

Life happens wherever you are!

Use of Avatar AV1 to enhance health-related quality of life, sense of belonging and social inclusion in children and adolescents with chronic illness

T. Pletschko^{1,2}, C. Pelzer^{1,2}, M. Röhsner³, G. Rockenbauer⁴ & A. Turner⁵

¹ Comprehensive Center for Pediatrics, Medical University of Vienna
² Department of Pediatrics and Adolescent Medicine, Medical University of Vienna, Austria
³ die Berater Unternehmensberatungs GmbH
⁴ Vienna Hospital School
⁵ Institut für Unterrichts- und Schulentwicklung, University of Klagenfurt

Background

About 200 children and adolescents are diagnosed with cancer in Austria each year, with tumors of the central nervous system (CNS tumors) accounting for a significant proportion of 20% in children (up to 14 years) and 10% in adolescents (15 years and older) (Hackl & Ihle, 2020). Due to medical check-ups, inpatient treatments or a weakened immune system children with CNS tumors and other chronic illnesses experience frequent and long absences from school and social activities, resulting in reduced health-related quality of life, decreased sense of belonging to school, and a lack of social inclusion (Maes et al., 2017; Hocking, Noll & Kazak, 2020; Pinquart & Teubert, 2012; Pletschko, 2014). Telepresence systems, defined as “the experience of presence in an environment by means of a communication medium” (Steuer, 1992), such as the Avatar AV1 (see figure 1) are described as promising approach for pediatric patients in order to prevent social and emotional problems (Weibel et al., 2020). Although telepresence systems are already in use in some European countries, their effects have not been sufficiently investigated.



Figure 1: Avatar AV1 of the Norwegian company „No Isolation“.

Objectives

The first study in Austria is pursuing both, a quantitative and qualitative approach, by investigating effects of the use of Avatar AV1. The goal of the Avatar AV1 use is to sustainably enhance health-related quality of life, sense of belonging and social inclusion in times of illness-related absence for pediatric patients.

Methods

To examine effects on social inclusion, sense of belonging and health-related quality of life in pediatric patients, semi-structured interviews were conducted with patients, their parents, teachers and classmates within the qualitative approach after six to eight weeks of Avatar AV1 use. Analysis of the semi-structured interviews (n=24) is currently underway.

Within the quantitative approach, questionnaires for patients, their parents and teachers are administered at three survey points (see figure 2). The sample consists of pediatric patients aged 6 to 18 years who previously visited school for a minimum of six months and cannot visit school regularly due to their chronic illness for a minimum of six weeks. Previous school attendance for at least one semester (= approximately six months) is a reasonable prerequisite, since acquaintances or friendships have already been formed here and a certain sense of belonging to the class or school exists.

Patient Facts

Currently, 31 children (age: ø 12.2 years; 61% female and 39% male; 26% CNS-tumor patients), their parents, and teachers have been enrolled in the quantitative assessment and have completed the first survey point. The second survey point has been performed by 10 patients, parents and teachers so far (see figure 3). Children included in the study use the Avatar AV1 for an average of about 7.5 months, with the children continuing to use the avatar.



Figure 4: Personalized Avatars of children included in the study.

