

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

**Ph.D. Thesis booklet**

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## CHAPTER 1: Introduction

### 1.1 Background

Disability from workplace accidents can have serious effects on a worker's health and capacity to work. People with impairments have a harder time finding or retaining jobs (Sears et al., 2021). The RTW program is vital to the recovery and reintegration of workers disabled by industrial accidents (Social Security Association, 2017). The RTW program aims to reintegrate disabled workers into the workforce. People with impairments sometimes face discrimination from employers and society. The RTW program aims to overcome disability stigma and provide disabled people with jobs that match their skills (Nigatu et al., 2016).

This study provides a comprehensive theoretical framework for understanding the complex interactions that affect return-to-work efforts by carefully examining employee and employer support, workplace culture, and multidisciplinary collaboration. This framework also emphasizes the role of case managers in achieving success and the need for continuing review, feedback, and inventive adaptation for continuous progress.

A country may implement the RTW Program through an employment social security organization, a company, or other organization to help workers disabled by work accidents return to work. Physical rehabilitation in RTW programs involves physical therapy, occupational therapy, and exercises to enhance workers' mobility. Psychological rehabilitation helps workers manage stress and other psychological issues. To help impaired workers, workplace alterations including physical modifications and job or schedule changes are performed. Disability reintegration, physical and psychological rehabilitation, and workplace adaptations in RTW programs help workers develop careers, restore self-reliance, and create inclusive and productive work environments.

The RTW program also helps disabled workers integrate socially and economically. Physical limitations or other disadvantages limit the daily lives of disabled workers. Return-to-work programs boost disability independence and self-esteem by encouraging employment. In an inclusive workplace, people may make substantial contributions and feel fulfilled and accomplished.

### 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.

## **CHAPTER 2: Effectiveness of RTW Programs**

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

#### **2.1 INTRODUCTION**

The 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 (Cullen et al., 2018). In addition, it was also reported that seven of the 22 experimental treatment programs (32%) in study (Meijer et al., 2005) 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 (MacEachen et al., 2006). However, implementing an RTW program can be challenging due to potential discrimination or misunderstandings about their abilities and limitations (Johansson et al., 2022; Tiedtke et al., 2015), 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 (Yang et al., 2022).

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. (Tompa et al., 2021) Fatal injuries can directly affect physical condition in the form of disability, which is a major personal, financial, and public health burden.(Polinder et al., 2010) 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 persons (Lammerts et al., 2014).

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.(Ravinskaya et al., 2022) 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 (Cullen et al., 2018; Meijer et al., 2005) 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 identifies in-depth and relevant material from a range of sources and research approaches. We also followed the PRISMA ScR methodology for reporting systematic reviews and meta-analyses (Moher et al., 2016). Intended to increase reporting openness and completeness and guarantee critical information is not overlooked. The research report has five steps: defining the issue, locating relevant studies, considering studies, displaying data, and generating inferences and conclusions (Arksey & O'Malley, 2005; Pham et al., 2014; Westphaln et al., 2021). This research examined how RTW affects workers with disabilities following occupational accident.

A comprehensive review was conducted using WoS, PubMed, and Scopus. To discover all relevant 2012–2022 publications, we searched broadly. Included studies met RTW, social security, occupational injury, and case report, randomized clinical trial, observational study, or cohort research methods.

After reviewing the titles, abstracts, and complete texts containing the keywords “return to work” AND “disabl\* work\*” AND “occupation\* injury,” we eliminated numerous papers as irrelevant. Review papers, abstracts, non-occupational injury or sickness, non-social security return to work, and non-English research were excluded. This review study respects the scoping of the research problem, including population, intervention, and outcomes, by intensely focusing on the research question at each stage of extraction and identification, especially screening.

Rayyan AI helped extract relevant studies that matched scoping review inclusion requirements. Imported the Mendeley citation first. Three reviewers independently screened titles and abstracts and reviewed all papers. At this step, a third party examined the work to resolve conflicts. Last, collect pertinent data from each eligible study and synthesize the results. We examined the document's major literature, demographics, strategies, and care results.

## **2.3 RESULTS**

This scoping study found 401 Pubmed, 44 WoS, and 121 Scopus finds, which were reduced to 530 articles after deleting duplicates, with just eight matching the inclusion criteria. This study examines functional restoration programs, work reintegration, medical needs fulfillment, RTW certification, worker awareness of health recovery, workplace disability management, and vocational rehabilitation interventions. The results imply that RTW programs improve physical function, quality of life, and disability days in chronic musculoskeletal condition and construction workers' claims. This study also emphasizes the importance of RTW in meeting medical and economic needs, as well as factors that affect RTW program implementation and effectiveness, such as rehabilitation intervention, certification, worker awareness, and work environment. Thus, knowing the qualities and circumstances that make RTW programs successful can help wounded or disabled people recuperate

and reintegrate into the workforce. This study is a scoping review, which identifies in-depth and relevant material from a range of sources and research approaches. This chapter study reflected the scoping of the research problem, including population, intervention, and outcomes, by intensely focusing on the research question at each stage of extraction and identification, especially screening.

