Measuring Employee Productivity:

A guide to self-assessment tools

2001 Edition

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We thank the developers of each tool, who were generous with their time and information. Their work made this guide possible. All were kind enough to respond to our numerous requests and share openly with their experiences and data.

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We thank the forward-thinking organizations that provided partial funding to keep the project moving forward. Eli Lilly was instrumental in getting work started through the efforts of Michael Morgan; and Schering-Plough facilitated its completion through the efforts of John Herrick and Robyn Peters.
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Part I: Background
Introduction

Measuring Worker Productivity

To identify the relationship between health issues and work productivity, performance measures must reflect specific aspects of work output, at a specific point in time, for a specific person. However, only a few modern jobs require workers to perform repetitive tasks that we can count or track easily. Unless an employee works in a production or service setting—on an assembly line, in a call center, or in a delivery truck—he or her hourly or daily accomplishments may be intangible or possibly invisible. Even in industries where employee performance can be tracked objectively, companies often lack reliable systems to capture and review such data.

In addition, historic proxies for overall performance (such as promotions or pay raises) lack the detail necessary to connect a health event with a worker’s ability to perform.

Without defined business criteria and established metrics to monitor daily work output and individual performance, researchers must rely on other data sources—and are often left with few and usually unsatisfactory options for estimating individual work performance and its relationship to personal health. An obvious alternative is asking employees to self-rate their own performance.

This guide presents and reviews seven self-assessment instruments that have been or are currently being used in a research setting to estimate work performance and detect the effects of health on performance and productivity. The tools reviewed here represent those in use or in the process of serious validation as of the Spring of 2001. However, in such a rapidly growing field, this assessment guide will inevitably become outdated soon after its release. For example, readers should note that, for several of the instruments, additional work is underway to validate the tools or to apply them in disease-specific situations. This guide will be updated periodically to reflect changes in the instruments being used for research purposes. The Institute for Health and Productivity Management (IHPM) also intends to keep an updated record of information on its website, www.ihpm.org.

Identifying Measurement Instruments

The instruments described in this guide were identified through literature searches, contact with researchers in related fields, and discussions with employers. The authors found no consistent labels or terms with which to identify or locate these tools, nor any previously published list of tools. Consequently, while the most widely used assessments are probably included in this guide, it is possible that some measurement instruments have been overlooked. In addition, developers of three other tools declined an offer to be included in this review. Finally, only tools available in the public domain were included and reviewed. Future versions of this guide may include commercially available instruments as well as those in the public domain.
How to Choose a Tool

This guide can be used simply to learn about self-assessment of work performance or to help users choose the best tool(s) for their specific purposes.

Research has shown that no single tool is the best choice for all purposes, but some will have advantages over others for certain jobs, health conditions, or assessment needs. In addition, some situations will require specific types of questions, while other assessment decisions will be made based on practical considerations such as easier-to-complete measurement instruments with fewer items. This guide describes several different tools, identifies the health factors addressed in each, provides information and instructions for their use, and rates them in a number of areas; e.g., according to how well they measure various productivity elements and the degree to which they have been documented and tested.

As readers use this guide and choose a self-assessment tool, they may find it helpful to consider the following points:

**Answering the Main Question**

- **Is the purpose of the self-assessment to describe, compare or detect changes in the relationship between health and productivity?**

**DESCRIBE.** If the purpose is to describe ways in which a health issue affects performance, it may be helpful to administer the most comprehensive assessment possible, with the widest range of work performance attributes.

**COMPARE.** If the purpose is to compare the impact of several health conditions on performance, it is important to include domains of performance that have the best chance of differentiating among the various health conditions. For instance, some projects may focus on physical impairment, while others focus on social impairment. The time period should reflect a meaningful timeframe for all the comparison conditions. It might also be helpful to know whether the assessment has been used for multiple conditions in the past—and whether it has validly detected divergence. Also, the outcome (such as percent of time lost versus degree of impairment) should meet the needs of the intended audience.

**DETECT CHANGE.** If the purpose is to detect a change in performance over time, the tool should be sensitive enough to find the expected differences. If sensitivity has not been reported by the authors, researchers may want to look at the response options; e.g., whether options include “sometimes,” “often,” and “never” versus a number between 1 and 100, and the way the assessment is scored to see if small changes are likely to be detected. More items usually mean a more reliable estimate. The period of recall (such as 7 or 14 days) should reflect a timeframe for which a change in symptoms or conditions is meaningful.

This type of assessment could also ask about a longer time period (such as a month) to capture a wider window of potential effects.
Identifying the Health Issue

Depending on the health issue(s) under investigation, different tools may be more or less helpful. If the health condition involves musculoskeletal pain, physical aspects of work may be most important. If a medical treatment causes drowsiness, items measuring mistakes, accidents, or concentration may be most important. Conditions may have symptoms that are episodic or chronic, static or variable. In each case, the tool should take into account the ways in which the condition is expected to interfere with an employee's ability to work. In some cases, questions about "how often" work was affected may be less important than "how much" it was affected.

Considering the Job

The chosen self-assessment should represent important aspects of the employee's job. This includes the obvious dimensions of the work, such as physical effort, social interactions, memory or concentration. It also considers which types of work impairment are most problematic. For example, some jobs involve high risks if a person is fatigued or distracted (bus drivers), others do not. Some jobs require the use of replacement workers (police or teachers) when a person misses work because of a health issue, others do not. Whatever the occupation, certain aspects of work performance will be affected.

Including Other Data Sources

Other sources of data may be available for one or more aspects of work performance. A company may keep good records of on-the-job accidents or injuries so that it isn't necessary to rely solely on self-assessments of mistakes. A company may have records of illness absences, but not work output. In that case, self-reports of absences are less helpful. Or, absenteeism may be available for hourly workers, but not salaried workers. When other sources exist, researchers can decide whether those sources should be used instead of self-assessments—or whether there is value in collecting both sources in order to validate the self-report.

Taking Psychometric Testing into Account

Some assessment tools have been tested for reliability and validated to a greater extent than others. Those having good information about validity and reliability allow users to understand how accurate and consistent the answers will be. Well-established tools such as the SF-36 have been tested extensively enough to know that a better physical health score correlates very well with objective indicators of better physical health. Tools that have not been validated may or may not be accurate indicators of what they are intended to measure. Some of the tools in this guide have not been thoroughly tested yet. Some have testing underway. (Note: Information about psychometric testing and validity ratings are included beginning on page 40 of this guide.)
Reviewing Published Studies

Depending on the intended audience for the results, evidence that the tool has been used successfully in a published study can add credibility to subsequent findings. A study published in a peer-reviewed journal is advantageous because it had to pass some form of scientific scrutiny from a team of reviewers. A published study indicates that reviewers had some comfort with the measures used. Published studies also provide an indication of how the tool was used previously, based on the setting, the occupations, the health conditions, and the timing of multiple assessments. These can be useful in determining the potential uses of the tool.

Using this Guide

Information about assessment instruments is divided into four sections: Part II covers tool descriptions, tool comparisons, and psychometric review. The actual questionnaires and instructions for use are included in Part III.

PART II, SECTION A

This section provides a detailed description of the specific tools. Included is information about the tool developers, details about content, types and numbers of items, amount of time it takes to administer, intended uses, current uses, stage of development, and validation sources.

PART II, SECTION B

The matrices in this section provide information about the general areas of productivity measured and specific productivity items. This section compares the various assessments, and allows readers to quickly identify assessments that include items of a specific type.

PART II, SECTION C

This section provides psychometric reviews and includes information about the degree to which a tool has been tested for reliability and validity, with a rating reflecting the amount of documentation available and the level of rigor utilized.

PART III

Part III includes the actual questionnaires along with specific guidelines about the use of each tool. These questionnaires have been provided with the permission of, and kind cooperation from, the developers. The guidelines may include directions for scoring, special versions of the tools themselves, and requests from the authors about sharing results.
Part II: Health & Productivity Measurement Tools

Section A: Descriptions of Instruments

1. Endicott Work Productivity Scale (EWPS)
2. Health and Labour Questionnaire (HLQ)
3. MacArthur Health and Performance Questionnaire (MHPQ)
4. SF36
5. Stanford/American Health Association Presenteeism Scale (SAHAPS)
6. Work Limitations Questionnaire (WLQ)
7. Work Productivity and Activity Impairment Questionnaire (WPAI)
Endicott Work Productivity Scale (EWPS)

Background Information

1. Instrument Name
   Endicott Work Productivity Scale (EWPS)

2. Developer(s)
   Jean Endicott, PhD
   Department of Research Assessment and Training
   New York State Psychiatric Institute
   1051 Riverside Drive
   New York, New York 10032
   Phone: 212-543-5536
   Fax: 212-543-5386
   E-mail: je10@columbia.edu

3. Owner(s)
   Department of Research Assessment and Training
   New York State Psychiatric Institute
   1051 Riverside Drive
   New York, NY 10032

4. Funder(s)
   • Pfizer Inc
   • New York State Office of Mental Health
   • National Institute of Mental Health

Descriptive Information

5. Intended Use(s)
   • Assessing attitudes and behaviors that affect work performance and efficiency
   • Designed to be sensitive to the effects of various disorders (primarily depressive/anxiety disorders) and the efficacy of different therapeutic interventions
   • Intended for pharmaceutical company investigators and others who wish to evaluate changes in work productivity

6. Intended Users
   Primarily for clinical trials of various interventions including, but not limited to, drug therapies, and their impact on worker performance.

7. Current Users
   • Parke Davis
   • Pfizer Inc
   • Harvard Study on Work and Health
   • U.S. Navy
   • Eli Lilly

8. Targeted Populations
   Subjects with a wide variety of mental and medical disorders, working in a wide variety of job settings, including self-employment. Designed to be sensitive to sub-threshold symptoms.

9. Availability
   Copyrighted tool charging a basic fee per user for commercial use. Accessed through an unrestricted license arrangement.
10. Stage of Development
- Concept
- Validation ✔ Beta testing

This instrument has undergone minimal validity testing. It has not yet been beta tested in an employer setting. It is available for use, but without additional psychometric and beta testing, we consider it to be in the beta testing stage.
- Market ready

11. Number of Items/Questions
- Twenty-seven items
- Completion time: Approximately 5 minutes

12. Data Capture Technology
- Paper and pencil, self-report
- Also suitable for IVR but not yet available

13. Report/Output Format
- There is no standard report format
- Questions have five possible answers including: "never," "rarely," "sometimes," "often" and "almost always"
- Scoring ranges from 100 (worst possible score) to 0 (best possible score)

14. Recall Timeframe
- Past week

15. Reference Points for Productivity Questions
- All productivity questions use a five-point scale from "never" to "almost always"
- Four questions ask the respondent to rate productivity in relationship to their "expected" work performance.

16. Science Base
The instrument covers the following productivity areas: Attendance (absenteeism, time on task), quality of work, performance capacity, and person factors (social/mental/physical/emotional).

17. Validation Sources
- Reliability and validity have been tested in one study conducted with 42 patients of the Depression Evaluation Service (an outpatient facility of the New York State Psychiatric Institute) and 66 community subjects.
- Test-retest reliability (the ability of the instrument to measure accurately over time) was conducted on a sample of 16 patients and found, in this sample, to be high.
- Validity was tested by comparing the EWPS total scores with other, accepted measures of severity of illness including: HAM-D, Global Clinical Index of Severity, and SCL-90. The Zimmerman score was also used for the community subjects.
- The correlation scores indicate that the EWPS has validity as a measure of the severity of illness.
- The EWPS performance items were not validated against other performance or productivity standards.

18. Specific Applications
Not available

Endicott Work Productivity Scale (EWPS)
19. **Instrument Flexibility Across Populations**
   - The instrument items seem appropriate for a wide variety of occupations and industries including: salaried and non-salaried, self-employed or employed by a company.
   - Varied use of the instrument across industries and occupations is required to determine actual flexibility.

20. **Strengths**
   - Brief
   - Covers a range of performance indicators

21. **Weaknesses**
   - Minimal psychometric testing to date
   - Lack of normative data for comparisons
Health And Labour Questionnaire (HLQ)

Background Information

1. Instrument Name
   The Health and Labour Questionnaire (HLQ)

2. Developer(s)
   Erasmus University Rotterdam
   Institute for Medical Technology
   PO Box 1738
   3000 DR
   Rotterdam, The Netherlands
   Phone: +31 10 408 85 33
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   Academic Medical Centre:
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   Rotterdam, The Netherlands

4. Funder(s)
   Institute for Medical Technology Assessment
   Erasmus University Rotterdam
   PO Box 1738, 3000 DR
   Rotterdam, The Netherlands

Descriptive Information

5. Intended Use(s)
   • Collecting quantitative data on the relationship between illness and treatment and work performance
   • Permits the estimation of production losses (costs) of paid and unpaid labor
   • Contains an indicator for impediments for paid and unpaid labor, which is one of the indicators for quality of life

6. Intended Users
   The instrument has been used in several studies across different populations.
   • A representative sample of the general population
   • Patients with migraine
   • Patients with hip or knee problems
   • Patients with a growth hormone deficiency

7. Current Users
   The study focused on the cost-effectiveness of three treatments for depressed and anxious patients by the Department of Health Policy and Management and the Institute for Medical Technology Development.

8. Targeted Populations
   Broadly focused on people with illness/disabilities in both the general population and the workforce. The inclusion of the general/non-working population is possible because two of the four modules focus on unpaid work and impediments to unpaid labor.
9. Availability

The questionnaire rights are reserved by the Institute for Medical Technology Assessment of Erasmus University. Permission to use the HLQ is obtained through a licensing arrangement. Permission must be obtained for each project or study. No financial conditions are associated with the permission. The questionnaire is available in Dutch, English, Swedish and French.

10. Stage of Development

- Concept ✔
- Validation
  
  This instrument has been moderately tested to determine validity. No testing of the direct relationship between this instrument and objective worker productivity measures has been done. Also, there has been no broad testing of the instrument in large employer populations. Therefore, we consider the HLQ to be in the validation stage.
- Beta testing
- Market ready

11. Number of Items/Questions

- The HLQ is divided into 4 modules including: absence from work, reduced productivity at paid work, unpaid labor production, and impediments to paid and unpaid labor.
- There are 23 questions overall. Eleven questions are related specifically to issues of productivity and six questions are related to respondent characteristics, including chronic conditions and illnesses.
- Completion time for productivity questions is approximately 10-15 minutes.

12. Data Capture Technology

- Paper and pencil, self-administered following written instructions
- Paper and pencil, self-administered following telephonic instruction
- Interview/verbal version is being tested

13. Report/Output Format

Each individual user of the HLQ conducts the scoring. There is no general report format. Each of the four modules has its own scoring algorithms. Users may generate reports in whatever format serves their needs.

