1. iSpe: Inventory for supported psychological evaluation

2. Background, purpose and aim

The National health- and hospital plan 2020-2023 directs the specialist mental health service to prioritize people with the most extensive needs. Further, it addresses the need to strengthen health literacy and active participation in the services. The National health- and hospital plan and Helse Vest 2035 strategy addresses the need for digital self-reporting solutions to bring the services home to the patient. To meet this requirement, there is a need for digital tools to enhance the examination and treatment of people with a high prevalence of severe and complex mental disorders. This targets groups of people that, regardless of age, have difficulties expressing and advocating their mental health needs, as individuals with communications disorders or cognitive impairment, who comprise at least 20% of the general population. Such functional challenges are found in several diagnosis, including but not limited to learning disabilities, drug use disorders, autism spectrum disorders, dementia and schizophrenia. These groups have prevalence's of mental disorders up to 50%, which is higher than the general population. Furthermore, they have lower capacity to cope with such disorders and have less access to quality mental health services and care at all levels in the patient pathway. The groups are resource demanding for both the specialist and municipality service and care systems. There is an evident inequality in the mental health services for these groups. One reason for this is the lack of tools developed to meet their level of communication.
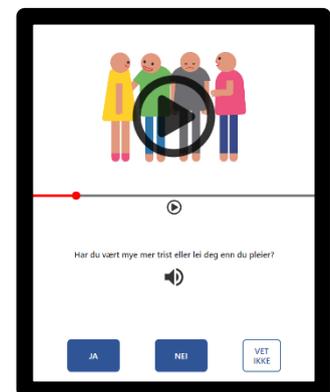
The iSpe project addresses the unmet need and develops a unique user-centered self-reporting solution, based on the needs of people with communication difficulties. In accordance with the national health- and hospital plan, the iSpe platform aims to reduce unnecessary variation in quality and availability of mental health services.

What is the iSpe?

The iSpe project has developed a functional digital prototype for the examination of depression, based on the idea of a communication supported psychological evaluation. The iSpe depression module comprises a web-based application with a simple user interface. It integrates fifteen easily understood animations and innovative response options, for the screening and assessment of symptoms of depression.

Figur 1: iSpe depression app

The pure and simple information in this multimedia examination package, combined with rigorous diagnostic algorithm based on the WHO international classification system for mental disorders 11th revision, makes it easy and possible for the user to comprehend and convey complex emotions and thoughts, without compromising with the diagnostic criteria. The iSpe facilitates use at home, in community settings and in specialist settings. Several configurations can be made to the module including sign language, which makes it possible to individualize the examination for optimal user participation and coping. The project is inspired by the concept of universal design, and aims with the iSpe platform to address the mental health needs in people, regardless of age or ability.

Insight and evaluation

The iSpe project emerge from twenty years of clinical psychological experience that includes the development of psychometric tools and research on mental health in people with learning and intellectual disabilities. Several of its intended users have tested the iSpe depression module as part of the development. Evaluations has shown that the application helps them to understand and convey complex emotional concepts and thoughts, such as depressed mood, self-esteem, worthlessness and guilt, fatigue, and thoughts of death or suicide. Communicating thoughts and feelings through the application makes it easier to talk about, either during the survey or later. The animations have been shown to function as starting conversation about thought, feelings and behaviors with the user, indicating a potential use in psychoeducation programs. Presentations of the project at national conferences, for user groups, mental

health clinicians and researchers at both the primary and secondary level have received good reviews.

Overall goal and current project aims

The overall goal for the iSpe project is to develop a high quality comprehensive solution for the examination and treatment of mental disorders, which in the future also includes the use of health data from smart solutions and artificial intelligence (Figure 2). The project aims at a national implementation of the solution in the specialist health service, and a national and international commercialization outside these services. The project has applied for funding from the Qualification program at the Norwegian research council (NFR), to initiate the commercialization process in collaboration with VIS.
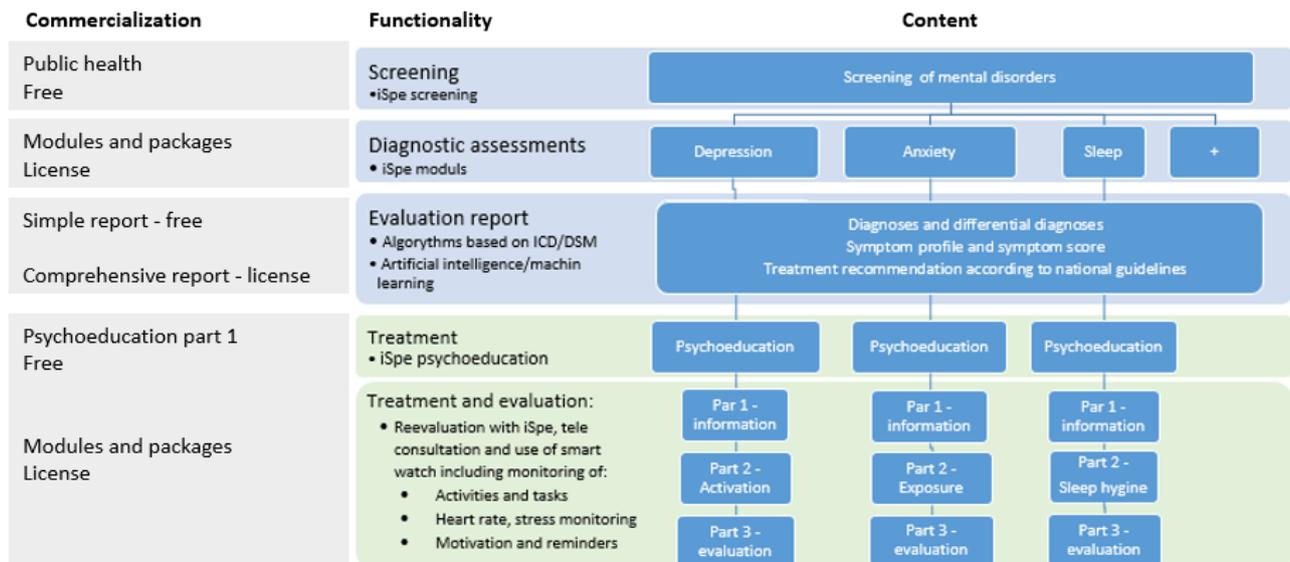

