Development and evaluation of the 'Medical Advice for Sick-reported Students Primary School' (MASS-PS) intervention

Impact paragraph

In this thesis we studied the development, implementation and evaluation of the 'Medical Advice for Sick-reported Students for primary school' (MASS-PS) intervention from a public health perspective. MASS-PS aims to address sickness absence among primary school pupils. It stimulates school professionals, pupils, their parents, child and youth healthcare physicians [CYHP], social workers and remedial educationalists to work together to improve school attendance and, ultimately, child well-being.

Scientific impact

Traditionally, *research into school attendance* has focused on tackling unauthorised absenteeism, often in secondary education. [1,2] More recently, the focus has shifted to improving school attendance, which includes addressing both unauthorised and authorised absenteeism. [3] With our research we have added to the school attendance literature by providing insight into the level of sickness absence in primary education, and into ways to address it. Sickness absence connects the research fields of education, psychology and healthcare as addressing school attendance clearly requires a multidisciplinary approach.

Our research into sickness absence in primary education builds on the research of the original MASS intervention in secondary and vocational education that first established how important it is for *public health* to address school sickness absence. [4–6] We show the importance of addressing sickness absence from primary education as pupils with extensive sickness absence (ESA) are also absent more often due to other types of absenteeism than their peers are, such as truancy, tardiness and absenteeism for doctor's visits. Additionally, ESA can be caused by underlying problems that may also impact educational achievement and health. Vanneste et al. found that underlying problems among secondary school pupils can be classified as a diagnosed disease, undiagnosed physical complaints, psychosocial problems and lifestyle problems. [4] We have further contributed to the knowledge on sickness absence by examining the views of stakeholders in primary education regarding the relationship between sickness absence and underlying problems, showing a wide variety of possible problems, at home, at school or of the child itself, and consequently argue that addressing sickness absence requires multidisciplinary collaboration. Additionally, we have established the norm for when sickness absence in primary school can be considered 'extensive' in primary schools. While the norm requires further evaluation, it offers a foundation for further research.

Looking at the *research methodology*, this thesis shows how the six steps of the intervention mapping approach, designed for creating health-promoting

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interventions, can be used to develop and evaluate an intervention to improve school attendance. [7] Considering that managing sickness absence was such a new topic for primary schools and that the awareness of sickness absence as a problem was low, we considered the IM approach to be more relevant than, for example, the AIM method. IM allows for a thorough design based on literature and experience with the original MASS, and still has substantial stakeholder input. Using this structured method allowed us to systematically develop and evaluate an intervention that was easily adopted and usable and showed promising results. We found it advantageous to not only design the intervention, but also perform the process and effect evaluation, as both provided more insight into the workings of MASS-PS and how to improve it. The structure of IM also makes our research easier to understand and replicate for future researchers wanting to develop a similar intervention in their communities, for example addressing sickness absence in another country. We would recommend ensuring implementation is successful and completed before moving on to an extensive effect evaluation.

Societal impact

The research illustrates that ESA in primary education requires attention through a structured approach. We found that pupils with ESA missed more school days than other pupils, and this illustrates that addressing ESA is crucial, considering that school absenteeism is known to have negative effects on the future educational achievement and health of children.[1,8,9] We have developed, implemented and evaluated MASS-PS, which is, to the best of our knowledge, the first multidisciplinary intervention to address sickness absence among primary school pupils. The MASS-PS intervention provides a structured method to address ESA through collaboration between education, healthcare and social work. This can contribute to solutions for some of the major problems our society currently faces in the areas of public health, mental health, school attendance and education.

Firstly, for public health, the health disparities in society are a major challenge. While efforts to improve public health in the Netherlands have led to longer, healthier lives in general, health inequalities seem to persist and may even be growing. [10] People with a higher educational level generally live longer and in better health. To address this problem, the Netherlands Scientific Council for Government Policy advises focussing on the first 18 years of life and on those with a lower social economic status. The suggested topics to focus on are healthy lifestyle, mental health, smoking and alcohol abuse. While our research does not directly tackle any of these topics, MASS-PS does offer a way to identify children with potential problems through early identification of ESA which may be caused by mental health, social or lifestyle problems. When implemented fully, MASS-PS may reduce absenteeism and,

through the child and youth healthcare physician and social worker, offers access to lifestyle advice, psychological care, social care and health care, which may contribute to reducing health inequalities. Addressing ESA in primary education can lead to opportunities for public health prevention by tackling sickness absence at a young age. In the short term, this can offer prevention opportunities by addressing underlying problems and preventing further absenteeism. In the long term, it may offer selective prevention opportunities by preventing the consequences of absenteeism, such as reduced educational achievement, school drop-out and future health problems.