The instrument is made disease-specific by adding an item on the absence module regarding ability to perform work due to the specific condition. Plus an additional question is added which asks about the beginning date of the illness period. Summary scores that are useful for before/after measures and comparisons between groups include:

- Days of absence
- Hours of efficiency loss (mean number of hours of production lost per year due to production losses without absences)
- Efficiency score (based on specific problems related to reduced productivity on the job; e.g., concentration, work pace, and decision making). Efficiency rating ranges from 6 [least work impediments] to 24 [most work impediments]
- Productivity loss valuation provides a quantitative estimate of on-the-job production losses based on mean hourly income

Health And Labour Questionnaire (HLQ)
14. Recall Timeframe
   Previous 2 weeks

15. Reference Points for Productivity Questions
   • Based on their own job performance
   • Also based on a four-point scale from “almost never” to “almost always”

Scientific Information

16. Science Base
   Established HLQ requirements:
   • It must produce data on the economic effects of illness on labor performance from a social perspective.
   • It must produce data on the effects of health on paid and unpaid work.
   • The format must allow for application in a broad range of diseases, both acute and chronic.
   • The questionnaire must be suitable for self-assessment by patients.
   • The questionnaire must be modular so users can omit questions that are not applicable to the study population.

   The HLQ can be made disease-specific by discriminating between a target disease and other health problems.

   Scoring:
   • Each of the four modules has its own unique scoring method.
   • The reduced productivity module consists of eight questions.
   • Six of the questions are structured on a four-point scale from “almost always” to “almost never,” resulting in a scoring range of 6 – 24.

   One question values lost productivity based on the respondent’s information about net income and is valued at the mean hourly income level.

17. Validation Sources
   • Reliability analysis is not available due to insufficient data.
   • Construct validity was studied for both the absence and reduced productivity modules. Absence validity was compared against data from the Central Bureau of Statistics. Absence due to migraine validity was compared against the results of a study from the United Kingdom.
   • Production losses due to reduced productivity are estimated using an approach by Osterhaus called the descriptive efficiency score. (Osterhaus, J.T. et al. Health care resources and lost labour costs of migraine headache in the U.S. Pharmaco Economics, 1992, 67-76.)

   This method multiplies the number of working days impeded by health problems with the self-estimated level of performance. Correlations between the HLQ approach and the Osterhaus approach were found to be low.

18. Specific Applications
   The HLQ may be used for economic evaluations, as part of clinical trials, and to measure changes over time in production loss.
19. **Instrument Flexibility Across Populations**
   - The instrument is general enough in nature to be applicable to a range of industries, ages, occupations, and salaried versus hourly employees. Information about the instrument's adaptability is not available.
   - It also incorporates information about unpaid work, primarily household activities.

20. **Strengths**
   - Inclusion of chronic diseases
   - Addresses both hourly and salaried occupations
   - Uses a 2-week recall time period

21. **Weaknesses**
   - Somewhat long to administer the full instrument
   - Absence questions are somewhat confusing
   - Limited items specifically related to on-the-job productivity
   - Limited psychometric testing
1. Instrument Name
MacArthur Health and Performance Questionnaire (MHPQ)

2. Developer(s)
Harvard Medical School
Department of Health Care Policy
180 Longwood Ave.
Boston, MA 02115-5899
Phone: 617-432-3587
Fax: 617-432-3588
E-mail: kessler@hcp.med.harvard.edu
Ronald C. Kessler, PhD
Catherine Barber, MPA
Lisa LeRoy, MBA
Philip S. Wang MD, DrPH

3. Owner(s)
Public use instrument

4. Funder(s)
John D. and Catherine T. MacArthur Foundation

Descriptive Information

5. Intended Use(s)
• This instrument provides self-rated information on four dimensions of work functioning plus open-ended questions about big successes and big failures at work.
  - The four dimensions are sickness absence, quantity of work, quality of work, and interpersonal relations at work.
  - The MHPQ is designed to provide validated global ratings of the main dimensions of work performance that can be collected briefly. It can be used both in employee surveys and in clinical trials to study associations between illness and broad dimensions of work performance.
  - Survey data can be used to put a monetary value on the indirect cost of lost productivity due to health conditions and to derive health benefits to meet the needs of employees. The instrument allows employers to measure how much productivity gain that is achieved through treatment.
  - The instrument allows employees to measure the productivity gain that is achieved through treatment.
  - The instrument allows employees to measure the productivity gain that is achieved through treatment.
  - The instrument allows employees to measure the productivity gain that is achieved through treatment.

6. Sections:
- Company background
- Health behavior
- Health conditions
- Condition-specific modules
- Work productivity
- Workload
- Occupational stress
- Health care services utilization
- Demographics and finances

The instrument allows employees to measure the productivity gain that is achieved through treatment.
A number of items from existing instruments are incorporated into the MHPQ including:

<table>
<thead>
<tr>
<th>Instrument Sections</th>
<th>Modules/Questions Incorporated into the Tool from Other Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Background</td>
<td>N/A</td>
</tr>
<tr>
<td>Health Behavior</td>
<td>N/A</td>
</tr>
<tr>
<td>Health Conditions</td>
<td>The chronic conditions checklist was based on the U.S. health interview survey which identifies the ten most commonly reported chronic conditions in the population, and also uses the World Health Organization (WHO) list.</td>
</tr>
<tr>
<td>Condition-Specific Modules</td>
<td></td>
</tr>
<tr>
<td>Cancer</td>
<td>N/A</td>
</tr>
<tr>
<td>Irritable Bowel Syndrome</td>
<td>A diagnostic screen developed by Bruce Lydiard, USC</td>
</tr>
<tr>
<td>Migraine</td>
<td>A screen developed by the International Migraine Association</td>
</tr>
<tr>
<td>Neurasthenia (fatigue)</td>
<td>Screening version from the World Health Organization’s Composite International Diagnostic Interview (CIDI)</td>
</tr>
<tr>
<td>Sleep Problems</td>
<td>A screen developed by Tom Roth, Henry Ford Hospital</td>
</tr>
<tr>
<td>Allergy</td>
<td>N/A</td>
</tr>
<tr>
<td>Arthritis</td>
<td>Modified Mactar Activities of Daily Living Screen and Von Korff Pain Scale</td>
</tr>
<tr>
<td>Depression</td>
<td>Screening version from the World Health Organization’s Composite International Diagnostic Interview (CIDI)</td>
</tr>
<tr>
<td>Generalized Anxiety Disorder</td>
<td>Screening version from the World Health Organization’s Composite International Diagnostic Interview (CIDI)</td>
</tr>
<tr>
<td>Panic Attacks</td>
<td>Screening version from the World Health Organization’s Composite International Diagnostic Interview (CIDI)</td>
</tr>
<tr>
<td>Work Productivity</td>
<td>N/A</td>
</tr>
<tr>
<td>Workload</td>
<td>N/A</td>
</tr>
<tr>
<td>Occupational Stress</td>
<td>Selected questions from the NIOSH Generic Job Stress Questionnaire; measures task and decision control, workload and responsibility for people</td>
</tr>
<tr>
<td>Health Care Services Utilization</td>
<td>N/A</td>
</tr>
<tr>
<td>Demographics and Finances</td>
<td>N/A</td>
</tr>
</tbody>
</table>
6. Intended Users

Intended users are researchers conducting general population surveys or clinical studies.

7. Current Users

This instrument is currently being used in 3 major studies:

• The Harvard Survey on Health and Work. This is a telephone survey of 1000 employees in each of 6 large corporations who are reporting on their health and health care, completing the MHPQ, and providing background socio-demographic data. Objective information on sickness absence and productivity are being linked to the self-report MHPQ data. Sub-samples of respondents with sentinel conditions are being re-interviewed 90 days after the baseline interview and are participating in an experience-sampling assessment of moment-to-moment work performance during the week prior to the re-interview.

This study’s goals are both substantive and methodological. The substantive goals are to obtain:

1) Cross-sectional information on the magnitudes and rank-ordering across conditions and of associations between commonly occurring conditions and work performance, and

2) Longitudinal information on the relationships between changes in the sentinel conditions’ symptom severity and changes in work performance.

The methodological goal is to calibrate the MHPQ in relation to objective measures of work performance.

• The U.S. National Comorbidity Survey (NCS). The NCS is a face-to-face health survey being carried out in 2000-2001 with a nationally representative sample of 20,000 households in the continental U.S. This includes an over-sampling of minority households.

One of the substantive goals of the NCS is to provide data on the relative effects of commonly occurring chronic conditions on role functioning and well-being. The MHPQ is one of the instruments being used to assess role functioning.

• The World Health Organization (WHO) WMH2000 Survey. WMH2000 is a face-to-face health survey comparable in content to the NCS. The WHO conducts this survey in 25 countries around the world, with a combined sample size in excess of 120,000 respondents. The MHPQ is the instrument being used to assess work role functioning in this survey.

In addition to these three studies, the MHPQ is the main measure of work role functioning in an effectiveness trial by the Harvard Study on Health and Work, which is being conducted to evaluate an aggressive outreach and treatment program for workers with major depression. The Harvard Study on Health and Work is also currently doing pilot work for two potential effectiveness interventions focusing on the detection and treatment of workers with other chronic conditions. The MHPQ is one of the primary outcomes measurement tools in both pilot programs.
8. Targeted Populations
   Employed adults

9. Availability
   The MHPQ is in the public domain. Wide use is intended and anticipat-
   ed in order to produce both national and international normative data.
   The questionnaire has been translated into all major European
   languages plus Chinese, Japanese, Russian, Hebrew, Arabic, and
   several African dialects.

10. Stage of Development
    • Concept ✔
    • Validation
      Several large studies are currently underway to address validity and
      other psychometric properties of this instrument.
    • Beta testing
    • Market ready

11. Number of Items/Questions
    • Specific work productivity questions: 30
    • Completion time for productivity questions: Approximately 20 minutes

12. Data Capture Technology
    • Currently conducted by phone interview
    • Pilot phase includes IVR technology

13. Report/Output Format
    Condition-specific modules include:
    • Cancer
    • Irritable bowel syndrome
    • Migraine
    • Neuroasthenia (fatigue)
    • Sleep problems
    • Allergy
    • Arthritis
    • Depression
    • Generalized anxiety disorder
    • Panic attacks
    Note: condition modules are not included in the version shown in
    Part III of this guide.

14. Recall Timeframe
    Recall periods are either one month or one week prior to the interview,
    based on the specific question.
    Often a question asks the respondent to recall the past 30 days and
    then follows up with questions focusing on the previous 7 days.

15. Reference Points for Productivity Questions
    • Worst to best job performance (1-10) based on anyone who had
      that job
    • Usual job performance of most workers on that job (1-10)
    • Person’s usual job performance (1-10)
    • How much of the time productivity was lower/higher
      than expected (a little of the time – all of the time)
    • How many days productivity was lower than expected

Scientific Information

16. Science Base
    • Theoretical Model. The majority of items in the MHPQ are based
      on a human capital model in which an attempt is made to
      classify respondents on a series of 0-100 performance scales that can
      be weighted, summarized, and monetarily valued in relation to
      the respondent’s earnings.
Additional questions dealing with topics such as industrial accidents, important failures and important successes are also included to indicate behaviors that could be influenced by ill health and that go beyond the earnings of individual employees.

• **Methodological Approach.** These questions begin with an assessment of time at work over a recall period (one month and one week), including days of missed work, days of reduced hours at work, and days of working overtime.

The remaining questions focus on behavior during hours at work. Separate Likert-scaled questions are asked about quantity of work, quality of work, and interpersonal relations at work. Open-ended questions are asked about big successes and big failures at work.

• **Item Response Theory (IRT) Scaling Model.** This is used to generate scale scores that allow for variation in both item slopes and thresholds across occupational sectors. Transformation scores of regression-weighted IRT scale scores are used to calibrate self-reports to external validation criteria.

17. **Validation Sources**

Question 7, *Current Users,* describes the studies underway to validate the MHPQ.

18. **Specific Applications**

- Intended for use in clinical trials to assess the productivity loss or gain associated with treatment for various health conditions. One application will be the testing of sedating and non-sedating antihistamines on the productivity of individuals with allergies.
- To compare the impact of specific health conditions on the productivity of individuals in different types of jobs. For example, does arthritis cause more work impairment among manual laborers than among knowledge workers?
- Age and gender effects related to health conditions and their impact on productivity will also be examined.

19. **Instrument Flexibility Across Populations**

- The MHPQ questions are designed to be general enough in nature to apply to the majority of occupations in the labor force. Questions about specific activities that might be more relevant to certain jobs, e.g., lifting, were avoided in order to minimize differential validity across different sectors of the labor force.
- Validation is being carried out separately in 6 different occupational sectors and, in the future, will include a broader array of sectors in order to evaluate the possibility that the broad-gauged questions differ in sensitivity across these subgroups. Identified differences will be addressed through the development of occupation-specific calibration rules.
20. Strengths

- Strong scientific methodology
- Major (potential) validation studies
- Potential for sizeable national and international norms
- Broad focus on many dimensions (physical, mental, social, emotional)
- Incorporates many different ways of measuring performance
- Attempts to quantify negative outcomes
- Incorporates many chronic conditions, health status, and utilization measures
- Available in many languages

21. Weaknesses

- Not yet validated either in the field or clinically
- Current version is very long
SF36

Background Information

1. Instrument Name
   SF36

2. Developer(s)
   The Health Institute
   New England Medical Center
   Box 345
   750 Washington Street
   Boston, MA 02111
   John E. Ware, Jr., Ph.D.
   Phone: 401-334-8800
   E-mail: jware@qmetric.com

3. Owner(s)
   Medical Outcomes Trust
   PO Box 1917
   Boston, MA 02205

4. Funder(s)
   • Henry J. Kaiser Foundation
   • RWJ Foundation
   • Pew Charitable Trust

Descriptive Information

5. Intended Use(s)
   • Measure functional status and well-being
   • Monitor results of clinical care
   • Evaluate burden of various chronic conditions
   • Clinical trials of medical treatments

6. Intended Users
   English and Spanish-speaking adults.

7. Current Users
   This is an ubiquitous measurement tool used across all health care industry sectors.

8. Targeted Populations
   • Broadly based
   • Most health risk assessments now incorporate some SF36 items
   • Appears equally appropriate for salaried and hourly workers

9. Availability
   • Public domain
   • Questionnaire also available in versions for the U.K. and for Mexican-Americans

10. Stage of Development
    • Concept
    • Validation
    ✔ Beta testing
    Market ready
    Available for over a decade and used by thousands of health care organizations, this instrument is the reference standard for measuring functional status.

