

Return To Work Programs for Disabled Workers: Dynamic Tendencies of Personal
and Professional Determinants

Ph.D. Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

DEDICATION

In the name of Allah, the Most Compassionate, the Most Merciful, who, in His benevolence, has bestowed upon me His munificent provision and knowledge, enabling the successful completion of this dissertation.

I dedicate this dissertation to my beloved ones. I am grateful beyond words to my parents, who have supported me from miles away with their prayers and wise counsel. To my better half, my source of love and support, Reski Syamsu, I appreciate every moment you have dedicated to me. This adventure would not have been possible without your constant support and encouragement. Yusuf Syafiq Habibi and Ibrahim Rumi Muharram, my two precious children, you fill my heart with love and light. Your innocent smiles and unwavering belief in me have fueled my determination to succeed.

To the valiant champions of disabled workers, whose lives have been afflicted by occupational injuries, may Allah raise their dignity, grant them healing, and fortify their resilience in the face of adversity. Additionally, I extend my appreciation to my fellow case managers, whose unwavering commitment in implementing the Return to Work program has been exemplary. Your dedication and extraordinary efforts are commendable.

May this dissertation illuminate the path towards enhanced comprehension and effective solutions for disabled workers who have suffered occupational injuries. May the knowledge contained herein serve as a catalyst in advocating for their rights and striving for their well-being. To Allah, through His infinite grace, we humbly submit our sacrifices and endeavors. May this dissertation be a righteous deed that yields perpetual benefits for all involved.

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CHAPTER 1: Introduction

1.1 Background

The ramifications of occupational accidents leading to disability can be quite profound, affecting a worker’s physical and psychological well-being as well as their ability to earn a living. People with disabilities typically have a more difficult time getting hired or keeping their current occupations ¹. The Return To Work (RTW) program is a crucial endeavor that aids in the convalescence and reintegration of laborers who have sustained disabilities due to occupational accidents ². The primary objective of the RTW program is to afford individuals with disabilities the chance to reintegrate into the labor market. Frequently, individuals with disabilities encounter prejudice and bias from employers or society at large. The overarching objective of the RTW initiative is to surmount the negative connotations associated with disability and to afford commensurate employment prospects for individuals with disabilities that align with their skill sets ³.

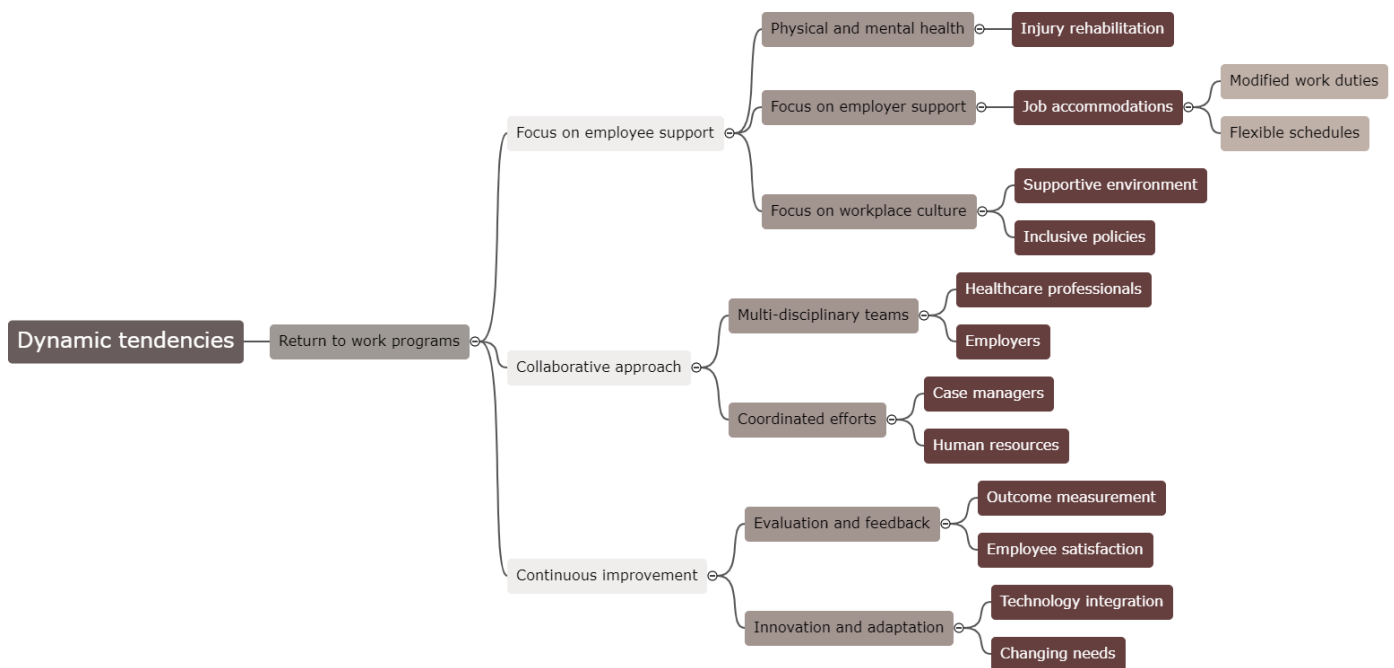


Figure 1 Mind map of Research Background

The elucidated mind map research model in **Figure 1** serves to shed light upon the intricate dynamics inherent in return-to-work programs. Through the meticulous examination of the dynamics between employee and employer support, workplace culture, and multidisciplinary collaboration, this scholarly analysis presents a comprehensive theoretical structure for comprehending the intricate interplay of various elements that contribute to the efficacy of return-to-work endeavors. This framework also highlights the significance of case managers in

facilitating successful outcomes, as well as the imperative nature of ongoing evaluation, feedback, and innovative adaptation for continuous improvement within this context.

Essentially, the RTW Program is an initiative or benefit development of a social security program which, in its implementation, a country may undertake through an employment social security organization or a company or other organization to assist workers who are disabled due to work accidents to return to work. In RTW programs, physical rehabilitation includes physical therapy, occupational therapy, and exercises to improve workers' physical abilities and mobility. Psychological rehabilitation is also important in helping workers cope with stress and other psychological difficulties. In addition, workplace adjustments such as physical modifications and adjustments to tasks or work schedules are made to create a supportive work environment for disabled workers. Integrating the reintegration of disabled workers, physical and psychological rehabilitation, and workplace adjustments, RTW programs provide benefits in recovering workers' self-reliance, building careers, and creating inclusive and productive work environments.

Furthermore, the RTW program activities foster social and economic integration for individuals with disabilities in the workforce. Frequently, the quotidian experiences of laborers with disabilities are constrained by bodily impairments or other forms of disadvantage. Through active participation in the realm of employment, return-to-work initiatives serve to enhance the autonomy and self-regard of individuals with disabilities. In a work environment that fosters inclusivity, individuals have the opportunity to make significant contributions and derive a sense of fulfillment and accomplishment in their professional pursuits.

1.2 Research Problem

This study aims to explore several research issues related to the RTW program for workers with disabilities. This research is expected to provide a deeper understanding of the issues related to the RTW program and provide relevant recommendations, by addressing these following research problems:

Problem 1: Effectiveness of the RTW Program for Disabled Workers due to Occupational Accidents.

- How does the RTW program affect workers with disabilities due to work accidents?

Problem 2: Dynamics of RTW Program Implementation in Developing Countries, especially in Indonesia.

- How is the RTW program implemented in developing countries, especially in Indonesia?
- What are the challenges and constraints faced in implementing RTW programs in developing countries?

Problem 3: Personal determinants for disabled workers are stigma and discrimination against disabled workers. Assessing the quality of life and employability of workers with disabilities in RTW programs is an essential step in challenging stigma and discrimination.

- What are the personal factors that affect the quality of life of workers with occupational disabilities?

Problem 4: In terms of professional determinants, the case manager's burnout level can affect the quality of RTW program services, as the case manager plays an important role in assisting disabled workers in the RTW program.

- How does the employability of case managers affect the reintegration process of disabled workers in RTW programs?
- How does the fatigue level of case managers impact the effectiveness of RTW program implementation?

Problem 5: Economic Impact of RTW Program Implementation

- How does RTW program implementation contribute to economic growth, both from an individual and organizational perspective?
- What are the long-term benefits of RTW programs in an economic context?

Research Objective

The research aims to comprehensively evaluate the effectiveness of the RTW program for workers disabled after a work accident, and to explore dynamic associated tendencies of personal and professional determinants.

The specific research objectives are:

1. To synthesize existing evidence on outcomes and impacts of the RTW program, identify gaps in research, and provide policy recommendations for improving the program.
2. To conduct a case study on the effectiveness of RTW programs in managing disabled workers resulting from occupational accidents in Indonesia.
3. To utilize the Quality of Life and Work Ability Index as indicators to analyze the effectiveness of the RTW program for disability workers during the COVID-19 pandemic.

4. To examine the interplay between work ability and burnout among healthcare workers serving as case managers in RTW programs during the COVID-19 pandemic.
5. To evaluate the effectiveness of the RTW program for occupational injury cases after surgery from an economic perspective, considering both individual and organizational benefits.

1.3 Thesis Outline

The present dissertation comprises eight pivotal chapters. In Chapter 1, the introduction effectively delineates the aims of the RTW program, which seeks to promote the successful reintegration of persons with disabilities into the workforce while simultaneously addressing prevalent societal prejudices. The present chapter delineates the research problem under consideration, the research objectives, and the outline of the dissertation. Next, Chapter 2 explains the initial part of this research by discussing the literature review conducted using the scoping review method to answer the question of the effectiveness of RTW programs for workers with disabilities due to work accidents. The question asked is how the RTW program affects workers with disabilities due to work accidents.

Within the context of Indonesia, Chapter 3 of this research continues to investigate the dynamics of implementing RTW program in developing nations. The inquiry posited in this chapter pertains to the implementation of RTW program in emerging economies, with a specific focus on the Republic of Indonesia. Furthermore, it scrutinizes the obstacles and hindrances encountered during the execution of RTW initiatives in emerging economies.

Moreover, Chapter 4 centers its attention on the personal factors that exert an influence on disabled workers, including but not limited to the stigma and discrimination that disabled workers encounter. The proposed study aims to assess the standard of living and job prospects of individuals with disabilities who are enrolled in Return-to-Work (RTW) initiatives. This endeavor is a crucial measure towards combatting the negative attitudes and biases that such individuals often face. The inquiry posited in this particular chapter pertains to the personal factors that exert an influence on the standard of living of laborers who have incurred disabilities as a result of occupational mishaps.

Additionally, Chapter 5 delves into the professional factors that may impact the quality of RTW program services. Specifically, the research examines the potential for case manager fatigue to hinder the effectiveness of these services. This is of particular concern given the crucial role that case managers play in aiding workers with disabilities in the RTW program. The present chapter's research inquiries pertain to the impact of case managers' employability on the

reintegration process of disabled workers in RTW program, as well as the influence of case manager fatigue on the efficacy of RTW program implementation.

The financial benefits of the RTW program are discussed in Chapter 6. The study aims to assess the impact of RTW implementation on economic development, considering the viewpoints of both individuals and organizations. The present chapter's research inquiries pertaining to the contribution of RTW program implementation to economic growth, alongside the enduring advantages of RTW programs within an economic framework.

Finally, Chapter 7 presents a brief summary of the novel discoveries from this study, and Chapter 8 provides a bibliography of works relevant to this thesis and similar issues. The primary objective of this dissertation is to furnish a comprehensive comprehension of RTW program and to offer pertinent suggestions for policymakers and practitioners operating in this domain.

CHAPTER 2: Effectiveness of RTW Programs

Sub-Study 1: IS THE RTW PROGRAM EFFECTIVE FOR WORKERS WHO ARE DISABLED AFTER A WORK ACCIDENT? A SCOPING REVIEW

2.1 INTRODUCTION

The Return to Work (RTW) program is a workplace process aimed at reintegrating workers who experience a reduction in work capacity due to occupational or non-occupational diseases or injuries. Multi-domain interventions in RTW programs are recommended to accelerate the return of workers with musculoskeletal conditions and mental health to work ⁴. In addition, it was also reported that seven of the 22 experimental treatment programs (32%) in study ⁵ showed faster recovery in the RTW program compared to the control program, with important factors including knowledge condition, psychological condition, physical condition, and working condition. The RTW program promotes better recovery, reduces time off work, and benefits the employer ⁶. However, implementing an RTW program can be challenging due to potential discrimination or misunderstandings about their abilities and limitations ^{7,8}, especially for disabled workers due to occupational injury. Despite the advantages of the RTW program, it is essential to address the obstacles related to the potential discrimination and misunderstandings towards disabled workers who sustained workplace injuries.

Although a return-to-work program can provide significant benefits for disabled workers, negative perceptions, or biases among employers towards individuals with disabilities may hinder the program's success. Such biases can stem from a lack of understanding about the worker's abilities and limitations, as well as a failure to provide necessary accommodations and support. These factors can contribute to discriminatory treatment and impede the progress of disabled workers in a return-to-work program. To address these challenges, it is crucial for employers to recognize the potential and value of disabled workers and to implement supportive policies and practices that promote their successful reintegration into the workplace. This is especially important given the serious impact of work accidents on the productivity and well-being of workers, which can result in long-term disability. Additionally, individuals with disabilities or those who require medical care may be at a heightened risk of workplace injuries, emphasizing the need for inclusive and effective return-to-work programs that address the unique needs of all workers ⁹.

The number of fatal injuries has increased in several countries. In addition, these accidents can be costly because of the loss of productivity and increase in healthcare expenses.¹⁰ Fatal injuries can directly affect physical condition in the form of disability, which is a major personal, financial, and public health burden.¹¹ Workers who have experienced an accident and a disability carry out rehabilitation efforts and track their progress to return to work. A complete and sustainable return to work program can demonstrate an effective medical recovery process, both physically and psychologically, as well as restore the ability to function independently so that workers can contribute again.

A concerted effort is needed to include human requirements, the work environment, company demands, legal duties, and return-to-work procedures. This approach focuses on job retention to prevent those with reduced work capability from leaving the workforce early. Successful reintegration of disabled workers into the workplace and continued contributions to the organization's growth are dependent on this level of cooperation. An insufficient level of coordination between relevant parties may result in a decreased return-to-work rate for impaired employees who experience difficulties or impediments in their quest to return to the workforce. Employers and other stakeholders should thus consider the numerous circumstances that might affect a handicapped worker's capability to return to work and work together to build a supportive and inclusive work environment that enables the successful return to work of these persons¹².

Stakeholders and employers may have critical concerns about the productivity and occupational outcomes of a rehabilitation program for workers with disabilities returning to work after occupational injuries.¹³ They may worry about the efficiency and effectiveness of the program in preparing these workers to return to their previous job roles, and may also be concerned about the potential impact on overall company productivity if these workers are not able to fully return to their previous levels of performance. Furthermore, stakeholders and employers may be worried about the long-term consequences for workers with disabilities in terms of their occupational prospects. This includes the possibility of additional injuries or disabilities that could hinder their ability to keep working. Additionally, it is crucial for the rehabilitation program to address these concerns and illustrate how it is enabling these workers to return to their jobs safely and productively, while also addressing any potential effects on company productivity.

Prior research ^{4,5} has examined the efficacy of return-to-work programs, however, it has not been tailored to the needs of employees who have become disabled because of occupational injuries. Therefore, this scoping review addresses in an assortment of knowledge gaps by using a wide range of articles and then categorizing them according to their usefulness for improving the future implementation of RTW programs for workers with disabilities because of occupational injuries.

Moreover, this chapter aims to consolidate the evidence on the efficacy of RTW programs for workers with disabilities following occupational injuries. Using a scoping review analysis approach, we synthesized relevant articles following the PRISMA ScR protocol commonly used in scoping review. The scoping analysis elaborated four critical outcomes of RTW programs with potentially significant implications for employers and workers. The findings of this paper also suggest that effective strategies are needed to improve occupational injury outcomes where both parties should benefit from the intervention. the purpose of this scoping review was to locate and consolidate the existing evidence on the efficacy of RTW programs for workers with disabilities after experiencing occupational injuries.

The structure of this chapter is as follows. The scoping review approach is described in the second part, which includes the advantages of the RTW program for disabled workers, the prospects for RTW program after an occupational injury, and the advantages for the employer. In the third part, we present a synthesis of the evidence found in the best available literature. The discussion section explains the benefits and potential of RTW programs for injured employees and employers. The article is concluded in the conclusion.

2.2 METHODS

This study is a scoping review, which is a strategy used to determine in-depth and extensive literature that has been gathered from a variety of sources using a variety of research methodologies and has a relevance with the particular research. We also followed the PRISMA ScR (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) protocol, which is a set of guidelines for reporting systematic reviews and meta-analyses ¹⁴. It is intended to improve the transparency and completeness of reporting, and to ensure that key information is not omitted. Five steps were included in research report: formulating the research topic; researching relevant studies; considering studies; visualizing data; and making inferences and presenting conclusions ¹⁵⁻¹⁷. The purpose of this study was to investigate the effect of RTW program for workers with disability after

occupational injury.

STEP 1

To begin with, this involves defining the focus of the review and identifying the research question to be addressed. In this study, the research topic was the effectiveness of RTW programs for disabled workers after occupational injuries. The research question was whether or not RTW programs have an impact on disabled workers after occupational injuries. This step is crucial in ensuring that the review is focused and relevant, and that all of the included studies are relevant to the research question. It helps to guide the rest of the review process and ensure that the review is comprehensive and thorough. Furthermore, through a rigorous assessment of the fit between the research question and the selected literature, the screening stage ensures the accuracy, precision and completeness of the review, and provides the structure for the subsequent stages of the review procedure.

STEP 2

The next step in the research process is to locate and identify relevant studies on the topic. This will involve conducting a systematic search of databases and other sources to find studies that are related to the RTW program and its impact on disabled workers. Once these studies have been identified, they will be carefully reviewed and analyzed to determine their relevance and reliability. The findings from these studies will then be used to answer the research questions and draw conclusions about the effectiveness of the RTW program in helping disabled workers return to their jobs. The search strategy employed for this scoping review was founded on the PICOC framework, which is a method used to identify the constituent components of the research question, including Population, Intervention, Comparison, Outcome, and Context ¹⁸ (See **Table 1**).

Table 1 Inclusion criteria and search strategy

Component	Inclusion Criteria	Search Strategy
Population	Workers who are disabled after a work accident. This component includes individuals who have become disabled as a result of a work accident or occupational injury. It encompasses workers from various industries and occupations who have experienced a disabling condition directly related to their work.	("return to work program" OR "RTW program") AND after a work accident (disabled OR disability) AND (work accident OR occupational injury)
Intervention	Return to Work (RTW) Program. This component focuses on the Return to Work (RTW) Program, which is designed to facilitate the reintegration of disabled workers into the	((("return to work program"[MeSH Terms] OR "return to work program") OR

Component	Inclusion Criteria	Search Strategy
	workforce after a work accident. The program may involve various strategies, policies, or interventions aimed at supporting and assisting disabled workers in returning to work.	("RTW program"[MeSH Terms] OR "RTW program"))
Comparison	In this scoping review, the focus is not on comparing different interventions or control groups. Instead, the purpose is to map and provide an overview of the existing literature on a specific topic or research question	Not applicable (N/A)
Outcome	Effectiveness, impact, or outcomes of the RTW program. This component focuses on assessing the effectiveness, impact, or outcomes of the RTW Program for disabled workers.	Effectiveness OR impact OR outcomes ("return to work program"[MeSH Terms] OR "return to work program") AND (workers OR employees) AND (disability OR disabled) AND (work accident OR occupational injury)
Context	Workplace, occupational setting, or work environment. This component considers the context in which the RTW Program is implemented, specifically the workplace, occupational setting, or work environment.	Workplace OR occupational setting OR work environment ("return to work program"[MeSH Terms] OR "return to work program") AND (workers OR employees) AND (disability OR disabled) AND (work accident OR occupational injury)

STEP 3

After conducting a search for relevant studies on the topic of the effectiveness of the return to work (RTW) program for disabled workers after occupational injury, the next step is to consider these studies for inclusion in the review. This involves evaluating the eligibility of each study based on predetermined criteria. This may include factors such as the study design, the sample size, the measurement tools used, and the quality of the data. By carefully considering each study and determining whether or not it meets the inclusion criteria, it is possible to ensure that the review is based on the most rigorous and reliable research available on the topic. This is an important step in the review process, as it helps to ensure that the findings are trustworthy and can be used to inform practice and policy related to the RTW

program for disabled workers.

STEP 4

Once the eligible studies for inclusion in the review have been identified and selected, the next step is to visualize the data collected from these studies. This involves organizing and summarizing the data in a visual format, such as a table or a graph. Visualizing the data can help to make it easier to understand and interpret, and can also highlight trends and patterns that may not be immediately apparent when looking at the raw data. By visualizing the data collected from the eligible studies, it is possible to get a clearer picture of the overall findings on the effectiveness of the RTW program for disabled workers after occupational injury. This can help to inform the conclusions drawn in the review, and can also be used to support recommendations for practice and policy related to this important topic.

STEP 5

After organizing and visualizing the data collected from the eligible studies on the effectiveness of the return to work (RTW) program for disabled workers after occupational injury, the next step is to make inferences and present conclusions. This involves drawing conclusions from the data and presenting them in a clear and concise manner. This may involve synthesizing the findings from the individual studies and discussing their implications for practice and policy. It is important to be careful and objective when making inferences and presenting conclusions, and to consider any limitations or potential biases in the data. By clearly and accurately presenting the conclusions of the review, it is possible to provide valuable insights and recommendations on the effectiveness of the RTW program for disabled workers after occupational injury.

2.2.1 Eligibility criteria and search strategy

The databases Web of Science (WoS), PubMed, and Scopus were used to conduct an extensive review. We performed broad searches to find all the relevant papers that appeared between 2012 to 2022. Studies were considered for inclusion if they met one of the following criteria: return to work (RTW), social security, occupational injury, and the research designs include a case report, randomized clinical trial, observational study, and cohort.

2.2.2 Study selection

After reading the titles, abstracts, and the full text with the keywords “return to work” AND “disabl* work*” AND “occupation* injury” then we determined that several studies were not relevant and removed them from consideration. However, we did not include review articles, abstract only, non-occupational injury or disease, non-return to work under social security or

studies in languages other than English. This review study is in line with the scoping of the research problem, including careful attention to the aspects of population, intervention, and outcomes, which is ensured through an intense focus on the research question indicates at each stage of the extraction and identification process, particularly during screening.

2.2.3 Data extraction and synthesis

The artificial intelligence tool, Rayyan AI, was utilized to aid in the extraction process, specifically in the identification of pertinent studies that met the inclusion criteria in the scoping review. Initially, we imported the Mendeley citation. Three reviewers then independently screened titles and abstracts, and read the full texts of all included articles. During this stage, there were some disagreements that needed to be settled, and a third person reviewed the work. The last step was to extract relevant data from each of the qualifying papers and synthesize the results. We collected and analyzed data from the whole document, including the main literature, populations, interventions, and, lastly, care outcomes (impacts).

2.3 RESULTS

2.3.1 Overview of the studies included in the review

We discovered 401 hits in Pubmed, 44 hits in WoS, and 121 hits in Scopus altogether. After eliminating duplicates, we discovered a total of 566 articles, of which only eight met the inclusion criteria. **Table 2** contains additional information that pertains to all of the information that is pertinent to the data screening and extraction processes. As a result, we were able to narrow down our pool of records to a total of 530, which are now ready to be screened. After conducting searches on Pubmed, WoS, and Scopus, we identified a total of 530 articles after duplicates deleted, of which only eight met the inclusion criteria for this study.

The first, second and third authors conducted screening, and found 399 articles that could be excluded where screening was carried out based on titles and abstracts that were still relevant to the inclusion criteria, where 160 articles were not related to the inclusion criteria and 129 articles detected wrong study design where the article was a review study. Meanwhile, 110 articles were detected using research samples with populations that did not match the criteria, namely not work accidents or not disabled workers. The data screening and extraction process is outlined in **Table 1**, and the selection of included studies is illustrated in **Figure 1**.

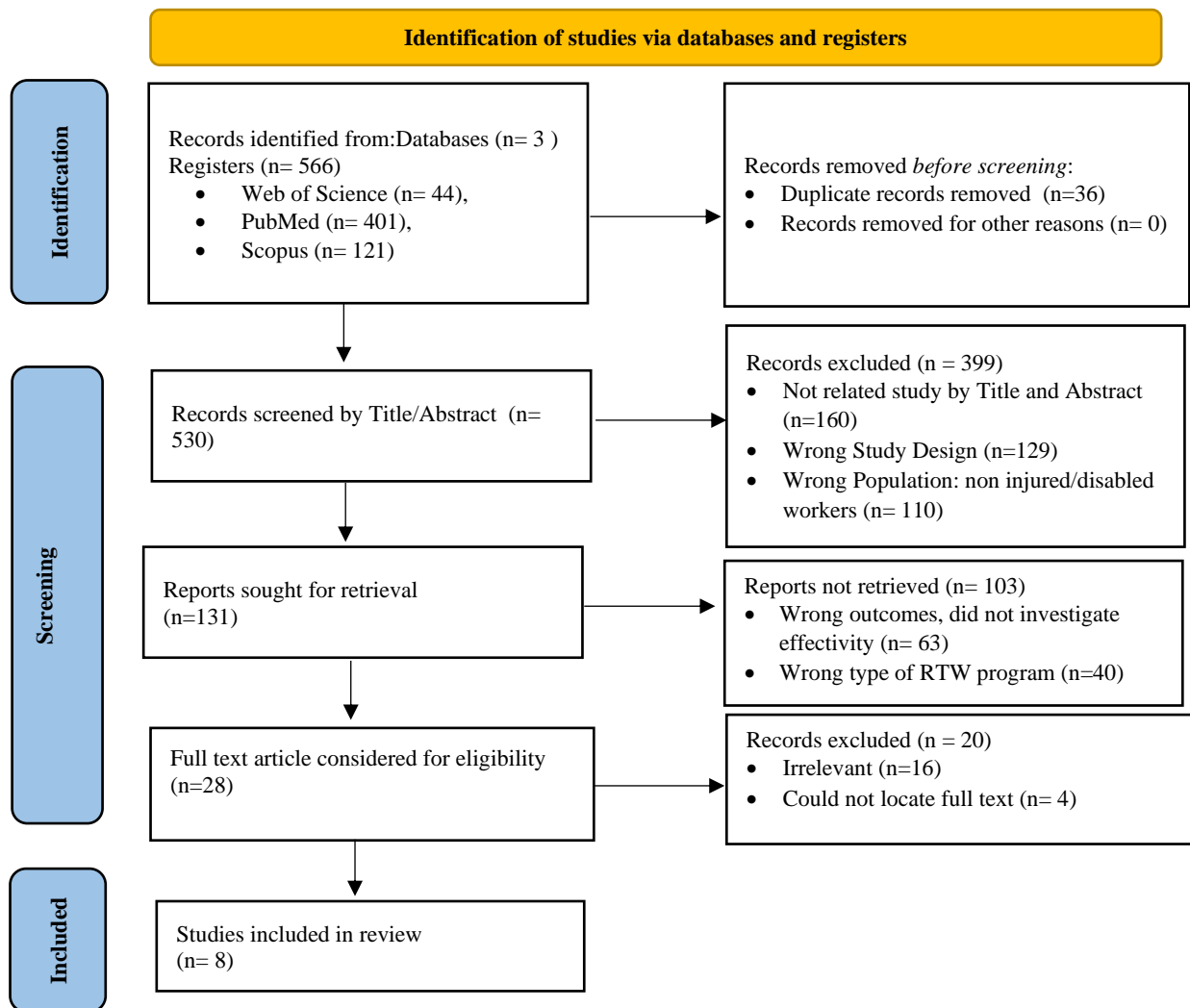


Figure 2 Flowchart extracting included studies

The first screening result found 131 articles that could be continued for the next stage where from the number of reports that could not be retrieved (n=103), there were several reasons for this. 63 reports were irrelevant because they did not investigate the effectiveness of interest, while the remaining 40 reports did not fit the type of RTW program studied. Upon scrutinizing reports or studies pertinent to the research topic, a total of 28 complete articles were discovered that satisfied the inclusion criteria. Nevertheless, it is worth noting that 20 additional articles failed to meet the inclusion criteria or lacked relevance, thereby necessitating their exclusion. Out of the pool of 20 articles, it was observed that 16 of them did not pertain to the research topic at the premises, where the rehabilitation program carried out did not have a tendency to reintegrate disabled workers to labor market. Unfortunately, it appears that four articles were not accessible in their entirety, likely due to technical difficulties or unavailability on the internet. Lastly, there were eight studies that were included in the review.

