The Potential of Supervision in Restoring Work Capacity in Individuals with Chronic Back Pain Conditions

Līga Barone
RISEBA
Riga, Latvia
barone.liga@gmail.com

Ilze Žilde
RISEBA
Riga, Latvia
ilze.zilde@gmail.com

Dzintra Atstāja
RSU
Riga, Latvia
dzintra.atstaja@rsu.lv

Abstract-Chronic back pain is a prevalent issue that significantly affects individuals' work capacity, general well-being, and economic productivity. Supervision, defined as a structured consultative support system, has been shown to play a crucial role in improving workforce reintegration by addressing psychosocial factors, motivation, and adaptation to workplace conditions. This study examines the necessity and impact of supervision in the rehabilitation process for individuals with chronic back pain, analysing its effectiveness in reducing psychological barriers, enhancing resilience, and improving work ability. The findings indicate that lower self-assessed health status correlates with increased demand for professional supervision, while satisfaction with rehabilitation services reduces the necessity for such support. The results suggest that supervision should be integrated as an essential component of rehabilitation programs for individuals with chronic conditions. Future research should further explore how supervision can enhance workforce reintegration, particularly by aligning rehabilitation strategies with economic development goals and the adoption of new eco-technologies in the workplace. Investigating the role of sustainable work environments and innovative technological solutions in supporting long-term employability could provide valuable insights for optimizing interdisciplinary rehabilitation approaches.

Keywords- supervision, chronic back pain, rehabilitation, work capacity, employee well-being, workplace adaptation

I. INTRODUCTION

Chronic back pain is among the most prevalent health conditions on a global scale, contributing to significant economic and social burdens. Many affected individuals experience prolonged periods of incapacity from work, reduced productivity, and impaired quality of life [1], [2]. Conventional medical interventions primarily focus on physical symptoms, often neglecting psychological and emotional aspects that are critical for successful rehabilitation [3]. The biopsychosocial model of health posits that chronic pain is influenced not only by biological factors but also by psychological and social determinants [4]. This holistic perspective underscores the necessity of integrating physical, mental, and social support mechanisms in rehabilitation to ensure sustainable recovery [5]. Supervision, as a structured professional support system, plays a crucial role in addressing these multifaceted challenges. It provides guidance, emotional support, and practical strategies that help individuals navigate workplace challenges, regain motivation, and restore functional capacity [6]. Research has demonstrated that supervision can facilitate coping strategies for individuals experiencing pain-related distress, reduce workplace anxiety, and improve self-efficacy in returning to professional duties [7]. Furthermore, evidence suggests that individuals with greater psychosocial support exhibit higher adherence to rehabilitation protocols and report better health outcomes compared to those without such support systems [8].

Latvia, like many other countries, faces increasing challenges in managing chronic musculoskeletal disorders. According to national health statistics, musculoskeletal conditions, including chronic back pain, are among the leading causes of long-term work incapacity [9]. Despite the availability of rehabilitation services, patient satisfaction with these services varies, and many individuals report difficulty reintegrating into the workforce due to unresolved psychological and social concerns [10]. The traditional biomedical approach in Latvian healthcare often prioritizes symptomatic treatment, overlooking the psychological distress and work-related anxieties experienced by patients with chronic pain conditions [11]. This gap in care highlights the need for

more comprehensive rehabilitation strategies that incorporate supervision and psychosocial support.

One of the key barriers to returning to work for individuals with chronic back pain is fear-avoidance behavior, which contributes to prolonged inactivity and exacerbates disability. Studies indicate that individuals with heightened fear of movement or work-related tasks are at greater risk of developing chronic disability and psychological distress [12]. Supervision provides a structured space where individuals can address these fears, receive constructive feedback, and develop strategies to gradually reintegrate into their professional roles. Additionally, workplace-based supervision can foster a supportive organizational culture, reducing stigma around chronic pain conditions and encouraging open communication between employees and employers [13]. A crucial aspect of work reintegration is employer involvement. Research highlights those employees who receive workplace support, including flexible work arrangements, ergonomic adjustments, and regular supervision, report higher job satisfaction and lower rates of absenteeism [14]. In Latvia, employer engagement in rehabilitation remains limited, with many organizations lacking formal return-to-work programs. Encouraging a culture of support and supervision in the workplace could significantly improve long-term rehabilitation outcomes and prevent work disability [15].

