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Validation and Dimensionality of the Integration of Health Protection and Health Promotion Score: Evidence from the PULSE small business and VA Medical Center Surveys

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Structured Abstract

Objective—To conduct validation and dimensionality analyses for an existing measure of the integration of worksite health protection and health promotion approaches.

Methods—A survey of small to medium size employers located in the U.S. was conducted between October 2013 and March 2014 (N=115). A survey of Department of Veterans Affairs (VA) administrative parents was also conducted from June to July 2014 (N=140). Exploratory Factor Analysis was used to determine the dimensionality of the Integration Score in each sample.

Results—Using Exploratory Factor Analysis, both samples indicated the presence of one unified factor. The VA survey indicated that customization improves the relevance of the Integration Score for different types of organizations.

Conclusions—The Integration Score is a valid index for assessing the integration of worksite health protection and health promotion approaches and is customizable based on industry.

Clinical Significance—The Integration Score may be used as a single metric for assessing the integration of worksite health protection and health promotion approaches in differing work contexts.

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Introduction

Total Worker Health® "is defined as policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being" by the National Institute of Occupational Health and Safety (NIOSH).(1) Until recently, there were no validated measures of integration. First developed by Sorensen et al., the Indicators of Integration were given to a sample of small to medium sized firms (PULSE survey).(2) Previous work in this sample tested the validity of the Integration Score—finding excellent reliability as well as evidence for the convergent validity of the Score.(3)

This study extends prior validation efforts by testing the dimensionality of the Integration Score. During development, the measure was broken down into several conceptual domains as described by Sorensen et al.(2) These domains include both theoretically and practically relevant aspects of integration: organizational leadership and commitment; coordination of worksite efforts to protect and promote worker health, safety, and well-being; supportive organizational policies and practices; and comprehensive program content.(2) This study uses exploratory factor analysis to determine the empirical dimensionality of the Integration Score across two survey samples, which may or may not be related to the theoretical domains.

Additionally, this study describes the adaptation of the survey for use in VA administrative parents. An administrative parent is a collection of all the points of service that a VA leadership group manages. An administrative parent facility may be located at a VA Medical Center (VAMC), a Community Based Outpatient Clinic (CBOC), or a Health Care Center (HCC). The Veterans Administration sample was chosen as it represented a very different size and enterprise sector from the PULSE survey which might lend increased generalizability to the results. The Veterans Health Administration (VHA), the health care arm of the VA, is the largest integrated health care delivery system in the U.S., with 140 administrative parents (at least one in each state); administrative parents range in size from 500 to over 5,000 employees. VA administrative parents are located in urban as well as rural locations and vary in terms of the complexity of services they provide. Many provide traditional hospital-based services such as surgery, critical care, mental health, orthopedics, pharmacy, radiology and physical therapy, as well as a number of additional medical and surgical specialty services. The VA has over 318,000 employees in total with a mix of clinical and non-clinical workers. The primary classifications of employees include physicians, nurses, other clinical staff, administrative staff, and wage grade workers (i.e., trade, craft, and laborers). Nurses comprise the largest component of clinical staff and approximately one third of the VA workforce is administrative. Data from the sample of all VA administrative parents and from the sample of small to medium sized firms are used to assess the dimensionality and reliability of the Integration Score separately.

Methods

Study Design & Subjects

The web-based survey of small to medium employers (<750 employees) used in this study was conducted between September 2013 and March 2014 (hereafter PULSE survey). The survey was sent to Human Resources Directors at 400 small- and medium-size businesses to understand the interests and practices of smaller organizations in relation to adopting Total Worker Health approaches. Up to 3 additional electronic and phone attempts were made to reach non-respondents; subsequently surveys were sent in the mail to the non-respondents one time. Detailed information on the design and conduct of the survey can be found in McLellan et al. and Williams et al. (3, 4) Approval was obtained from the IRB at the Harvard T. H. Chan School of Public Health. As mentioned in previous work, companies were in industries such as professional, scientific, and technical services; healthcare and social assistance, and manufacturing, among many others.(4) As mentioned in previous work, survey respondents were representative of a cross-section of employers in the area, including industries such as professional, scientific, and technical services; healthcare and social assistance, manufacturing, among many others. Respondents were more likely to be from smaller companies (<112 employees) than non-respondents. (4)