Table 2 Characteristic included study

Authors	Study Design	Location	Population	Intervention	Outcomes
Asih et al., 2018 ¹⁹	Cohort	USA	1413 CDOMD (chronic disabling occupational musculoskeletal disorders) patients.	Functional restoration programs (FRPs)	Lead to significant improvements in physical functioning reductions in depression and anxiety, and improved quality of life
Machperson et al., 2022 ²⁰	Cohort	Canada	Workers' compensation claims (Unmatched claims, N=26,532; Matched claims, N=12,909)	an integrated return-to-work (RTW) and vocational rehabilitation (VR) program - the Work Reintegration (WR) program	The WR program introduction was effective in reducing cumulative disability days paid for construction worker claims
Bae et al., 2021 ²¹	Mix method of longitudinal study and cohort	Republic of Korea	2,293 injured workers	meeting the medical needs of injured workers after initial treatment	RTW programs were effective in facilitating the return of injured workers to their pre-injury or modified work duties
Savitsky et al., 2020 ²²	Retrospective cohort	Israel	44,740 injured workers	socio-economic position	Lower income was associated with greater chance for out of work stay
Bae, 2021 ²³	Cohort	Republic of Korea	1458 workers	having a certification on RTW	employees' return-to-work rate
Kang, 2022 ²⁴	Mixed method of survey and cohort	Republic of Korea	3,924 persons	influence of workers' personal characteristics and vocational rehabilitation services	The findings show that the level of workers' awareness of health recovery and their counseling for rehabilitation by physicians had positive effects on their return to work. Environmental factors such as workers' job stability at the time of industrial accidents and the temporal effects of industrial accidents (e.g., the level of disability, their age) had negative impacts on their return to work.
Camisa et al., 2020 ²⁵	Retrospective observational study	Italy	131 Healthcare workers	Workplace Disability Management Program (WDMP)	acting positively on the variables that affect productivity and the limitation to work
de Geus et al., 2022 ²⁶	Modified Delphi study	Netherland	22 labour experts, caseworkers, and insurance physicians	effective vocational rehabilitation (VR) interventions	The 58 factors that are important for the RTW of short-term disabled workers are also important for the RTW of long-term partially disabled workers and that a substantial number of these factors could effectively be targeted using VR interventions.

2.3.2 Types and Characteristics of RTW Programs

In this study, we identified several types of RTW programs that have been evaluated based on their characteristics and functions, including functional restoration programs, work reintegration programs, meeting medical needs, RTW certification, worker awareness on health recovery, workplace disability management programs, and vocational rehabilitation interventions. Two studies^{19 20} addressed the nature of programs in the RTW suite of programs that focus on restoring physical function and reintegrating into the work environment. This character proves the effectiveness of the RTW program in improving physical function, quality of life, and reducing the number of days of disability in workers with chronic musculoskeletal disorders (CDOMD) and construction workers' claims.

In addition, this scoping review also identified the role of RTW programs in meeting medical needs and economic factors, which were addressed in two studies^{21 22}. Medical needs and economic factors are closely related in rehabilitation return to work (RTW) programs. Good medical needs fulfillment, through proper injury management, physical rehabilitation, and adequate medication, plays a crucial role in facilitating workers' recovery process after disability. In addition, economic factors are also an important consideration, as low income or financial problems can be an obstacle for workers in their return to work. Adequate economic support, such as fair income replacement and social security benefits, can help overcome economic barriers and increase workers' motivation to return to work. In combination, adequate medical needs and attention to economic factors can significantly influence the success of RTW programs in helping workers overcome disability and successfully return to work. Furthermore, the scoping review also identified character references to aspects that contribute to the implementation and effectiveness of RTW programs, such as the type of rehabilitation intervention, certification, awareness, and work environment. Based on two conducted studies^{25,27}, determined that workplace disability management programs and vocational rehabilitation interventions have a noteworthy impact in facilitating the return-to-work process for individuals who have experienced disability. Furthermore, the research findings have underscored the significance of obtaining RTW certification²⁸ as a key element in facilitating the effective reintegration of employees back into their workplace subsequent to experiencing an injury or disability. It is imperative to note that the attainment of RTW certification is not the sole determinant of a successful return to work. The workers' cognizance of their health recuperation also plays a pivotal role in this regard. Reintegrating people into their occupations is aided when the workplace provides the appropriate assistance and modifications²⁴.

2.3.3 Outcomes of the RTW programs

RTW programs or return-to-work programs following injury or disability can have mixed results, but generally show improved outcomes for workers with disabilities. In this review, the outcomes of RTW programs were evaluated through various studies. Firstly, rehabilitation programs in RTW settings have been shown to improve the physical function and quality of life of workers with chronic occupational musculoskeletal disorders leading to disability (CDOMD)^{19,25}. In addition, research also shows that meeting workers' medical needs after initial treatment and having RTW certification is associated with higher return-to-work rates²¹.

In addition to medical factors, workers' awareness of their health recovery and rehabilitation counseling provided by doctors also positively influences the return to work process²⁴. In this case, workers' awareness of the importance of restoring their health and the support they receive have an important role in facilitating workers' reintegration into their work environment. Furthermore, vocational rehabilitation interventions have also been shown to be effective in addressing various RTW factors for workers with severe long-term disability, thus helping to facilitate their return to work²⁶.

2.3.4 Factors that influence the effectiveness of the RTW programs

There are several factors that can influence the effectiveness of RTW programs for workers with disability. The type of injury sustained can affect the ability of workers to return to their pre-injury duties or perform modified work duties. Support from employers and coworkers can also be important in facilitating the return to work process. The availability of medical care and rehabilitation services can also impact the ability of workers to return to work. The socio-economic position of workers, such as income level, may also play a role in their ability to return to work. The level of workers' awareness of health recovery and their access to counseling for rehabilitation by physicians can also affect their return to work. Environmental factors, such as job stability and the level of disability, may also impact the ability of workers to return to work. The availability and effectiveness of VR interventions can also be important in facilitating the return to work process for workers with disability. Overall, the effectiveness of RTW programs may be influenced by a combination of these factors.

2.4 DISCUSSION

2.4.1 Overview of General Key Findings

The discussion of the main results unveils compelling insights into the effectiveness of RTW programs for workers disabled after a work accident, shedding light on their potential to improve

various aspects of their lives. The included studies were analyzed based on their impact to synthesize the dimensions of the effectiveness of Return to Work (RTW) programs for workers with disabilities after occupational accidents. The findings of these investigations were analyzed, and the domains of efficacy were found. Specific sub-dimensions were classified within each domain based on their shown influence in the investigations. The domains were then graded based on the importance of their influence on the efficacy of RTW programs. This categorization and rating gave an in-depth understanding of the numerous elements and their impact on the general effectiveness of RTW programs for disabled employees.

The included studies in this data cover a wide range of locations, including the USA, Canada, Republic of Korea, Israel, Italy, and the Netherlands. The population of the studies also varies significantly, with some focusing on specific groups such as chronic disabling occupational musculoskeletal disorder patients or injured workers, while others have a more general focus on healthcare workers or persons in the Republic of Korea. The study designs also vary, with some being cohort studies, others being mixed methods, and one being a modified Delphi study. This diversity in location, population, and study design suggests that the results of these studies may be applicable to a wide range of demographics and populations.

2.4.2 Domain of effectiveness of the RTW program

The return-to-work program is prepared for workers who experience work accidents that result in permanent physical disabilities. Various efforts have been made to make it easier for workers to return to their work. Its program was designed to deal with problems as a direct result of work accidents experienced by workers. The return-to-work intervention is adjusted to the needs of workers so that it contributes to the specific characteristics of each program. For those who experience physical problems after an injury, recovery will be faster, recovery duration will be shorter, and medical intervention will be required. Those who experience permanent disability need more effort for the recovery process, both physically, psychologically, and in skills. It is not only limited to physical and mental recovery, especially the self-acceptance of the new physical condition.

Workers who experience a disability so that they become disabled will certainly experience a significant change in themselves and their lives, especially in the quality of life. A declining quality of life will certainly affect psychological well-being because you feel that you are no longer able to be the same as before. In addition to mental problems, adaptation to physical conditions that are no longer perfect is a challenge. Vocational training is needed to improve the ability of workers to perform their work. Return-to-work programs have the potential to have significant benefits for workers themselves, organizations, and system agencies. This becomes complex because of the many

systems, environments, and personal characteristics that make it difficult for return-to-work programs to achieve success ²⁹.

The benefits of the return-to-work program are seen in the workers, in addition to health recovery, which encourages workers to return to work, ultimately bringing financial benefits. Moreover, getting a better quality of life, regaining workers' awareness that their work is important, and retaining or getting the opportunity to achieve the desired target to fill the role of a healthy individual both in the family and society.

Return-to-work outcomes benefit in terms of productivity ³⁰, level of responsibility, pay received, time contribution, and receipt of specific benefits ^{31,32}. Furthermore, the benefits of returning to work are not limited to that, but include satisfaction with the care received, ability to work, and consequences for the family ³³⁻³⁵. For the company itself, a successful return to work is the key to reducing costs incurred due to work accidents experienced by its workers. A faster and more effective return-to-work process will certainly have a positive impact on the company, both in terms of business operations, time efficiency, and profits. ³⁶.

The key findings, of this study, illustrated in **Figure 3**, suggest that RTW programs, including functional restoration programs (FRPs) and the Workplace Disability Management Program (WDMP), can lead to significant improvements in physical functioning for workers with disability after occupational injury. Higher return to work rates are associated with meeting the medical needs of injured workers and having a certification on RTW. The WDMP has a positive effect on variables that affect productivity and the limitation to work. The Work Reintegration (WR) program is effective in reducing cumulative disability days paid for construction worker claims, and FRPs lead to

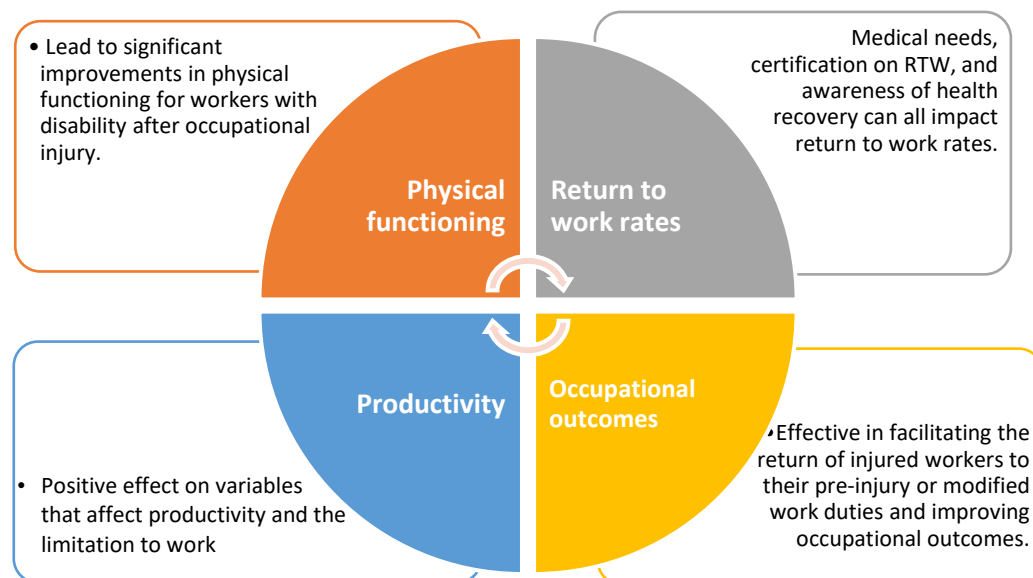


Figure 3 Summary of key findings of the effectiveness of RTW program for disabled workers due to occupational injury

improved quality of life in patients with chronic disabling occupational musculoskeletal disorders. The major results of this research demonstrate that interventions focused at enhancing physical functioning potentially result in substantial improvements in physical functioning for employees with impairments after occupational accidents. Another way in which RTW can improve physical functioning or physical health is through the psychological and social benefits of work. Work can provide a sense of purpose, social connections, and financial security, all of which can contribute to improved physical and mental health. Additionally, returning to work may provide a sense of accomplishment and a sense of normalcy, which can help to improve overall well-being and quality of life.³⁷⁻³⁹ . The two studies concerning the effect of RTW in physical function was beneficially^{19,21} which have important implications for clinical practice and the advancement of the evidence base for occupational rehabilitation, since it demonstrate that rehabilitation inside RTW programs may improve a variety of outcomes for impaired employees with occupational injuries.

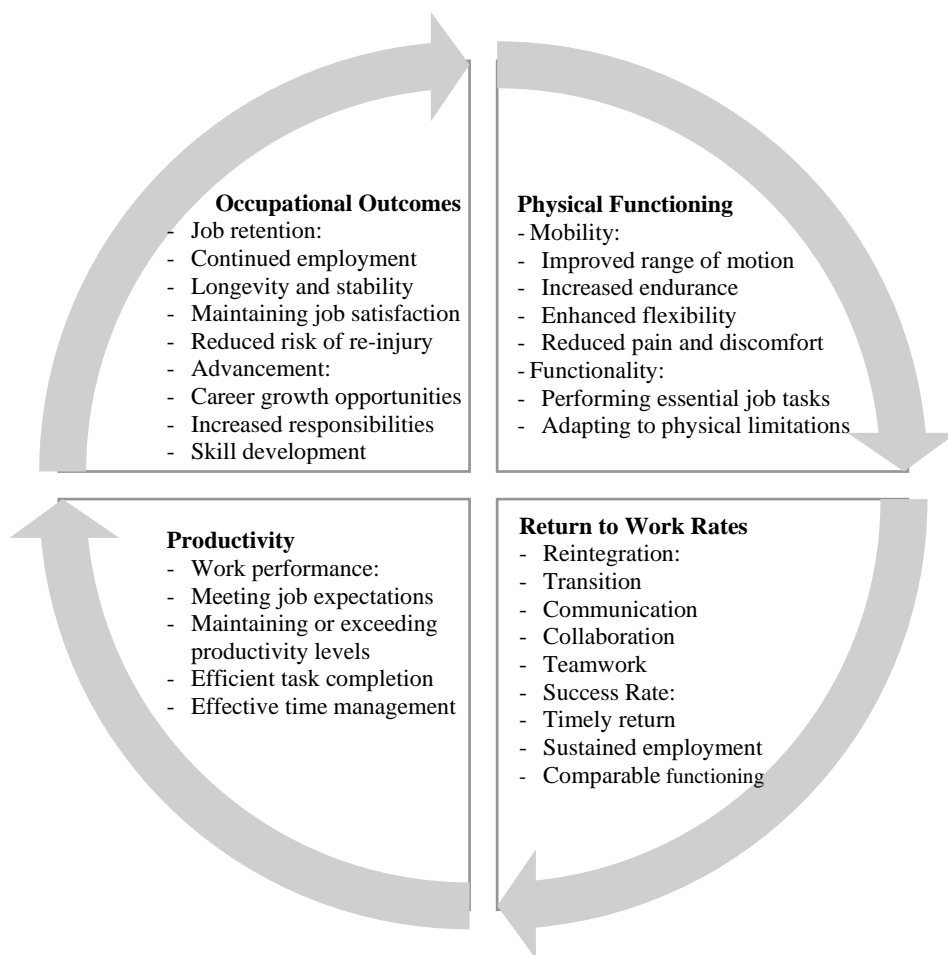


Figure 4 Diagram of RTW Program Effectiveness Domains

Rates of return to work may also be affected by factors such as medical requirements, certification for returning to work, and general knowledge of the importance of health rehabilitation. There are three studies^{21,24,28} revealed the effect on rates of return to work rates that these findings suggest that

RTW programs can be effective in helping injured workers return to their pre-injury or modified work duties and improving occupational outcomes, such as return to work rates. Additionally, medical requirements refer to the physical and mental health considerations that must be met in order for an individual to safely return to work.^{7,40} For example, an individual who has suffered a serious injury may need to undergo extensive physical therapy or rehabilitation in order to regain the strength and mobility needed to perform their job duties. Similarly, an individual who has experienced a mental health condition may need to receive treatment and support in order to manage their symptoms and function effectively at work. If medical conditions are not satisfied, it may be difficult or impossible for a person to return to work, even if they are otherwise willing. Moreover, certification for returning to work is the evaluation of an individual's fitness for duty, often through medical records, physical exams, and other assessments, to ensure they can safely perform their job duties, and may require regular reevaluations.

In addition, general knowledge of health rehabilitation includes knowing the advantages of activities or interventions that improve physical and mental health, such as exercise, therapy, and other types of rehabilitation, and healthy lifestyle patterns.⁴¹ Without this understanding, a person may be less motivated to participate in activities that encourage rehabilitation and work.

Furthermore, multiple advantages might come from assisting disabled workers return to pre-injury or reduced employment duties⁴². These approaches enhance occupational outcomes, boost productivity, and eliminate work restrictions. When a person returns to work, they can fulfill their job obligations to the best of their abilities, leading to higher productivity and fewer work limits. Interventions that promote a person's rehabilitation and return to work may also enhance their overall occupational outcomes, such as keeping employed and progressing in their career.⁴³ Interventions that help impaired people return to work may benefit the person and the employer.

The findings of this scoping review successfully synthesized the domains of effectiveness of RTW programs for workers with disabilities resulting from occupational injuries (**Figure 4**). The review identified several key domains, including physical functioning, return to work rates, productivity, and occupational outcomes. Within the domain of physical functioning, the review highlighted improvements in mobility, range of motion, endurance, and reduced pain and discomfort. In terms of RTW rates, the review found evidence of successful reintegration into the workplace, effective communication and coordination, and collaboration with healthcare professionals. In the domain of productivity, the review emphasized meeting job expectations, maintaining or exceeding productivity levels, and efficient task completion. Lastly, within the occupational outcome's domain, the review indicated job retention, career growth opportunities, skill development, and professional and personal

growth.

These results have important implications for both employers and workers. Employers may want to consider implementing interventions or policies that aim to improve physical functioning and facilitate the return to work of injured employees⁴⁴. This may not only improve the well-being and satisfaction of employees, but it may also increase productivity and reduce the financial burden of lost work days due to injury. Workers who have experienced occupational injuries may also benefit from seeking out interventions or resources that can help them improve their physical functioning and return to work. Overall, these findings suggest that there are effective strategies for improving the outcomes of occupational injuries, and that both employers and workers stand to benefit from these interventions.

The application of return to work that is not certain to achieve the expected results is a challenge, especially for companies. Many factors influence the significance obtained from the return-to-work program in the recovery process of workers. Expectations from the healing process, severity of the impact of the accident, depressive disorders, and work environment factors to access the necessary resources⁴⁵. In addition to the factors of differences in gender and level of education⁴⁶, individual and social mental factors⁴⁷, support from the company, family and financial independence (41).

2.4.3 Limitations and potential directions for future research

Inclusion criteria used in this analysis mean that not all studies are included, nor are individual study results analyzed. There is a potential for bias due to the inclusion of only study written in English. To address these limitations, it may be helpful for future research to conduct a more comprehensive review of the evidence on the effect of RTW programs for disabled workers after occupational injury. This could include a systematic review or meta-analysis, which would involve a more rigorous and comprehensive search of the literature, as well as a more detailed analysis of the results of individual studies. Additionally, future research could focus on identifying and addressing the specific factors that influence the effectiveness of RTW programs for disabled workers, such as the type and intensity of the intervention, the characteristics of the individual and the workplace, and the availability of supportive resources. Further research is necessary to identify factors related to the effectiveness of RTW programs for workers with disabilities in both high and low income countries, particularly in countries that are just starting to implement RTW programs as a case management system for disabled workers after occupational injuries.

2.5 CONCLUSION

This review suggest that there are steps both employers and employees can take to improve the outcomes of workplace injuries. Employers may desire to develop programs to restore physical

function and simplify the return to work of wounded workers. This might increase employee well-being, satisfaction, productivity, and reduce the financial hardship of lost work days due to injury. Employees with occupational injuries may desire services and solutions to help them rehabilitate and return to work. The results show that businesses and workers may benefit from effective methods for managing occupational injuries. However, the review also notes that there are various factors that can affect the success of return-to-work programs, including medical requirements, certification, and knowledge of the importance of rehabilitation.

CHAPTER 3 : Disability Management

Sub-Study 2: Case Management of Disabled Workers in Indonesia

MANAGING DISABLED WORKERS DUE TO OCCUPATIONAL ACCIDENTS IN INDONESIA: A CASE STUDY ON RETURN TO WORK PROGRAM

3.1 INTRODUCTION

Case management services for the disabled have experienced enormous development and implementation. The term "case management" refers to a series of procedures that are performed systematically and involve management, engagement, connectivity, and evaluation⁴⁹. The rising incidence of industrial injuries has prompted case management to establish integrated health healthcare for at-risk employees. Within the context of case management, an effective theoretical framework for Return-to-Work (RTW) programs should be based on a biopsychosocial model based on ICF that considers the physical, psychological, and social needs of employees who have been injured or disabled, aiming to enhance worker capabilities and provide workplace accommodations to accommodate physical or psychological limitations. This approach goes beyond treating physical injuries or disabilities and also addresses the psychological and social aspects of the employee's well-being, ensuring a holistic and comprehensive approach to RTW programs within the case management context.^{50,51}

Injury and illness in the workplace likely had far-reaching cultural effects. The victim's ability to earn a living may be compromised due to these accidents. The employees, in this case, are losing revenue due to their reduced capacity to do their duties or manage them. The only way for this is if an employee sustains an injury or develops an illness while working. It would have been even more devastating if the injured worker was also a primary income for the family. The employees may be permanently disadvantaged because of the nature of their disability. Each subsequent session of intensive therapy and rehabilitation is marked by a return to depression and a lack of interest in life because of the radical changes that the treatment has wreaked. Workers with disabilities can benefit much from rehabilitation and therapy, and they can also benefit significantly from the support and assistance of friends.⁵²

In addition, the Indonesian government has also recognized the significance of creating a program and strategy that might preclude people with disabilities (PwDs) from becoming forcibly removed from the workforce. The latest numbers indicate that the number of people with disabilities who are marginalized or removed from the job force exceeded 7 million in 2016, 3.74% of the estimated total

of people with disabilities in Indonesia⁵³. The amount would be significantly more significant when injured people who have already worked lose their jobs due to a work injury. There is no regulation or government entity to enable them to remain in the global economy. The Return-to-Work program is another approach to this challenge which allows workers who have suffered an injury to be ready to work and get the proper treatment and recovery.

The productive PwDs between 15-65 years old have been classified as active or inactive. The phenomenon of people with disabilities being excluded from the job force has exceeded a substantial portion compared to people with disabilities who are involved. Inactive PwDs refer to those who do not undertake household tasks or are in a time of studying yet are not even on the job force. Due to the limited opportunities for people with disabilities to work in formal sector occupations, the informal sector is the most significant preference for PwDs⁵⁴.

Besides that, despite the impairment, the disabled person typically gets a smaller wage than workers without disability⁵⁵. Naturally, physical disability can be hereditary or perhaps due to an accident or disease⁵⁶. Unlike a genetic or hereditary disability, people who suffer a disability due to an injury require special treatment to deal with their mental health. Therefore, workers who suffered injuries due to an occupational accident or disease should be included in the comprehensive rehabilitation engaged in the RTW program.⁵⁷

The RTW program aims to assist disabled workers and ensure that their situation does not disrupt them from the productive job force to the underemployed⁵⁸. Heretofore, the RTW method concentrated only on vocationally medical rehabilitation. Rehabilitation is perceived to be the key factor in deciding the effectiveness of the RTW program. Nonetheless, other factors have brought in the beneficial impact of the RTW program, like ambient conditions and improvements in the workplace, which could be appropriate for employees with disabilities.⁵⁹

Indonesia had just initially begun the Return To Work Program, in which the development of the occupational accident benefits program (Jaminan Kecelakaan Kerja, JKK) has previously limited coverage. Initially, the Indonesian National Agency for Social Security on Employment (BPJS Ketenagakerjaan) managed the occupational accident benefit⁶⁰. Notwithstanding, under the current regulation, solely formal workers can get admittance to the Return to Work Program. This includes companies that have made an agreement with BPJS Ketenagakerjaan to involve their employees in the program once the workers occasionally suffer from occupational accidents or disease and potentially have disabilities. Recently, the benefit of occupational accident insurance was cash-benefit and also medical treatment based on medical needs. Along the way of the RTW process, Case Managers of BPJS Ketenagakerjaan will assist the injured worker in starting from the emergence of

the accident that defines the RTW's plan continuously prior to injured workers getting fit to work⁶¹. Nevertheless, for completeness of the beneficial objectives of the RTW scheme, a concern has been established whether the RTW and new legislation could substantially allow disabled workers to continue in the same job as they had before the accident. The study addressed the advantages, deployment, and hurdles of the RTW mechanism. The importance of discussing the importance of the new strategy and its implementation of the new strategy to develop the RTW program would include an explanation of the magnitude to which the RTW program assists disabled workers after suffering an occupational accident.

On that objective, a return-to-work program should have been implemented to reduce potential risks which might occur. In order to support employees who have been injured or disabled as a residue of injury and workplace disorder, a variety of specific aspects must be met by the social security company. For instance, the expense of medication, medical insurance, medical benefits the worst, or her wages, and the allowance for dependents if the breadwinner dies due to an injury at work or an accident. The return-to-work service is also important to ensure that the disabled worker still maintains his or her salary after retirement and will return to work for their former employer.

In comparison, the return-to-work initiative often offers more advantages for employees and employers as it encourages healing, decreases turnover, delivers rehabilitation, and, therefore, can help the employer sustain profitability against failure. Earlier research concentrates mostly on the usefulness of the return-to-work initiative and early involvement in the return-to-work process. Investigation revealed that the Return-to-Work System tends to minimize work detentions or days off for disabled workers. In the meantime, early action would help not just the employer but also the employees themselves.

Through early detection, the injured worker may be easily returned to work very rapidly as feasible. The interpretation of the Dutch RAT program seems pessimistic, which describes the management and employees confirmed that the RTW program provided even less assistance to the RTW participants.⁶² Concurrently, empirical evidence that straightforward information and a scheme of return to work and occupational accident benefits offer the injured workers a wonderful understanding. The outcome of an empirical investigation with 141 disabled workers involved in the trial in which 72.3% of injured workers reported that being encouraged by the RTW program had an effect on their understanding of the return to work program.⁶³ In addition, the perception that colleagues and the company have of the disabled worker is also a crucial factor in the effectiveness of the return to work program. Upon reaching a certain threshold, RTW can be used as a proxy for the success of the healthcare and rehabilitation provided.

In order to address the potential challenges and benefits of RTW programs for disabled workers, this study aims to investigate the effectiveness of the current RTW program implementation in managing disabled workers due to occupational accidents in Indonesia, based on the perspectives of stakeholders. This will be achieved by conducting a comprehensive data collection process to gather information on various aspects of the RTW program, including its advantages, challenges, and impact on promoting the reintegration of disabled workers back into the workforce. The findings of this study will provide insights into the strengths and weaknesses of the current RTW program and contribute to the development of strategies for improving the management of disabled workers in Indonesia.

