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Suitable and sustainable health game development through Concept Mapping

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Introduction

Over the past years, health games have shown to be an effective method for providing patient-education. At the same time, physical activity as medicine is increasingly popular when stimulating health in patients. Especially for those who are inactive and have a chronic disease, these two methods can even be more effective when combined. This may also be true for children with asthma, for whom physical activity is important to decrease the impact of their asthma. To meet the needs and wishes of these children, their parents, and healthcare providers, this study aims to obtain insight in factors that stimulate physical activity in children with asthma through the concept mapping method. This to ultimately develop a tailored health-game for children with asthma.

Method

Qualitative data were collected during concept mapping sessions with four groups of 8-11-year old children with asthma (n=25; 40% boy, age mean: 9.6y), two groups of parents (n=17; 29% male; age-range 29-57y, mean: 43.3y) and one group of 20 healthcare providers who received three online meetings (15% male; age-range 25-63y, mean:40.8y). During these sessions, participants generated ideas or solutions to the seeding statement ‘What is needed to increase the physical activity level of inactive children with asthma?’ After checking the complete list of ideas per group on clarity, participants clustered (based on similarity) and rated (score from 1 to 5, based on importance) the ideas individually. Using multidimensional scaling and hierarchical cluster-analysis one concept map was generated for each group. For this study we received approval of the medical ethics committee of the AMC; all participants signed informed consent.

Results

Children generated 160 ideas in total and respectively 4, 5, 7 and 10 clusters, parents generated 73 ideas and respectively 5 and 8 clusters, and healthcare providers generated 116 ideas and 13 clusters. The child clusters with the highest importance scores were: positive feelings (mean: 3.9; SD: 1.0), availability of suitable and joyful sports (mean: 3.8; standard deviation [SD]:0.5), and guidance by motivated others (mean: 3.7; SD: 0.6). For parents, the highest-scored clusters were: motivated others (mean: 3.9; SD: 0.3), knowledge

about asthma consequences by the child and others (mean: 3.7; SD: 0.6), and child self-confidence (mean: 3.6; SD: 0.7), Health-care providers reported knowledge about asthma by child and others (mean: 4.2; SD: 0.1), the need for motivated parents (mean: 4.2; SD: 0.8), exercise-stimulating environment (mean: 4.1; SD: 0.1), and appropriate asthma-treatment (mean: 4.1; SD: 0.4) as important physical activity stimulating factors in this population. However, some factors cannot be influenced by one person or a health-game. Since knowledge about asthma, self-confidence and positive feelings can be, the focus is on these clusters in the next level process of the study: the designing phase of the health-game.

Conclusion

Physical activity stimulation in children with asthma can be influenced by different factors in which knowledge, empowerment and joy seem important factors. To increase physical activity in children with asthma the new health-game will include these factors with high importance.