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Exploring the efficacy of an applied diabetes numeracy intervention in a South African type 1 diabetic child population.

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2013-04-02
http://hdl.handle.net/10539/12615

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Abstract

Numeracy skills are vital for a child with diabetes as they need to be able to manage their diabetes effectively, in order to protect one from the complications that come with diabetes. There have been numerous studies that illustrate the poor numeracy skills in children with diabetes. A numeracy intervention specifically related to diabetes was put into place to illustrate whether or not such an intervention is effective in improving a child's diabetic numeracy ability, which will lead to the improvement of diabetes self-management in the future.

A Quantitative quasi-experimental pre-test - post-test non equivalent control group design was conducted to explore the efficacy of an applied numeracy intervention in a South Africa type 1 diabetic child population. The study group comprised of 58 children with type 1 diabetes, each group consisted of 29 participants, and each participant in the experimental group was closely matched according to their level of formal education, grade, age and sex to a research participant in the control group. Both groups were measured before and after the intervention.

The children were between the ages of 8 and 13. All participants were in formal education between Grades 3 and Grade 8. Results revealed that participants in both groups had lower 'functional' grades as compared to their 'actual grade' level which suggests that they performed below their expected grade level. Participants performed better in areas assessing basic mathematical skills than areas which assessed applied diabetes mathematical skills. The intervention was shown to be effective as analyses revealed that there was a highly significant difference ($p<0.001$) between the Pre and Post Test (applied mathematical sections) of the experimental group which took part in the intervention.

This research is only the starting point for the assessment of the effectiveness of a numeracy component in diabetes related education in South Africa, and through this one would hope that more research in South Africa will be done in this area.