3.2 METHODS

3.2.1 Design

This case study was used in a qualitative research study. The RTW program is a conceptual framework for disability management^{59,64,65}, which in Indonesia involves occupational rehabilitation (medical, vocational, and psychosocial) programs. The case study is best for this study because it focuses on exploring the setting, conditions, and contexts⁶⁶ that happen along this existing program.

3.2.2 Study context

This study was conducted through the Indonesian National Social Security Agency for Employment (BPJS Ketenagakerjaan) in a subset of the regional and branch offices, with the highest RTW cases standing as the statistical sample.

3.2.3 Participants

The sampling approach consisted of strategic, criterion-based, and purposive random sampling procedures. This research has conducted a semi-structured interview by interviewing some case managers (CM) in some branches or regional offices of BPJS Ketenagakerjaan who actively engaged in certain cases of occupational accident that included in the RTW process to find in-depth insights into the implementation of RTW by BPJS Ketenagakerjaan and to identify a loophole in the RTW framework as more of an area for strengthening the RTW program throughout the years ahead. The interview will complement the study and provide wider knowledge and also perspective into the framework of the return to work program organized by BPJS Ketenagakerjaan. Eventually, indeed the findings of the initial interview that was gathered will be interpreted and grouped into particular subjects related to the research topic to define the significance of the data. In **table 3**, we listed the characteristics of the respondents.

Table 3 Characteristics of respondents

Variables	Number of respondents (N=11)
Age category	
30-35 years old	5
36-40 years old	4
40-45 years old	2
Gender	
Male	3
Female	8
Job Location	
Branch office	10
Regional Office	2
Level of Education	
Undergraduate	8
Postgraduate	3
Work Period	
3-5 years	1
6-9 years	3
10-14 years	6
more than 14 years	1

3.2.4 Data collection

Interviews using a semi-structured format were carried out between February 2nd and February 26th, 2021. Prior to conducting the interviews, we sorted and filtered the offices by the top 10 highest claim rates and RTW based on data we got from BPJS Ketenagakerjaan about the distribution of claim rates for work-related injuries from 2014 to 2019. Case managers who were responsible for RTW at the chosen office will be informed about the study and invited to the interview if they are interested in participating. Due to the restrictions imposed during the COVID-19 outbreak, the interviews were carried out online.

3.2.5 Data analysis

The outcome of the interview will be examined through data collection. Moreover, claim data from

BPJS Ketenagakerjaan will be shown descriptively by integrating Python with ArcGIS. Based on grounded theory, our method of textual analysis for the semi-structured interview was exploratory and empirical. We looked for consistency in how these people went about the return to work. We also analyzed the data from the initial interviews conducted to decide how we proceed with the rest of the questions. Combining this strategy with the themes that were included in the theme's rundown allowed us to successfully design a framework for the script.

3.3 RESULTS

3.3.1 Overview of Indonesia's Adaptive Return to Work Program

Implementing the Return to Work in Occupational Accident Benefits Program initiated by BPJS Ketenagakerjaan in 2015 began with a learning process in Malaysia and Germany. In the learning process, it was found that in its implementation, comprehensive monitoring and evaluation must be carried out periodically and continuously to ensure that the performance of the RTW program is very effective and beneficial for workers and employers.

In order to anticipate failure in the mentoring process to return to work, BPJS Ketenagakerjaan, through its case manager since 2017, has been assisting and monitoring RTW participants who have returned to work to determine the readiness of these participants in their fit to work, family support, work suitability with disability conditions, and environmental support. Work-related to accommodation that supports the limitations of the worker and the support of family and co-workers. The Occupational Accident Benefit (Jaminan Kecelakaan Kerja (JKK)), which is organized by BPJS Ketenagakerjaan, covers healthcare services based on medical needs in cash compensation and educational scholarship in which will be granted for two dependent children of the insured person who dies or having a permanent disability as a result of an occupational accident. In addition, BPJS Ketenagakerjaan began to implement RTW in July 2015 with appointed eleven pilot project cities in Indonesia. These eleven regions were chosen because it is a densely populated industrial area, a labor-intensive tourism industry, and has many accident cases work that has the potential to participate in the Return to Work Program.

Deutsche Gesetzliche Unfallversicherung (DGUV), the occupational accident insurance agency in Germany in 2012, reported 2.6% of work accident cases could be managed by rehabilitation.⁶⁷ However, in Indonesia, since the implementation of RTW program until 2019, the number of companies committed to supporting RTW program has reached 68,824, and managed to handle 901 workers who have now returned to work to support their families.

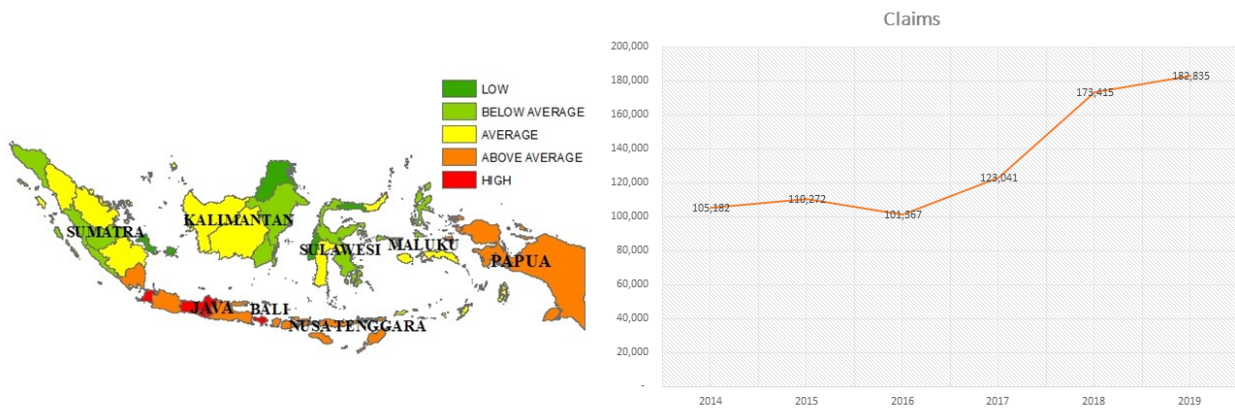


Figure 5 The distribution of the total number of claims for occupational accident insurance

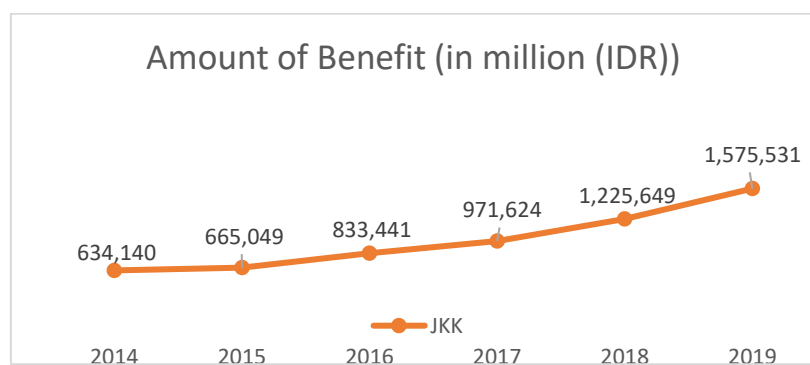


Figure 6 The total amount of benefit for occupational accidents

The line graphs in **Figure 5** and **Figure 6** illustrate the total number of claims and benefit for the employment injury protection program, which was described over six years from 2014 to 2019. The number of benefits is measured in currency Rupiah (IDR). Overall, the number of claims and compensation increased in six years of observation. The period of measurement was plotted to compare the time for benefit transformation before the implementation of Return To Work and afterward.

Total claims have been on the decline during the last six years, while the number of benefits received has been increasing. Moreover, an interesting variable that needs more exploration is the wide of protection covered in the mean time period. Interestingly, 2014 was the period in which a limited number of coverages was only IDR 20 million for one case without a return-to-work program. After 2015, the number of in-cash benefits climbed steadily to reach 1,575,531 million rupiahs in 2019. Meanwhile, there was a declining number of claims in 2016, at about less than 8%. However, the number of cases went up to reach a peak in 2020 of 182,835 claims. In the last five years, there are some developments of benefits have been implemented by BPJS Ketenagakerjaan, such as topping up the maximum allowable benefit from 20 million to unlimited based on medical needs and

commencing the return-to-work program for workers suffering from occupational accidents or occupational disease.

3.3.2 Participants of the RTW Program and have returned to work

According to the data presented in the line graphs in figure 6, there were only 125 participants in the RTW program in early 2015, with only 21 individuals returning to work, representing a 16.8 percent return rate. Over time, the implementation of RTW has become increasingly trusted, and as of December 2019, 901 participants have joined JKK RTW, and 758 participants have returned to work, or 85% have returned to work. In terms of participants who took part in the RTW program, it increased by 7.75%, and the increase of participants who had returned to work increased by 39.2%. In this case, 119 participants had not returned to work yet, in which were in the process of medical rehabilitation and job training, while 24 participants, or 16.43%, were categorized as having not succeeded in returning to work.

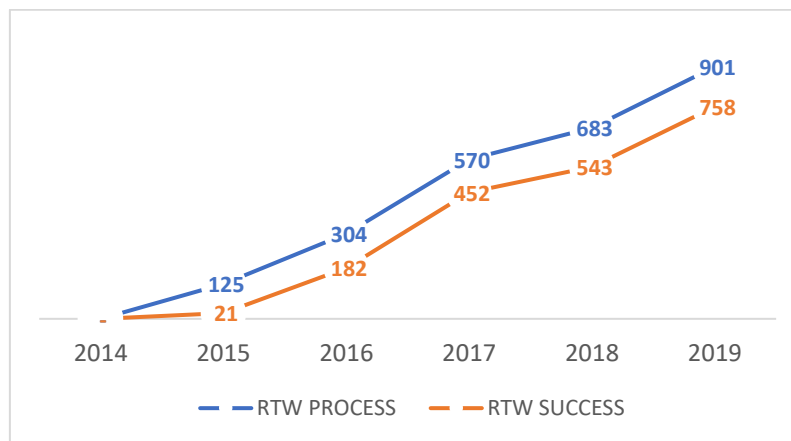


Figure 7 The distribution of workers who participated in the RTW program

The semi-structured interviews have been analyzed, which resulted in the definition of two key themes and subthemes (**Table 4**). The specific remarks and excerpts provided by the interview participants would be provided in each of the key subtopics. Our study utilized a grounded theory approach, where the themes and sub-themes emerged from the data itself, based on the verbal answers provided by the case managers. As the study aimed to explore the perspectives of informants on the implementation of RTW program for disabled workers due to occupational accidents in Indonesia, the themes and sub-themes were generated from the data analysis process.

Table 4 Key Factors during the Implementation of the Return to Work Program

No.	Main theme	Subthemes	Quotation
1	Case Managers	Personal skills	“The solutions came in to argue sometimes, not only communication skill but our knowledge and experience are also coveted because approached them to emphasize their decency can be regained through the RTW program.”
		Personal literacy	“To assist a patient with disability to join RTW program is very challenging as we need comprehensive knowledge about case management to be able to engage integrative framework used to examine, schedule, enforce, organize, evaluate alternatives and solutions”
2	Barriers of implementation	Providers	“We often need to keep moving find a hospital or clinic to meet another specialist who has enough time and patience to explain the condition of the patient who is involved in the return to work scheme.”
		Authorities	“Another challenge is to constrain perceptions for employers to enable workers to be a part of the RTW program as we are only giving a recommendation. The authorities are on the employer’s hand.”
		Guidelines	“Regulations cannot explicitly be introduced to include workers in the RTW program, but employers' and workers' consideration and government support must be given for the provision of integrated, comprehensive rehabilitation services for workers with disabilities due to occupational accidents or disease.”
		Stakeholder’s support	“Even though there are regulations, not all companies are willing to participate their employees in the RTW program. They think this initiative will take a long time, so it's best to hire new people who have the same skills.”

Essentially, the Return to Work Program in BPJS Ketenagakerjaan entails three phases framed in a case management cycle: identification for early tracing to a case of an occupational accident or occupational disease, evaluation, and the establishment of an adequate strategy with key stakeholders.

3.4 DISCUSSION

Systematic case management is an important aspect of any comprehensive RTW program, but recent study have found more evidentiary support for less intensive approaches.⁶⁸ Nonetheless, it is

important to have a clear system in place for case management, including the identification of barriers to RTW and appropriate interventions. Effective case management is crucial for ensuring successful RTW outcomes. One aspect of a comprehensive RTW program is systematic case management, which plays an important role in ensuring successful RTW outcomes.^{69,70}

According to several systematic reviews, complex RTW programs that include a workplace component and the use of an RTW coordinator may increase RTW rates and be particularly effective for individuals with musculoskeletal disorders.⁷¹ Therefore, implementing a systematic case management approach with a well-trained RTW coordinator can lead to better outcomes for employees with occupational injuries or disease.⁷² Moreover, research indicates that professionals working in specialized reintegration services are best suited to facilitate the job placement process of long-term sick-listed employees.

3.4.1 Dynamic of case manager support in the RTW program

Personal Skill

The number of assisting cases must be spread throughout Indonesia. Initially, there were only 14 case managers, but since 2019 there have been 81 case managers compared to 2015. They are in charge throughout branch offices of BPJS Ketenagakerjaan, in which depend on the risk of work accidents is quite high and causes disabilities in their areas of work. The case manager should have multidimensional skills to reliably determine the needs of the patient.

Personal literacy

Capabilities of case managers assisting PwDs during the Return to Work program presume as the internal factor which divided into interpersonal skills and literacy about case development that they handled^{54 73}. The key point to be convinced of is ‘assisting’ during the program, not only defined as accompanying the PwDs but also leading the plan to run the RTW program in order to achieve the expected outcomes in accordance with the initial plan.

3.4.2 Barriers during the implementation of return to work in Indonesia

Providers

In addition, the external aspect that was substantially affecting the efficiency of the return to work program in Indonesia is the capacity of providers to return to work program. Not only in terms of infrastructure, services, and benefits managed by providers but also in terms of stakeholder literacy concern to the return to work program, the effectiveness and results to be obtained in RTW also have a substantial impact⁷⁴.

Not even all hospitals in Indonesia have an installation of medical rehabilitation facilities to carry out

the RTW program. In fact, not all healthcare professionals have the assurance of the return to work program administered by BPJS Ketenagakerjaan. The outcomes purpose of integrated rehabilitation in RTW program is to strengthen the capacity of workers with disabilities to archive fit to work eventually ⁷⁵.

Regulation

However, other more essential factors are authorities and guidelines, which are supported by government regulation. The company also has complete authority to enable the employees to join the Return to Work program. In this scheme, it is expected that the business enterprise would be able to reconsider the competitiveness aspect of workers with disabilities by placing them back in line with their work capability. One of the requirements that have to be met is that employers and workers are willing to submit a declaration of consent to engage in the return to work program⁷⁶.

Authorities

The managerial declaration made by a company is intended to guarantee that workers are assured that they will be warmly welcomed to work in the company where they work after just actively engaging in the program. Moreover, while it is expected that employees who experience an injury at work should be able to work again, the existing rules on the operation of the Return to Work Policy do not explicitly govern whether or not the workers involved may work in the same workplace. Workers can work again and do the same job, and they can also do some work that is adapted to the circumstances of an injury at work.

Stakeholders' support

In 2015 there were 2,080 companies that supported the RTW program, which continued to increase, and up to September 2020, there were 70,820 employer supports or an increase of 3,404% compared to 2015. This support is a manifestation of the employer's commitment to supporting the RTW and willingness to re-employ disabled workers from both their own companies and other companies. This support is still being improved because recently there are only 10.51% of the total employers participated in BPJS Ketenagakerjaan. The challenges in convincing companies to ensure that workers with disabilities can return to work are still enormous.

According to recent regulations, this is not mandatory for employees experiencing occupational injuries and occupational diseases experiencing disability to be eligible for a return to work program ⁷⁶. Meanwhile, Article 153(1) of Law No 13 of 2003 forbids companies to abandon work on the basis that employees are seriously injured, disabled due to injuries at work or sickness due to work affiliations and, according to the doctor's statement, have not yet been able to retrieve. In this regard, as Indonesia's national agency for social security on employment, which is a government

representative, BPJS Ketenagakerjaan should be supported by a regulation under the Ministry of Manpower in Indonesia which regulates the role of the Government and BPJS Ketenagakerjaan to provide support for workers with disabilities and who are unacceptable to the company. This is to support law enforcement related to Article 153, paragraph 1 (j) of the Manpower Law and similar provisions in the Law on Persons with Disabilities ⁷⁷⁻⁷⁹.

The aspect of professional social security provided by the government to ensure that civilians fulfill the fundamental needs of a decent quality of life is a form of social security. Moreover, social welfare that concerns social protection, or protection against known social conditions, including poverty, old age, disability, unemployment, family and children, and others, recently have been deliberated as the essential concern in the UN Declaration 1948 on Human Rights and the ILO Convention No.102 1952. ⁸⁰

In general, occupational accident benefits programs are developed in the form of employment injury benefits or health insurance for the workforce. However, the reality remains that the health service process cannot be separated from health financing. Health costs are the number of funds that must be provided to organize and or take advantage of various health efforts required by individuals, families, groups, and communities. Solid, reliable, and secure healthcare contexts equalize a crucial role in providing health services in order to achieve numerous essential health policy goals in the world, including equal access to healthcare and regulatory compliance. ^{81 82} Accordingly, healthcare changes in a state should also impose an important emphasis on national healthcare policies to ensure the appropriateness, fairness, quality, and efficacy of the healthcare expenditure system.

Moreover, occupational accident benefits programs in Indonesia have been formulated to be in-cash benefits and in-kind benefits. It gives protection against accident risks taking place under employment relationships, including an accident on the way to the workplace from the house. The protection starts from the way to the workplace, leaving the workplace to return home, working at the workplace, and during taking duty travels. Furthermore, the in-cash benefit provided includes the amount of money as compensation for the occupational risk, which will be counted by the reported wages. Meanwhile, the in-kind benefit engages with the protection during the curative and rehabilitative services in health care providers. The cost will be unlimited medical treatment as medically necessary. ⁸³

Occupational accident benefits complemented by RTW program, in which defined as the resettlement of workers who are sick and have not been able to work either in the short or long term so that they can return to work immediately. In the guidelines for the International Social Security Association (ISSA)⁸⁴, which is a reference for countries that already have a social security system and have implemented the RTW program, it is stated in guideline 9 that the RTW program is based on a bio-

psycho-social approach that combines medical, psychological aspects and social as described in the framework of The WHO International Classification of Functioning, Disability, and Health (ICF).⁸⁵ The rate of the Return To Work program engaged with a concept of returning early to work safely and being able to maintain or stay with the job.⁸⁶ Return to Work is a term when a person enters the back to work phase, but it does not guarantee success because many workers return to work after experiencing disabilities due to work accidents but cannot survive their jobs.⁵⁹ The program mainly involves medical rehabilitation, vocational rehabilitation, and psychosocial rehabilitation.

3.4.3 Challenges during the outbreak of COVID-19

In Indonesia, to bring specialist health services closer and improve the quality of health services in healthcare facilities, especially during the outbreak of the COVID-19 pandemic, various efforts are being made, one of them using information technology in the health sector in the form of consultation services between health care facilities through Telemedicine. The Government of Indonesia has established a new regulation, namely the Regulation of the Minister of Health of the Republic of Indonesia Number 20 of 2019, concerning the Implementation of Telemedicine Services Between Health Care Facilities ⁸⁷. The Return-to-Work Program managed by BPJS Ketenagakerjaan in its service has implemented Telemedicine as one of the comprehensive services of vocational-based telerehabilitation, often combined with behavioral therapy, during the COVID-19 pandemic. The use of Telemedicine has been recognized by the college of the relevant medical profession to initiate or treat people with disabilities through Telemedicine without the need for direct examination.

Numerous programs have been attempted in Indonesia in regard to the existence of Return To Work, including the digitalization of RTW support networks, especially for stakeholders in the Centre of Services for Occupational Accidents and Return-to-Work. Telemedicine can be used to improve the efficiency and efficacy of trauma treatment delivery. In addition, Telemedicine is used in the treatment of trauma patients. The advantages of Telemedicine in RTW are strongly intertwined with substantial support from government issues regulation related to Telemedicine, such as the Regulation of the Minister of Health and the Decree of the Minister of Manpower. Moreover, the diverse archipelagic state encourages BPJS Ketenagakerjaan to assign a trustworthy case manager to handle RTW cases with Telemedicine in branch offices. Furthermore, in comparison to traditional venues, Telemedicine has enhanced the availability of competent, time-efficient, and cost-effective multidisciplinary medical expertise sessions that benefit patients regardless of location.

However, regulatory challenges are related to the difficulty and cost of obtaining licensure across multiple regions and privileges at multiple facilities. In regards to the issue, major financial barriers may be raised as Telemedicine need a reliable broadband connection and broadband mobile

communication technology. Another downside that may be considered is the cultural barriers occurring from the lack of desire, or unwillingness, of some patients or healthcare workers to adapt clinical paradigms for telemedicine applications.

In terms of education, BPJS Ketenagakerjaan also conducts regular intensive programs for stakeholders, BPJS Ketenagakerjaan case managers, and RTW support company partners in the form of webinars related to disability management. The RTW milestone development plan is to initiate inclusive job service, in which we will provide the connection as the Hub Supply and Demand for Disabled workers and companies as a measure of success in the RTW framework.

3.4.4 Implication and limitation of the study

Implication for future research

Future research could examine the impact of increasing the number of case managers in the Return to Work (RTW) programme in Indonesia. Researchers could investigate how the increased number of case managers has affected the quality and efficacy of the RTW programme, as well as the outcomes attained by workers with disabilities. In addition, future research could focus on the specific multidimensional skills case managers need to effectively determine the requirements of patients during the RTW programme, as well as how these skills can be further developed or improved to increase the program's overall success.

Limitation of the study

One of the limitations of the study is that the sample only includes BPJS Ketenagakerjaan beneficiaries in one province of Indonesia. Therefore, the results may not be generalizable to other regions or countries. In addition, the results of this research have not been explained from the health perspective of case managers or participants in the RTW program who are workers who are disabled as a result of work accidents. Thus, it is important to investigate in further studies to observe the quality of life and work ability index of participants after participating in RTW program. Furthermore, an economic assessment of the RTW programme in Indonesia might be studied in the future to determine the full impact.

3.5 CONCLUSION

The Return to Work (RTW) Programme plays a critical role in effectively managing employees with disabilities resulting from occupational injuries in Indonesia. The success of the Indonesian RTW program hinges on the personal skills and literacy of case managers, as well as addressing implementation barriers such as provider availability, employer and government support, and stakeholder perception. The provision of comprehensive rehabilitation services for workers with

impairments due to industrial accidents or illnesses is imperative, and regulatory measures alone are insufficient to ensure active participation of workers in the program. Therefore, further research will be required to investigate the outcomes of the RTW program for disabled workers, analyze the experiences of case managers, and evaluate the economic effect of the program.

CHAPTER 4 : Quality of Life and Work Ability

Sub-Study 3: Quality of Life and Work Ability Index of Disabled Workers

ANALYSIS OF THE RETURN TO WORK PROGRAM FOR DISABILITY WORK-ERS DURING THE PANDEMIC COVID-19 USING THE QUALITY OF LIFE AND WORK ABILITY INDEX: CROSS-SECTIONAL STUDY

4.1 INTRODUCTION

The outbreak of COVID-19 has affected every region of the world since November 2019. To combat the impact of this pandemic, governments implemented measures such as adjustments to existing occupational accident insurance programs within their social security frameworks. These changes aimed to address the specific challenges posed by COVID-19.⁸⁸ Local government institutions play a crucial role in balancing the need for social distancing to prevent the spread of COVID-19 and the need for economic recovery, as seen in the study of 28 provincial governments in China during the early outbreak of 2020.⁸⁹ Moreover, the World Health Organization issued a series of physical distance-related regulations to ensure that the COVID-19 pandemic would be contained.⁹⁰ As a result of the outbreak of COVID-19, plenty of unfavorable things have occurred concerning work all over the globe. More than a hundred individuals died in Indonesia due to the COVID-19 pandemic, and the bankruptcy of several companies has had a knock-on effect on the country's economy⁹¹ and the quality of life of its workers. It shows that despite their abilities, the pandemic has made it difficult to access a range of activities. As one of the most vulnerable groups affected by the COVID-19 pandemic, people with physical disabilities are at high risk of COVID-19 exposure and have difficulty carrying out daily activities, including following COVID-19 prevention protocols.^{92,93} During the COVID-19 pandemic, stakeholders focused on ensuring RTW participants' baseline health. Health and safety considerations for disabled employees, particularly if they have underlying health disorders that increase COVID-19 risk. Workers with physical disabilities need special equipment or environment adjustments to do the rehabilitation activities in the RTW program. Due to constraints on in-person connections and limited resources, implementing these adjustments during a pandemic may be challenging. During the pandemic, some healthcare providers have adopted telemedicine, which may be challenging for disabled workers who need in-person treatment.⁹⁴ In addition, the pandemic has made the condition more challenging to return to work after being injured in a workplace accident. The concern was highlighted because it is imperative for a person whose

impairment was caused by a workplace accident to make significant alterations to cope with the new phase of their life.

Indonesia has a unique social security system based on employment which allows the government to provide a benefit from occupational accident insurance in the form of a specific disability management program called Return To Work (RTW). This program is distinct compared to those offered by other developing nations⁹⁵. The RTW program served as a complement to the in-kind benefit services by providing a comprehensive rehabilitation program. This program included medical, vocational, and psychological rehabilitation with the assistance of case managers⁹⁶. Moreover, in the context of social security and occupational injury insurance, an in-kind benefit is a type of non-cash benefit that is provided to an individual as part of their insurance coverage. These benefits can include things like medical treatment, rehabilitation services, and other forms of assistance that are designed to help an individual recover from an occupational injury or disease. In-kind benefits may be provided directly by the insurance provider, or they may be arranged through third-party providers. For example, an insurance company may cover the cost of medical treatment from a specific hospital or clinic, or they may provide a payment to an individual to cover the cost of rehabilitation services.⁹⁷

In this case, BPJS Ketenagakerjaan, the Indonesian social security organization, provides a combination of cash and in-kind benefits to a person who experienced an occupational injury or occupational disease. A worker could receive a cash payout to compensate lost income due to an occupational accident, as well as in-kind benefits to cover the cost of medical care and rehabilitation services in the form of a case management system, RTW program.⁹⁸ In-kind benefits play an important part in social security and occupational injury insurance systems, supporting those who have been injured or suffered a disease because of their job, and enables individuals to regain their dignity by enhancing their productivity during the course of the RTW program.

The RTW program in Indonesia is designed to support workers who have suffered a disability due to an occupational accident or diseases and have been registered as customers of BPJS Ketenagakerjaan. The program provides employees with a range of support services, including medical rehabilitation, vocational rehabilitation and psychosocial rehabilitation, to help them regain their physical and mental abilities, and to make the transition back to work as smooth as possible. Eligibility for the RTW program is typically determined by BPJS Ketenagakerjaan based on medical indication such as type of impairment and the employee's ability to perform essential job tasks.

Disability is a complex phenomenon that includes biological functions, activity limits, impediments to participation, and environmental influences, among others⁹⁹. Nonetheless, the social stigma associated with a disability is still widely held in today's culture, which is one of the environmental

aspects to consider. Some individuals still have the view that persons with disabilities are entirely reliant on the kindness and assistance of others. People with disabilities face discrimination due to this viewpoint, which prevents them from leading independent lives.

