees with work-related presenting issues had more workplace distress and less work engagement at start of EAP use than employees with other kinds of presenting issues*

% of Cases at Problem Level on WOS Outcomes at BEFORE Use of EAP Counseling

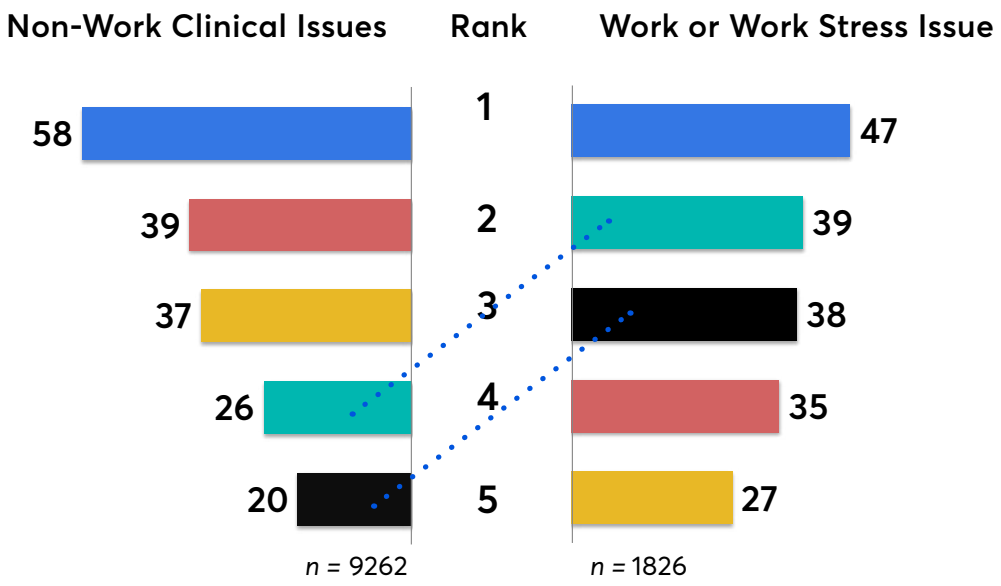


Work Issues n = 1826 Other Issues n = 9262

The different WOS outcomes were also rank ordered from most to least prevalent, based on percentage of cases at problem status at before counseling. This ranking process was done separately within the two groups of employees who had an EAP issue involving work or those who had a clinical issue about something else unrelated to work.

Results showed that both groups had work presenteeism as the number 1 ranked outcome. Again this is more evidence of the prominence of presenteeism as the outcome most relevant to EAP cases. But then there were differences between the groups for which outcomes were ranked number 2 and 3. Employees using the EAP for work-related issues had outcomes of work engagement and workplace distress as their number 2 and 3 ranked outcomes. In contrast, among the other employees who used the EAP for reasons unrelated to work, these same two WOS outcomes were ranked at the bottom, at numbers 4 and 5. See details in Figure 3.3. Thus, for cases concerned about work related issues, the two workplace and organizationally driven WOS outcomes were impacted more.

Figure 3.3 *Rank order of WOS outcomes by problem status at before EAP use for two groups of employees based on clinical issue*

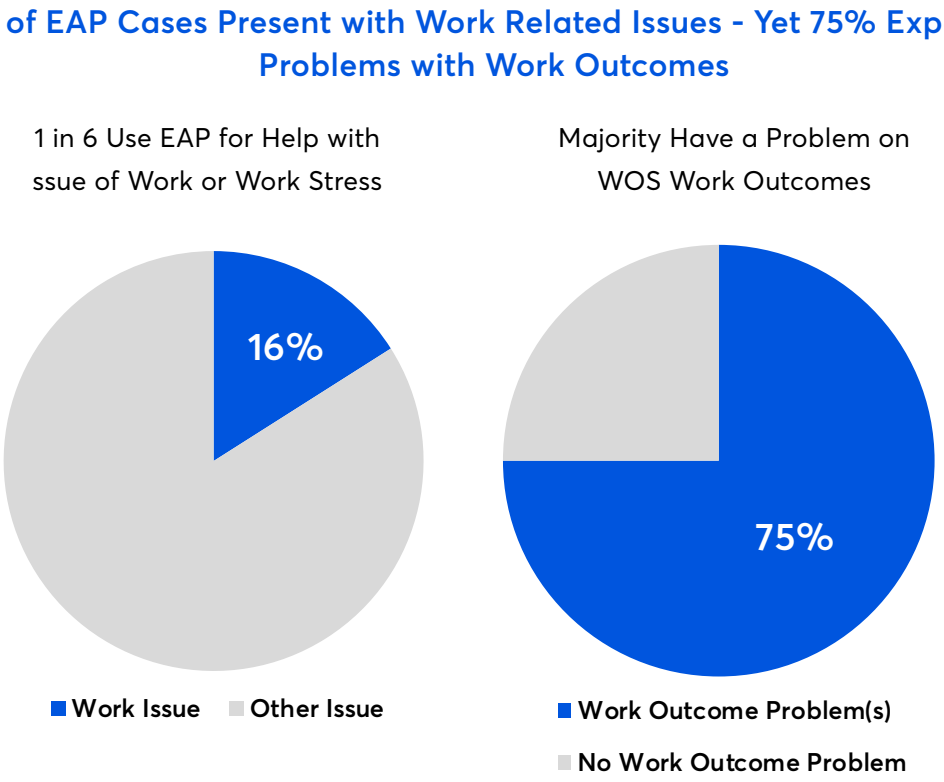


This result is quite interesting when the average number of WOS outcomes at problem status per person did not differ between these groups, with 1.80 for the non-work clinical issue group and 1.86 for the group with work or work stress kinds of clinical issues. A person could have between zero or up to all five of the WOS outcomes at a problem level. This metric of the total number of outcomes at problem status is examined more in the next chapter using the full study sample of all 35,693 cases.

Work related outcomes relevant to most employees in personal distress

Four of the five constructs measured by the WOS focus specifically on different aspects of work functioning. One could question how relevant work-related outcomes are to the context of EAP counseling when it is used for a wide range of different issues - most of which are related to behavioral health problems or concerns about personal relationships and family life outside of work. More specifically, our data on clinical issues from 11,122 cases representing many different EAPs, found that only 1 in every 6 EAP users (16%) had sought assistance for issues related directly to work - either as work stress (11%) or for other more specific work or occupational issues (5%). And yet, three fourths of all EAP cases with WOS data (75%) began their counseling at a problem level on at least one of the four WOS work outcomes (excluding the WOS life satisfaction outcome). These findings reveal the hidden negative impacts that personal distress can have on work functioning. See details in Figure 3.4.

Figure 3.4 *Comparison of how many cases have a clinical issue involving work and how many cases have one or more of WOS work outcomes at problem status when starting counseling*



One practical implication of this finding is that work outcomes are indeed very relevant to most employee users of EAP services. Thus, work outcomes should be assessed for all cases regardless of the different kinds of clinical issues that are represented among the EAP caseload of employees. Another implication is for the customers of EAP who should recognize the potential for work functioning losses among many employees when they have behavioral health and personal life issues. Outcomes of work presenteeism, work absenteeism, work engagement and distress about the workplace are affected for many employees when they are in distress – regardless of the specific reason for the distress.

Summary - Chapter 3

Employees using the EAP for counseling had initial deficits in each of the five outcomes assessed by the WOS. Work presenteeism was at a problem level for the majority of employees. Other outcomes ranged from 37% to 22% of cases being at a problem level at the start of counseling. Reasons why the EAP was used appear to influence which WOS outcomes were impacted the most. Three-fourths of cases had a problem on at least one of the work outcomes, even though only 16% of all cases had a work-related reason for using the EAP. Furthermore, The conclusion is that although the two WOS workplace-themed outcomes had the lowest levels of problem status at the start of counseling when examined across all users of the EAP, they were significantly more relevant to EAP users who had sought assistance for work issues or for work stress.

Chapter 4 - Improvement in WOS outcomes

Tests of WOS Outcomes on 1-5 Ratings

The most sensitive statistical test of change over time is provided when using the full range of the response scales for each of the WOS items (i.e., ratings of 1, 2, 3, 4 or 5). Tests of change over time were conducted using a statistical procedure called repeated measures analysis of variance and the full ratings at before and after counseling for each WOS measure. These ratings on the five measures were also combined into a composite measure - called the WOS SuperScore (see Appendix A).

The results found that the WOS SuperScore had the largest statistical effect size of all the tests conducted. This indicates that counseling from EAPs was generally effective in reducing their initial deficits in this set of work related outcomes.

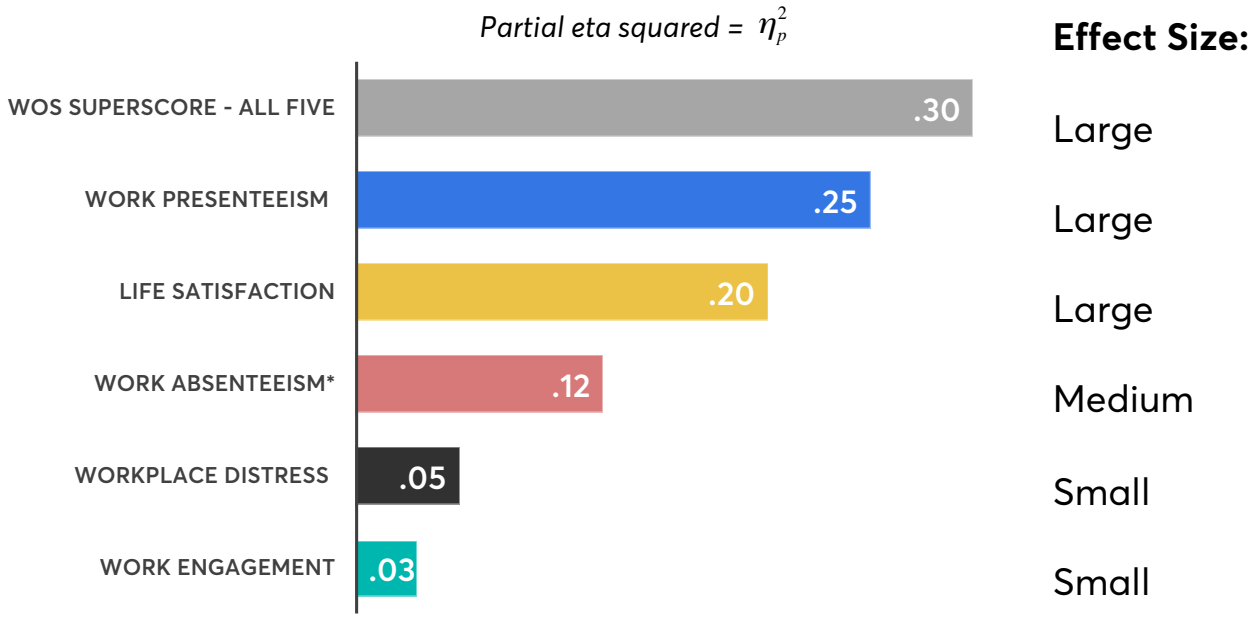
Of the five specific WOS measures, the degree of improvement varied substantially. The biggest improvements were found for the outcomes of work presenteeism and life satisfaction, which both had large size statistical effects. When tested using the five categories of increasing amounts of work absence hours, the change over time for the work absenteeism outcome was a medium size statistical effect. Although work engagement and workplace distress outcomes both also improved, these two outcomes had much smaller statistical effect sizes.

Table 4.1 *Statistical details for improvement over time on WOS outcomes rated 1-5 scale*

	Work Absent	Work Present	Workplace Distress	Work Engage	Life Satis	Super Score
Items	1	1	1	1	1	5
Range	1-5	1-5	1-5	1-5	1-5	5-25
Better if:	lower	lower	lower	higher	higher	higher
Before EAP	1.92 (1.34)	3.29 (1.39)	2.22 (1.35)	3.19 (1.36)	3.04 (1.35)	16.81 (4.13)
After EAP	1.41 (0.97)	2.40 (1.35)	1.90 (1.18)	3.44 (1.23)	3.71 (1.10)	19.44 (3.84)
% Change	-27%	-27%	-14%	+8%	+22%	+16%
F test	4650.32	11732.44	2045.48	1144.08	8689.22	14921.89
p value	< .001	< .001	< .001	< .001	< .001	< .001
Statistical Effect Sizes						
η_p^2	.115 medium	.247 large	.054 small	.031 small	.196 large	.295 large

Note: N = 35,693 cases. η_p^2 = partial eta squared measure of statistical effect size.
The effect sizes for these tests are shown on the next page in Figure 4.1

Figure 4.1 *Statistical effect sizes for improvement over time on WOS outcomes rated on 1-5 scale*



** 1-5 categorical measure*
N = 35,693

How much is problem status on WOS outcomes reduced after counseling?

Each WOS outcome had the problem prevalence among employees significantly reduced after the use of EAP when assessed again at the follow-up. The specific findings for these results are shown in Table 4.2.

Table 4.2 *Statistical details of change over time in problem status on WOS outcome measures*

	Work Presenteeism	Life Satisfaction	Work Engagement	Work Absenteeism	Workplace Distress
Before EAP	56%	37%	32%	29%	22%
After EAP	28%	16%	23%	13%	13%
% Change	-50%	-57%	-28%	-55%	-41%
Chi-square	2509.31	2216.60	3803.56	2295.82	3999.54
p value	< .001	< .001	< .001	< .001	< .001
η_p^2	.195	.140	.030	.096	.038
Effect size	Large	Large	Small	Medium	Small

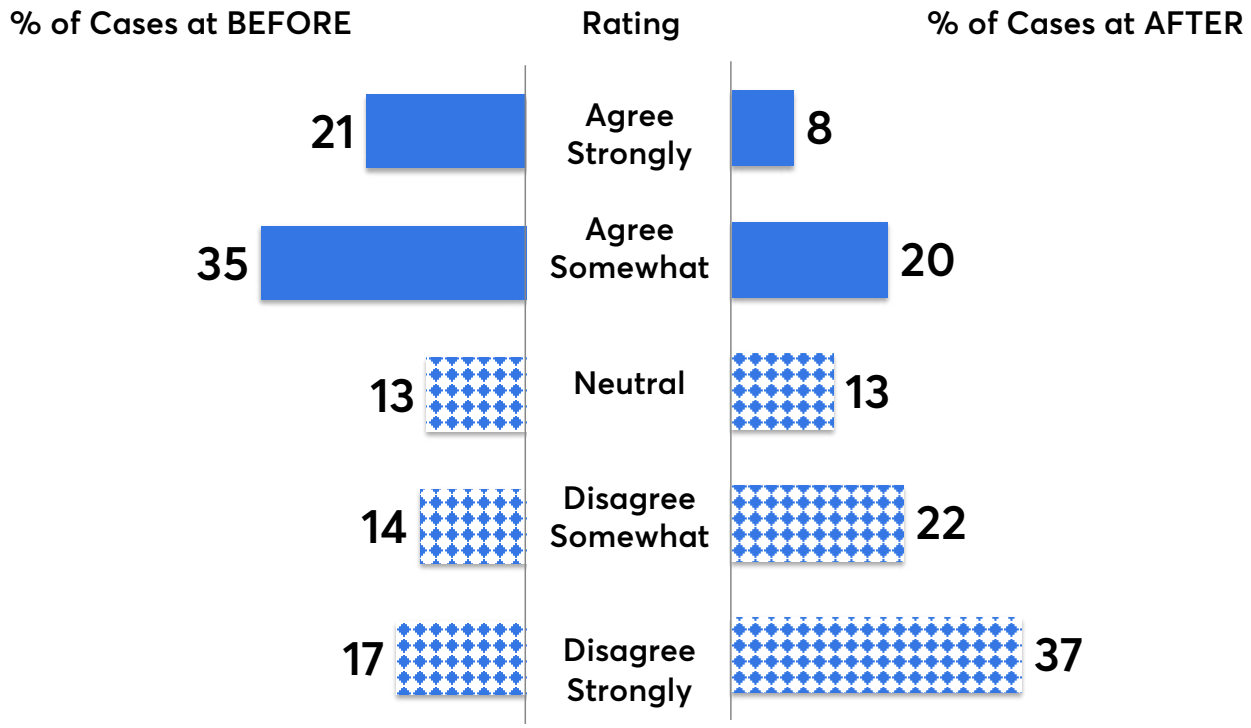
Note: N = 35,693.

Results for each WOS measure are also described in more detail on the following pages.

Work Presenteeism. Before counseling 56% of employees that had a problem with work presenteeism. This was reduced to 28% of all cases at the follow-up several months after use of EAP counseling. This was a statistically significant test result that had a large effect size.

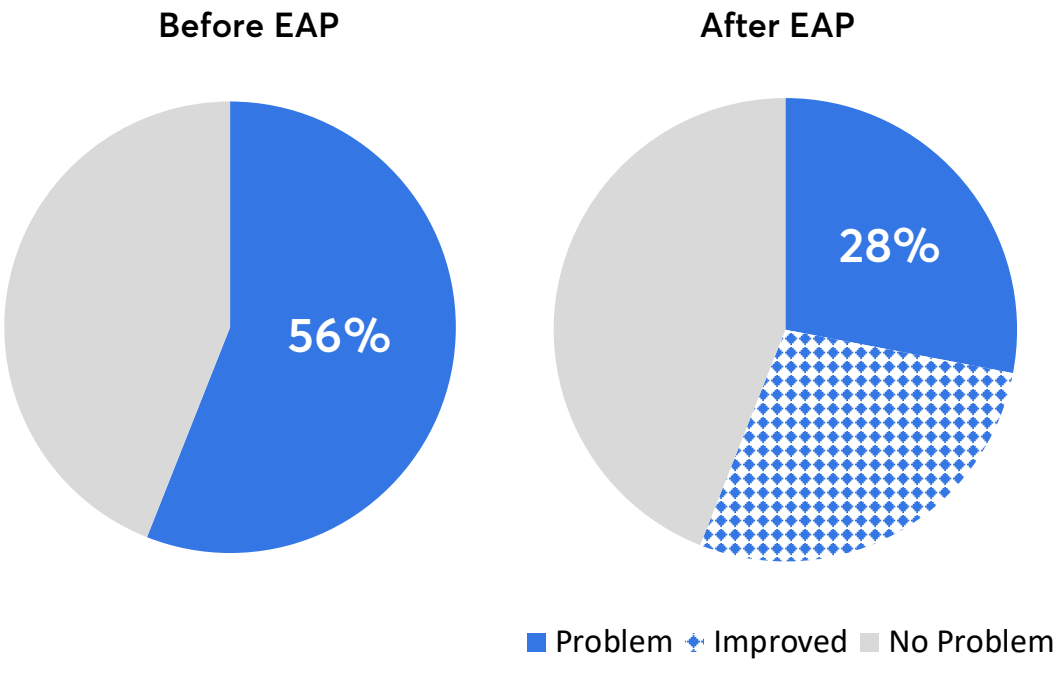
Figure Set 4.2 *Details of ratings and problem status at before and after EAP use for Work Presenteeism*

Work Presenteeism: Recoded as Level of Productivity



N = 35,693

Work Presenteeism: Reduction in Problem Status

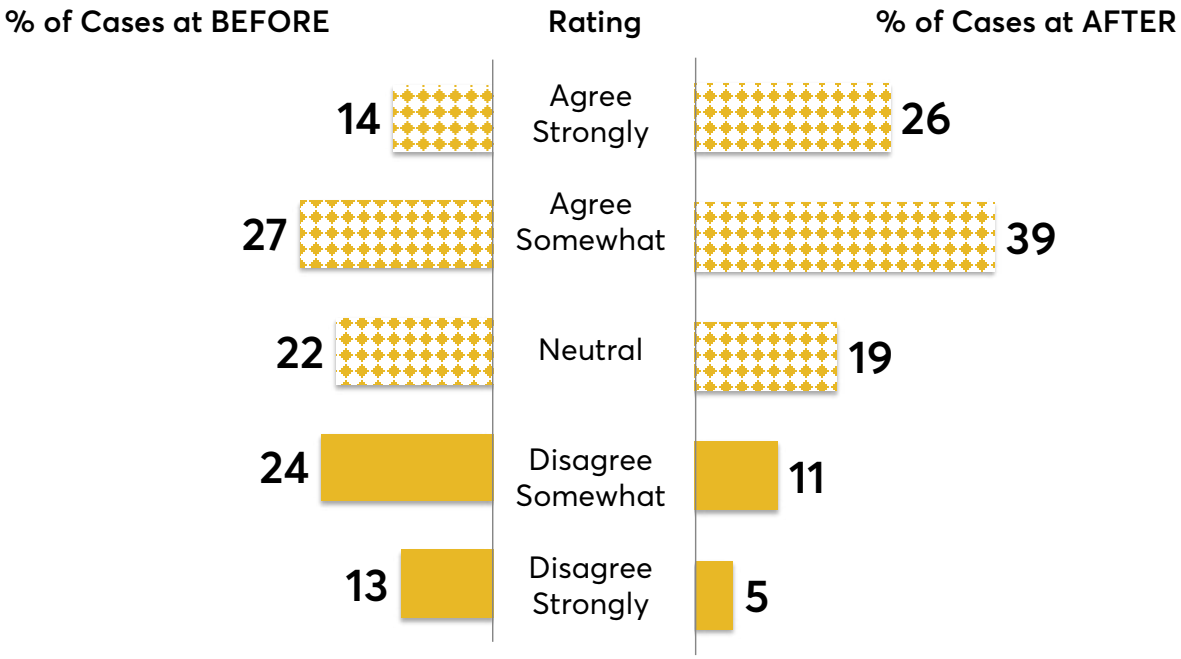


N = 35,693

Life Satisfaction. Before counseling, 37% of employees were dissatisfied with their life overall. This was reduced to 16% of all cases at the follow-up several months after use of EAP counseling. This was a statistically significant test result that had a large effect size.

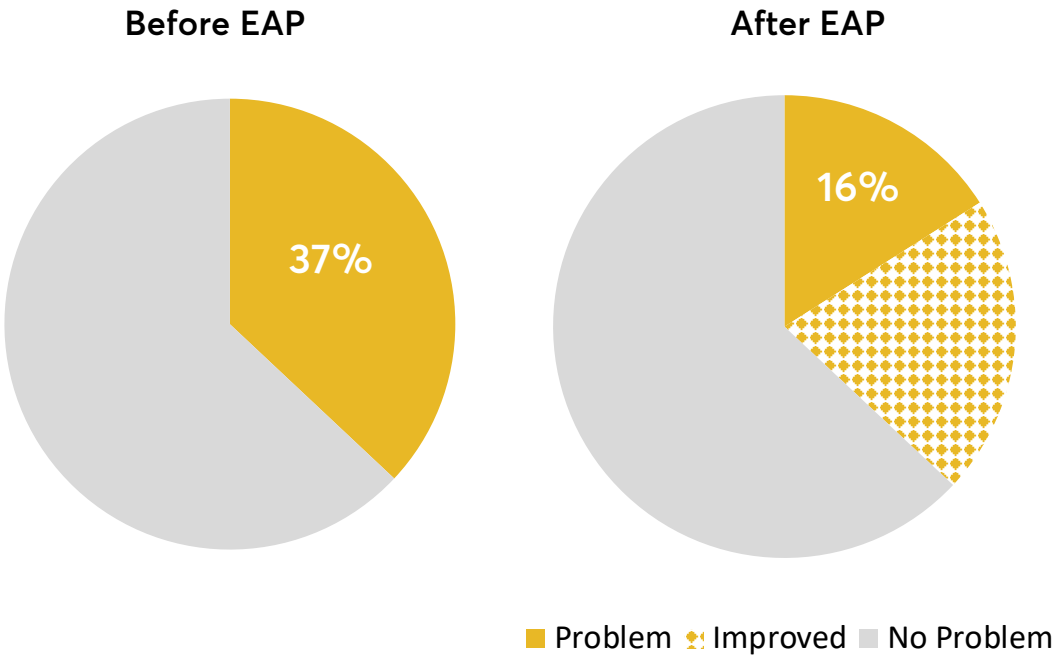
Figure Set 4.3 *Details of ratings and problem status at before and after EAP use for Life Satisfaction*

Life Satisfaction: Distribution of Cases on 1-5 Rating



N = 35,693

Life Satisfaction: Reduction in Problem Status

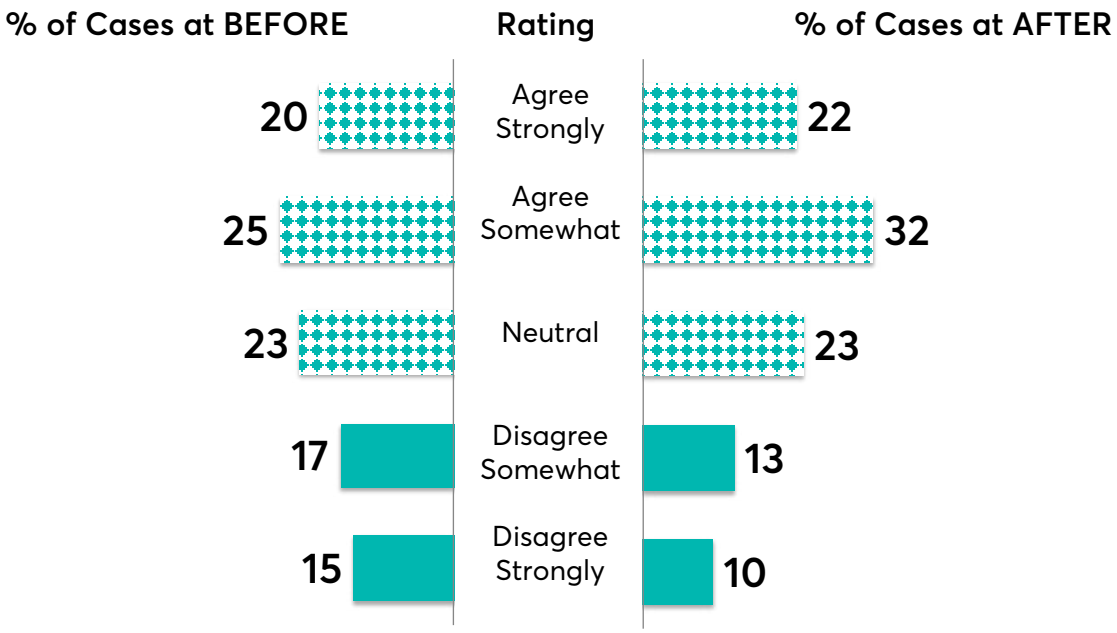


N = 35,693

Work Engagement. Before counseling, 32% of employees were not engaged in their work. This was reduced to 23% of all cases at the follow-up several months after use of EAP counseling. This was a statistically significant test result that had a small effect size.