## **2.4 DISCUSSION**

The key findings shed light on the efficacy of RTW programs in facilitating the reintegration of workers who have become disabled due to occupational accidents, thereby offering promising prospects for enhancing their overall quality of life. In order to ascertain the efficacy of RTW programs for individuals who have become disabled as a result of occupational accidents, the studies encompassed within this analysis were meticulously scrutinized with respect to their respective influence. The studies conducted have yielded the identification of domains of effectiveness, wherein each domain encompasses various sub-dimensions that are distinguished by their impact on the research. The assessment of the domains was conducted with a focus on evaluating their influence on the overall effectiveness of the RTW program. The process of categorization and assessment has unveiled a multitude of factors that exert influence on the effectiveness of RTW programs for individuals with restricted abilities. The study encompassed a comprehensive analysis of research conducted in multiple countries, namely the United States, Canada, Republic of Korea, Israel, Italy, and the Netherlands. This investigation specifically targeted diverse populations and employed various research designs to ensure a comprehensive examination of the subject matter. The empirical evidence indicates that the implementation of RTW program, such as Functional Restoration Programs (FRPs) and the Workplace Disability Management Program (WDMP), holds promise in enhancing the physical functionality of individuals afflicted with work-related disabilities. Interventions that encompass the fulfillment of medical requirements and the provision of return-to-work certification have demonstrated the potential to enhance rates of successful return-to-work endeavors. The implementation of Workplace Disease Management and Prevention (WDMP) initiatives has been shown to have a positive impact on productivity enhancement and the mitigation of work-related limitations. Furthermore, the reintegration into the workforce can yield substantial economic advantages, enhance overall well-being, foster a deeper comprehension among employees regarding the significance of their professional contributions, and present avenues for attaining optimal health as integral members of their familial and communal spheres. The aforementioned findings possess significant implications for the realm of clinical practice and the evidence base of occupational rehabilitation. They propose that the inclusion of rehabilitation within RTW programs has the potential to enhance various outcomes for workers who experience limitations in their abilities as a result of work-related 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 evaluation (Dieterich et al., 2017). 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 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. (S.J. et al., 2009; Vermeulen et al., 2009)

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. (Lax & Klein, 2008)

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 Indonesia (ILO, 2017). 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 PwDs (Awang et al., 2016).

Besides that, despite the impairment, the disabled person typically gets a smaller wage than workers without disability (Halimatussadiyah et al., 2014). Naturally, physical disability can be hereditary or perhaps due to an accident or disease (Scully, 2014). 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. (Hyland, 1998)

The RTW program aims to assist disabled workers and ensure that their situation does not disrupt them from the productive job force to the underemployed (ConRoy, n.d.). 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. (Young et al., 2005)

Indonesia had just initially begun the Return To Work Program, in which the development of the occupational accident benefits program has previously limited coverage. Initially, the Indonesian National Agency for Social Security on Employment (BPJS Ketenagakerjaan) managed the occupational accident benefit. 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 work (Siregar, 2017).

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 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. (Lammerts et al., 2016) 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. (Lai et al., 2017)

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**

In this particular chapter, a case study methodology was employed to examine the Return to Work program. This program serves as a comprehensive framework for disability management in Indonesia, encompassing various facets such as medical, vocational, and psychosocial rehabilitation. The primary objective of this study entailed an in-depth investigation into the intricate dynamics, encompassing the environment, circumstances, and contextual factors that enveloped the pre-existing program under scrutiny. The study was carried out under the auspices of the Indonesian National Social Security Agency for Employment (BPJS Ketenagakerjaan). A specific subset of regional and branch offices, characterized by the highest number of RTW cases, was carefully chosen as the statistical sample for this investigation. The study involved the selection of participants using a rigorous approach that combined strategic, criterion-based, and purposive random sampling techniques. The participants consisted of case managers who were actively involved in managing occupational accident cases within the context of the RTW process. Semi-structured interviews were carried out within the time frame of February 2nd to February 26th, 2021. The selection of offices for these interviews was based on the analysis of the top 10 highest claim rates and RTW data spanning from 2014 to 2019. In light of the COVID-19 pandemic and the subsequent implementation of necessary public health measures, interviews were conducted remotely via online platforms. The present study utilized grounded theory as a methodological approach for data analysis, with a focus on integrating Python programming language with ArcGIS software. This integration facilitated the generation of descriptive presentations pertaining to the claim data. The utilization of the semi-structured interview approach in this study was conducted with an exploratory and empirical intent, aiming to ascertain patterns and coherence within the RTW processes. The results of the investigation have provided valuable insights that have contributed to the formulation of an all-encompassing conceptual model for further examination, highlighting the critical importance of the gathered empirical evidence.