Regulations about equal job opportunities have initially sought to enhance the personal well-being of people with disabilities. Unfortunately, disabled people's participation in the labour market is minimal, and their earnings are meagre. Measuring the quality of life as a kind of individual welfare for employees with disabilities is one way to evaluate the effectiveness of employment restrictions for people with impairments¹⁰⁰. Disability discrimination in the workplace is a significant issue, and it is important to think about ways to reduce the stigma that disabled people experience at work. Promoting equality and inclusiveness in the workforce requires addressing the stigma faced by disabled individuals.¹⁰¹ The RTW program for disabled workers can reduce disability discrimination by providing support and accommodations for reintegration into the workforce.

By examining their employment capability, businesses may better accommodate persons with disabilities and provide them equal chances in the workforce. Work ability index that accounts for factors like mental and physical well-being and the capacity to manage obstacles in the physical realm^{102,103} may be used for this measurement. On the other hand, quite a few researchers have studied the connection between RTW results and job-related factors such as quality of life and work ability index among impaired workers. Therefore, this study aims to examine the dynamic relationship between quality of life and work capability index among disabled workers by analyzing a case management system of disability management through an RTW program experienced by disabled workers during the COVID-19 outbreak.

4.2 METHODS

4.2.1 Study Setting

This descriptive cross-sectional study measured the QoL and WAI of workers with disabilities after participating in the RTW program. This study was conducted between January to June 2021, identifying the claims for RTW during the outbreak of COVID-19 in Indonesia. Workers who have been registered as customers with the Indonesian National Social Security Agency for Employment (BPJS Ketenagakerjaan) were recruited for participation in this study.

The participants in the study were separated into two groups, RTW and nonRTW, based on their participation in the return-to-work (RTW) program after receiving workers' compensation benefits from BPJS Ketenagakerjaan. The RTW group consists of individuals who took part in the program, while the nonRTW group consists of those who did not. This division aimed to examine the effect of

participating in the RTW program on the individuals and compare it to those who did not participate. To be eligible for this study, individuals must be between 18 and 65 years old, employed during the COVID-19 outbreak, and have engaged in the RTW program.

4.2.2 Data collection

All data regarding participants in the RTW program were obtained from BPJS Ketenagakerjaan. The authors sent the invitation to potential applicants through a widespread email. A total of 165 individuals in RTW program who had been asked to participate in the study and met all prerequisites were enrolled at the outset. During the starting procedure, only 154 people agreed to be interviewed and completed our questionnaires. Moreover, we extended invitations to an additional 165 disabled patients who had had an occupational injury but were hesitant to take part in the RTW program. However, only 75 people agreed to participate in this study. Therefore, in a total of this study, there were 154 individuals from the RTW program and 75 individuals from the Non-RTW group, The facilitation of data collection for this research endeavor was effectively carried out by a cohort of proficient enumerators, specifically, case managers from BPJS Ketenagakerjaan in 34 Indonesian provinces. The lead researcher, the author of this dissertation organized a comprehensive three-hour training session, covering topics such as RTW, WAI, QoL, and ethical guidelines for data collection, prior to the commencement of data gathering. The case managers involved in this study were employees of BPJS Ketenagakerjaan and were not specifically added for the current study. The case managers, acted as enumerators and collected data from patients participating in RTW programs at trauma centers and rehabilitation hospitals, and received training from the lead author on RTW, WAI, QoL, and data collection and ethical issues. The data collection was carried out by 11 case managers in 34 provinces throughout Indonesia, who were assigned to hospitals based on their location. The data was collected through printed surveys to reduce nonresponse bias. The data collectors analyzed the recovered questionnaires to minimize missing responses and asked for responses in cases of missing items.

The questionnaire included topics on sociodemographic variables as well as disability-related aspects. In addition, a questionnaire assessing the quality of life and work ability index was also included in the research. For the purpose of determining the quality of life (QOL) and the work ability index (WAI), respectively, the WHOQoL-BREF developed by the World Health Organization (WHO) and validated WAI questionnaires developed by the Finnish Institute of Occupational Health were used.

4.2.3 Data analysis

The Shapiro-Wilk test was used to check for normality in the data, which was performed by the first author. The purpose of checking for normality in the data is to ensure that the data is normally distributed. A normally distributed data set is essential for the validity of statistical tests. The categorical patient sociodemographic data was analyzed using frequency statistics. The Mann-Whitney U test was used to compare the RTW and Non-RTW groups, while Pearson's correlation was used to analyze the relationship between the free variables and both dependent and independent variables (r). Free variables are variables that are not controlled by the researcher but can affect the outcome of the study. The Pearson's correlation (r) was used to assess the strength of the relationship between the independent and dependent variables. r ranges from -1 to 1, with negative correlation indicating that one variable decreases as the other increases, and positive correlation indicating both variables increasing or decreasing together. The strength of the relationship was categorized as negligible ($r < 0.2$), low ($r = 0.2-0.49$), moderate ($r = 0.5-0.69$), high ($r = 0.7-0.85$), or very high ($r = 0.86-1.00$), with higher values indicating stronger linear relationships.

For continuous data, we used independent sample t-tests (t), and for ordinal data, we utilized Mann-Whitney tests. The Chi-square tests were used in order to investigate the differences in the categorical data. Multivariate logistic regression is used to investigate the association between several predictor factors and the outcome variable. To address the research question of this study in analyzing the relationship between work ability index and quality of life between RTW and non-RTW participants, multivariate logistic regression is the most suitable approach since it control for the effects of other variables.

The study used logistic regression to assess the association between independent and dependent variables while controlling for other factors. The aim of the analysis was to examine the relationships between various factors and the outcome of interest, taking into account the influence of other variables. The independent and dependent variables were determined using a questionnaire that included sociodemographic and disability-related questions, as well as assessments of QOL and WAI using validated questionnaires. The logistic regression was performed using SPSS version 26.0, with a p-value of less than 0.05 and a 95% confidence interval.

4.3 RESULTS

4.3.1 Return To Work program as case management for disabled workers

In accordance with the foregoing concept, this study investigates the aspect of RTW implementation in Indonesia. The research was carried out during the COVID-19 pandemic and compared the

outcomes of the RTW program for employees with impairments and non-RTW participants. The study compared two groups of people: those who participated in the RTW program during COVID-19 and those who did not participate. The research was designed to shed light on how the implementation of the RTW program and its outcomes for employees who were impaired due to occupational injuries or occupational diseases during the COVID-19 pandemic. The research begins with assessing the sociodemographic characteristics of the subjects. The following factors are considered variables: age, gender, marital status, occupation, level of education, work period, and place of living. In Table 5, we see how the quality of life and work ability index scores of disabled workers are distributed on a general level.

The data in **Table 5** is presented in a numerical format (N%) for nominal and ordinal data and as a mean and standard deviation for continuous data.

Table 5. Statistic result comparison of RTW and non-RTW participants

Variables		RTW	Non-RTW	Mann–Whitney, <i>t</i> , and χ^2	Multivariate Logistic Regression	
		N(%) or Mean \pm SD	N(%) or Mean \pm SD	<i>p</i> -Value	OR (95% CI)	<i>p</i> -Value
Age	26-35 years old	69(30.43%)	39(16.96%)	0.430	3.726	0.847
	36-45 years old	77(33.48%)	35(15.22%)			
	46-55 years old	8(3.48%)	1(0.43%)			
Gender	Male	33(14.40%)	24(10.50%)	0.083	0.184	0.125
	Female	121(52.80%)	51(22.30%)			
Marital status	Unmarried	24(10.50%)	13(5.70%)	0.736	4.876	0.585
	Married	130(56.80%)	62(27.10%)			
Job description	Blue collar job	146(63.80%)	72(31.40%)	0.692	2.792	0.769
	White collar job	8(3.50%)	3(1.30%)			
Level of education	High School	132(57.60%)	64(27.90%)	0.939	0.283	0.367
	University	22(9.60%)	11(4.80%)			
Work Period	3-5 years	8(3.50%)	12(5.20%)	0.000 *	0.430	0.039 *
	6-9 years	48(21.00%)	33(14.40%)			
	10-14 years	69(30.10%)	22(9.60%)			
	More than 14 years	29(12.70%)	8(3.50%)			
Location of residence	Downtown	83(36.52%)	36(15.65%)	0.493	1.143	0.264
	Rural areas	10(4.35%)	7(3.04%)			
	Suburbs	61(26.52%)	32(13.91%)			
Work Ability Index	Poor	0(0.00%)	37(16.20%)	0.000 *	0.692	0.000 *
	Moderate	42(18.30%)	20(8.70%)			
	Good	84(36.70%)	14(6.10%)			
	Excellent	28(12.20%)	4(1.70%)			
Quality of Life	Physical health	72.94 \pm 11.94	65.91 \pm 10.72	0.000 *	0.988	0.374
	Psychological	74.35 \pm 10.13	70.84 \pm 9.82	0.016 *	0.956	0.367
	Social Bound	76.14 \pm 14.45	74.13 \pm 14.17	0.388	1.029	0.055
	Environment	69.89 \pm 8.78	63.64 \pm 8.52	0.000 *	1.062	0.023 *

*p < 0.05 indicates a significant difference between the two groups (RTW and Non-RTW) at a level of 95% confidence.

*p < 0.01 indicates a highly significant difference between the two groups at a level of 99% confidence.

Table 5 shows the results of a study comparing various demographic and health-related variables between two groups: RTW (Return to Work) and Non-RTW (Non-Return to Work). The Mann Whitney test, t-test, and chi-squared test were used to assess the significance of differences between the two groups for each variable, and multivariate logistic regression was used to determine the odds ratio (OR) and 95% confidence interval (CI) for each variable. The OR (Odds Ratio) estimate in the multivariate logistic regression captures the relationship between the independent variables and the dependent variables. It measures the odds of an event occurring (i.e. having a certain quality of life or work ability index) given a set of independent variables (i.e. age, gender, marital status, job description, level of education, work period, location of residence). The CI for OR estimates the 95% Confidence Interval (CI) for the OR estimate represents the range in which the true value of the OR is likely to fall with 95% certainty. It provides information on the precision of the OR estimate.

The results of the Mann Whitney test, t-test, and chi-squared test indicated that there were statistically significant differences between RTW and Non-RTW groups in terms of age (p-value=0.430), work period (p-value=0.000*), quality of life (p-value=0.000*), and Work Ability Index (p-value=0.000*). The multivariate logistic regression analysis revealed that the odds of RTW were 3.726 times higher in the older age group (95% CI: 0.847-15.726) and the odds of RTW were 0.430 times higher for those with a longer work period (95% CI: 0.039-0.737).

The results of the study suggest that age and work period may be important predictors of RTW in injured workers. Additionally, the significant difference in quality of life between the RTW and Non-RTW groups highlights the importance of addressing mental and physical well-being in rehabilitation programs for injured workers.

4.3.2 A Glimpse of the Quality of Life among Workers with Disabilities

In this study, the quality of life of employees with impairments was evaluated using the WHOQoL-BREF as the standard of measurement. An evaluation of the quality of life involves the domain of physical health, psychological, social bound, and environment, respectively in this research. This research found that, when compared to other dimensions of quality of life, the social bound domain had the greatest mean value. However, as shown in Table 5 and Figure 8, the average value of all categories of quality of life for RTW participants is greater than for those who do not engage in the RTW program.

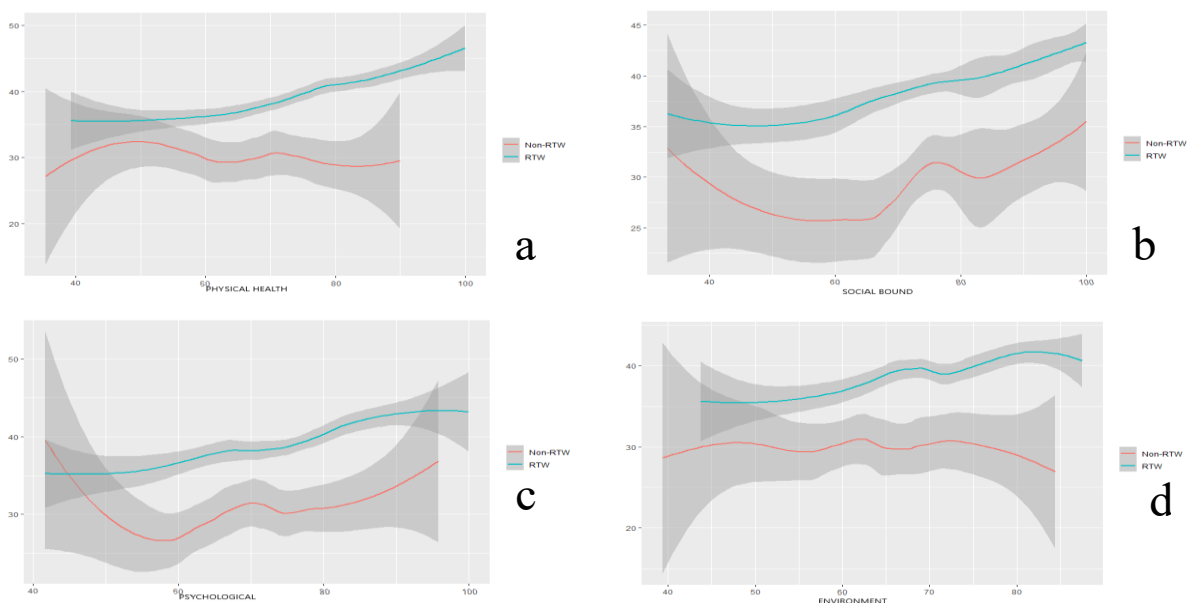


Figure 8 The comparative value of the domains Quality of Life of the disabled workers. The data suggests that there may be a noticeable difference in the quality of life for disabled workers, as evidenced by the measurements of QOL and WAI. Moreover, according to **Figure 8**, which provides a look into the quality of life among workers with disabilities in Indonesia during the COVID-19 outbreak, Individuals who participated in RTW programs showed a higher level of quality of life in all domains than those workers who did not participate in RTW program. As shown in **Figure 7**, the horizontal axis represents the domain of QOL of the participants in the study. The vertical axis represents the work ability index (WAI) of the participants in the study. **Fig. 8a**, workers who participate in RTW programs tend to have better physical health) outcomes (OR (0.988), mean S.D. (72.94±11.94)) and score of WAI compared to those who do not participate. Additionally, the same pattern of outcomes is seen in other domains, including social bound **Fig.8b**(OR (1.029)), mean S.D. (76.14+14.45)), psychological health **Fig. 8c** (OR (0.956), mean S.D. (74.35±10.13)), and environmental health **Fig.8d** (OR (1.062), mean S.D. (69.89±8.78)).

The result of a multivariate logistic regression analysis Table 5. indicating that working period, workability index and the domain of environmental health in the quality of life has a p-value of less than 0.05 that there is a statistically significant relationship between participation in the RTW program and the variables. In this case, the p-value of 0.023 suggests that there is a statistically significant relationship between participation in the RTW program and the environmental health domain of quality of life.

4.3.3 Work Ability Index of Workers with Disabilities

Both the RTW and non-RTW groups included individuals with a diverse age range, from around 26 to 55 years old as shown in **Table 5**. Based on the line graph, it was determined that the average Work Ability Index for disabled workers is 39.29. (SD 4.39). Figure 9 provided a detailed illustration of the work ability index based on age and work period, and the work ability index after research ¹⁰³ revealed that there is also a correlation between age and the index.

According to the description of figure 9, the distribution score of the work ability index sets the majority of the data in the "good" category for group of workers participated in the RTW program, which is between the numbers 37 and 44 ¹⁰⁴. Conversely, those who got disabled but did not participate in the RTW program showed a lower score of WAI. The use of WAI analysis among employees with disabilities in this research, which were practically in the same context as the study ^{104,105} of work ability index in the population of people receiving state insurance, was accomplished.

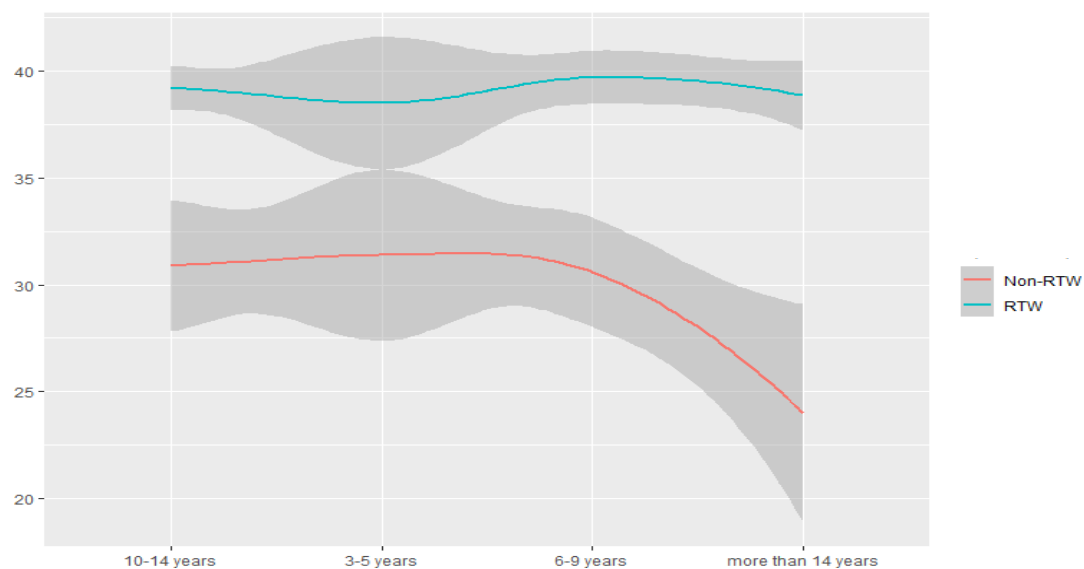


Figure 9 Distribution score of the work ability index based on the age and working period

The results of Figure 9 indicate that the Work Ability Index (WAI) of disabled workers who participated in the return-to-work (RTW) program appeared to be higher compared to those who did not participate in the RTW program. Specifically, the average WAI score of disabled workers in the non-RTW group was 37% which is considered poor, while the RTW group had a higher proportion of disabled workers with an excellent WAI score of 28 (12.20%). Furthermore, there were no disabled workers in the poor category after participating in the RTW program, implying that the RTW program associated with increased work ability index score of disabled workers, however, it is important to

recognize the implication of this research for further study to investigate the causality that RTW program is effective in enhancing the work ability index of disabled workers.

The results in Figure 10 indicate that the work ability index (WAI) of disabled workers who participated in the return to work (RTW) program appeared to be higher compared to those who did not participate in the RTW program. Specifically, the average WAI score of disabled workers in the non-RTW group was 37%, which is considered poor, while the RTW group had a higher proportion of disabled workers with an excellent WAI score of 28 (12.20%). Furthermore, there were no disabled workers in the poor category after participating in the RTW program, implying that the RTW program is associated with an increased work ability index score of disabled workers, however, it is important to recognize the implication of this research for further study to investigate the causality that the RTW program is effective in enhancing the work ability index of disabled workers.

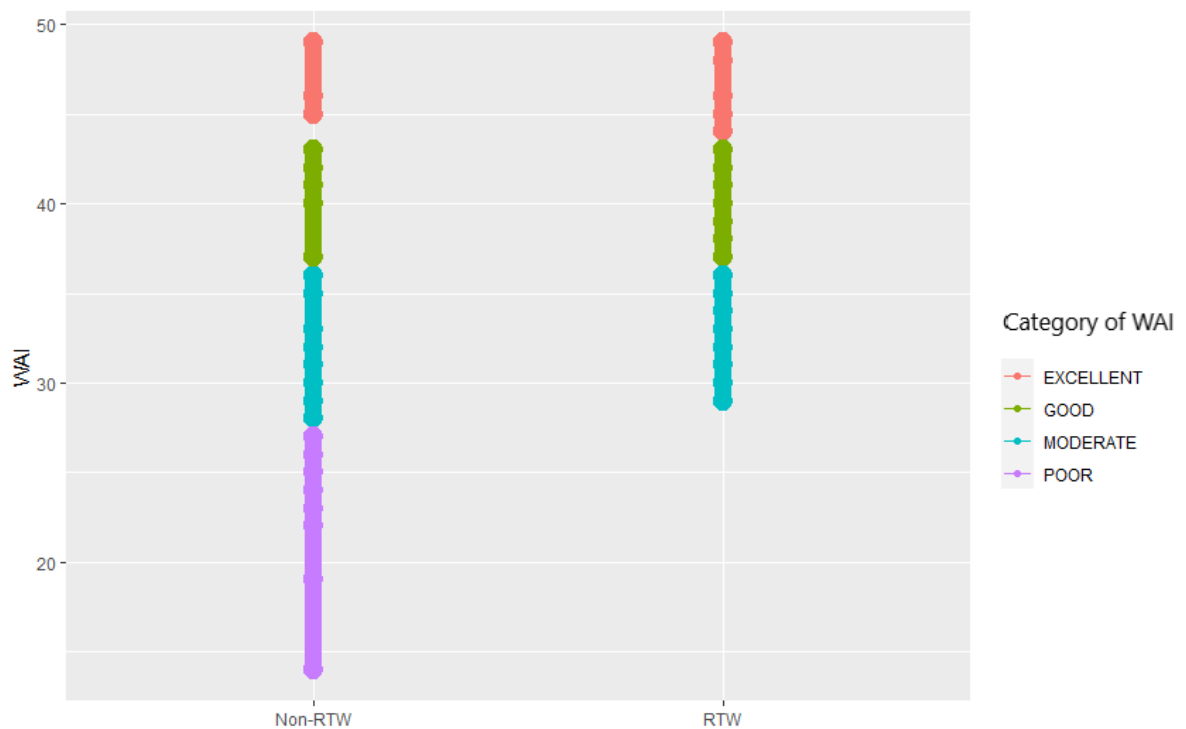


Figure 10 Work ability index dynamic value based on the category

4.4 DISCUSSION

4.4.1 Interpretation of results in relation to the effectiveness of the return to work program

The findings of our study highlight the potential benefits of the return to work program for disability workers during the pandemic. Our analysis found that workers who participated in the program had significantly higher scores on measures of quality of life and work ability compared to those who did not participate. There may have been a difference between the participants and non-participants in the

RTW program in terms of the severity of their impairments and their motivation to work. It is possible that the participants in the RTW program had less severe injuries or were more motivated to return to work than those who did not participate. This could potentially influence the outcomes of the program and must be taken into account when evaluating the results. This suggests that the RTW program was effective in supporting disability workers to return to work and maintain their ability to work during the pandemic.

We also observed that participants who had been out of work for a longer period of time were more likely to prefer the RTW program compared to those who had only been out of work for a shorter period. This may indicate that the longer an individual is out of work, the more likely they are to seek support and resources through the RTW program to return to work. However, it is important to note that there were also a significant number of participants who preferred not to engage in the RTW program, regardless of their working period.

In terms of quality of life, our study found that physical health, psychological health, and environmental health were significantly better among workers who preferred to participate in the RTW program compared to those who preferred not to. This suggests that the RTW program was successful in improving physical and psychological health outcomes for participants. However, we did not find a significant difference in the domain of social bonds between those who preferred to participate in the RTW program and those who preferred not to participate. This could be due to the fact that the RTW program was focused on supporting individuals to return to work and did not specifically address social connections.

Finally, it is widely believed that participating in return-to-work programs can have association on physical health, which is a key component of work ability. RTW programs can support workers in their recovery from injuries or illnesses and promote physical activity and well-being. This study supports these beliefs, as workers who participated in the RTW program tended to have better physical health outcomes compared to those who did not participate.

4.4.2 The current state of information from findings

This study examines the effectiveness of a return to work (RTW) program for individuals with occupational injuries during the pandemic in Indonesia and provides insights into the support and resources available to disabled workers during this challenging time. To the best of our knowledge, this is the first study of its kind to assess the Quality of Life (QOL) and Work Ability Index (WAI) among disabled workers who participated in an RTW program during this time.

Our findings suggest that the RTW program was effective in improving QOL and WAI scores for participants, indicating that it was successful in supporting disabled workers to return to work and

maintain their ability to work during the pandemic. These results have important implications for policy and practice in supporting disabled workers during challenging times, such as the COVID-19 pandemic.

4.4.3 Implications for supporting disability workers during the pandemic

Workers who are disabled because of an accident or disease at work concern most about their quality of life and their ability to work again after the injury. In order to protect the workers from this risk, some countries include occupational injury insurance in their social security programs. Moreover, a study on rural-urban migrants in China highlights the challenges they face during the Covid-19 pandemic, including housing eviction and difficulties with travel¹⁰⁶. This sheds light on how disabled people, as another disadvantaged population group, may also be impacted by similar issues and highlights the need for policies to address the needs of various disadvantaged groups. Policy instruments, such as occupational health and safety initiatives, are necessary to facilitate the work resumption of disadvantaged workers during Covid-19, however, more comprehensive evaluations and implementation details are needed to determine their effectiveness.¹⁰⁷ The implementation of coverage under occupational injury insurance has taken the shape of a case management system which is Return to Work program¹⁰⁸⁻¹¹². Despite the fact that during the pandemic, the state of employment in temporary contracts was related to enhanced well-being and increased performance, the research found that they were also associated with decreased job security¹⁰⁰.

Workers who have been disabled due to an accident or disease might have their dignity restored and their chances of returning to work improved by RTW programs¹¹³. This is in line with the journey of businesses taking part in the RTW assistance program offered by BPJS Ketenagakerjaan, Indonesia. In addition, there has been an increase in the promotion of career options for those who are either disabled or have a permanent complete handicap. Workers regain their productivity when employers invest in their education and re-entry into the workforce, putting them in a position to compete for better job prospects and, on a larger scale, become one of the elements contributing to good economic development.¹¹⁴ The success of the RTW program will increase the number of workers engaging in the labor market. The effective management of disabilities workforce can play a critical role in promoting the participation of disabled workers who have suffered from occupational injuries in the labor market. The RTW program supports disabled workers returning to the workforce, promoting their participation in the labor market and effectively managing disabilities. By providing support and accommodations, RTW programs help address the challenges faced by disabled workers. RTW programs are essential for effectively managing disabilities and supporting the workforce.^{115,116} This, in turn, will increase the output level, affecting the economy's status in Indonesia.

Our study found that the variable of working period was significantly related to the preference for participating in the return to work (RTW) program, with a p-value of 0.000 for the chi square test and a p-value of 0.000 in the multivariate logistic regression. This suggests that the length of time an individual has been out of work plays a significant role in their preference for participating in an RTW program. Additionally, we found that the category of working period among workers in the RTW group was dominantly 10-14 years (69±30.10%). In the non RTW group, the dominant category was 5-9 years (69±30.10%). These findings suggest that those who have been out of work for a longer period of time are more likely to prefer the support and resources provided by the RTW program in order to return to work.

It is important to consider the potential implications of these findings for policy and practice. Employers and policymakers may want to consider implementing RTW programs that are targeted towards those who have been out of work for longer periods of time, as they may be more likely to benefit from the support and resources provided. Additionally, further research is needed to understand the specific factors that influence an individual's preference for participating in an RTW program, such as personal and professional goals, job availability, and health and wellness.

This study shows an identical outcome to a study carried out in Malaysia¹¹⁷, which demonstrated that the outcomes of RTW have a significantly correlation with the physical health domain of workers who have participated in RTW programs. Under certain situations to turn for equating with a study that followed that sequence, this study shows the result. Research with the same questionnaire was also undertaken for persons with disabilities¹¹⁸, and the results indicated that all means of QOL domains were accordingly lower than this report revealed. Furthermore, this study's setting differs significantly from other studies. Moreover, this research analyses how the RTW program's comprehensive rehabilitation affects the quality of life for persons with disabilities. It would seem that the RTW program impacts beneficially the practical approach during the covid-19 pandemic to improve the quality of life among disabled workers.