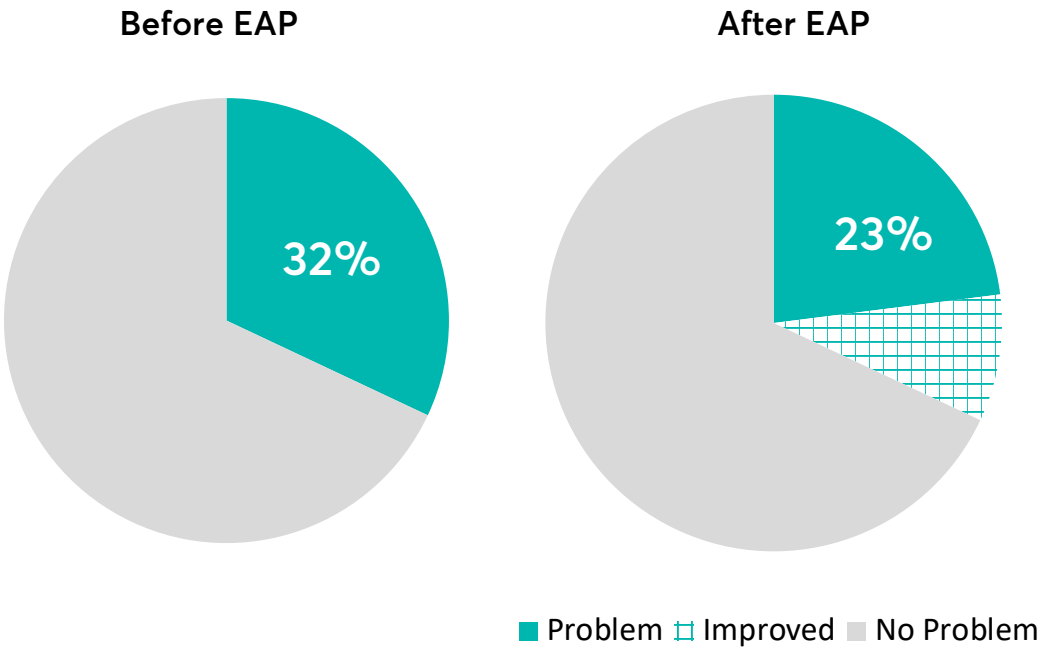
Figure Set 4.4 *Details of ratings and problem status at before and after EAP use for Work Engagement*

Work Engagement: Distribution of Cases on 1-5 Rating



N = 35,693

Work Engagement: Reduction in Problem Status

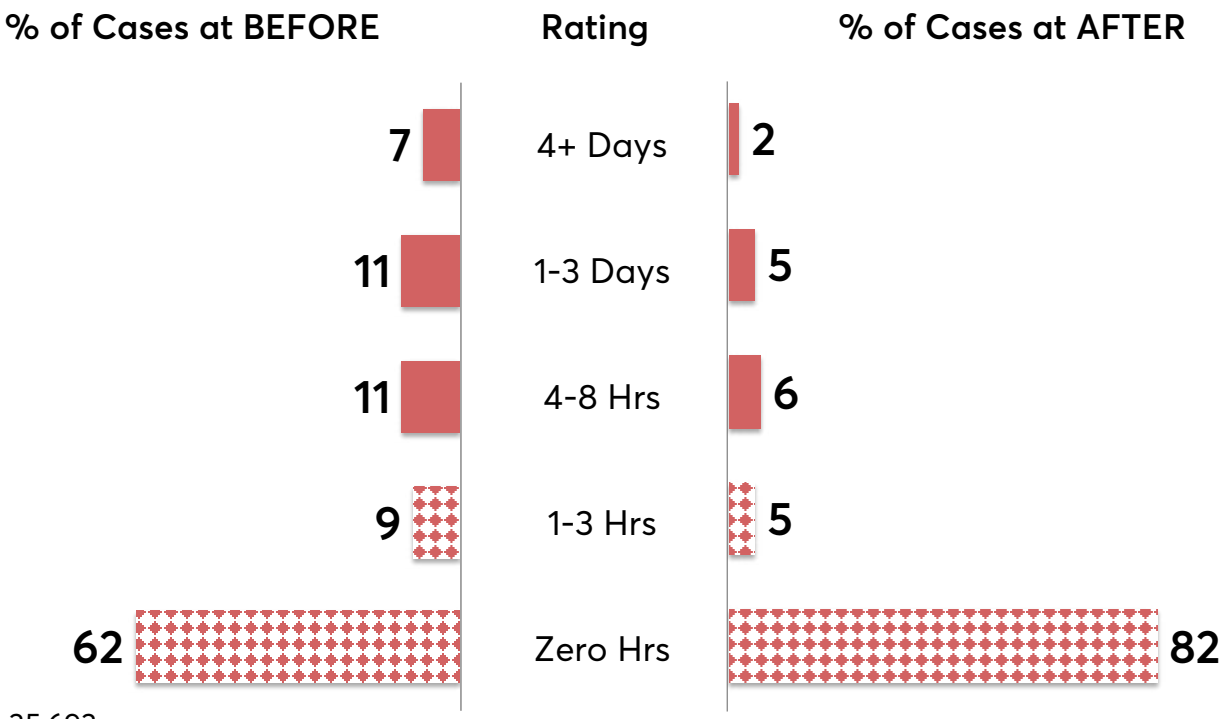


N = 35,693

Work Absenteeism. During the month before counseling, 29% of employees had missed four or more hours of scheduled work (defined as problem with absence as it is more than the average employee). This percentange was reduced to 13% of all cases at the follow-up several months after use of counseling. This was a statistically significant test result that had a medium effect size.

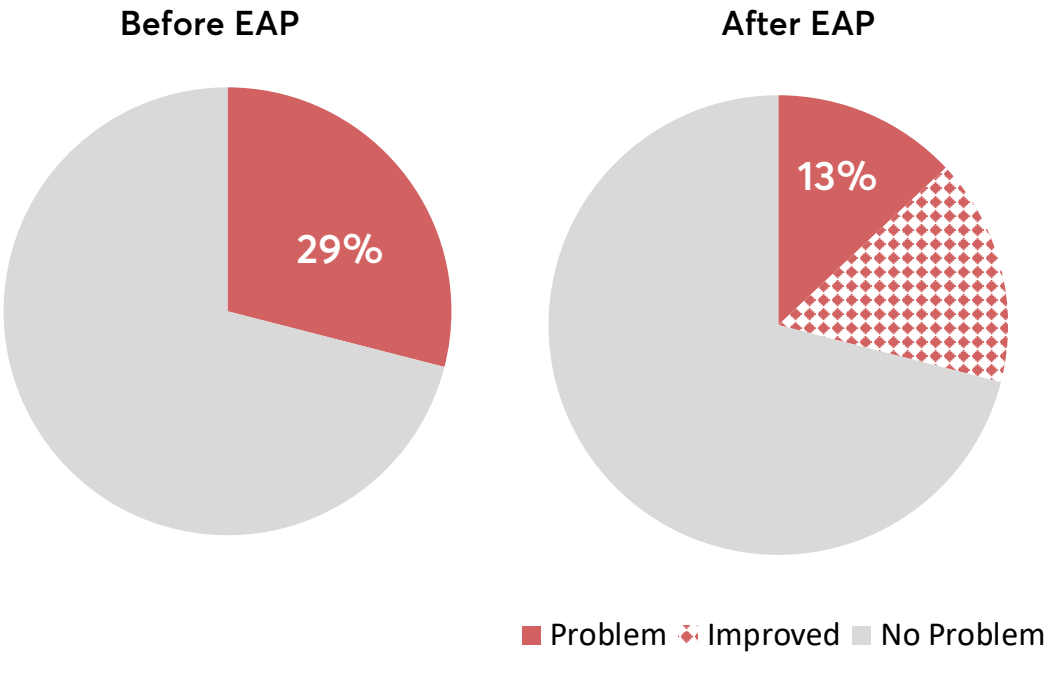
Figure Set 4.5 *Details of ratings and problem status at before and after EAP use for Work Absenteeism*

Work Absenteeism: Distribution of Cases on 1-5



N = 35,693

Work Absenteeism: Reduction in Problem Status

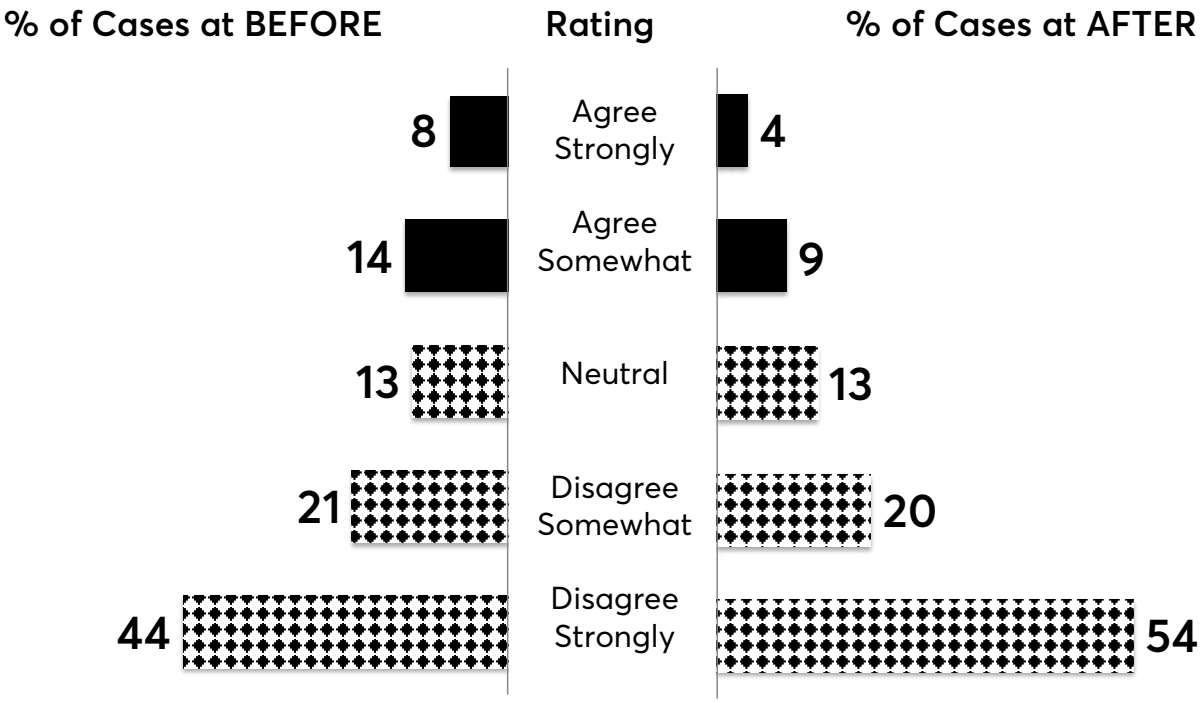


N = 35,693

Workplace Distress. Before counseling, 22% of employees dreaded having to go into work each day. This was reduced to 13% of all cases at the follow-up several months after use of EAP counseling. This was statistically significant test result that had a small effect size.

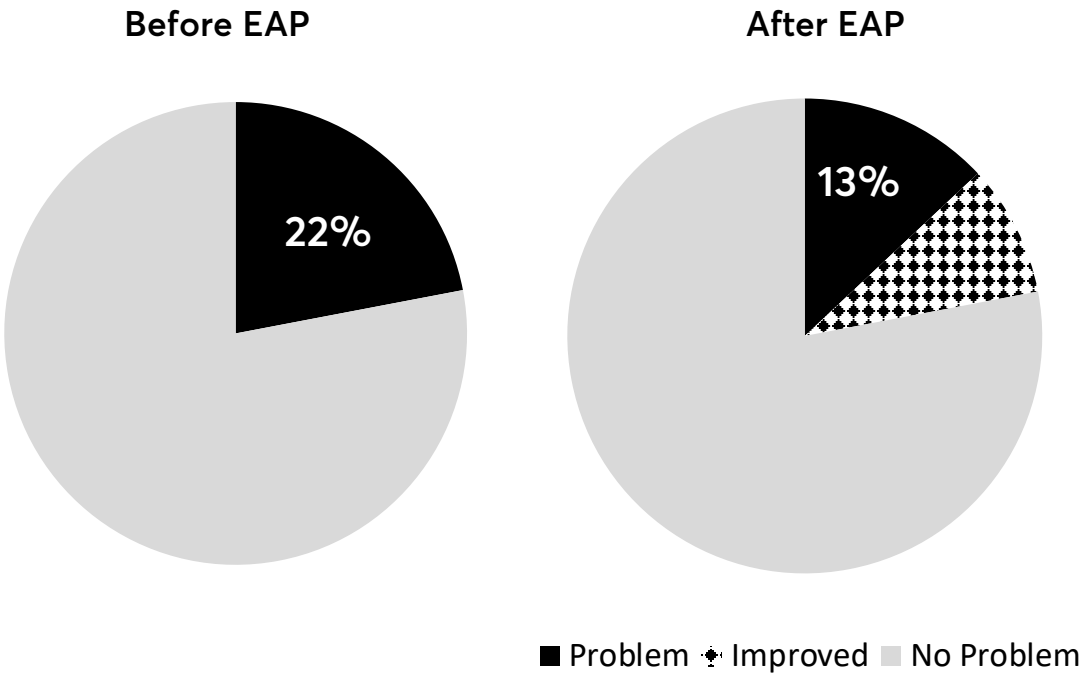
Figure Set 4.6 *Details of ratings and problem status at before and after EAP use for Workplace Distress*

Workplace Distress: Distribution of Cases on 1-5 Rating



N = 35,693

Workplace Distress: Reduction in Problem Status



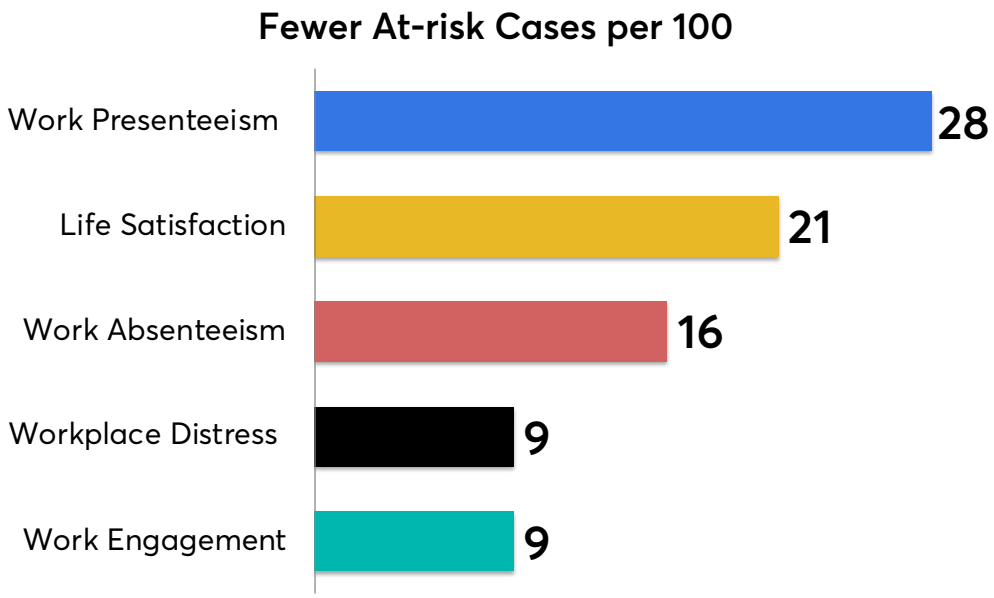
N = 35,693

Net change in rate of counseling cases at "problem" level for WOS outcomes

Taking the difference between the percentage of cases with a problem at before use and at after use of counseling yields the net change over time in problem status. This metric reflects the influence of both the initial prevalence rate of experiencing a problem on the workplace outcome among all cases and the extent of improvement that was achieved after counseling. Thus, the count of net fewer cases at problem status per every 100 EAP cases provides a useful way to compare the different WOS outcomes. The findings are below:

- 28 fewer cases per 100 with a Work Presenteeism problem
- 21 fewer cases per 100 with a Life Satisfaction problem
- 16 fewer cases per 100 with a Work Absenteeism problem
- 9 fewer cases per 100 with a Work Engagement problem
- 9 fewer cases per 100 with a Workplace Distress problem

Figure 4.7 *Net change in number of cases at problem level per 100 EAP cases: By WOS outcome*



N = 35,693

The outcome of work presenteeism is the most defining area of impact and improvement for employees who use EAP counseling. Indeed, work presenteeism had three times fewer cases with reduced problem status than was found for other WOS outcomes of work engagement and workplace distress. One reason for these differences is the higher prevalence rate of problem status initially for work presenteeism compared to all of the other outcomes. A higher starting point for a score logically allows for more opportunity for the score to go down over time (i.e., the concept of regression to the mean).

From a clinical perspective, another reason could be that counseling interventions delivered at the individual employee level have less impact on organizational level factors (e.g., behavior of other coworkers, managerial style, work culture) that more directly influence the outcomes of work engagement and feelings of distress about the workplace.

Total number of WOS outcomes at problem status reduced after counseling

When each of the five WOS problem status measures (yes problem = 1 or no problem = 0) were added up into one composite measure, the score could range from zero problems to having a problem on all five of the WOS outcomes. The results (see Table 4.3) showed a significant reduction in the average number of problems from before to after the use of EAP counseling ($p < .001$). The average total number of WOS outcomes at problem status per person changed from 1.76 at before use to 0.92 at the follow-up. This 48% reduction was a large size statistical effect.

Table 4.3 *Statistical details of change in total number of WOS outcomes at problem level for EAP cases*

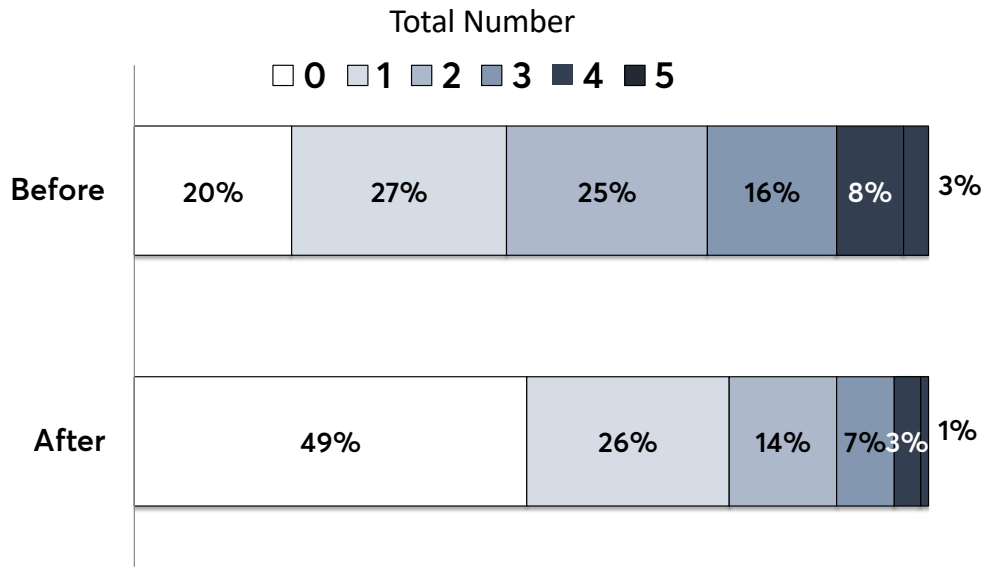
Time Period	Total number of problems on Five WOS measures						Average	
	0	1	2	3	4	5	Total	Mean (SD)
Before EAP	20%	27%	25%	16%	8%	3%	100%	**1.76 (1.34)**
After EAP	49%	26%	14%	7%	3%	1%	100%	**0.92 (1.17)**
Statistical Test: repeated measures ANOVA F = 12,823, df = 1, 35,692. η_p^2 = .264 (large effect)								

Note: N = 35,693

Looking closer at the data revealed that the percentage of EAP cases with zero workplace outcome problems changed from 1 in every 5 cases at the start of counseling to account for almost 1 in every 2 cases after counseling (see Figure 4.8). Looking at the right side of the same figure also shows that three higher categories (i.e., having 3 to all 5 outcomes at problem status) when combined as one group, changed from 27% of all cases at before counseling to only 11% at the follow-up. Although this is a major decrease, it also shows about 1 in every 10 employees still had several areas of work problems even after counseling.

Figure 4.8 *Comparison of total number of WOS measures at problem status at before and after EAP*

Total Number of WOS Measures at Problem Status at Before and After Use of EAP



N = 35,693

Realistic limits of brief counseling

Brief counseling from an EAP, while generally effective, cannot realistically be expected to fix all of the problems for every person who uses it. Evidence for this view comes from the National Behavioiral Consortium study representing 45 different EAP vendors for their book of business survey results, which found that on average 86% of all cases surveyed had reported clinical improvement (Attridge et al., 2013). This same statistic also indicated that 14% of cases reported they did not improve after the EAP.

One reason for this finding is that at most providers of employee assistance services there is a small subset of the full caseload of users who have more severe or chronic clinical issues than is typical. These more severe cases often benefit from particiating in longer-term treatment, use of psychiatric medications or substance abuse treatment programs. In such cases, the clinically appropriate course of care often is for the EAP to assess the severity of the situation, determine the available resources, and then refer the case to specialty care and also to stay involved over time to support any ongoing care management activities as relevant. Industry data obtained from 52 EAP vendors puts this referral out rate at 18% of all cases (Attridge et al., 2013). Note that the percentages of cases typically without improvement from EAP counseling use (14%) is about the same as the percentage of cases who typically are not resolved within the EAP and who get referred out for more serious care.

This literature helps put into context the WOS study results for the small segment of EAP users on the higher end of the metric of the total number problems on work outcomes. It is possible that the 13% of the post use sample who had three or more WOS outcomes at problem level were also more clinically severe initially and/or had been referred out for more intensive treatment after use of the EAP. Note that these two clinical factors (severity level and referral out action) are missing from the WOS archival data set and so we could not explore this possibility directly in the study.

Summary - Chapter 4

The key finding in this chapter is that the percentage of cases at problem level on WOS outcomes was significantly reduced for all five of the specific measures. Work presenteeism was the outcome most impacted at the start and also was the outcome that improved the most after counseling. Life satisfaction also had a large effect size for change, but work absenteeism had a medium size effect and workplace distress and work engagement had smalls size effects. The average total number of WOS problems per case was also reduced from before to after counseling use. Although work outcomes improved in general across the full sample of over 35,000 cases (and some outcomes improved more than others), a small percentage of EAP users had little or no improvement on these work outcomes. Thus, more research needs to be conducted involving the other explantory factors, such as the level of clinical severity of cases, to better understand the variation in results for WOS outcomes.

Chapter 5 - Converting WOS data into hours of lost productive time (LPT)

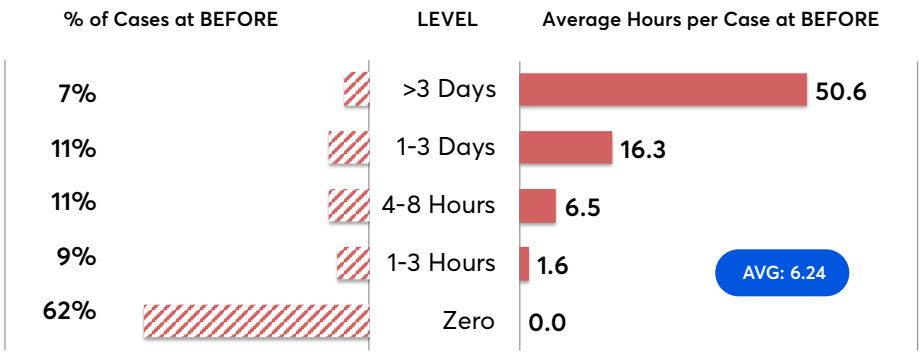
Absence from work is surprisingly rare for most employees who use EAP

Most employers are concerned when an employee does not show up for work. Absenteeism certainly costs companies in lost productivity and from other internal operating expenses associated with finding a replacement worker (if available), from shifting work tasks from the absent employee to other colleagues or just moving back deadlines for work products. Despite these concerns, most workers actually do not miss work that often. National studies in industrialized countries with a mature EAP benefits markets (reviewed later in this chapter) find that the typical employee misses less than a half of one work day per month due to health related issues.

For the employee who decides to use a counselor from their EAP, it is reasonable to expect that their mental health, substance abuse, work problems or personal/home life issues could interfere with their ability to be at work and result in absenteeism. The data from our WOS study, though, tells a different story. The results from this global study indicates that almost two-thirds of employees (62%) had zero absence during the month before seeking help from the counselor. This percentage rose to more than 8 out of every 10 EAP users at the follow-up conducted several months later after counseling concluded.

