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Special Feature Article

At the Forefront of Research on Individual Placement and Support: A Mini-review of Systematic Reviews for Effectiveness of Individual Placement and Support

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Abstract

Individual Placement and Support model (IPS) of supported employment is internationally recognized as an effective employment service model for people with mental illness. This paper aimed to demonstrate the effects of IPS by summarizing the results of relevant systematic reviews. We included the systematic reviews that conducted meta-analyses of employment rates, work tenure, quality of life, functioning, or psychiatric symptoms. Twelve review articles were included in this paper. Meta-analyses included in this paper found that IPS was associated with higher employment rates and longer employment tenure compared to other employment services. In particular, IPS was effective for individuals with severe mental illness. However, meta-analyses revealed that IPS had small effects on the improvements in non-vocational outcomes such as quality of life and psychiatric symptoms. The systematic reviews with meta-analyses suggest implications for future research on IPS, including identification of clients' characteristics for whom IPS works more effectively, exploring interventions that improve clients' quality of life in their working lives, and further examining the long-term effectiveness of IPS. The findings from the meta-analyses provide clinical and political implications about the importance of establishing a service system that provides IPS

services for people with severe mental illnesses such as schizophrenia and bipolar disorder.

Keywords: Individual Placement and Support, supported employment, systematic review, mini-review, meta-analysis

Introduction

As the number of people with mental illness living in the community has increased over the past half-century, employment has become an important and realistic goal in psychiatric treatment and mental health and welfare services. Clinical research has pointed out the need to measure not only traditional clinical outcomes, such as symptoms, functioning, and hospitalization, but also social outcomes, with employment proposed as one specific indicator.⁴⁰⁾ As interest in occupational outcomes grows, implementing effective employment support, exemplified by the Individual Placement and Support (IPS) model, has become an international challenge.

The search for effective employment support in mental health and welfare is not a new theme. A review of its international history shows that until the early 1990s, studies repeatedly evaluated the effectiveness of training-based employment support programs aimed at improving vocational readiness, including hospital-based

training, sheltered employment (e.g., Japan's Type B Continuous Employment Support Facilities), vocational counseling, and other psychosocial training. However, a systematic review by Bond revealed that such employment support programs have very limited effects on vocational outcomes (mostly employment status).⁴⁾ Notably, in Japan, employment support programs aimed at improving vocational readiness through long-term training remain mainstream even today; however, no Japanese studies have evaluated their effectiveness through randomized controlled trials (RCTs),⁴⁸⁾ and empirical verification itself remains extremely limited.

IPS was created by individuals concerned about expert-led employment support programs focused primarily on improving vocational readiness. Specifically, in the 1980s in the United States, Becker and colleagues, together with people with mental illness, peer supporters, and employment support workers, developed IPS as a practical

model enabling employment even for those with severe disabilities.²⁾¹⁴⁾ It now encompasses eight principles: (i) no exclusion criteria, (ii) competitive employment, (iii) rapid job search, (iv) integrated services, (v) systematic job search, (vi) benefits planning, (vii) time-unlimited support, and (viii) workers' preferences.⁹⁾ IPS is modeled as an outreach-based, individualized employment support service grounded in each individual's hopes, needs, and strengths.⁴⁴⁾ Furthermore, because IPS is a tailored practice that respects the hopes of each person with mental illness, it is the only employment support practice included among the ten recovery-oriented practices identified by Slade and his colleagues.³⁸⁾ Moreover, in Europe and the United States, IPS is a model supported not only by mental health and welfare supporters but also by vocational rehabilitation staff, including public employment service personnel.²⁴⁾³³⁾³⁷⁾ Thus, IPS is recognized as a person-centered practice for people with mental illness.

One reason why IPS remains an internationally recognized practice model is the extensive scientific validation it has undergone. Since the first RCT was conducted in the United States in the 1990s, approximately 30 RCTs have been conducted worldwide to date, demonstrating the effectiveness of IPS.⁹⁾ Furthermore, in Japan and

Europe, comparative studies with other employment support models have demonstrated the superior cost-effectiveness of IPS.³⁰⁾⁴³⁾⁴⁹⁾ However, a study indicate that awareness and understanding of IPS and its effectiveness remain insufficient in Japan.¹⁷⁾ While a paper introducing IPS to Japanese readers, published in "Psychiatry and Clinical Neurosciences," described its effectiveness,¹³⁾ no Japanese-language article summarizing the scientific evidence for IPS to date exists. Therefore, this paper was aimed to provide an overview of systematic reviews that have evaluated the effectiveness of IPS, and summarize the results of meta-analyses to introduce international findings.

I. Methods

1. Study Overview and Inclusion Criteria

This review searched for and summarized the results of systematic review articles on the IPS model and similar supported employment (SE) models. Note that in this paper, both IPS and similar SE models are collectively referred to as IPS (although they are differentiated in the tables). Outcomes examined in this paper comprised five variables: employment rate, duration of employment, quality of life/well-being, functioning, and psychiatric symptoms. Articles that met

all of the following three inclusion criteria were included: (i) systematic review articles aimed at evaluating the effectiveness of IPS or SE, (ii) those that conducted a meta-analysis on any of the five outcomes mentioned above, and (iii) those published in peer-reviewed academic journals. For Cochrane reviews, when multiple review articles existed on the same topic, only the most recently updated version was included, and older versions were excluded. In addition, systematic reviews limited to studies from specific countries were also excluded. Furthermore, review articles that primarily compared standalone IPS with augmented IPS (IPS supplemented with additional programs) were excluded. For example, while cognitive rehabilitation is recognized as an effective practice that enhances vocational outcomes when combined with IPS, this enhancement effect has not been observed in employment support programs other than IPS.²⁶⁾³⁶⁾ Therefore, the reason for excluding review articles on expanded IPS is that, when considering effective employment support, it is essential to first address the nature of the foundational employment support itself.