In addition, regarding the work ability index, this investigation used the Work Ability Index questionnaire developed by the Finnish Institute of Occupational Health ¹¹⁹. This tool describes the respondents' current work capabilities while also allowing for projections of the health concern they experience. The result may mean that the category is poor if the score is between 7 and 27 points, and the category is moderate if the result is between 28 and 36 points. In this case, the category is considered good if the score is between 37 and 43 points and excellent if it is between 44 and 49 points. The questionnaire is an instrument for self-evaluation, and its purpose is to determine an

individual job competence by analyzing how that person interacts with the environment in which they are employed. It's flexible enough to be utilized by individual workers and teams ^{119,120}.

The work ability index results classified all participants in a range from moderate to excellent. The broad range of WAI scores in this study ranged from 29 to 49. The results of this study should therefore be seen as a response to specific previous findings ¹⁰³. There is some evidence to suggest that there may be a correlation between the WAI and age and working period. Some studies have found that older workers and those with longer working periods tend to have lower WAI scores, while younger workers and those with shorter working periods tend to have higher WAI scores ¹²¹. This may be due to the increased physical and mental demands of work, as well as the accumulation of health problems over time.

The purpose of occupational health management that may be achieved by implementing WAI is to consider maintaining and making efforts to improve the quality of work for an inclusive society that includes persons with disabilities in accordance with the U.N.'s sustainable development goals (SDGs). It has been revealed that 54.2% (n=84) of the total number of disabled workers who participated in the RTW program significantly improved their working abilities due to their participation. During the COVID-19 outbreak in Indonesia, it was observed that 27.3% (n=42) of employees fell into the moderate group, while 18.2% (n=28) had an exceptionally excellent work ability index.

4.4.4 Limitations and strengths

There are some flaws in how the study was done that need to be pointed out. It is important to consider the limitations of our study, including the sample size and specific geographic location. Further research with a larger sample size and diverse location is needed to further understand the effectiveness of RTW programs for disabled workers during the COVID-19 pandemic. The data collection was conducted using a purposive sample, which refers to situations during the pandemic that allowed researchers to approach the pieces through indirect encounters or online, which profoundly affected the willingness of participants to continue with the study, resulting in possible biases. There are, nevertheless, certain advantages to consider. We demonstrated the importance of contextual factors in implementing RTW, especially when examining the program's outcomes in measuring the functional ability and quality of life of workers with disabilities. We did this by using various data from very different social and cultural backgrounds and a wide variety of social assistance background frameworks.

4.5 CONCLUSIONS

In conclusion, our study found that the return-to-work program was effective in improving quality of life and work ability of disabled workers during the COVID-19 pandemic, as seen by the significant difference in scores between RTW and non-RTW participants. Policymakers and employers should consider using assessment tools and gathering feedback to regularly assess the program and make necessary improvements.

CHAPTER 5 : Work Ability Index and Burnout

Sub-Study 4: Work Ability and Burnout Among Case Managers

THE INTERPLAY BETWEEN WORK ABILITY AND BURNOUT AMONG HEALTH CARE WORKERS AS CASE MANAGERS IN RETURN TO WORK PROGRAMS DURING THE COVID-19 PANDEMIC

5.1 INTRODUCTION

The global pandemic caused by the SARS-CoV-2 (COVID-19) virus has presented significant challenges for the healthcare industry¹²²⁻¹²⁴, with the role of case managers in Return To Work (RTW) programs becoming increasingly concerning^{109,125}. The current situation has resulted in higher levels of burnout among healthcare workers due to increased workload and intensified demands. However, maintaining work ability is imperative for healthcare workers to deliver quality care to their patients. Moreover, RTW program have become more important to many businesses as a means to improve workplace safety and productivity. Yet, in order to carry out these programs successfully, it is vital to recognize the difference between the duties of case managers and administrators within an RTW program, especially with regards to work capacity and burnout. Although both case managers and administrators help workers return to work after disease or accident, their roles are distinct and need different skill sets to be carried out successfully. In RTW programs, case managers often act as intermediaries between patients, doctors, employers, and insurers¹²⁶.

This study included a number of case managers who handle occupational injury cases in the RTW program from 34 provinces in Indonesia. In RTW programs, the study suggests that socio-cultural factors that vary by location may influence the duration of work incapacity, which may affect the RTW process¹²⁷. Therefore, in planning RTW programs, it is necessary to consider socio-cultural factors that may affect this process in a particular location or region.

First, burnout refers to emotional exhaustion, and work ability refers to an individual's capacity to meet job demands. The two are interconnected, with burnout impacting work ability and good work ability protecting against burnout^{128,129}. Understanding this relationship is essential for promoting a healthy and productive workforce. Strategies for preventing burnout and promoting work ability include job redesign, social support, stress management, and individual-level interventions such as mindfulness training and resilience building¹³⁰⁻¹³².

Burnout and work ability are two critical concepts that have garnered significant attention in the realm of occupational health psychology^{128,133,134}. Burnout is characterized by emotional exhaustion,

depersonalization, and reduced personal accomplishment due to prolonged exposure to work-related stressors. Work ability, on the other hand, refers to an individual's ability to cope with job demands. Burnout is a significant concern in the healthcare industry, as healthcare workers experience high levels of occupational stress due to their demanding and emotionally challenging work^{135,136}.

Amid the COVID-19 pandemic, healthcare workers have been faced with the daunting task of managing work-related accidents that have led to fatal consequences, despite strict adherence to health protocols. As a response, some countries have developed comprehensive RTW programs that cater to workers who experience disabilities resulting from such accidents. These programs involve case management services that offer rehabilitation services encompassing medical, occupational, and psychosocial rehabilitation and are designed to support workers in returning to work. The role of the case manager in these programs is critical, as they work to coordinate and manage the rehabilitation process, liaise with healthcare providers, employers, and insurers, and act as advocates for employees, ensuring that they receive the necessary support and resources for a successful return to work. The job of the case manager in RTW programs is demanding and requires extensive expertise in healthcare, rehabilitation, and case management.

They act as advocates for employees, working closely with healthcare providers, employers, and insurers to ensure that employees receive the necessary support and resources to facilitate their RTW. Case managers can be nurses, occupational therapists, vocational rehabilitation professionals, or other allied health professionals¹³⁷. The efforts of case managers in RTW programs can have a significant impact on employee health, well-being, and productivity, and their role is crucial for maintaining a healthy and productive workforce¹³⁸. Future research can investigate the unique challenges faced by case managers during the pandemic and the effectiveness of interventions to reduce burnout and promote work ability. Addressing these issues can support case managers and ensure high-quality care for employees, even during a global crisis. Therefore, this study aims to investigate the interplay between work ability and burnout and identify the factors influencing their association among case managers in RTW programs during the COVID-19 pandemic.

5.2 METHODS

5.2.1 Study Design

This cross-sectional study focused at case managers in RTW programs during the COVID-19 outbreak to determine whether their work ability and burnout were related. In light of the COVID-19 outbreak, the purpose of this research was to present a glimpse of the work capacity and burnout

condition of case managers working in RTW programs. The research was conducted in Indonesia during the COVID-19 outbreaks in 2022 (May and June). This study followed the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) checklist to ensure complete and transparent reporting of observational research. The STROBE checklist comprises a set of guidelines for reporting observational studies, including cross-sectional studies, which aim to strengthen the quality and transparency of published research¹³⁹. In accordance with the aims of this research, the findings may aid in the development of effective RTW programs and the promotion of the mental and physical health of health care workers during the COVID-19 pandemic.

5.2.2 Participants

In this study, the sample of participants was selected using a stratified random sampling method to ensure that it is representative of the population of interest, which consisted of health care workers in RTW programs during the COVID-19 pandemic in May-June 2022 in Indonesia. The estimated population size was 351 individuals, with 93 case managers and 258 administrators. To ensure that the sample reflects the population's characteristics, the researchers divided the population into two strata based on job roles: case managers and administrators. A total of 89 case managers and 79 administrators were randomly selected from their respective strata, resulting in a total sample size of 168 participants. The participants worked with hospitals, rehabilitation centers, or occupational rehabilitation centers affiliated with BPJS Ketenagakerjaan, The Indonesian Social Security Agency on Employment. This ensured that our study included a representative sample of case managers who worked to assist disabled workers during RTW programs in Indonesia, as well as a control group of administrators who worked as claim verification officers.

The inclusion criteria for the case managers were that they had to be actively working in RTW programs, while the inclusion criteria for the administrators were that they had to be actively working as claim verification officers. The researchers invited eligible participants to participate in the study, and those who agreed provided informed consent. The use of stratified random sampling in this study helped reduce potential selection bias and ensured that the sample is representative of the population, allowing for the generalizability of the results to the population of health care workers in RTW programs during the pandemic.

To determine the appropriate sample size for this study, a power analysis¹⁴⁰ was conducted using the method proposed by Steven K. Thompson¹⁴¹, the sample size calculation for this study is as follows:

$$n = (Z^2 * p * (1-p)) / E^2$$

The estimated population size was 351 individuals, with 93 case managers and 258 administrators working in RTW programs during the COVID-19 pandemic in Indonesia. The researchers ensured that the sample reflected the population's characteristics by dividing the population into two strata based on job roles: case managers and administrators. The sample was selected using a stratified random sampling method to ensure that it was representative of the population of interest. The power analysis suggested that a minimum sample size of 146 participants would be required to detect a small effect size of 0.2 with a power of 0.8 and an alpha level of 0.05. However, the researchers aimed to include a larger sample to increase the study's statistical power and generalizability of findings. As a result, a total of 168 participants were included in the study, with 89 case managers and 79 administrators selected from their respective strata. The sample size was deemed adequate for the study's aims and research questions, providing sufficient statistical power to detect significant differences or associations between variables. The sample size of 168 participants is considered adequate for the study's aims and research questions, as it provides sufficient statistical power to detect significant differences or associations between variables ¹⁴².

5.2.3 Data Collection and Measures

To collect data for our study, we used two questionnaires: the Copenhagen Burnout Inventory (CBI) and the Work Ability Index (WAI). Our data collection took place during the COVID-19 pandemic in May-June 2022, which added an extra layer of complexity to the study. Therefore, we took extra precautions to ensure the safety of our participants and research team. Our study aimed to represent the conditions of each province in Indonesia during the pandemic. Therefore, we distributed our data collection across 34 provinces in Indonesia to ensure the diversity of our data in measuring WAI, and the burnout domains, namely personal burnout (PB), occupational burnout (OB) and client-related burnout (CRB). The use of stratified random sampling in this study helped reduce potential selection bias and ensured that the sample is representative of the population, allowing for the generalizability of the results to the population of health care workers in RTW programs during the pandemic.

5.2.4 Data Analysis

We used SPSS version 25.0 to analyze the data. Descriptive statistics were used to summarize the demographic characteristics of the participants, including age, gender, and years of experience. The CBI and WAI scores were used to measure burnout and work ability, respectively. We conducted correlation analysis using Spearman's rho coefficient to determine the relationship between burnout and work ability. To identify predictors of burnout and work ability among case managers, we used

univariate logistic regression analysis. Subgroup analysis was conducted to investigate the impact of demographic variables on burnout and work ability. In order to investigate the relationship between the various demographic factors and the outcome variable, spearman rho and chi-square analysis was carried out.

We examined the normality assumption using the Kolmogorov-Smirnov test and found that some of the variables were not normally distributed. Therefore, we used nonparametric tests, such as the Mann-Whitney U test, to compare burnout and work ability scores between subgroups. Our analysis aimed to shed light on the interplay between work ability and burnout among case managers in RTW programs and the impact of the COVID-19 pandemic on this relationship. We utilized R Studio to create a scatterplot with burnout areas on the x-axis and performance at work on the y-axis (see **Figure 11**) to visualize the correlation between the two variables.

5.3 RESULTS

During the scope of this investigation, we solicited responses from 168 individuals by sending out invitations to participate in the survey. There was a full complement of responses, or a 100% response rate. The Kolmogorov-Smirnov test was performed to examine the normality assumption; the results indicated that not all of the variables were normally distributed ($p < 0.05$). Hence, nonparametric testing was suitable for the objectives.

The results of the study provide valuable insights into the demographic and occupational characteristics of case managers and administrators, as well as their levels of burnout. These findings can help organizations understand the specific factors that contribute to burnout in these roles and inform interventions aimed at improving the well-being and job satisfaction of employees. In **Table 6**, we present a detailed overview of the results, including the demographic characteristics of the two groups, their work experience, and their levels of burnout.

Table 6 Demographic characteristics of the results

Variabels	Case Manager (n=89)	Administrator (79)	Regression n (p value)
	Mean±SD or N%	Mean±SD or N%	
Age	36.00±5	37±10	0.001*
Gender	Male	42 (72.4%)	0.186
	Female	37 (37.0%)	
Level of education	Postgraduate	9 (50.0%)	0.095
	Undergraduate	68(65.4%)	
	Vocational Training	2(20%)	
	High School	0(0%)	
Working period	0-2 years	20 (95.2%)	0.272
	3-5 years	24 (82.8%)	
	6-9 years	10 (27.8%)	
	10-14 years	25 (34.7%)	
	More than 14 years	0 (0.0%)	
Job status	permanent employee	77(71.3%)	0.068
	temporary contract employee	2(4.2%)	
	nonpermanent employee	46 (95.8%)	
Residential	Downtown	2 (100.0%)	0.795
	Suburbs	42(72.4%)	
	Rural Areas	33(39.8%)	
Work Ability Index (WAI)	40.91±3.58	37.68±4.76	
Category of WAI	Poor	0 (0.0%)	0.000*
	Moderate	3 (100.0%)	
	Good	7 (20.0%)	
	Excellent	28 (80.0%)	
Personal Burnout	37.61±17.83	38.13±19.31	0.859
Occupational Burnout	32.01±18.20	34.04±17.83	0.479
Client-related Burnout	49.58±7.62	53.27±10.02	0.010*

The table presents continuous data as the average plus standard deviation (Mean±SD), while numerical values are used to represent ordinal and nominal data (N%). Univariate logistic regression used to investigate the association between each predictor variable.

Table 6 presents the results of univariate logistic regression analysis investigating the association between each predictor variable and the two groups of healthcare workers, case managers and administrators. Among the variables examined, age, level of education, WAI, and client-related burnout were found to have significant associations with group status ($p < 0.05$). Workers in the case manager group were significantly younger on average than those in the administrator group (mean age of 36 years vs. 37 years, $p = 0.001$). Additionally, those with higher levels of education tended to be in the case manager group, although this result only approached significance ($p = 0.095$). On the other hand, WAI scores were significantly higher in the case manager group than in the administrator group (mean WAI score of 40.91 vs. 37.68, $p = 0.000$), indicating that case managers had better work

ability. Meanwhile, client-related burnout was significantly lower in the case manager group than in the administrator group (mean score of 49.58 vs. 53.27, $p=0.010$), suggesting that case managers experienced less burnout related to their clients than administrators.

5.3.1 Findings related to Burnout and Work Ability

The study analyzed the correlation between several variables, including age, work ability index, personal burnout, occupational burnout, and client-related burnout. The results revealed in **Table 7** that age is one of five important variables assessed for its relationship to WAI, personal burnout PB, OB and CRB. Nonetheless, WAI is strongly and negatively correlated with PB ($r=-0.386^{**}$, $p=0.000$) and OB ($r=-0.419^{**}$, $p=0.000$), which indicates that individuals with good working ability are less likely to burnout in both domains.

This study also revealed a strong correlation between occupational burnout and client-related burnout ($r=0.286^{**}$, $p=0.000$) and a positive correlation between personal burnout, occupational burnout, and client-related burnout ($r=0.721^{**}$, $p=0.000$). These results not only emphasize the necessity of identifying and resolving the root causes of burnout in order to enhance worker well-being and organizational outcomes, but also imply that burnout is a multi-dimensional concept that is connected across multiple work-related domains.

Table 7 Correlation analysis of age, WAI, and domain of burnout

Variables	Correlation	1	2	3	4	5
Age	Correlation	1.000				
	Coefficient					
	P value					
Work Ability Index	Correlation	-0.035	1.000			
	Coefficient					
	P value	0.663				
Personal Burnout	Correlation	-0.190*	-	1.000		
	Coefficient		0.386**			
	P value	0.017	0.000			
Occupational Burnout	Correlation	-	-	0.721**	1.000	
	Coefficient	0.207**	0.419**			
	P value	0.009	0.000	0.000		
Client-related Burnout	Correlation	-0.101	-	0.190*	0.286**	1.000
	Coefficient		0.256**			
	P value	0.205	0.001	0.017	0.000	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The study also analyzed the correlation between gender, occupation, level of education, working period, job status, and residential location (see **Table 8**). The results indicate a significant association

between the outcome variable and gender ($\chi^2(1) = 11.165, p = 0.001$), working period ($\chi^2(3) = 38.506, p = 0.000$), job status ($\chi^2(2) = 107.291, p = 0.000$), and residential location ($\chi^2(2) = 42.165, p = 0.000$). These findings suggest that these demographic factors may influence the outcome variable in the study.

Table 8 Correlation analysis based on Chi Square

	Gender	Occupation	Level of education	Working period	Job status	Residential
Chi-Square	11.165 ^a	.000 ^a	143.671 ^b	38.506 ^b	107.291 ^c	42.165 ^c
df	1	1	3	3	2	2
p-value	0.001*	1.000	0.000*	0.000*	0.000*	0.000*

** . Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

5.3.2 Comparison of Burnout and Work Ability levels

The study also compared the levels of burnout and work ability across various demographic factors, including age, work experience, and working hours. Interestingly, in **Figure 11**, graphs visually compare the relationship between the different burnout domains and work ability among the different occupations.

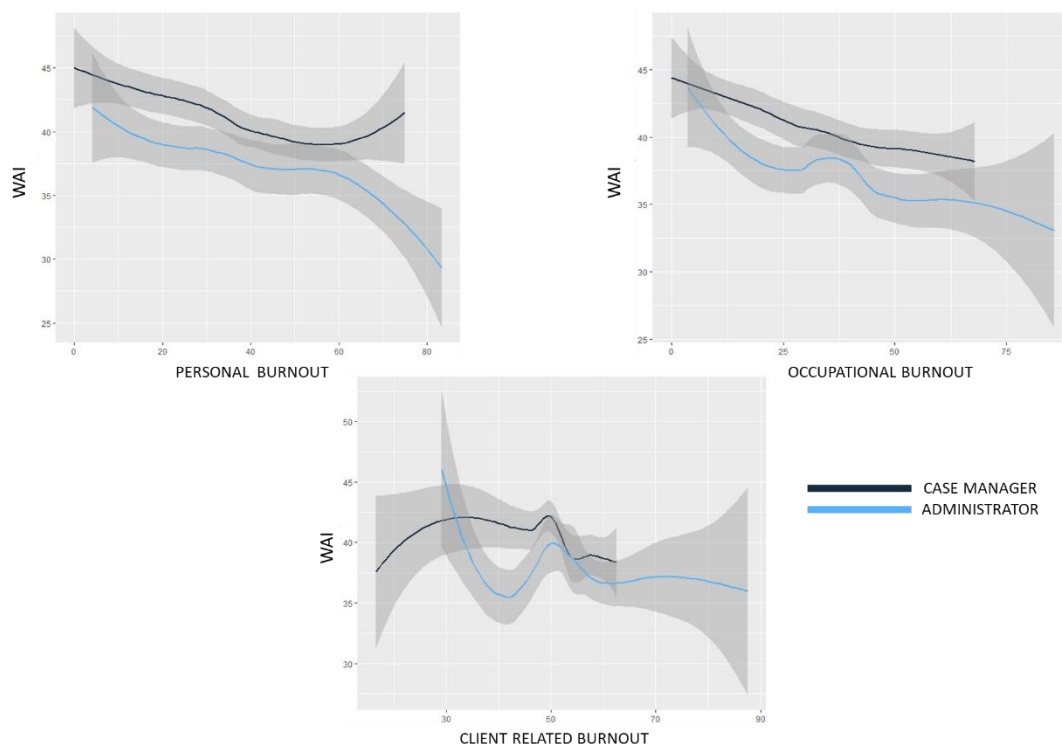


Figure 11 Comparing Work Ability and Burnout Domains among Healthcare Workers

If the trend lines slope downward, it indicates a negative relationship between burnout and work

ability, while a positive slope indicates a positive relationship. The graphs identify any differences between types of occupations in the relationship between burnout domains and work ability.

5.4 DISCUSSION

5.4.1 Interpretation of results

The findings of this study highlight the urgent need for interventions to address the high levels of burnout among case managers in RTW programs, particularly during times of crisis such as the COVID-19 pandemic. It is clear that the demands placed on case managers during this time have taken a significant toll on their mental health and well-being. While the study showed that case managers had better work ability than the control group, the high levels of client-related burnout suggest that this group is particularly vulnerable to the emotional and psychological challenges of their work.

To address these issues, interventions should focus on providing support and resources to help case managers manage their workload and cope with the emotional demands of their role. This could include initiatives such as training in stress management and emotional regulation, regular opportunities for debriefing and peer support, and access to mental health services. To ensure that case managers are able to provide their clients the greatest care and assistance possible, it is important to address the underlying reasons of burnout in the field. Case managers in RTW programs, in particular, were shown to have greater burnout rates than administrators. On the other hand, their work performance was higher than that of the control group, suggesting that they had learned to better deal with the stresses of their job.

A study conducted in Italy, which compared healthcare workers with administrative workers, showed that job type was a significant factor affecting WAI¹⁴³. This finding is consistent with the results of our investigation, which identified occupational factors, including job type, as correlated with WAI levels. These findings suggest that the nature of one's job has an important role in determining employability, and special attention should be paid to understanding how it affects different categories of professionals. This information can be used to design interventions aimed at improving the employability of healthcare workers, especially those with lower scores, such as nurses.

The results suggest that there are significant differences between case managers and administrators in terms of age, work ability, and client-related burnout. These findings may have implications for understanding the interplay between work ability and burnout among healthcare workers, particularly during the COVID-19 pandemic. The significant difference in work ability between the two groups

may suggest that case managers are better equipped to manage the demands of their role during the pandemic, which could have important implications for patient outcomes. Additionally, the lower client-related burnout among case managers suggests that there may be differences in the nature of the work or the way that the roles are structured between the two groups that could be explored in further research.

The comparison of burnout and work ability levels across different demographic factors also provided valuable insights into the factors that contribute to burnout among healthcare workers. For example, the study found that younger healthcare workers had higher levels of burnout than older workers, which may be related to their relative lack of experience and resilience. Similarly, healthcare workers with longer working hours were found to have higher levels of burnout than those with shorter working hours, highlighting the importance of work-life balance in preventing burnout.

5.4.2 Impact for Health Care Practitioners in the Capacity of Case Managers

Case managers are integral to the success of RTW programs, particularly in helping people with disabilities caused by occupational injuries. They help injured workers, doctors, and employers communicate for a safe and prompt return to work. In addition, case managers have an essential function in ensuring that injured workers can obtain medical and rehabilitation services they ought to rehabilitate and return to their normal duties. They work closely with medical professionals to coordinate care, track recovery, and change the treatment plan as needed to ensure a safe and timely return to work ¹⁴⁴.

In addition to facilitating the return-to-work process, case managers also provide emotional and psychological support to injured workers. Occupational injuries can be traumatic and life-changing events, and workers may experience a range of emotions, including fear, anxiety, and depression. Case managers help injured workers navigate these emotions, providing counseling, education, and support to help them cope with the physical, emotional, and financial challenges of their injury. They also work closely with the employer to ensure that the worker receives any necessary accommodations, such as modified work tasks or equipment, to support their return to work.

The findings of this study have important implications for health care workers who serve as case managers, particularly during times of crisis such as the COVID-19 pandemic. The study showed that case managers in RTW programs are particularly vulnerable to client-related burnout, which suggests that they may need additional support and resources to manage the emotional and psychological demands of their role. This could include access to mental health services, training in stress management and emotional regulation, and regular opportunities for debriefing and peer support.

As the demand for RTW programs continues to increase, it is crucial for organizations to prioritize

the well-being of their case managers to ensure optimal outcomes for both the employees and the organization as a whole. This can include implementing interventions such as education and training programs, workload management strategies, and support for work-life balance. It is also important for organizations to regularly assess the work ability and burnout levels of their case managers and make adjustments as needed to prevent burnout and maintain high levels of work ability. Moreover, the pandemic has caused significant stress and disruption in workplaces, and it is important to understand how it has affected case managers' well-being and their ability to manage rehabilitation services for employees.

The study also highlighted the importance of work ability in preventing burnout among case managers. Burnout can result in emotional exhaustion, depersonalization, and reduced job satisfaction, which can impact the quality of care provided to patients (17). Furthermore, burnout can lead to increased absenteeism, decreased productivity, and increased healthcare costs (18,19). Preventing and mitigating burnout is crucial for maintaining a healthy and productive healthcare workforce. Strategies for preventing burnout among healthcare workers can include job redesign, social support, stress management, and individual-level interventions such as mindfulness training and resilience building (20,21).

While case managers had higher levels of burnout than the control group, they also had significantly better work ability, suggesting that they may have developed better coping strategies and resilience to manage the demands of their role. This underscores the importance of promoting work ability and resilience among healthcare workers, particularly those in high-stress roles such as case managers. By providing support and resources to improve work ability and build resilience, healthcare organizations can help to prevent burnout and promote the well-being of their workforce.

5.4.3 Strengths and Limitations

This study has several strengths. First, the use of validated tools to assess burnout and work ability enhances the reliability of the findings. Moreover, the sample size of both case managers and the control group was adequate, exceeding the recommended minimum of 50 participants. Additionally, the comparison of burnout and work ability levels across various demographic factors adds to the study's generalizability, as it suggests that the results may apply to a wide range of healthcare workers in RTW programs.

However, this study is not without limitations. First, its cross-sectional design reduces the ability to draw causal conclusions about the relationship between burnout and work ability. Second, the study was conducted during the COVID-19 pandemic, which may have impacted the results and limited their generalizability to other periods. Therefore, further research is necessary to evaluate the extent

to which these findings apply outside of the pandemic context. Finally, the study's sample was taken from a single region, which may limit the generalizability of the results to other populations or settings.

In conclusion, despite the study's limitations, it provides valuable insights into the interplay between burnout and work ability among case managers in RTW programs, particularly during times of crisis. The study's strengths, such as the use of validated tools and an adequate sample size, increase its reliability and transferability. Overall, the study emphasizes the importance of interventions aimed at enhancing the well-being and job satisfaction of case managers and other healthcare workers in RTW programs. Future research should continue to explore this topic in other contexts to further improve the health and job satisfaction of healthcare workers.

5.4.4 Implications for practice

This study has important implications for practice. First, it highlights the need for interventions to enhance the well-being and job satisfaction of case managers in RTW programs, especially during times of crisis. Such interventions may include providing support and resources to help case managers deal with high levels of burnout. Additionally, strategies aimed at improving work-life balance and reducing workload could be implemented. The interplay between burnout and work ability is crucial, with burnout negatively affecting work ability and vice versa^{133,145,146}. Understanding this relationship is essential for promoting a healthy and productive workforce, and strategies for mitigating burnout and enhancing work ability include job redesign, social support, and individual-level interventions such as mindfulness training and resilience building.

In addition, healthcare organizations should consider adopting measures to prevent or reduce burnout among case managers in RTW programs. This may involve addressing the underlying factors that contribute to burnout, such as excessive work demands and inadequate resources. Moreover, fostering a positive work environment and culture that values the well-being of employees can help prevent burnout and enhance work ability among case managers. Ultimately, these interventions and strategies can lead to better outcomes for both case managers and the individuals they serve in RTW programs. Third, the findings of the study have important implications for healthcare organizations and policymakers in developing interventions to support the well-being and job satisfaction of healthcare workers. By understanding the factors that contribute to burnout and work ability, organizations can develop targeted interventions to address these issues and promote the well-being of their workforce. Ultimately, this will not only benefit healthcare workers themselves but also improve the quality of care and outcomes for patients.