The VA Office of Public Health periodically surveys the Occupational Health programs it administers (e.g., clinical occupational health, safe patient handling, employee health and well-being, etc.) to obtain operational information that is not readily available through other means. A web-based survey was developed to assess the structure and performance of employee health and well-being programs and activities within the system. It was administered by the Healthcare Analysis and Information Group (HAIG) from June 16 through July 11, 2014. The survey was distributed by network and medical center directors to Employee Wellness Coordinators or other designated staff to complete. For the purpose of this survey, one response was requested from each of 140 administrative parents in VA. All 140 administrative parents submitted a survey response, thus the response rate was 100%.

Quantitative Variables

The full Indicators of Integration and its properties as the Integration Score are available in Sorensen et al. and Williams et al. (2, 3) The answers to each question in the measure are coded so that higher numerical scores indicated greater integration between health protection and health promotion. Answers of “absent” are scored as 0, answers of “partially adopted” are scored as 1, and answers of “fully adopted” are scored as 2. One question from the original measure, whether workers are actively engaged in planning and implementing health promotion and occupational safety and health programs and policies, was inadvertently omitted from the PULSE survey. This omission was an additional reason for using the VA sample. The measure has a theoretical range of [0, 44].

Customization of VA Survey

A number of minor modifications were made to several questions in the VA survey to make them more specific to the organization. For example, the term “worksite wellness” was changed to “employee wellness” throughout since the latter term is more frequently used in

the VA (please see Table 1). Additionally, in a number of the questions, VA-specific examples were listed in order to give survey respondents additional context when responding. Finally, in addition to the customizations of the survey questions, the answer choices were modified so that "don't know" was an additional answer choice.

Statistical Methods

Exploratory Factor Analysis (EFA) was used to assess the dimensionality of the Integration Score. Iterated principal factors were used with the varimax rotation (maximizes the squared loadings of the columns). Because factor analysis is often an iterative procedure, a cutoff of 0.5 was used to determine which variables' loadings would be considered for deletion.(5–7) However, variables with lower loadings will also be discussed with regard to the ideal loadings of either close to zero or very high. Additionally, Cronbach's Alpha coefficient and the inter-item correlations were calculated for the VA survey (completed in previous work for the PULSE survey). (3, 8)

In the VA survey multiple imputation was used to impute the "don't know" responses under a multivariate normal model. There was very little missing data in the PULSE survey so both complete case analysis and multiple imputation were used. A sensitivity analysis was also used for the VA survey where "don't know" survey responses were changed to "absent," based on the assumption that if the interviewee was unaware of the integration factor, it was most likely absent. Factor analysis was performed on the multiply imputed data using maximum likelihood with the expectation-maximization algorithm to estimate the covariance matrix as suggested by Truxillo. (9, 10) Results from the sample with "don't know" values coded as "absent" were substantively similar to the multiply imputed results. All analyses were conducted using STATA 13.1. (11)

Results

PARTICIPANTS

The PULSE survey was distributed to 400 companies; the total response rate was 29%. The complete case analysis uses 111 respondents, while multiply imputing missing values leads to a sample size of 115. The survey of VA administrative parents was requested from each of 140 administrative parents in VA. All 140 administrative parents submitted a survey response, thus the response rate was 100%.

DESCRIPTIVE STATISTICS

Descriptive statistics for the VA sample are presented in Table 1. Cronbach's alpha for the Integration score in the VA sample was 0.93 (0.94 in PULSE). The average inter-item correlations ranged from 0.19 to 0.21 in the VA sample (0.17 to 0.19 in PULSE).

MAIN RESULTS: EXPLORATORY FACTOR ANALYSES

PULSE Results—Initial EFA resulted in eigenvalues >1, 9.78 and 1.09, for two factors. The scree plot showed a dramatic decrease in slope at the second factor and another smaller decrease at the 5th factor. The first factor explained 54.88% of the variance, the second explained an additional 6.10%, the third an additional 5.44%, and the 4th an additional

4.86%. A parallel test also confirmed that all factors but the first were essentially random noise. (12) Using these results and by looking at the relative strength of the loadings using 1, 2, 3, and 4 factors, having only one factor appeared to be the dominant solution.

