

NorVIS 1st Young Researchers Conference 2022: Abstracts

The first NorVIS Young researchers conference was held at the University of South-Eastern Norway (USN) in Kongsberg on November 16–18, 2022. The aim of the conference is to be an arena for young researchers (in career, not necessarily in age) to share knowledge, get to know each other and stimulate to more research within vision in stroke or other brain injury. The interdisciplinary meeting was organised as a one-day meeting, with presentations including study protocols, master's project, PhD and post doctoral clinical research. The meeting was organised by Torgeir S. Mathisen and Helle K. Falkenberg from USN, who also served in the scientific committee together with António F. Macedo (Linnaeus University) and Mirjam van Tilborg (Hogeschool Utrecht). The abstracts from contributing authors are listed in order of presentation.

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“Look for vision after stroke” — A survey of visual assessment practice in Norwegian stroke units

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Abstract

In Norway 12000 people suffer from stroke each year (Helsedirektoratet, 2017), and more than 60% experience visual impairments (VIs). VIs affect quality of life and daily activities but receive little attention in stroke care (Falkenberg et al., 2020; Rowe, 2017; Smith et al., 2018). To identify VIs, it is necessary to implement structured visual assessment. The national clinical guidelines for treatment and rehabilitation in stroke state that visual function should be assessed after stroke, and people with VIs should be referred to an eye care specialist (Helsedirektoratet, 2017). The aim of this project was to describe current practise of visual assessment in Norwegian stroke units (SUs) and compare practice in SUs with and without access to an eye department.

A digital anonymous survey was developed and sent out to all 50 Norwegian SUs. A total of 36 SUs responded, 18 SUs with an eye department (SU1) and 18 SUs without (SU2). All the responding units were included in the analysis. The survey had 28 questions related to routines, organisation, competence and documentation of visual assessment and follow-up. A 5-point rating was used to scale levels of agreement. Free-text answers were analysed with a simple content analysis.

Only half of the SUs performed a routine vision assessment in all in-patients with stroke. This was performed whether VIs were suspected or not. More than two health care professionals were involved in the vision assessment in twenty of the SUs, and this was more common in SUs with eye departments. A systematic vision assessment tool was used in 17 SUs, and VIs were often detected in connection with other examinations in the SU. 24 of the respondents reported to have no formal vision competence. Respondents from units with an eye department underestimated the incidence of visual assessment after stroke and had significantly poorer knowledge than units without an

eye department ($p = 0.049$). Lack of understandable language and terminology was a barrier for documenting the visual assessment (mean 3.9, SD = 1.1), and free text answers revealed the ophthalmologists' documentation as difficult to understand.

The results showed that routines for visual assessment in Norwegian SUs were unstructured and unclear, and health care personnel lack competence related to VIs and vision assessment. This study supports that there is a need for structured routines and improved competence about vision in stroke, as well as increased knowledge in vision related terminology that can contribute to better documentation and communication. Future research should investigate what effect a structured vision assessment has on the patient's rehabilitation process and quality of life.

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What is important and meaningful in daily life with visual impairments after stroke — using photovoice to hear the stories from stroke survivors

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Abstract

Vision is important in daily activities and for general rehabilitation after stroke. Visual impairments (VIs) are present in 6 of 10 stroke survivors, however, post-stroke vision rehabilitation lacks structure and is fragmented in Norway. VIs affect performance of vision related tasks such as reading and watching TV, interpreting facial expressions and also social participation and mobility. To promote person-centred vision rehabilitation, it is important to gain in-depth insight into how stroke survivors experience living with VIs. Specifically, how VIs affect everyday life and participation in meaningful activities. This study aimed to explore what stroke survivors with VIs experience as meaningful in their daily life.

The study combined qualitative design with focus group interviews and photovoice method. Stroke survivors with VIs were asked to take digital photographs of what they considered “meaningful in daily life” over a period of two weeks and choose five photos to present for common discussion in a focus group interview. The interviews were recorded and transcribed verbatim.