5.5 CONCLUSION

This study highlights the interplay between work ability and burnout among case managers in RTW programs during the COVID-19 pandemic. Case managers experience higher levels of burnout, particularly client-related burnout but also demonstrate better work ability than the control group. Interventions to improve case managers' well-being and job satisfaction are needed, particularly during times of crisis, and could lead to better outcomes for both case managers and the individuals they serve. This study provides a valuable framework for future research on the impact of pandemics on the mental health of healthcare workers in RTW programs.

CHAPTER 6 : Economic Evaluation

Sub-Study 5: Economic Evaluation of RTW Program

ECONOMIC EVALUATION OF THE RETURN TO WORK PROGRAM EFFECTIVENESS FOR OCCUPATIONAL INJURY CASES AFTER SURGERY

6.1 INTRODUCTION

Occupational injuries are a major concern for workers, employers, and society at large, with serious economic and social implications¹⁴⁷⁻¹⁵¹. These injuries can have a devastating impact on the lives of workers and their families, resulting in disability, lost wages, and reduced quality of life¹⁵²⁻¹⁵⁴. Moreover, they can lead to significant costs for employers and the healthcare system, including medical expenses, productivity losses, and increased insurance premiums^{152,155}. In this context, effective return to work (RTW) programs have emerged as a key strategy for reducing the negative consequences of occupational injuries and promoting the recovery and reintegration of injured workers into the workforce.

The aim of RTW programs is to facilitate the timely and safe return of injured workers to productive employment while also ensuring that their health and well-being are protected^{156,157}. These programs typically involve a range of interventions, including medical treatment, rehabilitation, job accommodation, case management, and communication between workers, employers, and healthcare providers. The ultimate goal of RTW programs is to promote the physical, psychological, and social recovery of injured workers and reduce the social and economic costs associated with occupational injuries.

Despite the potential benefits of RTW programs, their implementation and effectiveness vary widely across different countries and industries. Factors such as the type and severity of injury, the nature of the job, the availability of healthcare and rehabilitation services, and the social and legal context can all influence the success of RTW programs¹⁵⁸⁻¹⁶⁰. Furthermore, the effectiveness of these programs may be influenced by individual factors such as age, gender, education, and socioeconomic status, as well as organizational and cultural factors such as workplace policies, attitudes toward disability, and social support networks. In light of these challenges, there is a need for rigorous research on the effectiveness of RTW programs in different contexts, as well as for the development and implementation of evidence-based practices to improve their effectiveness and sustainability.

In Indonesia, the RTW program is managed by Badan Penyelenggara Jaminan Sosial (BPJS) Ketenagakerjaan, Indonesian Social Security Agency on Employment, which was introduced in 2015

as part of the social security system for workers¹⁵¹. The social security program provides protection and benefits to workers and their families in the event of occupational injuries, disability, or death. The RTW program is designed to facilitate the recovery and return to work of disabled workers with occupational injuries through a comprehensive and coordinated approach. The program includes a range of interventions, such as medical treatment, rehabilitation, vocational training, job placement, and case management, which are tailored to the individual needs and circumstances of each worker. The program also involves collaboration between workers, employers, healthcare providers, and other stakeholders to ensure that the RTW process is smooth and effective.

The RTW program aligns with the Sustainable Development Goals (SDGs) global goals adopted by the United Nations in 2015 to end poverty, protect the planet, and ensure prosperity for all by 2030, specifically on good health and well-being (SDG 3), decent work and economic growth (SDG 8), and reduced inequalities (SDG 10). First, the program contributes to SDG 3 by promoting the physical and psychological health and well-being of workers with occupational injuries and by providing access to medical care and rehabilitation services. Second, the program supports SDG 8 by facilitating the return to work of disabled workers, thereby promoting decent work and economic growth and by reducing the economic and social costs associated with occupational injuries. In addition, the program contributes to SDG 10 by promoting the social and economic inclusion of disabled workers and by reducing inequalities and disparities in access to healthcare, rehabilitation, and social protection services. Therefore, the BPJS Ketenagakerjaan RTW program is an important policy initiative that addresses the multiple dimensions of occupational injuries and that supports the achievement of the SDGs.

The main research question of this study is to evaluate the effectiveness of the RTW program for disabled workers with occupational injuries under BPJS Ketenagakerjaan, specifically for those who have undergone surgery. The objectives of this research are to assess the effectiveness of the BPJS Ketenagakerjaan RTW program in facilitating the recovery and return to work of disabled workers with occupational injuries and to evaluate the economic impact of the program on medical care expenses. This study will contribute to the understanding of the effectiveness of RTW programs for occupational injuries in developing countries and inform the development and implementation of similar programs in other contexts.

6.2 METHODS

6.2.1 Study design

The current study utilized a retrospective observational design, analyzing data collected from the BPJS Ketenagakerjaan, a national insurance program that provides coverage for work-related

accidents and illnesses in Indonesia. The study focused on all workers who filed a workers' compensation claim from January 2012 to August 2022.

6.2.2 Data sources and sampling strategy

The data used in this study were obtained from the database of BPJS Ketenagakerjaan, Indonesian National Agency of Social Security on Employment, which includes information on workers' demographic characteristics (age, gender, education), the occurrence of accidents (time, severity, industry sector), and compensation payouts. A census sampling strategy was employed to include all workers who had experienced occupational injury claims within the specified timeframe.

6.2.3 Inclusion and exclusion criteria

For this study, we included patients who had undergone surgery due to occupational injury and suffered a disability as a result. Specifically, we focused on closed claims for these patients within a specified timeframe. Exclusion criteria for this study included patients who did not have surgery as a result of their occupational injury, those who did not experience disability due to their occupational injury, and those whose claims were still ongoing within the specified timeframe.

6.2.4 Variables and outcome measures

The variables examined in this study included demographic characteristics of the patients (age, gender, education), the type and severity of the occupational injury, and the type and extent of medical care received by the patients. The outcome measures were lost time injury days (LTIDs) and medical care expenses, which were used to assess the effectiveness of RTW policy in facilitating the recovery and rehabilitation of the patients.

6.2.5 Statistical analysis

In this study, we used an interrupted time series analysis to evaluate the economic effectiveness of the RTW program for occupational injury cases after surgery. ITSA is a statistical method used to assess the impact of an intervention on a time series outcome^{161–165}. It is particularly useful for analyzing the effects of policy changes, such as the implementation of an RTW program. The analysis was performed on a retrospective observational design, using a before and after implementation RTW program policies. We collected data on the number of LTIDs and medical care expenses for occupational injury cases after surgery over a period of ten years.

Our study employed a rigorous screening process to ensure the quality and accuracy of the data claims. Only cases that met the specified inclusion criteria were included in the subsequent analysis of the effectiveness of the RTW program for occupational injury cases after surgery. The inclusion criteria were as follows: the case was an occupational injury that resulted in partial anatomical disability, partial functional disability, or total permanent disability; the case was treated by surgery; and the

case had been closed. Out of the total claims screened, 10,602 cases received usual care, while 1,353 cases received the RTW program.

To assess the effectiveness of the RTW program, we compared the LTIDs and medical care expenses between the pre-implementation and post-Implementation periods using segmented regression analysis. This analysis allowed us to model the pre-intervention trend in the outcome variables and estimate the change in trend after the intervention. We also used graphical representations, such as interrupted time series plots, to visually assess the trend in the outcome variables before and after the intervention.

In order to address potential confounding variables and ensure the accuracy of our regression models, we incorporated covariates such as age, gender, education level, and industry sector. Statistical software, including SPSS version 25.0, was employed to perform comprehensive data analyses, and a significance level of $p < 0.05$ was established. R Studio version 4.2.2 was employed for data visualization purposes.

6.3 RESULTS

6.3.1 Sample characteristics and descriptive statistics

The sample characteristics and descriptive statistics of the occupational injuries data are presented as

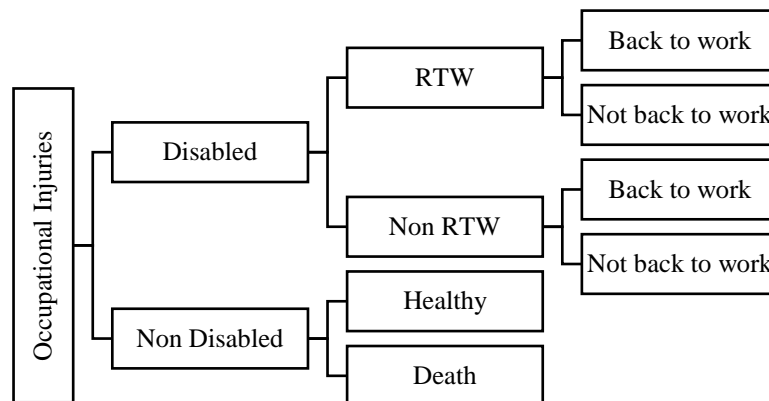


Figure 12 Study Analysis Model of RTW program

follows. The data are categorized based on disability status and return-to-work (RTW) status. The disability status has two categories, namely, disabled and non-disabled, while the RTW status has four categories, namely, back to work and not back to work for both disabled and non-disabled workers.

Table 9 Comparison of Treatment Options for Variables in Occupational Injuries

Variables	Option for Treatment		
	RTW Program Count (%) or mean	Usual Care Count (%) or mean	
Age ^a	34 y.o	35 y.o	
Category of age ^b	Young Workers (15-24 years old)	325(24.0%)	2168(20.4%)
	Adult Workers (25-54 years old)	991(73.2%)	8102(76.4%)
	Older Workers (more than 55 years old)	37(2.7%)	332(3.1%)
Gender	Male	1165(86.1%)	9260(87.3%)
	Female	188(13.9%)	1342(12.7%)
Outcomes of treatment ^c	Successful	1137(84.0%)	2149(20.3%)
	Unsuccessful	216(16.0%)	8453(79.7%)
Region ^d	Northern Sumatra	175(12.9%)	2050(19.3%)
	Southern Sumatra	54(4.0%)	801(7.6%)
	Jakarta	87(6.4%)	441(4.2%)
	West Java	303(22.4%)	978(9.2%)
	Central Java	229(16.9%)	3089(29.1%)
	East Java	165(12.2%)	1233(11.6%)
	Kalimantan	46(3.4%)	558(5.3%)
	Sulawesi and Moluccas	73(5.4%)	235(2.2%)
	Western Sumatra	91(6.7%)	334(3.2%)
	Banten	118(8.7%)	508(4.8%)
East Indonesia	12(0.9%)	375(3.5%)	
Industry ^e	Manufactures	1208(89.3%)	8171(77.1%)
	Agriculture	33(2.4%)	1043(9.8%)
	Mining	22(1.6%)	206(1.9%)
	Animal husbandry/Fisheries	7(0.5%)	118(1.1%)
	Transportation	19(1.4%)	272(2.6%)
	Unspecified Industries	64(4.7%)	786(7.4%)
Type of Impairment	Partly Anatomical Impairment	866(64.0%)	6688(63.1%)
	Partly Functional Impairment	477(35.3%)	3821(36.0%)
	Total Impairment	10 (0.7%)	93(0.9%)
Location of Accident	At work	1136(84.0%)	8394(79.2%)
	Commuting	139(10.3%)	1463(13.8%)
	Outside	78(5.8%)	745(7.0%)
Total Claims Payouts ^f	\$2,805	\$1,872	
Nominal of Medical care ^f	\$766	\$790	

Information on categorical data in the form of counts and percentages, and numerical data in the form of means.

^{a,b} The age data was analyzed by computing the mean and categorizing the age groups based on the International Labor Organization (ILO) age classification scheme¹⁶⁶

^c Determined based on the ability of the worker to return to work after receiving treatment.

^d Based on the working areas of the National Social Security Agency for Employment (BPJS Ketenagakerjaan) to determine the corresponding categories.

^e Proportions of economic activities by industrial category according to the ISIC system as defined by the ILO¹⁶⁷

^f Converting claims payouts in Indonesian Rupiah to US Dollars at an exchange rate of 1 USD to 15,550.22 IDR, based on the exchange rate as of March 11, 2023

In addition to these categories, the data also include a category for non-disabled and healthy workers, as well as a category for workers who experienced fatalities.

Descriptive analysis was conducted, and the results are presented in **Table 9**. The purpose of obtaining and analyzing descriptive statistics for each category is to gain a comprehensive understanding of the patterns and trends of occupational injuries among various subgroups of workers. The data allow for a detailed exploration of the distribution, central tendency, and variability of injury rates within and across the different categories. The findings of the descriptive analysis provide valuable insights into the nature and extent of occupational injuries, which can be used to inform and guide injury prevention and management strategies.

The table presents the results of a descriptive analysis of a dataset on occupational injuries among workers who received either the RTW program or usual care treatment. The dataset includes information on the age, gender, treatment outcomes, region, industry, impairment type, accident location, and claims payouts of the workers. The age group of the workers is categorized based on the International Labor Organization (ILO) age classification scheme. The results show that the majority of workers who received treatment were adults between 25-54 years old. Young workers aged between 15-24 years old and older workers above 55 years old made up a smaller proportion of the treated workers. Additionally, the majority of treated workers were males. The proportion of successful treatment outcomes was higher for those who received the RTW program than for those who received usual care (non-RTW). In particular, 84.0% of participants in the RTW program had successful treatment outcomes, while only 20.3% of the participants in the usual care group did. On the other hand, compared to those who received standard treatment (79.7%), those who participated in the RTW program had a much-reduced proportion of unsuccessful treatment results (16.0%). In light of these results, it seems conceivable that the RTW program is the preferred treatment choice for those suffering disability due to occupational injury.

6.3.2 Impact of RTW program

In addition to the findings in **Figure 13**, which reported data on the number of lost time injury LTIDs and the nominal cost of medical care expenses for the two treatment options. These variables were not explicitly depicted in Figure 13, which instead focused on a time series comparison of the RTW group and non-RTW group using R Studio. The data on LTIDs are shown in **Figure 13.b**, while the cost data are shown in **Figure 13.a**. These figures offer further insights into the effectiveness of the RTW program compared to usual care. The data reveal that the average LTIDs for workers in the

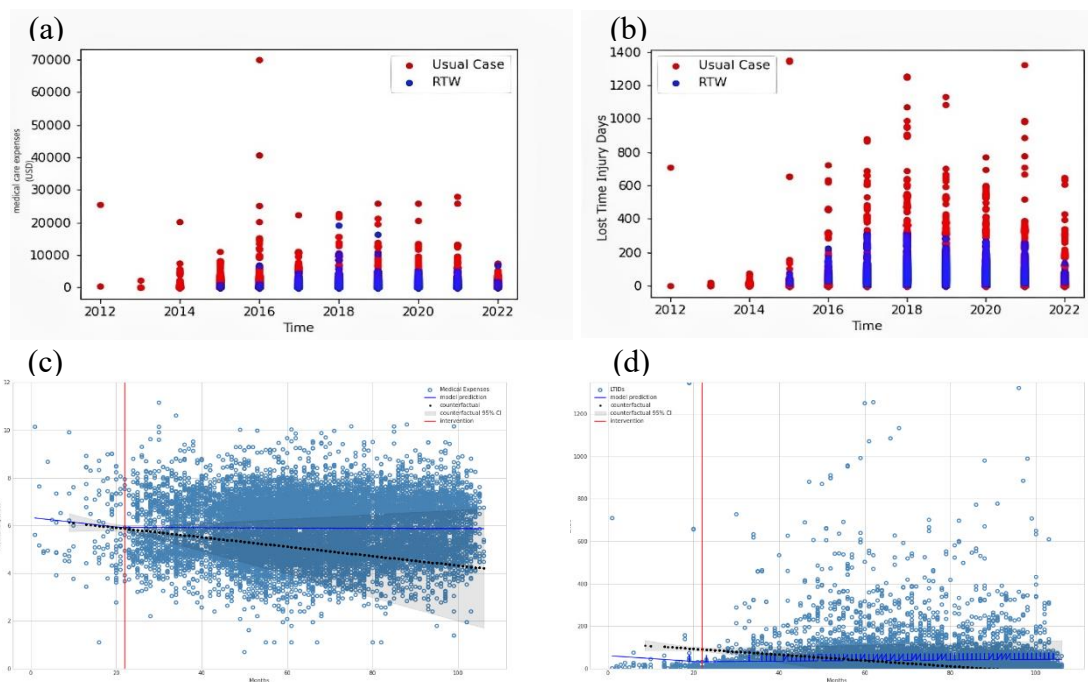


Figure 13 Proportion of usual care cases and RTW program cases

RTW program were lower than for those in the usual care group. This suggests that workers in the RTW program were able to return to work more quickly after receiving treatment.

The nominal cost of medical care expenses for workers in the RTW program was also slightly lower (\$766) than for those in the usual care group (\$790). This may indicate that the RTW program provided more intensive or specialized medical care to the workers, which in turn contributed to their quicker return to work. In addition, **Figure 13(c)** suggests that the implementation of the RTW program policy did not have a statistically significant effect on medical expenses, as the p-value is 0.702 where the coefficient is 0.0146.

However, the results on **Figure 13 (d)** suggest that the LTIDs decreased significantly by 25.21% with a coefficient of -25.2133 ($p < 0.001$). The treatment variable, which indicates whether participants

received RTW or non-RTW care, was found to have a significant negative effect on LTIDs. Additionally noteworthy is the model's estimated slight but statistically significant trend of a monthly decrease in LTIDs (on average 1.9451%, $p < 0.001$). However, it is important to note that this finding should be interpreted with caution, as the nominal cost of medical care expenses may not reflect the true value of the services provided and may be subject to variations in cost across different regions or healthcare providers.

6.4 DISCUSSION

6.4.1 Interpretation of findings in light of previous research

This study endeavors to address the main research objective, which investigated the efficacy of the RTW program for occupationally injured disabled laborers registered under the BPJS Ketenagakerjaan, particularly for those who have undergone surgical interventions. To our knowledge, this is the first study to investigate the effectiveness of the RTW program in reducing lost time injury days (LTIDs) and medical care expenses in a developing country such as Indonesia. The study's novel contribution is its focus on the economic evaluation of the RTW program, which is a development of the national social security program for workers. The findings of this study suggest that the RTW program is an effective intervention for reducing LTIDs and medical care expenses for occupational injury patients after surgery.

This study indicated that the implementation of the RTW program has been beneficial for both workers and companies, despite the relatively small number of cases identified. However, companies may not be providing adequate support for disabled workers who have undergone surgery due to occupational injuries, as evidenced by their limited participation in the RTW program. This suggests that there may be a lack of awareness among capital-intensive companies regarding the importance of RTW programs and the potential benefits of facilitating the return to work of disabled employees. Addressing this issue is crucial to ensure that disabled workers are not disadvantaged in the workplace and can contribute effectively to their respective organizations. The success of RTW programs depends on support and awareness from companies. These programs may not be properly administered, resulting in lower employee satisfaction and increased corporate expenditures owing to longer absenteeism and workers' compensation claims. Lack of understanding regarding RTW programs might leave workers without alternatives or remedies for job-related injuries, diseases, or impairments.¹⁶⁸ Some studies found that the implementation of an RTW program had positive outcomes for both workers and companies, with a significant increase in the proportion of injured workers returning to work after participating in the program^{169,170}. The RTW program for disabled

workers with occupational injuries is beneficial not only for the workers themselves but also for companies and insurance providers. The RTW program could potentially minimize the number of LTIDs by providing comprehensive and ongoing care for disabled workers. Moreover, RTW programs can lead to increased efficiency and effectiveness for both the company and the workers. The workers are able to maintain their income and continue to contribute to the company, while the company can benefit from a productive workforce.

Furthermore, the program can also improve the quality of life and work ability of disabled workers¹⁵¹, as they receive support and guidance from case managers. This can lead to a reduction in relapses and readmissions to hospitals, as workers are able to better manage their injuries and prevent further complications. The RTW program can ensure that workers receive the utmost support and medical care by assembling a team of complete specialists in their respective professions, resulting in more positive results and better recovery times. The RTW program includes comprehensive rehabilitation and case management programs, one of which is a medical rehabilitation program that includes physical activity training for disabled workers. The study showed that a good physical rehabilitation program will increase the benefits of the case management, and vice versa, if it is too late in handling disability cases, it will be detrimental to the patient, where one of them will have an impact on the quality of life and increase the financial burden for the insurer, in this case the insurance^{171,172}. Hence, prompt and appropriate handling in the RTW program will address these challenges, supported by adequate infrastructure, both in terms of human resources and adequate health facilities. In addition, the implementation of effective RTW programs can lead to benefits for all parties involved, including workers, companies, and insurance providers^{173,174}. Companies may enhance productivity and reduce costs associated with lost workdays and excessive medical expenses by investing in their employees' health and well-being. This can result in a confidence motion in which both workers and businesses profit from a safe and productive workplace. As a result, it is critical that businesses and insurance carriers realize the benefits of such programs and engage in their creation and execution^{54,111,175}.

The findings of this study have significant implications for policy and practice, as it is the first study to evaluate the effectiveness of the RTW program, which is a development of the social insurance product in developing countries such as Indonesia. The study provides valuable insights into the impact of the RTW program on the economic outcomes of occupational injury cases after surgery. The novelty of this study lies in its focus on the economic evaluation of the RTW program in a developing country context. The study's contribution to the field of occupational health and safety is significant, as it sheds light on the effectiveness of an innovative approach to occupational injury management.

Interpretation of the study's findings in light of previous research indicates that the RTW program is a promising intervention for reducing the economic burden of occupational injuries. The findings of this study are consistent with previous research that has highlighted the importance of RTW programs for improving patient outcomes and reducing healthcare costs. The study's implications for policy and practice include the need for greater investment in RTW programs as a means of reducing the economic burden of occupational injuries in Indonesia.

The findings of this study can inform policymakers and practitioners in developing countries who are interested in implementing similar programs to improve the economic outcomes of workers who suffer occupational injuries. By demonstrating the positive impact of the RTW program on reducing medical care expenses and lost time injury days, the study provides evidence that such programs can contribute to improved economic outcomes for both workers and employers.

6.4.2 Implications for policy and practice

The findings of our study have important implications for policy and practice. Specifically, they suggest that implementing RTW programs for occupational injury patients who have undergone surgery can result in significant cost savings for both the workers' compensation system and employers. Moreover, our findings support the need for policies and programs that encourage and facilitate the use of RTW programs in Indonesia. This can be achieved through the development of guidelines and standards for RTW programs, as well as providing incentives for employers to participate in such programs.

6.4.3 Limitations of the study and suggestions for future research

Our study has several limitations that should be acknowledged. First, our study design is retrospective, which limits our ability to establish causality. Second, our sample was drawn from a single source of data, which may limit the generalizability of our findings. It is worth noting that the data on LTIDs only capture a partial picture of the impact of occupational injuries on workers, as they do not account for non-monetary losses such as pain and suffering or decreased quality of life. Finally, our study only focused on the economic evaluation of RTW programs and did not examine other important outcomes, such as worker satisfaction or quality of life. However, this study did not explore the potential reasons for the limited participation of companies in the program, nor did it examine the broader implications of the results for the field of occupational health and safety. Therefore, while both studies highlight the effectiveness of RTW programs, the present study provides a more comprehensive analysis of the issue and offers valuable insights into the challenges and opportunities associated with the implementation of such programs in the workplace.

Future research should address these limitations by employing a prospective study design, using multiple sources of data, and examining a broader range of outcomes. Additionally, future research could explore the factors that contribute to the successful implementation of RTW programs in Indonesia, such as the role of stakeholders and the cultural and social context of the workplace.

6.5 CONCLUSION

In summary, this study found that the RTW program implemented by BPJS Ketenagakerjaan was effective in helping disabled workers with occupational injuries return to work, with a significant reduction in LTIDs and medical care expenses. These findings have important implications for the development and implementation of similar programs in other countries, highlighting the importance of case management and social security programs in supporting disabled workers and improving their overall well-being.

CHAPTER 7 : Summary

This study reveals new findings on the personal and occupational factors that influence the effectiveness of return-to-work (RTW) programs. The findings provide a new perspective on the dynamic role of these factors in influencing RTW program outcomes. The findings significantly enhance our understanding of the critical elements that must be addressed in the implementation of RTW programs to achieve superior outcomes.

The research also highlights some key aspects that contribute to the effectiveness and success of RTW programs. Thorough monitoring and evaluation were identified as critical elements in ensuring the effectiveness of the program and its benefits to workers and employers. In the context of the COVID-19 pandemic, the implementation of the RTW program in Indonesia was shown to have a significant positive impact on the quality of life and employment opportunities of workers with disabilities.

Furthermore, the findings of this study show that RTW programs are effective in improving the physical health and psychological health of workers with disabilities. RTW program participants showed improvements in various quality of life domains compared to non-participants. However, it is important to address the emotional and psychological challenges faced by case managers in the RTW program. Interventions that focus on workload management, stress management, and access to mental health support are needed to maintain their well-being and the success of the RTW program.

Finally, the findings of this study have significant implications for both policy and practice, as this is the first study to evaluate the effectiveness of RTW programs in the context of an economic evaluation in a developing country such as Indonesia. The study found that RTW programs are effective case management in the economic consequences of work injuries, resulting in higher success rates, reduced number of days lost from work, and potential reductions in medical care costs. This confirms the importance of implementing RTW programs to improve outcomes for injured workers.

The results of this study can serve as a valuable reference for policy makers and practitioners in developing countries interested in implementing similar initiatives to improve the economic consequences for injured workers. It is important to note that RTW programs have been shown to have a beneficial impact in reducing medical costs.

CHAPTER 8 : Novel Findings

In this study, the main focus is to examine the personal and professional factors that influence the effectiveness of return-to-work (RTW) programs. RTW programs are an effort to facilitate the return of injured workers to the workplace with superior outcomes. The findings of this study provide new and important insights into our understanding of RTW program implementation and its impact on workers with disabilities. The following are the key findings of this study:

1. **Personal factors:** Personal factors, such as an individual's readiness to work with a physical functioning condition of disability, as well as return-to-work rates which may include medical necessity, RTW certification, and health recovery awareness may influence the effectiveness of RTW programs.
2. **Determinants of professionalism:** The professional determinants for Return to Work (RTW) programs include improved employment outcomes and positive effects on productivity. In this study, case managers' professionalism was related to high levels of Work Ability Index, indicating good work ability. Despite this, they also faced high levels of burnout, emphasizing the importance of workload management and mental health support.
3. **Impact of the COVID-19 pandemic:** The implementation of RTW programs during the COVID-19 pandemic in Indonesia has had a significant positive impact on the quality of life and employment opportunities of workers with disabilities. RTW programs help improve the conditions of workers with disabilities in difficult situations such as the pandemic.
4. **Physical and psychological health:** RTW programs have been shown to be effective in improving the physical health and psychological health of workers with disabilities. RTW program participants showed improvements in various aspects of quality of life, but it is important to note the emotional and psychological challenges faced by case managers.
5. **Economic implications:** The implementation of RTW programs has positive economic impacts, including higher success rates, reduced days lost from work, and potential reductions in medical care costs. These findings provide a basis for policy makers and practitioners to consider RTW programs in an effort to improve the economic consequences for injured workers.

With these novel findings, this study makes an important contribution to the development and refinement of return-to-work programs for individuals with injuries or disabilities.