Secondly, mental health among children and young people is an ever growing concern in the Netherlands. Sickness absence could be caused by mental health problems. Reports show that mental health problems are increasing, more children require intensive psychological care, and they stay in care longer than before. [11] Connected with that are increasingly long waiting lists for care, meaning that more children with a problem have to wait to be treated, which may decrease their mental health further. To address these problems, the government, municipalities and various organisations of professionals have designed a reform agenda for youth care. [12] Youth care is the term used in the Netherlands to describe mental, social and pedagogical care for children and families. Different avenues of change have been proposed in the agenda, including more collaboration between education and youth care and different aspects of the life of a child, such as child and youth healthcare. The agenda advocates for early intervention to ensure problems stay small and treatment can be shorter and less intensive. The research in this thesis and the developed intervention MASS-PS can contribute to this societal issue through early identification of possible problems and collaboration between youth care, education, and child and youth healthcare.

Thirdly, another challenge for society is the increasing number of children missing school, some not going to school at all either with full-time truancy, known in the Netherlands as long-term absentees (Dutch: thuiszitters) or as early school leavers. [13] Sickness absence can be an early warning sign for underlying problems, hampers learning and may eventually lead to long-term absenteeism and early school leaving. In 2022, to tackle school attendance problems, the Minister of Primary and Secondary Education in the Netherlands planned to improve appropriate education for all children, make it mandatory for schools to register all types of absenteeism, including sickness absence, and regulate school attendance protocols in schools, including the use of effective interventions. [14] The Ministry also aims to improve the role for the school attendance officer and child and youth healthcare physician, but does not describe how this could be done. Both already have a statutory duty to aid in addressing school absenteeism. [15,16] This thesis contains the first description of the development and evaluation of an intervention to address sickness absence in the

Dutch primary school setting. MASS-PS can be regarded as a means to help schools and child and youth healthcare organisations to comply with the plans of the Ministry in practice.

Finally, for education in the Netherlands, a major challenges is the decline in school learning outcomes that seems to have increased during the covid-19 pandemic. [17,18] These challenges are distributed unevenly due to teacher shortages and the lack of qualified teachers is a larger problem in less affluent areas and children of lower educated parents show more decline in learning. Absenteeism is also related to reduced learning outcomes, and by reducing sickness absence, MASS-PS may contribute in a small way to preventing lack of educational achievement among children in vulnerable situations. [9] We found that the teacher shortage affected the implementation of the developed intervention, which shows that teacher shortages are not only a challenge for educational achievement, but also influence the implementation of (health) interventions. This seems especially pressing when considering that the government has planned to use school-based interventions to improve health through measures such as 'healthy school' and to improve mental health through the reform agenda for youth care. [12,14]

When looking at the impact of this thesis internationally, the results found may be equally important to the many other countries struggling with similar societal challenges. [3,19–22] The awareness of the level of sickness absence in primary education may increase the sense of urgency for public health and educational professionals and policy makers in other countries to tackle sickness absence in primary education.

Dissemination

To share the knowledge and insights gained through the studies in this thesis, various activities were undertaken. The findings of this thesis are particularly interesting for public health and educational professionals, researchers, and regional and national policy makers. To that extent, multiple ways of disseminating the findings were used. First and foremost, all published articles are open access publications, allowing anyone to freely access the information. The currently unpublished articles are also, or will be, submitted to open access journals.

The findings were presented at international conferences for public health, school health and school attendance, such as the European Public Health Conference in 2018 and 2019, the European Union School and University Health and Medicine Conference in 2017, 2019 and 2022, and the International Network for School Attendance Conference in 2019, 2021 and 2022. [23–26] The findings will also be

shared in a CYH section of the first Dutch school attendance conference in November 2023. Additionally, some of the findings were shared through media, in a newspaper and magazine article. [27,28]

MASS-PS and the findings were shared with the Dutch Knowledge Centre for Youth Health (NCJ) and the national MASS coordinators throughout the research. The NCJ manages the original MASS, ensuring its dissemination in the Netherlands. MASS-PS was also adopted by the NCJ, and the findings of this thesis contributed to the NCJ's new guidebook for MASS in the Netherlands, making the MASS-PS intervention available for all CYH organisations and schools in the Netherlands, alongside MASS for secondary and vocational education. Additionally, MASS-PS has now been incorporated into the national MASS training for child and youth healthcare professionals. MASS-PS was presented to several different CYHC organizations as well as to officials from the Ministries of Health, Welfare and Sport and Education, Culture and Science. A short informational video for MASS-PS was made for easy dissemination to schools, municipalities and other interested parties [figure 1].

More locally, in West-Brabant, MASS-PS was presented to municipalities, primary schools, regional collaborations for primary education, school attendance officers, child and youth healthcare professionals and policy makers on several occasions throughout the research. Finding funding and professionals to implement MASS-PS is now considered one of the priorities in the region, especially for the regional health organisation. MASS-PS is currently being implemented in multiple schools in West-Brabant and several other regions in the Netherlands.

Future

To continue to improve MASS-PS and understand sickness absence among primary school pupils, several public health doctor trainees have started empirical studies, e.g. into the implementation of MASS-PS and into the underlying causes of sickness absence. In the future, further attempts will be made to disseminate the findings and encourage research into MASS-PS.

Figure 1. QR-code link to Dutch introductory video for MASS-PS

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