11. Number of Items/Questions
    • 36 items on the SF36 and 12 on the SF12
    • Eight items on the SF36 specifically related to productivity
    • Completion time: Approximately 6 minutes

12. Data Capture Technology
    • Paper and pencil
    • Telephone interview
    • Web-based
13. Report/Output Format
   • Percentiles
   • 0-100 point scales for each of nine content areas
   • Scoring algorithms offer wide range of scoring options and methods for comparing SF36/12 data against other variables
   • Comparisons with a wide variety of norms; e.g., age, sex, condition-specific

14. Recall Timeframe
   Past 4 weeks

15. Reference Points for Productivity Questions
   Based on the person's own work experience, using a yes/no response format

Scientific Information

16. Science Base
   • Nine topical areas are covered: physical function, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, mental health, reported health transition
   • Raw data is converted to 100 point scales for each topical area
   • Algorithms aggregate and produce scores

17. Validation Sources
   • Validation guidelines are derived from the American Psychiatric Association, American Educational Research Association, and National Council on Measurement in Education
   • Content validity is established through comparisons with other survey instruments and correlational studies

18. Specific Applications
   • Monitor population health
   • Estimate the burden of various health conditions
   • Determine clinical efficacy of treatments
   • Monitor outcomes in clinical practice

19. Instrument Flexibility Across Populations
   Across all industries, occupations and ages

20. Strengths
   • Considered the gold standard of functional status
   • Available as a public domain instrument
   • Focuses directly at some productivity attributes; e.g., role-physical and role-emotional
   • Strong ongoing support/research/updating
   • Prolific use provides strong normative scaling of data
   • Disease-specific norms include: high blood pressure, congestive heart failure, diabetes, AMI, depression and includes co-morbidity values

21. Weaknesses
   • Doesn't focus specifically on work performance
   • Doesn't quantify cost of lost productivity or absence
Stanford/American Health Association Presenteeism Scale (SAHAPS)

Background Information

1. Instrument Name
   Stanford/American Health Association Presenteeism Scale (SAHAPS)

2. Developer(s)
   Kenneth R. Pelletier, Ph.D.
   American Health Association
   1990 North California Boulevard
   Suite 830
   Walnut Creek, CA 94596
   Phone: 925-932-7074
   Fax: 925-838-6293
   E-mail: jrnpelletier@aol.com
   Cheryl Koopman, Ph.D.
   Department of Psychiatry and Behavioral Science
   Stanford University
   MC: S718
   Stanford, CA 94305
   Phone: 650-723-9081
   E-mail: Koopman@leland.stanford.edu

3. Owner(s)
   American Health Association (AHA)
   and Merck Pharmaceuticals

4. Funder(s)
   Merck Pharmaceuticals

Descriptive Information

5. Intended Use(s)
   Measures the ability to concentrate on work among employees despite the possible impact of pain and other health problems on job performance and work productivity.

   This instrument specifically focuses on the assessment of "Presenteeism," which is the employee’s cognitive, emotional, and behavioral concentration on accomplishing work. The SAHAPS was developed as an outcomes assessment tool for working populations experiencing a high prevalence of back pain, headaches, or other chronic health problems often experienced on the job that can interfere with work performance. It is also intended to measure other indicators of productivity such as job turnover and work absence rates. In addition, it is intended to be used at the group or organizational level to measure the impact of health problems and/or intervention programs for employee populations.

6. Intended Users
   This tool is intended for research applications such as clinical trials, which require a high standard of questionnaire validity and reliability.

7. Current Users
   This is a new tool that has not yet been widely used. It is in the developmental phase and its psychometric properties are being evaluated.

8. Targeted Populations
   • English speaking
   • Employed populations
   • Chronically ill patients who are employed
9. Availability
The SAHAPS is available free of charge to non-commercial users of the instrument and by arrangement for commercial users.

10. Stages of Development
- Concept
- Validation
✔ Beta testing
  This instrument is undergoing psychometric testing with 500 U.S. Postal workers and 100 employees of the San Mateo County Health Department.
  Completion of testing is expected by July, 2001.
- Market ready

11. Number of Items/Questions
- The current version has a total of 42 items including:
  7 demographic items,
  35 Presenteeism questions (29 in General Presenteeism, 3 in Percentage of Time Presenteeism Scale; and 3 in Medication Presenteeism Scale)
- A shorter version of the questionnaire is under development
- Completion time is approximately 7-10 minutes

12. Data Capture Technology
- Paper and pencil

13. Report/Output Format
- This instrument yields three scores:
  1) Medication Presenteeism Score,
  2) Percentage of Time Presenteeism Score, and
  3) General Presenteeism Score.
- Standard report formats have not been developed. Advice on reporting can be obtained from the developers.

14. Recall Timeframe
A one-month recall version is used.

15. Reference Points for Productivity Questions
- Four questions ask respondents to compare to their usual performance.
- 32 questions use a five-point Likert scale. Three questions use a 0-100% scale.

Scientific Information

16. Science Base
This measure was developed to address the gap in the research literature on the underlying construct presenteeism. The focus of this measure is upon being able to focus on one's job despite any possible health problems. It was designed to represent three psychological domains relevant to the individual's ability to be maximally focused during work: 1) the cognitive domain; 2) the motivational/affective domain; and 3) the behavioral domain. Items developed in these three domains assessed two dimensions of work productivity: 1) presenteeism occurring during the work process; and 2) presenteeism resulting in work outcome. To date, this instrument has been pilot tested with 20 employees within a work site and its psychometric properties are currently being evaluated in a larger study of postal and county health employees. This evaluation work is expected to be completed by mid-2001 and will be described in a publication that is being prepared by the developers.
17. Validation Sources

Validation is underway including:
• Comparisons of survey responses to employees' ratings of their pain level, work stress, and work satisfaction.
• Validation against patterns of presenteeism associated with demographic and health problem characteristics.

18. Specific Applications

• Outcomes studies assessing the impact of health problems and/or their medical treatment.
• Assessment of disease management and disability management programs.

19. Instrument Flexibility Across Populations

• Designed to apply to a variety of different clinical and employee populations.
• Constructed to handle either hourly or salaried occupations.
• Designed to be flexible across industries and ages.

20. Strengths

• Assesses the "presenteeism" aspect of work performance.
• Easy to administer.
• Applicable for both hourly and salaried occupations.
• A short version of the instrument is being developed.

21. Weaknesses

• Has not been widely disseminated to date, so is not yet in common use.
• Not yet validated either in the field or clinically.
Work Limitations Questionnaire (WLQ)

Background Information

1. Instrument Name
   Work Limitations Questionnaire (WLQ)

2. Developer(s)
   The Health Institute
   New England Medical Center
   Box 345
   750 Washington Street
   Boston, MA 02111
   Debra Lerner, PhD
   Phone: 617-636-8636
   E-mail: debra.lerner@es.nemc.org
   Benjamin Amick III PhD
   Phone: 713-500-9496
   E-mail: bamick@utsp.sph.uth.tmc.edu

3. Owner(s)
   • The Health Institute
   • GlaxoWellcome, Inc.

4. Funder(s)
   • GlaxoWellcome, Inc.
   • Initial funding from the Kaiser Foundation

Descriptive Information:

5. Intended Use(s)
   • Measures the impact of chronic health problems on job performance and work productivity among employed individuals. This "on-the-job" work disability is referred to as work limitations.
   • Measures "health-related decrements in ability to perform job roles". Two assessments are generated:
     1) The degree of health-related limitation in performing specific job demands, and
     2) The productivity loss and costs associated with these limitations.
   • Developed as an outcomes assessment tool for chronically ill working populations, this instrument can supplement conventional work disability indicators, job loss and work absence rates, and is appropriate for measuring the impact of health problems and/or intervention programs, including medical care within patient and employee populations.
   • An acute illness (past 7 days) version is also available.

6. Intended Users
   Originally intended for research applications such as clinical trials which require a high standard of questionnaire validity and reliability.

7. Current Users
   Current users are:
   • Pharmaceutical companies including Johnson & Johnson, Searle (now Pharmacia), Organon
   • Insurance companies including UNUM/Provident
   • Numerous scientists throughout the U.S.

The WLQ will be a main outcome criterion in Dr. Lerner’s new NIMH-funded study addressing the impact of depression in the workplace (beginning September 2000).

Work Limitations Questionnaire (WLQ)
8. Targeted Populations
   • Employed populations
   • Chronically ill patients who are employed
   • Includes scoring algorithms for both sedentary and manual occupations

9. Availability
   • Available free of charge to non-commercial users of the instrument and by arrangement for commercial users
   • Also available in French and Spanish

10. Stage of Development
    • Concept
    • Validation
    • Beta testing
    ✔ Market ready
    This instrument is market ready.

11. Number of Items/Questions
    • 5 questions, 25 items
    • Completion time: Approximately 5 minutes

12. Data Capture Technology
    • Paper and pencil
    • Phone version is available

13. Report/Output Format
    Four work limitation scales are created:
    • Time management scale
    • Physical demands scale
    • Mental/interpersonal demands scale
    • Output demands scale
    Standard report formats have not been developed. Advice on reporting can be obtained from the developers.

14. Recall Timeframe
    • Two-week recall version is recommended.
    • A four-week version also demonstrated acceptable precision.

15. Reference Points for Productivity Questions
    • All questions are rated on the percentage of time in the prior two weeks that a person was limited on the job.
    • The scales include five response options ("all of the time" to "none of the time").
    • Scores range from 0 (no limitations in the past two weeks) to 100 (limited all of the time in the past two weeks).

Scientific Information

16. Science Base
    • The WLQ is a self-report questionnaire designed for self-administration, and intended to capture the on-the-job impact of a variety of different chronic conditions within a wide range of jobs and work settings.
    • The instrument was developed in a series of qualitative and quantitative studies involving eight different chronic condition groups and more than 2000 subjects.
    • It has undergone extensive psychometric testing. Tests have been completed in both patient and employee populations.
    • Development methodology is described in detail in a publication available from the developers.
17. Validation Sources
- Comparisons to alternate disability measures such as the SF36 role-physical and role-emotional scales
- Comparisons of survey responses to objectively measured work productivity for manual and sedentary occupations within a large company
- Validation against patterns of limitation associated with different diagnostic groups
- Detection of differences in limitation scores among healthy and ill workers in matched case control studies of employees performing the same job within the same company
- Assessments of the responsiveness of WLQ scores to changes in depression status as reported by clinicians

18. Specific Applications
- Outcomes studies assessing the impact of illness and/or treatment
- Assessment of disease management and disability management programs
- Identification of amount of work limitation within the workplace and the conditions associated with the limitation
- Productivity loss assessment

19. Instrument Flexibility Across Populations
- Designed to apply to a variety of different clinical and employee populations
- Constructed to handle either hourly or salaried occupations
- Appears quite flexible across industries and ages

20. Strengths
- Brief
- Focuses on multiple aspects of performance
- Addresses both hourly and salaried occupations
- Tie to The Health Institute, developer of the SF36
- Strong methodological approach
- Used in published studies

21. Weaknesses
- Limited validation by employer groups
Work Productivity and Activity Impairment Questionnaire (WPAI)

Background Information

1. Instrument Name
   Work Productivity and Activity Impairment Questionnaire (WPAI)

2. Developer(s)
   Reilly Associates
   425 East 51st Street
   New York, NY 10022
   Margaret C. Reilly, MA, MPH
   Phone: 646-521-0072
   Fax: 212-826-6560
   E-mail: mreilly@reillyassociates.net

   Arthur S. Zbrozek
   Bayer Corporation
   West Haven, CT
   Ann Tanner
   Quintiles
   Kansas City, MO

3. Owner(s)
   Public domain

4. Funder(s)
   Hoechst Marion Roussel, Inc.

Descriptive Information

5. Intended Use(s)
   • Measures the effect of health problems and diseases on work productivity and regular activities
   • Assesses function-related endpoints to measure the economic impact of relative differences in either the safety or efficacy of therapeutic interventions
   • Allows the computation of the actual or attributed monetary value of lost productivity in order to enhance the cost formula in an economic analysis
   Two versions exist:
   • WPAI-GH (General Health) measures impairment due to general health problems.
   • WPAI-SHP (Specific Health Problem) measures impairment due to a specific health problem.
   Validation studies have been conducted with the WPAI-AS, the allergic rhinitis questionnaire.

6. Intended Users
   Pharmaceutical companies for clinical trials

7. Current Users
   • Allergy and Asthma Medical Group and Research Center
     San Diego, CA
   • Hoechst Marion Roussel, Inc.
     Kansas City, MO
   • Several pharmaceutical companies

8. Targeted Populations
   • Hospital clinics
   • Employers
   • Communities
   • Clinical patients with allergic rhinitis
9. **Availability**
   - Public domain with no permission requirement.
   - A list of users is maintained. Users are asked to notify Reilly Associates about publications and presentations related to the WPAI. The questionnaire cannot be called the WPAI if users make wording changes or add or delete questions. The questionnaire can be reformatted to make it consistent with other instruments being used in a study/project.
   - Available in Spanish and in many European languages including: Czech, Danish, Dutch, Finnish, French, German, Greek, Hebrew, Hungarian, Italian, Norwegian, Polish, Portuguese, and Swedish.

10. **Stage of Development**
    - Concept
    - Validation
    - Beta testing
    - Market ready

    Validity and responsiveness of the general WPAI and the allergy-specific WPAI have been conducted and published. The questionnaires are available from Reilly Associates along with a coding and scoring guide.

11. **Number of Items/Questions**
    - WPAI-GH: 6 questions (five related specifically to workplace productivity)
    - WPAI-AS: 9 questions (two related specifically to workplace productivity and two related to school productivity)
    - Completion time: Approximately 5-7 minutes

12. **Data Capture Technology**
    - Self-administered using paper and pencil
    - Interviewer-administered in person or by phone

13. **Report/Output Format**
    - Outcomes are expressed as impairment percentages, with higher numbers indicating greater impairment and less productivity. Users do their own scoring using provided algorithms to derive the following outcomes:
      - Absenteeism due to health problems is measured according to hours missed from work over the past 7 days.
      - Time missed from work due to other reasons (vacation, holidays) is also generated.
      - Productivity is measured on a ten-point scale from "no effect on work" to "completely prevented me from working".

    The productivity measure includes limitation in the amount or kind of work, days when less was accomplished, or days that work was not done as carefully as usual.
    - WPAI-GH outcomes include:
      - Percent work time missed due to health
      - Percent impairment while working due to health
      - Percent overall work impairment due to health
      - Percent activity impairment due to health
    - WPAI-SHP outcomes include:
      - Percent work time missed due to problem
      - Percent impairment while working due to problem
      - Percent overall work impairment due to problem
      - Percent activity impairment due to problem
The GH and SHP can be combined to capture the effect of both a specific problem and general health problems on activity and work. Scoring instructions are included with the instrument in Part III of this guide.