The aim of the study is to investigate the need for professional counselling support (supervision) in the rehabilitation process of people with chronic back disorders in order to provide suggestions for activities in the process of recovery.
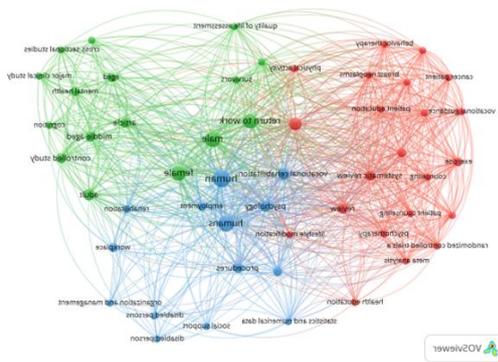
II. MATERIALS AND METHODS

Fig.1 Network visualization of key terms.

Figure 1. Shows the network visualization of key terms related to "rehabilitation," "work capacity," "psychosocial support," "economic development," and "workplace reintegration" in analyzed studies (2015–2025, Europe). The red cluster represents psychological and behavioral aspects, the green cluster focuses on demographic and health-related factors, and the blue cluster highlights statistical, procedural, and organizational elements. The central term "return to work" indicates strong interdisciplinary connections. Developed by the authors using VOSviewer (based on 23 documents). This network

analysis demonstrates a close correlation between the concepts of rehabilitation, recovery and psychosocial support, and a range of medical, behavioural and organisational factors. This emphasises the necessity for a multidisciplinary approach to workforce reintegration and economic development.

The present study employs a cross-sectional quantitative design to investigate the relationship between supervision and work capacity restoration. The survey was distributed electronically from 11 November 2024 to 2 January 2025 via online platforms and anonymity was ensured to reduce the influence of social desirability on the responses. Permission was obtained from the Ethics Committee of the Latvian Association of Physiotherapists before the survey was distributed. The survey was also published on the website of the Latvian Association of Physiotherapists. The research sample comprises individuals aged 18 to 64, categorised as working age, who had previously experienced back pain during the preceding year. Data were collected through standardised health-related quality of life surveys (EQ-5D) [16] and fear-avoidance belief questionnaires (FABQ) [12]. Statistical analyses included Spearman's correlation and regression modelling to identify significant associations between supervision needs and variables such as self-assessed health status, fear of physical activity, fear of workplace reintegration, and satisfaction with rehabilitation services.

Self-assessed health status exhibited a Cronbach's alpha of 0.79, Fear of pain at work - 0,80, Fear of pain during physical activities - 0,85, Satisfaction with rehabilitation services – 0,76, indicating good internal consistency.

III. RESULTS AND DISCUSION

A total of 85 respondents were accepted to participate in the study. The demographic data of the respondents is summarised in Table 1. Furthermore, an examination of the geographical distribution of respondents indicates that the Riga region (43,5%) accounts for the largest proportion of participants, followed by the Vidzeme region (19,2%), which exhibits a notable representation. In contrast, respondents from Kurzeme, Zemgale and Latgale are present, though in smaller numbers. An analysis of the respondents' educational attainment reveals a preponderance of higher education (77%) among the study's participants. The distribution of respondents indicates that the majority of survey participants (80%) have incomes in excess of €1001 per month.

TABLE 1 DESCRIPTIVE STATISTICS ON DEMOGRAPHIC DATA

Indicator	Data
Gender	Male 24,7%
	Female 75,3%
Age	Mean 45,2
	Median 46 SD 9,93
Employment	Employment 62,4%
	Self-employed 21,2%
	Unemployed 1,2%
	Student in employment 9,4%
	Retired and in employment 5,9%

The EQ-5D is a widely used standardized instrument for measuring health-related quality of life, assessing five key dimensions: mobility (MO), self-care (SC), usual activities (UA), pain/discomfort (PD), and anxiety/depression (AD). The Visual Analogue Scale (VAS) enables respondents to rate their overall health from providing a quantitative measure of subjective well-being. It provides both a descriptive health profile and an index value derived from population-based preference weights, enabling comparisons across different health conditions and interventions.

As illustrated in Table 2, the EQ-5D demonstrates that pain and discomfort, as well as anxiety or depression, are the most significant factors in this population. Forty-six per cent of respondents indicated that they experience moderate pain, while 40% of respondents rated their emotional state as average. A further 10% of respondents rated their emotional state as poor, indicating emotional challenges. Finally, 7% of respondents reported very low emotional well-being, indicating a need for more intensive emotional or psychological support.

TABLE 2 EQ-5D DESCRIPTIVE

Descriptive	MO	SC	UA	PD	AD	Index	VAS
Mean	1,67	1,33	1,65	2,47	2,35	0,0119	6,62
Median	1	1	1	2	2	0,0	7
Mode	1	1	1	2	2	0,0	6
SD	0,79	0,68	0,8	0,77	0,84	0,109	1,5
Min	1	1	1	1	1	0	3
Max	4	4	4	5	5	1	10

The findings suggest that the majority of respondents (65%) had previously undergone a rehabilitation programme incorporating physiotherapy. This observation underscores the significance and extensive accessibility of physiotherapy in such treatment and recovery processes.

