

through which they can finally define themselves – an optical self-prosthesis.

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DOI:10.1002/wps.20683

iSupport: a WHO global online intervention for informal caregivers of people with dementia

In 2015, it was estimated that worldwide 47 million people had dementia, increasing to 75 million in 2030 and 132 million by 2050. Nearly 9.9 million people are expected to develop dementia each year, which translates to one new case every three seconds. While dementia occurs across all levels of socioeconomic status, nearly 60% of people with dementia currently live in low- and middle-income countries (LMICs) and most new cases (71%) are expected to occur in those countries¹. The majority of people with dementia in those countries do not have access to care and support².

To foster a world in which dementia is prevented and people with dementia and their caregivers live well and receive the care and support they need, the World Health Organization (WHO) developed a Global Action Plan on the Public Health Response to Dementia 2017-2025¹. Support for family and other unpaid caregivers is included as one of the seven action areas. Research in countries with different levels of development has shown that being a caregiver can affect physical and mental health, well-being and social relationships¹.

In the Global Plan, the target for 2025 is that 75% of WHO's 194 Member States provide support and training programmes for caregivers of people with dementia tailored to their needs. Research in different resource settings around the world has shown that programmes improving knowledge and caregiving skills, such as coping with behavioural changes, have beneficial impact on caregivers' burden, depression and well-being³.

Although face-to-face training programmes have shown beneficial impact, to implement these in LMICs is challenging, because preconditions for sustainable delivery are lacking. There is limited awareness on dementia and the need for training and support of unpaid caregivers¹. But, even when countries are aware, limitations in long-term care funding and infrastructure, including a shortage of trained professionals, will hamper implementation⁴.

Using the Internet might have advantages to overcome the challenges associated with face-to-face training and support programmes for caregivers of people with dementia in LMICs⁵. It may help to reach more caregivers and increase service cov-

erage, as the number of Internet users and Internet penetration are rapidly increasing worldwide, estimated at over 4.2 billion users and 55% penetration in 2018 by Internet World Stats. As the WHO states, e-health is crucial to achieve universal health coverage.

Although the use of Internet interventions to improve mental health in LMICs is still low, initial studies show its potential to improve caregivers' mental health, coping and self-efficacy, at least in high-income countries⁶. In order to address the urgent needs for carer support worldwide, the WHO has developed iSupport, as a first step to filling this gap. Additionally, a small pilot study was carried out to study its usability and impact in India⁷.

The content of iSupport is based on the ground-breaking Kitwood's model⁸, in which the personhood of someone with dementia is central, and in which care is essentially thought of as interaction, according to each individual's needs, personality and ability. The behaviour of people with dementia is not only a reflection of the functioning of their brain, but also a result of their personality and coping, life history, health status, and social and physical environment. In iSupport, these elements are integrated in the exercises.

The techniques that served as the therapeutic foundation for the development of iSupport are based on programmes that showed some beneficial impact, including elements of cognitive behavioural therapy, such as psychoeducation, relaxation, behavioural activation, cognitive reframing, and some problem-solving elements⁶.

iSupport is meant for caregivers with feelings of stress or burden, or mild to moderate mental health problems, such as symptoms of depression or anxiety. People with severe mental health symptoms are probably better served by a mental health professional. However, when the accessibility of mental health professionals is low, they might still want to participate in iSupport and benefit from it.

The generic version of iSupport is freely accessible at www.isupportfordementia.org. The online programme includes five themes: a) what is dementia (one lesson); b) being a caregiver

(four lessons); c) caring for me (three lessons); d) providing everyday care (five lessons); and e) dealing with changing behaviour (ten lessons). Each lesson presents information about a specific topic and provides engaging, interactive exercises related to this topic. The user is given instant feedback.