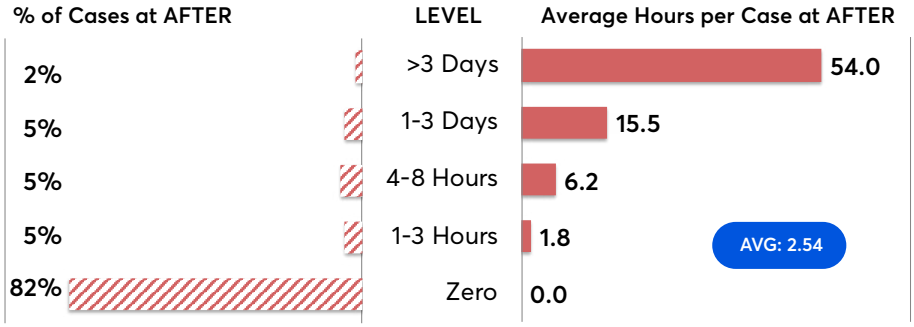
However, some EAP cases did have a substantial amount of absence as they reported missing more than six full work days per month. Experiencing an extreme level of absence occurred for only 7% of cases at the start of counseling and for just 2% of all cases after counseling. [Although removed from the valid data sample, a very small percentage of cases with longitudinal WOS data had reported missing 160 or more hours of work - thus being absent from work the entire month. These cases were judges as not relevant to answer other WOS items - see details in Table A.1 in Appendix A.]

Figure Set 5.1 *Hours of Work Absenteeism at before and after use of counseling*



Typical case had **No** work absence before counseling

But some cases had a lot of work absence – up to 6 days



82% of cases had **No** work absence after counseling

Average of after EAP is in range of typical employee when not distressed

On average, across all of the more than 35,000 users of the EAP in this study (including most with no absence and some with very high absence) during the month before EAP use there was 6.24 hours of absence before counseling and 2.54 hours at the follow-up.

It is clear from these findings that work absenteeism, although definitely a problem area for some employees, is actually not that big a deal for most employees who use the EAP. Instead, it is the outcome of work presenteeism that is most impacted by employee distress. The next section calculates just how many hours of productive work time are lost (i.e., work presenteeism) among users of the EAP. And it is almost ten times as much as the number of hours for work absenteeism - at 57 hours per month compared to 6 hours, respectively.

What is lost productive time (LPT) and why does it matter to EAP?

Seminal research conducted for the American Productivity Audit project (Stewart et al., 2003) identified how a single simple metric can be used to index the dual impact of work absenteeism and work presenteeism on the level of overall work productivity of employees. This metric is called lost productive time (LPT). We applied this metric to determine how much work productivity loss there was when employees were in distress and first sought counseling from the EAP. Then we compared this amount of LPT at before counseling to the amount of LPT experienced at the follow-up conducted a few month after counseling had ended. The difference between the pre and post amounts of LPT is the key input for a return on investment (ROI) financial analysis.

A reasonable goal of EAP counseling (especially from the perspective of the employer as the sponsor of EAP) is for the elevated level of LPT experienced when the employee in acute distress before the start of counseling to return to a more normal level after counseling. The value provided by an EAP is to shorten the overall time period of such an episode and to bring down the excess level of LPT at a faster rate than would otherwise occur without effective professional care.

For example, a quasi-experimental research study was done using the WOS. It examined the internal model EAP for employees of the State of Colorado (Richmond et al., 2015). They found that employees who were matched in demographics and clinical factors to users of the EAP - but who did not use the EAP - had a slight increase over time in their hours of work absence and also had about half as much improvement over time on work presenteeism ratings compared to the users of the EAP. This study is reviewed in more detail in the next chapter on ROI.

Three numbers are needed to calculate LPT: (1) the total hours in the normal work schedule for the employee; (2) the hours of work absenteeism during the same time period (when no work was done and zero productivity); and (3) the hours of work presenteeism during the same period. We can assume a standard work week of 40 hours (from five 8-hour workdays) and thus a 160 hour work month. With the WOS study data, we know the specific hours of work absence in the past month. With these two figures we can determine the total hours actually worked and not absent in a month. But what is not readily available from the WOS meaures is the third number needed to calculate LPT - the specific amount of work time (in hours) that was unproductive. However, we can now figure this out from using an innovative new way of scoring the WOS presenteeism ratings.

The value of converting agree-disagree ratings into a percentage of time that was productive is that the total time worked can be obtained and the specific hours of productive (and unproductive) activity calculated. Furthermore, when an hour of work is assigned a business financial value (e.g., $50 per hour),

the cost burden of lost productive time for an EAP case can also be determined. The agree or disagree ratings on the WOS work presenteeism item can also be used to represent different levels of work productivity on a 0% to 100% scale. The default levels (% productive) for each WOS rating were based on using the levels of normative findings obtained from other research on EAPs.

Work productivity at before and after use of EAP counseling: literature review

Results of findings on work productivity levels at before and after use of EAP counselling from a dozen outcome studies not using the WOS measures were used to set the target levels of work productivity to try to match when rescoring the WOS work presenteeism ratings. These studies were reviewed, and their results standardized, by Attridge (2016). The combined number of counseling cases in these studies represented over 242,000 cases from a variety of external vendors and large employer hybrid programs in Australia, Canada and the United States. Key results of this review are listed in Table 5.1.

Table 5.1 *Other industry research on employee self-reported level of work productivity for EAP cases*

Lead Author of Study	EAP Provider	Year report	Country	Type of Measure (converted to 0-100%)	EAP cases in sample	Productivity	
						Before EAP	After EAP
Attridge	Optum	2001	United States	1-10 rating of "work productivity"	1,050	57%	81%
Attridge	Optum	2002	United States	1-10 rating of "work productivity"	26,822	64%	87%
Kendall	Vanderbilt University	2016	United States	1-10 rating of "work productivity"	200*	68%	83%
Selvik	FOH hybrid w. vendor	1998	United States	1-5 rating "accomplish your work"	16,055	59%	77%
Selvik	FOH hybrid w. vendor	2004	United States	1-5 rating "accomplish your work"	69,685	57%	78%
			United States	Summary	113,812	59%	80%
DTC	DTC	2009	Australia	1-100 work productivity	1,015	60%	75%
DTC	DTC	2011	Australia	1-100 work productivity	4,459	60%	74%
DTC	DTC	2013	Australia	1-100 work productivity	4,707	61%	77%
DTC	DTC	2015	Australia	1-100 work productivity	6,645	60%	75%
			Australia	Summary	16,808	60%	75%
Morneau Shepell	Morneau Shepell	2011	Canada	1-5 rating of how much issue interfered with "ability to do your job"	34,063	72%	82%
Morneau Shepell	Morneau Shepell	2014	Canada	same as above	76,771	69%	79%
Taylor	Family Services EAP	2016	Canada	1-5 rating of how much issue interfered with "ability to do your work"	642	55%	79%
			Canada	Summary	111,476	70%	80%

Note: FOH = Federal Occupational Health. DTC = Davidson Trahaire Corpsych EAP. * estimated

The data showed a 64% level of productivity during the month before starting EAP counseling and a 80% level of productivity during the most recent past month when assessed at the follow-up several months later after EAP counseling had been completed. These two results from the literature served as the target levels to meet after recoding the WOS presenteeism item ratings.

Converting WOS work presenteeism ratings into percentage of time worked that was productive/unproductive

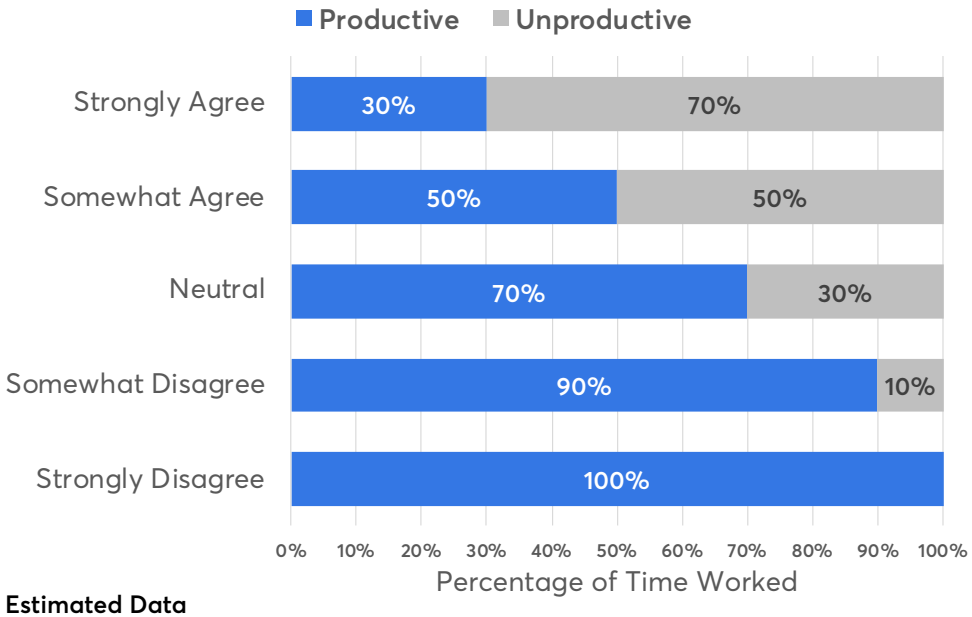
The five ratings of the WOS presenteeism single item were assigned new values corresponding to different levels of work productivity on a 0 to 100% scale from low to high. The new specific levels of productivity (i.e., 30% for Strongly Agree rating - see Table 5.2) were determined through a trial and error process using a set of calculations in an Excel spreadsheet to try out different sets of five percentage levels until the resulting full sample averages calculated for the pre and post periods for the total WOS sample were a very good match with the two target percentages developed from the research literature on outcomes at other EAPs shown in Table 5.1.

Table 5.2 *Recalibration of WOS presenteeism 1-5 ratings to percentage of time productive/unproductive*

Work Presenteeism Item				
"My personal problems kept me from concentrating on my work."				
STEP 1 - recoding of 1-5 ratings to percentage level of productivity / unproductivity				
1-5 Rating for question	**Productivity Level**		**Presenteeism Level**	
5 = Agree Strongly	30% productive		70% unproductive	
4 = Agree Somewhat	50% productive		50% unproductive	
3 = Neutral	70% productive		30% unproductive	
2 = Disagree Somewhat	90% productive		10% unproductive	
1 = Disagree Strongly	100% productive		0% unproductive	
STEP 2 - Apply estimates to WOS benchmark ratings data				
Productivity Level (new)	**Before EAP Use WOS Data**		**After EAP Use WOS Data**	
	n cases (%)	math result	n cases (%)	math result
Rating 5 = 30% productive	7482 (21%)	**64% productive** 36% unproductive	2731 (8%)	**78% productive** 22% unproductive
Rating 4 = 50% productive	12520 (35%)		7182 (20%)	
Rating 3 = 70% productive	4718 (13%)		4720 (13%)	
Rating 2 = 90% productive	4859 (14%)		8011 (22%)	
Rating 1 = 100% productive	6114 (17%)		13049 (37%)	
Total cases	35,693 (100%)		35,693 (100%)	
STEP 3 - Compare match of results from estimates against target levels set from industry research				
Average in other EAP industry research - see details on each study in Table 5.1	64% productive			80% productive
Match of new estimate for WOS presenteeism raw data compared to other EAP research	100%			98% match

These levels (i.e., 30% - 50% - 70% - 90% - 100% productive) were applied to the WOS presenteeism ratings of 1 to 5 for each case in the full WOS sample. See illustration in Figure 5.2.

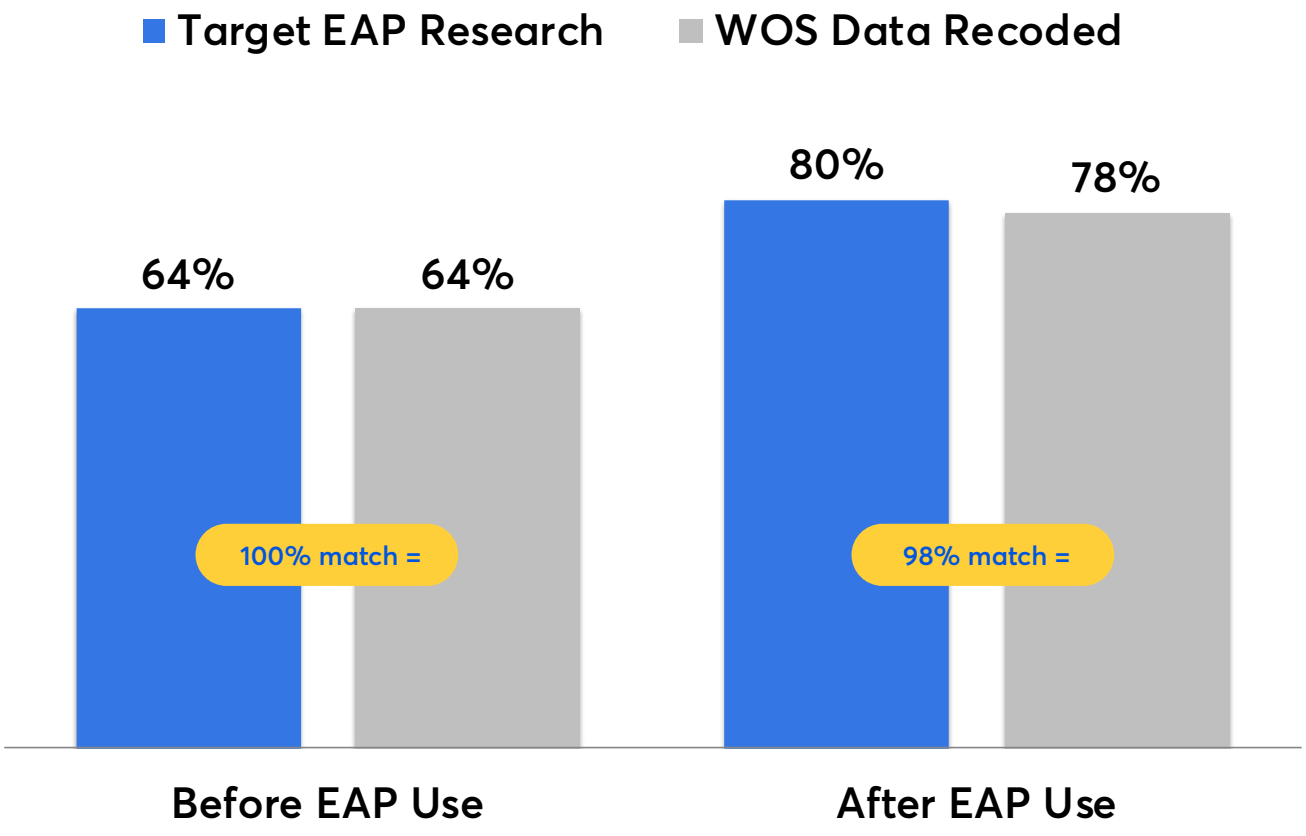
Figure 5.2 *Converting WOS work presenteeism item 1-5 ratings into percentage of time worked that was productive (or unproductive) and results compared to targets from research literature*



Estimated Data

The resulting averages for productivity level at each time period were a close match to EAP industry targets (see Figure 5.3).

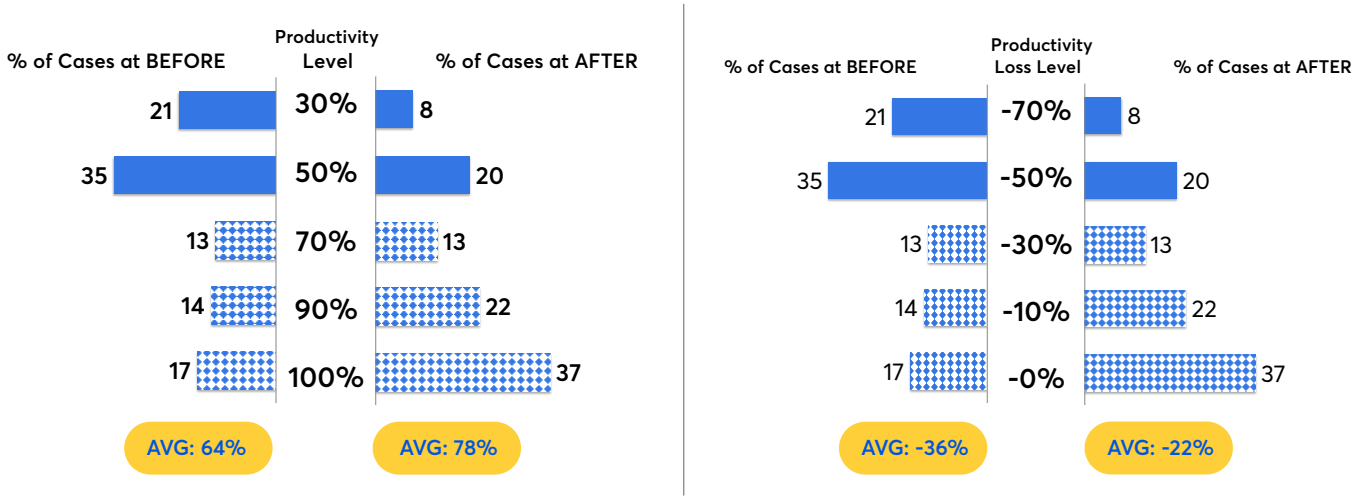
Figure 5.3 *Converted WOS presenteeism data results compared to target levels from research literature for other EAP cases: By time period of before and after EAP use*



The practical utility of having the level of employee productivity scored as a percentage 0-100% is that it can be used to determine the level of unproductivity. This is done by deducting the productivity level percentage from the maximum of 100% productivity. The difference in the two numbers is the percentage of time that the employee was unproductive (i.e., as a result of presenteeism problems).

In the WOS full sample, the percentage of productive time at before EAP use was 64%, which also means that the remaining 36% of the time was unproductive. Similarly, at the follow-up after EAP use, the percentage of productive time was 78% and thus the remaining 22% of the time worked was unproductive. These results show a decline after counseling from 36% to 22% in the amount of time while working that was unproductive. These details are shown in the set of figures below.

Figure Set 5.4 *Work Presenteeism item 1-5 ratings converted into percentage of time worked that was productive (or unproductive) at before and after counseling*



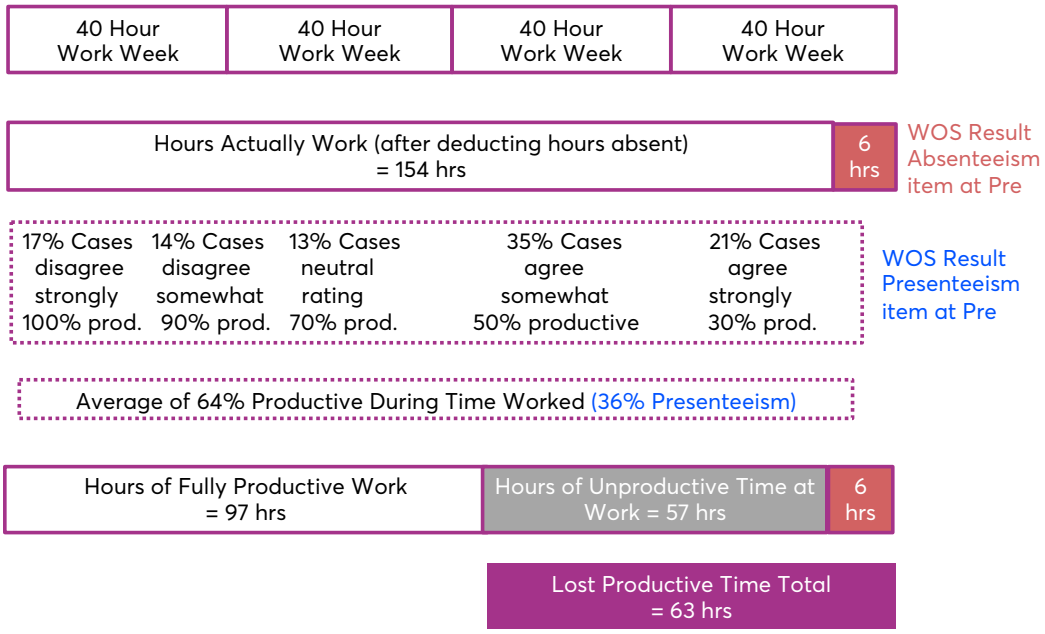
Calculating LPT with WOS data at before and after EAP counseling: norm data

A three-step process is used to determine the total hours of LPT and assuming a 160-hour monthly work schedule. During the month before starting EAP counseling, the lost productive time was 63 hours. This is based on the 6 hours of absenteeism combined with 57 hours of work presenteeism. Several months later when employee distress was presumably reduced after benefitting from the EAP counseling, the amount of LPT at follow-up was also reduced to only 36 hours. This total is 2.6 hours of absenteeism combi ned with 33.5 hours of work presenteeism. The calculation details for both of these anounts are shown in Figure Set 5.5 on next page.

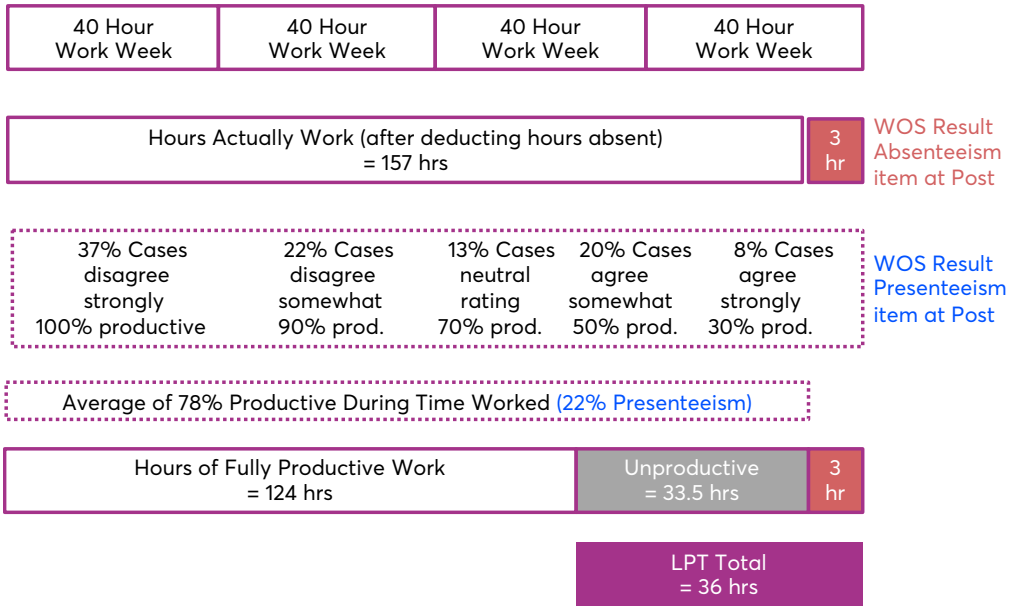
The change from 63 hours to 36 hours is a 43% relative reduction of LPT after use. Thus, there were 27 fewer hours of LPT per month after use.

Figure Set 5.5 *Calculation of Lost Productive Time (LPT) at before and after counseling*

Lost Productive Time During Month BEFORE Use EAP



Lost Productive Time During Month AFTER Use EAP



LPT experienced by the typical "non-distressed" employee

The WOS findings show that the hours of lost productive time per employee user of the EAP was reduced from 63 hours at the start of counseling to 36 hours when assessed at the follow-up several months after counseling. But how can one reasonably judge these levels of LPT? It would be helpful to have a comparison for the number of LPT hours for the typical employee who is not distressed.

A review of the literature identified 10 research studies that were conducted in one of the three countries representing the majority of the cases comprising the WOS study sample. Each paper selected had to have quality data based on either a national random sample of employees or a survey of employees at a large employer. Also, the productivity outcome had to collected from individual employees using the HPQ measure. The absenteeism outcome had to specify the hours of absence.

Table 5.3 *Research studies on typical employee levels of health-related work absence and overall level of work productivity (non-users of EAP counseling)*

Lead Author of Study	Year	Country	Survey Sample Size		Past Month		
			Employees (self-report)	Companies	Absent Hours	Productivity HPQ item	LPT Hours
Deckersbasch	2011	United States	300	300	3.41	87%	23.77
Attridge	1994	United States	397	397	3.44	89%	20.66
Stewart	2003	United States	28,902	28,902	2.90	N/A	
Terry	2010	United States	631	1	N/A	83%	
Frey	2015	United States	1,147	1	1.76	84%	27.08
Merrill	2013	United States	20,114	3	N/A	85%	
Boles	2004	United States	2,264	1	2.95	N/A	
Mercer	2010	United States		276	3.60	N/A	
Sun	2013	China	2,768	9	3.39	80%	34.71
BusinessNZ	2019	New Zealand		49	3.47	N/A	
				AVERAGE	**3.38**	**85%**	**26.87**
Level of work presenteeism - unproductive time while working						**15%**	

The World Health Organization (WHO) and Harvard University developed the Health and Work Performance Questionnaire (HPQ). The HPQ has been scientifically validated in several studies with the data obtained being found to be a close match with actual company records of work absence and productivity (Kessler et al., 2003). Six of the studies in the review used the same single item question from the HPQ to assess the level of job performance. The study results on the 0-10 scale was then converted to a 0-100% scale by multiplying the rating by 10. The results as measured by the HPQ in the different papers ranged from 80% to 89% (see Table 5.3). The average employee productivity level was 85%. The finding also indicates the typical employee is not productive during the other 15% of the time worked. Thus, work presenteeism at 15% of work time is normal.