Preliminary data from one of three focus group interviews revealed that the participants emphasised the importance of cor-

rect training to improve own health and participation in social activities. Visual field loss leads to navigation challenges in both traffic and nature. The ability to continue walks in nature were experienced as a successful vision rehabilitation intervention, which they could practice on their own or with their partner. This despite tripping, falling, getting lost in the woods due to lack of observing deviation of paths and also having to asking for help. Asking for help was also a strategy that aided activities such as going to the shop on their own. Learning to acknowledge that some important activities were difficult, but could still be performed in a new way, was important to them and was considered meaningful.

The preliminary results show that photovoice can be a valuable methodology to explore meaningful daily activities in stroke survivors with VIs. Further, they show that participants with VIs can co-create meaningful new perspectives of living with VIs, which can provide insight on how to promote more person-centred post-stroke vision rehabilitation.

Screening for vision problems in neurorehabilitation: development of a Nordic survey

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Abstract

Vision problems occur frequently after acquired brain injury and have been listed among the top ten priorities that need to be addressed in both clinical practice and research (Pollock et al., 2012; Roberts et al., 2016). However, clinical guidelines in neurorehabilitation provide little direction on how to manage visual problems. The aim of this study was to describe the development of a digital survey in two Nordic countries (Norway and Denmark) designed to investigate clinical practice of vision screening in neurorehabilitation.

A digital survey containing 22 items was developed in Norwegian and Danish by the interdisciplinary project group. The items were selected based on review of literature, clinical experience, meetings in the interdisciplinary Nordic Network on Neurorehabilitation (nordisk-netvaerk-neurorehab.com) and consultation with two researchers who completed similar studies in Great Britain. Three general topics are addressed including clinical practice (e.g., routines on ward and outpatient patient screening, cooperation, and procedures), methods used, and barriers for vision screening and rehabilitation.

Pilot data from interdisciplinary health care professionals showed that the digital platform was suitable for collecting this type of data, and that the time spent was reasonable. However, there were some overlapping questions and grammatical phrases that need to be incorporated in the final survey. It also became clear that there were some cultural differences between the two countries.

Preliminary data from the development and piloting of the survey showed that the topics are relevant and of interest to clinical practice. The final survey will be enrolled by the end of 2022 and data collection will continue during the first months

of 2023. It is expected that the survey will provide knowledge on routines and identify what is needed to establish guidelines. Moreover, it will contribute to increase focus and interest in vision rehabilitation and interdisciplinary cooperation to serve as a starting point for more specific and goal-oriented vision rehabilitation in the participating countries

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Testing the diagnosis of visual field loss with a novel VR visual field test after stroke: a study protocol

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Abstract

Many stroke patients suffer visual impairments like blurred vision, double vision, visual field loss, visual neglect and reading difficulties. In stroke units, many patients are bedridden, and fatigue is common. Testing and diagnosing visual function after stroke can be challenging, due to multiple impairments and lack of appropriate tools. Consequently, visual field defects go undetected in a number of patients. Moreover, because patients often are not aware of their visual field loss, there is a risk that rehabilitation is limited or delayed in patients with impairments that have been referred to as “invisible” impairments (Falkenberg et al., 2020; Tharaldsen et al., 2020). Activity avoidance is a common response that has consequences both for quality of life and rehabilitation (Hepworth et al., 2021). Virtual reality (VR) offers flexible visual field testing, and the aim of this project is to assess a novel VR-test for diagnosing visual field defects after stroke.

This pilot study will examine if the VR-test can diagnose visual field defects after stroke, and how it compares to standard visual field confrontation tests and gold standard automated perimetry (SAP). We will recruit 20 adult stroke patients with ($n = 12$) and without ($n = 8$) visual field loss. The primary outcome will be identification of visual field loss compared to the standard visual field protocol and the SAP. The VR-test allows for the patient to sit or lie down comfortably, and test time will be another outcome. Patient and user experience will also be evaluated.

