

The Necessary Components for Evaluating Return-to-Work in Depressive Workers: A Modified Delphi Technique

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Background: Mental health issues in the workplace can have adverse effects on productivity. Among the various mental disorders, depression is the most observed problem. That being stated, the return to work (RTW) rates for depressive workers are lower than other disabling conditions. The present study was due to the absence of guidelines regarding RTW assessments for depressive workers in occupational medicine.

Objective: To determine the necessary components for evaluating RTW in depressive workers.

Materials and Methods: Twenty-two occupational medicine and psychiatry experts deployed a modified Delphi study. The study was conducted in four steps, expert selection, comprehensive literature review, and administration of a two-round questionnaire to assess the level of agreement among participants. A second-round questionnaire was used to determine the degree of consensus.

Results: Twenty experts responded to the first-round questionnaire, agreed on 15 components, and suggested four additional components. In the second-round questionnaire, 14 components consisted of distress, depress mood, anxiety, suicidal ideation, executive function, attention, social awareness, learning and memory, language, health-risk behavior, self-efficacy, psychiatric medication, communication with supervisor, and job stress. Twenty tools met the consensus criteria. A depressed mood and suicidal ideation were the most consensus components from experts.

Conclusion: The assessment of RTW in workers with depression requires considering 14 components; however, developing guidelines and appropriate tools for evaluating these components requires further investigation and study.

Keywords: Return-To-Work, Depression, Mental Health, Delphi

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Mental health problems, specifically depression, are significant global burdens that have not shown any evidence of reduction since 1990⁽¹⁾. Mental health encompasses emotional, psychological, and social well-being. It is essential to differentiate between poor mental health and mental illness. Poor mental health does not always equate to a diagnosed mental illness, as psychological and physical health are integral components of overall well-being⁽²⁾. The elderly population has recently increased, comprising approximately 22% of the world's population,

with 15% experiencing mental health issues, often associated with reduced mobility and chronic pain that require long-term care⁽³⁾. Mental health problems can also affect children's learning and behavior⁽⁴⁾.

The workplace is another context where mental health problems are prevalent, with a report indicating that 14.7% of individuals experienced mental health issues, contributing to 12.7% of sickness absence days in the United Kingdom in 2008⁽⁵⁾. The European Union has acknowledged the widespread occurrence and impact of mental health disorders, estimating that 20% of the adult working population experiences some form of mental health problem at any given time. Depression is widespread among the United States workforce⁽⁶⁾. The consequences of depression in the workplace affect productivity, employee performance, illness rates, absenteeism, accidents, and staff turnover⁽⁷⁾. In the United States, the economic burden of depression alone amounts to an estimated \$30 to 40 billion, with approximately 200 million workdays lost yearly⁽⁸⁾.

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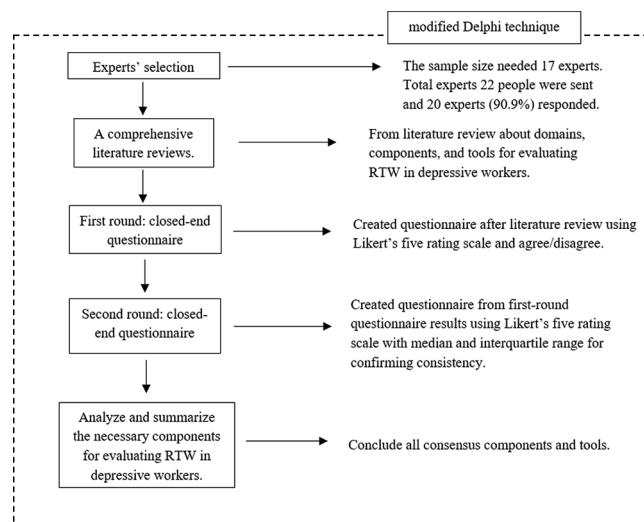


Figure 1. Research methodology.

Comparatively, mental disorders, malignant neoplasms, and severe cardiovascular diseases have the lowest rates of return to work (RTW)⁽⁹⁾. Unfortunately, the effectiveness of most RTW interventions for mental health problems has been described as poor⁽¹⁰⁾. Numerous factors contribute to the low rates of RTW in individuals with mental health problems, such as limited awareness of work and lack of support from employers and the working system. Germany's S3 guideline for psychosocial therapies in severe mental disorders is essential for the RTW process but lacks continuity⁽¹¹⁾.