2. Searching for and Selecting Review Articles

Relevant review articles were identified through searches of two

academic databases (MEDLINE and PsycINFO). The search terms were: (individual placement and support [Title] OR supported employment [Title]) AND (systematic review [Title/abstract] OR meta [Title/abstract]). The final search date was September 15, 2022. Additionally, manual searches were conducted by examining the reference lists of the included review articles for related literature and using the Google search engine to identify additional review articles. After removing duplicates, the retrieved records were screened based on their titles and abstracts. Records clearly failing to meet the inclusion criteria were excluded. For the remaining records, full-text articles were obtained and carefully assessed for compliance with the inclusion criteria. This selection process was performed independently by two authors. In cases of disagreement between them, they discussed the matter and reached a consensus on the final selection of review articles.

3. Evidence Synthesis

The selection process was presented in accordance with the PRISMA 2020 reporting guidelines.²⁹⁾ From the included review articles, we extracted information on the authors, publication year, participant characteristics, number of studies included in each

review article or meta-analysis (k), type of outcome, and results of meta-analyses. Next, tables were created for each outcome based on the extracted data. Some of the included review articles conducted meta-analyses based on only one study; however, meta-analysis is fundamentally a method for synthesizing the results of multiple studies. Therefore, results from meta-analyses based on only one study were excluded from data extraction because the evidence base was considered insufficient. Data collection from each study was performed by the first author and verified by the second author.

II. Results

1. Selection and Characteristics of Included Papers

Database searches yielded 42 records (Figure). After removing duplicates, 27 records underwent screening using titles and abstracts. Fourteen records underwent full-text screening, resulting in the inclusion of 9 review articles. Manual searches identified 4 records, including 3 review articles. Ultimately, a total of 12 review articles were included.⁵⁾⁷⁾⁸⁾¹⁰⁾¹²⁾¹⁵⁾¹⁹⁾²⁷⁾²⁸⁾³⁴⁾³⁹⁾⁴²⁾

The review articles were published within the past 10 years, with the oldest published in 2012 (Table 1).⁵⁾ Six focused on individuals with severe/serious mental illness,⁵⁾¹⁹⁾²⁷⁾²⁸⁾³⁹⁾⁴²⁾ and two studies

focused on early intervention participants⁷⁾ or conditions other than severe mental illness (e.g., common mental disorder (CMD), post-traumatic stress disorder (PTSD), and spinal cord injury).⁸⁾ Nine studies included only RCTs,⁵⁾⁸⁾¹⁰⁾¹²⁾¹⁵⁾¹⁹⁾²⁷⁾³⁹⁾⁴²⁾ one of which was a meta-analysis (reanalysis) using an integrated dataset that focused solely on six RCTs from which raw data were obtained.¹⁹⁾ Three review articles included studies other than RCTs.⁷⁾²⁸⁾³⁴⁾ There were also review articles comparing employment rates between RCTs and routine practice,³⁴⁾ as well as one review article focusing solely on vocational outcomes.⁴²⁾

2. Employment Rates

Table 2 shows the meta-analysis results for employment rates from each review article. For severe mental illness, Bond et al. reported that the employment rate for IPS was approximately 2.5 times higher compared with controls (i.e., other supported employment programs serving as comparators).⁵⁾ Since Bond et al., multiple review articles have replicated this finding, consistently demonstrating the higher employment rate associated with IPS,¹²⁾²⁷⁾²⁸⁾³⁹⁾ with risk ratios (RR) ranging from 1.79 (95% confidence interval [CI] = 0.94–3.40)³⁹⁾ to 3.49 (95% CI = 1.77–6.89).³⁹⁾ Reviews of RCTs targeting not only severe

mental illness but also other psychiatric diagnoses¹⁰⁾¹²⁾¹⁵⁾ reported similar findings, with RRs ranging from 1.63 (95% CI = 1.46–1.82)¹⁵⁾ to 2.07 (95% CI = 1.82–2.35),¹⁰⁾ indicating high employment rates for IPS. Furthermore, a meta-analysis of early intervention participants [odds ratio (OR) = 3.66 (95% CI = 1.93–6.93)]⁷⁾ and another meta-analysis integrating participants with CMD, PTSD, substance dependence, and spinal cord injury [OR = 2.23 (95% CI = 1.53–3.24)]⁸⁾ also showed higher employment rates for IPS than controls. Conversely, a review by Hellström, L. et al. identified higher IPS employment rates among individuals with schizophrenia [aOR=2.07 (95% CI=1.58–2.73)] and bipolar disorder [aOR=2.37 (95% CI=1.27–4.43)], whereas analyses focusing on major depressive disorder or severe mental illness with co-occurring alcohol problems or illicit drug use other than cannabis found no significant difference between IPS and control groups.¹⁹⁾ Furthermore, de Winter, L. et al. conducted separate meta-analyses targeting severe mental illness [OR=3.37 (95% CI=2.90–3.90)] and CMD [OR=1.99 (95% CI=1.51–2.63)], with the former yielding a higher OR ($\chi^2=10.79$, $P<0.01$).¹²⁾

Regarding conditions other than the severity of impairment or diagnosis, Bond et al. reported that the

employment rate for IPS in U.S. studies (65.0%) was higher than that in non-U.S. studies (50.0%).⁵⁾ Furthermore, examining results by follow-up duration, meta-analysis targeting severe mental illness showed no significant difference in RR between follow-up periods of 1 year or less and more than 1 year.²⁸⁾³⁹⁾ Conversely, a review article conducting a meta-analysis targeting people with various mental illness found that RR for follow-up periods of 1 year or less [2.61 (95% CI=2.08–3.28)] was significantly higher than RR for periods exceeding 1 year [1.90 (95% CI=1.70–2.25)] [Log(RR)=0.36, $P=0.047$].¹⁰⁾ Richter, D. et al. reported that the employment rate in IPS RCTs (50% [95% CI=43–56]) and that when IPS was provided in routine practice (43% [95% CI=37–50]) showed no significant difference, and both were more than twice as high as that with pre-vocational training.³⁴⁾