Using the multiply imputed data, factor loadings ranged from 0.47 to 0.78, with most in the 0.6-0.8 range (see Table 2). After removing the two variables with loadings below 0.5; *incentives are offered to managers who protect and promote health,* and *workplace benefits exist that address health, safety and wellbeing*, no additional removals were necessary as all remaining loadings were above 0.5. The results from the complete case analysis were nearly identical.

VA Results—Initial EFA of the multiply imputed (MI) sample resulted in eigenvalues >1, 9.88 and 1.33, for two factors. The scree plot of the eigenvalues showed a dramatic slope change at the second factor. The first factor explained 88.14% of the variance while the second factor brought the cumulative variance explained to 100%. Given these results, we kept only one factor for further analysis. Results from the sample with "don't know" values coded as "absent" were substantively similar and also pointed to retaining only one factor.

Using the sample with multiply imputed data, the factor loadings from the analysis are available in Table 3. Factor loadings ranged from 0.42 to 0.82. Loadings for all but three of the variables were above the 0.5 cutoff. The first round of deletions resulted in the removal of three variables from the index: *incentives are offered to employees to complete activities to stay healthy and/or practice health lifestyles*, *incentives offered to managers who protect and promote health*, and *data related to employee health outcomes are integrated within a coordinated system*. No further deletions were necessary. Factor loadings for the sample with "don't know" values coded as "absent," are given in Appendix Table 1. The results of the sensitivity analysis were very similar to the results using multiply imputed data but with additional questions removed after the first round of factor analysis.

Discussion

In summary, both the Pulse and VA results indicated the potential removal of the question on "incentives are offered to managers who protect and promote health" from the index. Nearly all of the variables had reasonably high loadings, showing that they contributed to the overall index in both samples. One potential reason that the question about incentives provided to managers had a low loading was that it did not vary much across facilities and that it was not highly correlated with other metrics of integration. Evidence of this low variation in the sample is that in the Pulse survey, 84.7% of respondents answered that this was absent in their workplace. A lower but still relatively high number of Administrative parents in the VA sample, 62%, also reported this feature as absent. Incentives for managers to integrate health promotion and protection may not be offered in most workplaces. Because this question had such a low loading, we recommend testing its omission in additional samples with greater variation. Qualitative research to investigate employer provision of incentives to managers who use integrated approaches to worker health protection and promotion, could further clarify its role and importance.

Strengths and Limitations

A strength of the study is the 100% response rate from the VA. The Healthcare Analysis & Information Group in VA conducts program reviews to obtain operational information not readily available through other means and always obtains a 100% response rate; all medical centers within the VA healthcare system must respond to surveys administered by the Healthcare Analysis & Information Group. The overall response rate of 29% for the PULSE survey, while low, is typical for web-based self-response surveys. (13)

While EFA has been used to test the dimensionality of many indices currently in use, the choice of the number of factors and how to interpret the cutoff values for factor loadings is somewhat subjective.(14) Additionally, although the measure was tested in two different samples, it is possible that results from larger samples or in different industries would have produced different results. However, the similarity of the results given the differences in the sample tested here (one national but only in healthcare and one in the Midwest but in different industries) point to the general validity of the Integration Score.

Conclusions

This study provided evidence that the Integration Score (Indicators of Integration) is best used as a single index rather than as a set of sub-scales in two disparate samples. During the construction of the measure of Integration, the questions were divided into conceptually distinct categories to measure separate constructs that when combined may indicate that integrated approaches exist. (2) In a sample of small to medium companies located in the Midwest and a comprehensive national sample of VA Administrative parents, EFA pointed to using the measure as a *single* index. However, the sub-scales' constructs may be helpful in highlighting specific content areas of interest to enterprises, or for developing hypotheses about particular components of integration.

The similarity of the results between the Pulse and VA Medical Center surveys despite changes in the wording of some questions and answer choices, is encouraging of the broad use the measure. Depending on the nature of the organizations under study—slight adaptations such as those described for the VA Administrative parents sample might produce surveys that are easier for respondents to answer. However, practitioners should keep in mind that the major validation of the Integration Score was conducted using the wording as described in Sorensen et al. and Williams et al. (2, 3) Additional studies in varied samples will further improve the knowledge and validity of the Integration Score.