Eight of the ten of the studies reviewed had results for the hours of health-related absence from work. Note that this absence time excluded vacation days and other kinds of work absence unrelated to health and not every study reviewed used the same specific question about work absence. Most of the studies collected survey data from samples individual employees asking about the period of the past two weeks or the past month, while two other studies asked large samples of employers for their all employee average amount of absence for the past year. The results were standardized for this report into hours of absence per month per employee. The results of different studies ranged from 1.76 hours to 5.03 hours (see Table 5.3). The average employee in these studies had 3.38 hours of absence per month.

These literature based results from Table 5.3 were used to calculate the hours of LPT. Starting with a standard work month period of 160 hours, the 3.38 hours of health related absence is deducted. The resulting hours worked was applied to the presenteeism average of 15% of time worked being unproductive to yield 23.49 hours of lost productivity while working. Adding up the absenteeism hours and presenteeism hours is 26.87 hours in total of LPT for the typical health employee. This amount represents 17% of all scheduled work time and about 3.3 full days of the 20 scheduled days. These findings, calculated from academic and industry sources involving multiple research studies, again reveal that it is work presenteeism that is the most prominent contributor to lost work productivity.

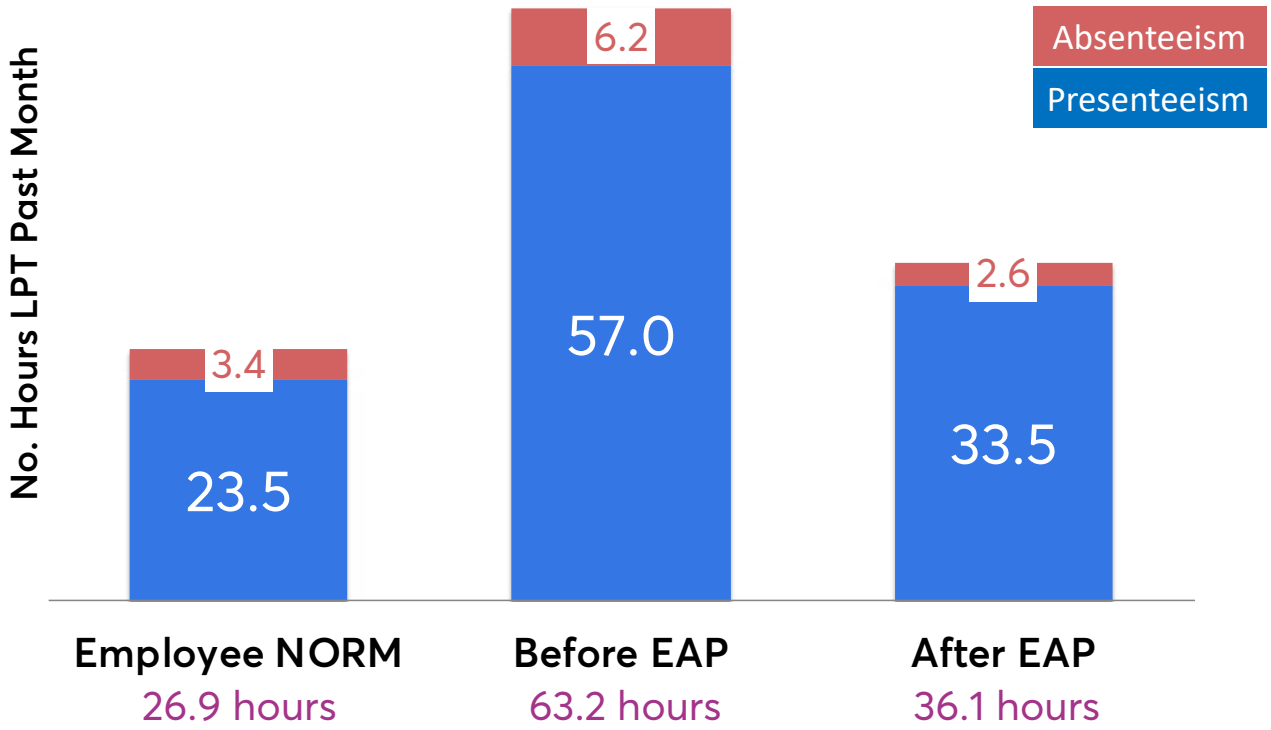
LPT of typical employee norm compared to LPT of EAP case

The typical employee has about 27 hours of lost productive time per month. The 63 hours of LPT experienced by the EAP user when in distress before the start of counseling is more than double that of the typical employee. This finding illustrates the need for an intervention like the EAP. Also, when using the 27 hours of LPT for healthy employees as the baseline normative level, the difference between 27 hours and 63 hours at pre EAP use is 36 hours. The actual change in LPT achieved for the EAP case was 27 hours (i.e., difference between pre and post: 63 - 36 = 27).

Dividing the change achieved into the target amount to possible change (27/36) indicated that the average counseling case had improved enough to get 75% of the way back to a normal level of LPT. Thus, three-fourths of the initial work productivity loss above the normal level experienced at the start of counseling was successfully restored after counseling.

The key results for LPT are shown visually in Figure 5.6.

Figure 5.6 *LPT for employee norm and for EAP cases at before and after counseling in WOS study*



Summary - Chapter 5

On average, across the 35,693 users of the EAP in this study, during the month before EAP use there was 6.24 hours of absence before counseling and 2.54 hours at the follow-up. The agree-disagree 1-5 ratings on the work presenteeism item were converted to estimated levels of productivity while at work (on a scale of 0-100%). During the month before EAP use there 57 hours of presenteeism before counseling and 34 hours at the follow-up. The combined hours of lost work productivity from absenteeism and presenteeism sources were then compared over time. The normative levels of missed work for non-distressed employees (typical employee) was determined from a literature review and used to interpret the new WOS results for hours of LPT. The 63 hours of LPT experienced by the EAP user when in distress before the start of counseling is more than double that of the typical employee (27 hours). This finding illustrates the need for an intervention like the EAP. The good news is that the average counseling case improved enough to get 75% of the way back to a normal level of LPT.

Chapter 6 - ROI for EAP counseling: Small, medium and large size employers in US

The ROI estimation logic model used in these examples was developed by Attridge Consulting, Inc. (2015). It involves a number of inputs that come from the EAP, the employer customer, WOS average results, and productivity metrics from the research literature. Inputs in for levels of work absenteeism and presenteeism came from the data in this WOS annual report from the 15,825 cases located in the United States who had used EAP counseling provided by an external vendor. The EAP vendor model was chosen as it represents the most common delivery approach. This country were selected because it has the largest share of cases in the WOS data archive and because other EAP pricing and employee compensation figures needed for the model were available from US sources.

A key difference in the ROI model from this year, compared to the model in last year's WOS annual report, is that the WOS data was used directly as inputs for both presenteeism (after recoding) and absenteeism. The new method of converting presenteeism 1-5 ratings into percentage of time productive/unproductive (see Chapter 4) allowed for the level of work productivity at before EAP use to be determined directly from the WOS data, whereas last year's report used other industry research to estimate this starting level of impaired productive time and then the WOS presenteeism rating averages at before and after to determine the percentage change in presenteeism hours after use. The conservative adjustment estimated from a quasi-experimental study in the literature was also revised to use the new presenteeism 0-100% levels (see Appendix E). Other inputs in the model were also updated for more recent sources. Also, rather than one example for a large employer, the ROI results in this report are provided for three different sizes of employers: small, medium and large. The details for these examples are summarized in the table at the end of this chapter. The full ROI mathematical model is presented at the end of this chapter for the large employer example.

The full ROI logic model includes a more realistic assessment of the full business value of a comprehensive EAP that provides additional business value in areas of health care cost savings, avoided turnover and providing organzation worksite services (such as crisis response, consultations with managers, employee and manager trainings, and referral into other programs). The ROI examples to follow only focus on one component of EAP services (counseling) and only on one area of cost savings (lost productive work time). See other review works for more discussion of the full value of EAP (Attridge, 2011; Attridge, Servizio, Sharar, & Mollenhauer, 2015).

Part 1 - Hours of LPT at before and after EAP counseling

The normal work month. In the US a 40 hour work week is typical based on five 8-hour work days. With four weeks in a month, this is 160 hours per month.

Lost productivity before use of EAP counseling. The results of the analysis of WOS absenteeism data found 7.08 hours of missed work per case during the month before use of the EAP. Deducting these hours from the 160 hour schedule yielded 152.92 hours of time actually worked. The number of hours of unproductive time while at work was calculated by applying a 40% level of productivity deficit to the hours worked. This step resulted in 60.89 hours of LPT while at work in the past month. When combined with the number of missed hours from work the result was 67.97 total hours of LPT.

Lost productivity after the use of EAP counseling. The same calculation process was repeated using the inputs from the after EAP use period. Work absenteeism was much lower after use of the EAP (3.49 hours) than before use. Thus, more hours were worked in the past month during the after EAP use period (156.51) than at before EAP use. The percentage deficit in work productivity for after counseling (24% of time worked) was applied to the total hours worked after EAP use to yield 37.42 hours of lost work time for the after use period. When combined, the hours of absenteeism and presenteeism was 40.91 total hours of LPT per month per employee case after use.

Reduction in productivity loss after use. There was a difference of 27.06 hours per month per EAP case in fewer hours of lost productive time from before to after use of the counseling.

Time period relevant to ROI cost savings. If a distressed employee had not used the EAP, it was assumed that the same level of distress experienced during the month before counseling would have continued for at least another three months. This period is roughly double the time for clinical duration found in this study with data from one large vendor in United States (i.e., a doubling of 42 days per case is 84 days, which is 12 weeks or 3 months). Although consistent with other analyses of ROI for EAP counseling (Attridge, Servizio, Sharar, & Mollenhauer, 2015), a three-month period is shorter than some EAPs that have used either 6-month (Morneau Shepell, 2011) or 12-month periods (Dainas & Marks, 2000; Davidson Trahaire Corpsych, 2013b). A shorter impact period is more credible from a business perspective, when considering the substantial degree of impairment in work productivity that occurs before the start of EAP (i.e., double the normal level) is unlikely to be sustained for a long period without a response from the employer. When extended over three months, the 27.06 hours of avoided further LPT becomes an ROI-relevant effect of 81.18 hours.

Part 2 - Adjustment to account for causal factors other than EAP use

This 81 hours of avoided further LPT may include the influences of other events and supports that occurred during the same time frame as the EAP counseling. Therefore how much of this positive change in LPT was because of the use of the counseling? In the WOS study data, there was no control group of other similar employees who were equally distressed but did not use EAP. Thus, we do not know how much a similarly distressed employee who did not use EAP counseling would fare in reducing their level of unproductive time.

One internal EAP program at the public employees of the State of Colorado conducted a study of their employees using a quasi-experimental research design (Richmond et al., 2015). It featured longitudinal data collected before and after use of the EAP (at average of 4-months later; n = 158) and from a matched comparison group (at baseline and again at average of 8-months later; n = 188). Two of the ROI relevant work outcomes were assessed in the study using the original WOS measures of absenteeism and presenteeism (5-item versions).

Their average ratings on presenteeism from the research study were converted by the authors of this report into estimates of the percentage of time productive and unproductive. The adapted WOS results for the State of Colorado employees was used to calculate the hours of lost productive time for the three groups: Typical employees, distressed employees who did not use the EAP, and the distressed employees who did use the EAP. Also examined was a fourth group taken from the WOS archive data for similar kinds of EAP users, defined operationally as data from other internal staff model programs also located in the United States. This fourth group had a sample size of 4,458 cases (which is about 30 times greater than the size of the Colorado study EAP user group). Further details of this methodology and results are presented in Appendix E.

This result shows that the matched group of employees, who did not use the EAP, had achieved only about one-third of the extent of improvement over time compared to the average to the EAP user group (i.e., 12% vs. 37%). For comparison, the typical employee user of other internal employee assistance programs in the US had their LPT reduced by 33%.

The implication of this finding for the ROI model is that the hours of avoided further LPT should be reduced by one-third. Removing a third of the effect of 81 hours leaves 54.39 hours of avoided LPT as the more conservative EAP-specific result to use in the ROI example.

Part 3 - Financial factors associated with company size

Employee hourly compensation rate. Recent data from the Bureau of Labor Statistics for the United States (BLS, 2019 December), has different amounts of compensation for different sectors and sizes of employer establishments (see Table 6.1). Hourly compensation included the combination of paid wages and employee benefits. The public sector for state and local government at $52 was similar to the $50 for large employers (500 or more workers). The small (less than 100 workers), medium (100 to 499) and large size employers were all used in the ROI as three examples. This was done to show the range in ROI for different levels of compensation ($29 vs. $36 vs. $50) and associated differences in typical pricing of EAP services for different size companies (i.e., vendors tend to give volume discounted pricing for larger size customers).

EAP market penetration. The same employer survey data (BLS, 2019 March) also revealed that the market penetration for EAP differed dramatically by company size: 31% of small employers had an EAP in year 2019; followed by 66% of medium size companies and 84% of larger size companies. Almost 8 of every 10 public sector employers had an EAP as well 78%). However, across all types and sizes of employers in the United States only about half had an EAP in 2019 (54%).

Table 6.1 *Employer paid compensation costs and EAP benefit: by sector in United States - 2019*

Sector Type (size: number of workers)	Employee Compensation (wages + benefits) - hourly	% of Employers with an EAP as employee benefit
Civilian (average both sectors)	$37.03 (25.32 + 11.60)	54%
Private Sector - Average	$34.77 (24.38 + 10.38)	51%
Private Sector - Small (1-99)	**$28.77** (21.27 + 7.50)	31%
Private Sector - Medium (100-499)	**$35.86** (24.86 + 11.00)	66%
Private Sector - Large (500+)	**$49.46** (32.12 + 17.34)	84%
Public Sector - State or Local Government	$51.66 (32.19 + 19.47)	78%

Business value of productive work time – the productivity multiplier. Economists endorse the concept that an employee's productivity value is greater than how much the employee is being compensated. To determine how much more, a metric called a "productivity multiplier" ratio is applied to the hourly or daily compensation rate. Other studies estimating the workplace cost savings from applied health care interventions have also used a productivity multiplier (Attridge, 2012; Frey et al., 2015; Mitchell & Bates, 2011). In this ROI model example, a productivity multiplier ratio of 1.3 was used. The source for this was the average of the results from two published research studies, each with data from hundreds of managers in the US (Nicholson et al., 2006; Pauly et al., 2008).

When the multiplier of 1.3 was applied to the hourly compensation rate for the average worker at each employer, it yielded the following as the business value of one hour of productive work:

Small employer:	$37.40
Medium employer:	$46.62
Large employer:	$64.30

Business Value Total Return Per Employee Case. The 54.39 hours of LPT avoided over a three-month period because of the use of the EAP when multiplied by the business dollar value for each size employer, yields an estimated cost savings of per employee EAP case as follows:

Small employer:	$2,034
Medium employer:	$2,536
Large employer:	$3,497

Investment in the EAP. Most EAP services from vendors are offered for sale using a capitated pricing model similar to what is used for providers of health care and employee benefits. The cost to the employer to sponsor the EAP service in order to have it available to all employees (and usually also to household family members) varies based on many factors. Different vendors charge different amounts, often determined by a combination of how much the service is projected to be used during the year (with more use appropriately requiring a larger size investment) and by the size of employer such that some economies of scale exist which allows larger size employers often enjoy a lower rate for the EAP services than do medium or small sized employers. [Hybrid and internal staff model programs are priced differently than vendors as they have an internal budget to pay for their own staff and operational expenses specific to program goals.] A recent paper cited a benefits benchmark cost of $1.08 per employee per month ($13 PEPY) to purchase comprehensive EAP services from an external vendor in the US for large employers (Sharar, 2019). The CareFirst BlueShield BlueCross health plan (2020) also had pricing for selling EAP services to employers that differed by size of the employer and by the number of counseling sessions allowed per case. For example, a combination of a very large size employer (2,000+ workers) and the option with the fewest counseling sessions per case (1-3 sessions) had low price of $7.2 PEPY. Whereas, a small employer (under 150 workers) and up to 8 sessions of counseling allowed had a price of $25.92 PEPY. Thus, there is wide variation in the price for EAP.

For these examples, pricing for standard comprehensive EAP services in the ROI model was:

Small employer:	$25 PEPY ($2.08 per month)
Medium employer:	$20 PEPY ($1.67 per month)
Large employer:	$15 PEPY ($1.25 per month)

Part 4 - EAP case utilization rate for employees

Utilization rate of EAP counseling overall. A 4.9% annual use rate of EAP counselor cases over a 12-month period was assumed (i.e., number of total counseling cases in year divided by the total number of employees with access to the EAP). This rate was the average of 43 different EAP vendors with standard capitated or fee-for-service pricing models (Attridge, 2017). Note that free or embedded fee pricing models with very low use rates (2% or less) were excluded in determining this average. This level of use is consistent with industry norms. For this example a use rate of 5% was used for each size employer. Note that this use rate reflects only one part of the full range of services provided by the program.

Employee users of counseling. Work performance outcomes and their associated cost savings are only relevant to the portion of the total EAP clinical cases served during the year for the individuals who worked for the employer that sponsors the EAP. Thus, it is necessary in the ROI model to remove the non-employee users from the total count of users. This assumed a mix of 80% employee users of the EAP and 20% of users who were not employees (e.g., spouse and children). This estimate was based on normative industry data from 57 different EAP vendors (Attridge et al., 2013). For this example the employee portion of users was 80% for each size of employer. When applied to the 5% overall use rate for counseling cases per 100 employees, this results in 4% use for employees only.

Part 5 - ROI Results

The results for each size employer are show in Table 6.2

Table 6.2 *ROI model calculations for small, medium and Large size employers in US*

	Size of Employer		
ROI Model Factors	Small	Medium	Large
Employee Count	75	400	1000
FINANCIAL VALUE of PRODUCTIVE WORK			
Employee Compensaton Per Hour	$28.77	$35.86	$49.46
Productivity Value Multipler (per hour work)	1.3	1.3	1.3
Business Value of Productive Hour of Work	$37.40	$46.62	$64.30
Utilization Rate for Counseling Cases per 100 EE	5%	5%	5%
EAP Cases Total	4	20	50
Employees as % of All Counseling Cases	80%	80%	80%
EAP Cases Total - Employees Only	3	16	40
Change in Hours of Work Absenteeism	3.59	3.59	3.59
Change in Hours of Work Presenteeism	23.47	23.47	23.47
Change in Hours of Combined Lost Productivity	27.06	27.06	27.06
Episode of Distress (months)	3	3	3
Hours of LPT Avoided Over Episode of Distress	81.18	81.18	81.18
Conservative Reduction in EAP Effect - %	-33%	-33%	-33%
Net Hours of Lost Productive Time Avoided by EAP	54.39	54.39	54.39
Return per EAP Case	$2,034	$2,536	$3,497
Return Total	$6,103	$40,576	$139,880
Investment in EAP - Per Employee Per Year (PEPY)	$25	$20	$15
Investment in EAP Total for Company	$1,875	$8,000	$15,000
ROI Ratio (Return Total / Investment Total)	$3.25:1.00	$5.07:1.00	$9.33:1.00
EAP Cases Per 100 Employees Needed for 1:1 ROI	1.2	0.6	0.4
EAP Case Use Rate Minimum Needed for 1:1 ROI	1.2%	0.8%	0.4%

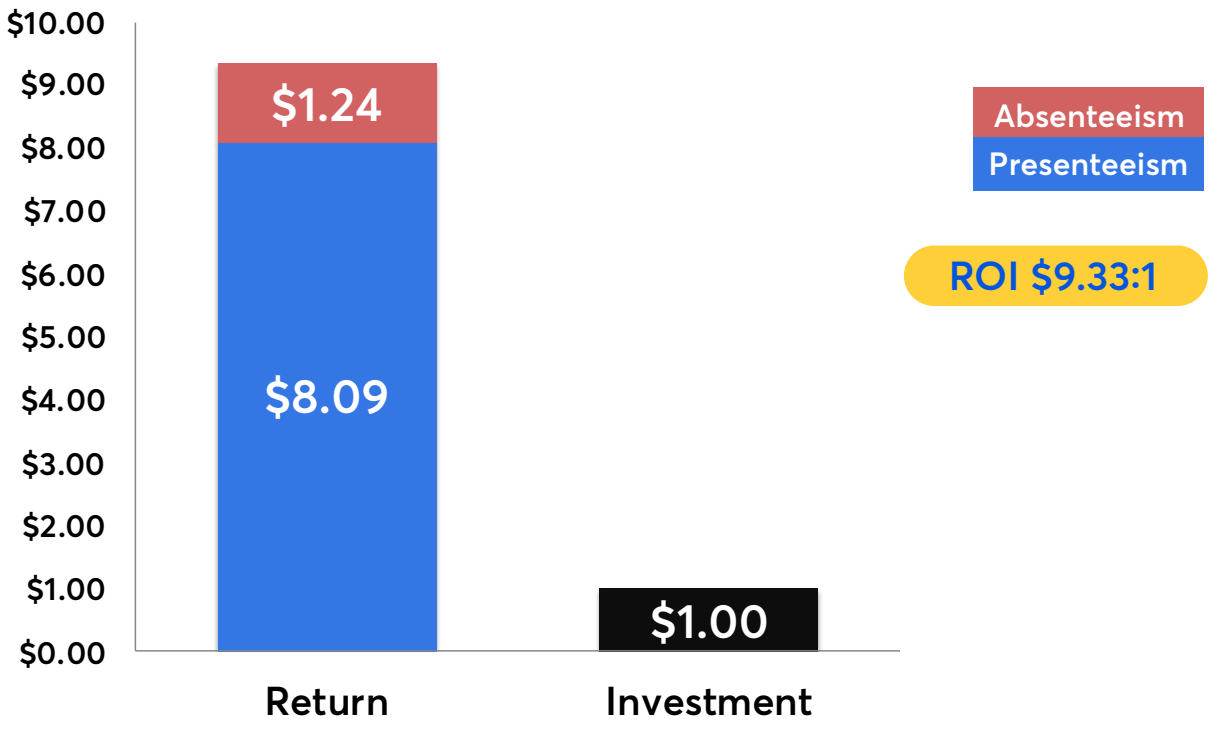
ROI for small size employer. For a company of only 75 employees that invested $1,875 in the EAP, and paid their employees about $29 per hour, the $2,034 savings per case added up for the 3 employee cases to a total of $6,103. The ratio of return to investment was $3.25:1. This means there was over $3 in financial return for every $1.00 invested in the EAP.

ROI for medium size employer. For a company of 400 employees that invested $8,000 in the EAP, and paid their employees about $36 per hour, the $2,536 in cost savings per case when added up for the 16 employee cases was a total of $40,576. The ratio of return to investment was $5.07:1. This means there was over $5 in return for every $1.00 invested in the EAP.

ROI for large size employer. For a company of 1,000 employees that invested $15,000 in the EAP, paid their employees almost $50 per hour, the cost savings of $3,497 per case when added up for the 40 employee cases was a total of $139,880. The ratio of return to investment was $9.33:1. This means there was over $9 in return for every $1.00 invested in the EAP.

Presenteeism Reduction Drives ROI. Moreover, as shown in Figure 6.1, most of this return for the large employer example was from improvement after EAP use in the work presenteeism compared to work absenteeism (87% vs. 13%, respectively). Reductions in hours of work presenteeism yielded a $8.09:$1.00 ROI. In contrast, reductions in hours of work absenteeism provided a ROI of $1.24:1.00. The cost savings from absenteeism alone was enough to pay for the EAP, but most of the savings came from employees being able to return to near normal levels of productivity on-the-job after counseling.

Figure 6.1. *ROI for EAP counseling at a typical large employer in the United States with external vendor*



Break-even ROI. Even more interesting is that the level of EAP utilization needed to get a break even ROI of $1:1 was only about 1 in every 100 employees - regardless of the size of the company. Thus, the common complaints from some employers and benefits brokers (Sharar, 2019) about the low level of EAP use are actually not accurate from a purely ROI persective.

Summary of ROI Examples

These examples used WOS data specific to the users of counseling from external vendors in the United States to calculate an estimate of the financial savings returned to the purchaser of EAP services. The ROI results can be considered typical of the EAP industry in the US because of the use of normative inputs from industry sources and large scale research studies across many EAP providers at each step in the calculation process.

Price of the EAP is the most obvious factor that can change in the estimate of ROI. The large employer in this example had the lowest price , the highest level of employee compensation, and consequently the highest ROI. The other two examples provided in this chapter show the effects of changes to these different conditions. The small employer (with only 75 employees) had the highest price for EAP and the lowest level of employee compensation and consequently had the lowest ROI of roughly $3:1. The medium size employer (with 400 employees) had levels of employee compensation and price for EAP that were in between the large and small employers and thus had an ROI of roughly $5:1 - which is also in the middle of the other employers. The key point is that even with this realistic variations in EAP price and employee compensation - other conditions being equal - the ROI still ranged from 3:1 to 9:1.

Achieving higher than average rates of program utilization could yield even higher ROI savings (depending on how much the pricing for the EAP would also be increased to support servicing more users). Often greater utilization of counseling services happens when the EAP is intergated into the organization, when it is promoted frequently and when it offers multiple channels to access counseling support (in-person, phone, online digital – video, text chat, e-mails). The approach is often aligned with larger goals endorsed by the leadership to create a more psychologically safe and healthy workplace.

A higher ROI can also come from having a vendor or employer-based EAP that produces better than average outcomes for reducing employee work presenteeism and work absenteeism. Learning from benchamarking data on the WOS could be a source of knowledge on the best pratices involved in getting better outcome results from EAP counseling. This idea is addressed more in the next chapter. Looking ahead, it is interesting that the average reduction in hours of LPT from pre to post use was 34% for all 20 vendors but ranged from 15% to 62% for different specific vendors. Thus, with other components of the model being equal, the ROI for EAP can vary substantially based on the effectiveness of the EAP.

