

Impact of psychosocial work environment on work ability in people with low vision

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Abstract

Objective: Low vision substantially affects individuals’ functional capacity and quality of life and may compromise their ability to perform work-related tasks effectively. Beyond the direct consequences of visual impairment, there is a growing need to understand how psychosocial factors within the workplace influence work ability among individuals with low vision. Objective of this study is to evaluate the impact of psychosocial work environment factors on work ability in individuals with low vision.

Material and Methods: A cross-sectional study was conducted involving 600 participants, including 450 individuals with low vision (visual acuity ranging from 0.05 to 0.3 due to conditions such as glaucoma and diabetic retinopathy) and 150 visually healthy controls (visual acuity greater than 0.5). Health-related quality of life was assessed using the EQ-5D and EQ-VAS instruments. Work ability was evaluated using the Work Ability Index (WAI), while psychosocial working conditions were assessed with the Copenhagen Psychosocial Questionnaire (COPSOQ). Data analysis included descriptive statistics and correlation analyses examining associations between psychosocial factors and WAI scores.

Results: Mean WAI scores among individuals with low vision indicated a reduction in work ability compared with visually healthy controls. Adverse psychosocial factors—including high quantitative demands, cognitive demands, emotional demands, exhaustion, and work-related stress—demonstrated significant inverse correlations with WAI scores. In contrast, positive psychosocial factors such as influence at work, opportunities for development, meaningfulness of work, quality of leadership, social support, and job satisfaction were significantly and positively associated with work ability. These associations were more pronounced within the low-vision group.

Conclusion: Work ability among individuals with low vision is significantly influenced by psychosocial characteristics of the work environment. Targeted improvements in workplace psychosocial conditions may enhance occupational participation and overall work ability in this population.

Keywords: Low vision; Work ability; Psychosocial work environment; Occupational health; Quality of life

INTRODUCTION

Low vision represents a major global public health concern with substantial medical, social, and occupational consequences (1,2). It is associated with limitations in visual functioning that may affect daily activities, social participation, and employment outcomes. As populations age and the prevalence of chronic ophthalmological conditions such as glaucoma and diabetic retinopathy continues to increase, the number of individuals living and working with low vision is expected to rise further (3). Beyond visual impairment itself, the broader social and occupational context in which individuals live and work plays a critical role in shaping functional capacity and overall well-being (4).

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Work ability is a multidimensional construct reflecting the balance between an individual's physical, mental, and sensory resources and the demands of work (5). Reduced work ability has been linked to decreased productivity, increased sickness absence, premature exit from the labor market, and social exclusion (6). For individuals with low vision, maintaining adequate work ability may be particularly challenging due to the interaction between sensory limitations and workplace demands (7).

Psychosocial characteristics of the work environment—including job demands, work organization, leadership quality, social support, autonomy, and work-related stress—are well-established determinants of work ability in the general working population (8,9). Adverse psychosocial conditions may act as chronic stressors, contributing to exhaustion, reduced motivation, and impaired work performance (10). Conversely, supportive work environments can mitigate the negative effects of chronic health conditions and promote sustained occupational participation (11).

In individuals with visual impairment, psychosocial working conditions may exert an amplified influence on work ability. High cognitive and emotional job demands, limited job control, insufficient managerial support, and restricted opportunities for professional development may exacerbate the functional consequences of low vision (12). Conversely, meaningful work, adequate social support, and positive leadership have been shown to strengthen coping strategies and perceived work capacity among individuals with disabilities (13).

Despite increasing interest in occupational inclusion of people with disabilities, empirical evidence specifically examining the relationship between psychosocial work environment factors and work ability among individuals with low vision remains limited (7,14). Many existing studies focus primarily on clinical outcomes or general quality of life, while fewer investigations incorporate standardized assessments of both psychosocial working conditions and work ability (15). Addressing this gap is essential for informing occupational health interventions and workplace policies aimed at improving employment sustainability for individuals with low vision.

Accordingly, the present study aims to evaluate the impact of psychosocial working conditions on work ability among individuals with low vision using validated instruments assessing health-related quality of life, psychosocial work environment characteristics, and work ability.

MATERIAL AND METHODS

Study design and participants

A cross-sectional study was conducted to examine the association between psychosocial working conditions and work ability among individuals with low vision. A total of 600 participants were included and divided into an examined group and a control group.