### **3.3 RESULTS**

Adaptive Return to Work Program in Indonesia was started in 2015 by BPJS Ketenagakerjaan. The experiences gained from these initiatives highlight the significance of implementing a strong monitoring and evaluation mechanism to assess their success. Since 2015, BPJS Ketenagakerjaan has been assisting participants in their preparation for reintegration into the workforce, with the help of a committed case manager. This comprehensive strategy takes into account several elements such as physical fitness, support from family, environmental concerns, and the compatibility of tasks with handicap problems. The Occupational Accident Insurance (JKK) offers healthcare services and educational subsidies. The RTW program, initiated in densely populated industrial areas in 2015, garnered support from 68,824 corporate entities, facilitating the reintegration of 901 workers by 2019. An analysis of data from 2014 to 2019 indicates a decline in claims and a rise in benefits. In 2014, there was no return-to-work program, which is different from the increasing trend in benefits that reached 1,575,531 million rupiahs by 2019. The decrease in reported claims indicates the efficacy of

the program, reaching its highest point in 2020. Program development involves enhancing benefit coverage by shifting from predefined boundaries to an unlimited extent decided by medical requirements.

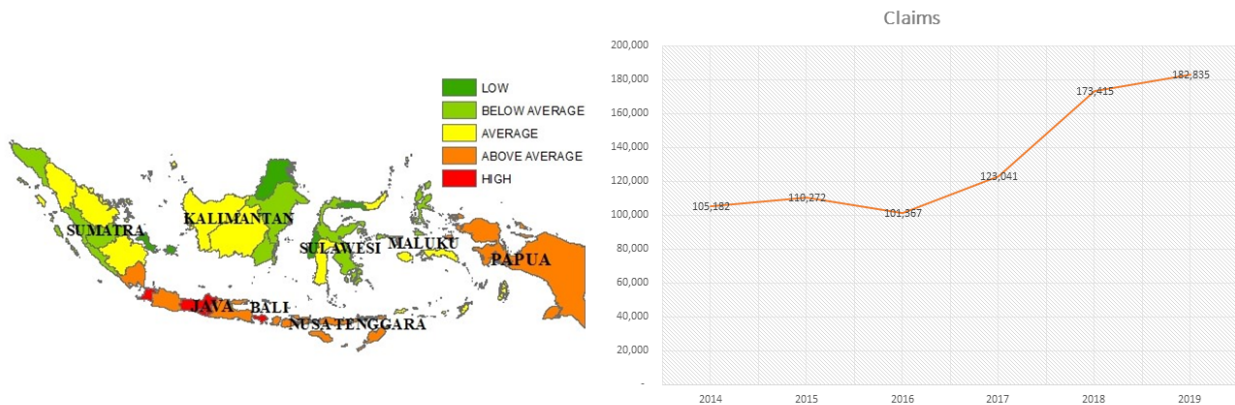


Figure 1 The distribution of the total number of claims for occupational accident insurance

The number of persons participating in the RTW program increased from 125 in early 2015 to 901 by December 2019, demonstrating a remarkable growth rate. Moreover, the program achieved an impressive 85% rate of successfully reintegrating individuals into the workforce. During the research, there was a 7.75% increase in participation and a 39.2% improvement in the return-to-work rate. A portion of the participants were involved in medical rehabilitation and employment training, whereas 16.43% were unable to properly reintegrate. The data gathering process consisted of conducting semi-structured interviews to get insights on the roles of case managers, the challenges to implementation, and the level of support from stakeholders within the program's three areas.

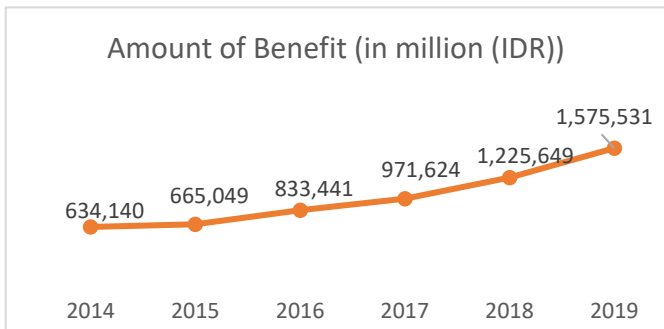


Figure 3 The total amount of benefit for occupational accidents

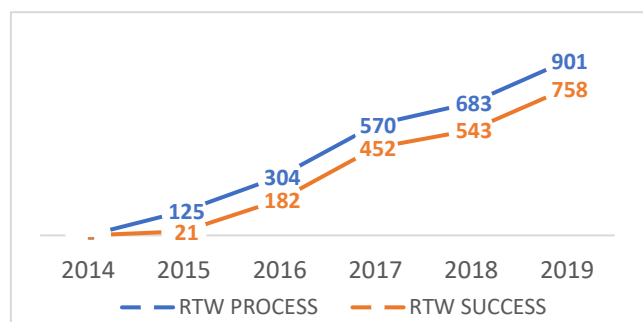


Figure 2 The distribution of workers who participated in the RTW program

The process consists of three phases: initial identification, complete assessment, and the plan of strategic measures within a structured case management cycle.