Summary - Chapter 6

The financial return on investment for EAP counseling is very strong. With realistic variations in EAP price and employee compensation - but other aspects being equal - the ROI ranged from 3:1 for small size employers, 5:1 for medium size employer and to 9:1 for large size employers. The typical counseling case yielded cost savings ranging from about $2,000 to $3,500 per case. Most of the cost savings is from the improvements to the outcome of work presenteeism and far less from reduced absenteeism (87% vs. 13%). Also, the level of EAP clinical case utilization needed to get a break even ROI of $1:1 was only about 1 in every 100 employees - regardless of the size of the company. Thus, the business case for EAP can be made effectively even at very low levels of utilization.

Table 6.3 *ROI model calculations for large employer example*

ROI for EAP Counseling Impact on Employee Work Productivity					
Results at Individual Employee Level					
Lost Productive Time (LPT)	Hours in Past Month				
EAP External Vendors in United States: WOS Norm Data = 15,825 Cases	**Employee Norm U.S.**	**EAP at Pre > Norm**	**Pre EAP Counseling**	**Post EAP (90 days)**	**Change**
Work Hours Expected (schedule)	160		160	160	
Absenteeism Hours (WOS data)	3.01	2.4 X	7.08	3.49	-3.59
Actual Hours Worked	156.99		152.92	156.51	
Productivity Level (WOS data)	85.60%		60.18%	76.09%	
Presenteeism Level (100%-above)	14.40%	2.8 X	39.82%	23.91%	
Presenteeism Hours	22.61		60.89	37.42	-23.47
Total Hours of Lost Productive Time	25.62	2.7 X	67.97	40.91	**-27.06**
Amount of excess hours of LPT (above) that was restored after use of counselor					64%
Episode of Distress If Untreated	Number of months LPT work deficit experienced				3
Hours of LPT Avoided Full Episode	Outcome for LPT hours per month over episode				-81.18
Conservative Adjustment to Effect	% of outcome attributed to EAP counseling				67%
Net Hours of LPT for ROI Return	Hours of LPT avoided during episode due to EAP				**-54.39**
Employer Size: LARGE	Wages paid	Benefits paid	Total Combined	Productivity Multiplier	Business Value
Per hour per employee	$31.12	$17.34	$49.46	1.3	$64.30
Return per employee	Business value of avoided LPT over 3 months				$3,497
Results at Company Level					
Utilization of EAP per Year	Covered Employees	EAP Counseling Cases per 100 Employees		Employee status among EAP counseling cases	
		% rate	n count	% rate	n count
	1000	5.0%	50	80%	**40**
Financial Investment in EAP	Investment in EAP entire program			Return Total	**ROI**
	PEPM	PEPY	Total		
	$1.25	$15.00	$15,000	$139,880	**$9.33:1**
Understanding the Drivers of ROI	Use needed for ROI of break-even $1:1		Components of LPT outcome as % of return total and $ part of ROI total		
	Cases count	Case rate	Work Absenteeism = 13%		$1.24
	4	0.4%	Work Presenteeism = 87%		$8.09
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Chapter 7 - Context factors and outcomes

This chapter presents the results of statistical tests of context factors on the levels of outcome scores at pre and post use of counseling and also tests of the possible moderating effects of characteristics of EAP use on the extent of improvement over time in outcomes.

Methodology for exploring context factor differences on outcomes

The problem rates (% of all cases that were at problem status) for each WOS outcome and the summary of the total number of the five outcomes at problem status were tested as the dependent measures. We also tested the new four outcomes converting the absenteeism and presenteeism ratings into work productivity levels, hours of absence, hours of presenteeism and combined hours of lost productive time (LPT) for work. Note that three of these last four variables share variance as they are all based on scores involving the WOS presenteeism item and thus should have very similar patterns of results.

The tests were conducted using a repeated measures multivariate ANCOVA model. Each test has the longitudinal factor of time (pre vs. post use of counseling) and the context factor examined (i.e., country) and then either the set of WOS outcomes or the set of LPT outcomes. The between-subjects results indicate effects for the levels of outcomes at pre and at post. The interaction of the factors of time (i.e., the extent of change from pre to post change) and context factor indicate effects for how much the subgroups of a context factor had differences in how much the outcome scores changed from pre and at post. The sample sizes for these tests varied depending on how many cases had valid data on that context factor.

Also, covariates of country and EAP model of delivery were available for all cases and were included in each test as relevant to the data available for each context factor. Including these covariates helped to focus the tests only on the context factor of interest by statistically adjusting the mean scores for subgroups of the context factor to take out slight differences associated with the country (US vs. China vs. New Zealand vs. Other Global) and the EAP delivery model (vendor vs. internal vs. hybrid).

Context factors mostly had small or no impact on WOS and LPT outcomes

The results found few meaningful differences for the context factors. Summary tables are shown on the next two pages. It is important to consider that all of the findings for the tests of context factors had effect sizes that were either trivial or very small from a statistical perspective. The statistical effect size results in the tests of context factors ranged from η_p^2 = .02 to .01 or less (trivial effects). Compare these results to the overall change over time result for the total number of WOS problems (i.e., the primary test conducted in the study), which was a large effect size of η_p^2 = .26. This is a dramatic difference in statistical effect sizes which indicates the very small magnitude of differences on the WOS and LPT outcomes associated with these context factors.

For further details please see the companion report that focuses entirely on profiling EAP counseling use and outcomes on these ten context factors: Morneau Shepell. (2020). Workplace Outcome Suite (WOS) Annual Report 2020: Part 2 - Profiles of Work Outcomes on 10 Context Factors of EAP Use.

Table 7.1 *Summary of tests of context factors associations with the percentage of cases at problem status (initial severity) on WOS outcomes at Pre (before counseling)*

Context Factor:	WOS-5 Measures: Problem Status as % of Cases					
	Work Present	Work Absent	Workplace Distress	Work Engage.	Life Satis.	Sum All 5
Country Location	Small	Small	Small	Small	No Effect	Small
Region of United States	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
EAP Delivery Model	No Effect	Small	No Effect	No Effect	No Effect	No Effect
Industry of Employer	Small	No Effect	Small	No Effect	No Effect	No Effect
Age of Client	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Sex of Client	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Referral Source	Small	No Effect	No Effect	No Effect	No Effect	No Effect
Clinical Issue	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Clinical Sessions #	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Clinical Duration	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect

Note: Small = small statistical effect size (η_p^2 = .02 to .01). Tests controlled for influence of other factors.
* Some specific effects for Work issues and Substance use

Table 7.2 *Summary of tests of context factors associations with LPT outcome levels (severity) at Pre (before counseling)*

Context Factor:	Work Productivity LPT Measures			
	Work Productivity Level (100%)	Hours Work Absenteeism	Hours Work Presenteeism	Hours Lost Productive Time
Country Location	Small	Small	Small	Small
Region of United States	No Effect	No Effect	No Effect	No Effect
EAP Delivery Model	No Effect	No Effect	No Effect	No Effect
Industry of Employer	Small	No Effect	Small	Small
Age of Client	No Effect	No Effect	No Effect	No Effect
Sex of Client	No Effect	No Effect	No Effect	No Effect
Referral Source	Small	No Effect	Small	Small
Clinical Issue	Small	No Effect	Small	Small
Clinical Sessions #	No Effect	No Effect	No Effect	No Effect
Clinical Duration	No Effect	No Effect	No Effect	No Effect

Note: Small = small statistical effect size (η_p^2 = .02 to .01). Tests controlled for influence of other factors.

Table 7.3 *Summary of test results of context factors as moderators of extent of change over time in percentage of cases at problem status (improvement) on WOS outcomes*

Context Factor:	WOS-5 Measures: Problem Status as % of Cases					
	Work Present	Work Absent	Workplace Distress	Work Engage.	Life Satis.	Sum All 5
Country Location	No Effect	Small	No Effect	No Effect	No Effect	No Effect
Region of United States	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
EAP Delivery Model	No Effect	Small	No Effect	No Effect	No Effect	No Effect
Industry of Employer	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Age of Client	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Sex of Client	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Referral Source	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Clinical Issue	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Clinical Sessions #	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Clinical Duration	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect

Note: Small = small statistical effect size (η_p^2 = .02 to .01). Tests controlled for influence of other factors.

Table 7.4 *Summary of test results of context factors as moderators of extent of change over time in LPT outcomes (improvement)*

Context Factor:	Work Productivity LPT Measures			
	Work Productivity Level (100%)	Hours Work Absenteeism	Hours Work Presenteeism	Hours Lost Productive Time
Country Location	Small	Small	Small	Small
Region of United States	No Effect	No Effect	No Effect	No Effect
EAP Delivery Model	No Effect	No Effect	No Effect	No Effect
Industry of Employer	No Effect	No Effect	No Effect	No Effect
Age of Client	No Effect	No Effect	No Effect	No Effect
Sex of Client	No Effect	No Effect	No Effect	No Effect
Referral Source	Small	No Effect	Small	Small
Clinical Issue	Small	No Effect	Small	Small
Clinical Sessions #	No Effect	No Effect	No Effect	No Effect
Clinical Duration	No Effect	No Effect	No Effect	No Effect

Note: Small = small statistical effect size (η_p^2 = .02 to .01). Tests controlled for influence of other factors.

Table 7.5 *Statistical review of tests results of context factors on WOS and LPT outcomes*

Outcome	Test Condition	Number of Tests Conducted	Test Results			
			Negative Result	Positive Result (Statistical Effect Size Range)		
			No Effect	Small	Medium	Large
WOS outcomes	Severity Levels Pre & Post	60	86%	14%	none	none
	Improvement Pre to Post Use	60	97%	3%	none	none
LPT outcomes	Severity Levels Pre & Post	40	67%	33%	none	none
	Improvement Pre to Post Use	40	75%	25%	none	none

Other context factors of interest missing from WOS data set

A large research literature indicates that operational excellence and clinical quality of counseling services undoubtedly contribute to better outcomes. EAP vendors and employer-based internal programs can differ from each other on the range of services provided (counseling, consulting, training, crisis response, substance treatment management, return to work, and so on), on the modalities of access to services (in-person, telephone, digital), on the rates of utilization of these different kinds of services, and on the other clinical and organizational outcomes and associated cost savings. Unfortunately, these perhaps more relevant additional kinds of context factors were missing from the WOS data archive. Hopefully in the future as more EAPs get involved in the ongoing WOS benchmarking initiative, perhaps more factors can be explored and compared between different providers across the industry.

Summary - Chapter 7

The number of cases with data on client demographic factors (age and sex), the source of referral into counseling, the type of clinical issue or reason for counseling, and the industry of the employer was up about 50% over last year. Having more data on these factors allowed for more accurate profiling of how EAPs are used and for testing for potential differences on workplace outcomes among various subgroups of the context factors. The results, however, found very few meaningful differences in workplace outcomes by these factors. For furthers details please see the companion report Part 2 of the WOS 2020 Annual Report that focuses entirely on profiling EAP counseling use and outcomes on these ten context factors.

Chapter 8 - Benchmarking with WOS Data

Opportunities to compare EAPs with each other and identify best practices

The use of the WOS is encouraged as an industry standard for employee assistance. To some extent is already is the standard based on the hundreds of EAPs have asked to use it over the last decade. The smaller subset of those EAPs using the WOS who collected and voluntarily shared their data for this report may also be the kinds of EAP who are more interested in the quality of EAP services than other EAPs who do not do these kinds of activities. Examples of how WOS data can be sorted and ranked by different factors are presented. The idea is to illustrate how participating the WOS benchmarking archive can provide unique insights into how different EAP vendors and employer based programs can compare themselves to other programs and learn from each other.

Benchmarking Example 1: Ranking Different Clinical Issues of EAP Users

The 15 different categories of clinical issue or primary reason for use of the EAP were compared on WOS measures at the start of counseling. The percentage of cases who are at a problem level on each WOS outcome at before use of counseling are displayed in Table 8.1 for each of 15 specific reasons for why the EAP was used. The issues were sorted by the average level of problem and ranked from 1 to 15. The results showed that issues of depression, grief and violence or trauma were the top three kinds of employee distress that had the most impact on being able to function well at work. The lowest ranked issues included substance use (alcohol or drug), family issues and personal or family financial problems.

For each clinical issue the average level of productivity (on 0-100% scale) and the hours of work absence, hours of unproductivity and the combined hours of lost productive time were determined and each clinical issue ranked from highest to lowest on LPT. See results in Table 8.2. The clinical issues that had the most hours of LPT were: 1 = Grief; 2 = Depression; and 3 = Medical. The clinical issues that had the fewest hours of LPT were: 15 = Substance Abuse; 14 = Work; and 13 = Behavior or conduct problems. There was a 30-hour difference the range of LPT hours between the highest and lowest issues.

Benchmarking Example 2: Ranking Specific EAP Vendors and by Employer-based EAPs

The 20 different EAP external vendors were sorted by how much change (reduction) in the hours of lost productive time per month from pre to post EAP for their cases over the years in the WOS data archive. These findings are listed in Table 8.3. This set of vendors had a very wide range on this metric, from a low of 15% at one vendor to a high of 62% at another vendor, with an average across all vendors of 34%. The other work productivity related WOS outcomes are also listed for each vendor in the same table. The data on level of work productivity (0-100%), hours of absenteeism, hours of presenteeism and hours of total LPT are also listed for each vendor. The 20 vendors also can be compared on the WOS outcomes at before counseling use to explore which vendors had higher or lower percentages of their cases at problem level on life satisfaction (or on one the other four primary outcomes).

The 12 employer-based EAPs (internal staff or hybrid) also have the same data displayed as for the vendors (see lower part of Table 8.3). This set of programs also had a very wide range on the metric of reduction in LPT hours, from a low of 9% at one program to a high of 49% at another vendor, with the average being 31%.

Table 8.1 *WOS problem status at before EAP by 15 clinical issues: Ranked by average score across all five WOS outcomes*

Issue	Cases	LS	WE	WD	AB	PR	AVG	Rank
Depression	1,329	46%	38%	30%	43%	65%	44.5%	1
Grief	534	43%	31%	24%	53%	68%	43.9%	2
Violence/Trauma	212	44%	36%	28%	42%	65%	42.9%	3
Stress - Work	1,187	29%	41%	38%	36%	50%	38.9%	4
Medical	165	40%	27%	16%	47%	61%	38.1%	5
Anxiety	1,365	32%	30%	26%	36%	61%	36.9%	6
Stress - Personal	800	34%	27%	25%	34%	63%	36.6%	7
Legal	132	30%	39%	27%	35%	52%	36.5%	8
Work	638	23%	35%	38%	32%	41%	33.8%	9
Other	183	31%	27%	22%	29%	59%	33.6%	10
Marital	2,583	39%	20%	13%	32%	60%	32.7%	11
Behavior/Conduct	673	31%	16%	12%	62%	39%	32.0%	12
Family	768	32%	17%	13%	36%	57%	30.9%	13
Financial	146	33%	25%	12%	35%	49%	30.8%	14
Substance Use	407	28%	16%	14%	38%	37%	26.6%	15

Table 8.2 *Work productivity level and LPT at before EAP use by 15 clinical issues*

Issue	Cases	Productivity Level 0-100%	AB Hours	PR Hours	LPT Hours	Rank
Grief	534	56%	15.58	62.98	78.56	1
Depression	1,329	58%	8.56	63.58	72.14	2
Medical	165	59%	9.75	60.82	70.57	3
Violence/Trauma	212	62%	7.36	61.91	69.27	4
Anxiety	1,365	60%	6.32	60.61	66.93	5
Stress - Personal	800	61%	6.65	59.60	66.25	6
Marital	2,583	61%	5.07	60.59	65.66	7
Other	183	62%	5.12	57.74	62.87	8
Legal	132	63%	6.27	55.56	61.83	9
Family	768	63%	5.61	56.18	61.79	10
Financial	146	65%	8.89	51.74	60.63	11
Stress - Work	1,187	65%	7.30	53.32	60.62	12
Behavior/Conduct	673	68%	7.79	49.01	56.80	13
Work	638	71%	6.36	44.01	50.37	14
Substance Use	407	73%	9.75	38.94	48.69	15

Table 8.3 *WOS problem status on all outcomes at before counseling, hours of lost productive time (LPT) at pre and post use, and % change in LPT: Specific EAP external vendors ranked from best to worst on change in LPT (upper part of table) and specific EAP programs ranked from best to worst on change in LPT (lower part of table)*

EAP Type	WOS Measures at Pre Counseling: % of Cases at Problem Level					Hours of Lost Productive Time (LPT) in Past Month			
External Vendors	LS %	WE %	WD %	WA %	WP %	Pre EAP hours	Post EAP hours	Change as %	Rank Top
V1	38	39	16	12	48	55	21	62	**1**
V19	23	39	20	21	41	47	19	59	**2**
V2	50	32	25	31	65	71	36	48	**3**
V4	31	29	26	38	63	72	42	48	**4**
V7	29	25	20	30	60	64	38	41	**5**
V3	36	30	25	36	64	68	40	41	**6**
V6	29	27	22	40	65	71	45	41	**7**
V5	38	36	31	45	70	75	48	36	**8**
V8	39	28	28	30	58	64	42	36	**9**
V15	41	31	28	21	48	52	35	35	**10**
V10	25	22	14	21	55	60	41	33	**11**
V18	36	29	21	32	56	62	42	32	**12**
V9	35	20	18	33	54	60	42	30	**13**
V16	33	30	19	12	58	59	42	29	**14**
V11	43	35	27	39	63	70	52	27	**15**
V13	33	31	27	39	51	63	47	24	**16**
V12	37	31	27	39	56	65	50	22	**17**
V14	28	30	17	25	39	54	43	19	**18**
V20	30	23	25	31	54	65	55	16	**19**
V17	31	37	41	34	54	61	52	15	**20**
Average	**34**	**30**	**24**	**30**	**56**	**63**	**42**	**34**	Lowest
Programs									Top
A	36	11	7	80	35	61	31	49	**1**
K	35	31	23	41	48	59	34	43	**2**
I	36	28	25	41	51	60	36	41	**3**
B	29	28	20	32	52	60	36	39	**4**
F	36	32	27	3	53	56	35	38	**5**
C	37	36	28	8	58	61	39	36	**6**
H	33	31	26	28	51	57	43	27	**7**
G	31	27	19	23	39	48	36	25	**8**
E	43	40	27	10	58	59	44	25	**9**
D	40	27	19	2	53	55	43	24	**10**
L	31	40	36	31	60	64	51	20	**11**
J	34	22	15	24	44	56	51	9	**12**
Average	**35**	**29**	**22**	**27**	**50**	**58**	**40**	**31**	Lowest

Other factors missing from this study are also of interest to understanding what constitute best practices in delivery of EAP services. Some of these factors include the overall health or well-being status of the client (clinical risk factors), the counselor rated level of clinical severity of the case (seriousness of the risks), the fidelity of the counseling interventions provided to meeting best practices for EAP (quality), whether or not the case was referred out after the EAP for more serious treatment (clinical referral), or if the sessions were provided in-person or telephone or via e-health technology tools (clinical modality). The number of counseling sessions experienced (clinical dosage delivered) was provided by only one EAP and more experiences from other EAPs is needed.

If these other context data elements are also submitted along with WOS data in the future, then further research can be done to tease apart which of these other factors may influence WOS outcomes. These kinds of benchmarking opportunities are even more powerful when more EAPs collect and share their own WOS data. Perhaps a WOS benchmarking community of many EAPs is possible to take advantage of benchmarking on outcomes.

Summary - Chapter 8

The ability to use the WOS data as normative scores and provide benchmarks for work outcomes offers a value to the EAP industry. As specific utilization and reporting tools vary from one EAP to another, it is important to try to standardize the outcomes part of reporting for purchasers of EAP services. The data can also be used to examine variations in outcomes based on context factors of interest. For example, the examination of 15 different clinical issues revealed that mental health issues of depression and grief tended to impact work outcomes the most. Other exploratory analyses compared 20 different external vendors and also a dozen employer-based programs on key outcomes and found large variation when ranking EAPs from highest to lowest on key metrics.

Chapter 9 - WOS-2020 updated 7-item measure

Opportunities to collect better data with WOS-2020 updated brief measure

The new updated version of the brief measure is included in this report along with simple scoring instruction. The main change is a new way of answering the absenteeism question. It is no longer necessary for the employee to fill in the blank with a specific amount of hours absent. Now the respondent can simply select from one of five choices (like the other four WOS items that have 1-5 response scales) that have increasing amounts of work absence. This response format allows for easier data collection on smart-phones and mobile devices as well as online website survey tools.

Another change is the option of indicating if the employee did not work at all in the past month. This is important to know, as some of the missing data for the absenteeism item in the past may have been related to not working rather than having no hours of absence and leaving it blank. The analysis of missing data revealed that the absenteeism item had twice the rate of missing data as the other four WOS items (both at pre and at post; about 3.4% vs 1.2%, respectively; see Appendix A).

For EAPs that want to calculate specific hours of absenteeism, this number can still be calculated on the new measure by recoding of the 1-5 ratings for each respondent into default numbers of hours based on the 35,693 cases analyzed for this report. Alternatively, the EAP can use other default hours of absence matched to their country or model of EAP (Table 9.1).

Also included in the new version of the WOS is an additional item that more directly assesses the level of work productivity. This item is rated on a simple 0 to 10 scale. It was adapted from a widely used measure that was developed by Harvard University for the World Health Organization in 2003. This item can help to better determine the hours of work productivity by converting the rating (multiply by 10) into the percentage of time that was productive (and the remaining hours worked as unproductive). Data from this item can further validate the re-scoring process with the WOS presenteeism item featured in this report to estimate the hours of lost productive time.

Summary - Chapter 9

A new updated version of the brief measure is now available - along with scoring instructions. For work absenteeism, it is no longer necessary for the employee to fill in the blank with a specific amount of hours. Instead, there are five categories of different amounts of absence to choose from (based on levels determined in the WOS research). Also included in the new version of the WOS is an additional item that more measures the level of work productivity in general.

WORKPLACE OUTCOME SUITE – 2020 VERSION

GENERAL INSTRUCTIONS
Below is a series of statements that refer to aspects of your work and life experience during the past 30 days that may have been affected by the personal problems addressed at the EAP. Please read each item carefully and answer as accurately as you can. If you work from home or other worksites or conduct your work during evening or overnight shifts, please answer for your context.

SC	1.	**Did you work any part of your normal employment schedule in the past 30 days?** Yes ○ No – Did not work at all * ○
LS	2.	**So far, my life seems to be going very well.** Strongly Disagree ○ Somewhat Disagree ○ Neutral ○ Somewhat Agree ○ Strongly Agree ○
WE	3.	**I am often eager to get to the work site and start the day.** Strongly Disagree ○ Somewhat Disagree ○ Neutral ○ Somewhat Agree ○ Strongly Agree ○
WD	4.	**I dread going into work.** Strongly Disagree ○ Somewhat Disagree ○ Neutral ○ Somewhat Agree ○ Strongly Agree ○
PR	5.	**My personal problems kept me from concentrating on my work.** Strongly Disagree ○ Somewhat Disagree ○ Neutral ○ Somewhat Agree ○ Strongly Agree ○
AB	6.	**How much time did your personal problems cause you to miss work during the past 30 days? Include complete work days and partial days when you came in late or left early. Please choose the category that best represents the total hours of absence you experienced (if any):** 0 hours ○ 1 to 3 hours ○ 4 to 8 hours ○ 2 to 3 days ○ 4 or more days ○
JP	7.	**On a scale of 0 to 10, where 0 is the worst job performance anyone could have at your job and 10 is the performance of a top worker, how would you rate your overall job performance on the days you worked during the past 30 days?** Worst Performance 0 ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7 ○ 8 ○ 9 ○ 10 ○ Top Performance

* Skip to end

Technical notes for WOS-2020

CODE	Item	Coding for Problem Status	Coding for Not Problem
SC	Screener for valid respondent status		
LS	Life Satisfaction item on WOS	Disagree = 1 2	Neutral or Agree = 3 4 5
WE	Work Engagement item on WOS	Disagree = 1 2	Neutral or Agree = 3 4 5
WD	Workplace Distress item on WOS	Agree = 4 5	Disagree or Neutral = 1 2 3
PR	Work Presenteeism item on WOS	Agree = 4 5	Disagree of Neutral = 1 2 3
AB	Work Absenteeism item on WOS	Four hours or more = 3 4 5	Zero to three hours = 1 2
JB	Work Performance item adapted from HPQ	0 1 2 3 4 5 6 7	8 9 10

Item 1 is new to identify small percentage of respondents (1%) who did not work at all. This item if endorsed then stops the data collection process ends as all of the other questions are not relevant.

Item 6 is new and adapted from WOS-5 item using a fill in the blank response to the question: 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.

Note that the key phrase "personal problems" was used in 5-item version for work absenteeism but the phrase "personal concern" was used in the single item version. This version has "personal problems" on absenteeism item to be consistent internally to the general instructions and to the work presenteeism item (i.e., these refer to personal "problems" rather than to personal concern. The use of personal problems phrase is also consistent with the original 25-item full scale phrasing.

Table 9.1 *Default hours of absenteeism for each level of new categorical version of work absenteeism on WOS-2020: By country/EAP model*

Absenteeism Item Rating	Total Sample	EAP Vendor in United States	EAP Vendor in China	EAP Vendor in New Zealand	Hybrid EAP (Staff + Vendor) Employer	Internal EAP Staff Model at Employer	Hospital-based EAP in United States
	(*N* = 35,693)[a]	(*n* = 15,825)	(*n* = 7,710)	(*n* = 1,147)	(*n* = 6,094)[b]	(*n* = 4,639)[b]	(*n* = 3,917)
1 = zero hours	0	0	0	0	0	0	0
2 = 1 to 3 hours	1.54	1.91	1.69	2.10	1.15	1.84	1.91
3 = 4 to 8 hours	6.50	6.72	5.64	6.98	6.55	6.26	6.12
4 = 2 to 3 days	16.26	16.40	15.04	16.62	17.07	15.17	15.09
5 = 4 days +	50.60	50.07	47.22	52.80	50.42	53.45	53.79

[a] Adjusted for differences by country and EAP delivery model. [b] Adjusted for differences by country.