Figure 2: Illustration of the future iSpe tool and its commercial potential.

Project aims in the period is to investigate feasibility, preliminary validity and generality of the prototype:

1. The generalization of the prototype by:
   - Developing modules for anxiety and sleep disorder
   - Developing module for the psychoeducation of depression
2. The feasibility and preliminary validity of:
   - Examination using the depression module in specialist settings
   - Patient self-reporting at home

The diagnostic modules for anxiety and sleep disorders have symptom- and characteristic overlap with depression and are thus likely to fit the existing solution well. These two disorders are also prerequisites for future research on the validity of the tool. Development of a psychoeducation module for depression prove the generalization of the user-interface and animations.

Figur 3: Technological readiness

Feasibility and preliminary validation of the depression module will be investigated in a multi-center study starting in March 2021. To investigate feasibility of patient self-reporting at home, Helse Vest IKT will assist with the development of a short term IT-solution that comprises sufficient data security and functionality for the publication of unstructured data into the patient journal system. They will also assist in ensuring that the solution adapts to the defined architecture for digital self-registration in Helse Vest IKT. With this background, the project aim to push the iSpe from technology readiness level (TRL) 3 to TRL 6 (figure 3).

Area of innovation and target groups

The main focus areas for the project are 1) the use of new digital technology for specialized services outside

of the hospital and 2) to reduces unnecessary variation in quality and availability of mental health services and pathways. The main focus groups for the project are 1) individuals with severe mental health or drug use disorders, 2) Children and youth and 3) The elderly with mild cognitive impairment or dementia.

3.0 Level of innovation

The conceptual aim for iSpe is as a service innovation in the health sector. Similar solutions to iSpe do not already exist in use nationally or internationally. It applies innovative elements, targeting specific needs for people with psychological problems, as making important information clear to the user and giving the users the support and time they need to complete the service. Patients are active participants in the health care they receive. Both patient and relatives are seen and heard in words they understand. The universal design thinking is unique to iSpe, and values the equality of people in the need for mental health assessments and treatment. In the future, iSpe intends to be applicable to all levels of the mental health pathway. This feature will promot continuity in mental health services.

As part of the prototype project, we have prepared the development of the iSpe Playground app. The iSpe Playground is a test-builder that enables the project to build different iSpe modules. The iSpe Playground reduces the time and cost consuming programming of new modules. Furthermore, the project can with ease and cost-effectiveness iterate on module content in a continuous learning-loop.

4.0 Potential for value creation

The iSpe tool can bridge the gap between people who have trouble understanding or communicating mental health need and the people or services surrounding them. At the individual level, the iSpe has particular value for at least 3-500 000 users of mental health services in Norway. This multiplies significantly with an international commercialization. Health service costs associated with mental disorders for the main target groups for the iSpe are considerable. Increase both the diagnostic validity and treatment efficiency for these segments, is highly beneficial from a socio-economic perspective.

Beyond this primary value creation, there are several possible areas of application for the iSpe platform today. Its functionality opens for opportunities beyond the specialist health care industry, as mental health services in municipalities, child protection care services, as well as in kindergartens and schools to detect early signs of mental illness among children. In addition, the tool can be used by the general population to check if they should seek further medical help, for example with the development of an online service for the general public, and simple treatment advice could be given directly to the user through future iSpe treatment modules.

5.0 Implementation of project plan

The developmental process of the anxiety and sleep module builds on the successful development of the depression module. The process comprises of the development of the raw material through multi-disciplinary working groups. Major milestones that need to be achieved are the production of animations and the evaluation of self-reporting at home. The principal developmental stage for the psychoeducation module are literature review, identifying the structure and content, producing raw material for the module and program the web-app. The project will have a functional application in production at all time to enable continues iterations.

Throughout participation in the current research and innovation projects, the collaborating stakeholders in a variety of units throughout the region will ensure in-depth iSpe knowledge and skills. This will facilitate the future implementation of the iSpe to these services, which will follow an agile launch-strategy.

6.0 Organization and cooperation

The project owner is Helse Fonna HF. A steering committee has been established, made up of senior stakeholders, experts and client representatives. Oddbjørn Hove is project manager for the iSpe project.

The project collaborates with Helse Vest Sykehusinnkjøp and Helse Vest IKT. The project has supervision from InnoMed, targeting the seamless use of the application in the mental health pathway.

7.0 User involvement

The primary users in the project are people with communication difficulties, mental health professionals and social workers. Representatives from these levels are involved in the project. The project will iterate on user-related content and functionality with the end-users at every stage of the developmental process to ensure optimal functionality and ease of use.

8.0 Legal rights

Helse Fonna HF has all rights to the innovation. Oddbjørn Hove has intellectual property rights to the concept. iSpe is registered by Patenstyret and protected as a trademark accordingly.