TABLE 3 RELATIONSHIP BETWEEN PAIN FEAR OF PHYSICAL ACTIVITY AND NEED FOR PROFESSIONAL COUNSELLING SUPPORT

Factor	Seamans's rho	Need for professional counselling support
Self-assessment of health	Correlation Coefficient	-0,3**
	Sig. (2-tailed)	0,005
Pain fear of physical activity	Correlation Coefficient	0,4**
	Sig. (2-tailed)	0,00
Fear of pain at work	Correlation Coefficient	0,3*
	Sig. (2-tailed)	0,015
Absenteeism	Correlation Coefficient	0,44**
	Sig. (2-tailed)	0,00

However, for a smaller group, physiotherapy rehabilitation was not available or utilised, which could be indicative of access constraints or individual decisions not to engage in such programmes. Notably, 57% of respondents expressed that their rehabilitation experience had been beneficial and had contributed to an improvement in their condition.

The results, summarised in Table 3, indicate that there is a statistically significant association between self-rated health and the need for professional counselling support. The negative correlation coefficient indicates that individuals who rate their health more highly are less likely to feel the need for professional counselling support. This correlation, although statistically significant, is relatively weak, indicating that there are other factors that may influence the need for professional support. The results of the study demonstrate a statistically significant and moderately positive association between pain fear of physical activity and the necessity for professional counselling support. This finding suggests that individuals who experience greater fear of physical activity are more likely to seek or recognise the need for professional counselling support. These results indicate a potential necessity to focus on the psychological and emotional aspects of physical activity in order to provide appropriate support. The findings of the study demonstrate a statistically significant, albeit weak, positive correlation between fear of pain in the workplace and the necessity for professional counselling support. This observation suggests that individuals who experience heightened pain fears in the workplace are more likely to require professional counselling support. Furthermore, the results indicate that those who have missed work more frequently due to back problems are also more likely to require professional counselling support.

TABLE 4 RELATIONSHIP BETWEEN SATISFACTION WITH THE REBABILITATION SERVICES AND NEED FOR PROFESSIONAL COUNSELLING SUPPORT

Factor	Seamans's rho	Satisfaction with the rehabilitation service
Need for professional counselling support	Correlation Coefficient	- 0,32**
	Sig. (2-tailed)	0,00

As demonstrated in Table 4, the data indicate a negative weak-to-moderate relationship between satisfaction with rehabilitation services and the need for professional counselling support. The negative correlation suggests that as satisfaction with rehabilitation services increases, the need for professional counselling support decreases. This indicates that satisfaction with rehabilitation services is a significant factor that is inversely related to the need for professional counselling support. Conversely, as satisfaction with rehabilitation services decreases, the need for professional counselling support increases.

As demonstrated in Table 5, the regression analysis reveals a statistically significant relationship between the necessity for professional counselling support and several

independent variables, including pain, fear of work, pain fear of physical activity, satisfaction with rehabilitation services, and self-rated health status.

TABLE 5 PARAMETER ANALYSIS OF THE LINEAR REGRESSION MODEL

	Model parameter values		Standardised model parameters	t	Sig.
	B	Standard error	Beta		
Self-assessment of health	-0,993	0,405	-0,26	-2,45	0,02
Pain fear of physical activity	0,355	0,241	0,2	1,47	0,14
Fear of pain at work	0,064	0,218	0,04	0,29	0,77
Satisfaction with the rehabilitation service	-0,421	0,165	-0,25	-2,55	0,001

The findings indicate that satisfaction with rehabilitation services and self-rated health are statistically significant factors influencing the demand for professional counselling support. The negative Beta coefficient in both cases indicates that lower levels of satisfaction and lower self-rated health are associated with a greater need for support.
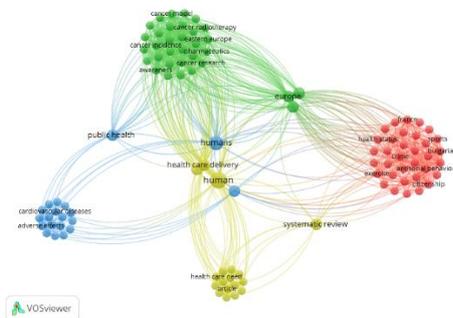

Fig.2. Network visualization of key terms for future research.