Item 6 is not from the WOS, rather it is adapted from the job performance set of questions (third in a set of three questions on work productivity) form the Health and Productivity Questionnaire (HPQ). The HPQ was developed by researchers at Harvard University for use by the World Health Organization. It is one of the most well-researched self-report tools for assessing employee work productivity level. The primary benefit is that it can be converted into a 0 to 100% scale (i.e., rating x 10). This percentage can then be applied total hours of time worked in month (after deducting hours of work absence) to yield a specific number of hours of lost work productivity. This item is useful for estimating cost savings to employers based on reductions from Pre to Post use of EAP in lost productive time (combination of hours of absenteeism and under performance).

- Actual item on HPQ: Using the same 0-to-10 scale, how would you rate your overall job performance on the days you worked in the past 4-weeks (28 days)? Worst Performance 0 1 2 3 4 5 6 7 8 9 10 Top Performance

Lennox, R. D., Sharar, D., Schmitz, E., & Goehner, D. B. (2018). Validation of the 5-item short form version of the Workplace Outcome Suite©. International Journal of Health and Productivity, 10(2), 49-61.

Kessler, R. C., Barber, C., Beck. A., Berglund, P., Cleary, P. D., McKenas, D., et al. (2003). The World Health Organization Health and Work Performance Questionnaire (HPQ). Journal of Occupational and Environmental Medicine, 45(2), 156-174

Appendix A - Methodology

Study design

Employee users of the EAP completed the WOS before introducing the EAP counseling intervention and then completed the WOS again at several months after the intervention. The single group design is typical of almost all studies of the users of voluntary employee health and wellbeing benefits provided in real-life settings as part of normal service delivery. What makes the WOS data archive so valuable is that all of the data has a longitudinal design with both pre and post periods assessed. In contrast, most data on outcomes for users of EAPs (and other employee benefit programs) is typically collected only at the post period on small samples of users who complete follow-up surveys conducted as routine business practices.

However, having only the intervention group experiencing EAP counseling with a no comparison group of employees equally distressed and not receiving EAP counseling, is known as a single-group study. This kind of study design can identify if employees improved at work after EAP counseling, but it cannot prove EAP counseling was the only causal factor in this improvement. The estimated ROI results take this point into consideration and deducts a third of the cost savings attributed to use of the EAP (see Appendix F).

See new results presented in Appendix B of this report from the mini-studies that examined the representativeness of counseling cases who completed both the pre and post measures compared to other counseling cases from the same EAPs who had only the Pre data or had no WOS data at all. In general, the EAP users with WOS data included in this study were similar on demographic and other available clinical profile data to those other employees who did not have the follow-up data collected also to others that had not collected any WOS data.

Data collection

The specific data collection practices used by the many different EAPs over the ten years of adding data into the WOS archive is unknown, other than the minimum criteria of having an EAP case complete the WOS at before and after counseling.

To gain a better understanding of how WOS data was collected in the 2018 WOS annual report, eleven EAPs that represented a mix of different countries and delivery models were asked to describe their WOS data collection practices. The results are shown below for this small subset of EAPs in the study.

- The percentage of all relevant cases where the WOS items were asked at the start of counseling ranged widely across the different EAPs, from about 10% to over 75% of all cases. The average was 52% of cases that had WOS data at start of EAP use.
- Ten of the 11 EAPs has one or more staff who have dedicated job duties to help collect the follow-up surveys.
- Most of the EAPs contacted cases at the follow-up using telephone and/or e-mail or text with a link to an online survey. Only one EAP used paper surveys mailed to employees.
- The number of attempts to contact the case at the follow-up ranged from 1 to 4 times, with an average of 2.2 attempts.
- The time period between the last counseling session and completing the follow-up survey ranged from 30 days (1 EAP), to 60 days (3 EAPs), to 90 days (7 EAPs). Thus, the most common follow-up period was 90 days or about three months.

- The percentage of cases with Pre WOS data who were asked the WOS items again at the follow-up after counseling ranged widely across the different EAPs, from about 10% to over 75% of the cases with WOS data at the start. The was an average 38% of cases with longitudinal data.

Sample

As of the end of 2019 year, many different EA providers, large employers and EAP industry groups had kindly shared their data to add to the WOS benchmarking archive. Most of these EAPs were from the United States but 28 other countries were represented among the cases. Most of these sources were external vendors of EAP services, EAPs that serve hospital systems (and often other employers in the same community), some internal programs from large corporations, and several public sector and government organizations. Over 95% of these cases were users of the counseling services from EA providers rather than users of other kinds of work/life services provided by the EAP.

Client anonymity. Although the unique identity of each user of the EAP was tracked from Pre to Post use of the EAP in order to collect longitudinal data, clients were guaranteed anonymity and assured their employers would never be allowed to view their individual responses. The aggregated dataset provided for the analysis had only identification numbers and no client specific personal information.

Determination of final sample size. The valid sample size used for analysis was 35,693 cases. This count is lower than the 41,500 total actual cases in the archival dataset. The reasons for why various cases were excluded are listed in Table A.1 on the next page. These reasons included duplicate records, cases of non-EAP services, missing WOS measures, not working at time of survey completion (i.e., absenteeism of 160 hours or more) and not having WOS measures at both the pre and post time periods (i.e., criteria for longitudinal data). A small set of cases who otherwise met all of the validity criteria but had one or more of their WOS scores that were missing had the scores estimated from total sample median score.

Table A.1 *Missing data and determination of cases included in valid longitudinal study sample*

Starting Count	**Criteria for Exclusion** – goal to have full data on all five WOS outcomes at both Pre and Post use of EAP Counseling	Excluded Count
41,500	**Duplicate Cases:** Cases with same data (same ID, same WOS score, etc.) – data error sent to us by EAPs.	327
41,173	**Not EAP Services:** One program was wellness intervention on original 25-item version of WOS.	21
41,152	**Not All Five WOS Measures Have Data:** One internal public sector EAP measured 3 of the 5 scales on original 25-item version of WOS (missing all data on absenteeism and engagement)	354
40,798	**Not Longitudinal Paired Data:** WOS master data archive since year 2010 (through the end of 2019). Longitudinal design requires WOS data measured twice from at the start of case (Pre EAP Use) and follow-up at 2-3 months after counseling was completed (Post use of EAP). Missing all WOS data at Pre: n = 322 Missing all WOS data at Post: n = 2,611 Missing all WOS data at both Pre and Post: n = 1,739 But see Chapter on Sample Validity Tests that uses data from these cases that were excluded from the primary analyses that compared select groups for EAP sites with enough data in each type	4,672
36,126	**Employee Not Working in Past Month:** Exclude if 160+ hours of work absence in past month (thus invalidating other WOS measures) Not working at Pre: n = 175 Not working at Post: n = 230 Not working at Pre and at Post: n = 28	433 (1.2% of relevant total)
35,693	**Sample with Complete WOS at Pre and Post in Raw Data (no missing data on any brief WOS items)**	2,975 (8.3% of relevant total)
32,718	**Incomplete: Missing Data on Some of WOS Items [median value]** Work Absenteeism missing at Pre: n = 1,048 (2.9%) [median = 0] Work Absenteeism missing at Post: n = 1,367 (3.8%) [median = 0] Work Presenteeism missing at Pre: n = 359 (1.0%) [median = 4] Work Presenteeism missing at Post: n = 425 (1.2%) [median = 2] Workplace Distress missing at Pre: n = 365 (1.0%) [median = 2] Workplace Distress missing at Post: n = 397 (1.1%) [median = 1] Work Engagement missing at Pre: n = 518 (1.5%) [median = 3] Work Engagement missing at Post: n = 584 (1.6%) [median = 4] Life Satisfaction missing at Pre: n = 463 (1.3%) [median = 3] Life Satisfaction missing at Post: n = 423 (1.2%) [median = 4] WOS Absenteeism average = 3.4% missing Other WOS items average = 1.2% missing Note: some cases in above had missing data on more than one WOS measure at Pre and/or at Post	+2,975 # of different WOS scores estimated: 1 = 984 2 = 1422 3 = 268 4 = 224 5 = 58 6 = 10 7 = 1 8 = 8
35,693	**Valid Final Sample for Report**	

WOS versions

All versions of the WOS were represented in the EAP users included in this sample. The choice of which version of the WOS was used was made independently by each EAP. This study used data pooled from all of the WOS measures (25-, 9- and 5-item versions). The single-item was used for analyses for each outcome other than work absenteeism. See the Bibliography for papers on each WOS version.

- The original 25-item had 381 valid cases (1% of the total cases).
    - From 3 EAP sites.
- The revised 9-item version had 5,764 valid cases (16%).
    - From 2 EAP sites – with 93% of cases from Empathia EAP.
- The brief 5-item version had 29,548 valid cases (83%).
    - From 37 EAP sites.

Hours of work absenteeism

This section described the conceptual rationale and operational details on how absenteeism hours of data were used in this study from the different WOS versions to yield comparable adjusted data.

Work absenteeism is measured in two ways. First on the original five-item version and the single-item version from the brief WOS-5. For both measures, any cases with 160 hours or more of missed work were excluded from the study sample as outliers with too extreme a level of missed work (i.e., doing no work at all in past month). It's also possible some of these extremely high counts were reporting or recall errors made by employee when answering the question. Outlier cases were far less than 1% of the total data set. Thus, the range for absence hours was restricted from 0 to 159 hours

Creating a pooled sample measure of work absenteeism hours

This study used data pooled from all of versions of the WOS measures. Unfortunately, although similar in nature, these two measures of Absenteeism do not have an item that is shared on both versions (like the other four WOS outcomes). Therefore, a new strategy was devised to use all of the cases in the pooled data even when different subgroups had data from the original full Work Absenteeism scale and others in the sample had data from the single-item measure of Work Absenteeism. We decided to take only the data from the first three items of the full five-item version of Absenteeism.

This action was taken because these three items conceptually match the instructions for the single item on the brief WOS-5 for Absenteeism that asks the person to consider absence consisting of missing work altogether, arriving late or taking off early. In contrast, the other two items on the original Absenteeism scale of types of absence consist of being taken away from the workplace or being on phone, email or Internet while at work. Data for these items were excluded as these kinds of absence are more aligned with the concept of Work Presenteeism than of missing work. When these two measures (i.e., the brief single item and the revised 3-item matching set of items) were both used to provide a count of the work absence hours for everyone in the study sample (N = 35,693), the average amount of absence hours at baseline was 6.24 hours. With a range of 0 to 159 hours, this measure has substantial variability between cases and a standard deviation more than twice as large as the mean score. Such extensive variability on a measure is not appropriate for most statistical tests that examine mean scores. See data in Tables A.2 and A.3 on next page.

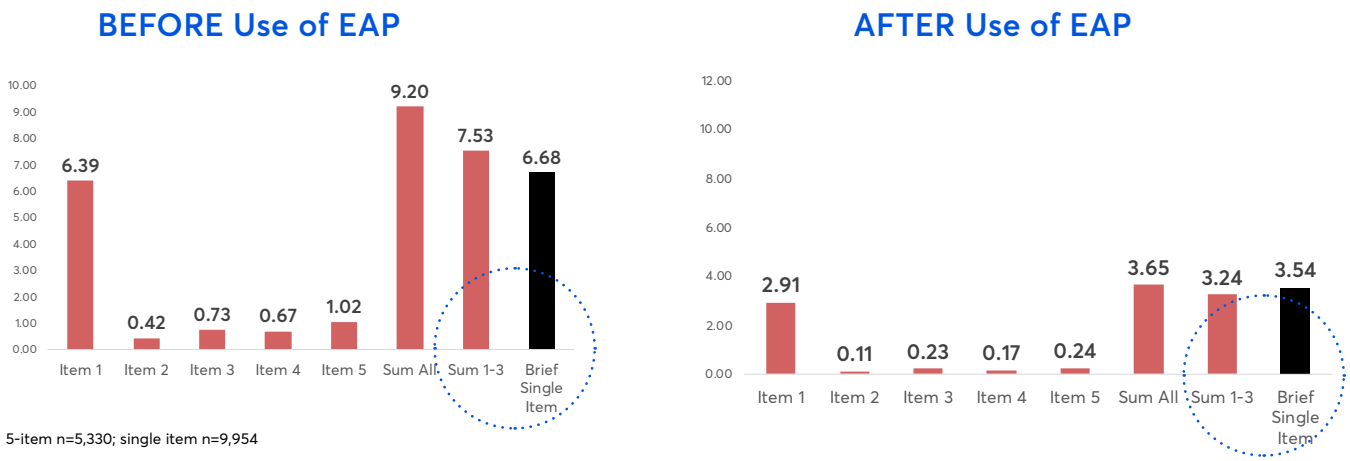
Table A.2 *Work absenteeism hours in past month before use of EAP on versions of WOS measures*

Measure	N cases paired	Pre EAP Use	Post EAP Use
		Mean (SD)	Mean (SD)
5-items on either Original 25 or Revised 9	6,145	10.03 (20.79)	4.20 (15.74)
3-items on either Original 25 or Revised 9	6,145	7.94 (17.90)	3.49 (14.38)
1-item on Brief WOS-5	29,548	5.89 (14.38)	2.39 (9.29)
Adjusted measure for this study (based on 3-item sum or 1-item brief version)	35,693	**6.24** (15.06)	**2.58** (10.35)

Table A.3 *Absenteeism hours by each item on full scale at before and after use of counseling*

Item	Data limited to from vendors in US.	WOS-9 WOS-25	WOS-5	Difference from WOS-5 Single item	
		N = 5,751	*N* = 9,954	Hours	Percentage
Before EAP Use					
Single item	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.				
Item 1	Caused you to miss work entirely.	6.40			
Item 2	Made you late for work.	0.47			
Item 3	Caused you to take off early.	0.82			
Sum first 3		7.69	**6.68**	1.01	15% higher
Item 4	Pulled you away from your normal work location.	0.74			
Item 5	Required you to be on the phone, e-mail or internet while at work.	1.11			
Sum all 5		9.54	**6.68**	2.86	43% higher
After EAP Use					
Single item	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.				
Item 1	Caused you to miss work entirely.	2.89			
Item 2	Made you late for work	0.17			
Item 3	Caused you to take off early.	0.33			
Sum first 3		**3.39**	**3.54**	0.15	4% lower
Item 4	Pulled you away from your normal work location.	0.23			
Item 5	Required you to be on the phone, e-mail or internet while at work.	0.35			
Sum all 5		3.97	**3.54**	0.43	12% higher

Figure Set A.1 *Absenteeism hours by each item, Sum all 5 items, Sum first 3 items, WOS-5 single-item: At before and after use of counseling (sample sizes vary by full WOS or WOS-5)*



Revised Work Absenteeism single item with 1-5 categorical response options

On the WOS, work absenteeism is measured in specific hours and usually has a highly skewed distribution of scores as most of the cases report either zero absence (58% of cases at Pre EAP) or a very small number of hours. This wide range and skewed distribution of scores is very different from the other four WOS dimensions, which are all measured with agree-disagree ratings on a much smaller response option range of only 1-5. These results for the other WOS measures have a more normal bell-shaped distribution of scores across the five rating options with most cases in the middle of range.

From a conceptual perspective, hours of absenteeism and ratings of agreement on the other four measures is like comparing apples and oranges. However, to more fairly conduct statistical tests using all of the WOS measures combined and to compare work absenteeism results against the other four measures, it was important to standardize the range of the scores across the five measures. To match the 1-5 Likert-type rating scale used for the other four WOS measures, the absenteeism measure was adapted from the specific hours of work missed (range of 0-159) to a metric with only 5 categories (each with a different number of hours of absence). This was accomplished in three steps.

Step 1: The distribution of absenteeism hours at the Pre EAP use period (based on the full sample measure that used either the WOS-5 single item score or the score from three-item adapted version of the original full scale) was tabulated and sorted from zero to the maximum of 159 hours.

Step 2: The distribution of absence hours was then examined to set the cutoff points needed to break the distribution into five segments to correspond to a 1-5 score range. The first segment was no absence (zero hours) and was the majority of cases in both subsamples. The rest of the distribution that had at least some amount of absence was divided into fourths to evenly balance the remaining cases.

Step 3: Each case in the full sample was assigned a new score of 1 to 5 for absenteeism at Pre use of the EAP. The same cutoff levels were used to assign a new score of 1 to 5 for absenteeism at Post use. The estimated hours obtained from assigning specific hours to the cases in each category was based on the actual mean scores for each of the five groups at the start of counseling. As a test of this fidelity, use of the new assigned scores for the five groups was only 2% different from the actual averages using the full range of hours for all cases. This is shown in Table A.4 on next page.

Table A.4 *Absenteeism hours by 1-5 categories at before and after use of counseling*

	Before Use of EAP		After Use of EAP		Predicted After Use		
Absence category	Sample size	Actual hours from raw data at Before EAP	Sample size	Actual hours from raw data at After EAP	Sample size	Predicted from mean at Before Use	Difference
	n cases	Mean	n cases	Mean	n cases	Mean	%
1	22,264	0	29,189	0	29,189	0	0
2	3,048	1.54	1,857	1.77	1,857	1.53	+14%
3	3,946	6.50	2,025	6.17	2,025	6.51	-6%
4	3,866	16.26	1,697	15.52	1,697	16.30	-5%
5	2,549	50.60	925	54.00	925	50.64	+6%
	35,693	**6.24**	35,693	**2.58**	35,693	**2.54**	**+2%**

The final column in the table above shows the hours of absence at each of the five levels using the new default amounts based on the full sample data. The predicted amount of hours was very similar to the actual raw data amounts. Thus, this finding indicates that the default amounts of specific hours of work absence are quite accurate for use in estimating specific hours in the future for EAPs that collect data on the 1-5 rating version of WOS-2020.

WOS SuperScore

Some EAPs that collect WOS data are interested in having just one score to represent the overall set of WOS outcomes. A single score can be simpler way of indexing the impact of EAP counseling across these five kinds of outcomes. With the 1-5 categorical version for Work Absenteeism (or by re-scoring each case into the same five categories from older raw data of specific hours), having a measure of work absenteeism with the same response range allows the opportunity to add together the five single-item WOS measures for a new total score with a maximum possible range from a low of 5 to a high of 25. Work engagement and life satisfaction already are scored such that higher scores indicate a better outcome. Ratings on three of the measures – work absenteeism, work presenteeism and workplace distress – were reverse scored so that higher scores indicate a better outcome (i.e., 1=5, 2=4, 3=3, 4=2, 5=1).

Data analysis

All analysis was conducted using SPSS. The test of improvement over time (Pre to Post) with ratings was conducted using a multivariate analysis of variance repeated measures procedure. The percent improvement on each outcome over time was calculated by subtracting the Post EAP mean score from the Pre EAP mean score and then dividing it by the Pre EAP mean score. Other tests of the impact of moderator factors used a general linear model ANOVA approach with repeated measures of time and the other potential moderator factor of interest as an interaction effect with time. Tests with problem status (yes no) or other categorical context variables conducted with chi-square non-parametric test procedures. Most results were only of interest if had a statistical effect size of at least .01 (see below).

Statistical effect sizes

With such an extremely large sample size, the power to detect a particular finding as being statistically significant is very high (power of .99 out of 1.00 maximum to detect a small size effect at $p = .05$ chance level). Thus, a finding too small to have any practical value can nonetheless be declared "significant" from a statistical perspective (i.e., if the test result is $p < .05$). Estimates of statistical effect size offer a better way to evaluate results in condition involving very large sample sizes. Thus, the partial eta squared effect η_p^2 obtained in SPSS was examined for the WOS study data. This estimate can range from 0 to more than 1.00, but it is usually a number closer to the zero end of the scale. These effect sizes can be interpreted as follows (Richardson, 2011):

- **large size effect** .14 or greater
- **medium size effect** .06 to .13
- **small size effect** .01 to .05
- **trivial size effect** < .01 even if significant at *p* value

Appendix B - Validity and reliability of WOS measures

For an EAP to have confidence in using the WOS measures to assess the success of their counseling intervention requires that the items on the WOS behave in ways that meet scientfic standards for psychometric validity and reliability. This can be demonstrated by using data to answer the following questions: 1) Do the different WOS items measure what that are supposed to represent conceptually? (this is called construct validity); 2) Are the different WOS items associated with other similar factors? (this is called convergent validity); 3) and not associated with other unrelated factors? (this is called discriminant validity); and 4) Are the scores on the WOS individual measures answered consistently by the same person when repeated over time (called temporal or test-retest reliability)?

How valid are the WOS measures?

The first kind of validity in which the items meaure what they are supposed to measure is tested by having people complete two or more measures that assess conceptually similar factors and then see if the correlation between the measures is positive and significant.

Prior WOS Research

Supportive evidence to this question was obtained in the studies reported in the original study introducting the full 25-item scale (Lennox, Sharar, Schmitz & Goehner, 2010). A more recent paper also presented supportive evidence on convergent validity for the single item WOS-5 version (Lennox, Sharar, Schmitz & Goehner, 2018). In both of these prior studies, external criterion variables consisted of other self-report items that asked about topics of having trouble getting out of bed, feeling sad, falling behind at work, being late for work and working after hours. In two small samples of EAP cases (both around 200 cases), these other items were correlated in expected ways with certain WOS items. This is evidence of the construct validity of the WOS from these studies. In the present study, however, these other criterion factors of similar constructs were not available to conduct further testsing of the construct validity of the WOS.

The past studies cited above also found similar results when the WOS data was collected over the telephone or when the data was collected using written pencil and paper formats. This shows consistency in method of administration. New tests are needed for comparing other digital tools for data collection (online, smartphone and so on).

This Study Findings on Validity and Reliability

Answers to the other psychometric questions, however, were able to be answered with the data in the present study.

The associations between the different WOS items was tested by conducting a series of correlational tests between each of the WOS measures (all scored as 1-5 ratings) within the period before use of the EAP and again within the period at follow-up after use of the EAP. The reliability of the measures was also tested through correlations betwen the same measure at the two time periods. All tests were performed in the full sample with 35,693 cases and were all statistically signficant ($p < .001$).

Correlation of WOS Items

The findings indicated significant correlations between the pairs of WOS items scored in same direction. Similar patterns of these correlations were found at both of the time periods. These results were as expected in direction (positive correlations) and magnitude (small to moderate *r* = .18 to .37). These correlations are shown in blue color in Figure B.1. The strongest pairing was between workplace distress and work presenteeism (*r* = .27 before EAP & *r* = .37 after EAP).

Figure B.1 *Positive correlations between WOS items: At before and after use of counseling*

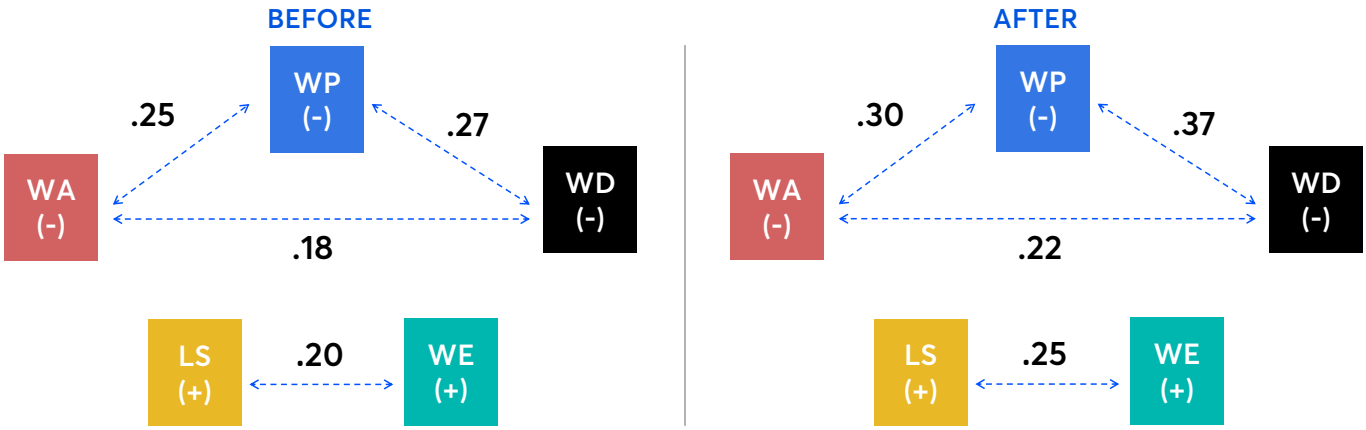
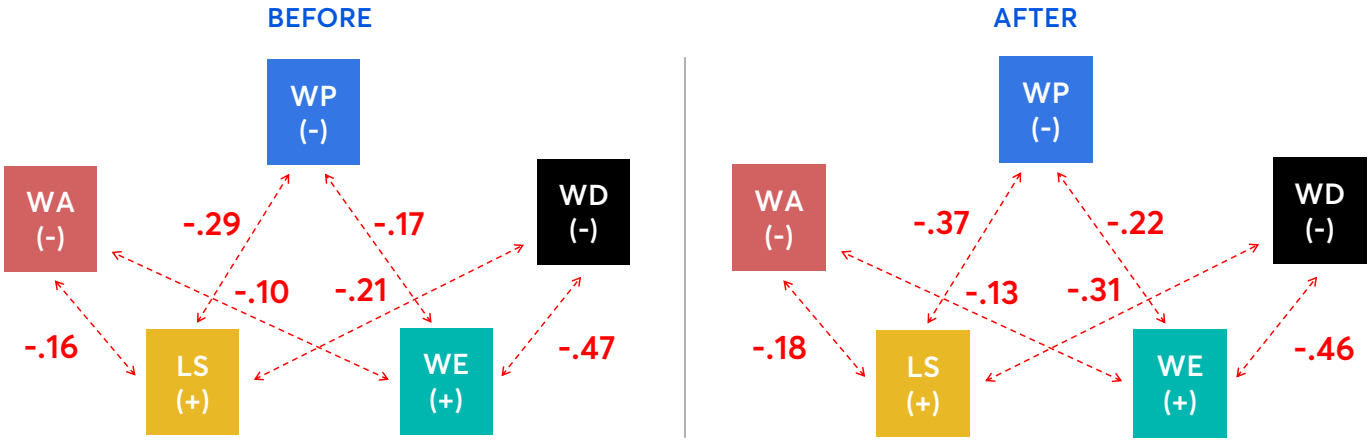


Figure B.2 *Negative correlations between WOS items: At before and at after use of counseling*



N = 35,693

All *r* values significant at *p* < .001

Other findings also indicated significant correlations between the pairs of WOS measures scored in opposite directions. These correlations are shown in red color in Figure B.2. Similar patterns were found at both time periods. These results were as expected in direction (all negative correlations) and in magnitude (small to moderate size correlations *r* = -.10 to -.47). The strongest association was between workplace distress and work engagement (*r* = -.47 before EAP & *r* = -.46 after EAP).