### 3.4 DISCUSSION

In order to ensure the efficacy of RTW programs, it is imperative to implement systematic case management strategies that prioritize the establishment of a well-defined system, identification of potential obstacles, and implementation of suitable interventions. Recent research findings have shed light on the effectiveness of less intensive methodologies within RTW programs. Sophisticated interventions, encompassing occupational elements and return-to-work coordinators, exhibit augmented rates of triumph, particularly among individuals afflicted with musculoskeletal ailments. The implementation of a methodical case management strategy, coupled with the expertise of proficient RTW case managers, serves to optimize outcomes for individuals afflicted with

occupational injuries or diseases. The indispensable role of case managers, endowed with a diverse range of competencies, is of utmost importance in ascertaining the requirements of patients. Nevertheless, it is important to acknowledge that Indonesia faces certain obstacles in the realm of healthcare, particularly pertaining to the restricted infrastructure within healthcare facilities and the diverse levels of stakeholder literacy. These factors, in turn, have a direct impact on the effectiveness and efficiency of RTW programs. The confluence of regulatory matters, stakeholder endorsement, and the ramifications of the COVID-19 pandemic present supplementary hurdles in this context. The integration of telemedicine within RTW program amid the ongoing pandemic has presented a promising avenue for resolution, albeit one that encounters certain regulatory and cultural impediments. Future investigations may endeavour to examine the ramifications of augmented case managers on the effectiveness of RTW programs, all the while acknowledging the inherent constraints of the study, such as the geographically limited scope of the sample and the imperative for comprehensive health perspective evaluations.

### **3.5 CONCLUSION**

The RTW Program helps Indonesian workers with occupational accidents manage their disability. In order to ensure the successful implementation of the Indonesian RTW program, it is imperative that case managers possess a range of personal skills and demonstrate a high level of literacy. Additionally, they must effectively navigate various implementation challenges, including but not limited to issues related to provider availability, employer and government support, as well as stakeholder perception. Comprehensive rehabilitation services for workers with industrial injuries or illnesses are needed, and regulatory measures alone cannot assure worker involvement. The outcomes of the RTW program for handicapped workers, case manager experiences, and economic impact of the program will need additional study.

## **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 global outbreak of COVID-19 since November 2019 prompted governments worldwide to adapt occupational accident insurance programs, incorporating measures to address pandemic-related challenges (Ståhl & MacEachen, 2021). The study of 28 provincial governments in China during the early outbreak highlighted the pivotal role of local institutions in balancing social distancing and economic recovery (Li et al., 2021). The World Health Organization issued regulations to contain the pandemic. In Indonesia, the COVID-19 impact included over a hundred deaths, company bankruptcies affecting the economy and workers' quality of life. Individuals with physical disabilities faced heightened COVID-19 risks and challenges in daily activities. Stakeholders focused on baseline health for RTW participants, particularly those with underlying health issues. The RTW program in Indonesia, a unique social security initiative, offers a comprehensive rehabilitation program, addressing medical, vocational, and psychological needs with case manager assistance. BPJS Ketenagakerjaan provides a combination of cash and in-kind benefits, including the RTW program, supporting individuals recovering from occupational injuries or diseases. The RTW program aids workers with disabilities in regaining physical and mental abilities for a smooth transition back to work. Despite regulatory efforts, social stigma persists, hindering equal job opportunities and

contributing to workplace discrimination against disabled individuals (Rapley, 2013). The RTW program seeks to reduce this discrimination by providing support and accommodations for workforce reintegration. The study aims to explore the dynamic relationship between quality of life and work capability index among disabled workers, analyzing disability management through the RTW program, especially during the COVID-19 outbreak.

## **4.2 METHODS**

In this chapter, a descriptive cross-sectional study was undertaken in Indonesia from January to June 2021. The study aimed to evaluate the Quality of Life (QoL) and Work Ability Index (WAI) of individuals with disabilities who actively engaged in the RTW program. The study population comprised individuals who had enrolled with the Indonesian National Social Security Agency for Employment (BPJS Ketenagakerjaan). These individuals were then categorized into two distinct groups, the RTW group and the non-RTW group, based on their choice to participate in the RTW program. The inclusion criteria encompassed individuals within the age range of 18 to 65 years, who were actively employed during the period of the COVID-19 pandemic. The dataset, obtained through the diligent efforts of case managers across 34 provinces in Indonesia, encompasses a comprehensive range of variables pertaining to sociodemographic, type of disability, quality of life (QoL), and work ability index (WAI). These variables were assessed using the well-established and validated WHOQoL-BREF and WAI questionnaires. Data normality was assessed using the Shapiro-Wilk test, while various statistical tests were employed for analysis, including the Mann-Whitney U test, Pearson's correlation, independent sample t-tests, and Chi-square tests. The study employed multivariate logistic regression analysis to investigate the relationship between Work Ability Index (WAI) and Quality of Life (QoL) in participants who had returned to work (RTW) and those who had not (non-RTW). The analysis took into account various other variables while maintaining a significance level of  $p < 0.05$  and a confidence interval of 95%.