As demonstrated in Figure 2, the network visualisation methodically illustrates the pivotal interdisciplinary connections in research related to the acquisition of novel eco technologies, economic development, psychosocial support, rehabilitation, and work capacity within the European context (2015–2025). The grouping of significant terms indicates numerous possibilities for future research, particularly in the development of integrated, evidence-based strategies that enhance rehabilitation and workforce sustainability.

Advancing Public Health and Workplace Well-being: The robust associations evident within the blue cluster, particularly those between cardiovascular diseases, public health, and rehabilitation, underscore the mounting imperative for research endeavours focused on the development of preventative healthcare strategies that

foster long-term employability. Future studies should focus on how early interventions and lifestyle modifications can improve work capacity, especially for individuals with chronic health conditions.

Innovative Approaches to Economic and Environmental Sustainability: The green cluster, which emphasises cancer research, healthcare services and environmental factors, indicates an opportunity to investigate how ecological innovations and healthcare advancements can contribute to economic sustainability. Future research could explore the role of green technologies in workplace reintegration and how eco-friendly work environments might support rehabilitation efforts.

Context-Specific Policy Development: The red cluster, associated with regional and social factors, highlights the need for localized and adaptable rehabilitation policies. Future research should focus on developing country-specific or industry-specific rehabilitation frameworks that align with economic development strategies and labor market demands.

The Enhancing Systematic Healthcare Approaches study is a seminal piece of research which has significantly advanced the field of systematic healthcare approaches. The yellow cluster, with its focus on healthcare delivery and systematic reviews, underscores the importance of evidence-based policymaking. Future studies should explore the long-term impact of psychosocial support programs, evaluating their effectiveness in improving work capacity and quality of life. Additionally, research on integrating digital health solutions and artificial intelligence in rehabilitation services could provide new avenues for personalised treatment approaches.

Addressing these research gaps is therefore imperative for future studies to contribute to more holistic, data-driven approaches to rehabilitation, ensuring that economic growth and workforce reintegration align with evolving healthcare and environmental priorities.

IV. CONCLUSIONS

The study's findings underscore the pivotal function of supervision as a professional consultative support mechanism in the rehabilitation of individuals grappling with chronic back pain. The results of the study suggest a correlation between a diminished self-rated health status and an augmented demand for professional supervision, thereby emphasising the necessity for targeted interventions that address both the physical and psychological dimensions of rehabilitation. Furthermore, individuals who expressed a higher degree of fear regarding physical activity and workplace reintegration demonstrated a greater necessity for professional counselling support, thereby reinforcing the importance of addressing emotional and psychological barriers to recovery.

Additionally, the study identified a negative correlation between satisfaction with rehabilitation

services and the demand for professional supervision, suggesting that well-structured and effective rehabilitation programmes may reduce the necessity for additional counselling support. This emphasises the significance of integrating supervision as a complementary component of rehabilitation, ensuring a holistic approach that enhances work capacity restoration. The results support the development of structured supervision programmes within rehabilitation frameworks, focusing on emotional resilience, workplace reintegration strategies, and psychological support.

To enhance work capacity restoration, rehabilitation programs should:

1. Incorporate supervision as a structured intervention, particularly for individuals with high levels of fear-avoidance behavior.
2. Address psychological barriers by integrating cognitive-behavioral strategies and workplace reintegration programs.
3. Improve rehabilitation service quality, ensuring that individuals receive holistic care that meets both physical and psychological needs.
4. Monitor self-perceived health status to identify individuals at risk of long-term work incapacity, providing early intervention strategies.

These findings provide a strong justification for integrating supervision as a key support mechanism in rehabilitation frameworks, ensuring effective work reintegration and improved well-being for individuals with chronic musculoskeletal conditions.

Future research should explore the long-term impact of supervision on work capacity restoration and patient well-being, as well as the optimisation of interdisciplinary approaches to ensure a comprehensive and sustainable rehabilitation process. This includes investigating how preventive healthcare strategies and psychosocial support interventions influence long-term employability, assessing the role of eco-technologies in workplace adaptation, and developing context-sensitive rehabilitation models tailored to specific industries and regional needs. Additionally, research should evaluate the integration of digital health solutions and AI-driven tools in supervision frameworks to enhance personalised rehabilitation strategies and improve overall patient outcomes.

V. ACKNOWLEDGMENTS

REFERENCES

[1] WHO, Low back pain, 2023. [Online]. Available: https://www.who.int/news-room/fact-sheets/detail/low-back-pain [Accessed Febr 16, 2025].

[2] A.R. Chawdhury, P.L. Graham, D. Shofield, D.S.J. Costa and M. Nicholas. "Productivity outcomes from chronic pain management interventions in the working age population; a systematic review," Pain, 165(6):p 1233-1246, June 2024. [Online]. Available: http://doi.org/10.1097/j.pain.0000000000003149 [Accessed Febr 16, 2025].