Since attrition is common in online programmes, tailoring components and duration of the lessons to the individual is important, the more so because caregivers often experience time constraints due to their caregiving role⁶. iSupport enables caregivers to choose lessons that are appealing and most relevant to them.

iSupport has been developed as an online or web-based self-help programme, but it can also be linked to a caregiver platform (for example a Facebook group), a coach or a face-to-face support group. Contacts with other caregivers or a coach might have added value; however, the human resources that are needed to moderate or guide are not always available, in particular in less developed countries.

When countries want to implement iSupport, translation and adaptation of the programme is needed. We assume that iSupport can be useful in different cultural contexts for different groups of caregivers, if appropriate adaptations to context and culture are made for ecological validity⁹. For example, for caregivers of people with dementia, generational differences within cultures should be examined.

The WHO provides a standardized guide for translation and adaptation (available upon request from whodementia@who.int) to ensure that the local version of iSupport is accurate and in line with the generic version, but at the same time appropriate for the local target group of family caregivers. The guide describes the process to translate and adapt the generic English version and the actual changes that might be (in)appropriate in the programme, such as specific words, names, and links to local Alzheimer's organizations and care and support services.

In several countries, iSupport is currently being adapted and

implemented, for example in India, China, Japan, Portugal, Brazil, Australia and the Netherlands. In a next step, the usability and effectiveness of iSupport will be studied and will guide the further improvement of this global course. Upon request by some countries, a generic hardcopy manual of iSupport for adaptation and implementation to local contexts will become available shortly.

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The development of iSupport was funded by a grant from the Alzheimer Association US, the Ministry of Health, Welfare and Sport in the Netherlands, and Alzheimer Disease International. The authors alone are responsible for the views expressed in this letter and they do not necessarily represent the views, decisions or policies of the institutions with which they are affiliated. The iSupport development team included E. Albanese, N. Batsch, U. Baruah, K. Edwards, K. Egan, D. Gallagher-Thompson, M. Guerra, J. Holroyd-Leduc, T. Kwok, K. Mehta, M. Prins, S. Loganathan, I. Rosier, P. Shivakumar, I. van Asch, M. Varghese, H. Wang, B. Willemse, M. Wortmann and L. Xiao. The WHO Secretariat included A. Brunier, K. Carswell, T. Dua, A.M. Pot, D. Rekke, K. Seeher, M. van Ommeren, S. Saxena and D. Zandi.

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DOI:10.1002/wps.20684

Evocative gene-environment correlation between genetic risk for schizophrenia and bullying victimization

Bullying victimization (BV) is a risk factor for the development of psychotic experiences and psychotic disorders^{1,2}. We used data from TRAILS (TRacking Adolescents' Individual Lives Survey), a longitudinal cohort study of Dutch pre-adolescents³, to study the relationship between polygenic risk score for schizophrenia (SCZ-PRS) and BV, and the possible role of BV in mediating the effect of genetic risk for schizophrenia on the development of psychotic symptoms later in life.

Three assessment waves of TRAILS – T1 (10-12.5 years old), T2 (12.4-14.6 years old) and T3 (14.8-18.3 years old) – were considered. We assessed IQ using the Wechsler Intelligence Scale for Children (WISC), administered at T1; BV through peer nomination scores at T1 and T2; social competence at T1 using the

Revised Class Play (RCP); teacher-reported relational aggression by Likert scales at T2; and lifetime psychotic experiences using the Community Assessment of Psychic Experiences Scale at T3.

We imputed TRAILS genotypic data using Sanger Imputation Service (1000 Genomes Project Phase 3 reference GRCh37/hg19). We excluded siblings and pupils on special education, checked genotype quality, derived genomic components to control for ancestry, and computed individual polygenic risk scores (PRS) for schizophrenia, attention-deficit/hyperactivity disorder, autism, bipolar disorder, major depression, and obsessive-compulsive disorder, using standard procedures⁴. We focused on PRS-6 (including variants with association p-value <0.05), a measure of genetic risk yielding the highest prediction