The examined group comprised 450 individuals with low vision resulting from glaucoma, diabetic retinopathy, or refractive anomalies. Visual acuity in this group ranged from 0.05 to 0.3 in the better eye with best correction.

The control group consisted of 150 visually healthy individuals with visual acuity greater than 0.5.

All participants were of working age and actively employed at the time of data collection. Individuals with severe cognitive impairment, acute psychiatric disorders, or other medical conditions that could independently and substantially affect work ability were excluded.

Data collection and instruments

Health-related quality of life

Health-related quality of life was assessed using the standardized EQ-5D questionnaire, which evaluates five dimensions: mobility, self-care, usual activities, pain or discomfort, and anxiety or depression. Overall perceived health status was assessed using the EQ-VAS, a visual analogue scale ranging from 0 (worst imaginable health) to 100 (best imaginable health).

Work ability

Work ability was assessed using the Work Ability Index (WAI). The WAI evaluates current work ability relative to lifetime best, work ability in relation to job demands, number of diagnosed diseases, estimated work impairment due to disease, sickness absence, personal prognosis of work ability, and mental resources. Total scores were categorized as poor, moderate, good, or excellent according to established criteria.

Psychosocial working conditions

Psychosocial aspects of the work environment were assessed using the Copenhagen Psychosocial Questionnaire (COPSOQ). The instrument covers multiple domains, including quantitative demands, cognitive and emotional demands, work organization and job content, interpersonal relations and leadership, social support, job satisfaction, and work-related stress. Higher scores indicate greater exposure to the respective psychosocial factors.

Ethical considerations

The study was conducted in accordance with the principles of the Declaration of Helsinki. All participants received detailed information regarding the study objectives and procedures and provided written informed consent prior to participation. Data confidentiality and participant anonymity were strictly maintained throughout the study.

Statistical analysis

Data were analyzed using standard statistical software. Descriptive statistics were used to summarize demographic characteristics and questionnaire scores. Continuous variables were expressed as means and standard deviations, while categorical variables were presented as frequencies and percentages.

Correlation analyses were performed to examine associations between psychosocial working conditions (COPSOQ domains) and work ability (WAI scores). Statistical significance was defined as $p < 0.05$. Analyses were limited to bivariate correlations; multivariable regression analyses were not performed, and therefore assessment of multicollinearity was not applicable.

RESULTS

Participant characteristics

The study included 600 participants, comprising 450 individuals with low vision and 150 visually healthy controls. Participants in the low-vision group were diagnosed with glaucoma, diabetic retinopathy, or refractive anomalies, with best-corrected visual acuity ranging from 0.05 to 0.3. Control participants had visual acuity greater than 0.5. All participants were of working age and actively employed at the time of assessment.

Work Ability Index (WAI)

The mean Work Ability Index score among individuals with low vision was 30.1 ± 4.1 , corresponding to the lower threshold of good work ability. According to standard WAI categorization, 35.8% of participants with low vision were classified as having poor work ability, 58.7% as having good work ability, and 5.5% as having very good work ability. Participants in the control group demonstrated higher mean WAI scores, indicating superior overall work ability.

Health-related quality of life

Assessment using the EQ-5D revealed limitations across several dimensions among individuals with low vision. Differences were observed between diagnostic subgroups, with participants with glaucoma reporting the highest health-related quality of life scores and those with diabetic retinopathy reporting the lowest. However, these differences did not reach statistical significance.

EQ-VAS self-assessment indicated a mean perceived health status of approximately 60% among participants with low vision. Individuals with refractive anomalies reported the highest self-rated health, while those with diabetic retinopathy reported the lowest values.

Psychosocial working conditions and work ability

Table 1. Correlations between psychosocial work environment factors (COPSOQ) and Work Ability Index (WAI)

COPSOQ domain	Spearman r	p-value
Quantitative demands	−0.843	<0.001
Cognitive demands	−0.846	<0.001
Emotional demands	−0.817	<0.001
Quality of leadership	0.814	<0.001
Social support	0.826	<0.001
Predictability	0.751	<0.001
Feedback at work	0.743	<0.001

Abbreviations: COPSOQ – Copenhagen Psychosocial Questionnaire; WAI – Work Ability Index. Correlation analysis performed using Spearman's rank correlation.

Correlation analyses demonstrated significant associations between psychosocial working conditions and work ability among participants with low vision.