Unemployment poses significant risks to patients' physical, mental, and social well-being, highlighting the importance of urging patients to RTW and refraining from certifying disability unless it is evident⁽¹²⁾. The RTW process involves determining restrictions, capacity, and tolerance. Restrictions refer to activities that patients cannot perform, even if they believed they could, while capacity represents tasks that they can perform at a given time. Tolerance, encompassing pain, numbness, and fatigue, also affects workability⁽¹³⁾. RTW is typically regulated or mandated in countries such as Australia and the United Kingdom^(14,15). The 2020 Ministry of Labor Regulation about the Standards of Medical Examination for Employees in Thailand allows employees who have taken medical leave for more than two days to seek the opinions of occupational medicine physicians for RTW assessment⁽¹⁶⁾.

Consequently, occupational medicine physicians require tools or guidelines for assessing RTW based on various diseases. While there are existing guidelines

for RTW in many conditions and injuries, such as fractures, muscle strains, and other musculoskeletal disorders, there is a lack of research and guidelines explicitly addressing the necessary components and tools to evaluate RTW in depressive workers. Therefore, the current study aimed to determine the essential components and tools to help occupational medicine physicians evaluate RTW in depressive workers.

Materials and Methods

The current study used the modified Delphi technique and comprised expert selection and a comprehensive review of the literature to create the first-round questionnaire. The second-round questionnaire was then distributed to the participants (Figure 1).

Study population: experts in occupational medicine and psychiatry field

The study population of 22 experts was purposively sampled. The sample size was calculated according to the minimum required number of participants for the modified Delphi technique to detect the slightest discrepancy of opinion among 17 people⁽¹⁷⁾. The qualifications required of the expert participants included 1) having at least five years of experience as a specialist, 2) having published research on occupational health, occupational medicine, or psychiatric medicine, 3a) for occupational medicine physicians, that they should have evaluated more than 50 cases of RTW and more than five cases of depressive workers

Table 1. Qualification of experts

Specialist	n=20	Qualified proportion; n (%)			
		Experience more than 5 years	Research publication	RTW OM	RTW psychi
Occupational medicine	8	8 (100.0)	8 (100.0)	7 (87.5)	
Psychiatrist	12	12 (100.0)	9 (75.0)		7 (58.3)

RTW=return to work

(RTW OM), and 3b) for psychiatrists, they should have experience assessing five or more RTW cases (RTW psychi). The group of 22 experts included eight occupational medicine physicians and 14 psychiatrists.

Data collection and analysis in the first-round questionnaire

The first-round questionnaire was designed based on a review of the relevant literature and was closed-ended. For agreement with the evaluation components, a Likert scale with five ratings was used with 1 for strongly disagree, 2 for disagree, 3 for neither agree nor disagree, 4 for agree, and 5 for strongly agree. The authors utilized a binary method, 'agree' or 'disagree,' to assess the suitability of tools for evaluating each component, but we also solicited recommendations for new components and tools. Data were analyzed using IBM SPSS Statistics, version 28.0 (IBM Corp., Armonk, NY, USA). Components with a median of more than 3.50⁽¹⁸⁾ and tools with more than 60% agreement passed onto the second-round questionnaire along with additional components and tools suggested by the experts.

Data collection and analysis in the second-round questionnaire

The second-round questionnaire was designed to use the Likert scale with five ratings as well, including the median and interquartile range (IQR). Expert responses were analyzed using IQR and median-mode difference. An IQR of 1.5 or less and a median-mode difference of 1.0 or less indicated consensus among experts⁽¹⁹⁾. After the consensus analysis, only consistent components and tools were selected to determine the necessary components for evaluating RTW in depressive workers.

Ethical approval

The Khon Kaen University Ethics Committee reviewed and approved the current study for Human Research based on the Declaration of Helsinki and the ICH Good Clinical Practice Guidelines. Ethical reference number: HE651268.

Results

Twenty participants were enrolled in the current study, which was 90.9%. Twelve of them were psychiatrists, and eight of them were occupational medicine physicians. Most of them worked in a teaching hospital and have published research on occupational medicine or psychiatric medicine. Only one occupational medicine expert (12.5%) did not meet the RTW criteria, while five out of twelve psychiatrists (41.7%) did not (Table 1).