3. Duration of Employment

Five review articles involved meta-analyses of the employment duration.⁵⁾¹²⁾¹⁵⁾¹⁹⁾³⁹⁾ (Table 3) For severe and other forms of mental illness, IPS resulted in a significantly longer employment duration compared with comparator employment support.⁵⁾¹²⁾¹⁵⁾¹⁹⁾³⁹⁾ The range of standardized mean differences (SMD) calculated in the review articles was 0.41 (95% CI=0.30 to 0.52)¹²⁾ to 0.55

(95% CI=0.33 to 0.79),¹⁵⁾ representing a moderate effect. In contrast, de Winter et al. found no significant difference in the employment duration between IPS and control groups for participants with CMD [0.35 (95% CI = -0.03 to 0.74)].¹²⁾ However, the effect size for CMD was similar to that for severe mental illness (SMD=0.45 [95% CI=0.29–0.61]), showing no significant difference ($\chi^2=0.19$, $P=0.66$), indicating similarity. Furthermore, Hellström et al.'s review article reported that IPS employment duration was longer for schizophrenics [aMD=6.12 (95% CI: 3.87–8.38)] and individuals with severe mental illness plus co-occurring illicit drug use [aMD=6.79 (95% CI: 1.83–11.76)]. However, analyses focusing on bipolar disorder, major depressive disorder, or co-occurrence of severe mental illness with alcohol problems or illicit drugs other than cannabis did not reveal significant differences between IPS and control groups.¹⁹⁾

4. Non-vocational Outcomes

Table 4 presents results for non-vocational outcomes. Three review articles involved meta-analyses of quality of life, psychiatric symptoms, functioning, and depressive symptoms. However, no significant differences were observed between IPS and comparator employment support in any of the analyses.¹⁵⁾³⁹⁾⁴²⁾ Note that

Suijkerbuijk, Y.B. et al. conducted meta-analyses for each scale related to quality of life, psychiatric symptoms, etc., resulting in many meta-analyses based on only one study and several results not included in this paper.³⁹⁾

III. Discussion

This paper summarizes the results of meta-analyses to determine the effectiveness of IPS. Findings from 12 review articles indicated that IPS was significantly correlated with higher employment rates and longer employment duration compared with comparator employment support. However, very small effects of IPS were confirmed for non-vocational outcomes such as quality of life and psychiatric symptoms. Below, we discuss IPS's target population, non-vocational outcomes, and challenges for future implementation.

Meta-analyses targeting individuals with severe mental illness showed a tendency for larger effect sizes in occupational outcomes. Specifically, de Winter et al. compared results for severe mental illness and CMD, showing that employment rates for the former had a larger effect size.¹²⁾ While definitions of severe mental illness vary, it often refers to individuals diagnosed with schizophrenia spectrum or bipolar disorder, or those with low cognitive or social functioning.¹⁸⁾ A review

comparing effects by diagnoses found that IPS increased employment rates for individuals with schizophrenia or bipolar disorder, but did not show similar effects for those with major depressive disorder.¹⁹⁾ Review articles targeting various mental illnesses also reported the effects of IPS on employment rates and the duration of employment.¹⁰⁾¹⁵⁾³⁴⁾ It is considered that severe mental illnesses were included within the participants of each study, and the results for severe mental illness may have increased the overall effect. Indeed, IPS originated as a model of employment support specifically for individuals with severe mental illness.³⁾ Furthermore, individuals with severe mental illness are characterized by symptom fluctuations, challenges in adapting to their environment, and time required to build trusting relationships with support providers. For such individuals, long-term training for vocational readiness is unsuitable, and support provided only at the individual level is insufficient.¹⁶⁾⁴⁶⁾ Considering IPS's developmental history and adaptation, it is possible that IPS (which provides tailored individual services, aligned with participants' preferences,²²⁾²³⁾ and also intervenes in workplace environments), demonstrates greater effectiveness in occupational outcomes for individuals with severe mental illness.

More cautious discussion is needed regarding the effectiveness of IPS for individuals with disorders other than severe mental illness. Meta-analyses including CMD, PTSD, substance dependence, and spinal cord injury, as well as meta-analyses targeting conditions other than severe mental illness, found that IPS was associated with higher employment rates⁸⁾ and longer employment duration.¹²⁾ However, individual studies included in Bond et al.'s review article suggested relatively lower-level effectiveness of IPS for CMD, compared with severe mental illness.⁸⁾ Furthermore, Hellström et al., who focused only on studies providing raw data from RCTs, reported a non-significant effect in individuals with major depressive disorder.¹⁹⁾ Other systematic review articles that did not conduct meta-analyses found no evidence of IPS effectiveness for individuals with substance use disorders, highlighting the need for continued research.³²⁾ Conversely, meta-analysis results indicating IPS effectiveness for early intervention users were actually reported.⁷⁾ Young individuals typically exhibit high-level work motivation, suggesting that early intervention and IPS are well-suited, with initiatives expanding primarily in Australia.⁴¹⁾ The association between IPS and work motivation has also been noted in UK

research,²⁰⁾ suggesting that young individuals, in addition to those with severe mental illness, may also be primary targets for IPS. However, it is anticipated that there is marked variation in illness characteristics and other features among young individuals. Therefore, the applicability of IPS to individuals with disorders other than severe mental illness requires further research.

Regarding non-vocational outcomes, three review articles¹⁵⁾³⁹⁾⁴²⁾ demonstrated the low-level effectiveness of IPS. This result may also suggest that people with mental illness can achieve employment even without significant improvement in psychiatric symptoms or functioning. Furthermore, while caution is warranted because individual RCTs were not non-inferiority trials, the meta-analysis results also indicate that the use of IPS does not directly lead to worsening of psychiatric symptoms or functioning. However, the lack of demonstrated improvement in quality of life remains a challenge. Since IPS aims to enrich the lives and livelihoods of people with mental illness through employment,²⁾ it is considered that current IPS has not yet achieved this goal. Conversely, it has also been pointed out that while employment and quality of life are related, the correlation was not strong.⁴²⁾ To explore

the relationship between employment and quality of life, it may be necessary to examine the quality of employment in greater detail, such as whether people obtained their desired occupation, income level, and workplace environment. Furthermore, the absence of accurate scales to measure post-employment quality of life and its changes likely affects the results of individual studies.⁴⁷⁾ Thus, evaluating the effectiveness of employment support on quality of life may be insufficient using only simple employment information (employment status, duration) or existing scales. Therefore, the impact of IPS on subjective outcomes such as quality of life among people with mental illness presents challenges in both practice and measurement methods.