14. Recall Timeframe
Past 7 days

15 Reference Points for Productivity Questions

- How much health problems affected the person’s productivity: Rated on a 10-point scale from 0 (no effect on work) to 10 (health problems prevented the person from working)
- Effect on productivity as defined by any of the following: limited the amount of work the person could do; days the person accomplished less than he or she would like; or days the person could not do work as carefully as usual

Scientific Information

16. Science Base

- The questions help to identify the percent of work time missed due to health (absenteeism) and the percent of impairment while working due to health (lost productivity).
- 0% represents no impairment or missed time while 100% represents total absence or total impairment while on the job.

17. Validation Sources

- The instrument’s validity and responsiveness have been tested in two trials.
  - The first, in 1993, included 106 employed individuals recruited from a hospital clinic, a factory and a community. Individuals completed a baseline questionnaire and were then assigned to one of two groups. One group completed a second self-administered questionnaire. The other group received an interviewer-administered version of the questionnaire by telephone. Data generated by the interviewer administration had higher construct validity and fewer omissions than that obtained by self-administration. Construct validity was observed in relationship to other published measures of health-related quality of life and symptom severity. The reproducibility test assessed differences in self-administration versus administration by professional interviewers.
  - The second, in 1996, tested the allergy-specific questionnaire in a randomized, double-blind clinical trial that assessed and compared the effects of various doses of a non-sedating antihistamine and placebo on the allergy symptoms of patients with moderate to severe allergic rhinitis. Group one included 422 clinical patients who completed the WPAI-AS questionnaire at baseline and at weeks one and two. Group two included 241 patients who were students and completed the Classroom WPAI-AS at baseline and at weeks one and two. This trial indicated validity of the measures and their responsiveness to clinically meaningful change in allergy symptoms.

Work Productivity and Activity Impairment Questionnaire (WPAI)
18. Specific Applications
   • Validation studies of the WPAI include before and after measures as well as comparisons across groups.
   • The WPAI may be useful in identifying clinically relevant differences among groups as well as changes over time related to different treatment modalities.

19. Instrument Flexibility Across Populations
   There are no definitive tests of the effectiveness of the WPAI across different industries, ages, occupations or other classifications. The focus on hours usually worked per week (allergy version) and hours actually missed due to sickness (GH version) might favor a non-salaried/hourly workforce.

20. Strengths
   • Brief
   • Ease of application and ready availability of scoring algorithms
   • Availability of support services from study design through analysis and reporting
   • Tested in written and verbal administration methods
   • Available in multiple languages
   • Appears sensitive to clinical performance differences

21. Weaknesses
   • Minimal psychometric testing
   • Validated only against other self-reported data and clinical data; no validation against other measures of productivity
   • Lack of normative data sets
Part II: Health & Productivity Measurement Tools

Section B: Productivity Factors Measured

1. Summary Table of Instruments
2. Instrument-Specific Factors
The Summary Table highlights five Elements of Productivity along the horizontal axis. These elements represent four specific aspects of productivity: Attendance, Quality of Work (incidence of mistakes), Work Capacity/Quantity, and Person Factors (social, mental, physical, emotional). A fifth element called Other captures a variety of peripheral measures such as school attendance, social function, general health, job role, and health care utilization.

Five health factors are listed down the vertical axis: General Health; Disease Prevention/Health Promotion; Care Management (both symptomatic and condition specific); Occupational and Workplace Environment; and Corporate Culture and Organizational Health. These are broad categories of health and health care from which organizations can consider a wide range of productivity issues. Four of these health factors (excluding general health) parallel the manner in which the Institute for Health and Productivity Management organized its original research through its Centers of Inquiry.

General health is the predominant factor addressed by most instruments. This means that questions about productivity were framed in terms of how the respondents' general health related to their performance. Most of the instruments can also be adapted to investigate a specific condition. However, with the exception of disease-specific versions of the WPAI, the general health versions are shown here.

Examples of Productivity Questions

Following are examples of actual questions related to each of the productivity elements:

**Attendance:** "During the past seven days, how many hours did you miss from work because of health problems?"

**Quality of Work:** "During the past week, how frequently did you have to do a job over because you made a mistake?"

**Work Capacity:** "How many days in the past seven was your speed of work or productivity lower than expected?"

**Person Factors:** "In the past two weeks, how much of the time did your physical health or emotional problems make it difficult for you to control your temper around people when working?"

**Other:** "How much responsibility do you have for the future and job security of others?"

General Observations:

- Most measures correlate productivity with general health factors; e.g., "How did your health affect your performance?".
- Only one instrument includes questions related to occupational and workplace environment.
- Only two instruments include questions related to disease prevention or health promotion.
Questions for Measuring On-the-Job Productivity—A Simple Framework*

Although there are many ways to group types of questions, for this guide we selected a framework that separated the subject, the action and the output. Questions in these self-report tools usually fell into one of three types of questions: the state of the person doing work, how the work was being performed, or the state of completed tasks. These can be referred to as the “Doer,” the “Doing” and the “Done”.

Questions About the Doer (Person factors, enhancement or limitations)

These are any questions about the state of the person doing the work, including questions about being tired or distracted. It can also refer to the degree to which workers feel enhanced (instead of impaired), such as feeling more energetic. With regard to health, these questions describe how the person’s health is affecting how they feel. Four domains were identified:

- Physical
- Mental/Cognitive
- Emotional
- Social

Questions About the Doing (Work capacity or quantity)

These are any questions about how people are performing their jobs, including questions about how quickly or how carefully they’re working. How much gets done is recorded here, but not how well it turned out. With regard to health, these questions describe how a person’s health affects their pace or method of performing tasks.

Questions About What Was Done (Quality, mistakes, accidents)

These are any questions about the results of a worker’s effort, including the number of errors made, or quality of successful outcomes. With regard to health, these questions describe how a person’s health affects the quality of the output or state of the finished product.

* These categories provide measures of on-the-job productivity. Absenteeism, which is a measure of off-the-job productivity loss, is not included.
### Summary Table of Instruments

#### Elements of Productivity

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<th>Attendance: Turnover, Absence, Time on Task</th>
<th>Quality of Work: Incidence of Mistakes</th>
<th>Quantity of Work: Work Capacity or Output</th>
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<td>27 chronic conditions</td>
</tr>
<tr>
<td>MHPQ*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>SF36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Topics under investigation include a wide range of diseases/conditions</td>
</tr>
<tr>
<td>SAHAPS (Medications)</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>WLQ migraine</td>
<td>5</td>
<td>3</td>
<td>11</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>WPAI-AS</td>
<td>1</td>
<td>1</td>
<td></td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

#### Health Factors

- Disease Prevention/Health Promotion
- Care Management
- Occupational and Workplace Environment
- Corporate Culture and Organizational Health

- The MHPQ long version contains a number of questions related to disease prevention/health promotion and care management.
- Health Factors Not Measured by Any Instruments

### Instrument-Specific Factors

The following tables highlight specific productivity questions included in each of the seven assessment instruments. In addition, each table indicates health factors that are not included in the instrument. Additional information on certain productivity questions is also provided.
Instrument: Endicott Work Productivity Scale (EWPS)

**Elements of Productivity**

<table>
<thead>
<tr>
<th>Health Factors</th>
<th>Attendance: Turnover, Absence, Time on Task</th>
<th>Quality of Work: Incidence of Mistakes</th>
<th>Quantity of Work: Work Capacity or Output</th>
<th>Person Factors: Social, Mental, Physical, Emotional</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>4 items</td>
<td>4 items</td>
<td>8 items</td>
<td>5 items re: social</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 item re: emotional</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 items re: mental</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 item re: physical</td>
<td></td>
</tr>
</tbody>
</table>

Health Factors Not Measured
- Disease prevention/health promotion
- Disease-based care management
- Occupational and workplace environment
- Corporate culture and organizational health

Instrument: Health and Labour Questionnaire (HLQ)

**Elements of Productivity**

<table>
<thead>
<tr>
<th>Health Factors</th>
<th>Attendance: Turnover, Absence, Time on Task</th>
<th>Quality of Work: Incidence of Mistakes</th>
<th>Quantity of Work: Work Capacity or Output</th>
<th>Person Factors: Social, Mental, Physical, Emotional</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>2 items</td>
<td>4 items</td>
<td>1 item re: social</td>
<td>1 item re: physical</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 items re: mental</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 item re: physical</td>
<td></td>
</tr>
</tbody>
</table>

Health Factors Not Measured
- Disease prevention/health promotion
- Occupational and workplace environment
- Corporate culture and organizational health

- 27 chronic conditions that can be correlated to the specific productivity questions
**Instrument: MacArthur Health and Performance Questionnaire (MHPQ)**

### Elements of Productivity

<table>
<thead>
<tr>
<th>Health Factors</th>
<th>Attendance: Turnover, Absence, Time on Task</th>
<th>Quality of Work: Incidence of Mistakes</th>
<th>Quantity of Work: Work Capacity or Output</th>
<th>Person Factors: Social, Mental, Physical, Emotional</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>12 items</td>
<td>5 items</td>
<td>8 items</td>
<td>1 item re: mental 2 items re: social 1 item re: emotional</td>
<td>1 item re: rating of other workers. Long version includes 6 items on general health care utilization and 3 items on job role and responsibility.</td>
</tr>
<tr>
<td>Disease Prevention/Health Promotion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health status, Health habits, HRA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Care Management</td>
<td>Topics under Specific diseases include like allergies, arthritis, depression</td>
<td>1 item</td>
<td>6 items</td>
<td>1 item re: pain</td>
<td></td>
</tr>
</tbody>
</table>

**Health Factors Not Measured**
- Occupational and workplace environment
- Corporate culture and organizational health

**Instrument: SF36**

### Elements of Productivity

<table>
<thead>
<tr>
<th>Health Factors</th>
<th>Attendance: Turnover, Absence, Time on Task</th>
<th>Quality of Work: Incidence of Mistakes</th>
<th>Quantity of Work: Work Capacity or Output</th>
<th>Person Factors: Social, Mental, Physical, Emotional</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>1 item</td>
<td>6 items</td>
<td>1 item re: pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Care Management</td>
<td>Specific diseases include like allergies, arthritis, depression</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Health Factors Not Measured**
- Disease prevention/health promotion
- Occupational and workplace environment
- Corporate culture and organizational health
**Instrument: Stanford/American Health Association Presenteeism Scale (SAHAPS)**

### Elements of Productivity

<table>
<thead>
<tr>
<th>Health Factors</th>
<th>Attendance: Turnover, Absence, Time on Task</th>
<th>Quality of Work: Incidence of Mistakes</th>
<th>Quality of Work: Work Capacity or Output</th>
<th>Person Factors: Social, Mental, Physical, Emotional</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>Disease</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Prevention/Health Promotion</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Care Management (Medications)</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

**Health Factors Not Measured**

- Occupational and workplace environment
- Corporate culture and organizational health

---

**Instrument: Work Limitations Questionnaire (WLQ)**

### Elements of Productivity

<table>
<thead>
<tr>
<th>Health Factors</th>
<th>Attendance: Turnover, Absence, Time on Task</th>
<th>Quality of Work: Incidence of Mistakes</th>
<th>Quality of Work: Work Capacity or Output</th>
<th>Person Factors: Social, Mental, Physical, Emotional</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>1 item</td>
<td>2 items</td>
<td>8 items</td>
<td>3 items re: social</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6 items re: physical</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 items re: mental</td>
<td></td>
</tr>
<tr>
<td>Care Management</td>
<td>5 items</td>
<td>3 items</td>
<td>11 items</td>
<td>1 item re: physical</td>
<td></td>
</tr>
<tr>
<td>Specific disease: Migraine</td>
<td></td>
<td></td>
<td></td>
<td>2 items re: social</td>
<td></td>
</tr>
<tr>
<td>Occupational and Workplace Environment</td>
<td>2 items</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ergonomics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>2 items</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical surveillance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazard control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment exams</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Health Factors Not Measured**

- Disease prevention/health promotion
- Corporate culture and organizational health

---

38
### Instrument: Work Productivity and Activity Impairment Questionnaire (WPAI-GH)

#### Elements of Productivity

<table>
<thead>
<tr>
<th>Health Factors</th>
<th>Attendance: Turnover, Absence, Time on Task</th>
<th>Quality of Work: Incidence of Mistakes</th>
<th>Quantity of Work: Work Capacity or Output</th>
<th>Person Factors: Social, Mental, Physical, Emotional</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>3 items</td>
<td>1 item</td>
<td>1 item on regular daily activity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Health Factors Not Measured
- Disease prevention/health promotion
- Disease-based care management
- Occupational and workplace environment
- Corporate culture and organizational health

### Instrument: Work Productivity and Activity Impairment Questionnaire (WPAI-AS)

#### Elements of Productivity

<table>
<thead>
<tr>
<th>Health Factors</th>
<th>Attendance: Turnover, Absence, Time on Task</th>
<th>Quality of Work: Incidence of Mistakes</th>
<th>Quantity of Work: Work Capacity or Output</th>
<th>Person Factors: Social, Mental, Physical, Emotional</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care Management</td>
<td>1 item</td>
<td>1 item</td>
<td>1 item re: school attendance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific diseases like allergies</td>
<td>1 item re: school work capacity</td>
<td>1 item re: regular daily activities</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Health Factors Not Measured
- General health
- Disease prevention/health promotion
- Occupational and workplace environment
- Corporate culture and organizational health
Section C: Measurement Tool Development and Psychometric Testing

1. Background
2. Description of Productivity Measures: Rating by Degree of Documentation and Developmental Rigor
3. Rating Productivity Measures on Key Criteria: Reliability, Validity, and Respondent Burden
Background

The following tables provide information about the development and testing of each of the measurement tools.

Table 1

This table provides a technical description of the measure. This includes any specific sub-scales the tool addresses and how they are scored. The table also lists whether use of the tool has been documented in the published literature, how many times it has been referenced in published studies, and the dates of those studies. The last column rates the study populations on which the instrument has been tested. Ideally, a tool is tested in many studies, with large groups and diverse populations. Readers will find that some tools have been studied more extensively than others or tested on a wider range of people.

Table 2

The second table provides a more technical review for those interested in specific psychometric properties of the tools.