The pilot data will be used to adjust the VR-test as necessary and investigate diagnosis of visual field loss in a clinical stroke unit setting ($n = 100$). Based on the results we will investigate the efficiency and safety of continued use of the VR-test. We hypothesise that the VR-test will improve the diagnosis of visual field defects, contribute to more efficient rehabilitation and better quality of life after stroke.

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StrokeVis: The Oslo study of visual impairment after Stroke

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Abstract

Vision is the most complex sense in humans, with a multifaceted interaction between the eyes and the brain. Studies have shown that up to 60% of patients have some form of new visual impairment after stroke (Rowe et al., 2019). In Norway alone, it is estimated that approximately 30,000 people live with some form of visual impairment following a stroke.

In the annual report of the Norwegian Stroke Register from 2021, only 16% of stroke patients were registered with visual impairment. This figure is significantly lower than expected and indicates a significant under-reporting and/or under-diagnosis.

The Oslo study of visual impairment (StrokeVIS) intends to measure the prevalence of visual impairment after stroke, validate a Norwegian version of the VISA screening tool (Rowe et al., 2020) and compare vision outcomes of acute stroke patients. All acute stroke patients over 18 admitted to the Regional Cerebrovascular Unit at Oslo University hospital with a National Institute of Health Stroke Scale (NIHSS) score < 20 are to be included.

Recruited patients will initially be examined by an orthoptist. This expert examination will function as the prevalence as well as a comparable "Gold-standard". Within 24 hrs the Vision Impairment Screening Assessment (VISA) tool will be administered by a nurse. The nurse will have undergone training in use of the tool but is otherwise untrained in vision diagnostics. All patients will attend a 90-day follow-up with assessments by the orthoptist, including perimetry, and clinical neurological assessments by the neurologist (NIHSS, Montreal Cognitive Assessment (MoCA) and modified Rankin Scale score).

So far, 52 patients have been included. Recruitment is still ongoing at Oslo University Hospital with a completion date of October 2023. Preliminary findings already show feasibility for the use of VISA as a screening tool.

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Implementing competence and routines for structured vision assessment after stroke in municipal health services

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Abstract

Sixty percent of all stroke survivors experience vision problems post stroke. This may lead to reduced quality of life, reduced participation in work and leisure activities and a reduced effect of general stroke rehabilitation. Vision problems after a stroke can be difficult to identify, both for the patient and for healthcare professionals. To identify a visual impairment, the visual function needs to be assessed. The vision assessment tool "Competence on rehabilitation of sight after stroke" (KROSS), previously developed for use in specialist health services, was adapted to a municipal context. The aim of this implementation project was to implement structured vision assessment after stroke using the KROSS tool and improve vision competence within the interdisciplinary stroke team.

The implementation was planned using the "Knowledge to Action" model by Graham et al. (2006) and had a collaborative approach involving partners from the municipal health care services, user organisations and the university's research group. We designed a training programme to improve vision competence among the interdisciplinary stroke team. As part of the project the gap between knowledge and practice, barriers and facilitators to the implementation, and evaluation of the implementation were explored through three qualitative studies (Falkenberg et al., 2020; Mathisen et al., 2021; Mathisen et al., 2022).

Stroke survivors experienced that their vision problems received little attention and follow-up in the health services, in contrast to other consequence of their stroke. Municipal health care personnel described a lack of knowledge about vision and skills in assessment of visual function. Although to some extent they observed the patient's vision while doing other assessments such as physical and cognitive function, they lacked tools and knowledge to interpret the observations. By taking part in the training programme, the participants developed theoretical and practical competence in vision assessment using the KROSS tool. The participants experienced that early vision assessment was important for their work with other rehabilitation interventions, as it made it easier to distinguish between visual, cognitive, or motor problems.

Early assessment of visual function after stroke is useful and possible to perform in interdisciplinary municipal health services using the KROSS tool. Further, participation in the implementation led to increased competence and awareness of the importance of vision for general rehabilitation and everyday life. This supports the theory that assessing vision should be integrated into municipal stroke care and included in educational programs of health care personnel.

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