CHAPTER 9 : List of publications and scientific activities

ARTICLES RELATED TO THE DISSERTATION THAT HAVE BEEN PUBLISHED

1. Analysis of the Return to Work Program for Disabled Workers during the Pandemic COVID-19 Using the Quality of Life and Work Ability Index: Cross-Sectional Study
Kurnianto, Arie Arizandi ; Fehér, Gergely ; Tololiu, Kevin Efrain ; Wikurendra, Edza Aria ; Nemeskéri, Zsolt ; Ágoston, István
INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH 20 : 4 Paper: 3094 , 13 p. (2023) Q2
DOI: 10.3390/ijerph20043094
2. Managing disabled workers due to occupational accidents in Indonesia: a case study on return to work program
Arie Arizandi Kurnianto*; Haitham Khatatbeh; Viktória Prémus; Zsolt Nemeskéri; István Ágoston
BMC PUBLIC HEALTH 23 : 1 Paper: 943 (2023) Q1
DOI:10.1186/s12889-023-15930-2

ARTICLES RELATED TO THE DISSERTATION THAT CURRENTLY UNDER REVIEW

3. IS THE RETURN TO WORK (RTW) PROGRAM EFFECTIVE FOR WORKERS WHO ARE DISABLED AFTER A WORK ACCIDENT? : A SCOPING REVIEW
Arie Arizandi Kurnianto; Eristian Wibisono; Kevin Efrain Tololiu; Zsolt Nemeskéri; István Ágoston
4. The Interplay between Work Ability and Burnout Among Health Care Workers as Case Managers in Return To Work Programs During the COVID-19 Pandemic
Arie Arizandi Kurnianto ; Faten Amer; Gergely Feher; Kevin Efrain Tololiu, ; Zsolt Nemeskéri;. István Ágoston,
5. ECONOMIC EVALUATION OF THE EFFECTIVENESS RTW PROGRAM FOR OCCUPATIONAL INJURIES CASES AFTER SURGERY
Arie Arizandi Kurnianto; Faten Amer; Ananda Dellina Putri; Zsolt Nemeskéri ; István Ágoston

ADDITIONAL ARTICLES RELATED TO HEALTH SCIENCES

1. Amer, Faten ✉ ; Kurnianto, Arie Arizandi ; Alkaiyat, Abdulsalam ; Endrei, Dóra ; Boncz, Imre
Engaging physicians and nurses in balanced scorecard evaluation—An implication at Palestinian hospitals and recommendations for policy makers
FRONTIERS IN PUBLIC HEALTH 11 Paper: 1115403 , 15 p. (2023)
DOI WoS Scopus PubMed
Közlemény:33685815 Admin láttamozott Forrás Idéző Folyóiratcikk (Szakcikk) Tudományos Q1
DOI: 10.3389/fpubh.2023.1115403
2. Arie, Arizandi Kurnianto ✉ ; Tri, Matiana ; Nemeskéri, Zsolt ; István, Ágoston ; Soedjajadi, Keman
The Correlation of Blood Xylene Levels and Neurological Disorders among Informal Car Painters
JOURNAL OF CHEMICAL HEALTH RISKS 13 : 1 pp. 195-205. , 11 p. (2023)
DOI Scopus
Közlemény:32912640 Admin láttamozott Forrás Folyóiratcikk (Szakcikk) Tudományos Q4
DOI: 10.22034/JCHR.2022.1942679.1432

3. Tololiu, Kevin Efrain ; Kurnianto, Arie ; Csokasi, Krisztina
Audio Intervention for Acute Pain Management - Protocol of Systematic Review and Meta-Analysis (2023)
DOI Egyéb URL
Közlemény:33647833 Nyilvános Forrás Egyéb (Kutatási jelentés (közzétett)) Tudományos
DOI: 10.37766/inplasy2023.1.0002
4. Evary, Yuyu Mulsiani ; Masyita, Ayu ; Kurnianto, Arie Arizandi ; Asri, Rangga Meidianto ; Rifai, Yusnita
Molecular docking of phytochemical compounds of Momordica charantia as potential inhibitor against SARS-CoV-2
INFECTIOUS DISORDERS - DRUG TARGETS 22 p. e130122200221 (2022)
DOI Egyéb URL
Közlemény:32607501 Nyilvános Forrás Folyóiratcikk (Szakcikk) Tudományos
Q3
DOI: 10.2174/1871526522666220113143358
5. Arie Arizandi, Kurnianto ; Nemeskéri, Zsolt ; Feher, Gergely ; Ágoston, István
Occupational health prevention program: A complimentary benefit for health insurance benefit for workers during outbreak of COVID-19
EDORIUM JOURNAL OF NEUROLOGY 8 : 1 Paper: 100016N06AK2021 , 7 p. (2021)
DOI Kiadónál
Közlemény:32174394 Admin láttamozott Forrás Folyóiratcikk (Ismertetés) Tudományos
DOI: 10.5348/100016N06AK2021ED
6. Wikurendra, Edza Aria ; Nurika, Globila ; Tarigan, Yenni Gustiani ; Kurnianto, Arie Arizandi
Risk Factors of Pulmonary Tuberculosis and Countermeasures: A Literature Review
OPEN ACCESS MACEDONIAN JOURNAL OF MEDICAL SCIENCES 9 pp. 549-555. , 7 p. (2021)
DOI Scopus
Közlemény:32510024 Admin láttamozott Forrás Folyóiratcikk (Összefoglaló cikk) Tudományos
Q3
DOI: 10.3889/oamjms.2021.7287
7. Kurnianto, Arie Arizandi ; Martiana, Tri ; Keman, Soedjajadi ; Dewanti, Linda
Factors Associated with Xylene Exposure
International Journal of Advanced Engineering, Management and Science 2 : 1 pp. 13-16. , 4 p. (2016)
Közlemény:31642475 Nyilvános Forrás Folyóiratcikk (Szakcikk)

ABSTRACTS RELATED TO THE DISSERTATION

1. Kurnianto, A
Cross-Sectional Research on the Development of Case Management Approach for Disability Patient Based on the Workability Index and Quality of Life Measures
VALUE IN HEALTH 25 : 12 p. S216 Paper: EPH133 (2022)
DOI WoS Egyéb URL
Közlemény:33626325 Nyilvános Forrás Folyóiratcikk (Absztrakt / Kivonat) Tudományos
DOI: 10.1016/j.jval.2022.09.1054
2. Arie, Arizandi Kurnianto ; Nemeskéri, Zsolt ; Ágoston, István
Analysis of the return-to-work program's framework for workers with disabilities due to occupational injury in Indonesia
In: Csiszár, Beáta; Hankó, Csilla; Kajos, Luca Fanni; Mező, Emerencia (szerk.) Medical Conference for PhD Students and Experts of Clinical Sciences 2021 : Book of Abstracts
Pécs, Magyarország : Doctoral Student Association of the University of Pécs (2021) 128 p. pp. 23-23. , 1 p.
Közlemény:32129899 Admin láttamozott Forrás Könyvrészlet (Absztrakt / Kivonat) Tudományos

3. Arie, Arizandi Kurnianto ; Zsolt, Nemeskéri ; István, Ágoston
Challenge of Return to Work Program During Covid-19 Outbreak : A Case management for workers with disability due to occupational accident or disease in Indonesia
In: Kajos, Luca Fanni; Bali, Cintia; Preisz, Zsolt; Polgár, Petra; Glázer-Kniesz, Adrienn; Tislér, Ádám; Szabó, Rebeka (szerk.) 10th Jubilee Interdisciplinary Doctoral Conference : Book of Abstracts = 10. Jubileumi Interdiszciplináris Doktorandusz Konferencia : Absztraktkötet
Pécs, Magyarország : Pécsi Tudományegyetem Doktorandusz Önkormányzat (2021) 347 p. pp. 113-113. , 1 p.
Közlemény:32640226 Admin láttamozott Forrás Könyvrészlet (Absztrakt / Kivonat) Tudományos

ABSTRACTS RELATED TO THE HEALTH SCIENCES

1. Kurnianto, Arie Arizandi ; Andi, Irma Suryani
Immunostimulant effect of bitter melon (*Momordica charantia*) extract on Immunoglobulin M (IgM) and Immunoglobulin G (IgG) activity of male mice (*Mus musculus*)
In: Csiszár, Beáta; Hankó, Csilla; Kajos, Luca Fanni; Mező, Emerencia (szerk.) Medical Conference for PhD Students and Experts of Clinical Sciences : Book of Abstracts
Pécs, Magyarország : Doctoral Student Association of the University of Pécs (2020) 83 p. p. 2
Közlemény:31989051 Nyilvános Forrás Könyvrészlet (Absztrakt / Kivonat) Tudományos

BOOK RELATED TO HEALTH SCIENCES

1. Dévényiné, Rózsa Erika ; Fehér, Gergely ; Kurnianto, Arie Arizandi ; Nemeskéri, Klára ; Nemeskéri, Zsolt ; Szellő, János ; Zádori, Iván
100 foglalkozás egészségi tényezői a megváltozott munkaképességű személyek foglalkoztatásában
Budapest, Magyarország : DePress Kiadó (2021) , 220 p.
ISBN: 9786150111186
Közlemény:31951254 Nyilvános Forrás Idéző Könyv (Szakkönyv) Tudományos
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REFERENCES

1. Sears JM, Schulman BA, Fulton-Kehoe D, Hogg-Johnson S. Workforce Reintegration After Work-Related Permanent Impairment: A Look at the First Year After Workers' Compensation Claim Closure. *J Occup Rehabil.* 2021;31(1). doi:10.1007/s10926-020-09912-z
2. Social Security Association I. *The Return on Work Reintegration.*; 2017. www.issa.int
3. Nigatu YT, Liu Y, Uppal M, et al. Interventions for enhancing return to work in individuals with a common mental illness: Systematic review and meta-analysis of randomized controlled trials. *Psychol Med.* 2016;46(16). doi:10.1017/S0033291716002269
4. Cullen KL, Irvin E, Collie A, et al. Effectiveness of Workplace Interventions in Return-to-Work for Musculoskeletal, Pain-Related and Mental Health Conditions: An Update of the Evidence and Messages for Practitioners. *J Occup Rehabil.* 2018;28(1). doi:10.1007/s10926-016-9690-x
5. Meijer EM, Sluiter JK, Frings-Dresen MHW. Evaluation of effective return-to-work treatment programs for sick-listed patients with non-specific musculoskeletal complaints: A systematic review. *Int Arch Occup Environ Health.* 2005;78(7). doi:10.1007/s00420-005-0622-x
6. MacEachen E, Clarke J, Franche RL, Irvin E, the Workplace-based Return to Work Literature Review Group. Systematic review of the qualitative literature on return to work after injury Author (s): Ellen MacEachen , Judy Clarke , Renée-Louise Franche , Emma Irvin and Workplace-based Return to Work Literature Review Group Published by : the Scandinavian Journ. *Scand J Work Environ Health.* 2006;32(4):257-269.
7. Johansson E, Svartengren M, Danielsson K, Hellman T. How to strengthen the RTW process and collaboration between patients with chronic pain and their employers in interdisciplinary pain rehabilitation programs? Patients' experiences of the Demand and Ability Protocol. *Disabil Rehabil.* Published online 2022. doi:10.1080/09638288.2022.2083246
8. Tiedtke C, Dierckx De Casterlé B, Donceel P, De Rijk A. Workplace support after breast cancer treatment: Recognition of vulnerability. *Disabil Rehabil.* 2015;37(19). doi:10.3109/09638288.2014.982830
9. Yang CL, Yin YR, Chu CM, Tang PL. Does category of strength predict return-to-work after occupational injury? *BMC Public Health.* 2022;22(1). doi:10.1186/s12889-022-13817-2
10. Tompa E, Mofidi A, van den Heuvel S, et al. Economic burden of work injuries and diseases: a framework and application in five European Union countries. *BMC Public Health.* 2021;21(1). doi:10.1186/s12889-020-10050-7
11. Polinder S, Haagsma JA, Belt E, et al. A systematic review of studies measuring health-related quality of life of general injury populations. *BMC Public Health.* 2010;10(1):783. doi:10.1186/1471-2458-10-783
12. Lammerts L, Vermeulen SJ, Schaafsma FG, van Mechelen W, Anema JR. Return to work of workers without a permanent employment contract, sick-listed due to a common mental disorder: design of a randomised controlled trial. *BMC Public Health.* 2014;14(1):594. doi:10.1186/1471-2458-14-594
13. Ravinskaya M, Verbeek JH, Langendam MW, et al. A general framework for selecting work participation outcomes in intervention studies among persons with health problems: a concept paper. *BMC Public Health.* 2022;22(1):2189. doi:10.1186/s12889-022-14564-0
14. Moher D, Shamseer L, Clarke M, et al. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Revista Espanola de Nutricion Humana y Dietetica.* 2016;20(2). doi:10.1186/2046-4053-4-1
15. Arksey H, O'Malley L. Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology: Theory and Practice.* 2005;8(1). doi:10.1080/1364557032000119616
16. Westphaln KK, Regoeczi W, Masotya M, et al. From Arksey and O'Malley and Beyond: Customizations to enhance a team-based, mixed approach to scoping review methodology. *MethodsX.* 2021;8. doi:10.1016/j.mex.2021.101375
17. Pham MT, Rajić A, Greig JD, Sargeant JM, Papadopoulos A, Mcewen SA. A scoping review of scoping reviews: Advancing the approach and enhancing the consistency. *Res Synth Methods.* 2014;5(4). doi:10.1002/jrsm.1123
18. MacDonald J. Systematic Approaches to a Successful Literature Review. *Journal of the Canadian*

Health Libraries Association / Journal de l'Association des bibliothèques de la santé du Canada. 2014;34(1). doi:10.5596/c13-009

19. Asih S, Neblett R, Mayer TG, Gatchel RJ. Does the Length of Disability between Injury and Functional Restoration Program Entry Affect Treatment Outcomes for Patients with Chronic Disabling Occupational Musculoskeletal Disorders? *J Occup Rehabil.* 2018;28(1):57-67. doi:10.1007/s10926-016-9691-9
20. Macpherson RA, He A, C AIB, Koehoorn M, McLeod CB. Evaluating effectiveness of an integrated return-to-work and vocational rehabilitation program on work disability duration in the construction sector. *Scand J Work Environ Health.* 2022;48(3):229-238. doi:10.5271/sjweh.4006
21. Bae SW, Lee MY, Park SW, Lee G, Leigh JH. Satisfying medical and rehabilitation needs positively influences returning to work after a work-related injury: an analysis of national panel data from 2018 to 2019. *BMC Public Health.* 2021;21(1):2017. doi:10.1186/s12889-021-12064-1
22. Savitsky B, Radomislensky I, Goldman S, Gitelson N, Frid Z, Peleg K. Socio-economic disparities and returning to work following an injury. *Isr J Health Policy Res.* 2020;9(1):35. doi:10.1186/s13584-020-00392-3
23. Bae SW. Effect of professional certification on employees' return-to-work rate after occupational injuries in Korea: focusing on vulnerable groups. *Environ Health Prev Med.* 2021;26(1):6. doi:10.1186/s12199-020-00930-0
24. Kang D. Positive Factors for Return to Work After Accidents: Health Awareness, Consultation with Doctors, and Personal Characteristics of Workers. *Saf Health Work.* 2022;13(1):32-39. doi:10.1016/j.shaw.2021.10.001
25. Camisa V, Gilardi F, E DB, et al. Return on Investment (ROI) and Development of a Workplace Disability Management Program in a Hospital-A Pilot Evaluation Study. *Int J Environ Res Public Health.* 2020;17(21). doi:10.3390/ijerph17218084
26. C de GCJ, Huysmans MA, J van RH, Anema JR. Return to work factors and vocational rehabilitation interventions for long-term, partially disabled workers: a modified Delphi study among vocational rehabilitation professionals. *BMC Public Health.* 2022;22(1):875. doi:10.1186/s12889-022-13295-6
27. C de GCJ, Huysmans MA, J van RH, Anema JR. Return to work factors and vocational rehabilitation interventions for long-term, partially disabled workers: a modified Delphi study among vocational rehabilitation professionals. *BMC Public Health.* 2022;22(1):875. doi:10.1186/s12889-022-13295-6
28. Bae SW. Effect of professional certification on employees' return-to-work rate after occupational injuries in Korea: focusing on vulnerable groups. *Environ Health Prev Med.* 2021;26(1):6. doi:10.1186/s12199-020-00930-0
29. Szymanski EM, Parker RM, Ryan C, Merz MA, Treviño-Espinoza B, Johnston-Rodriguez S. Work and disability: Basic Construct. In *E M Szymanski & R M Parker (Eds), Work and disability: Issues and strategies in career development and job placement.* Published online 2003:1-25.
30. Lerner DJ, Amick BC, Malspeis S, Rogers WH. A national survey of health-related work limitations among employed persons in the United States. *Disabil Rehabil.* 2000;22(5):225-232. doi:10.1080/096382800296791
31. McMordie william R, Barker SL, Paolos TM. Return to work after head injury. *Brain Inj.* 1990;1(4):57-69.
32. Johnstone B, Vessell R, Bounds T, Hoskins S, Sherman A. Predictors of success for state vocational rehabilitation clients with traumatic brain injury. *Arch Phys Med Rehabil.* 2003;84(2):161-167. doi:10.1053/apmr.2003.50098
33. Pransky GS, Benjamin KL, Savageau JA, Curri van D, Fletcher K. Outcomes in work-related injuries: A comparison of older and younger workers. *Am J Ind Med.* 2005;47(2):104-112. doi:10.1002/ajim.20122
34. Wickizer TM, Franklin G, Fulton-Kehoe D, Turner JA, Mootz R, Smith-Weller T. Patient satisfaction, treatment experience, and disability outcomes in a population-based cohort of injured workers in Washington State: Implications for quality improvement. *Health Serv Res.* 2004;39(4 I):727-748. doi:10.1111/j.1475-6773.2004.00255.x
35. Keogh JP, Nuwayhid I, Gordon JL, Gucer PW. The impact of occupational injury on injured worker and family: Outcomes of upper extremity cumulative trauma disorders in Maryland workers. *Am J Ind Med.* 2000;38(5):498-506. doi:10.1002/1097-0274(200011)38:5<498::AID-AJIM2>3.0.CO;2-I

36. Young AE, Wasiak R, Roessler RT, McPherson KM, Anema JR, Van Poppel MNM. Return-to-work outcomes following work disability: Stakeholder motivations, interests and concerns. *J Occup Rehabil*. 2005;15(4):543-556. doi:10.1007/s10926-005-8033-0
37. Kuijer PPFM, de Beer MJPM, Houdijk JHP, Frings-Dresen MHW. Beneficial and limiting factors affecting return to work after total knee and hip arthroplasty: A systematic review. *J Occup Rehabil*. 2009;19(4):375-381. doi:10.1007/s10926-009-9192-1
38. Zieger M, Luppia M, Meisel HJ, et al. The impact of psychiatric comorbidity on the return to work in patients undergoing herniated disc surgery. *J Occup Rehabil*. 2011;21(1):54-65. doi:10.1007/s10926-010-9257-1
39. Lee MK, Kang HS, Lee KS, Lee ES. Three-Year Prospective Cohort Study of Factors Associated with Return to Work After Breast Cancer Diagnosis. *J Occup Rehabil*. 2017;27(4):547-558. doi:10.1007/s10926-016-9685-7
40. Geiringer SR. Evaluation and reporting requirements of the disability examiner. *Phys Med Rehabil Clin N Am*. 2001;12(3):543-557. doi:10.1016/s1047-9651(18)30049-4
41. Kendall NAS, Thompson BF. A Pilot Program for Dealing with the Comorbidity of Chronic Pain and Long-Term Unemployment. *J Occup Rehabil*. 1998;8(1):5-26. doi:10.1023/A:1023052414384
42. Papic C, Kifley A, Craig A, et al. Factors associated with long term work incapacity following a non-catastrophic road traffic injury: analysis of a two-year prospective cohort study. *BMC Public Health*. 2022;22(1):1498. doi:10.1186/s12889-022-13884-5
43. O'Hagan FT, Coutu MF, Thomas SG, Mertens DJ. Work Reintegration and Cardiovascular Disease: Medical and Rehabilitation Influences. *J Occup Rehabil*. 2012;22(2):270-281. doi:10.1007/s10926-011-9345-x
44. Dillahunt-Aspillaga T, Price P. Community capacity building and vocational models of service delivery for individuals with traumatic brain injury in the State of Florida. *Brain Inj*. 2010;24(3).
45. Cancelliere C, Donovan J, Stochkendahl MJ, et al. Factors affecting return to work after injury or illness: Best evidence synthesis of systematic reviews. *Chiropr Man Therap*. 2016;24(1). doi:10.1186/s12998-016-0113-z
46. Howard G, Till JS, Toole JF, Matthews C, Truscott BL. Factors Influencing Return to Work Following Cerebral Infarction. *JAMA: The Journal of the American Medical Association*. 1985;253(2):226-232. doi:10.1001/jama.1985.03350260078030
47. Etuknwa A, Daniels K, Eib C. Sustainable Return to Work: A Systematic Review Focusing on Personal and Social Factors. *J Occup Rehabil*. 2019;29(4):679-700. doi:10.1007/s10926-019-09832-7
48. Islam T, Dahlui M, Majid HA, Nahar AM, Taib NA, Su TT. Development of conceptual framework to understand factors associated with return to work among cancer survivors: A systematic review. *Iran J Public Health*. 2014;43(4):391-405.
49. Dieterich M, Irving CB, Bergman H, Khokhar MA, Park B, Marshall M. Intensive case management for severe mental illness. *Cochrane Database of Systematic Reviews*. 2017;2017(1). doi:10.1002/14651858.CD007906.pub3
50. Vermeulen SJ, Anema JR, Schellart AJM, Van Mechelen W, Van Der Beek AJ. Intervention mapping for development of a participatory return-to-work intervention for temporary agency workers and unemployed workers sick-listed due to musculoskeletal disorders. *BMC Public Health*. 2009;9. doi:10.1186/1471-2458-9-216
51. S.J. V, J.R. A, A.J.M. S, W. VM, A.J. VDB. Intervention mapping for development of a participatory return-to-work intervention for temporary agency workers and unemployed workers sick-listed due to musculoskeletal disorders. *BMC Public Health*. 2009;9.
52. Lax MB, Klein R. More than Meets the Eye: Social, Economic, and Emotional Impacts of Work-Related Injury and Illness. *NEW SOLUTIONS: A Journal of Environmental and Occupational Health Policy*. 2008;18(3):343-360. doi:10.2190/NS.18.3.i
53. ILO. *Final Report - Mapping Persons with Disabilities (PWD) in Indonesia Labor Market*; 2017.
54. Awang H, Shahabudin SM, Mansor N. Return-to-Work Program for Injured Workers: Factors of Successful Return to Employment. *Asia Pacific Journal of Public Health*. 2016;28(8):694-702. doi:10.1177/1010539516640354
55. Halimatussadiyah A, Agriva M, Nuryakin C. Persons with Disabilities (PWD) and Labor Force in Indonesia: A Preliminary Study. *development*. 2014;17(18):19.

56. Scully C. Impairment and disability. In: *Scully's Medical Problems in Dentistry*. Elsevier; 2014:676-686.
57. Hyland EM. The International Labour Organization and the Worker's Compensation Reform Act: Conflict Between International Responsibility for Human Rights and Divided Jurisdiction. *JL & Soc Pol'y*. 1998;13:188.
58. ConRoy Mair. Supporting an injured worker to return to work.
59. Young AE, Roessler RT, Wasiak R, McPherson KM, Van Poppel MNM, Anema JR. A developmental conceptualization of return to work. *J Occup Rehabil*. 2005;15(4):557-568. doi:10.1007/s10926-005-8034-z
60. Indonesia R of. *PENYELENGGARAAN PROGRAM JAMINAN KECELAKAAN KERJA DAN JAMINAN KEMATIAN*. Vol PP Nomor 4.; 2015.
61. Siregar MA, ed. Tata Laksana Program Kembali Kerja (Return to Work) BPJS Ketenagakerjaan. *11th Indonesian Occupational Medicine Update*. Published online 2017.
62. Lammerts L, Schaafsma FG, van Mechelen W, Anema JR. Execution of a participatory supportive return to work program within the Dutch social security sector: a qualitative evaluation of stakeholders' perceptions. *BMC Public Health*. 2016;16(1). doi:10.1186/s12889-016-2997-x
63. Lai HS, Szeto G, Chan C. Injured workers' perception of loss and gain in the return to work process. *Risk Manag Healthc Policy*. 2017;Volume 10:7-16. doi:10.2147/RMHP.S119479
64. R. W, A.E. Y, R.T. R, K.M. M, M.N.M. VP, J.R. A. Measuring return to work. *J Occup Rehabil*. 2007;17(4).
65. Wasiak R, Young AE, Roessler RT, McPherson KM, Van Poppel MNM, Anema JR. Measuring return to work. *J Occup Rehabil*. 2007;17(4). doi:10.1007/s10926-007-9101-4
66. Paparini S, Papoutsi C, Murdoch J, et al. Evaluating complex interventions in context: systematic, meta-narrative review of case study approaches. *BMC Med Res Methodol*. 2021;21(1). doi:10.1186/s12874-021-01418-3
67. Regulation D. Accident prevention regulation Occupational physicians and OSH professionals. 2012;(January).
68. Mat Rosely R. Factors predicting the likelihood of return to work for SOCSO's return to work program participants within different employers. *International Journal of Disability Management*. 2014;9. doi:10.1017/idm.2014.15
69. Aasdahl L, Foldal VS, Standal MI, et al. Motivational interviewing in long-term sickness absence: Study protocol of a randomized controlled trial followed by qualitative and economic studies. *BMC Public Health*. 2018;18(1). doi:10.1186/s12889-018-5686-0
70. Juszczak D, Henderson M, Parsons V, Smedley J, Shannon R, Madan I. 460 Development of an intervention to facilitate return to work of uk healthcare staff with common mental health disorders. In: ; 2018. doi:10.1136/oemed-2018-icoabstracts.981
71. Momsen AMH, Stapelfeldt CM, Nielsen CV, et al. Effects of a randomized controlled intervention trial on return to work and health care utilization after long-term sickness absence. *BMC Public Health*. 2016;16(1). doi:10.1186/s12889-016-3812-4
72. Eftedal M, Tveito TH, Gensby U, et al. Comparing two interdisciplinary occupational rehabilitation programs for employees on sick leave: a mixed-method design study protocol. *BMC Musculoskelet Disord*. 2021;22(1). doi:10.1186/s12891-021-03994-3
73. López Gómez MA, Sabbath E, Boden L, et al. Organizational and Psychosocial Working Conditions and Their Relationship with Mental Health Outcomes in Patient-Care Workers. *J Occup Environ Med*. 2019;61(12):E480-E485. doi:10.1097/JOM.0000000000001736
74. Peters SE, Coppieters MW, Ross M, Johnston V. Health-care providers' perspectives on factors influencing return-to-work after surgery for nontraumatic conditions of the upper extremity. *Journal of Hand Therapy*. 2020;33(1):87-95.e1. doi:https://doi.org/10.1016/j.jht.2018.09.011
75. Ponsford J, Harrison-Felix C, Ketchum JM, Spitz G, Miller AC, Corrigan JD. Outcomes 1 and 2 Years After Moderate to Severe Traumatic Brain Injury: An International Comparative Study. *Arch Phys Med Rehabil*. Published online 2020. doi:https://doi.org/10.1016/j.apmr.2020.09.387
76. Republic of Indonesia. *Regulation of The Minister of Manpower of The Republic of Indonesia Number 10 of 2016 on Procedures for Provision of Return to Work Programs and Promotional and Preventive Activities for Employment Injuries and Occupational Diseases.*; 2016.

