

## Abstract

### *Effects of Insulin Delivery Pumps on Diabetic Adherence to Treatment in Children and Adolescents*

**Background:** Diabetes Mellitus (DM) is a chronic disease characterized by the inability of the body to create and release its own insulin to lower blood sugar. Automatic insulin delivery pumps are a substitute for glucose finger sticks and multiple daily injections to treat DM. These pumps measure patients' glucose levels and administer insulin as needed which may lead to better overall treatment adherence for children and adolescents diagnosed with DM.

**Objective:** This systematic review aimed to compare the effectiveness of insulin pumps on increased adherence to treatment in children and adolescents diagnosed with DM.

**Methods:** A systematic literature review was conducted using the online databases PubMed and CINAHL to identify relevant studies. Articles were chosen using distinct inclusion and exclusion criteria. In total, six articles were retrieved and examined using this search strategy.

**Results:** Results from these studies showed an overall higher adherence to treatment in children and adolescents who used insulin pumps compared to those who used multiple daily injections. In addition, patients overall had better control of their diabetes while utilizing an insulin pump. However, one study revealed that adolescents using insulin pumps had a slight decline in treatment adherence due to increased age and newfound independence from parental assistance.

**Conclusion:** Most studies found the use of insulin pumps led to an increased adherence to treatment for children compared to patients who use multiple daily injections and blood glucose strips; however, adolescents who used insulin pumps demonstrated a decline in overall treatment adherence. These results reveal a need for further research on individual factors influencing adherence to treatment for children and adolescents with DM.

*Keywords:* Diabetes Mellitus, children, adolescents, treatment adherence, insulin pumps