

Application of a semi-automated framework to characterize individual experiences with DCCR in Prader-Willi syndrome (PWS) – A Preliminary Analysis



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INTRODUCTION & BACKGROUND

Prader Willi syndrome (PWS) is a rare genetic disorder characterized by hyperphagia, behavioral challenges, cognitive disabilities and body composition abnormalities. Diazoxide choline extended-release tablets (DCCR) are in Phase 3 development for the treatment of PWS and have shown evidence of efficacy in several behavioral, metabolic and body composition parameters. Due to heterogeneity in the population and the impact of environment on behavior, no single tool exists to reliably measure meaningful change in behaviors resulting from pharmacological treatment.

Qualitative semi-structured interviews of caregivers of participants in the DCCR studies were conducted by Casimir LLC, a CRO, to capture individual caregiver-reported behaviors. The interviews used in this framework are a subset of the qualitative interviews performed to date and were performed after the participants had been taking DCCR for at least 13 weeks.

OBJECTIVES

The primary goals of this framework were to (1) establish a set of PWS-DCCR outcome signals from caregiver interviews, and (2) describe a more comprehensive data collection method for caregiver-reported behavioral outcomes. It is hypothesized that each participant experiences a subset of potential PWS behaviors and that behavioral changes with DCCR can be detected within this subset for each individual.

METHODS

Folia Health performed a combination of natural language processing (NLP) and qualitative analysis techniques to process and analyze the transcript data from the caregiver interviews. The results from each analytic method were combined to create an index of domains and of behavioral outcomes, followed by a complete scoring of outcome components to measure patient response to DCCR.

RESULTS

In 48 interviews (48 participants), 39 behavioral outcomes in 7 outcome domains were identified (Table 1). In these interviews, an average of 22±5.9 behaviors were reported (Figure 1); the top 3 reported domains were: Food-seeking Behaviors (100%), Mealtime Behaviors (98%), Daily Life Behaviors (98%). Most participants (83%) reported positive change in ≥1 behavioral outcome on DCCR, while 71% and 48% reported positive changes in ≥25% or ≥50% of behaviors. In 23% of interviews, a negative behavior change was reported and only 6% reported >1 negative change. Positive changes were found in all 7 domains, with changes most commonly reported in the Food-seeking and Daily Life domains. (Figure 2).

Table 1: List of Behaviors Identified in Interviews

Food-seeking behaviors		Mealtime behaviors	Daily life behaviors		School behaviors	Public behaviors	Family dynamics	Somatics
Pre-meal questioning	Food hiding	Appears satiated	Skin picking	Excessive questioning	Academic performance	Amount of planning when leaving the house	Parental peace of mind	Daytime sleepiness
Food-related self-control and searching	Ability to handle change in food schedule	Asking for additional food	Obsessive compulsive behaviors	Other hyperfocusing	Social interaction with peers	Relationship with non-parents		Sleep quality
Food sneaking (stealing)	Hyperfocus on food	Portion monitoring or comparison	Ability to concentrate	Happiness / disposition	Meltdown (school-related)	Food-behavior in public		Willingness to exercise
Meltdown (food-related)	Anxiety (food-related)	Rapid-eater	Bipolar episodes	Willingness to cooperate	Anxiety (school-related)	Food-behavior at restaurants		General fatigue
			Meltdown (schedule-related)	Anxiety (schedule-related)				Meltdown (Fatigue)

CONCLUSIONS

In complex disorders like PWS, it is important for clinical research to capture variation in individual patient experiences, to form a more complete view of therapeutic impact. Using such a framework, it was shown that participants in the DCCR Phase 3 program experienced several positive behavioral outcomes associated with treatment. In future PWS studies, it is desirable to account for individual variation by enabling measurement of different behaviors-of-interest of study participants, with population analysis focused on comparison of change at the domain level.

Figure 1: Reported Behaviors with Positive Change and Overall, by Interview

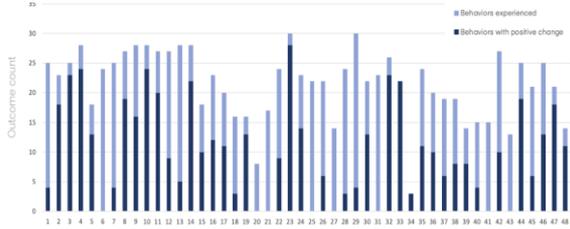
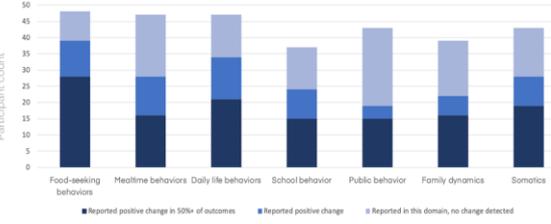


Figure 2: Behavior Changes Reported Across Behavior Domains



This study was sponsored by Soleno Therapeutics.

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