The literature review found that the components associated with the RTW rate in relation to patients with mental health problems could be classified into three domains, mental or clinical, personal, and workplace. The 18 components with their tools, gathered from the literature review and the consensus results from the experts, are presented in Table 2.

In the first-round questionnaire, 15 components (83.3%) met the criteria and were included in the second-round questionnaire. The three components most commonly agreed-upon in the first-round questionnaire included 1) depressed mood (median 5.00, IQR 0), with the best tool for its evaluation being the Hamilton Rating Scale for Depression (HAM-D) (95% agreement), 2) attention (median 5.00, IQR 0), with the best tool for its evaluation being the Thai Mental State Examination (TMSE) (85% agreement), and 3) job stress (median 5.00, IQR 0). The Work Stress Questionnaire (WSQ) was not considered an appropriate tool by our experts. Experts also suggested the following additional components, 1) suicidal ideation, with the 8Q and Ask Suicide Screening Questions being the best tools for its evaluation, 2) stigma, with the Depression Scale being the most appropriate tool, 3) psychiatric medications, and 4) organizational behaviors, with the Copenhagen Psychosocial Questionnaire (COPSOQ) questionnaire being the most appropriate tool.

In the second round, 14 components (73.7%) and 20 tools (41.6%) fulfilled the consensus criteria. The components with the greatest consensus from experts were 1) depressed mood (median 5.00, IQR 0, median-mode difference 0), with the most appropriate evaluation tool being the Patient Health

Table 2. Consensus determination in all components and tools

Component	Tool	First-round			Second-round			
		Median	IQR	Agreement (%)	Median	IQR	Median-mode difference	Consistency
Distress ⁽²⁰⁾		4.0	2.0		5.0	1.0	0.0	Yes
	4DSQ ⁽²⁰⁾			75.0	4.0	1.5	0.0	Yes
	The distress questionnaire-5*				4.0	2.0	1.0	No
Depress mood ⁽²⁰⁻²⁴⁾		5.0	0.0		5.0	0.0	0.0	Yes
	HAM-D ⁽²⁵⁾			95.0	5.0	1.0	0.0	Yes
	BDI ⁽²⁶⁾			80.0	4.0	1.5	0.0	Yes
	PHQ-9 ⁽²⁷⁾			90.0	5.0	0.3	0.0	Yes
	HADS ⁽²⁰⁾			60.0				
	4DSQ ⁽²⁸⁾			60.0				
Fatigue ⁽²⁰⁾		3.5	3.0					
	CIS ⁽²⁰⁾			60.0				
Anxiety ⁽²⁰⁾		4.5	2.0		4.0	1.0	1.0	Yes
	GAD-7 ⁽²⁹⁾			80.0	5.0	1.0	0.0	Yes
	HADS ⁽²⁰⁾			60.0				
	BAI ⁽³⁰⁾			75.0	4.0	2.0	1.0	No
	PSWQ ⁽³¹⁾			65.0	4.0	1.5	0.0	Yes
	4DSQ ⁽²⁸⁾			55.0				
Aggression ⁽¹²⁾		3.0	4.0					
	OAS ⁽³²⁾			60.0				
Perceptual-motor function ⁽¹²⁾		4.5	2.0		4.0	2.0	1.0	No
	MoCA ⁽³³⁾			80.0	5.0	1.0	0.0	Yes
	TMSE ⁽³³⁾			85.0	4.0	2.0	1.0	No
	MMSE ⁽³³⁾			85.0	4.0	2.0	1.0	No
	Thai-CPT ⁽³³⁾			60.0				
	LOTCA questionnaire*				3.0	2.0	1.0	No
Executive function ⁽¹²⁾		5.0	1.0		5.0	1.0	0.0	Yes
	MoCA ⁽³³⁾			75.0	5.0	2.0	0.0	No
	TMSE ⁽³³⁾			70.0	4.0	2.0	1.0	No
	MMSE ⁽³³⁾			70.0	4.0	2.0	1.0	No
	Thai-CPT ⁽³³⁾			55.0				
	Wisconsin card sorting*				3.0	2.0	0.0	No
	Trial making test*				3.0	2.0	0.0	No
Attention ⁽¹²⁾		5.0	0.0		5.0	1.0	0.0	Yes
	MoCA ⁽³³⁾			80.0	5.0	1.0	0.0	Yes
	TMSE ⁽³³⁾			85.0	4.0	2.0	1.0	No
	MMSE ⁽³³⁾			80.0	4.0	2.0	1.0	No
	Thai-CPT ⁽³³⁾			55.0				
Social awareness ⁽¹²⁾		4.0	3.0		4.0	1.5	0.0	Yes
	Social awareness questionnaire*				4.0	2.0	0.0	No
	The social awareness inventory*				3.5	1.0	0.5	Yes
Learning and memory ⁽¹²⁾		5.0	1.0		5.0	1.0	0.0	Yes
	MoCA ⁽³³⁾			80.0	5.0	1.0	0.0	Yes