When averaged across the ten pairings of WOS items, the inter-item correlation was *r* = .23 at Before EAP and *r* = .27 at After EAP. Although these levels of correlation indicate some overlap between the five WOS constructs it is actually not that much of an overlap, with only about 5% of the total variance shared between the different measures. These findings indicate that each item on the WOS-5 has its own meaning and interpretation value as an outcome of EAP use.

WOS Levels at Start of Counseling and EAP Use Context Factors. The discriminant form of measurement validity also was found in this study. Each of the WOS items when rated at the start of counseling (Pre EAP) were not associated with demographic characteristics of user sex or age or with most of the other clinical or business context factors. More specifically, only six of 66 possible tests had a statistical effect size that was not trivial and each of these six findings was a very small size effect (i.e., each η_p^2 was .01; when small effects are between .01 and .05). More details are context factors are in the Part 2 report.

Table B.2 *Correlations of WOS ratings at before use of counseling with context factors*

		WOS Measures					
Context Measure	**Sample size *n***	**WA**	**WP**	**WD**	**WE**	**LS**	**SS**
Country	35693	**.16**	.07	**.13**	.07	-.01	**-.10**
Region of United States	24680	-.01	**.10**	.03	-.02	-.06	-.06
EAP Delivery Model	35693	.06	-.07	.01	.04	.06	.03
EAP Hospital Based Program	35693	-.02	**-.10**	.01	.01	.03	.05
Industry of Employer Sponsor	11216	**-.12**	-.03	-.03	-.06	.04	.03
Referral Source Into EAP	7580	-.01	-.09	.00	.03	.07	.07
Client Age	15046	.02	.06	-.01	.06	-.01	-.04
Client Sex	14262	.02	-.02	.02	-.05	.00	.01
Clinical Issue	11122	-.05	**-.10**	.01	.02	.08	.07
Clinical Sessions	1885	-.04	-.01	-.01	.01	-.02	.02
Clinical Duration	5796	.03	.02	.00	.02	-.03	-.02

Note: Values are r values. Results for chi-square tests of categorical context factors were converted to correlations r values for comparison purposes. WA = Work Absenteeism (1-5 categories); WP = Work Presenteeism (1-5 rating); WD = Workplace Distress (1-5 rating); WE = Work Engagement (1-5 rating); LS = Life Satisfaction (1-5 rating); SS = SuperScore (5-25). Bold font indicates a minimal small size effect (*r* = .10 or higher).

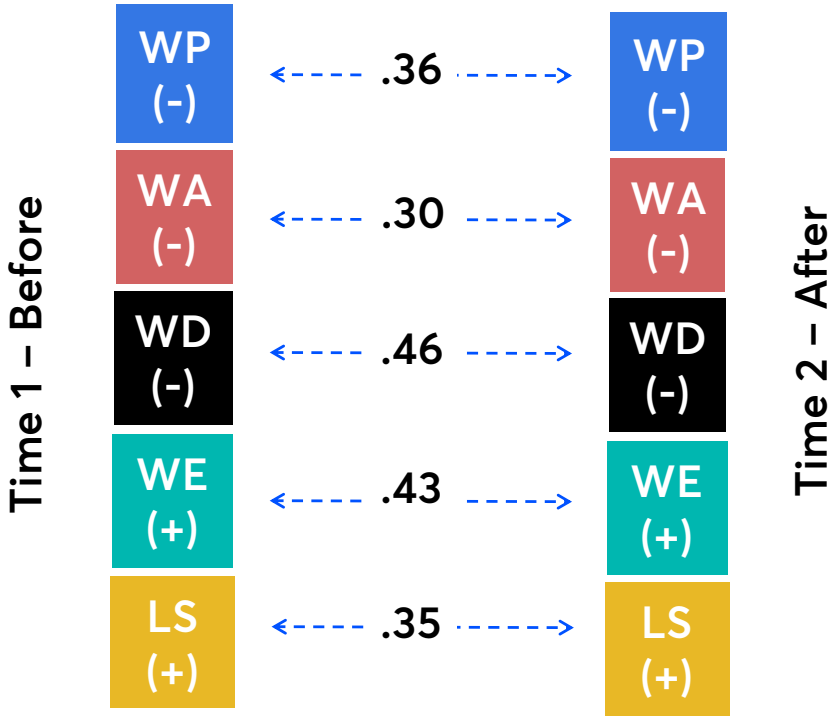
The study in Appendix D also provides empirical evidence of the validity of the WOS measures. The score on the five WOS measures were more severe for employees with clinical depression who were starting a long-term depression program to manage the condition. Comparisons were made to a sample of EAP users with the issue of depression were also examined as well as other EAP users who had other issues. See details in Table D.1.

How reliable are the WOS measures?

For an EAP to have confidence in using the WOS measures to assess the success of their counseling intervention requires that the WOS items behave in ways that also meet scientfic standards for psychometric reliability. This is examined in two ways. With multiple items are available from a single scale, then the Cronbach coeficient alpha is calculated as an indicator internal reliability between the items. Also, averge correlation between the different items on the same scale can be calculated. Another test is to determine of the scores on the WOS individual measures are answered consistently by the same person when repeated over time (called temporal or test-retest reliability).

A test-retest correlation is usually expected to be $r = .70$ or higher. Each WOS measure was positively correlated with itself from before to after EAP use to a modest extent (range $r = .30$ to .46). These correlations are shown in Figure B.3. These findings are lower than desired but they do offer some support the reliability of the WOS items. Note however that these correlations would likely be higher if the counseling interventions had not been provided in the period between the two measurement points, as the EAP treatment was intended to change the scores on the WOS measures (i.e., improve the outcome levels) and not to keep them the same over time.

Figure B.3 *Positive correlations between the same WOS item at Before and After use of counseling*



$N = 35{,}693$

All r values significant at $p < .001$

The WOS SuperScore composite measure had acceptable level of statistical reliability even with just five items. After the reverse scoring was done so that all items had higher ratings reflecting better outcomes, each of the five items were positively correlated with the composite score (average inter-item correlation: Before EAP use $r = .23$; After EAP use $r = .28$, all $p < .001$). The WOS SuperScore scale also had an acceptable level of internal measurement reliability (Cronbach alpha coefficient: Before EAP use $\alpha = .60$; After EAP use $\alpha = .66$). The test-retest reliability for the SuperScore was demonstrated in a positive and significant correlation between the composite scores at before and after counseling use ($r = .48$, $p < .001$). These statistics were based on full sample $N = 35{,}693$.

Appendix C - Mini-Studies 1 & 2: Representativeness of study sample

Two mini-studies examined data from select EAP vendors to explore the representativeness of the employee cases included in the WOS longitudinal data set. This issue refers to the level of confidence one has in the findings from this research project being applicable to the experiences of employees who use EAPs in the much larger industry context who do not participate in the longitudinal research. The best scenario is when the EAP cases examined in the research study are similar to other EAP cases who did not participate in the research. Some EAPs also provided case level data on users who had no WOS data or only had the start of case WOS data but lacked the follow-up WOS data. These groups were compared on client age and sex and the reason for use of counseling. WOS scores at the start of counseling were also compared when relevant. Other characteristics of EAP use or of the employee was missing and not available to test.

Table C.1 *Summary of findings of two mini-studies on representativeness of EAP cases in research*

STUDY 1. Comparison of Group A WOS Data at Both Pre & Post vs. Group B WOS Data at Pre Only	
Measures	**Test Result**
Context Factors:	**(Average of 4 Sites)**
Client Age	Similar
Client Sex	Similar
Client Issue for EAP	Similar
WOS Outcomes at Pre:	**(Average of 4 Sites)**
Work Absenteeism Hours	Similar
Work Presenteeism	Small Difference (Group A < Group B)
Workplace Distress	Similar
Work Engagement	Similar
Life Satisfaction	Similar

STUDY 2. Comparison of Group 1 WOS Data at Both Pre & Post vs. Group 2 WOS Data not collected		
Context Factors:	**Study 2: Site A**	**Study 2: Site B**
Client Age	Similar	N/A
Client Sex	Similar	Similar
Client Issue for EAP	Similar	Similar

Mini Study 1: Comparing Cases with Longitudinal WOS Data vs. Cases with WOS Data Only at Pre Use of EAP

Data from four EAPs in the US with groups of at least 50 cases with WOS data collected at both pre and post EAP use (*N* = 3,063) were compared against cases with WOS data collected only at the start of counseling and not at the follow-up (*N* = 2,681). Cases were not randomly assigned into groups and unknown reasons why in each group.

- Four Sites (All located in United States)
- EAP Vendor (Pre & Post *n* = 782 vs. Pre only *n* = 1,934)
- Internal EAP A (Pre & Post *n* = 2,059 vs. Pre only *n* = 52)
- Internal EAP B (Pre & Post *n* = 134 vs. Pre only *n* = 439)
- Hybrid EAP (Pre & Post *n* = 88 vs. Pre only *n* = 256)
- Combed Study (*N* = 5,744)
- Thus, have large sample sizes in each group and data from diverse set of EAPs with demographic, clinical factors and WOS data at Pre

The results revealed very similar profiles of the two sampling groups on context factors of client age and sex and mix of different kinds of clinical issues as reasons for use of the EAP (see Table C.2). Other tests found similar levels of mean scores on 1-5 ratings (see Table C.3) as well as on problem status (see Table C.4) at the start of counseling on four of the five WOS measures and only a small difference on WOS presenteeism. Cases with longitudinal data collected were lower in work presenteeism at baseline than were cases only with WOS data at Pre period. Thus, this evidence indicates that the cases who completed the WOS at both pre-test and post-test periods tended to be similar to cases who only completed the WOS at the pre-test period. These Findings shown visually in Figure Set C.1.

Mini Study 2: Comparing Cases with Longitudinal WOS Data vs. Cases with No WOS Data Collected

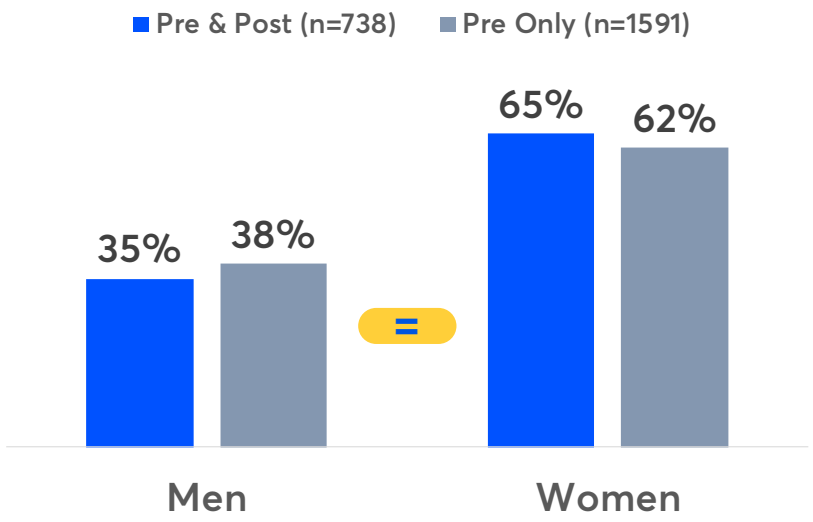
This data is from two EAPs in US with WOS data collected at both Pre & Post. Cases were not randomly assigned into these groups and unknown reasons why cases were in each group.

- Two Sites (All located in United States)
- EAP Vendor (Pre & Post WOS Data *n* = 782 vs. No WOS Data *n* = 1,484)
- Internal EAP C (Pre & Post WOS Data *n* = 83 vs. No WOS Data *n* = 219)
- Combed Study (*N* = 2,568)
- Thus, have large enough sample size in each group and data from two different kinds of EAPs with demographic and clinical issue context data.

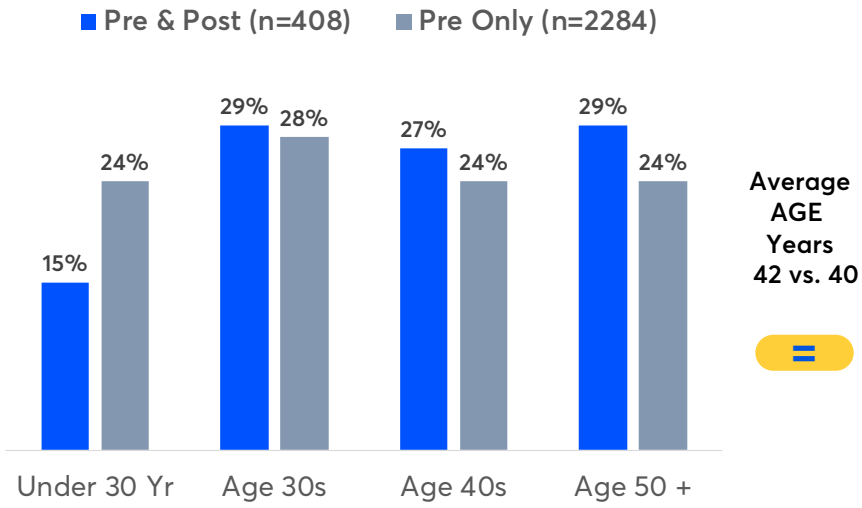
Results found the cases in the two WOS data conditions to be similar on client age and client sex. The reasons for EAP use were generally similar on most clinical issues but there was a difference were found the "other" subtype, with more cases among the No WOS Data group (average of 27% of total) for than among the Longitudinal WOS Data group (average of 6%). See specifics in Table C.5. Overall, the two pairs of groups were similar on most factors tested. This evidence indicates that the cases who completed both the pre-test and post-test measures of WOS data tended to be similar to other EAP cases who did not complete the WOS at all. These findings shown visually in Figure Set C.2.

Figure Set C.1 *Summary of findings of Mini Study 1 on representativeness of EAP cases in research: WOS data at both pre & post EAP use compared to WOS data at pre only*

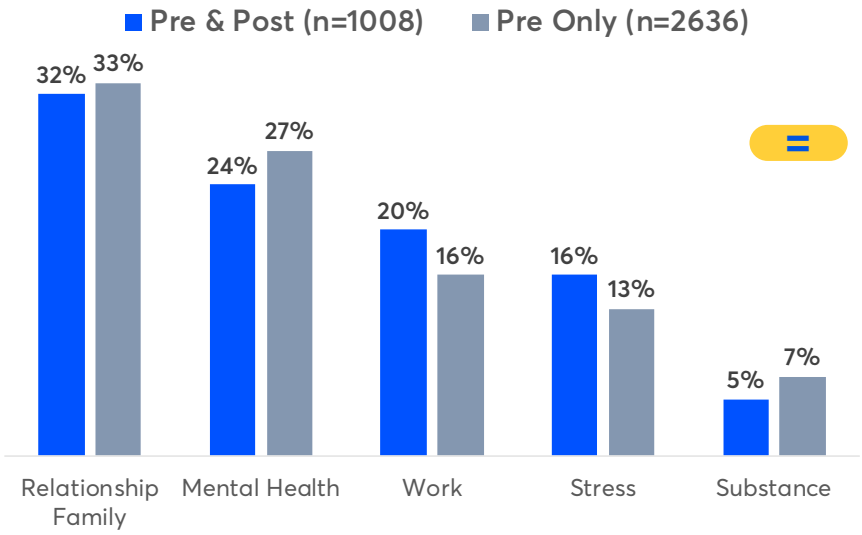
STUDY 1: Client Gender (4 EAP Sites)



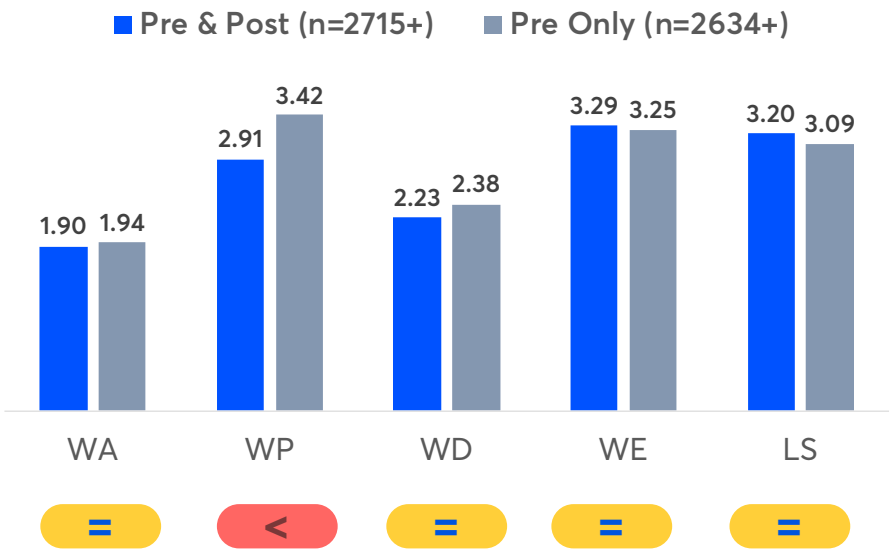
STUDY 1: Client Age (4 EAP Sites)



STUDY 1: Clinical Issue (%) (4 EAP Sites)



STUDY 1: WOS Outcomes at Pre – Ratings 1 to 5 (4 EAP Sites)



STUDY 1: WOS Outcomes at Pre - % at Problem Status (4 EAP Sites)

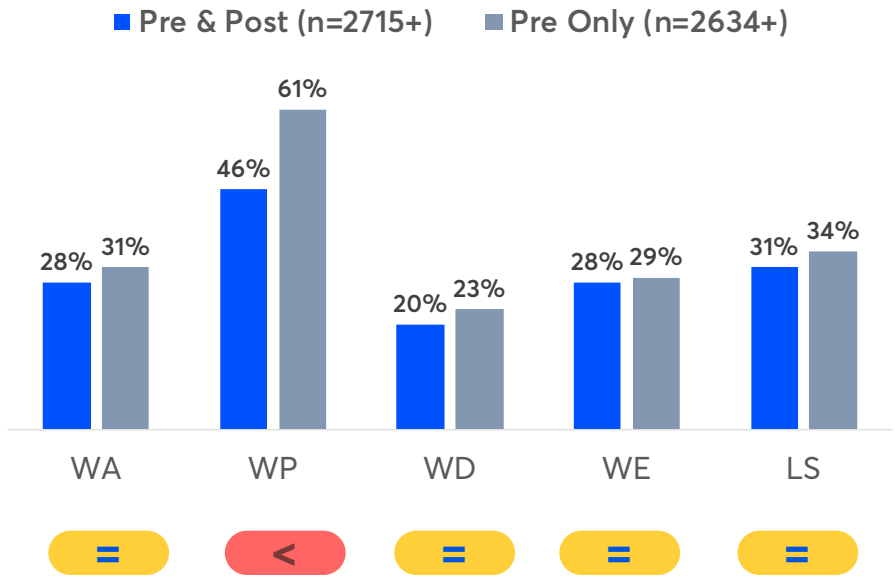
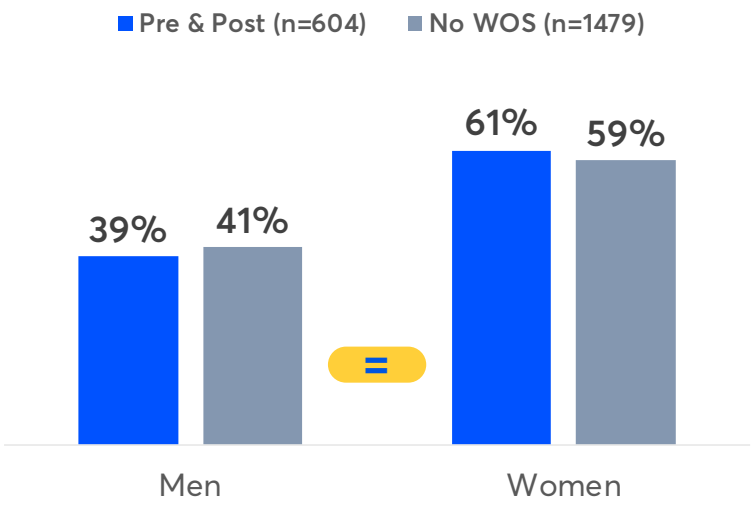
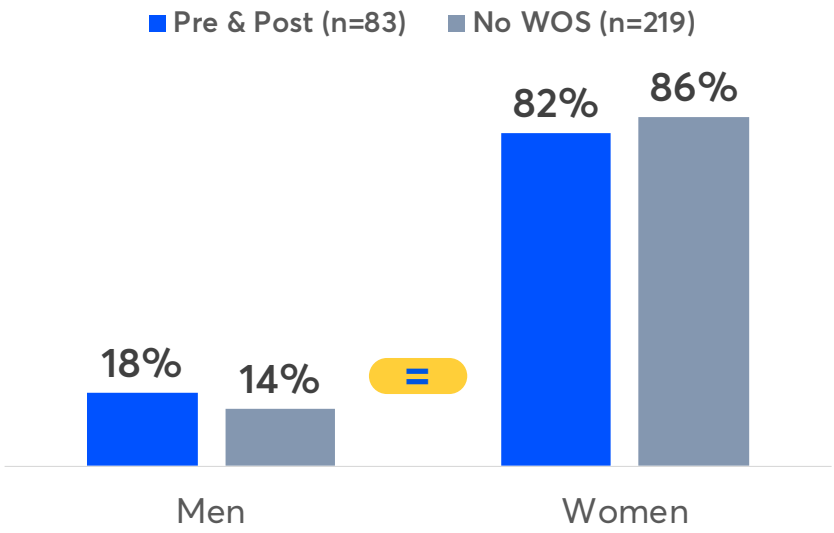


Figure Set C.2 *Summary of findings of Mini Study 2 on representativeness of EAP cases in research: WOS data at both pre & post EAP use compared to no WOS data*

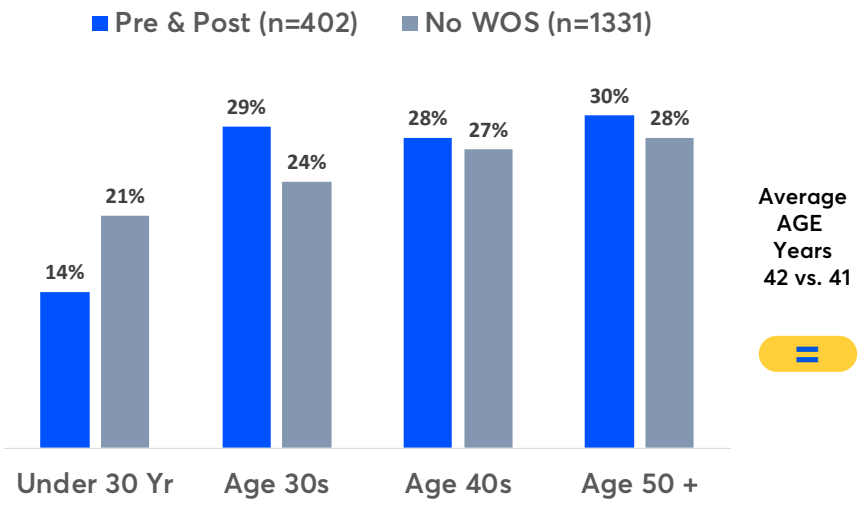
STUDY 2: Client Gender - Site A (Vendor US)



STUDY 2: Client Gender (%) - Site B (Internal US)