IPS is expected to maintain its effectiveness even when implemented in real-world settings. While regional variations in the effectiveness of IPS exist, its effects have been observed in countries outside the United States.⁵⁾ Furthermore, the difference in employment rates between RCTs and routine practice was small (7%).³⁴⁾ These results suggest that IPS is a model with high external validity. One reason IPS can maintain effectiveness across diverse regions and settings is the existence of the fidelity scale. Developed as a quality control tool to

ensure appropriate model implementation, the fidelity scale has demonstrated convergent validity with employment rates.⁶⁾³⁵⁾⁴⁵⁾ Practice evaluations using the fidelity scale contribute not only to replicating the intervention during RCTs but also ensuring the quality of IPS and maintaining outcomes in routine practice across countries, including Japan.²⁵⁾⁴⁷⁾ However, while IPS was associated with higher employment rates and longer employment durations even in meta-analyses of studies with follow-up longer than one year,¹⁰⁾²⁸⁾³⁹⁾ its effects were reduced compared with studies with follow-up of one year or less.¹⁰⁾ Results from other studies examining the long-term effectiveness of IPS are inconsistent. Specifically, some studies report IPS maintaining superiority for 5 to 8 years,¹¹⁾²¹⁾ whereas others find no long-term difference compared with supported employment used as a comparator.¹⁾³¹⁾ In summary, while IPS shows promise across diverse regions and implementation stages, verifying its long-term effectiveness remains a future challenge.

This paper has several limitations. First, the literature search used a limited number of databases and keywords, so there may be additional relevant papers beyond those introduced in this review. Second, the quality of methods in each review

article was not assessed, so findings with a high risk of bias may have been presented. Third, because this study focused only on meta-analysis results, it could not examine the details of individual studies included in each review article (such as participant characteristics, including diagnosis and follow-up duration). While these limitations should be noted, this paper, which summarizes results from overseas meta-analyses, is considered useful for understanding the effects and challenges of the IPS model.

Conclusion

An overview of meta-analyses examining the effectiveness of IPS suggests that, compared with other employment support programs, IPS tends to be more effective in achieving higher employment rates and longer durations. It particularly appears to have a marked effect on employment outcomes among people with severe mental illness. Furthermore, its effectiveness is expected to be maintained even when the model is implemented and disseminated in routine practice. Given the growing interest in employment retention, the finding that IPS extends the employment duration is important. Future challenges include identifying more suitable target populations for IPS dissemination, pursuing practices that

improve quality of life in occupational settings and contribute to that improvement, and examining its long-term effects. Despite several challenges, based on the accumulated evidence to date, it is desirable to establish a service system that can prioritize providing IPS to people with severe psychiatric symptoms, such as schizophrenia and bipolar disorder.

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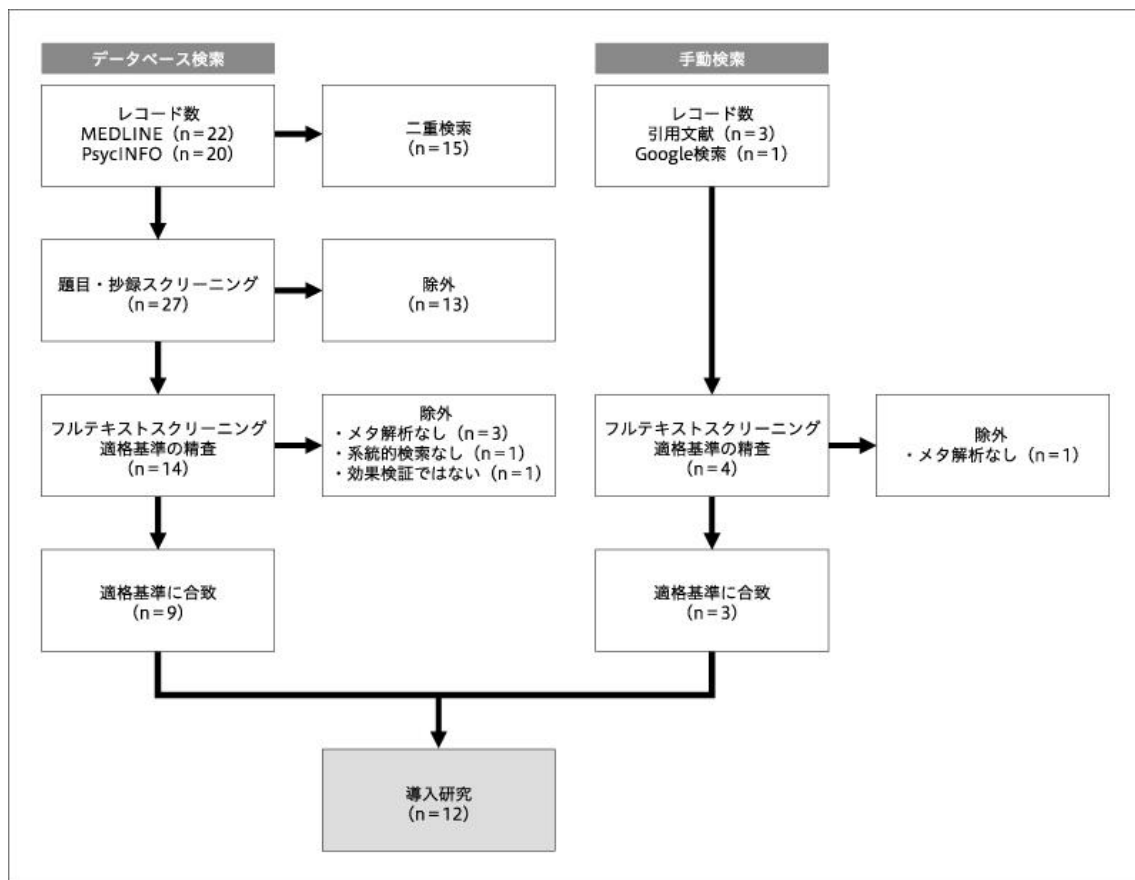