- Test/retest reliability indicates the degree to which a tool provides a consistent score over time. Questions should be clear and understandable enough that respondents answer the same way on repeated administrations.
- Internal consistency refers to whether respondents answer similarly to questions that are designed to measure the same general attribute. For instance, if a tool has a sub-scale focusing on mental task performance, respondents would be expected to answer similarly to several questions about mental tasks. Similarity of responses results in high internal consistency.
- Construct validity indicates the degree to which responses correlate with other indicators of the same attribute. For example, if self-reported performance was compared with company-collected data, a high correlation would suggest construct validity. In many cases, comparisons with responses to other self-report measures have been used to evaluate construct validity. Those tools with the highest construct validity ratings have been validated against more “objective” data.
- The last two attributes provide basic information about administration of the tool. Respondent burden refers to the typical amount of time required for someone to respond to the set of questions. Lastly, the table shows whether the tool is available in languages other than English.
Table 1. Description of Productivity Measures: 
Rating by Degree of Documentation and Developmental Rigor

<table>
<thead>
<tr>
<th>Measure</th>
<th>Description of Measure</th>
<th>Documentation Rating (1)</th>
<th>Rigor Rating (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endicott Work Productivity Scale (EWPS)</td>
<td>The EWPS was designed to measure decrements in work (paid or volunteer work) productivity and efficiency due to behaviors, feelings and attitudes. It uses a seven-day recall period to ask people how frequently specific activities limiting productivity occurred; each item has a 5-point response scale (0=never; 1=rarely; 2=sometimes; 3=often; 4=almost always). Global productivity scores range from 0 to 100 with high scores indicating low productivity. Note: The EWPS was developed to reflect limitations associated with a broad range of medical problems—but was validated only on patients with depression and a general employee population.</td>
<td>*</td>
<td>*&lt;br&gt;1 published article (1997)</td>
</tr>
<tr>
<td>Health and Labour Questionnaire (HLQ)</td>
<td>The HLQ was designed to measure the impact of illness and treatment on work performance. It permits estimation of production losses of paid and unpaid labor and degree of impediments to performing paid and unpaid labor. This instrument uses a two-week recall period to measure four dimensions of work loss: Absence from work (estimated hours individual missed due to health problems); reduced productivity from paid work (hours individual would need to work if made up for hours lost due to health problems); unpaid labor production (estimated hours individual spent on non-paid work activities); impediments to paid and unpaid labor (0=no impediment, 1=some impediment, 2=a lot of impediment). Note: The HLQ can be adapted to measure disease-specific health problems.</td>
<td>*</td>
<td>**&lt;br&gt;1 published article (1996) and extensive scoring and use manual with normative scores (2000)</td>
</tr>
<tr>
<td>MacArthur Health and Performance Questionnaire (MHPQ)</td>
<td>The MHPQ was designed to determine associations between illness and work performance. It uses both one-week and one-month recall periods (depending on the specific question) to measure four dimensions of work functions: Sickness absence, quantity of work, quality of work, and Interpersonal relations at work. Outcomes are expressed in a series of 0 to 100 performance scales that can be weighted, summarized, and monetarily valued in relation to the respondent’s earnings. Note: The MHPQ has not been tested yet. Three large studies are getting underway including: Harvard Survey on Working Health, U.S. National Comorbidity Survey, and World Health Organization WMH 2000 Survey.</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Measure</td>
<td>Description of Measure (Name of Productivity Scales in Bold Text)</td>
<td>Documentation Rating (1)</td>
<td>Rigor Rating (2)</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------------------------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td><strong>SF36: Role Limitations (SF36)</strong></td>
<td>The SF36 was designed to measure the general health status of adults. It has a total of eight dimensions, with two of these focusing on work role limitations due to health problems: Role-physical and role-emotional. This instrument uses a four-week recall period to ask people about problems doing their work or other regular daily activities as a result of physical health or emotional health. <strong>Note:</strong> The SF36 is one of the most widely used and best validated measures of health status and well-being.</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>• Ware, 8 core items and 2 scales • Self-administered or interviewer-administered • Generic only • Developed in U.S. and used internationally</td>
<td>More than 100 published articles and extensive documentation</td>
<td>Many studies done on diverse populations in the U.S. and abroad</td>
</tr>
<tr>
<td><strong>Stanford/American Health Association Presenteeism Scale (SAHAPS)</strong></td>
<td>The SAHAPS was designed to measure the ability to focus on one's job despite any possible health problems. It assesses both presenteeism occurring during the work process and resulting in work outcome. It represents three psychological domains including cognitive, motivational/affective and behavioral. It uses a one month recall period to measure two dimensions of work function: capacity/quantity and domain influencers including mental, social, physical, and emotional. Each item has a 5-point response scale ranging from strongly disagree to strongly agree. <strong>Note:</strong> The SAHAPS has not been rigorously tested yet. Two studies are underway with subjects from the U.S. Postal Service and a local county health department.</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td></td>
<td>• Pelletier/Koopman, 35 items • Self-administered • Generic • Developed in the U.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Work Limitations Questionnaire (WLQ)</strong></td>
<td>The WLQ (generic) was designed to measure health-related decrements in the ability to perform job roles. It uses a two-week recall period to measure four dimensions of work limitations: Time management, physical demands, mental &amp; interpersonal, output demands. Each scale is scored separately, ranging from 0 to 100. Each reflects the amount of time the person perceives she or he was limited due to physical health or emotional problems: 1=all of the time; 2=most of the time; 3=some of the time; 4=none of the time. <strong>Note:</strong> The WLQ has been adapted to be specific for migraine and angina.</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>• Lerner, 25 core items and 4 scales • Self-administered • Generic or disease-specific • Developed in the U.S.</td>
<td>2 published articles (1997 and 1998) and extensive unpublished documentation (1998, 2000)</td>
<td>Several studies done on various populations</td>
</tr>
</tbody>
</table>
### Description of Measure

<table>
<thead>
<tr>
<th>Measure</th>
<th>Description of Measure</th>
<th>Documentation Rating (1)</th>
<th>Rigor Rating (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Productivity and Activity Impairment Questionnaire (WPAI)</td>
<td>The WPAI (generic) was designed to measure work and general activity impairment due to health problems. It uses a seven-day recall period to measure four types of productivity loss: Percentage of work time missed due to health, percentage of impairment while working due to health, percentage of overall work impairment due to health, and percentage of activity impairment due to health. Outcomes are expressed as impairment percentages and range from 0% to 100%.</td>
<td>**</td>
<td>**</td>
</tr>
</tbody>
</table>

*Bold text is used to indicate the particular dimensions of productivity measured by that instrument.*

### Footnotes for Table 1

1. Documentation ratings reflect the amount and strength of the documentation for the measure.
2. Rigor ratings indicate the methodological and psychometric rigor with which the measure has been developed and validated.

**Star Rating System:**

- 0 = not done/needs testing
- * = very limited documentation
- ** = limited documentation
- *** = adequate documentation
- **** = extensive documentation
<table>
<thead>
<tr>
<th>Measure</th>
<th>Reliability</th>
<th>Validity</th>
<th>Respondent Burden</th>
<th>Languages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Endicott Work Productivity Scale (EWPS)</strong></td>
<td>** (r = 0.92)</td>
<td>*** (r = 0.93)</td>
<td>5-10 minutes</td>
<td>English</td>
</tr>
<tr>
<td>• 25 items</td>
<td>• 1 scale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Health and Labor Questionnaire (HLQ)</strong></td>
<td>0 (not tested)</td>
<td>Not relevant</td>
<td>**</td>
<td>Several languages</td>
</tr>
<tr>
<td>• 22 items</td>
<td>• 4 scales</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MacArthur Health and Performance Questionnaire (MHPQ)</strong></td>
<td>0 (Major trials underway)</td>
<td>0 (Major trials underway)</td>
<td>0 (Major trials underway)</td>
<td>Many languages</td>
</tr>
<tr>
<td>• 43 items</td>
<td>• 195 total items</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SF36: Role Limitations (SF36)</strong></td>
<td>***</td>
<td>***</td>
<td>***</td>
<td>Many languages</td>
</tr>
<tr>
<td>• 8 items</td>
<td>• 2 scales</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stanford/American Health Association Presenteeism Scale (SAHAPS)</strong></td>
<td>0 (Trials underway)</td>
<td>0 (Trials underway)</td>
<td>0 (Trials underway)</td>
<td>English</td>
</tr>
<tr>
<td>• 35 items</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Work Limitations Questionnaire (WLQ)</strong></td>
<td>*** (r = 0.76-0.90)</td>
<td>*** (Alpha = 0.83-0.94)</td>
<td>5-10 minutes</td>
<td>English</td>
</tr>
<tr>
<td>• 25 items</td>
<td>• 4 scales</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Correlates with mental health severity, change in symptoms, and with normative groups.

Correlates with national data, Osterhaus and migraine data.

Correlates with SF36, productivity data, and disease severity.
<table>
<thead>
<tr>
<th>Measure</th>
<th>Reliable: Test-Retest (1)</th>
<th>Reliable: Internal Consistency (2)</th>
<th>Valid: Construct Validity (3)</th>
<th>Respondent Burden (4)</th>
<th>Languages (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Productivity and Activity Impairment Questionnaire (WPAI)</td>
<td>***</td>
<td>Not relevant</td>
<td>**</td>
<td>2-3 minutes</td>
<td>English and American Spanish (generic), 15 languages for allergy-specific</td>
</tr>
</tbody>
</table>

**Footnotes for Table 1**

1. Test/retest reliability indicates if the productivity measure is reproducible over time.
2. Internal consistency indicates if the items used to measure a dimension “fit together” well as indicated by inter-item correlations.
3. Construct validity indicates if the productivity measure correlates with other related variables that should vary in a predictable and logical way with the productivity measure.
4. Respondent burden reflects the time it takes average populations to complete the survey. These estimates are based on the number of items and the complexity of the survey.
5. Language(s) in which the survey has been translated.

**Star Rating System:**

- 0 = not done/needs testing
- * = very limited documentation
- ** = limited documentation
- *** = adequate documentation
- **** = extensive documentation
Part III: 
Instruments and Instructions for Use
Background
This section includes the following information:

- Actual measurement instruments, and
- Instructions and other information for using each instrument. This information was supplied by the developers/owners of each tool.

For ease of use, the measurement instruments have been organized in alphabetical order, with instrument-specific usage information preceding each one.

Note: Four of the measurement instruments reflect the instrument currently in use—and appear in this guide as developed. With the permission of the developer, the MacArthur Health and Performance Questionnaire has been edited to include only work performance and productivity-related items. Also, based on the developer’s preference, the Work Limitations Questionnaire provides sample questions rather than the whole questionnaire. If you are interested in reviewing copies of a full survey tool, contact the person listed under Question 5 on the usage information sheet.
Endicott Work Productivity Scale (EWPS)
Information about Usage:

1. General Use
   Permission is required for researchers using the instrument. We register and maintain a list of users. If publications use instrument data, we also request notification by users so we can pass on the information to interested researchers.

2. Modifying Questionnaire Wording
   The questionnaire wording cannot be modified or questions added or deleted without explicit approval by the instrument owners. Investigators who wish to modify the form should contact the developer.

3. Reformatting the Questionnaire
   The questionnaire can be reformatted with different fonts, boxes, etc. to make it consistent with other instruments or items being used in a specific application. However, the new form of the questionnaire should clearly indicate the origin of the questions, the copyright status, and the authors.

4. Other
   Investigators with questions, e.g., related to a particular planned use of the procedure, should contact the developer.

5. Contact Information
   Jean Endicott, PhD
   Department of Research Assessment and Training
   New York State Psychiatric Institute
   1051 Riverside Drive
   New York, New York 10032
   Phone: 212-543-5536
   Fax: 212-543-5386
   E-mail: je10@columbia.edu

Go to page 7 for a detailed description of this instrument.
The Endicott Work Productivity Scale (EWPS) was developed to provide investigators with a measure that is more sensitive to differences between subjects and within subjects over time than are the currently available measures.

The items were selected to describe types of behavior and subjective feelings that are highly likely to reduce productivity and efficiency in work activities.

There are 25 items and the "maximum score possible" (i.e., the worst possible score) is 100 and the best possible score is 0. In addition, information is collected regarding the number of hours of work usually expected, the number worked, and the reason(s) why the subject worked less than usual.

In order to keep the questionnaire short and easily scored, there are no items focused on activities that are likely to increase productivity.

* Available from Jean Endicott, Ph.D., Department of Research Assessment and Training, New York State Psychiatric Institute, Unit 123, 1051 Riverside Drive, New York, New York 10032.

Copyright Pending
This questionnaire is designed to help assess work activities during the past week.

Name (or Initials)_____________________________ ID#__________________________
Date __ /__ /__ Study # ______ Group # ______ Sex: 1. Male 2. Female
Occupation:____________________________ Education:_________________________

Do you receive pay or other money for any type of work? 1. No 2. Yes
Do you do volunteer work? 1. No 2. Yes

If you do not receive money for your work and do not do volunteer work, please indicate why you do not:
___ I am physically ill
___ I am too upset, depressed, or nervous
___ I can’t find work
___ Other (Please describe)

If you receive money for your work or do volunteer work, please complete the questionnaire, otherwise stop here.

Please describe the characteristics of your work setting by completing the following items:

I am self-employed. 1. No 2. Yes
I work for someone else. 1. No 2. Yes
I have a boss/supervisor. 1. No 2. Yes
I have co-workers with whom I must work. 1. No 2. Yes
I supervise others at work. 1. No 2. Yes
I deal with clients/customers/vendors. 1. No 2. Yes

How many hours do you usually work or would you usually be expected to work? _____ hours per week
How many hours did you work last week? _____ hours per week

If you missed time at work last week, please note all the reasons why:
___ I had a day off (Holiday/vacation)
___ I was physically ill
___ Too upset, depressed, or nervous
___ Other (Please describe)

(PLEASE COMPLETE PAGE 2 OF THE QUESTIONNAIRE)

* Developed by Jean Endicott, Ph.D., Department of Research Assessment and Training, New York State Psychiatric Institute, 1051 Riverside Drive, Unit 123, New York, New York 10032.

Copyright pending. 9/12/94

Endicott Work Productivity Scale (EWPS)
<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrive at work late or leave work early?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Take longer lunch hours or coffee breaks?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Just do no work at times when you would be expected to be working?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Find yourself daydreaming, worrying or staring into space when you</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>should be working?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have to do a job over because you made a mistake or your supervisor</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>told you to do a job over?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste time looking for misplaced supplies, materials, papers, phone</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>numbers, etc.?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Find you have forgotten to call someone?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Find you have forgotten to respond to a request?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Become annoyed with or irritated by co-workers, boss/supervisor,</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>clients/customers/vendors or others?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Become impatient with others at work?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Avoid attending meetings?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Avoid interaction with co-workers, clients, vendors or supervisors?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Have a co-worker redo something you had completed?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Find it difficult to concentrate on the task at hand?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Fall asleep unexpectedly or become very sleepy while at work?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Become restless while at work?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Notice that your productivity for the time spent is lower than expected?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Notice that your efficiency for the time spent is lower than expected?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Lose interest or become bored with your work?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Work more slowly or take longer to complete tasks than expected?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Have your boss/co-workers remind you to do things?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Not want to return phone calls or put off returning calls?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Have trouble organizing work or setting priorities?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Fail to finish assigned tasks?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Feel too exhausted to do your work?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
Health and Labour Questionnaire (HLQ)
Instrument Name:
Health and Labour Questionnaire (HLQ)

Information about Usage:

1. General Use
   We register and maintain a list of users. If publications use instrument data, we request notification by users so we can pass on the information to interested researchers.