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Table 1

VHA Sample: Indicators of Integration Survey Items

	Absent N (%)	Partially Adopted N (%)	Fully Achieved N (%)	Don't Know N (%)
1. Top management expresses its commitment to a culture of health and an environment that supports employee health	5 (4%)	73 (52%)	58 (41%)	4 (3%)
2. Both worker and worksite health are included as part of the facility's mission	15 (11%)	65 (46%)	45 (32%)	15 (11%)
3. Senior leadership allocates adequate human and fiscal resources to implement integrated approaches to promote and protect worker health	14 (10%)	80 (57%)	37 (26%)	9 (6%)
4. Decision making about policies, programs, and practices related to worker health is coordinated across departments, including those responsible for occupational safety and health and those responsible for employee wellness.	10 (7%)	76 (54%)	45 (32%)	9 (6%)
5. Processes are in place to coordinate and leverage interdepartmental budgets allocated toward integrated approaches.	41 (29%)	30 (21%)	33 (24%)	36 (26%)
6. Efforts to promote and protect worker health include organizational level policies and individual level education/programs for employees.	3 (2%)	74 (53%)	54 (39%)	9 (6%)
7. Program managers responsible for employee wellness and occupational safety and health are trained to provide integrated approaches.	19 (14%)	74 (53%)	35 (25%)	12 (9%)
8. Facility leadership is trained to ensure employee health through coordination with and support for occupational safety and health and employee wellness.	15 (11%)	52 (37%)	42 (30%)	31 (22%)
9. Job descriptions for staff responsible for employee wellness and occupational safety and health include roles and responsibilities that require the provision of integrated approaches.	29 (21%)	57 (41%)	34 (24%)	20 (14%)
10. Performance metrics for those responsible for employee wellness and occupational safety and health include success with the provision of integrated approaches.	45 (32%)	45 (32%)	25 (18%)	25 (18%)
11. Professional development strategies include training and setting goals at performance reviews related to the provision of integrated approaches.	45 (32%)	42 (30%)	27 (19%)	26 (19%)
12. Employee wellness and occupational safety and health contractors (e.g., fitness instructors, Federal Occupational Health (FOH)) have the experience and expertise to coordinate with and/or deliver approaches that support the provision of integrated approaches.	28 (20%)	49 (35%)	29 (21%)	34 (24%)
13. Both managers and employees are engaged in decision making about priorities for integrated approaches (e.g., through surveys, focus groups, suggestion boxes, union participation).	39 (28%)	55 (39%)	38 (27%)	8 (6%)
14. Joint worker-management committees addressing integrated approaches reflect both employee wellness and occupational safety and health (e.g., safety committee, Accident Review Board (ARB), violence prevention committee).	18 (13%)	49 (35%)	64 (46%)	9 (6%)
15. Workers are actively engaged in planning and implementing integrated approaches.	29 (21%)	68 (49%)	31 (22%)	12 (9%)
16. Incentives are offered to employees to complete activities to stay healthy (e.g., attend a training on health/safety), reduce high-risk behaviors (e.g., quit smoking) and/or practice healthy lifestyles (e.g., onsite gym membership).	51 (36%)	61 (44%)	26 (19%)	2 (1%)
17. Incentives are offered to managers (e.g., performance review bonuses) who protect and promote health (e.g., accomplish health and safety in their departments and encourage reporting of hazards, illnesses, injuries, and near misses; lead and encourage their employees in health promotion and protection efforts).	87 (62%)	18 (13%)	9 (6%)	26 (19%)