4DSQ=Four-Dimensional Symptom Questionnaire; HAM-D=Hamilton Rating Scale for Depression; BDI=Beck's Depression Inventory; PHQ-9=Patient Health Questionnaire-9; HADS=Hospital Anxiety and Depression Scale; CIS=Checklist Individual Strength; GAD-7=general anxiety disorder 7-item; BAI=Beck Anxiety Inventory; PSWQ=Penn State Worry Questionnaire; OAS=Overt Aggression Scale; MoCA=Montreal Cognitive Assessment; TMSE=Thai Mental State Examination; MMSE=Mini Mental State Examination; Thai-CPT=Thai Cognitive-Perceptual Test; LOTCA=Loewenstein Occupational Therapy Cognitive Assessment; 8Q=8-questions suicidal ideation; DSS=Depression stigma scale; RISQ=Risky, Impulsive, and Self-Destructive Behavior Questionnaire; DAST-20=Drug Abuse Screening Test 20-item; AUDIT-C=Alcohol Use Disorders Identification Test-Concise; RTW-SE=return to work self-efficacy scale; SSES=Strengths Self-Efficacy Scale; GSE=General Self-Efficacy Scale; WSQ=Work Stress Questionnaire; NIOSH=National Institute for Occupational Safety and Health; JCQ=Job Content Questionnaire; COPSQ=Copenhagen Psychosocial Questionnaire

* Additional components and tools from participants in the first-round questionnaire

Table 2. (continued)

Component	Tool	First-round			Second-round			
		Median	IQR	Agreement (%)	Median	IQR	Median-mode difference	Consistency
Learning and memory ⁽¹²⁾		5.0	1.0		5.0	1.0	0.0	Yes
	TMSE ⁽³³⁾			85.0	4.0	2.0	1.0	No
	MMSE ⁽³³⁾			85.0	4.0	2.0	1.0	No
	Thai-CPT ⁽³³⁾			60.0				
Language ⁽¹²⁾		5.0	2.0		4.0	1.5	1.0	Yes
	MoCA ⁽³³⁾			80.0	5.0	1.3	0.0	Yes
	TMSE ⁽³³⁾			85.0	4.0	2.0	1.0	No
	MMSE ⁽³³⁾			85.0	4.0	2.0	1.0	No
	Thai-CPT ⁽³³⁾			55.0				
Suicidal ideation*					5.0	0.0	0.0	Yes
	8Q*				5.0	1.0	0.0	Yes
	The Ask Suicide-Screening Questions*				4.0	1.5	1.0	Yes
Stigma*					3.0	2.0	0.0	No
	DSS*				3.0	2.0	0.0	No
Health-risk behaviors ^(21,34)		4.0	3.0		5.0	1.0	0.0	Yes
	ASSIST questionnaire*				5.0	1.3	0.0	Yes
	RISQ*				4.0	1.8	0.0	No
	Risk-taking questionnaire*				3.5	1.0	0.5	Yes
	DAST-20*				4.0	1.0	0.0	Yes
	AUDIT-C*				4.0	1.0	0.0	Yes
Self-efficacy ^(20,24,34)		5.0	1.0		5.0	1.0	0.0	Yes
	RTW-SE ⁽³⁵⁾			75.0	5.0	1.5	0.0	Yes
	SSES*				4.0	2.0	1.0	No
	GSE*				4.0	1.0	0.0	Yes
Psychiatric medication*					5.0	1.0	0.0	Yes
Work characteristics ⁽²⁰⁾		5.0	1.0		5.0	1.8	0.0	No
	WSQ ⁽³⁶⁾			75.0	4.0	2.0	1.0	No
	Work design questionnaire*				4.0	1.0	0.0	Yes
	Job demand analysis with work risk assessment*				4.0	2.0	1.0	No
Communication with supervisors ⁽²¹⁾		4.0	1.0		5.0	1.0	0.0	Yes
Sick pay ⁽²¹⁾		3.5	3.0					
Job stress ^(6,21)		5.0	0.0		5.0	1.0	0.0	Yes
	WSQ ⁽³⁶⁾			60.0				
	Brief job stress questionnaire*				4.0	1.0	1.0	Yes
	NIOSH generic job stress questionnaire*				4.0	1.5	0.0	Yes
	JCQ (Karasek questionnaire)*				4.0	1.5	1.0	Yes
Conflict with co-workers ^(12,24)		5.0	1.0		4.0	2.0	1.0	No
	WSQ ⁽³⁶⁾			60.0				
	Brief job stress questionnaire*				4.0	1.8	0.0	No
Organization behaviors*					4.0	2.0	1.0	No
	COPSOQ*				4.0	2.0	1.0	No