図 導入研究の選定フロー

Figure: Flow diagram of study selection

表 1 導入したレビュー論文の特徴

No	第 1 著者	年	サンプルやデザインに関する特記	k	メタ解析の結果が報告されたアウトカムの種類
1	Bond ⁵⁾	2012	重度精神障害 ^{a)} RCT のみ	15	就労率 ^{c)} , 週 20 時間以上働いた参加者の割合, 最初の就労までの日数, 年間就労時間 ^{c)} , 年間就労週数, 競争的雇用以外の就労率, 介入からの離脱
2	Bond ⁷⁾	2015	早期介入の利用者 RCT 以外を含む	28	就労率 ^{c)} , 就学率
3	Modini ²⁸⁾	2016	重度精神障害 ^{a)} RCT 以外も含む	19	就労率 ^{c)}
4	Suijkerbuijk ³⁹⁾	2017	重度精神障害 ^{a)} RCT のみ	48	就労率 ^{c)} , 就労期間 (週) ^{c)} , 最初の就労までの日数, 競争的雇用以外の就労率, 介入からの離脱, 生活の質 ^{c)} , 精神症状, 再入院
5	Metcalfe ²⁷⁾	2018	重度精神障害 ^{a)} RCT のみ	21	就労率 ^{c)}
6	Bond ⁸⁾	2019	common mental disorders, 気分障害 中重症度の精神障害, PTSD, 薬物依存, 脊髄損傷 RCT のみ	9	就労率 ^{c)}
7	Frederick ¹⁵⁾	2019	精神障害全般 ^{b)} RCT のみ	30	就労率 ^{c)} , 最長就労期間 ^{c)} , 総就労時間 ^{c)} , 最初の就労までの日数, 収入, 生活の質 ^{c)} , 機能 ^{c)} , 精神症状 ^{c)}
8	Richter ³⁴⁾	2019	精神障害全般 ^{b)} RCT 以外を含む	30	就労率 ^{c)}
9	Brinchmann ¹⁰⁾	2020	精神障害全般 ^{b)} RCT のみ	27	就労率 ^{c)}
10	Hellström ¹⁹⁾	2021	重度精神障害 ^{a)} , 物質使用障害の併存 RCT のうち生データを取得した研究	6	就労率 ^{c)} , 総就労時間, 就労期間 (週) ^{c)} , 最初の就労までの期間
11	Wallstroem ⁴²⁾	2021	重度精神障害 ^{a)} RCT のみ 非職業的アウトカムを分析	6	生活の質 ^{c)} , 自己尊厳, エンパワメント, うつ症状 ^{c)} , 精神症状 ^{c)} , 陰性症状 ^{c)} , 不安 ^{c)} , 機能 ^{c)}
12	de Winter ¹²⁾	2022	精神障害全般 ^{b)} RCT のみ	32	就労率 ^{c)} , 追跡期間における就労期間の割合 ^{c)} , 収入

a) 重度精神障害は、本文中に「severe/serious mental illness」を対象としていることを明記している研究

b) 対象に対する記述が明確ではないため、本文から「精神障害全般と判断」

c) メタ解析の結果あり、かつ表 2~4 で詳細を提示

Table 1: Characteristics of included review articles

No. / First author / Year / Notes on sample or design / k / Outcome for which meta-analysis results were reported

1 / Bond⁵⁾ /

2012/ Severe mental illness, ^{a)} RCTs only / 15 /

Employment rate,^{c)} proportion of participants working ≥ 20 hours/week, days to first employment, annual hours worked,^{c)} annual weeks worked, employment rate outside competitive employment, dropout from intervention

2 / Bond⁷⁾ /

2015 / Early intervention service users / Includes non-RCTs / 28 / Employment rate,^{c)} school enrollment rate

3 / Modini²⁸⁾ /

2016 / Severe mental illness^{a)} / Includes non-RCTs / 19 /
Employment rate^{c)}

4 / Suijkerbuijk³⁹⁾ /

2017 / Severe mental illness^{a)} / RCTs only / 48 /
Employment rate,^{c)} Employment duration (weeks),^{c)} Days to first employment,
Employment rate outside competitive employment, Dropout from intervention,
Quality of life,^{c)} Psychiatric symptoms, Rehospitalization

5 / Metcalfe²⁷⁾ /

2018 / Severe mental illness^{a)} / RCTs only / 21 / Employment rate^{c)}

6 / Bond⁸⁾ /

2019 / Common mental disorders, mood disorders / Moderate-to-severe mental
illness, PTSD, substance dependence, spinal cord injury, RCTs only / 9 / Employment
rate^{c)}

7 / Frederick¹⁵⁾ /

2019 / All mental disorders^{b)} / RCT only / 30 /
Employment rate,^{c)} longest employment duration,^{c)} total employment hours,^{c)} days
to first employment, income, quality of life,^{c)} functioning,^{c)} psychiatric symptoms^{c)}

8 / Richter³⁴⁾ /

2019 / All mental disorders^{b)} / Including non-RCTs / 30 /
Employment rate^{c)}

9 / Brinchmann¹⁰⁾ /

2020 / General mental disorders^{b)} / RCT only / 27 / Employment rate^{c)}

10 / Hellström¹⁹⁾ /

2021 / Severe mental illness,^{a)} co-occurring substance use disorders
RCTs with raw data obtained / 6 /
Employment rate,^{c)} total employment hours, employment duration (weeks),^{c)} time to
first employment

11 / Wallstroem⁴²⁾ /

2021 / Severe mental illness^{a)} / RCTs only / Analyzed non-vocational outcomes / 6 /
Quality of life,^{c)} self-esteem, empowerment, depressive symptoms,^{c)} psychiatric
symptoms,^{c)} negative symptoms,^{c)} anxiety,^{c)} functioning^{c)}