2. Modifying Questionnaire Wording
   The questionnaire is modular so it permits leaving out questions that are not applicable to the study population.

3. Reformatting the Questionnaire
   The questionnaire can be reformatted with different fonts, boxes, etc. to make it consistent with other instruments or items being used in a specific application.

4. Other
   No information given.

5. Contact Information
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   Rotterdam, The Netherlands
   Phone: +31 10 408 85 33
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Go to page 10 for a detailed description of this instrument.
QUESTIONNAIRE ON HEALTH AND LABOUR

This questionnaire asks about the effects of health problems on paid and unpaid work (domestic). The term 'health problems' refers to acute or chronic physical illnesses, symptoms or handicaps. Other health problems like chronic fatigue or pain are also covered by this. Furthermore, psychological disorders, are also included.

At the end of the questionnaire you will be asked for your age and some other personal details. These details will assist us in gaining a more clear understanding of your answers. There are no 'correct' or 'incorrect' answers to the questions asked. We are interested only in your personal opinion.

Before filling in the form kindly write down the date

Day __________ Month_________ 200 __________

In addition to the questions relating to paid work there are some concerning unpaid work such as domestic chores. Throughout this questionnaire please limit your answers to your personal situation during the PAST TWO WEEKS.

1. Do you have paid employment?
   ❑ Yes, I work __________ hours per WEEK, divided over ______DAYS; my profession is __________ function __________

   Go to the section Paid Work

   ❑ No

   Please continue with question 14 (page 3)

   If your answer to the above question was yes, please continue by answering questions 2 to 13 (even if you are suffering from a short term illness at the present moment).

   If your answer to the above question was no please ignore questions 2 to 13 and continue with question 14.

Paid Work

We would like you to indicate on which working days in the past two weeks you were unable to perform paid work due to health problems. You are requested to complete this section using the following codes. In filling in the table on the following page you may use more than one letter.

'W' = performed paid work

'U' = unable to perform paid work due to health problems

'O' = no paid work performed due to other reasons (weekend, holidays etc.)

If you have part-time employment, then fill in 'O' for the days on which you were not required to work. When you worked for half a day, please indicate this (e.g. by writing 'W/O' if you did not work in that afternoon).

In case of illness during the weekend, fill in 'O' if you were not required to work and 'U' if you were required to work.

Example

Imagine you have four days paid employment per week, but last week you were unable to work on Thursday and Friday due to health problems. You always have Wednesdays off. Then the table would appear as follows:

<table>
<thead>
<tr>
<th>MO</th>
<th>TU</th>
<th>WE</th>
<th>TH</th>
<th>FR</th>
<th>SA</th>
<th>SU</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>W</td>
<td>O</td>
<td>W</td>
<td>O</td>
<td>O</td>
<td>W</td>
</tr>
<tr>
<td>W</td>
<td>W</td>
<td>O</td>
<td>U</td>
<td>U</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

The week before last

Last week

This was an example
2. Please complete the table below in the same manner. Remember that the time period concerned is the past two full weeks, counting back from last weekend.

- 'W' = performed paid work
- 'U' = unable to perform paid work due to health problems
- 'O' = no paid work performed due to other reasons (weekend, holidays etc.)

<table>
<thead>
<tr>
<th>MO</th>
<th>TU</th>
<th>WE</th>
<th>TH</th>
<th>FR</th>
<th>SA</th>
<th>SU</th>
<th>MO</th>
<th>TU</th>
<th>WE</th>
<th>TH</th>
<th>FR</th>
<th>SA</th>
<th>SU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The week before last</td>
<td>Last week</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Only answer the following question if you have been completely unable to perform paid work due to health problems during the past two weeks.

3. When did this period of illness start? Enter the date on which you reported sick.

Day _______ Month _______ Year _______

Health problems sometimes force employees to be absent from their work. It is also possible that employees go to work but are unable to perform their duties with the same efficiency as usual due to health problems. Questions 4 to 13 relate to this subject.

4. Were you hindered by health problems at your paid work over the past two weeks?

- No, not at all ➡ go to question 13 (page 3)
- Yes, to a degree
- Yes, very much

Below you find a number of statements that could be applicable to people with health problems in relation to their current work situation. Please indicate for each statement that is mentioned how often it applied to you in the past two weeks.

I did go to work but as a result of health problems …

<table>
<thead>
<tr>
<th>(almost)</th>
<th>never</th>
<th>sometimes</th>
<th>often</th>
<th>(almost)</th>
<th>always</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. ...I had a problem concentrating ➡</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. ...I had to go to work at a slower pace</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. ...I had to seclude myself</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. ...I found decision-making more difficult</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. ...I had to put off some of my work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. ...Others had to take over some of my work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. ...I had other problems, namely (please state)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. How many extra hours would you have to work to catch up on tasks you were unable to complete in normal working hours due to health problems over the past two weeks?

NOTE: Do not count the days on which you reported sick: _______ Hours
13. We would now like to know what your net earnings are from your paid work.

NOTE: This concerns your income, not including that of your partner (if any). You only need to fill out one of the following options.

❑ My own net income from paid work is approximately:

________ per WEEK
________ per 4 WEEKS
________ per MONTH
________ per YEAR

❑ I do not know what my income is or I would rather not say

Now go to question 15

Question 14 should only be answered by people who do not/no longer have paid work at the present time.

14. You have no paid work. Which of the following situations is most applicable to you?

❑ I have the daily task of running a household
❑ I receive a pension or have taken early retirement
❑ I am still at school or a student
❑ I am unable to perform paid work due to health problems (If you did have paid work before would you fill out your profession and the function you held: profession __________ function held __________)
❑ I have no paid work for other reasons (for example involuntary unemployment, voluntary work, etc.)

TO BE COMPLETED BY ALL RESPONDENTS

The following questions concern unpaid work. Here a distinction has been made between work in the household; shopping; odd jobs and chores and activities for or with the children. We would like everyone to please answer these questions. First, you will be asked how many hours a week you spent on each activity. If you did not perform a particular activity than simply write “0” hours. Second, we would like to know whether you were hindered in any of the activities mentioned by health problems.

Please remember that your answers should relate to the PAST TWO WEEKS.

15. How many hours a week did you spend on:

• Work in the household (e.g., preparing meals, cleaning the house, washing clothes) _______ hours per week

• Shopping (e.g., shopping for the daily groceries, other types of shopping, going to the bank or post office) _______ hours per week

• Odd jobs and chores (e.g., house repairs, gardening, fixing the car) _______ hours per week

• Doing things for or with your own children (e.g., caring for them, taking them to school, helping with homework) _______ hours per week
16. It may be that people with health problems who normally do household tasks (cleaning the house, shopping, taking care of the children) must leave these tasks to be done by others due to their health problems.

Have others taken over any of your household tasks due to your health problems? (You may tick more than one box if applicable)

❑ Yes, family members (e.g., partner, children) have taken over my household tasks for ____ hours per week
❑ Yes, others (e.g., neighbours or volunteers) have taken over my household tasks for ____ hours per week
❑ Yes, I have had home-help for ____ hours per week
❑ Yes, I have had another type of paid help for ____ hours per week
❑ No, I have performed my household tasks myself.

In the next table we would like you to indicate which of the following unpaid activities you have performed in the PAST TWO WEEKS and whether or not you were hindered by health problems. Please tick the appropriate answer.

First we will give two examples:

Example 1
During the PAST TWO WEEKS Mrs. Johnson did not go shopping in the city due to her health problems. She did manage to go to her local corner shop in spite of her problems. She indicates this as follows:

<table>
<thead>
<tr>
<th>DID DO</th>
<th>DID NOT DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shopping</td>
<td>Was hindered by health problems</td>
</tr>
</tbody>
</table>

Example 2
Mr. Cook never vacuums. His son always performs this task because Mr. Cook hates doing it. Mr. Cook answered the question on vacuuming as follows:

<table>
<thead>
<tr>
<th>DID DO</th>
<th>DID NOT DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vacuuming</td>
<td>Was hindered by health problems</td>
</tr>
</tbody>
</table>

These were two examples.

17. Would you now complete the table below in the same way as shown in the two examples. Put a cross next to an activity if you have performed it in the PAST TWO WEEKS. If your answer is “DID DO” then indicate whether or not you were hindered by health problems. If your answer is “DID NOT DO” then please indicate whether or not this was due to health problems.
The following questions concern a general nature.

1. Are you:
   - [ ] Male
   - [ ] Female

2. What is your date of birth?
   Day ______  Month ______  Year ______

3. Which of the following levels of education have you completed? (you may tick more than one answer if applicable)
   - [ ] None
   - [ ] Intermediate vocation education
   - [ ] Primary school
   - [ ] Grammar school
   - [ ] Lower vocational education
   - [ ] Polytechnic Higher vocational education
   - [ ] General secondary education
   - [ ] University

4. How many people live in your household?
   - [ ] I live alone
   - [ ] I live with one or more people

5. Are there any children in your household?
   - [ ] Yes, the age of the youngest child in the household is _______ months/years
   - [ ] No

<table>
<thead>
<tr>
<th>DID DO</th>
<th>DID NOT DO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hindered by health problems</td>
<td>Not hindered by health problems</td>
</tr>
</tbody>
</table>

Household work at home (for example, preparing meals, cleaning, washing clothes)

Shopping (for example, daily groceries, other shopping, going to the bank or post office)

Odd Jobs and chores (for example, house repairs, gardening, fixing the car)

Doing things for or with your own children (for example, caring for them, playing, taking them to school, helping with homework)

---

Health and Labour Questionnaire (HLQ)
6. Below is a list of chronic conditions and illnesses. Would you please indicate whether you are suffering from or have suffered from any of these conditions in the LAST TWELVE MONTHS?

<table>
<thead>
<tr>
<th>Condition</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma or chronic bronchitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serious heart condition or heart Infarct</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High blood pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A stroke or its consequences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stomach or duodenal ulcer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serious intestinal disturbance lasting more than three months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gall stones or infection of the gall bladder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liver condition or cirrhosis of the liver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kidney stones</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serious kidney condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complaint of the prostate gland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thyroid gland condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back problems of a persistent nature, hernia, ischiae or &quot;worn out&quot; back</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arthritis of the knees, hips or hands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rheumatism of the hands and/or feet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other rheumatic conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epilepsy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other nervous disorders such as Parkinson’s disease, multiple sclerosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serious headaches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Migraine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malignant condition or cancer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overexertion, depression, serious nervousness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic skin condition or eczema</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prolapsus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicose veins</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injury due to an accident in or around the house, a road traffic accident, sports injury at school or at work</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This is the end of the questionnaire. Thank you very much for your cooperation. The space below has been provided for any remarks you may wish to make about this questionnaire.

________________________________________

________________________________________

________________________________________

Health and Labour Questionnaire (HLQ)
MacArthur Health and Performance Questionnaire (MHPQ)
Instrument Name:
MacArthur Health and Performance Questionnaire (MHPQ)

Information about Usage:

1. General Use
   The MHPQ can be used without permission. The instrument developers appreciate notification by users so that they can pass on the information to other interested researchers/users. The developers also appreciate receiving reprints of any reports or articles based on the MHPQ.

2. Modifying Questionnaire Wording
   The developers recommend retaining the questionnaire's exact wording in order to be able to compare the data with national norms.

3. Reformatting the Questionnaire
   The questionnaire can be reformatted with different fonts, boxes, etc. to make it consistent with other instruments or items being used in a specific application.

4. Other
   The questionnaire has been translated into all major European languages plus Chinese, Japanese, Russian, Hebrew, Arabic, and several African dialects.

5. Contact Information
   Ronald C. Kessler, Ph.D.
   Harvard Medical School
   Department of Health Care Policy
   180 Longwood Avenue
   Boston, MA 02115-5899
   Phone: 617-432-3587
   Fax: 617-432-3588
   E-mail: kessler@hcp.med.harvard.edu

Go to page 14 for a detailed description of this instrument.
MacArthur Health and Performance Questionnaire

Ronald C. Kessler, Ph.D.
Catherine Barber, M.P.A.
Lisa LeRoy, M.B.A.
Philip S. Wang, M.D., Dr.P.H.

December 2000

From Harvard Medical School, Department of Health Care Policy. Preparation of this survey was supported, in part, by the John D. and Catherine T. MacArthur Foundation Initiative on Depression and Workplace Performance.
Editors note: The focus of the MacArthur Health and Performance Questionnaire is on work performance. However, users can incorporate questions on a variety of additional work- and health-related issues including company background, specific conditions (e.g., cancer, irritable bowel syndrome, migraine, neurasthenia, sleep problems, allergies, smoking, arthritis, depression, anxiety disorder, panic disorder), workload, health care services utilization, demographics and finances. For a complete set of questions including these additional issues, contact the instrument developer.

Work Performance

1. How many full days of work did you miss in the past 30 days not including vacation or maternity leave?
   1. None
   2. One
   3. More than one (specify number) ________
   4. Don't know
   5. Refused

1a. How many of these days were in the past week?
   1. None (go to question 4)
   2. One (go to question 2)
   3. More than one (specify number) ________ (go to question 3)
   4. Don't know
   5. Refused

2. Was that because of problems with your own health, the health of someone else, or for some other reason?
   1. Own health
   2. Other's health
   3. Other reason
   Go to question 4

3. How many of these days did you miss because of problems with your own health?

4. How many days in the past 30 days did you either come in late for work or leave early?
   1. None (go to question 9)
   2. One (go to question 5)
   3. More than one (specify number) ________ (go to question 7)
   4. Don't know
   5. Refused

5. How many hours did you miss on that day?

6. Did you miss this time because of problems with your own health, the health of someone else, or for some other reason?
   1. Own health
   2. Other's health
   3. Other reason
   Go to question 9
7. On average, about how many hours of work did you miss on each of those days?