77. International Labour Organization. Inclusion of People with Disabilities in Indonesia. 2013;(January):1-4.
78. Maria Magdalena; Ramirez Hernandez. ACT OF THE REPUBLIC OF INDONESIA NUMBER 13 YEAR 2003 CONCERNING MANPOWER. Published online 2004:55.
79. Colbran N. Access To Justice Persons With Disabilities Indonesia Background Assessment Report. 2010;(October).
80. Administration SS. *Social Security Programs throughout the World*. Government Printing Office; 1958.
81. Abdalla S, Apramian SS, Cantley LF, Cullen MR. Occupation and Risk for Injuries. *Disease Control Priorities, Third Edition (Volume 7): Injury Prevention and Environmental Health*. Published online 2017:97-132. doi:10.1596/978-1-4648-0522-6_ch6
82. Santana VS, Araújo-Filho JB, Albuquerque-Oliveira PR, Barbosa-Branco A. Occupational accidents: Social insurance costs and work days lost. *Rev Saude Publica*. 2006;40(6):1004-1012. doi:10.1590/S0034-89102006000700007
83. Ketenagakerjaan B. Program Jaminan Kecelakaan Kerja (JKKs). Published 2014. [https://www.bpjsketenagakerjaan.go.id/page/Program-Jaminan-Kecelakaan-Kerja-\(JKK\).html](https://www.bpjsketenagakerjaan.go.id/page/Program-Jaminan-Kecelakaan-Kerja-(JKK).html)
84. ISSA. *ISSA Guidelines: Return to Work and Reintegration.*; 2013.
85. McAnaney D, Wynne R. Approaches to Occupational Rehabilitation and Return to Work in Four Jurisdictions: A Cross-National Analysis From the Perspective of the ISSA Guidelines on Return to Work and Reintegration. *International Journal of Disability Management*. 2017;12:e2. doi:DOI: 10.1017/idm.2017.2
86. Jeong I, Yoon JH, Roh J, Rhie J, Won JU. Association between the return-to-work hierarchy and self-rated health, self-esteem, and self-efficacy. *Int Arch Occup Environ Health*. 2019;92(5):709-716. doi:10.1007/s00420-019-01406-7
87. Kuntardjo C. Dimensions of Ethics and Telemedicine in Indonesia: Enough of Permenkes Number 20 Year 2019 As a Frame of Telemedicine Practices in Indonesia? *SOEPRA*. 2020;6(1). doi:10.24167/shk.v6i1.2606
88. Ståhl C, MacEachen E. Universal Basic Income as a Policy Response to COVID-19 and Precarious Employment: Potential Impacts on Rehabilitation and Return-to-Work. *J Occup Rehabil*. 2021;31(1):3-6. doi:10.1007/s10926-020-09923-w
89. Li X, Hui E, Shen J. Institutional Development and the Government Response to COVID-19 in China. *SSRN Electronic Journal*. Published online 2021. doi:10.2139/ssrn.3813691
90. Zhao T, Cheng C, Liu H, Sun C. Is one- or two-meters social distancing enough for COVID-19? Evidence for reassessing. *Public Health*. 2020;185:87. doi:10.1016/j.puhe.2020.06.005
91. Shaw WS, Main CJ, Findley PA, Collie A, Kristman VL, Gross DP. Opening the Workplace After COVID-19: What Lessons Can be Learned from Return-to-Work Research? *J Occup Rehabil*. 2020;30(3):299-302. doi:10.1007/s10926-020-09908-9
92. Armitage R, Nellums LB. The COVID-19 response must be disability inclusive. *Lancet Public Health*. 2020;5(5):e257. doi:10.1016/S2468-2667(20)30076-1
93. Brown HK, Saha S, Chan TCY, et al. Outcomes in patients with and without disability admitted to hospital with COVID-19: a retrospective cohort study. *CMAJ Canadian Medical Association Journal*. 2022;194(4):E112-E121. doi:10.1503/CMAJ.211277
94. Abdel-Sattar M, Cook S, Wheeler A, et al. Impact of COVID-19 on OUD management and moudaccess in the us. *J Addict Med*. 2021;15(5).
95. Azhar M, Wisnaeni F, Solechan, Suharso P, Setyono J, Badriyah SM. Strengthening the social security of the indonesian fishermen. *AAFL Bioflux*. 2020;13(6).
96. Casey PP, Guy L, Cameron ID. Determining return to work in a compensation setting: A review of New South Wales workplace rehabilitation service provider referrals over 5 years. *Work*. 2014;48(1):11-20. doi:10.3233/WOR-131608
97. Kitao S. A life-cycle model of unemployment and disability insurance. *J Monet Econ*. 2014;68(1):1-18. doi:10.1016/j.jmoneco.2014.07.008
98. Cheong EPH. Developing the Social Security Organisation (SOCSSO) of Malaysia's RTW case management system. *International Journal of Disability Management*. 2014;9. doi:10.1017/idm.2014.45

99. Cieza A, Bickenbach JE. Functioning, Disability and Health, International Classification of. *International Encyclopedia of the Social & Behavioral Sciences: Second Edition*. Published online January 1, 2015:543-549. doi:10.1016/B978-0-08-097086-8.14081-4
100. Katsaouni M, Constantinidis T, Tripsianis G, Nena E. Comparison of job insecurity, quality of life, and work ability between age-matched temporary and permanent workers in the healthcare sector. *Saf Health Work*. 13:S207. doi:10.1016/j.shaw.2021.12.1399
101. Rapley CE. Accessibility and Development: environmental accessibility and its implications for inclusive, sustainable and equitable development for all. *Department of Economic and Social Affairs, United Nations*. 2013;(June).
102. Bethge M, Gutenbrunner C, Neudert S. Work ability index predicts application for disability pension after work-related medical rehabilitation for chronic back pain. *Arch Phys Med Rehabil*. 2013;94(11):2262-2268. doi:10.1016/j.apmr.2013.05.003
103. Godeau D, Petit A, Richard I, Roquelaure Y, Descatha A. Return-to-work, disabilities and occupational health in the age of covid-19. *Scand J Work Environ Health*. 2021;47(5):408-409. doi:10.5271/sjweh.3960
104. Lavasani S, Wahat NWA. Work ability index: Validation and model comparison of the Malaysian work ability index (WAI). *Disability, CBR and Inclusive Development*. 2016;27(2):37-56. doi:10.5463/DCID.v27i2.427
105. Jääskeläinen by A. Work ability index and perceived work ability as predictors of disability pension: a prospective study among Finnish municipal employees. *Work Environ Health*. 2016;42(6):111-223. doi:10.5271/sjweh.3598
106. Liu Q, Liu Z, Kang T, Zhu L, Zhao P. Transport inequities through the lens of environmental racism: Rural-urban migrants under Covid-19. *Transp Policy (Oxf)*. 2022;122:26-38. doi:10.1016/j.tranpol.2022.04.009
107. Gunn V, Kreshpaj B, Matilla-Santander N, et al. Initiatives Addressing Precarious Employment and Its Effects on Workers' Health and Well-Being: A Systematic Review. *Int J Environ Res Public Health*. 2022;19(4). doi:10.3390/ijerph19042232
108. Mont D. Social Protection Discussion Paper Series Disability Employment Policy. 2004;(0413).
109. Murad MS, O'Brien L, Farnworth L, Chien CW. Health status of people with work-related musculoskeletal disorders in return to work programs: A malaysian study. *Occup Ther Health Care*. 2013;27(3):238-255. doi:10.3109/07380577.2013.808782
110. Halimatussadiyah A, Agriva M, Nuryakin C. Persons with Disabilities (PWD) and Labor Force in Indonesia: A Preliminary Study. *development*. 2014;17(18):19.
111. Awang H, Shahabudin SM, Mansor N. Return-to-Work Program for Injured Workers: Factors of Successful Return to Employment. *Asia Pacific Journal of Public Health*. 2016;28(8):694-702. doi:10.1177/1010539516640354
112. Elena A, Mehtap P, Amir Z. Return to work following long term sickness absence : a comparative analysis of stakeholders ' views and experiences in six European countries. Published online 2022.
113. Finnes A, Hoch JS, Enebrink P, et al. Economic evaluation of return-to-work interventions for mental disorder-related sickness absence: two years follow-up of a randomized clinical trial. *Scand J Work Environ Health*. 2022;48(4):264-272. doi:10.5271/sjweh.4012
114. van Dongen JM, van der Beek AJ. Economic evaluations in occupational health: what brings the best bang for the buck? *Scand J Work Environ Health*. 2022;48(4):249-252. doi:10.5271/sjweh.4026
115. Franche RL, Krause N. Readiness for return to work following injury or illness: Conceptualizing the interpersonal impact of health care, workplace, and insurance factors. *J Occup Rehabil*. 2002;12(4). doi:10.1023/A:1020270407044
116. Wickizer TM, Franklin GM, Fulton-Kehoe D. Innovations in Occupational Health Care Delivery Can Prevent Entry into Permanent Disability: 8-Year Follow-up of the Washington State Centers for Occupational Health and Education. *Med Care*. 2018;56(12).
117. Chien W. The Impact of Return to Work Programs On The Health Status of Injured Workers With Work-Related Musculoskeletal Disorders: A Malaysian Study. *Journal of Occupational Safety and Health*. Published online 2012:33.
118. Gnanaselvam NA, Vinoth Kumar SP, Abraham VJ. Quality of Life of People with Physical Disabilities in a Rural Block of Tamil Nadu, India. *J Psychosoc Rehabil Ment Health*. 2017;4(2):171-

177. doi:10.1007/s40737-017-0095-8
119. Tuomi K, Ilmarinen J, Klockars M, Nygård C-H SJ, P H. Work ability index. *Saf Sci.* 1995;19(1):71-72. doi:[https://doi.org/10.1016/0925-7535\(95\)90047-0](https://doi.org/10.1016/0925-7535(95)90047-0)
 120. Morschhäuser M, Sochert R. Healthy work in an ageing Europe: Strategies and instruments for prolonging working life. *European Network for Workplace Health Promotion*. Published online 2006:1-76.
 121. Reeuwijk KG, Robroek SJW, Niessen MAJ, Kraaijenhagen RA, Vergouwe Y, Burdorf A. The prognostic value of the work ability index for sickness absence among office workers. *PLoS One.* 2015;10(5). doi:10.1371/journal.pone.0126969
 122. Godeau D, Petit A, Richard I, Roquelaure Y, Descatha A. Return-to-work, disabilities and occupational health in the age of covid-19. *Scand J Work Environ Health.* 2021;47(5):408-409. doi:10.5271/sjweh.3960
 123. Deschner M, Parraga G, Yamashita C. COVID-19 and return-to-work recommendations for people with chronic respiratory diseases. *CMAJ.* 2020;192(35):E1021-E1021. doi:10.1503/cmaj.76441
 124. Fragala MS, Goldberg ZN, Goldberg SE. Return to Work: Managing Employee Population Health During the COVID-19 Pandemic. *Popul Health Manag.* 2021;24(S1):S3-S15. doi:10.1089/pop.2020.0261
 125. van Beurden KM, Vermeulen SJ, Anema JR, van der Beek AJ. A participatory return-to-work program for temporary agency workers and unemployed workers sick-listed due to musculoskeletal disorders: A process evaluation alongside a randomized controlled trial. *J Occup Rehabil.* 2012;22(1). doi:10.1007/s10926-011-9314-4
 126. Graham CW, West MD, Bourdon JL, Inge KJ, Seward HE. Employment Interventions for Return to Work in Working Aged Adults Following Traumatic Brain Injury (TBI): A Systematic Review. *Campbell Systematic Reviews.* 2016;12(1). doi:10.4073/csr.2016.6
 127. Gaines B, Besen E, Pransky G. The influence of geographic variation in socio-cultural factors on length of work disability. *Disabil Health J.* 2017;10(2):308-319. doi:10.1016/j.dhjo.2016.12.009
 128. Martínez-Ramón JP, Morales-Rodríguez FM, Pérez-López S. Burnout, resilience, and covid-19 among teachers: Predictive capacity of an artificial neural network. *Applied Sciences (Switzerland).* 2021;11(17). doi:10.3390/app11178206
 129. Porter M, Hagan H, Klassen RA, Yang Y, Seehusen D, Carek PJ. Burnout and resiliency among family medicine program directors. *Fam Med.* 2018;50(2). doi:10.22454/FamMed.2018.836595
 130. Lam C, Kim Y, Cruz M, Vidimos AT, Billingsley EM, Miller JJ. Burnout and resiliency in Mohs surgeons: A survey study. *Int J Womens Dermatol.* 2021;7(3). doi:10.1016/j.ijwd.2021.01.011
 131. Schouteten R. Predicting absenteeism: Screening for work ability or burnout. *Occup Med (Chic Ill).* 2017;67(1). doi:10.1093/occmed/kqw161
 132. Bakken BK, Winn AN. Clinician burnout during the COVID-19 pandemic before vaccine administration. *Journal of the American Pharmacists Association.* 2021;61(5). doi:10.1016/j.japh.2021.04.009
 133. Greenhaus J, Callanan G. Holland's Theory of Vocational Choice. In: *Encyclopedia of Career Development.* ; 2013. doi:10.4135/9781412952675.n124
 134. McNall L, Bennett M, Nicklin J. Work-Family Enrichment. In: *Encyclopedia of Quality of Life and Well-Being Research.* ; 2021. doi:10.1007/978-3-319-69909-7_4054-2
 135. Malti T, Beelmann A, Noam GG, et al. Health Policy: Application for Nurses and Other Healthcare Professionals. *J Clin Nurs.* 2017;33(1).
 136. Mák K, Fejes É, Pohl M, et al. Burnout among social workers. *Orv Hetil.* 2020;161(44). doi:10.1556/650.2020.31796
 137. Demou E, Gaffney M, Khan F, Lando JK, Macdonald EB. Case management training needs to support vocational rehabilitation for case managers and general practitioners: a survey study. *BMC Med Educ.* 2014;14(1):95. doi:10.1186/1472-6920-14-95
 138. Kärkkäinen R, Saaranen T, Hiltunen S, Rynnänen OP, Räsänen K. Systematic review: Factors associated with return to work in burnout. *Occup Med (Chic Ill).* 2017;67(6):461-468. doi:10.1093/occmed/kqx093
 139. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: Guidelines for

- Reporting Observational Studies. *PLoS Med.* 2007;4(10):e296. doi:10.1371/journal.pmed.0040296
140. Anderson SF, Kelley K, Maxwell SE. Sample-Size Planning for More Accurate Statistical Power: A Method Adjusting Sample Effect Sizes for Publication Bias and Uncertainty. *Psychol Sci.* 2017;28(11):1547-1562. doi:10.1177/0956797617723724
 141. Thompson SK. Sample Size for Estimating Multinomial Proportions. *Am Stat.* 1987;41(1):42. doi:10.2307/2684318
 142. Kang H. Sample size determination and power analysis using the G*Power software. *J Educ Eval Health Prof.* 2021;18:17. doi:10.3352/jeehp.2021.18.17
 143. La Torre G, Grima D, Romano F, Polimeni A. Perceived work ability and work-family conflict in healthcare workers: An observational study in a teaching hospital in Italy. *J Occup Health.* 2021;63(1). doi:10.1002/1348-9585.12271
 144. Awang H, Mansor N. Predicting Employment Status of Injured Workers Following a Case Management Intervention. *Saf Health Work.* 2018;9(3):347-351. doi:10.1016/j.shaw.2017.11.001
 145. Principe A. Development and evaluation of a nurse leader-directed acute care nurse resiliency program in an academic medical center. *Dissertation Abstracts International Section A: Humanities and Social Sciences.* 2020;81(5-A).
 146. Pereira H, Feher G, Tibold A, Costa V, Monteiro S, Esgalhado G. Mediating Effect of Burnout on the Association between Work-Related Quality of Life and Mental Health Symptoms. *Brain Sci.* 2021;11(6):813. doi:10.3390/brainsci11060813
 147. Zdanovsky V, Radionov M, Sepitchak V, Soltysik R. THE USE OF A RISK-ORIENTED APPROACH OF PRODUCTION FACTORS ASSESSMENT FOR INCREASING THE EFFICIENCY OF OCCUPATIONAL SAFETY MANAGEMENT SYSTEM. *Bulletin of Lviv State University of Life Safety.* 2022;24. doi:10.32447/20784643.24.2021.02
 148. Leigh JP. Economic burden of occupational injury and illness in the United States. *Milbank Quarterly.* 2011;89(4). doi:10.1111/j.1468-0009.2011.00648.x
 149. Adei D, Agyemang-Duah W, Mensah AA. Demographic and socio-economic factors associated with exposure to occupational injuries and diseases among informal sector workers in Kumasi metropolis, Ghana. *Journal of Public Health (Germany).* 2022;30(9). doi:10.1007/s10389-021-01492-3
 150. Quinn MM, Markkanen PK, Galligan CJ, Sama SR, Lindberg JE, Edwards MF. Healthy Aging Requires a Healthy Home Care Workforce: the Occupational Safety and Health of Home Care Aides. *Curr Environ Health Rep.* 2021;8(3). doi:10.1007/s40572-021-00315-7
 151. Kurnianto AA, Fehér G, Tololiu KE, Wikurendra EA, Nemeskéri Z, Ágoston I. Analysis of the Return to Work Program for Disabled Workers during the Pandemic COVID-19 Using the Quality of Life and Work Ability Index: Cross-Sectional Study. *Int J Environ Res Public Health.* 2023;20(4). doi:10.3390/ijerph20043094
 152. Leppink N. Socio-economic costs of work-related injuries and illnesses: Building synergies between Occupational Safety and Health and Productivity. In: *The Costs of Non-Safety.* ; 2015.
 153. Cole T, Nicks R, Ferris S, Paul E, O'Brien L, Pritchard E. Outcomes after occupational therapy intervention for traumatic brachial plexus injury: A prospective longitudinal cohort study. *Journal of Hand Therapy.* 2020;33(4). doi:10.1016/j.jht.2019.08.002
 154. Albert A. Strategies for construction hazard recognition. *ProQuest Dissertations and Theses.* 2013;(April).
 155. Pouliakas K, Theodossiou I. An Inquiry into the Theory, Causes and Consequences of Monitoring Indicators of Health and Safety at Work. *SSRN Electronic Journal.* Published online 2021. doi:10.2139/ssrn.1549210
 156. T. O. The role of vocational rehabilitation within the neurocontinuum of care: The connection to the community for persons with acquired brain injury. *Brain Inj.* 2014;28(5-6).
 157. Savitsky B, Radomislensky I, Goldman S, Gitelson N, Frid Z, Peleg K. Returning to Work Following an Injury: Practical Usage of a Predictive Model Based on a Nationwide Study. *J Community Health.* 2020;45(1). doi:10.1007/s10900-019-00730-w
 158. Clay FJ, Fitzharris M, Kerr E, McClure RJ, Watson WL. The association of social functioning, social relationships and the receipt of compensation with time to return to work following unintentional injuries to victorian workers. *J Occup Rehabil.* 2012;22(3). doi:10.1007/s10926-012-9354-4
 159. Øyeflaten I, Lie SA, Ihlebæk CM, Eriksen HR. Multiple transitions in sick leave, disability benefits,


- and return to work. - A 4-year follow-up of patients participating in a work-related rehabilitation program. *BMC Public Health*. 2012;12(1). doi:10.1186/1471-2458-12-748
160. Bergvik S, Sørli T, Wynn R. Coronary patients who returned to work had stronger internal locus of control beliefs than those who did not return to work. *Br J Health Psychol*. 2012;17(3). doi:10.1111/j.2044-8287.2011.02058.x
 161. Xiao H, Augusto O, Wagenaar BH. Reflection on modern methods: A common error in the segmented regression parameterization of interrupted time-series analyses. *Int J Epidemiol*. 2021;50(3). doi:10.1093/ije/dyaa148
 162. Bernal JL, Cummins S, Gasparrini A. Erratum: Interrupted time series regression for the evaluation of public health interventions: A tutorial (International Journal of Epidemiology (2017) 46 (348–355) DOI: 10.1093/ije/dyw098). *Int J Epidemiol*. 2020;49(4). doi:10.1093/ije/dyaa118
 163. Bernal JL, Cummins S, Gasparrini A. Corrigendum to: Interrupted time series regression for the evaluation of public health interventions: a tutorial. *Int J Epidemiol*. 2021;50(3). doi:10.1093/ije/dyaa118
 164. Bernal JL, Cummins S, Gasparrini A. Interrupted time series regression for the evaluation of public health interventions: A tutorial. *Int J Epidemiol*. 2017;46(1). doi:10.1093/ije/dyw098
 165. Wong RH, Smieliauskas F, Pan IW, Lam SK. Interrupted time-series analysis: Studying trends in neurosurgery. *Neurosurg Focus*. 2015;39(6). doi:10.3171/2015.9.FOCUS15374
 166. INTERNATIONAL LABOUR OFFICE. *GLOBAL EMPLOYMENT TRENDS FOR YOUTH 2022 : Investing in Transforming Futures for Young People*. INTL LABOUR OFFICE; 2022.
 167. ILOSTAT. Classification of Economic Activities. <https://ilostat ilo.org/resources/concepts-and-definitions/classification-economic-activities/>.
 168. Palstam A, Törnbohm M, Sunnerhagen KS. Experiences of returning to work and maintaining work 7 to 8 years after a stroke: a qualitative interview study in Sweden. *BMJ Open*. 2018;8(7):e021182. doi:10.1136/bmjopen-2017-021182
 169. Lammerts L, Van Dongen JM, Schaafsma FG, Van Mechelen W, Anema JR. A participatory supportive return to work program for workers without an employment contract, sick-listed due to a common mental disorder: An economic evaluation alongside a randomized controlled trial. *BMC Public Health*. 2017;17(1). doi:10.1186/s12889-017-4079-0
 170. Van Egmond MP, Duijts SFA, Scholten APJ, Van Der Beek AJ, Anema JR. Offering a tailored return to work program to cancer survivors with job loss: A process evaluation. *BMC Public Health*. 2016;16(1). doi:10.1186/s12889-016-3592-x
 171. Mújica Mota RE. Cost-Effectiveness Analysis of Early versus Late Total Hip Replacement in Italy. *Value in Health*. 2013;16(2):267-279. doi:10.1016/j.jval.2012.10.020
 172. Pinto D, Robertson MC, Hansen P, Abbott JH. Cost-Effectiveness of Nonpharmacologic, Nonsurgical Interventions for Hip and/or Knee Osteoarthritis: Systematic Review. *Value in Health*. 2012;15(1):1-12. doi:10.1016/j.jval.2011.09.003
 173. Ullrich A, Rath HM, Otto U, et al. Identifying Expectations of Delayed Return to Work in Patients with Prostate Cancer at the Beginning of a Cancer Rehabilitation Program. *J Occup Rehabil*. 2020;30(2). doi:10.1007/s10926-019-09860-3
 174. Vindholmen S, Høigaard R, Espnes GA, Seiler S. Return to work after vocational rehabilitation: Does mindfulness matter? *Psychol Res Behav Manag*. 2014;7. doi:10.2147/PRBM.S56013
 175. Awang H, Tan LY, Mansor N, Tongkumchum P, Eso M. Factors related to successful return to work following multidisciplinary rehabilitation. *J Rehabil Med*. 2017;49(6):520-525. doi:10.2340/16501977-2233

DATA AVAILABILITY STATEMENT

The data and materials used in this study are available upon reasonable request to the corresponding author, in accordance with the ethical guidelines and regulations regarding data sharing and confidentiality. Access to the data will be granted for the purpose of further scientific inquiry and validation of the findings presented in this research. The authors ensure the confidentiality and anonymity of the participants and commit to maintaining the integrity and security of the data.

ETHICAL APPROVAL

This study has received ethical approval from the Health Research Ethics Committee Faculty Of Public Health on December 28, 2021, based on the WHO 2011 Standards and the 2016 CIOMS Guidelines. These standards include social values, scientific values, equitable assessment and benefits, risks, persuasion/exploitation, confidentiality and privacy, and informed consent. Additionally, informed consent was obtained from all participants, and their right to withdraw from the study at any time without penalty was respected. All data collected were kept confidential and reported in aggregate form to protect the privacy of participants. To minimize any potential harm, participants were provided with contact information for local mental health services.



KOMITE ETIK PENELITIAN KESEHATAN
HEALTH RESEARCH ETHICS COMMITTEE
FAKULTAS KESEHATAN MASYARAKAT UNIVERSITAS AIRLANGGA
FACULTY OF PUBLIC HEALTH UNIVERSITAS AIRLANGGA

KETERANGAN LAYAK ETIK
DESCRIPTION OF ETHICAL APPROVAL
"ETHICAL APPROVAL"

No : 58/EA/KEPK/2021

Protokol penelitian yang diusulkan oleh :
The research protocol proposed by

Peneliti utama : Arie Arizandi Kurnianto
Principal In Investigator

Nama Institusi : University of Pecs
Name of the Institution *University of Pecs*

Dengan judul :
Title

"Return-to-Work Programs for Disabled Workers: Dynamic Tendencies of Personal and Professional Determinants: (case study for workers with disabilities due to occupational accident or disease)"


"Return-to-Work Programs for Disabled Workers: Dynamic Tendencies of Personal and Professional Determinants (case study for workers with disabilities due to occupational accident or disease)"


Dinyatakan layak etik sesuai 7 (tujuh) Standar WHO 2011, yaitu 1) Nilai Sosial, 2) Nilai Ilmiah, 3) Pemerataan Beban dan Manfaat, 4) Risiko, 5) Bujukan/Eksploitasi, 6) Kerahasiaan dan Privacy, dan 7) Persetujuan Setelah Penjelasan, yang merujuk pada Pedoman CIOMS 2016. Hal ini seperti yang ditunjukkan oleh terpenuhinya indikator setiap standar.

Declared to be ethically appropriate in accordance to 7 (seven) WHO 2011 Standards, 1) Social Values, 2) Scientific Values, 3) Equitable Assessment and Benefits, 4) Risks, 5) Persuasion/Exploitation, 6) Confidentiality and Privacy, and 7) Informed Consent, referring to the 2016 CIOMS Guidelines. This is as indicated by the fulfillment of the indicators of each standard.

Pernyataan Laik Etik ini berlaku selama kurun waktu tanggal 28 Desember 2021 sampai dengan tanggal 28 Desember 2022

This declaration of ethics applies during the period December 28, 2021 until December 28, 2022

Surabaya, 28 Desember 2021
Profesor and Chairperson,

Dr. R. Suparnatalina Melaniani, Ir., M.Kes.
NIP. 19601225 199003 2 001



**SUBMISSION OF THE DOCTORAL DISSERTATION OF THE ORIGINALITY OF
THE DISSERTATION**

The undersigned,

Name : Arie Arizandi Kurnianto

Mother's maiden name : Mukarramah

Place and time of birth : Makassar, 11 January 1988

On this day submitted my doctoral dissertation entitled:

Return To Work Programs for Disabled Workers: Dynamic Tendencies of Personal and
Professional Determinants

To the

PR-1. Frontiers of Health Sciences Program

Of the Doctoral School of Health Sciences, Faculty of Health Sciences, University of Pécs

Names of the Supervisor : Prof. Dr. Zsolt Nemeskéri,

Co-supervisor : Dr. habil. István Ágoston, Ph.D.

At the same time, I declare that

- I have not submitted my doctoral dissertation to any other Doctoral School (neither in this country nor abroad),
- my application for degree earning has not been rejected in the past two years,
- in the past two years I have not had unsuccessful doctoral procedures,
- my doctoral degree has not been withdrawn in the past five years,
- my dissertation is independent work, I have not presented others' intellectual work as mine, the references are definite and full, on preparation of the dissertation I have not used false or falsified data.

Furthermore, I declare that I contribute to the request of DOI identification of my doctoral dissertation.

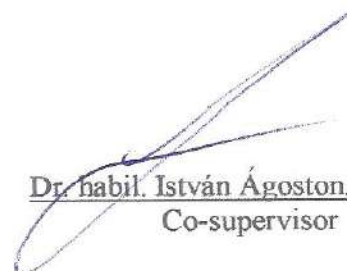
Dated: 25 October 2023



Prof. Dr. Zsolt Nemeskéri
Supervisor



Arie Arizandi Kurnianto
Candidate



Dr. habil. István Ágoston, Ph.D
Co-supervisor