4DSQ=Four-Dimensional Symptom Questionnaire; HAM-D=Hamilton Rating Scale for Depression; BDI=Beck's Depression Inventory; PHQ-9=Patient Health Questionnaire-9; HADS=Hospital Anxiety and Depression Scale; CIS=Checklist Individual Strength; GAD-7=general anxiety disorder 7-item; BAI=Beck Anxiety Inventory; PSWQ=Penn State Worry Questionnaire; OAS=Overt Aggression Scale; MoCA=Montreal Cognitive Assessment; TMSE=Thai Mental State Examination; MMSE=Mini Mental State Examination; Thai-CPT=Thai Cognitive-Perceptual Test; LOTCA=Loewenstein Occupational Therapy Cognitive Assessment; 8Q=8-questions suicidal ideation; DSS=Depression stigma scale; RISQ=Risky, Impulsive, and Self-Destructive Behavior Questionnaire; DAST-20=Drug Abuse Screening Test 20-item; AUDIT-C=Alcohol Use Disorders Identification Test-Concise; RTW-SE=return to work self-efficacy scale; SSES=Strengths Self-Efficacy Scale; GSE=General Self-Efficacy Scale; WSQ=Work Stress Questionnaire; NIOSH=National Institute for Occupational Safety and Health; JCQ=Job Content Questionnaire; COPSOQ=Copenhagen Psychosocial Questionnaire

* Additional components and tools from participants in the first-round questionnaire

Table 3. The final necessary components for evaluating RTW in depressive workers

Domains	Components	Tools
Mental	Distress	Four-Dimensional Symptom Questionnaire (4DSQ)
	Depress mood	Hamilton Rating Scale for Depression (HAM-D) Beck's Depression Inventory (BDI) Patient Health Questionnaire-9 (PHQ-9)
	Anxiety	Generalized Anxiety Disorder 7-item scale (GAD-7) Beck Anxiety Inventory (BAI) Penn State Worry Questionnaire (PSWQ)
	Suicidal ideation	8-questions suicidal ideation (8Q) The Ask Suicide-Screening Questions
	Cognition	-
	• Executive function	Montreal Cognitive Assessment (MoCA)
	• Attention	The social awareness inventory
	• Social awareness	Montreal Cognitive Assessment (MoCA)
	• Learning and memory	Montreal Cognitive Assessment (MoCA)
	• Language	Montreal Cognitive Assessment (MoCA)
Personal	Health-risk behaviors	ASSIST questionnaire Risk-taking questionnaire Drug Abuse Screening Test 20-item (DAST-20) Alcohol Use Disorders Identification Test-Concise (AUDIT-C)
	Self-efficacy	Return to work self-efficacy scale (RTW-SE) General Self-Efficacy Scale (GSE)
	Psychiatric medication	-
	Workplace	Communication with supervisors
Workplace	Job stress	Brief job stress questionnaire NIOSH generic job stress questionnaire Job Content Questionnaire (JCQ) (Karasek questionnaire)

Questionnaire-9 (PHQ-9) (median 5.00, IQR 0.25, median-mode difference 0), and 2) suicide ideation (median 5.00, IQR 0, median-mode difference 0) with the most appropriate evaluation tool being the 8Q (median 5.00, IQR 1.00, median-mode difference 0). The final components for the evaluation of RTW in depressed workers were aggregated according to a consensus finding using the modified Delphi technique (Table 3).