8. How many of those days was your reduced time at work because of problems with your own health?

9. How many days in the past 30 did you either come in early, work late, or work on your day off in order to catch up on your work?
   1. None (go to question 12)
   2. One (go to question 10)
   3. More than one (specify number) ________ (go to question 11)
   4. Don’t know
   5. Refused

10. How many extra hours of work did you put in that day?
    Go to question 12

11. Altogether, about how many extra hours of work did you put in on those days combined?

12. The next questions are about the time you spent at work over the past 30 days. How often during that time did you have each of the following experiences:

   12a. How much of the time was your speed of work or productivity higher than expected?
      1. All of the time (go to question 12c)
      2. Most of the time
      3. About half of the time
      4. Some of the time
      5. A little of the time
      6. None of the time
      7. Don’t know
      8. Refused

   12b. How much of the time was your speed of work or productivity lower than expected?
      Scored as above

   12c. How much of the time did you do no work at times when you were supposed to be working?
      Scored as above

   12d. How much of the time did you find yourself not working as carefully as you should?
      Scored as above

   12e. How much of the time was the quality of your work lower than expected?
      Scored as above

   12f. How much of the time did you find yourself daydreaming and not concentrating on your work?
      Scored as above

   12g. How much of the time did you have trouble getting along with others at work?
      Scored as above
12h. How much of the time did you have trouble controlling your emotions when you were around people at work?  
Scored as above

12i. How much of the time did you get along well with others at work?  
Scored as above

13. During the time you were at work in the past 30 days, how often did health problems limit you in the kind or amount of work you could do compared to usual?  
1. All of the time  
2. Most of the time  
3. About half of the time  
4. Some of the time  
5. A little of the time  
6. None of the time  
7. Don’t know  
8. Refused

14. On a scale from 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, what number describes your overall job performance on the days you worked during the past 30 days?  
14a. Using the same 0 to 10 scale, how would you rate your job performance during the past 7 days?  
15. Using the same 0 to 10 scale, how would you rate your usual job performance?  
16. How would you rate the usual job performance of most workers on your job?  
17. How many days in the past 7 was your speed of work or productivity lower than expected?  
1. All of the time  
2. Most of the time  
3. About half of the time  
4. Some of the time  
5. A little of the time  
6. None of the time  
7. Don’t know  
8. Refused

18. Did you experience any special work success or achievement at any time during the past 30 days?  
1. Yes  
2. No  
3. Don’t know  
4. Refused
19. Did you have any special work failure, make any big mistakes, or miss a major deadline at any time during the past 30 days?
   1. Yes
   2. No
   3. Don’t know
   4. Refused

20. Did you make any big mistake at work during the past 30 days that either caused an accident or that created a safety risk for yourself or for others?
   1. Yes
   2. No
   3. Don’t know
   4. Refused
**Instrument Name:**

**SF36**

### Information about Usage:

1. **General Use**
   
   Written permission is required for researchers using this instrument. The SF36 Health Survey Manual & Interpretation Guide provides information on administration, scoring, applications, and complete citations for referenced publications related to the SF36. Permission to use the survey on a royalty-free basis is granted by The Medical Outcomes Trust, PO Box 1917, Boston, MA 02205. A Web-enabled version, which includes an automated scoring system, is available for purchase.

2. **Modifying Questionnaire Wording**

   The questionnaire wording cannot be modified. However, questions can be added without explicit approval by the instrument owners.

3. **Reformatting the Questionnaire**

   The questionnaire can be reformatted with different fonts, boxes, etc. to make it consistent with other instruments or items being used in a specific application.

4. **Other**

   None

5. **Contact Information**

   John E. Ware, PhD
   The Health Institute
   New England Medical Center
   Box 345
   750 Washington Street
   Boston, MA 02111
   Phone: 401-334-8800
   Fax: 401-334-8801
   E-mail: jware@qmetric.com

   Go to page 29 for a detailed description of this instrument.
Health Status Questionnaire (SF36)

The following questions ask for your views about your health, how you feel and how well you are able to do your usual activities. If you are unsure about how to answer any question, please give the best answer you can and make any comments in the space available after question 10.

Please check one

1. In general would you say your health is:
   - Excellent
   - Very good
   - Good
   - Fair
   - Poor

2. Compared to one year ago, how would you rate your health in general now?
   - Much better now than one year ago
   - Somewhat better now than a year ago
   - About the same
   - Somewhat worse now than one year ago
   - Much worse now than one year ago

Health and Daily Activities

3. The following questions are about activities you might do during a typical day. Does your health limit you in these activities? If so, how much?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yes, limited a lot</th>
<th>Yes, limited a little</th>
<th>No, not limited at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>b. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling or playing golf</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>c. Lifting or carrying groceries</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>d. Climbing several flights of stairs</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>e. Climbing one flight of stairs</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>f. Bending, kneeling or stooping</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>g. Walking more than a mile</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>h. Walking half a mile</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>i. Walking 100 yards</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>j. Bathing and dressing yourself</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
SF36

4. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

   Answer Yes or No to each question
   
   YES NO
   
   A. Cut down on the amount of time you spent on work or other activities
   B. Accomplished less than you would like
   C. Were limited in the kind of work or other activities
   D. Had difficulty performing the work or other activities (e.g., it took extra effort)

5. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

   Answer Yes or No to each question
   
   YES NO
   
   A. Cut down on the amount of time you spent on work or other activities
   B. Accomplished less than you would like
   C. Didn’t do work or other activities as carefully as usual

6. During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors or groups?

   Please check one
   
   Not at all
   Slightly
   Moderately
   Quite a bit
   Extremely

7. How much bodily pain have you had during the past 4 weeks?

   None
   Very mild
   Mild
   Moderate
   Severe
   Very severe

8. During the past 4 weeks, how much did pain interfere with your normal work (including work both outside the home and housework)?

   Not at all
   Slightly
   Moderately
   Quite a bit
   Extremely
Your Feelings

9. These questions are about how you feel and how things have been with you during the past month. (For each question, please indicate the one answer that comes closest to the way you have been feeling.)

Please check one box on each line

How much time during the past month?

Please check one box on each line

<table>
<thead>
<tr>
<th>All of the time</th>
<th>Most of the time</th>
<th>A good bit of the time</th>
<th>Some of the time</th>
<th>A little of the time</th>
<th>None of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
</tbody>
</table>

a. Did you feel full of life?

b. Have you been a very nervous person?

c. Have you felt so down in the dumps that nothing could cheer you up?

d. Have you felt calm and peaceful?

e. Did you have a lot of energy?

f. Have you felt downhearted and low?

g. Did you feel worn out?

h. Have you been a happy person?

i. Did you feel tired?

j. Has your health limited your social activities (like visiting friends or close relatives)?

10. How TRUE or FALSE is each of the following statements for you?

Circle one number on each line

<table>
<thead>
<tr>
<th>Definitely True</th>
<th>Mostly True</th>
<th>Don’t Know</th>
<th>Mostly False</th>
<th>Definitely False</th>
</tr>
</thead>
<tbody>
<tr>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
</tbody>
</table>

a. I seem to get ill more easily than other people

b. I am as healthy as anybody I know

c. I expect my health to get worse

d. My health is excellent
Instrument Name:
Stanford/American Health Association
Presenteeism Scale (SAHAPS)

Information about Usage:

1. General Use
   Written permission is required for researchers using the instrument. We register and maintain a list of users. We request notification by users of publications using instrument data so we can pass on the information to interested researchers.

2. Modifying the Questionnaire Wording
   The questionnaire wording cannot be modified or questions added or deleted without explicit approval by the instrument owners.

3. Reformatting the Questionnaire
   The questionnaire can be reformatted with different fonts, boxes, etc. to make it consistent with other instruments or items being used in a specific application.

4. Other
   None

5. Contact Information
   American Health Association
   1990 North California Boulevard
   Suite 830
   Walnut Creek, California 94596
   Phone: 925-932-7074
   Fax: 925-838-6293
   E-mail: drkrpelletier@aol.com

Go to page 22 for a detailed description of this instrument.
Total Health and Productivity Presenteeism Scale

Demographics

Please check next to the statement that BEST DESCRIBES your answer for a single question. If more than one answer applies, please choose the SINGLE best answer. For all of your responses, any information will be kept confidential from your employer and will only be used for research purposes.

1. Your full name: ________________________________
   First                        Middle Initial                       Last

2. Age: _____ Years

3. Sex:
   ☐ Female                          ☐ Male

4. Years of education:
   ☐ 1. Less than high school
   ☐ 2. Graduated from high school
   ☐ 3. Completed trade school
   ☐ 4. Some college
   ☐ 5. Bachelor’s Degree
   ☐ 6. Some graduate school
   ☐ 7. Master’s Degree
   ☐ 8. Ph.D., M.D., and/or J.D.

5. Employment status:
   ☐ Not employed
   ☐ Part time (less than 30 hours per week)
   ☐ Full time (30 hours or more per week)

6. What is your current relationship status?
   ☐ 1. Single
   ☐ 2. Currently married or in a relationship similar to marriage
   ☐ 3. Separated
   ☐ 4. Divorced
   ☐ 5. Other

7. What is your main occupation?
   ☐ 1. Labor
   ☐ 2. Technical
   ☐ 3. Clerical
   ☐ 4. Managerial
   ☐ 5. Professional
   ☐ 6. Homemaker
   ☐ 7. Trade
   ☐ 8. Service
   ☐ 9 Other

8. What is your racial/ethnic background?
   ☐ 1. Black/African American
   ☐ 2. Asian American
   ☐ 3. Hispanic/Latino
   ☐ 4. Native American
   ☐ 5. White/European American
   ☐ 6. Other (please specify): ____________________
Presenteeism

Directions: Below we would like you to describe your work experiences in the past month. These experiences may be affected by many environmental as well as personal factors and may change from time to time. For each of the following statements, please circle one of the following responses to show your agreement or disagreement with this statement in describing your work experiences in the past month.

*Please use the following scale:*

<table>
<thead>
<tr>
<th>Circle</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>If you strongly disagree with the statement</td>
</tr>
<tr>
<td>2</td>
<td>If you somewhat disagree with the statement</td>
</tr>
<tr>
<td>3</td>
<td>If you are uncertain about your agreement with the statement</td>
</tr>
<tr>
<td>4</td>
<td>If you somewhat agree with the statement</td>
</tr>
<tr>
<td>5</td>
<td>If you strongly agree with the statement</td>
</tr>
</tbody>
</table>

1. My physical activity has helped me to be able to be more focused in my work.
   
2. If unexpected problems arose in my work, I was able to focus on finding a solution.

3. The medications that my doctor gave me helped me to concentrate on my work.

4. Drinking coffee or other caffeine beverages has helped me to get more work done.

5. Despite my (health problem), I felt excited by the challenge of my work.

6. I was able to find new and novel solutions to work-related problems, even when my (health problem) acted up.

7. When my (health problem) bothered me, I was as patient with clients as usual.

8. My eating habits have given me energy for getting work done.

9. Due to my (health problem), even the greatest challenges of my job did not really excite me.

10. Despite my (health problem), I was able to enjoy working with other people toward common goals.

11. Side effects of the medication I take for (health problem) distracted me from my work.

12. When my (health problem) bothered me, I felt lucky to be paid my salary for what little I was able to achieve at work.

13. I enjoyed taking on new challenges in my work, despite my (health problem)
14. I felt hopeless about finishing certain work tasks, due to my (health problem). 1 2 3 4 5
15. I have been tired at work due to losing sleep at night because of my (health problem). 1 2 3 4 5
16. I frequently solved problems related to my work in spite of having my (health problem). 1 2 3 4 5
17. Because of my (health problem), the stresses of my job were much harder to handle. 1 2 3 4 5
18. Because of my (health problem), I found it stressful to try to meet deadlines. 1 2 3 4 5
19. When I return to work after a period of (health problem), I get tired before the end of my shift. 1 2 3 4 5
20. Because of my (health problem), I often had to get up from my chair at work. 1 2 3 4 5
21. My (health problem) distracted me from taking pleasure in doing my work. 1 2 3 4 5
22. Completing a major project in my work gave me great personal satisfaction. 1 2 3 4 5
23. When I worked after having my (health problem), things took longer to do. 1 2 3 4 5
24. Because of my (health problem), I failed to find creative solutions to work problems. 1 2 3 4 5
25. I might have been slightly less friendly to customers when my (health problem) acted up. 1 2 3 4 5
26. At work, I was able to focus on achieving my goals, despite my (health problem). 1 2 3 4 5
27. After my (health problem) began, I found my attention drifting from time to time. 1 2 3 4 5
28. Despite having my (health problem), I was able to finish hard tasks in my work. 1 2 3 4 5
29. My (health problem) caused me to feel cranky with people whom I supervise. 1 2 3 4 5
30. Despite having my (health problem), I felt energetic enough to complete all of my work. 1 2 3 4 5
31. Often I looked at the clock to determine when I could safely take my medication again. 1 2 3 4 5
32. When my (health problem) started to bother me, I was not able to get much work done. 1 2 3 4 5
Special Directions: For the items below, please place a line on the continuum to indicate the percentage of work time that you feel that this statement describes you in the past month:

33. When my (health problem)* bothered me, the percentage of my time that I was as productive as usual was:

<table>
<thead>
<tr>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
</tr>
</thead>
</table>

34. Compared to my usual level of productivity, when my (health problem)* bothered me, the percentage of my work that I was able to accomplish was:

<table>
<thead>
<tr>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
</tr>
</thead>
</table>

35. When my (health problem)* bothered me, the percentage of my work time that I was likely to make more mistakes than usual was:

<table>
<thead>
<tr>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
</tr>
</thead>
</table>
Instrument Name:
Work Limitations Questionnaire (WLQ)

Information about Usage:

1. General Use
Written permission is required for those interested in using the WLQ. Prior to viewing the questionnaire, we request that the prospective user complete and return a User’s Profile, and agree to the terms and conditions of use. We register and maintain a list of users. If publications use instrument data, we request notification by users so we can pass on the information to interested researchers. Additionally, we request cooperation from users to provide non-identifiable data from their studies that can advance research and data on the WLQ.

The WLQ is provided royalty-free to non-commercial users; e.g., academic researchers and government agencies, and for a fee to commercial users.

2. Modifying Questionnaire Wording
We recommend retaining the questionnaire’s wording exactly as it appears on the form. Questions cannot be modified or questions added or deleted without explicit approval by the instrument owners. Modifications for purposes of administering the questionnaire by telephone are available.

3. Reformatting the Questionnaire
The questionnaire can be reformatted with different fonts, boxes, etc. to make it consistent with other instruments or items being used in a specific application.

4. Other
The WLQ has been translated into Spanish and French. An acute, one-week version, is available.

5. Contact Information
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Fax: 617-636-6351
E-mail: debra.lerner@es.nemc.org

Go to page 25 for a detailed description of this instrument.
In the past 2 weeks, how much of the time did your physical health or emotional problems make it difficult for you to do the following?

<table>
<thead>
<tr>
<th>All of the Time (100%)</th>
<th>Most of the Time (About 50%)</th>
<th>Some of the Time (25%)</th>
<th>A Slight Bit of the Time (0%)</th>
<th>None of the Time (0%)</th>
<th>Does Not Apply To My Job</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. do your work without stopping to take breaks or rests</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b. stick to a routine or schedule</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>c. keep your mind on your work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>d. speak with people in person, in meetings or on the phone</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>e. handle the workload</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: Items a. and b. are from the Time Demands scale. Items c. and d. are from the Mental-Interpersonal Demands scale. Item e. is from the Output Demands scale.