Negative correlations were observed between WAI scores and quantitative job demands, cognitive demands, emotional demands, exhaustion, and work-related stress, indicating that higher job demands and stress levels were associated with reduced work ability.

Positive correlations were identified between WAI scores and psychosocial factors including influence at work, opportunities for development, meaningfulness of work, quality of leadership, social support, employee–supervisor relationships, role clarity, job satisfaction, and perceived health status.

These associations were more pronounced in the low-vision group than in the control group, suggesting a greater dependence of work ability on psychosocial working conditions among individuals with visual impairment.

Internal consistency of measurement instruments

The COPSOQ domains demonstrated satisfactory internal consistency. Cronbach's alpha coefficients indicated acceptable to high reliability across psychosocial dimensions, supporting the robustness of the measurement instruments used.

DISCUSSION

The present study demonstrates that work ability among individuals with low vision is strongly associated with psychosocial characteristics of the work environment. These findings underscore that work ability in this population is not determined solely by the severity of visual impairment but is substantially influenced by job demands, work organization, leadership quality, social support, and job satisfaction (1,2).

The mean WAI score in the low-vision group corresponded to the lower threshold of good work ability, with more than one third of participants classified as having poor work ability. This finding is consistent with previous research indicating that individuals with chronic sensory impairments face an increased risk of reduced work ability, sickness absence, and premature labor market exit (3,4). Visual impairment may increase cognitive load and fatigue, particularly in work settings that lack adequate accommodations (5).

A key finding was the strong negative association between work ability and psychosocial stressors, including high quantitative, cognitive, and emotional job demands, exhaustion, and work-related stress. These results align with occupational health literature demonstrating that excessive demands and chronic stress adversely affect work ability in the general workforce (6,7). In individuals with low vision, these effects may be amplified due to the additional effort required to compensate for visual limitations (8).

Conversely, positive psychosocial factors—such as autonomy, opportunities for professional development, meaningful work, high-quality leadership, and social support—were positively associated with work ability. Prior studies have shown that supportive psychosocial environments can buffer the adverse effects of chronic health conditions and disabilities on work participation and employment sustainability (9,10).

Inclusive leadership and strong social support may facilitate task adaptation, enhance self-efficacy, and reduce perceived stress among employees with visual impairment (11).

Notably, associations between psychosocial factors and work ability were more pronounced in the low-vision group than among controls, suggesting heightened sensitivity to workplace conditions. This observation is consistent with studies of work participation in individuals with disabilities, emphasizing the importance of workplace context in sustaining work ability (12,13).

From an occupational health perspective, these findings highlight the need for interventions that extend beyond medical or visual rehabilitation. Strategies addressing psychosocial risk factors—such as workload regulation, leadership development, inclusive workplace policies, and enhanced social support—may substantially improve work ability and occupational inclusion among individuals with low vision (14).

Several limitations should be acknowledged. Data on employment duration were not available and may influence work ability outcomes. The cross-sectional design precludes causal inference, and reliance on self-reported measures introduces the potential for reporting bias. Furthermore, inclusion was limited to actively employed individuals, which may restrict generalizability. Nonetheless, the use of validated instruments and a relatively large sample strengthens the credibility of the findings.

CONCLUSION

This study demonstrates that work ability among individuals with low vision is strongly influenced by psychosocial characteristics of the work environment and cannot be attributed solely to the degree of visual impairment. Adverse psychosocial conditions, including high job demands, exhaustion, and work-related stress, are associated with reduced work ability, whereas supportive factors such as meaningful work, social support, and high-quality leadership are associated with better work ability.

These findings emphasize the importance of addressing psychosocial working conditions within occupational health strategies for individuals with low vision. Interventions targeting work organization, leadership practices, and social support may enhance work ability and promote sustainable employment. An integrated approach combining medical care, workplace adaptation, and psychosocial risk management is likely essential for improving occupational outcomes and social inclusion in this population.

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None.

Informed Consent: Written informed consent was obtained from patient parents who participated in this study.

Conflicts of Interest

None of the authors have any conflict of interest or financial ties to disclose.

Ethical Considerations

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and/or with the Helsinki Declaration of 1964 and later versions.

Authors' Contribution

Conceptualization: MB

Data curation: MB

Formal analysis: MB

Funding Acquisition: –

Investigation: MB

Methodology: MB

Statistics: MB

Project administration: MB

Supervision: MB

Validation: MB

Visualization: MB

Writing – original draft: MB

Writing – review & editing: MB

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