Examining the Efficacy of a Novel Augmented Reality Mobile Delivery Platform for the Enhancement of Asthma Care Education for Children

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Abstract

MySpira is the world first augmented reality (AR) inhaler training app; it enables children to learn asthma keywords, types of inhalers, the preparation of the inhaler and spacer, asthma triggers, and develop skills on how to use an asthma inhaler effectively. All of this is compiled into an enjoyable 20-minute experience, introducing likable characters and tactile interactions, which incentivise the child to progress all the way through the learning experience. This pilot study was initiated to compare the efficacy of the MySpira application to traditional educational material (e.g. leaflets and videos) to improve Asthma compliance, technique and user engagement amongst 96 schoolchildren, aged 6 to 13.

MySpira surpasses the traditional educational materials, specifically in terms of enjoyment rating (P= 0.0064), learning outcomes (P= 0.0012) and the use of different inhalers' techniques (P=0.0116), particularly in the younger group (aged 6-9 years). Therefore, MySpira may enhance the level of available asthma care in an attempt to resolve one of the major problems facing asthma suffers and their carers.

Conclusion

The findings indicate that gamification and augmented reality techniques outperform traditional educational methods such as leaflets or videos specifically in terms of enjoyment, learning outcomes and the use of different inhalers' techniques, particularly in the children aged 6-9 years. However, there is a need to evaluate the efficacy of MySpira in enhancing patient outcomes (Asthma suffers as a consequence of improved engagement and knowledge retention.
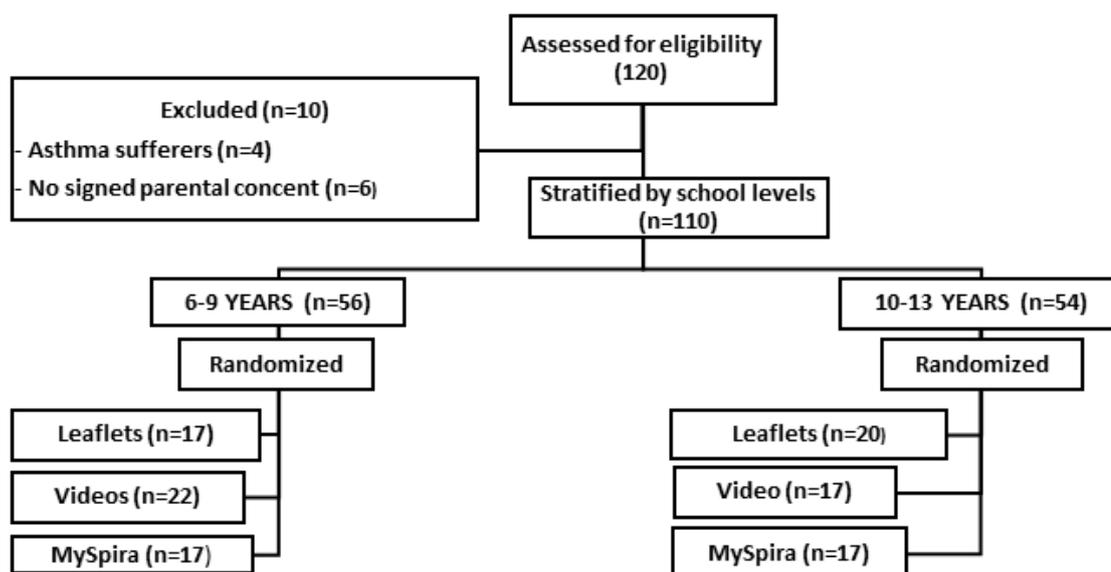

Figure 1. The baseline characteristics of the participants and their stratification across the various educational materials
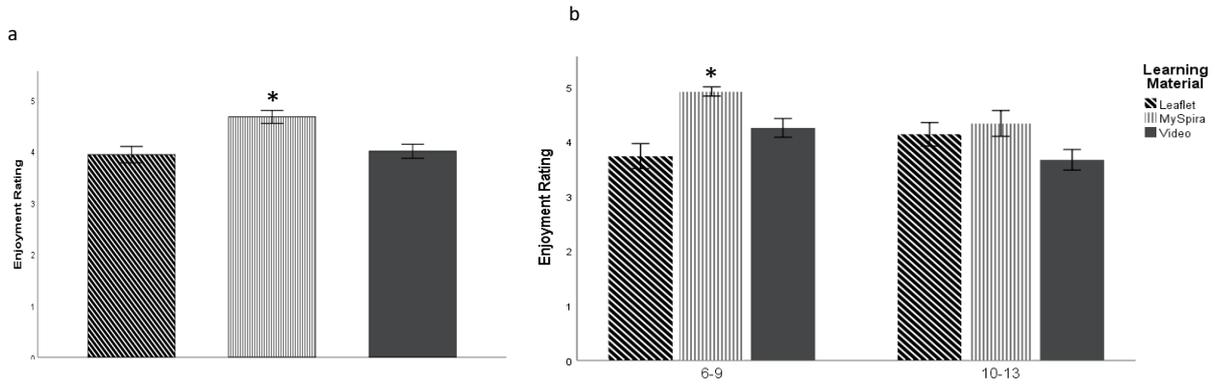
Figure 2. The Enjoyment Rates of the learning materials stratified for (a) all participants (n=110), (b) for age group 6-9 (n=56) and (c) age group 10-13 (n=54). The values represent mean (±SE).