In the past 2 weeks, how much of the time were you ABLE TO DO the following without difficulty caused by physical health or emotional problems?

<table>
<thead>
<tr>
<th>All of the Time (100%)</th>
<th>Most of the Time (About 50%)</th>
<th>Some of the Time (25%)</th>
<th>A Slight Bit of the Time (0%)</th>
<th>None of the Time (0%)</th>
<th>Does Not Apply To My Job</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. walk or move around different work locations (for example, go to meetings)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b. use hand-held tools or equipment (for example, a phone, pen, keyboard, computer mouse, drill, hair dryer, or sander)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: Items a. and b. are from the Physical Demands scale.
Work Productivity And Activity Impairment Questionnaire (WPAI)
Instrument Name:
Work Productivity and Activity Impairment Questionnaire (WPAI)

Information about Usage:

1. General Use
   Written permission is not required for researchers using the instrument. We register and maintain a list of users. If publications use instrument data, we request notification by users so we can pass on the information to interested researchers.

2. Modifying Questionnaire Wording
   The questionnaire wording cannot be modified or questions added or deleted. Researchers can supplement the WPAI with their own work-related questions as long as they do not refer to these supplemental questions as the WPAI.

3. Reformatting the Questionnaire
   The questionnaire can be reformatted with different fonts, boxes, etc. to make it consistent with other instruments or items being used in a specific application.

4. Other
   The general health version (WPAI-GH) has been translated into American Spanish. The WPAI specific health problem version (WPAI-SHP) for self-administration has been translated into nineteen European languages.

5. Contact Information
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Go to page 28 for a detailed description of this instrument.
Work Productivity and Activity Impairment Questionnaire (WPAI)

General Health (GH), Interviewer Version

I’m going to ask you about the effect of health problems on your ability to work and perform regular activities. By health problems we mean any physical or emotional problem or symptom.

1. Are you currently employed (working for pay)?
   1. Yes
   2. No (Q.6)

2. The next questions are about the past seven days, not including today. During the past seven days, how many hours did you miss from work because of health problems? Include hours you missed on sick days, times you went in late, left early, etc. Do not include time you missed to participate in this study.
   ________ Hours

3. During the past seven days, how many hours did you miss from work because of any other reason, such as vacation, holidays, time off to participate in this study?
   ________ Hours

4. During the past seven days, how many hours did you actually work?
   ________ Hours (If "0", Q.6)

5. During the past seven days, how much did health problems affect your productivity while you were working? Think about days you were limited in the amount or kind of work you could do, days you accomplished less than you would like, or days you could not do your work as carefully as usual. On a scale from 0 to 10, with 0 meaning health problems had no effect on work, and 10 meaning health problems completely prevented you from working, how much did health problems affect your productivity while you were working?
   If health problems affected your work only a little, choose a low number. Choose a high number if health problems affected your work a great deal. What number do you choose? ________

6. Now I’d like to ask you about your regular daily activities (other than your job). By this I mean the usual activities that you do every day, such as work around the house, shopping, child care, exercising, etc. During the past seven days, not including today, how much did health problems affect your ability to do your regular daily activities?
   Think about times you were limited in the amount or kind of activities you could do, times you accomplished less than you would like or times you could not do your regular activities as carefully as usual. On a scale from 0 to 10, with 0 meaning health problems had no effect on your regular activities, and 10 meaning health problems completely prevented you from doing your regular activities, how much did health problems affect your regular activities?
   If health problems affected your activities only a little, choose a low number. Choose a high number if health problems affected your activities a great deal. What number do you choose? ________
Work Productivity and Activity Impairment Questionnaire (WPAI)

General Health (GH), Self-Administration Version

The following questions ask about the effect of your health problems on your ability to work and perform regular activities. By health problems we mean any physical or emotional problem or symptom. Please fill in the blanks or circle a number, as indicated.

1. Are you currently employed (working for pay)? ______ No ______ Yes
   If NO, check "NO" and skip to question 6.

The next questions refer to the past seven days, not including today.

2. During the past seven days, how many hours did you miss from work because of your health problems? Include hours you missed on sick days, times you went in late, left early etc., because of your health problems. Do not include time you missed to participate in this study.
   ______ Hours

3. During the past seven days, how many hours did you miss from work because of any other reason, such as vacation, holidays, time off to participate in this study?
   ______ Hours

4. During the past seven days, how many hours did you actually work?
   ______ Hours (If "0", Q.6)

5. During the past seven days, how much did your health problems affect your productivity while you were working? Think about days you were limited in the amount or kind of work you could do, days you accomplished less than you would like, or days you could not do your work as carefully as usual. If health problems affected your work only a little, choose a low number. Choose a high number if health problems affected your work a great deal.

   Health problems had no effect on my work
   0 1 2 3 4 5 6 7 8 9 10 Health problems completely prevented me from working
   CIRCLE A NUMBER

6. During the past seven days, how much did your health problems affect your ability to do your regular daily activities, (other than work at a job)? By regular activities, we mean the usual activities you do, such as work around the house, shopping, child care, exercising, studying, etc. Think about times you were limited in the amount or kind of activities you could do and times you accomplished less than you would like. If health problems affected your activities only a little, choose a low number. Choose a high number if health problems affected your activities a great deal.

   Health problems had no effect on my daily activities
   0 1 2 3 4 5 6 7 8 9 10 Health problems completely prevented me from doing my daily activities
   CIRCLE A NUMBER
Work Productivity and Activity Impairment Questionnaire (WPAI)

Allergy Specific (WPAI-AS)*

The following questions ask about the effect of your allergies on your ability to work, attend classes, and perform regular daily activities. When you think about the past seven days, do not include today. Please check the line or fill in the blank as indicated.

1. Are you currently employed (working for pay)? 
   - No 
   - Yes
   
   If NO, check "NO" and skip to question 5.

2. In general, how many hours per week do you usually work?
   
   _ _ _ _ _ _ _ Hours

3. During the past seven days, how many hours did you miss from work because of problems associated with your allergies? Include hours you missed because you were sick, times you went in late, left early, etc. because you were experiencing problems with your allergies. (Do not include time you missed to participate in this study.)
   
   _ _ _ _ _ _ _ Hours

4. During the past seven days, how much did allergies affect your productivity while you were working? Think about days you were limited in the amount or kind of work you could do, days you accomplished less than you would like, or days you could not do your work as carefully as usual. If allergies affected your work only a little, choose a low number. Choose a high number if allergies affected your work a great deal. (Circle a number.)

   Allergies had no effect on my work
   - 0
   - 1
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7
   - 8
   - 9
   - 10

   Allergies completely prevented me from working

   CIRCLE A NUMBER

5. Do you currently attend classes in an academic setting (middle school, high school, college, graduate school, additional course work, etc.)? If NO, check "NO" and skip to question 9.

   - No 
   - Yes

6. In general, how many hours per week do you usually attend classes?
   
   _ _ _ _ _ _ _ Hours

7. During the past seven days, how many hours did you miss from class or school because of problems associated with your allergies? (Do not include time you missed to participate in this study.)
   
   _ _ _ _ _ _ _ Hours
8. During the past seven days, how much did allergies affect your productivity while in school or attending classes in an academic setting? Think about days your attention span was limited, you had trouble with comprehension or days in which you could not take tests as effectively as usual. If allergies affected your productivity at school or in classes only a little, choose a low number. Choose a high number if allergies affected your productivity a great deal. (Circle a number.)

Allergies had no effect on my class work

0 1 2 3 4 5 6 7 8 9 10 Allergies completely prevented me from doing my class work

CIRCLE A NUMBER

9. During the past seven days, how much did your allergies affect your ability to do your regular daily activities, other than work at a job or attend classes? By regular activities, we mean the usual activities you do, such as work around the house, shopping, childcare, exercising, studying, etc. Think about times you were limited in the amount or kind of activities you could do and times you accomplished less than you would like. If allergies affected your activities only a little, choose a low number. Choose a high number if allergies affected your activities a great deal. (Circle a number.)

Allergies had no effect on my daily activities

0 1 2 3 4 5 6 7 8 9 10 Allergies completely prevented me from doing my daily activities

CIRCLE A NUMBER
Work Productivity and Activity Impairment Questionnaire (WPAI) Coding and Scoring Guide

A. Background

In the general health version, WPAI-GH, respondents are asked questions about work and activity impairment due to health problems. In the specified health problem version (disease-specific), WPAI-SHP, respondents are asked parallel questions concerning impairment due to a specific health problem (e.g., arthritis) and impairment due to other health reasons. The sum of impairment due to the specified problem and other health reasons is considered impairment due to all health problems.

Several disease-specific versions of the WPAI have been created [e.g., WPAI-AS (allergy-specific)] in which only questions regarding impairment due to the specified disease are asked.

In the interviewer version of the WPAI, respondents are asked to account for all scheduled work hours in the past seven days (i.e., whether the hours were worked or missed for health or non-health reasons). In the WPAI-AS self-administered version, respondents are asked about usual hours worked and hours missed due to allergy.

B. Coding Rules For Interviewers

The coding rules below apply to the WPAI-SHP, the WPAI-GH and the WPAI-AS, except as noted.

Are you currently employed?

Yes: works part-time or full-time; self-employed; works in family business; on vacation from paid employment (e.g., schoolteachers on leave for the summer).

No: does not work for pay; only does volunteer work; usually works, but has been laid-off or unemployed during past seven days; seasonal workers not currently working.

Work time missed due to specified health problem (WPAI-SHP and WPAI-AS only)

Include: any time taken off from work due to problem; doctor visits for problem; trip to pharmacy to get medication; side effect of medication for problem; reason was partly problem and partly something else.

Exclude: if it happened today; if the respondent is not sure (i.e., can't say if problem was problem or something else).

Work time missed due to other health reasons (WPAI-SHP only)

Include: any time taken off from work for other health reasons; visits to doctor, dentist, and pharmacy. Partly health, partly something else (e.g., couldn't shovel snow to get car out because of back problem). Says no health problem, just had a pain, cold, fatigue, etc.

Exclude: missed hours related in any way to problem; non-health reasons.

Work time missed due to health reasons (WPAI-GH only)

Include: any time taken off from work for health reasons; visits to doctor, dentist, and pharmacy. Partly health, partly something else (e.g., couldn't shovel snow to get car out because of back problem). Says no health problem, just had a pain, cold, fatigue, etc.

Exclude: missed hours related in any way to problem; non-health reasons.

Actual hours worked (WPAI-GH and WPAI-SHP only)

Include: actual hours worked, including overtime (paid, unpaid).

Exclude: vacation, holidays, sick time, personal leave; any paid hours not actually worked (e.g., compensatory time).
Productivity
Respondent is asked for overall productivity on days actually went to work. If productivity differed greatly from day to day, for example, one day was 0 and one day was 10, ask him to respond for all days, on average. Probe: “Thinking of all the days together, what was the average effect on your work?”

Regular daily activities
Regular activities are expected to be different for every respondent. Regular activities could be exercising, watching television, gardening, sewing, etc. The intention of the question is to have the respondent think of his activities and then make a global evaluation of how difficult it was to do these activities. If impairment differed greatly from day to day or from activity to activity, probe: “Thinking of all the days together, and all of your usual activities, what was the average effect on your daily routine?”

C. Scoring

WPAI-SHP
The sum of specific health problem impairment and impairment due to other health reasons is equal to impairment due to all health reasons. WPAI outcomes are expressed as impairment percentages, with higher numbers indicating greater impairment and less productivity (i.e., worse outcomes) as follows:

Questions:
1 = currently employed
2a = hours missed due to specified problem
2b = hours missed due to other health problems
2c = hours missed non-health reasons
3 = hours actually worked
4a = degree problem affected productivity while working
4b = degree other health problems affected productivity while working
5a = degree problem affected regular activities
5b = degree other health problems affected regular activities

WPAI-SHP
Scores (multiply scores by 100 to express in percentages):
• Percent work time missed due to problem: Q2a/(Q2a+Q2b+Q3)
• Percent impairment while working due to problem: Q4a/10
• Percent overall work impairment due to problem:
  \[
  \frac{Q2a}{(Q2a+Q2b+Q3)} + \left(1 - \frac{Q2a+Q2b}{Q2a+Q2b+Q3}\right) \times \frac{Q4a}{10}
  \]
• Percent activity impairment due to problem: Q5a/10
• Percent work time missed due to all health: Q2a+Q2b/(Q2a+Q2b+Q3)
• Percent impairment while working due to all health: Q4a+Q4b/10
• Percent overall work impairment due to all health:
  \[
  \frac{Q2a+Q2b}{(Q2a+Q2b+Q3)} + \left(1 - \frac{Q2a+Q2b}{Q2a+Q2b+Q3}\right) \times \frac{Q4a+Q4b}{10}
  \]
• Percent activity impairment due to all health: (Q5a+Q5b)/10
Work Productivity and Activity Impairment Questionnaire (WPAI)
Coding and Scoring Guide (continued)

WPAI-GH

WPAI outcomes are expressed as impairment percentages, with higher numbers indicating greater impairment and less productivity (i.e., worse outcomes) as follows:

Questions:
1 = currently employed
2 = hours missed due to health problems
3 = hours missed non-health reasons
4 = hours actually worked
5 = degree health affected productivity while working
6 = degree health affected regular activities

WPAI-GH

Scores (multiply scores by 100 to express in percentages):
• Percent work time missed due to health: Q2/(Q2+Q4)
• Percent impairment while working due to health: Q5/10
• Percent overall work impairment due to health: Q2/(Q2+Q4) + [(1-Q2/(Q2+Q4)) x (Q5/10)]
• Percent activity impairment due to health: Q6/10

WPAI-AS

WPAI outcomes are expressed as impairment percentages, with higher numbers indicating greater impairment and less productivity (i.e., worse outcomes) as follows:

Questions:
1 = currently employed
2 = hours usually work
3 = hours missed due to allergy
4 = degree allergy affected productivity while working
5 = currently student
6 = hours usually attend class
7 = hours class time missed due to allergy
8 = degree allergy affected productivity while working
9 = degree allergy affected regular activities

WPAI-AS

Scores (multiply scores by 100 to express in percentages):
• Percent work time missed due to allergy: Q3/Q2
• Percent impairment while working due to allergy: Q4/10
• Percent overall work impairment due to allergy: (Q3/Q2)+[(1-(Q3/Q2))x(Q4/10)]
• Percent class time missed due to allergy: Q7/Q6
• Percent impairment in the classroom due to allergy: Q8/10
• Percent overall classroom impairment due to allergy: (Q7/Q6)+[(1-(Q7/Q6))x(Q8/10)]
• Percent activity impairment due to allergy: Q9/10
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