	Absent N (%)	Partially Adopted N (%)	Fully Achieved N (%)	Don't Know N (%)
18. Workplace benefits address health, safety, and well-being (e.g., flextime, screening and prevention coverage, and wellness opportunities).	25 (18%)	68 (49%)	39 (28%)	8 (6%)
19. The effects of employee wellness and occupational safety and health programs are monitored jointly.	48 (34%)	52 (37%)	29 (21%)	11 (8%)
20. Data related to employee health outcomes are integrated within a coordinated system (e.g., Occupational Health Record-keeping System (OHRS).	33 (24%)	65 (46%)	32 (23%)	10 (7%)
21. High-level indicator reports (e.g., "dashboards") on integrated approaches are presented to upper level management on a regular basis, while protecting employee patient confidentiality (e.g., aggregate data).	47 (34%)	39 (28%)	21 (15%)	33 (24%)
22. The content of educational programs such as classes, online courses or webinars, or toolbox talks address potential additive or synergistic risks posed by exposures on the job and risk-related behaviors.	21 (15%)	60 (43%)	42 (30%)	17 (12%)
23. The content of educational programs such as classes, online courses or webinars, or toolbox talks acknowledges the impact of job experiences and the work environment on successful health behavior change.	21(15%)	66 (47%)	31 (22%)	22 (16%)

Notes: Totals may not sum to exactly 100% because of rounding. This table contains the frequencies of response to questions measuring the level and dimensions of the integration between occupational safety and health programs and policies and health promotion programs and policies. This web-based survey was completed by administrative parent facility of the VA from June 16 through July 11, 2014.

Table 2

PULSE Sample factor loadings after Multiple Imputation

Integration Measures	Initial Loadings	Loadings after 1st round deletions
1. Top management expresses its commitment to a culture of health and an environment that supports employee health.	0.535	0.533
2. Both worker and worksite health are included as part of the organization's mission.	0.542	0.538
3. Senior leadership allocates resources adequate human and fiscal resources to implement programs to protect and promote worker health.	0.666	0.662
4. Decision making about policies, programs, and practices related to worker health is coordinated across departments, including those responsible for occupational safety and health and those responsible for worksite wellness.	0.662	0.663
5. Processes are in place to coordinate and leverage interdepartmental budgets allocated toward both worksite wellness and occupational safety and health.	0.723	0.723
6. Efforts to promote and protect worker health include both policies about the work organization and environment and education and programs for individual workers.	0.706	0.713
7. Program managers responsible for worksite wellness and OSH are trained to coordinate and implement programs, practices and policies for both worksite wellness and occupational safety and health.	0.721	0.722
8. Operation managers are trained to ensure employee health through coordination with and support for occupational safety and health and worksite wellness.	0.697	0.704
9. Job descriptions for staff responsible for worksite wellness and occupational health and safety include roles and responsibilities that require interdepartmental collaboration and coordination of worksite wellness and occupational safety and health programs, policies, and practices.	0.681	0.678
10. Performance metrics for those responsible for worksite wellness and occupational safety and health include success with interdepartmental collaboration and coordination of worksite wellness and occupational safety and health programs, policies, and practices.	0.697	0.698
11. Professional development strategies include training and setting goals at performance reviews related to interdepartmental collaboration and coordination of worksite wellness and occupational safety and health programs, policies, and practices.	0.679	0.682
12. Worksite wellness and occupational safety and health vendors have the experience and expertise to coordinate with and/or deliver approaches that support the coordination and collaboration of workplace wellness and occupational safety and health efforts.	0.707	0.71
13. Both managers and employees are engaged in decision-making about priorities for coordinated worksite wellness and occupational safety and health programs, policies, and practices.	0.787	0.791
14. Joint worker-management committees addressing worker and worksite health reflect both worksite wellness and occupational safety and health.	0.632	0.634
15. MISSING ITEM: workers are actively engaged in planning and implementing health promotion and occupational safety and health programs and policies.		
16. Incentives are offered to employees to complete activities to stay healthy (e.g. attend a training on health/safety), reduce their high risk behavior (e.g. quit smoking), and/or practice healthy lifestyles (e.g. gym membership discounts).	0.585	0.579
17. Incentives are offered to managers who protect and promote health (e.g. accomplish health and safety in their departments and encourage reporting of hazards, illnesses, and injuries, and near misses; lead and encourage their employees in health promotion and protection efforts).	0.477	
18. Workplace benefits exist that address health, safety, and well-being (e.g. health care coverage, flex-time, paid sick leave, screening and prevention coverage, wellness opportunities).	0.492	
19. The effects of worksite wellness and occupational safety and health programs are monitored jointly.	0.684	0.685
20. Data related to employee health outcomes are integrated within a coordinated system.	0.625	0.625