[3] H. Kusnanto, D. Agustian and D. Hilmanto. "Biopsychosocial model of illnesses in primary care. A hermeneutic literature review," Journal of Family Medicine and Primary Care 7(3):p 497-500, May–Jun 2018. [Online]. Available: http://doi.org/10.4103/jfmpc.jfmpc_145_17 [Accessed Febr 16, 2025].

[4] K. Mārtinsone and V.Sudraba(eds.), Veselības psiholoģija. Teorijas un prakses starpdisciplinārā perspektīvā. Rīga: Rīgas Stradiņa universitāte, 2019.

[5] R.J. Gatchel, D.D. McGeary, C.A. McGeary and B. Lippe. "Interdisciplinary chronic pain management: past, present, and future", American Psychologist, 69(2), pp. 119–130, 2014. [Online]. Available: https://doi.org/10.1037/a0035514 [Accessed Febr 16, 2025].

[6] K. Mārtinsone and S. Mihailova (eds.), Supervīzija: Teorija. Pētījumi. Prakse. Rīga: Rīgas Stradiņa universitāte, 2017.

[7] O. Hämmig. (2017) "Health and well-being at work: The key role of supervisor support," SSM - Population Health, 3, pp. 393–402. [Online]. Available: https://doi.org/10.1016/j.ssmph.2017.04.002 [Accessed Febr 16, 2025].

[8] D. Węziak-Białowolska, M.T. Lee, R.G. Cowden, P. Białowolski, Y. Chen, Y., T.J. VanderWeele and E. McNeely "Psychological caring climate at work, mental health, well-being, and work-related outcomes: Evidence from a longitudinal study and health insurance data," Sustainability and Health Initiative (SHINE), Harvard T.H. Chan School of Public Health, 2020. [Online]. Available: https://doi.org/10.1016/j.socscimed.2023.115841 [Accessed Febr 16, 2025].

[9] Latvia State Labour Inspectorate, "Gandrīz puse Latvijas iedzīvotāju ikdienā izjūt fiziskas sāpes," May 18, 2021. [Online]. Available: https://stat.gov.lv/lv/statistikas-temas/soc-aizsardziba-veseliba/veselibas-pasvertejums/preses-relizes/7022-iedzivotaju [Accessed Febr 16, 2025].

[10] OECD/European Observatory on Health Systems and Policies, Latvija: Valsts veselības pārskats 2023, OECD Publishing, Paris, 2024. [Online]. Available: https://doi.org/10.1787/20fcda00-lv [Accessed Febr 16, 2025].

[11] Latvijas Universitāte and "Berg Research", Pētījums par pacientu apmierinātību ar veselības aprūpes pakalpojumu kvalitāti, 2023. [Online]. Available: https://www.vm.gov.lv/lv/petijums-par-pacientu-apmierinatibu-ar-veselibas-aprupes-pakalpojumu-kvalitati [Accessed Febr 16, 2025].

[12] D. Węziak-Białowolska, M.T. Lee, R.G. Cowden, P. Białowolski, Y. Chen, Y., T.J. VanderWeele and E. McNeely "Psychological caring climate at work, mental health, well-being, and work-related outcomes: Evidence from a longitudinal study and health insurance data," Sustainability and Health Initiative (SHINE), Harvard T.H. Chan School of Public Health, 2020. [Online]. Available: https://doi.org/10.1016/j.socscimed.2023.115841 [Accessed Febr 16, 2025].

[13] Latvia State Labour Inspectorate, "Gandrīz puse Latvijas iedzīvotāju ikdienā izjūt fiziskas sāpes," May 18, 2021. [Online]. Available: https://stat.gov.lv/lv/statistikas-temas/soc-aizsardziba-veseliba/veselibas-pasvertejums/preses-relizes/7022-iedzivotaju [Accessed Febr 16, 2025].

[14] OECD/European Observatory on Health Systems and Policies, Latvija: Valsts veselības pārskats 2023, OECD Publishing, Paris,

2024. [Online]. Available: https://doi.org/10.1787/20fcda00-lv [Accessed Febr 16, 2025].

[15] Latvijas Universitāte and "Berg Research", Pētījums par pacientu apmierinātību ar veselības aprūpes pakalpojumu kvalitāti, 2023. [Online]. Available: https://www.vm.gov.lv/lv/petijums-par-

pacientu-apmierinatibu-ar-veselibas-aprupes-pakalpojumu-kvalitati [Accessed Febr 16, 2025].