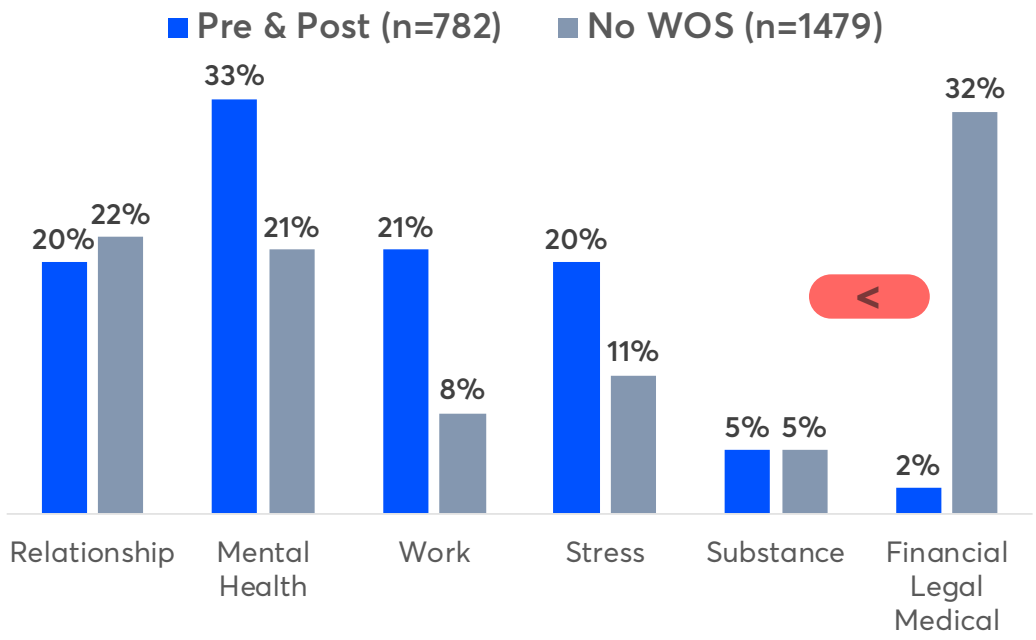
STUDY 2: Client Age - Site A (Vendor US)



STUDY 2: Client Age - Site B (Internal US)

NO DATA ON AGE

STUDY 2: Clinical Issue (%) - Site A (Vendor US)



STUDY 2: Clinical Issue (%) - Site B (Internal US)

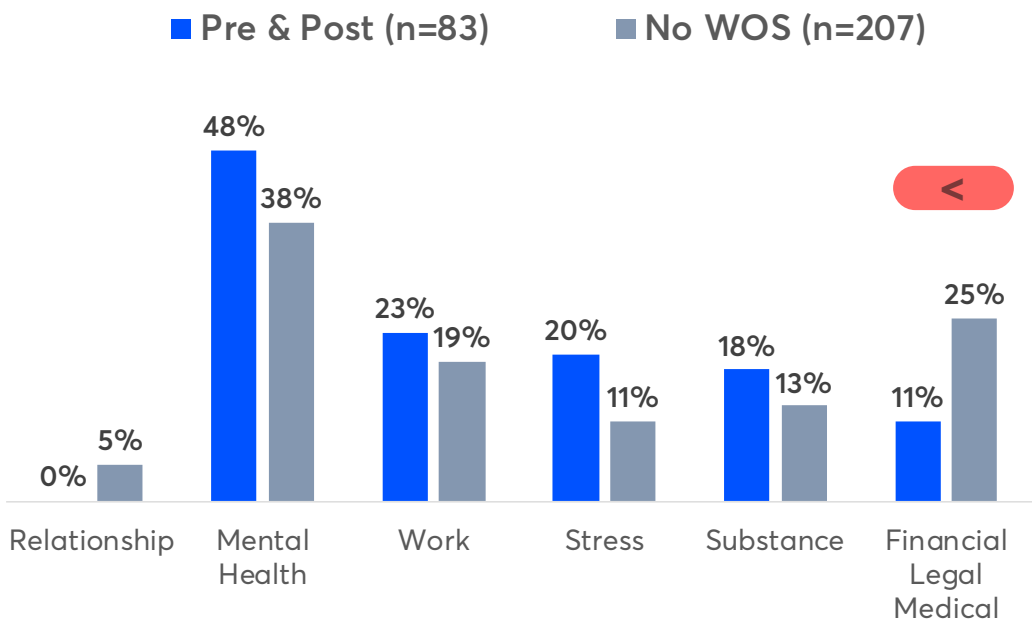


Table C.2 Mini Study 1: *Longitudinal cases (both Pre & Post data) compared to cases without follow-up data (Pre data only) on client demographics and clinical factors: Averages of four select EAPs*

	Groups			Comparison Results			
Factor		**Pre & Post Sample**	**Pre Only Sample**	**Group difference as %**	**Test of group difference**	**Statistical effect size η_p^2**	**Comment on results**
	n cases	408	2284				
Client Age	Mean years	42.21	40.04	4%	*F*(1,2691)		
		(11.21)	(12.76)		=	.004	
	Age < 30	15%	24%		10.36***	trivial	
	Age 30-39	29%	28%	N/A			Similar
	Age 40-49	27%	24%		X^2 (3) =	.007	
	Age 50 +	29%	24%		18.85***	trivial	
	n cases	738	1591				
Client Gender	Female	65%	62%	3%	X^2 (1) =	.0009	Similar
	Male	35%	38%		2.13 ns	trivial	
	n cases	1004	2629				
Clinical Issue	Mental	24%	27%	N/A	X^2 (5) = 20.57***	.006 trivial	Similar
	Relationships	32%	33%				
	Occupational	20%	16%				
	Stress	16%	14%				
	Substance	5%	7%				
	$ Legal Med.	3%	4%				

ns = $p > .05$. *** $p < .001$.

Table C.3 *Mini Study 1: Longitudinal cases (both Pre & Post data) compared to cases without follow-up data (Pre data only) on WOS measures 1-5 ratings: Averages of four select EAPs*

WOS OUTCOMES at PRE USE OF COUNSELING - RATINGS 1-5						
Groups			Comparison Results			
WOS measure at Before EAP	A Pre & Post Sample	B Pre Only Sample	Group difference as %	Test of group difference	Statistical effect size η_p^2	Comment on results
n cases	3018	2663				
Work Presenteeism	2.91 (1.40)	3.42 (1.32)	18%	$F(1,5680) = 195.20^{***}$	.033 small	A < B
n cases	3011	2663				
Life Satisfaction	3.20 (1.23)	3.09 (1.20)	3%	$F(1,5673) = 12.00^{***}$	.002 trivial	Similar
n cases	3002	2661				
Work Engagement	3.29 (1.25)	3.25 (1.28)	1%	$F(1,5662) = 1.38$ ns	.000 trivial	Similar
n cases	2715	2634				
Work Absenteeism	1.90 (1.47)	1.94 (1.39)	2%	$F(1,5348) = 1.20$ ns	< .001 trivial	Similar
n cases	2898	2663				
Workplace Distress	2.23 (1.30)	2.38 (1.33)	7%	$F(1,5660) = 19.36^{***}$	.003 trivial	Similar

ns = $p > .05$. *** $p < .001$.

Table C.4 *Mini Study 1: Longitudinal cases (both Pre & Post data) compared to cases without follow-up data (Pre data only) on WOS measures problem status (% Yes): Averages of select EAPs*

WOS OUTCOMES at PRE USE OF COUNSELING - PROBLEM STATUS (% Yes)						
Groups		Comparison Results				
WOS measure at Before EAP	Pre & Post Sample	Pre Only Sample	Group difference as %	Test of group difference	Statistical effect size η_p^2	Comment on results
n cases	2715	2634				
Work Absenteeism	28%	31%	3%	$X^2(1) = 6.32^{**}$	.001 small	Similar
n cases	3018	2663				
Work Presenteeism	46%	61%	16%	$X^2(1) = 139.13^{***}$	.024 trivial	A < B
n cases	2998	2663				
Workplace Distress	20%	23%	3%	$X^2(1) = 7.63^{**}$	.001 trivial	Similar
n cases	3002	2661				
Work Engagement	28%	29%	1%	$X^2(1) = < 1$ *ns*	.000 trivial	Similar
n cases	3011	2663				
Life Satisfaction	31%	34%	3%	$X^2(1) = 6.49^{**}$	.001 trivial	Similar

ns = $p > .05$. ** $p < .01$; *** $p < .001$.

Table C.5 *Mini Study 2: Longitudinal cases (both Pre & Post data) compared to cases lacking WOS data*

CLIENT DEMOGRAPHIC FACTORS							
	Groups			Comparison Results			
EAP Site	**Client Demographic Factor**	**WOS Pre & Post**	**No WOS Data**	**Group difference as %**	**Test of group difference**	**Statistical effect size η_p^2**	**Comment on results**
	AGE *n* cases	402	1331				
Site A	Mean years	42.21	41.05	3%			
		(11.21)	(13.00)		*F*(1,1732)	.002	
	Age < 30	14%	21%		= 7.67 *ns*	trivial	
	Age 30-39	29%	24%	N/A			Similar
	Age 40-49	28%	27%		X^2 (3) =	.007	
	Age 50 +	30%	28%		11.47***	trivial	
	SEX *n* cases	604	598				
Site A	Female	61%	59%	2%	X^2 (1) =	.0004	Similar
	Male	39%	41%		< 1 *ns*	trivial	
	SEX *n* cases	83	219				
Site B	Female	82%	86%	4%	X^2 (1) =	.003	Similar
	Male	18%	14%		< 1 *ns*	trivial	
CLINICAL ISSUES							
Site	**Clinical Issue**	**WOS Pre & Post**	**No WOS Data**	**Group difference as %**	**Test of group difference**	**Statistical effect size η_p^2**	**Comment on results**
	n cases	782	1479				
Site A	Mental Health	20%	22%				
	Relationships	33%	21%				
	Occupational	21%	8%		X^2 (5) =	.145	Different on Non-Core EAP Issues
	Stress	20%	11%	N/A	330.29***	large	
	Substance Use	6%	5%				
	Other	2%	32%				
	n cases	82	207				
Site B	Mental Health	48%	38%				
	Relationships	0%	5%			.044	
	Occupational	23%	19%		X^2 (4) =	small	Different on Non-Core EAP Issues
	Stress	20%	11%	N/A	12.87*		
	Substance Use	18%	13%				
	Other	11%	25%				

ns = $p > .05$. * $p < .05$; *** $p < .001$.

Appendix D - Mini-Study 3: Employee depression and WOS outcomes

Based in Canada, Homewood Health uses the full 25-item WOS in their Depression Care specialty clinical management program. The treatment program is designed for people who are at work, but struggling with depression. This voluntary service provides longer-term cognitive behavioral therapy (CBT) for between 12 and 20 counseling sessions as needed. This treatment is much longer than the different from traditional short-term counseling through EAP which typically has between 1 to 6 clinical sessions. Their program was profiled in last year's WOS annual report with 127 cases. The sample size has increased by 79 more cases to now be a total of 206 cases for the analysis presented below.

Objective. Normative data on the WOS from the current study was prepared as a comparison. The cases with clinical issue was split into two groups, those with depression as the issue and also for cases who had issues other than depression. Thus, three groups of employees were compared:

1. Depression Care program participants (*n* = 206);
2. EAP users with depression (*n* = 1,329); and
3. EAP users with issues other than depression (*n* = 9,793).

Methodology. As the normative WOS data used the first three items on work absenteeism (or the single item) and the other outcomes were all single items, the WOS-25 data from Homewood was re-coded to use only the first three items on absence scale as new total for absenteeism hours and to use the same single items for the other four WOS outcomes. The ratings for WOS presenteeism for the Depression Care program users were also converted to the 0-100% productivity level measure and the hours of lost productive time were calculated.

Table D.1 *Comparison of WOS scores by employees at different levels of clinical depression severity*

Outcome Measures	Score range	Better outcome if score is:	Homewood Depression Care Clinical Management Program (not EAP)	WOS Study Data	
				EAP Counseling Cases with Depression Issue	EAP Counseling Cases with Other Issues
WOS Version			25-item	5-item	5-item
Sample Size			206	1,329	9,792
Work Absenteeism	Hours	lower	14.42	> 8.57	> 6.93
Work Presenteeism	1-5	lower	3.56	= 3.57	> 3.28
Workplace Distress	1-5	lower	2.82	> 2.59	> 2.24
Work Engagement	1-5	higher	2.54	< 2.95	< 3.33
Life Satisfaction	1-5	higher	2.69	= 2.73	< 3.11
Business Impact:					
Work Productivity	0-100%	higher	58.8%	= 57.5%	< 62.7%
Lost Productive Time	Hours	lower	74.40	= 72.14	> 63.35

Results. At the start of treatment, hours of missed work, the level of distress over the workplace, and the lack of engagement in work were each greater among cases in the depression care program than in the EAP cases with depression. Yet the care management sample and EAP user group with depression issues were similar on outcomes of work presenteeism, overall life satisfaction and the presenteeism-based metrics of work productivity level and hours of LPT.

Compared to the EAP counseling cases lacking depression, the employees in the Homewood Depression Program at the start of treatment, had less healthy scores on all of the five the WOS measures, on the level of work productivity, and more hours of lost productive time.

Conclusions. These findings were largely as expected, as patients with clinically diagnosed depression had worse mental health status than employees who were in acute distress and seeking help from an EAP. Thus, the impact on work functioning should also be stronger for the clinically depressed group than for other employees. Overall, these findings are evidence of the substantial impact that depression has on work outcomes. These findings also provide evidence for the construct validation of the WOS in being able to show different levels of work outcomes in appropriate directions for certain groups of people who differed in level of clinical severity.

Appendix E - Estimating improvement in LPT among matched non-users of EAP

In the WOS study data, there was no control group of other similar employees who were equally distressed but did not use EAP. Thus, we do not know how much a similarly distressed employee who did not use EAP counseling would fare in reducing their level of unproductive time. One internal EAP program at the public employees of the State of Colorado conducted a study of their employees using a quasi-experimental research design (Richmond et al., 2015; Richmond & McCann, 2015). It featured longitudinal data collected before and after use of the EAP (at 4-months later; *n* = 158) and from a matched comparison group (at baseline and again at 8-months later; *n* = 188). The work outcomes were assessed on the original WOS measures of absenteeism, presenteeism and workplace distress (5-item versions). The study also assessed clinical outcomes for behavioral health risk factors of depression, anxiety and alcohol misuse (Richmond et al., 2016).

The results showed that the users of the Colorado EAP had reduced their level of work presenteeism by 21%, which was significantly more than the 11% reduction in the control group. The EAP user group also had a 29% decrease in Work Absenteeism (from 15.0 hours per month at baseline to 10.7 hours at follow-up), whereas the control group had a 30% increase (from 13.0 hours per month at baseline to 16.9 hours at follow-up). For context, the typical employee working at this organization had about 9 hours of absence per month. Both groups had similar level of decrease over time in the ratings of workplace distress (-11% EAP vs. -7% Contol).

The same defaults and calculation process for LPT in this ROI model were repeated using the WOS results from the Colorado study.

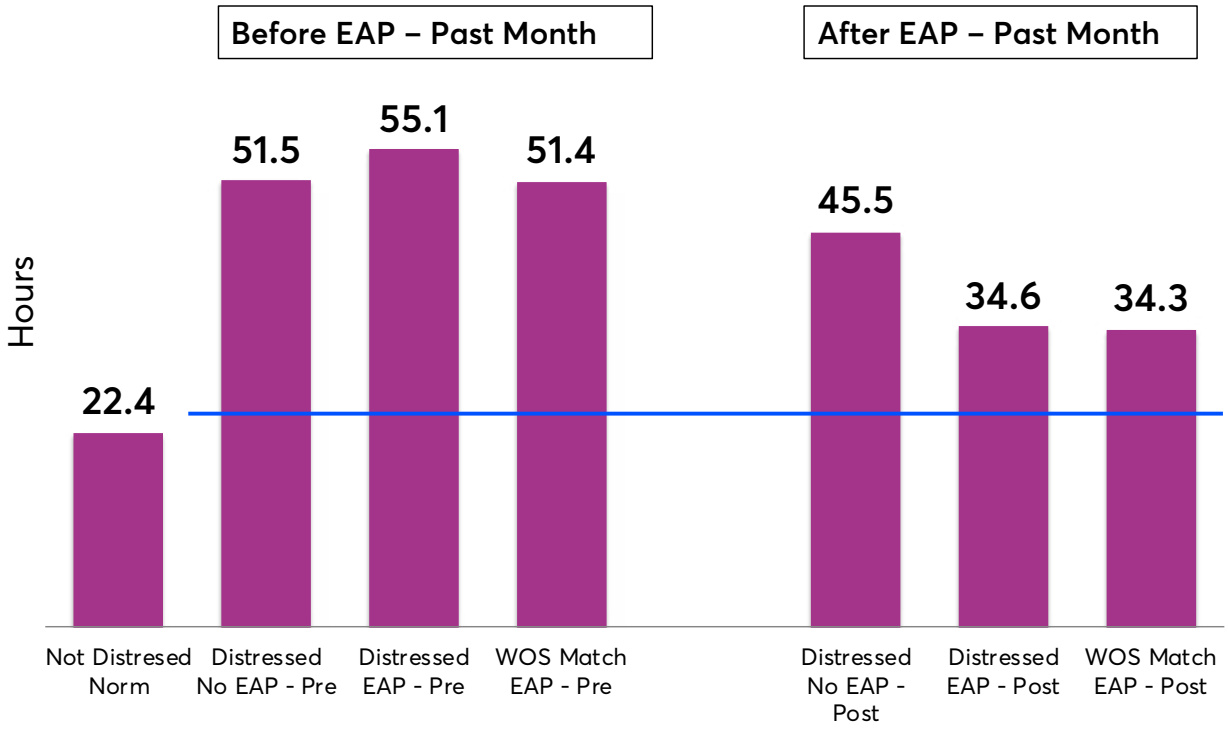
Next the WOS presenteeism averages for the 5-item scale were divided by 5 to yield the 1-5 rating. This average was then converted into a 0-100% productivity level using same scoring levels developed for this new annual report. The Colorado study rating averages for presenteeism were all between the 2 and 3 ratings. A rating of 2 corresponded to a 90% level of work productivity and a rating of 3 corresponded to a 70% level. The amount next to the decimal in the average was used as the percentage of the 20% of productive time variance between the two levels for the ratings. For example, the average of 2.81 for the control group of employees at baseline was estimated by calculating what was equivalent to 81% of the way down from 90% to 70%, which is a result of 73.8%.

The normative sample of employees who were not distressed (and did not need or use the EAP for counseling) had a rating of 1.89. Using the same logic, this equated to a 91.1% level of productive time while working. The WOS presenteeism rating of 1 = 100% productive and the WOS rating of 2 = 90% productive. So, 89% of the 10% variance between the two levels of productivity was 8.9% productivity. The 100% rating minus 8.9% = 91.1%.

The adapted WOS results for the State of Colorado employees was used to calculate the hours of lost productive time (LPT) for the three groups: (1) Typical employees, (2) Distressed employees who did not use the EAP and (3) the Distressed employees who did use the EAP. Also examined was WOS study data for similar kinds of cases - which were for other internal staff model programs in the United States. This was a sample of 4,458 cases (which is about 30 times the size of the Colorado study EAP group).

The findings are shown in Figure E.1. The data revealed that the typical employee at the Colorado study who was healthy and did not need to use the EAP had an estimated 22 hours of LPT per month. The typical employee at the Colorado study who was distressed but did not choose to use EAP had an estimated 52 hours of LPT per month - which changed over a period of eight months later to be 46 hours of LPT. The typical employee at the Colorado study who was distressed but did choose to use EAP for counseling had an estimated 55 hours of LPT per month - which changed over a period of 4 months later to be 35 hours of LPT. For comparison, the typical employee user of internal EAPs in the US who was distressed had an estimated 51 hours of LPT per month - which changed over a period of 4 to 6 months later to be 34 hours of LPT.

Figure E.1 *Hours of lost productive time (LPT) in past month three groups of employees in State of Colorado EAP Study*

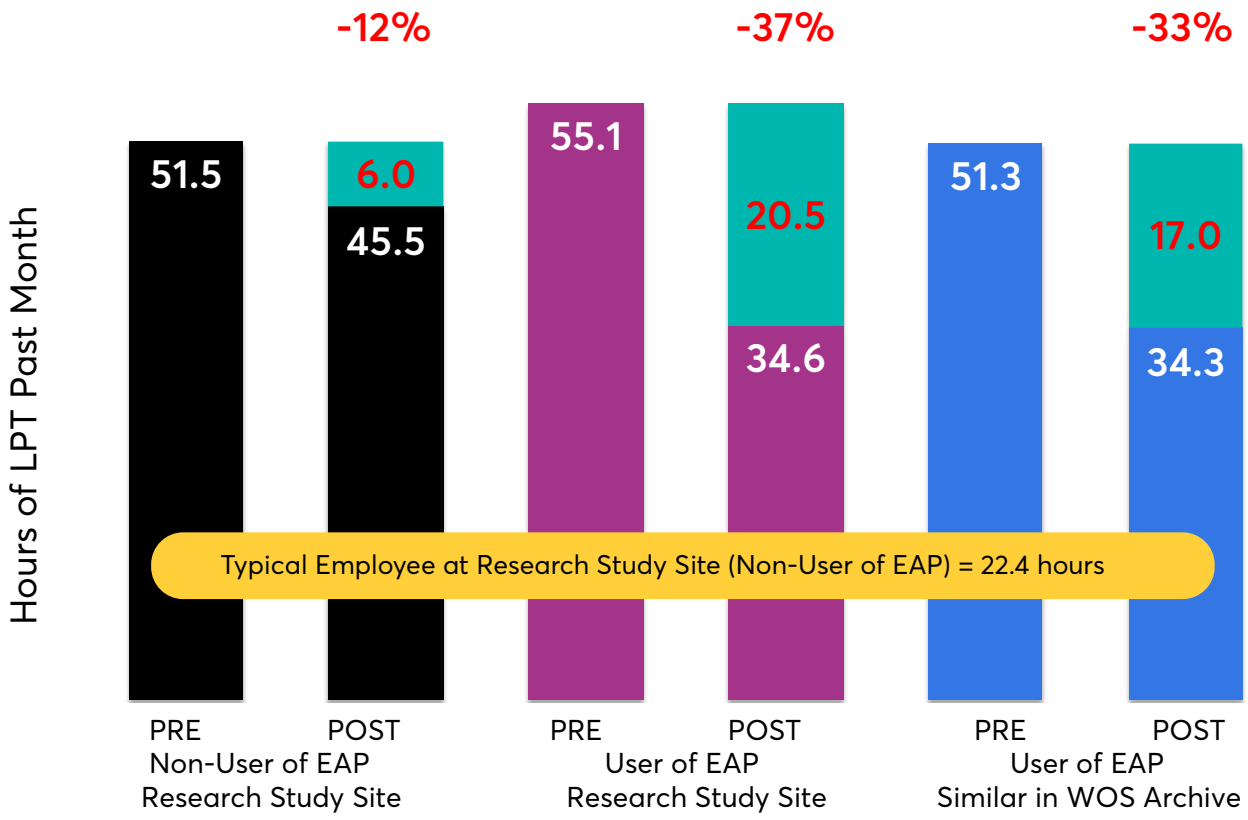


The key results are show in Figure S2. We found that the relative change over time between the groups was as follows:

12% reduction in LPT for Distressed Non-Users of EAP Study Group
37% reduction in LPT for Distressed User of EAP Study Group
33% reduction in LPT for Distressed User of EAP - WOS Norm Data

The relevant non-user group of employees who did not use the EAP achieved only about one-third of the extent of improvement over time compared to the average to the two EAP user groups.

Figure E.2 *Comparison of extent of reduction from pre to post in three groups of employees for hours of lost productive time (LPT) in past month in State of Colorado EAP Study*



Matched Non-Users of EAP = 12% Reduction in LPT

---------- = Non-EAP only 1/3 as effective as EAP

EAP Users Average 37% + 33% = 35% Reduction in LPT

This literature-based finding can be applied to the ROI model to reduce the outcome of hours of LPT avoided by EAP use by 33%. This was done as an attempt to remove a portion of the key outcome that may have occurred over time for other causes unrelated to the EAP counseling.

Table E.1 *WOS results adapted from published study featuring a quasi-experimental longitudinal study design and compared normative results from similar sample this report of Internal EAPs in United States*

	State of Colorado Employees (US)			WOS (US) Internal Programs - Distressed Employee Users of EAP Counseling
	Group A: Healthy Employee at Same Employer	Group B: Distressed Employee Matched Not Users of EAP [a]	Group C: Distressed Employee Users of EAP Counseling [b]	
Version of WOS	25	25	25	25
Sample Size *n*	2,903	188	152	4,428
Work Absenteeism (hours)				
Before EAP	9.19	13.02	15.15	6.97
After EAP	NA	16.90	10.70	3.31
Difference		+3.92	-4.45	-3.66
% Change		+30%	-29%	-53%
Work Presenteeism (1-5)				
Before EAP	1.89	2.81	2.88	2.95
After EAP	NA	2.50	2.30	2.49
% Change		-11%	-20%	-16%
Productivity Level While at Work (WOS presenteeism 1-5 average converted to 0-100%)				
Before EAP	91.1%	73.8%	72.4%	71.0%
After EAP	NA	80.0%	84.0%	80.2%
Work Presenteeism (hours)				
Before EAP	13.42	38.51	39.98	44.38
After EAP		28.62	23.89	31.02
Difference		-9.89	-16.09	13.36
% Change		-26%	-40%	-31%
Productivity Level Total (deduct % time lost for absenteeism and presenteeism from 100%)				
Before EAP	86%	68%	66%	68%
After EAP	86%	72%	78%	79%
Lost Productive Time (hours from 160 standard work month)				
Before EAP	22.42	51.53	55.13	51.35
After EAP	22.42	45.52	34.59	34.33
Difference	0	-6.01	-20.54	-17.01
% Change	0	-11.7%	-37.3%	-33.1%
		31.3% of EAP		

[a] = follow-up at average of 7.9 months after Pre data collected.

[b] = follow-up at average of 3.7 months after Pre data collected at start of counseling (average 2.8 sessions). EAP clinical issue mix: 35% personal relationships; 19% psychological; 13% work; 8% substance; 15% other; and 10% no show or cancelled and who did not actually participate in EAP counseling.

[c] = follow-up assumed at 4 to 5 months after start of counseling. Also WOS absenteeism adjusted data if had 5-item full scale to use first three items only. However, only 4% of these cases were relevant as 96% of this group used WOS-5 brief version with single item for work absence hour.

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