Integration Measures	Initial Loadings	Loadings after 1st round deletions
21. High-level indicator reports (e.g., “dashboards”) on integrated programs are presented to upper level management on a regular basis, while protecting employee confidentiality.	0.673	0.669
22. The content of educational programs, such as classes, online courses or webinars, or toolbox talks, addresses potential additive or synergistic risks posed by exposures on the job and risk-related behaviors.	0.659	0.65
23. The content of educational programs, such as classes, online courses or webinars, or toolbox talks, acknowledges the impact of job experiences and the work environment on successful health behavior change.	0.734	0.731

Notes: This table contains the factor loadings of each variable in the Integration Score. The results are based on a web-based survey of small to medium employers (<750 employees) was conducted between September 2013 and March 2014.

Table 3

VHA Sample Factor Loadings after Multiple Imputation

Integration Measures	Initial Loading	Loadings after 1st round deletions
1. Top management expresses its commitment to a culture of health and an environment that supports employee health.	0.622	0.623
2. Both worker and worksite health are included as part of the facility's mission.	0.567	0.566
3. Senior leadership allocates adequate human and fiscal resources to implement integrated approaches to promote and protect worker health.	0.623	0.623
4. Decision making about policies, programs, and practices related to worker health is coordinated across departments, including those responsible for occupational safety and health and those responsible for employee wellness.	0.612	0.62
5. Processes are in place to coordinate and leverage interdepartmental budgets allocated toward integrated approaches.	0.758	0.765
6. Efforts to promote and protect worker health include organizational level policies and individual level education/programs for employees.	0.688	0.687
7. Program managers responsible for employee wellness and occupational safety and health are trained to provide integrated approaches.	0.795	0.796
8. Facility leadership is trained to ensure employee health through coordination with and support for occupational safety and health and employee wellness.	0.746	0.745
9. Job descriptions for staff responsible for employee wellness and occupational safety and health include roles and responsibilities that require the provision of integrated approaches.	0.773	0.777
10. Performance metrics for those responsible for employee wellness and occupational safety and health include success with the provision of integrated approaches.	0.817	0.817
11. Professional development strategies include training and setting goals at performance reviews related to the provision of integrated approaches.	0.77	0.77
12. Employee wellness and occupational safety and health contractors (e.g., fitness instructors, Federal Occupational Health (FOH)) have the experience and expertise to coordinate with and/or deliver approaches that support the provision of integrated approaches.	0.567	0.571
13. Both managers and employees are engaged in decision making about priorities for integrated approaches (e.g., through surveys, focus groups, suggestion boxes, union participation).	0.717	0.721
14. Joint worker-management committees addressing integrated approaches reflect both employee wellness and occupational safety and health (e.g., safety committee, Accident Review Board (ARB), violence prevention committee).	0.642	0.644
15. Workers are actively engaged in planning and implementing integrated approaches.	0.747	0.744
16. Incentives are offered to employees to complete activities to stay healthy (e.g., attend a training on health/safety), reduce high-risk behaviors (e.g., quit smoking) and/or practice healthy lifestyles (e.g., onsite gym membership).	0.434	
17. Incentives are offered to managers (e.g., performance review bonuses) who protect and promote health (e.g., accomplish health and safety in their departments and encourage reporting of hazards, illnesses, injuries, and near misses; lead and encourage their employees in health promotion and protection efforts).	0.463	
18. Workplace benefits address health, safety, and well-being (e.g., flextime, screening and prevention coverage, and wellness opportunities).	0.516	0.508
19. The effects of employee wellness and occupational safety and health programs are monitored jointly.	0.675	0.668
20. Data related to employee health outcomes are integrated within a coordinated system (e.g., Occupational Health Record-keeping System (OHRS).	0.423	
21. High-level indicator reports (e.g., "dashboards") on integrated approaches are presented to upper level management on a regular basis, while protecting employee patient confidentiality (e.g., aggregate data).	0.54	0.532

Integration Measures	Initial Loading	Loadings after 1st round deletions
22. The content of educational programs such as classes, online courses or webinars, or toolbox talks address potential additive or synergistic risks posed by exposures on the job and risk-related behaviors.	0.648	0.647
23. The content of educational programs such as classes, online courses or webinars, or toolbox talks acknowledges the impact of job experiences and the work environment on successful health behavior change.	0.664	0.665

Notes: This table contains the factor loadings of each variable in the Integration Score. The results are based on a web-based survey was completed by administrative parent facility of the VA from June 16 through July 11, 2014.