12 / de Winter¹²⁾ /

2022 / Mental disorders in general^{b)}

RCTs only / 32 /

Employment rate,^{c)} Proportion of employment duration during follow-up,^{c)} Income

a) Studies explicitly stating “severe/serious mental illness” as the target in the text

b) Target description unclear; judged from the text as ‘all mental disorders’

c) Meta-analysis results available and details presented in Tables 2–4

表 2 就労率に関するメタ解析の結果

第 1 著者	年	比較	対象	k	効果量
Bond ⁵⁾	2012	IPS vs Control	重度精神障害	15	IPS : 58.9% vs Control : 23.2% Arc sine approximation = 0.77 IPS : 65.0% vs Control : 25.0% Arc sine approximation = 0.84 IPS : 50.0% vs Control : 20.0% Arc sine approximation = 0.67
			米国の研究	9	
			米国以外の研究	6	
Bond ⁷⁾	2015	SE vs Control	早期介入の利用者	4	OR = 3.66 (95%CI : 1.93, 6.93)
Modini ²⁸⁾	2016	IPS vs Control	重度精神障害	19	RR = 2.40 (95%CI : 1.99, 2.90)
			追跡 1 年以下	7	RR = 2.59 (95%CI : 1.88, 3.56)
			追跡 1 年超 2 年以下	13	RR = 2.41 (95%CI : 1.96, 2.97)
Suijkerbuijk ³⁹⁾	2017	SE vs 精神科治療 SE vs 過渡的雇用 SE vs 職業前訓練 SE vs 過渡的雇用 SE vs 職業前訓練	重度精神障害	3	RR = 1.79 (95%CI : 0.94, 3.40)
			追跡 1 年以下	3	RR = 3.49 (95%CI : 1.77, 6.89)
			追跡 1 年以下	2	RR = 2.52 (95%CI : 1.21, 5.24)
			追跡 1 年超	4	RR = 3.28 (95%CI : 2.13, 5.04)
			追跡 1 年超	9	RR = 2.31 (95%CI : 1.85, 2.89)
Metcalfe ²⁷⁾	2018	IPS vs Control	重度精神障害	21	RR = 2.31 (95%CI : 1.99, 2.69)
Bond ⁸⁾	2019	IPS vs Control	重度精神障害以外 ^{a)}	9	OR = 2.23 (95%CI : 1.53, 3.24)
Frederick ¹⁵⁾	2019	IPS vs Control	精神障害全般	23	Log RR = 0.49 (95%CI : 0.38, 0.60) RR = 1.63 (95%CI : 1.46, 1.82)
Richter ³⁴⁾	2019	SE vs 職業前訓練 SE vs 職業前訓練	RCT の研究 : 精神障害全般	25	IPS : 50% (95%CI : 43, 56)
			職業前訓練 : 22%	25	(95%CI : 16, 28)
			日常実践の研究 : 精神障害全般	30	IPS : 43% (95%CI : 37, 50)
			職業前訓練 : 17%	7	(95%CI : 11, 23)
Brinchmann ¹⁰⁾	2020	IPS vs Control	精神障害全般	27	RR = 2.07 (95%CI : 1.82, 2.35)
			追跡 1 年以下	8	RR = 2.61 (95%CI : 2.08, 3.28)
			追跡 1 年超	24	RR = 1.90 (95%CI : 1.70, 2.25)
Hellström ¹⁹⁾	2021	IPS vs Control	全体	6	aOR = 1.92 (95%CI : 1.53, 2.42)
			統合失調症	6	aOR = 2.07 (95%CI : 1.58, 2.73)
			双極性障害	6	aOR = 2.37 (95%CI : 1.27, 4.43)
			大うつ病	6	aOR = 1.24 (95%CI : 0.69, 2.23)
			重度精神障害 + アルコール問題	3	aOR = 1.20 (95%CI : 0.50, 2.86)
			重度精神障害 + 何らかの違法薬物	5	aOR = 2.95 (95%CI : 1.51, 5.78)
			重度精神障害 + 大麻系以外の違法薬物	3	aOR = 0.74 (95%CI : 0.11, 5.19)
de Winter ¹²⁾	2022	IPS vs Control	精神障害全般	31	OR = 2.62 (95%CI : 2.37, 2.89)
			重度精神障害	20	OR = 3.37 (95%CI : 2.90, 3.90)
			common mental disorders	4	OR = 1.99 (95%CI : 1.51, 2.63)

a) common mental disorders, 気分障害, 中重症度の精神障害, PTSD, 薬物依存, 脊髄損傷

aOR : adjusted odds ratio, IPS : Individual Placement and Support, OR : odds ratio, RCT : randomized controlled trial, RR : risk ratio, SE : supported employment

Table 2: Meta-analysis results for employment rate

First author / Year / Comparison / Subject / k / Effect size

Bond⁵⁾ /

2012 / IPS vs. Control / Severe mental illness, US studies, Non-US studies / 15, 9, 6
/ IPS: 58.9% vs. Control: 23.2%, Arc sine approximation = 0.77, IPS: 65.0% vs.
Control: 25.0%, Arc sine approximation = 0.84, IPS: 50.0% vs. Control: 20.0%, Arc
sine approximation = 0.67

Bond⁷⁾ /

2015 / SE vs. Control / Early intervention users / 4 / OR = 3.66 (95% CI: 1.93, 6.93)

Modini²⁸⁾ /

2016 / IPS vs. Control / Severe mental illness, Follow-up ≤ 1 year, Follow-up > 1 year
≤ 2 years / 19, 7, 13 / RR = 2.40 (95% CI: 1.99, 2.90), RR = 2.59 (95% CI: 1.88, 3.56),
RR = 2.41 (95% CI: 1.96, 2.97)