## **4.3 RESULTS**

The study at hand aims to examine the implementation and subsequent outcomes of the RTW program in Indonesia amidst the COVID-19 pandemic. This research endeavors to compare individuals who actively participated in the program with those who did not, in order to shed light on the potential effects and benefits of their respective choices. The study encompassed an evaluation of sociodemographic attributes, encompassing age, gender, marital status, occupation, education, work period, and residential location, within the participant cohort. Significant statistical disparities were observed between the groups categorized as RTW and non-Return to Work (non-RTW) in terms of age, duration of employment, quality of life, and the Work Ability Index. The results of the logistic regression analysis revealed a positive association between age and the likelihood of returning to work. Additionally, a longer duration of employment was also found to be positively correlated with the odds of RTW. The participants who reintegrated into labor market generally showed a higher quality of life in various domains, encompassing physical, psychological, social, and environmental well-being. The findings from the multivariate logistic regression analysis have revealed a statistically significant association between participation in RTW programs and the environmental health domain of quality of life.

In relation to the Work Ability Index (WAI), our investigation has revealed a wide spectrum of ages within both cohorts, wherein disabled workers showed an average WAI score of 39.29. The analysis of WAI scores demonstrated a notable disparity in the distribution between participants who returned to work (RTW) and non-participants. Specifically, a greater proportion of RTW participants showed scores falling within the "good" category, whereas non-participants displayed a higher prevalence of

scores categorized as "poor." The mean Work Ability Index (WAI) score observed among individuals with disabilities in the RTW cohort showed a noteworthy elevation, with no subjects being classified within the "poor" range. The results of this study indicate a potential correlation between engagement in return-to-work programs and the work ability index among individuals with disabilities. This underscores the importance of conducting additional investigations to delve into the causal relationship.

#### **4.4 DISCUSSION**

The findings of this study highlight the favorable effects of the RTW program on individuals with disabilities amidst the COVID-19 pandemic. The observed data indicates that individuals who participated in the program demonstrated notably elevated levels of quality of life and work ability scores in comparison to those who did not partake. This finding strongly suggests that the program exhibits a considerable degree of effectiveness. Outcomes may have been influenced by potential variations in injury severity and motivation observed among the groups. Significantly, a positive correlation was observed between an extended period of work hiatus and a propensity towards favoring the RTW program. This finding underscores the program's attractiveness among individuals who have experienced prolonged unemployment. The results of the RTW program have exhibited notable efficacy in augmenting both physical and psychological well-being, while regrettably not yielding any discernible impact on social interconnectedness. The results of this study strongly support the implementation of RTW program that provide assistance to individuals with disabilities in times of crisis. These findings are in line with a notable void in the current body of literature on this subject matter.

This groundbreaking investigation, evaluating the Quality of Life (QOL) and Work Ability Index (WAI) among individuals with disabilities participating in a RTW program amidst the ongoing pandemic, offers significant contributions in terms of valuable insights. The findings suggest that the program has shown efficacy in enhancing the quality of life (QOL) and work ability index (WAI), which are crucial factors to consider when making informed policy choices to provide assistance to individuals with disabilities during demanding circumstances. Occupational injury insurance and RTW program are integral components in the pursuit of reinstating individual dignity and promoting economic participation. The impact of age and work period on the Work Ability Index is noteworthy. However, it is encouraging to observe that the Return to Work (RTW) program exhibits a positive correlation with improved physical health outcomes. The limitations of this study, such as the relatively small sample size and the specific geographic focus, necessitate further research to gain a comprehensive understanding of the effectiveness of return-to-work programs in various contexts.