Discussion

The current study aimed to determine the necessary components for assessing RTW in depressive patients. The selection of experts was based on their qualifications, including work experience, relevant publications, and experience in the assessment of RTW. Five psychiatrists (41.7%) did not fulfill the RTW criteria, likely due to the majority of RTW cases involving depressive workers being assessed by occupational medicine physicians or occupational health doctors within their organizations rather than the patients visiting a psychiatric clinic, which is in line with the 2020 Ministry of Labor Regulation Standards for Medical Examination for Employees⁽¹⁶⁾. There is, however,

debate around the term ‘expert’ and about how to identify them⁽³⁷⁾. Hasson et al.⁽³⁸⁾ found that the Delphi technique is characterized by including participants with knowledge and expertise in the specific domain under investigation. Additionally, individuals directly affected by the results are more likely to participate in the Delphi methodology. Consequently, the participants in the current study can be considered experts based on their knowledge and expertise in the field.

In the first-round questionnaire, the experts agreed on 15 of 18 factors (83.3%), and the study achieved a high response rate of 90.9%. The present study result indicates the suitability of the modified Delphi technique as a study design for investigating the topic. The modifications made to the Delphi technique, such as simplifying participant responses and conducting a comprehensive literature review, contributed to the high percentage of agreement among participants and high response rate⁽³⁹⁾.

From the first-round questionnaire, three components received disagreement from the experts, fatigue, sick pay, and aggression. Disagreement about fatigue can be attributed to overlapping with the assessment of depressed mood, leading to fatigue

and confusion of the patient. This finding aligns with previous studies that highlight fatigue as a primary residual symptom of depression^(40,41). Regarding sick pay, experts expressed concern about hidden agendas and increased absenteeism of employees associated with their evaluation. The concern is consistent with findings from systematic reviews that indicate an association between sick leave and increased work absences⁽⁴²⁾. Furthermore, aggression is not commonly observed in individuals with depressive disorders⁽⁴³⁾, and it differs from the guidelines provided by the American Medical Association (AMA) for the evaluation of RTW in mental health cases⁽¹²⁾. Nevertheless, this component is considered one of the risks in the field of occupational medicine. Physicians should consider evaluating this component.

In the second-round questionnaire, consensus was reached for most of the components and various cognitive domains. The Montreal Cognitive Assessment (MoCA) emerged as a repeated tool, demonstrating its efficacy in assessing cognition while minimizing patient fatigue. However, this tool has considerations, including the purchase of licenses and the requirement for trained personnel to administer it. Regarding stigma evaluation, participants disagreed with its inclusion, as it is a belief of the patient⁽⁴⁴⁾ and should not be evaluated by physicians. Perceptual-motor function was preserved in depressive patients without other psychiatric comorbidities, as supported by previous research⁽⁴⁵⁾.

The work characteristics did not meet the consensus criteria, due to unfamiliarity among participants, particularly psychiatrists. Experts who disagreed may have considered the evaluation of job stress more beneficial, as it is considered a risk factor for recurrent sickness absence after RTW, aligning with previous research findings⁽⁴⁶⁾. The evaluation of the conflict did not meet the consensus criteria, since the assessment and management of workplace conflict are primarily the responsibility of employers, communicated through various policies and agreements⁽⁴⁷⁾.

When studying a topic with limited existing research, starting with a systematic review is crucial, as the Delphi technique alone may not accurately identify true experts. Engaging in a confrontational approach followed by a discussion with experts may be more effective in obtaining valuable insights. Although the Delphi technique may not always produce favorable results, it remains an essential step in the research process⁽⁴⁸⁾.

Conclusion

For measuring RTW in depressed patients, 14 components are required, with 20 relevant methods for evaluation in each component. Further research should be conducted to use these findings in the practical arena of the RTW process in depressed employees.

Recommendations

1. In the context of the RTW process in patients with depression, it is imperative for occupational medicine physicians, occupational health professionals, and psychiatrists to appropriately assess the components identified in the current study based on the clinical features of individual patients.

2. Future study should include soliciting input and comments from stakeholders and use the findings to establish complete guidelines for the RTW process that are specifically targeted for employees with depression.

What is already known on this topic?

Mental health problems workers including depression have lower rate RTW than other conditions. There are no guidelines about the necessary components for evaluating RTW in depressive patients.

What does this study add?

The assessment of RTW in workers with depression requires considering 14 components. However, developing guidelines and appropriate tools for evaluating these components requires further investigation and study.

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Conflicts of interest

The authors declare no conflict of interest.

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