Suijkerbuijk³⁹⁾ /

2017 /

SE vs. Psychiatric treatment, SE vs. Transitional employment, SE vs. Pre-vocational
training, SE vs. Transitional employment, SE vs. Pre-vocational training /
Severe mental illness, Follow-up ≤ 1 year, Follow-up ≤ 1 year, Follow-up ≤ 1 year,
Follow-up > 1 year, Follow-up > 1 year /

3, 3, 2, 4, 9 /

RR=1.79 (95% CI: 0.94, 3.40), RR=3.49 (95% CI: 1.77, 6.89), RR=2.52 (95% CI: 1.21,
5.24), RR=3.28 (95% CI: 2.13, 5.04), RR = 2.31 (95% CI: 1.85, 2.89)

Metcalf²⁷⁾ /

2018 / IPS vs. Control / Severe mental illness / 21 /

RR = 2.31 (95% CI: 1.99, 2.69)

Bond⁸⁾ /

2019 / IPS vs. Control / Non-severe mental illness^{a)} / 9 /

OR=2.23 (95% CI: 1.53, 3.24)

Frederick¹⁵⁾ /

2019 / IPS vs. Control / All mental disorders / 23 /

Log RR=0.49 (95% CI: 0.38, 0.60), RR = 1.63 (95% CI: 1.46, 1.82)

Richter³⁴⁾ /

2019 / SE vs. Pre-vocational training, SE vs. Pre-employment training /

RCT study: All mental disorders, Routine practice study: General psychiatric
disorders / 25, 25, 30, 7/

IPS: 50% (95% CI: 43, 56), Pre-vocational Training: 22% (95% CI: 16, 28), IPS: 43%

(95% CI: 37, 50), Pre-employment training: 17% (95% CI: 11, 23)

Brinchmann¹⁰⁾ /

2020 / IPS vs. Control /

General psychiatric disorders, Follow-up ≤1 year, Follow-up >1 year / 27, 8, 24 /

RR=2.07 (95% CI: 1.82, 2.35), RR=2.61 (95% CI: 2.08, 3.28), RR=1.90 (95% CI: 1.70, 2.25)

Hellström¹⁹⁾ /

2021 / IPS vs. Control /

Overall, Schizophrenia, Bipolar disorder, Major depressive disorder, Severe mental illness + Alcohol problems, Severe mental illness + Any illicit drug, Severe mental illness + illicit drugs other than cannabis /

6, 6, 6, 6, 3, 5, 3/

aOR=1.92 (95% CI: 1.53, 2.42), aOR=2.07 (95% CI: 1.58, 2.73), aOR=2.37 (95% CI: 1.27, 4.43), aOR=1.24 (95% CI: 0.69, 2.23), aOR=1.20 (95% CI: 0.50, 2.86), aOR=2.95 (95% CI: 1.51, 5.78), aOR = 0.74 (95% CI: 0.11, 5.19)

de Winter¹²⁾

2022 / IPS vs. Control /

Mental disorders overall, Severe mental illness, Common mental disorders /

31, 20, 4 / OR = 2.62 (95% CI: 2.37, 2.89), OR = 3.37 (95% CI: 2.90, 3.90), OR = 1.99 (95% CI: 1.51, 2.63)

a) Common mental disorders, mood disorders, moderate-to-severe mental illness, PTSD, substance dependence, spinal cord injury

aOR: adjusted odds ratio, IPS: Individual Placement and Support, OR: odds ratio, RCT: randomized controlled trial, RR: risk ratio, SE: standard error

表 3 就労期間に関するメタ解析の結果

第 1 著者	年	比較	対象	アウトカム	k	効果量
Bond ⁵⁾	2012	IPS vs Control	重度精神障害	年間就労時間 年間就労週数	7 8	MD=198.2, SMD=0.58 MD=7.9
Suijkerbuijk ³⁹⁾	2017	SE vs 精神科治療 SE vs 過渡的雇用 SE vs 過渡的雇用 SE vs 職業前訓練	重度精神障害 追跡 1 年以下 追跡 1 年以下 追跡 1 年超 追跡 1 年超	就労期間 (週) 就労期間 (週) 就労期間 (週) 就労期間 (週)	2 2 4 5	MD=4.87 (95%CI : 0.37, 9.37) MD=4.18 (95%CI : 1.27, 7.09) MD=17.36 (95%CI : 11.53, 23.18) MD=11.56 (95%CI : 5.99, 17.13)
Frederick ¹⁵⁾	2019	IPS vs Control	精神障害全般	最長就労期間 総就労時間	8 17	SMD=0.55 (95%CI : 0.33, 0.79) SMD=0.46 (95%CI : 0.35, 0.57)
Hellström ¹⁹⁾	2021	IPS vs Control	全体 統合失調症 双極性障害 大うつ病 重度精神障害+アルコール問題 重度精神障害+ 何らかの違法薬物 重度精神障害+ 大麻系以外の違法薬物	就労期間 (週) 就労期間 (週) 就労期間 (週) 就労期間 (週) 就労期間 (週) 就労期間 (週) 就労期間 (週)	6 6 6 6 3 5 3	aMD=5.33 (95%CI : 3.22, 7.44) aMD=6.12 (95%CI : 3.87, 8.38) aMD=6.71 (95%CI : -0.30, 13.72) aMD=0.95 (95%CI : -5.56, 7.47) aMD=1.66 (95%CI : -7.40, 10.73) aMD=6.79 (95%CI : 1.83, 11.76) aMD=-1.31 (95%CI : -10.40, 7.79)
de Winter ¹²⁾	2022	IPS vs Control	精神障害全般 重度精神障害 common mental disorders	追跡期間における 就労期間の割合 追跡期間における 就労期間の割合 追跡期間における 就労期間の割合	23 12 3	SMD=0.41 (95%CI : 0.30, 0.52) SMD=0.45 (95%CI : 0.29, 0.61) SMD=0.35 (95%CI : -0.03, 0.74)

aMD : adjusted mean difference, IPS : Individual Placement and Support, MD : mean difference, SE : supported employment, SMD : standardized mean difference