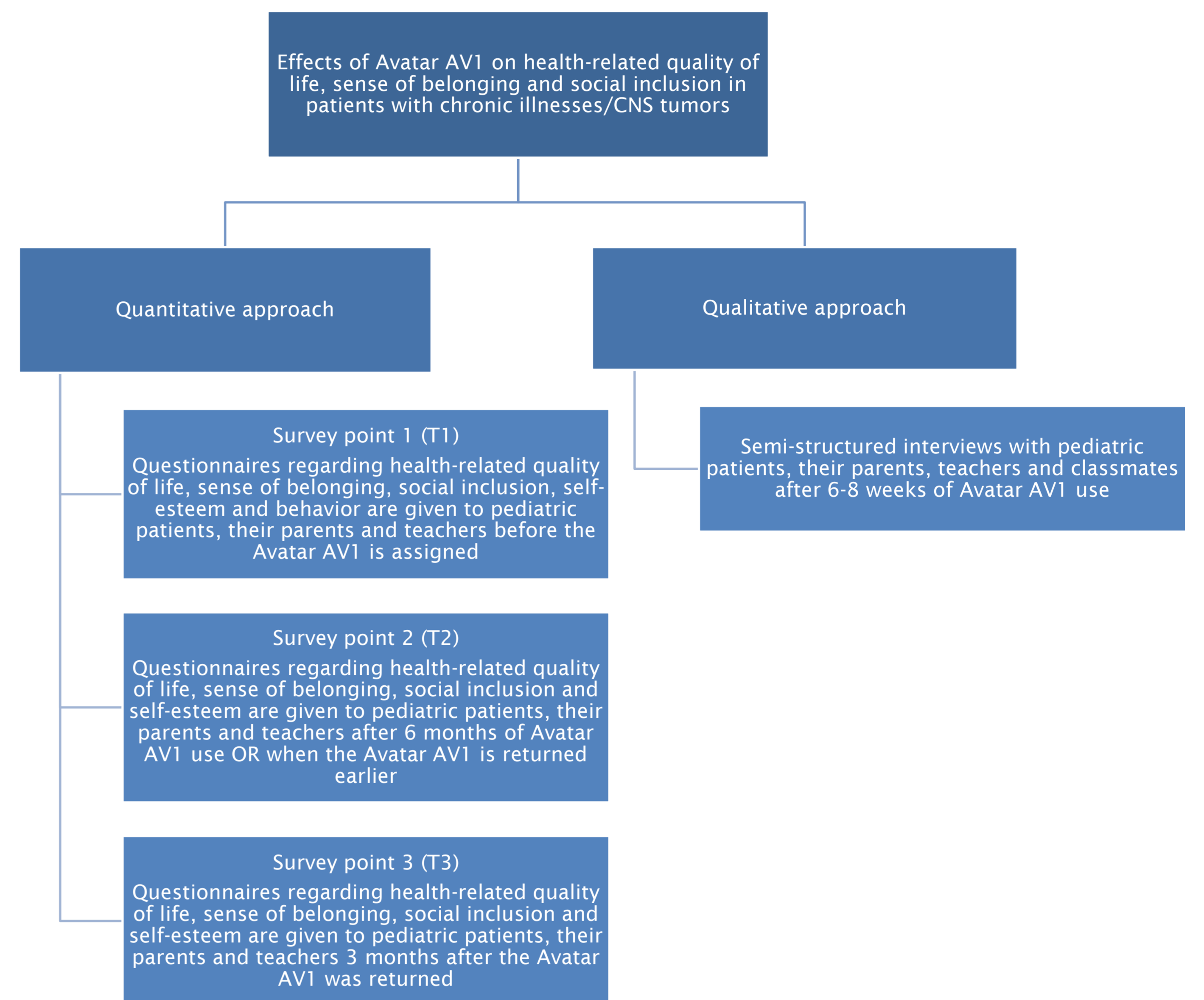


Figure 2: Illustration of the quantitative and qualitative approach.

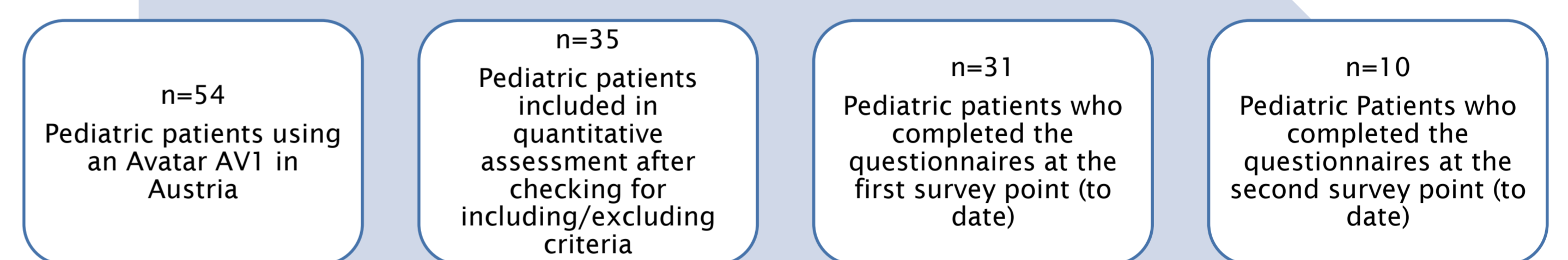


Figure 3: Visualization of the sample across the survey points.