Appendix Table 1

VHA Sample Factor Loadings with "Don't know" values coded as "Absent"

Integration Measures	Initial Loadings	Loadings after 1st round deletions	Loadings after 2st round deletions
1. Top management expresses its commitment to a culture of health and an environment that supports employee health.	0.591	0.611	0.614
2. Both worker and worksite health are included as part of the facility's mission.	0.549	0.563	0.563
3. Senior leadership allocates adequate human and fiscal resources to implement integrated approaches to promote and protect worker health.	0.613	0.632	0.629
4. Decision making about policies, programs, and practices related to worker health is coordinated across departments, including those responsible for occupational safety and health and those responsible for employee wellness.	0.587	0.588	0.596
5. Processes are in place to coordinate and leverage interdepartmental budgets allocated toward integrated approaches.	0.688	0.7	0.702
6. Efforts to promote and protect worker health include organizational level policies and individual level education/programs for employees.	0.702	0.709	0.713
7. Program managers responsible for employee wellness and occupational safety and health are trained to provide integrated approaches.	0.741	0.749	0.749
8. Facility leadership is trained to ensure employee health through coordination with and support for occupational safety and health and employee wellness.	0.659	0.674	0.666
9. Job descriptions for staff responsible for employee wellness and occupational safety and health include roles and responsibilities that require the provision of integrated approaches.	0.706	0.71	0.712
10. Performance metrics for those responsible for employee wellness and occupational safety and health include success with the provision of integrated approaches.	0.759	0.751	0.756
11. Professional development strategies include training and setting goals at performance reviews related to the provision of integrated approaches.	0.673	0.669	0.672
12. Employee wellness and occupational safety and health contractors (e.g., fitness instructors, Federal Occupational Health (FOH)) have the experience and expertise to coordinate with and/or deliver approaches that support the provision of integrated approaches.	0.51	0.516	0.52
13. Both managers and employees are engaged in decision making about priorities for integrated approaches (e.g., through surveys, focus groups, suggestion boxes, union participation).	0.684	0.681	0.68
14. Joint worker-management committees addressing integrated approaches reflect both employee wellness and occupational safety and health (e.g., safety committee, Accident Review Board (ARB), violence prevention committee).	0.616	0.604	0.61
15. Workers are actively engaged in planning and implementing integrated approaches.	0.74	0.736	0.732
16. Incentives are offered to employees to complete activities to stay healthy (e.g., attend a training on health/safety), reduce high-risk behaviors (e.g., quit smoking) and/or practice healthy lifestyles (e.g., onsite gym membership).	0.502	0.491	
17. Incentives are offered to managers (e.g., performance review bonuses) who protect and promote health (e.g., accomplish health and safety in their departments and encourage reporting of hazards, illnesses, injuries, and near misses; lead and encourage their employees in health promotion and protection efforts).	0.483		
18. Workplace benefits address health, safety, and well-being (e.g., flextime, screening and prevention coverage, and wellness opportunities).	0.551	0.541	0.529
19. The effects of employee wellness and occupational safety and health programs are monitored jointly.	0.715	0.688	0.684

Integration Measures	Initial Loadings	Loadings after 1st round deletions	Loadings after 2st round deletions
20. Data related to employee health outcomes are integrated within a coordinated system (e.g., Occupational Health Record-keeping System (OHRS).	0.414		
21. High-level indicator reports (e.g., "dashboards") on integrated approaches are presented to upper level management on a regular basis, while protecting employee patient confidentiality (e.g., aggregate data).	0.48		
22. The content of educational programs such as classes, online courses or webinars, or toolbox talks address potential additive or synergistic risks posed by exposures on the job and risk-related behaviors.	0.613	0.606	0.603
23. The content of educational programs such as classes, online courses or webinars, or toolbox talks acknowledges the impact of job experiences and the work environment on successful health behavior change.	0.6	0.592	0.591