Table 3: Meta-analysis results regarding employment duration

First author / Year / Comparison / Subject / Outcome / k / Effect Size

Bond⁵⁾

2012 / IPS vs. Control/ Severe mental illness /

Annual work hours, Annual work weeks / 7, 8 /

MD=198.2, SMD=0.58, MD=7.9

Suijkerbuijk³⁹⁾ / 2017

SE vs. Psychiatric treatment, SE vs. Transitional employment, SE vs. Transitional employment, SE vs. Pre-vocational training /

Severe mental illness, Follow-up ≤1 year, Follow-up ≤1 year, Follow-up >1 year, Follow-up >1 year /

2, 2, 4, 5 /

Employment duration (weeks), Employment duration (weeks), Employment duration (weeks), Employment duration (weeks) /

MD = 4.87 (95% CI: 0.37, 9.37), MD = 4.18 (95% CI: 1.27, 7.09), MD=17.36 (95% CI: 11.53, 23.18), MD=11.56 (95% CI: 5.99, 17.13)

Frederick¹⁵⁾ / 2019

IPS vs. Control / All mental disorders / Maximum employment duration, Total employment hours / 8, 17 / SMD = 0.55 (95% CI: 0.33, 0.79), SMD = 0.46 (95% CI: 0.35, 0.57)

Hellström¹⁹⁾ / 2021 / IPS vs. Control

Overall, Schizophrenia, Bipolar disorder, Major depressive disorder, Severe mental illness + Alcohol problem, Severe mental illness + Any illicit drug, Severe mental illness + illicit drugs other than cannabis /

Employment duration (weeks), Employment duration (weeks), Employment duration (weeks), Employment duration (weeks), Employment duration (weeks), Employment duration (weeks) /

6, 6, 6, 6, 3, 5, 3 /

aMD = 5.33 (95% CI: 3.22, 7.44), aMD = 6.12 (95% CI: 3.87, 8.38), aMD = 6.71 (95% CI: -0.30, 13.72), aMD = 0.95 (95% CI: -5.56, 7.47), aMD = 1.66 (95% CI: -7.40, 10.73), aMD = 6.79 (95% CI: 1.83, 11.76), aMD = -1.31 (95% CI: -10.40, 7.79)

de Winter¹²⁾ / 2022 / IPS vs. Control

All mental disorders, Severe mental illness, Common mental disorders /

Proportion of employment during follow-up period, Proportion of employment period during follow-up, Proportion of employment period during follow-up /

23, 12, 3

SMD = 0.41 (95% CI: 0.30, 0.52), SMD = 0.45 (95% CI: 0.29, 0.61), SMD = 0.35 (95% CI: -0.03, 0.74)

aMD: adjusted mean difference, IPS: Individual Placement and Support, MD: mean difference, SE: supported employment, SMD: standardized mean difference

表 4 非職業的アウトカムに関するメタ解析の結果

第1著者	年	比較	対象	アウトカム	k	効果量
Suijkerbuijk ³⁹⁾	2017	SE vs 過渡的雇用 SE vs 職業前訓練	重度精神障害 追跡1年以下 追跡1年以下	生活の質 (QOLI)	2	SMD=0.05 (95%CI: -0.16, 0.26)
				生活の質 (MANSA)	2	SMD=0.14 (95%CI: -0.06, 0.35)
Frederick ¹⁵⁾	2019	IPS vs Control	精神障害全般	生活の質	9	SMD=0.30 (95%CI: -0.07, 0.67)
				精神症状	6	SMD=0.03 (95%CI: -0.15, 0.21)
				機能	5	SMD=0.09 (95%CI: -0.09, 0.27)
Wallstroem ⁴²⁾	2021	IPS vs Control	重度精神障害	生活の質	5	SMD=0.08 (95%CI: -0.06, 0.23)
				うつ症状	3	OR=0.85 (95%CI: 0.63, 1.13)
				精神症状	4	SMD=0.00 (95%CI: -0.13, 0.13)
				陰性症状	4	SMD=-0.01 (95%CI: -0.13, 0.12)
				不安	3	SMD=-0.04 (95%CI: -0.20, 0.11)
				機能	3	SMD=0.14 (95%CI: -0.01, 0.28)

SE : supported employment, IPS : Individual Placement and Support, QOLI : Quality of Life Interview, MANSA : Manchester Short Assessment of Quality of Life, SMD : standardized mean difference, OR : odds ratio

Table 4: Meta-analysis results for non-vocational outcomes

First author / Year / Comparison / Subject / Outcome / k / Effect size

Suijkerbuijk³⁹⁾ / 2017

SE vs. transitional employment, SE vs. Pre-employment training /

Severe mental illness, Follow-up ≤1 year, Follow-up ≤1 year /

Quality of Life (QOLI), Quality of Life (MANSA) / 2, 2 /

SMD = 0.05 (95% CI: -0.16, 0.26), SMD = 0.14 (95% CI: -0.06, 0.35)

Frederick¹⁵⁾ / 2019 / IPS vs. Control / Mental disorders overall

Quality of life, Psychiatric symptoms, Functioning / 9, 6, 5 /

SMD = 0.30 (95% CI: -0.07, 0.67), SMD = 0.03 (95% CI: -0.15, 0.21),

SMD = 0.09 (95% CI: -0.09, 0.27)

Wallstroem⁴²⁾ / 2021 / IPS vs. Control / Severe mental illness /

Quality of life, Depressive symptoms, Psychiatric symptoms, Negative symptoms,

Anxiety, Functioning / 5, 3, 4, 4, 3, 3 /

SMD = 0.08 (95% CI: -0.06, 0.23), OR = 0.85 (95% CI: 0.63, 1.13), SMD = 0.00 (95%

CI: -0.13, 0.13), SMD = -0.01 (95% CI: -0.13, 0.12), SMD = -0.04 (95% CI: -0.20, 0.11),

SMD = 0.14 (95% CI: -0.01, 0.28)

SE: supported employment, IPS: Individual Placement and Support, QOLI: Quality of Life Interview, MANSA: Manchester Short Assessment of Quality of Life, SMD: standardized mean difference, OR: odds ratio