Preliminary Results

This study is first to describe the impact of Avatar AV1 use on health-related quality of life, sense of belonging and social inclusion in children with chronic illnesses and especially CNS tumors.

To strengthen the sense of belonging in these children and improve health-related quality of life, the pedagogical-interactive component needs to be brought in focus. Pediatric patients can highly benefit from the telepresence system Avatar AV1 through pedagogical-didactical adaptations, a routine handling of and a positive attitude of teachers towards it. Personalization of the Avatar AV1 (as seen in figure 4) as well as classmates who are in charge (e.g., for carrying the Avatar AV1 around) are necessary for children to gain positive experiences with the Avatar AV1, as Sarah, a 10-year-old girl with Medulloblastoma, stated: “I felt as if I still belonged to the class.” (Pletschko et al., 2022).

Although the results so far indicate positive experiences with the Avatar AV1, according to our experience, some conditions must be met. Children and adolescents should already know their class and school before using the Avatar AV1 and teachers may need to be willing to invest additional preparation time for the lessons with the Avatar AV1 (Pletschko et al., 2022).

References

Hackl, M., & Ihle, P. (2020). Krebserkrankungen in Österreich 2020. In *Statistik Austria*. [file:///C:/Users/burghofer/Downloads/krebsinzidenz_und_krebsmortalitaet_in_oesterreich_2020.pdf%0Ahttp://www.statistik.at/web_de/services/publikationen/4/index.html?includePage=detailView§ionName=Gesundheit&publid=679](https://www.statistik.at/web_de/services/publikationen/4/index.html?includePage=detailView§ionName=Gesundheit&publid=679)

Hocking, M. C., Noll, R. B., Kazak, A. E., Brodsky, C., Phillips, P., & Barakat, L. P. (2020). Friendships in Pediatric Brain Tumor Survivors and Non-Central Nervous System Tumor Survivors. *Journal of Pediatric Psychology*, 45(2), 194-202. <https://doi.org/10.1093/jpepsy/jsz101>

Maes, M., Van Den Noortgate, W., Fustolo-Gunnink, S. F., Rassart, J., Luyckx, K., & Goossens, L. (2017). Loneliness in Children and Adolescents with Chronic Physical Conditions: A Meta-Analysis. *Journal of Pediatric Psychology*, 42(6), 622-635. <https://doi.org/10.1093/jpepsy/jsx046>

Pinquart, M., & Teubert, D. (2012). Academic, physical, and social functioning of children and adolescents with chronic physical illness: A meta-analysis. *Journal of Pediatric Psychology*, 37(4), 376-389. <https://doi.org/10.1093/jpepsy/jsr106>

Pletschko, T. (2014). *The School Participation Scales 24 / 7. Advantages of an ICF-based neuropsychological assessment strategy to facilitate school participation of pediatric brain tumor patients.* [Doctoral thesis, Medical University of Vienna]. Medical University of Vienna, Austria.

Pletschko, T., Pelzer, C., Röhsner, M., Rockenbauer, G., & Turner, A. (2022, accepted). The Use of the Telepresence System Avatar AV1 as a Therapeutic Tool for Social Inclusion in a 10-year-old Girl Treated for a Brain Tumor. *Digital Psychology*, 3(1), 19-24. <https://doi.org/10.24989/dp.v3i1.2013>

Steuer, J. (1992). Defining Virtual Reality: Dimensions Determining Telepresence. *Journal of Communication*, 42(4), 73-93. <https://doi.org/10.1111/j.1460-2466.1992.tb00812.x>

Weibel, M., Nielsen, M. K. F., Toppeper, M. K., Hammer, N. M., Möller, S. W., Schmiegelow, K., & Bækgaard Larsen, H. (2020). Back to school with telepresence robot technology: A qualitative pilot study about how telepresence robots help school-aged children and adolescents with cancer to remain socially and academically connected with their school classes during treatment. *Nursing Open*, 7(4), 988-997. <https://doi.org/10.1002/nop.2471>