## **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 severe worldwide consequences of the COVID-19 pandemic have exerted a substantial influence on the healthcare domain, thereby engendering escalated apprehensions and burnout within the cadre of case managers involved in RTW program(Deschner et al., 2020; Fragala et al., 2021; Godeau et al., 2021). Acknowledging the paramount significance of healthcare personnel in the provision of optimal patient care, various organizations place a high priority on implementing RTW program with the aim of augmenting both the safety and efficacy of workers. The present study, which examines the involvement of case managers responsible for occupational injury RTW program across 34 provinces in Indonesia, highlights the significant impact of socio-cultural factors on work incapacity and the effectiveness of RTW initiatives(Kurnianto, Khatatbeh, et al., 2023). Comprehending the intricate interplay between work ability and burnout is of paramount importance, as burnout exerts a detrimental influence on job-related capacities, while exemplary work performance acts as a preventive factor. The field of occupational health psychology places great emphasis on the importance of addressing burnout and work ability, especially within healthcare settings characterized by high levels of stress(Mák et al., 2020; Malti et al., 2017). In light of the formidable circumstances, various nations have successfully implemented all-encompassing RTW program that effectively incorporate case management, medical intervention, occupational rehabilitation, and psychological support. Case managers are integral to the facilitation of rehabilitation procedures, serving as intermediaries between various healthcare professionals, employers, and insurance providers. Their primary objective is to advocate for and ensure the successful reintegration of employees into the workforce. Employee advocates work in conjunction with a diverse array of professionals to guarantee the provision of sufficient support for the process of returning to work (RTW). Consequently, case managers play a pivotal role in promoting and safeguarding the health and productivity of employees. The research emphasizes the necessity for additional investigation into the challenges experienced by case managers in relation to pandemics, as well as the efficacy of interventions aimed at mitigating burnout and improving work capacity during times of global crises.

## **5.2 METHODS**

In this particular chapter, a cross-sectional study was carried out during the COVID-19 pandemic in Indonesia, specifically in May and June in the year 2022. The primary objective of this study was to explore the potential correlation between work ability and burnout levels among case managers actively involved in RTW program. In accordance with the STROBE guidelines, the study utilized a stratified random sampling technique to carefully select a total of 168 participants. These participants

consisted of 89 dedicated case managers and 79 diligent administrators, all actively involved in RTW program. Data collection in this study was conducted using the Copenhagen Burnout Inventory (CBI) and Work Ability Index (WAI) questionnaires, encompassing a comprehensive assessment across 34 provinces in Indonesia. The statistical analyses encompassed various methodologies commonly employed in medical research, such as descriptive statistics, correlation analysis, univariate logistic regression, subgroup analysis, and nonparametric tests. These analyses were conducted utilizing SPSS version 25.0, a widely utilized software program in the field. The present study employed a comprehensive methodology with the objective of elucidating the intricate interplay between work ability and burnout among case managers, taking into account the distinct challenges presented by the unprecedented COVID-19 pandemic.

### **5.3 RESULTS**

This chapter presents the results of a survey that received 168 complete replies (a 100% response rate, from case managers and administrators). Because the variables were not normally distributed, nonparametric testing was considered appropriate. The research findings provide valuable insights into the demographic and occupational characteristics of case managers and administrators, thereby illuminating the levels of burnout experienced by this population. Significantly, the findings of the univariate logistic regression analysis indicate noteworthy associations between age, level of education, Work Ability Index (WAI), and client-related burnout with group status. The findings of this study indicate that case managers exhibited notable distinctions in various aspects when compared to administrators. Specifically, case managers displayed a significantly lower mean age, higher levels of educational attainment, superior work ability, and a lower prevalence of client-related burnout. The findings of the correlation analyses provide additional support for the inverse relationship observed between work ability index (WAI) and personal or occupational burnout. These results underscore the significance of preserving optimal work ability as a means to alleviate burnout symptoms. Moreover, it is worth noting that various demographic factors, including but not limited to gender, duration of employment, employment status, and residential location, exhibited a noteworthy correlation with the observed outcomes. This suggests that these factors may exert an influence on the variables under investigation. The comprehensive analysis conducted in this study provides valuable insights that can inform organizational interventions targeted at enhancing employee well-being and job satisfaction.

### **5.4 DISCUSSION**

The findings of this study highlight the utmost importance of implementing interventions aimed at alleviating the elevated levels of burnout experienced by case managers involved in RTW program, especially in times of crises such as the ongoing COVID-19 pandemic. Although the case managers demonstrated superior work ability compared to the control group, the presence of heightened client-related burnout indicates a susceptibility to emotional and psychological difficulties. The optimal approach to interventions involves placing a primary emphasis on bolstering support mechanisms, implementing effective stress management techniques, providing comprehensive emotional regulation training, facilitating regular debriefing opportunities, and ensuring access to essential mental health services. These interventions are designed to augment the coping strategies of case managers, thereby enhancing their overall well-being and ability to navigate the challenges inherent in their roles. Significantly divergent variables observed among case managers and administrators include age, work ability, and client-related burnout. These findings suggest potential ramifications for the dynamics of healthcare personnel, particularly in the context of the ongoing pandemic. The implementation of strategies aimed at enhancing work ability and resilience is of utmost importance in the prevention of burnout. The present study offers valuable insights into the demographic variables

that play a role in the development of burnout among healthcare professionals.

