Conservative or Surgical Treatment? Developing a Parent-Centered Decision Tool with Conjoint Analysis in Low-Grade Pediatric Spondylolisthesis

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Introduction and Objective

Spondylolisthesis in adolescents, often secondary to spondylolysis, occurs when one vertebra slips forward over another and may result from congenital factors, sports trauma, or degeneration. Slip severity is graded from 1 (0–25%) to 4 (76–100%), with high-grade cases typically requiring surgery. As low-grade slips are usually managed conservatively but may progress, this study focuses on low-grade spondylolisthesis[1]. Conjoint analysis has been extensively utilized to explore patient preferences in medical decision-making across a spectrum of orthopedic pathologies and procedures. However, its application specifically to investigate treatment preferences in low-grade pediatric spondylolisthesis has yet to be explored within scholarly discourse. This study's objective is to quantify parent preferences for surgical versus non-surgical treatment of low-grade pediatric spondylolisthesis by using conjoint analysis to assess the relative importance of key treatment factors influencing shared decision-making.

Results

Based on a review of literature, the likelihood of a child failing conservative treatment for low-grade spondylolisthesis can range between 10 and 16%. The risk of serious surgical complications was estimated to be 5%. From the literature, we created 3 attributes, each with 3 levels of possible clinical outcomes.

Attributes	1	2	3
Likelihood of surgery (3 days in hospital, 1 week out of school)	15%	60%	100%
Risk of treatment failure necessitating later surgery and second recovery period (1 week out of school, 6 months out of sports)	<5%	10%	15%
Risk of serious surgical complication potentially requiring another operation (eg infection, incomplete healing, or pain)	<1%	2.5%	5%

(Rumall, 2018), (Klein, 2009)

Discussion and Limitations

The main purpose of this study is to determine when parents would prefer their child with low-grade spondylolisthesis to undergo surgery. We predict that the risk of requiring surgery after initial treatment course be the most important to parents, as has been documented in other conjoint analyses of orthopedic conditions[2]. Potential limitations to this study include various latencies between onset of symptoms and presentation.

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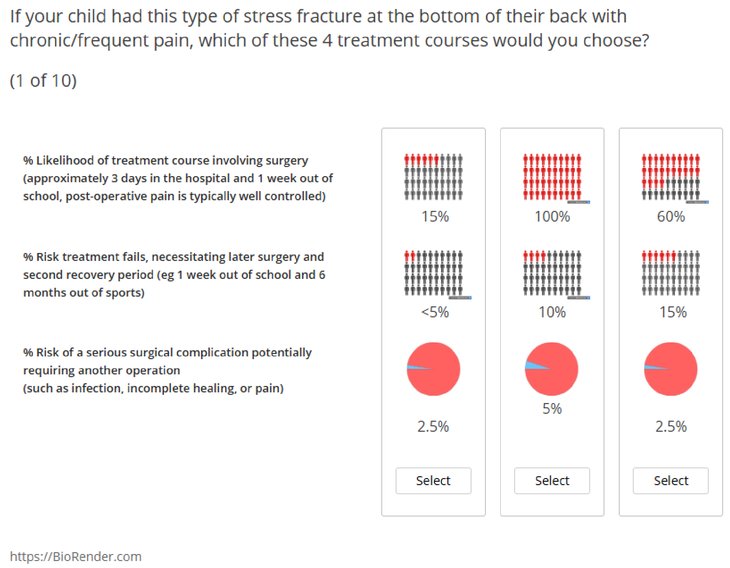
Methods

This study will use an online conjoint analysis survey, distributed via the Prolific platform, to assess U.S. parents' preferences for surgical versus non-surgical treatment of low-grade pediatric spondylolisthesis. Eligible participants will be adults over 18 with at least one child aged 13–17. Surveys, created in Sawtooth software, will present treatment scenarios varying in risk of requiring surgical intervention, treatment failure, and surgical complications. Data will be self-reported, anonymous, and analyzed in Sawtooth to determine the relative importance of each factor. Approximately 200 participants will be recruited through Prolific.



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