Case managers assume a crucial role in the triumphant implementation of RTW program, providing invaluable assistance to individuals who have sustained occupational injuries by facilitating their navigation through the intricate return-to-work trajectory. In addition to facilitating logistical coordination, these individuals provide invaluable emotional support, which is crucial for individuals confronted with distressing and transformative occurrences. The findings of the study underscore the increased susceptibility of case managers to burnout that is associated with their clients. This highlights the need for supplementary assistance and resources, such as mental health services and training, to mitigate the impact of burnout on case managers. It is imperative for organizations to place a high priority on the well-being of case managers through the implementation of various interventions, such as educational initiatives, effective workload management strategies, and comprehensive support for achieving a healthy work-life balance. With the increasing demand for RTW program, it is of utmost importance to prioritize the preservation of the health and resilience of case managers. This is crucial in order to achieve the best possible outcomes for both employees and organizations involved.

## **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 implications (Adei et al., 2022; Kurnianto, Fehér, et al., 2023; Leigh, 2011; Quinn et al., 2021; Zdanovsky et al., 2022). Workers and their families might suffer incapacity, lost pay, and lower quality of life from these injuries (Albert, 2013; Cole et al., 2020; Leppink, 2015). They can also cost companies and the healthcare system medical bills, productivity losses, and higher insurance premiums (Leppink, 2015; Pouliakas & Theodossiou, 2021). Effective RTW programmes have become an important method for decreasing occupational injury harm and helping injured workers rehabilitate and reintegrate into the workforce. RTW programs help injured workers return to work safely and quickly while protecting their health (Savitsky et al., 2020; T., 2014). Medical treatment, rehabilitation, job accommodation, case management, and worker-employer-healthcare provider contact are common in these programs. The ultimate purpose of RTW programs is to help injured workers rehabilitate physically, psychologically, and socially and decrease the social and economic consequences of occupational injuries. RTW schemes have potential benefits, but their implementation and efficacy varies by country and industry. RTW programs can be affected by injury type and severity, employment type, healthcare and rehabilitation resources, and social and legal



environment (Bergvik et al., 2012; Clay et al., 2012; Øyeflaten et al., 2012). Individual characteristics including age, gender, education, and financial position, as well as organizational and cultural factors like workplace regulations, disability attitudes, and social support networks, may also affect these programs' success. These problems require extensive study on RTW program success in many contexts and the creation and implementation of evidence-based methods to increase their effectiveness and sustainability.

Indonesian Social Security Agency on Employment (BPJS) Ketenagakerjaan, established in 2015 as part of the worker social security system (Kurnianto, Fehér, et al., 2023), manages the RTW program. Workers and their families get social security compensation for workplace injuries, incapacity, and death. The comprehensive and coordinated RTW program helps handicapped workers with industrial accidents rehabilitate and return to work. The program offers medical care, rehabilitation, vocational training, job placement, and case management suited to each worker's requirements. To make RTW easy and successful, workers, employers, healthcare providers, and other stakeholders collaborate.

The 2015 UN Sustainable Development Goals (SDGs) aim to end poverty, protect the planet, and ensure prosperity for all by 2030, focusing on good health and well-being (SDG 3), decent work and economic growth (SDG 8), and reduced inequalities. The RTW program supports them. First, the program supports SDG 3 by improving the physical and mental health of people with industrial injuries and providing medical and rehabilitative assistance. Second, the initiative promotes SDG 8 by helping handicapped workers return to work, supporting decent work and economic growth, and minimizing occupational injury costs. The program also promotes handicapped workers' social and economic involvement and reduces healthcare, rehabilitation, and social protection inequities, which supports SDG 10. Thus, the BPJS Ketenagakerjaan RTW program is a crucial policy effort that tackles many occupational injury characteristics and promotes the SDGs.

This study measures the efficiency of the RTW program for handicapped workers with occupational injuries under BPJS Ketenagakerjaan, particularly those who have had surgery. This study evaluates the BPJS Ketenagakerjaan RTW program's ability to help handicapped workers with occupational accidents heal and return to work and its economic effects on medical care costs. This chapter will improve understanding of RTW programs for occupational injuries in underdeveloped countries and guide their development and implementation elsewhere.

## **6.2 METHODS**

This chapter utilized a retrospective observational approach, using data from the BPJS Ketenagakerjaan, which is Indonesia's national insurance program. The data covered work-related accidents and illnesses. The study primarily examined the compensation claims submitted by workers throughout the period of January 2012 to August 2022. This analysis included information related to the workers' demographics, accident specifics, and compensation records. A census sample methodology was implemented, encompassing individuals who have filed occupational injury claims that have led to surgical intervention and incapacity. The exclusion criteria encompassed situations that did not entail surgery, cases where there was no impairment resulting from the accident, and cases with ongoing claims. The variables analyzed encompassed patient demographics, injury features, and medical care specifics, whereas the outcome measures consisted of lost time injury days (LTIDs) and medical expenditures. The interrupted time series analysis evaluated the economic efficacy of the RTW program following surgery by comparing the periods before and after its adoption over a span of 10 years. The data quality was assured by a thorough screening process, resulting in 1,353 patients in the RTW program and 10,602 cases getting the standard care. The study utilized segmented regression analysis and graphical representations to assess trends, while covariates were included to account for any confounding variables. Statistical software such as SPSS and R Studio enabled thorough data analysis with a significance level established at  $p < 0.05$ .

### **6.3 RESULTS**

The present investigation undertook an examination of the various attributes exhibited by the samples under scrutiny, as well as the corresponding descriptive statistical analyses pertaining to occupational injuries. Particular emphasis was placed on the evaluation of disability levels and the subsequent determination of RTW statuses. The categories encompassed within the study encompass individuals classified as disabled or non-disabled, as well as those who have successfully returned to work (RTW) and those who have not yet returned to work (not RTW). The collected data consisted of various demographic variables such as age and gender, as well as treatment outcomes, regional distribution, industry affiliation, type of impairment, accident location, and claims payouts. The findings from the descriptive analysis indicate that a significant proportion of the individuals who received treatment were males between the ages of 25 and 54. Moreover, the participants who engaged in the RTW program demonstrated considerably higher rates of success (84.0%) in comparison to those who received usual care (20.3%). Conversely, the RTW program participants exhibited lower rates of unsuccessful outcomes (16.0%) when contrasted with individuals who underwent usual care (79.7%). This observation suggests the prospective effectiveness of the RTW program, specifically in relation to individuals with disabilities.

The investigation delved into the effects of the RTW program on the occurrence of lost time injury days (LTIDs) and the associated expenditures on medical care. The longitudinal time intervals of disability (LTIDs) exhibited a statistically significant decrease among participants who underwent the process of return to work (RTW), indicating a more expedited resumption of occupational activities. The observed medical care costs for individuals who returned to work (RTW) were marginally lower, with an average expenditure of \$766, in comparison to those who received usual care, which had an average cost of \$790. The analysis of the data unveiled a noteworthy reduction of 25.21% in Lost Time Injury Days (LTIDs) when Return to Work (RTW) interventions were implemented, thereby indicating a substantial level of efficacy associated with the program. Nevertheless, it is imperative to exercise prudence when interpreting the outcomes pertaining to costs, as the mere numerical representation of expenses may not necessarily provide an accurate depiction of the inherent worth of a particular service. Furthermore, it is crucial to acknowledge the potential regional disparities or variations that may exist across different healthcare providers.

### **6.4 DISCUSSION**

This research endeavor represents a pioneering investigation conducted in a developing nation, specifically Indonesia, with the aim of evaluating the efficacy of the RTW program for individuals who have experienced occupational injuries and subsequent disability, and have undergone surgical interventions. The study findings unveiled that the RTW program exhibited a substantial reduction in lost time injury days (LTIDs) and medical care expenses. These results suggest a favorable influence on economic outcomes for both individuals and organizations involved. In light of the study's overall positive outcomes, it is worth noting that there may exist a potential knowledge gap among capital-intensive organizations regarding the advantages associated with RTW programs. This lack of awareness could potentially result in restricted engagement and participation in such programs. The importance of addressing this matter cannot be overstated, as it is essential to ensure that disabled workers receive sufficient support, thereby enabling them to make meaningful contributions to their respective organizations. The present study highlights the significance of timely and suitable management within RTW programs, placing emphasis on their potential advantages for employees, organizations, and insurers in relation to enhanced productivity, reduced costs, and overall well-being enhancements.

The implications of these findings have significant relevance for policy and practice, underscoring the necessity of augmenting investment and providing incentives for RTW programs in developing nations. The present study elucidates the economic benefits associated with these programs, thereby making a substantial contribution to the domain of occupational health and safety from a health economics and outcomes research perspective. The presented evidence offers valuable insights for policymakers and practitioners in developing nations, providing guidance for the development and implementation of comparable programs aimed at improving economic outcomes for workers during their recovery from occupational injuries. Despite the inherent limitations associated with its retrospective design and reliance on a single-source data sample, this study offers a comprehensive analysis of the economic evaluation of RTW programs. The findings of this study provide valuable insights into the effectiveness and cost-effectiveness of such programs. Furthermore, the study identifies several areas that warrant further investigation in future research endeavors. These include exploring the underlying reasons for limited corporate participation in RTW programs and examining the broader implications of these programs on occupational health and safety. By addressing these research gaps, future studies can contribute to a more nuanced understanding of the economic implications and potential benefits of RTW program.

## **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 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 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 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 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

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4. Evary, Yuyu Mulsiani ; Masyita, Ayu ; Kurnianto, Arie Arizandi ; Asri, Rangga Meidianto ; Rifai, Yusnita  
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