

# Evidence Base: Efficacy, Model and Preliminary Data Analysis of Autism 360™ Framework

Understanding the impact of Family-centred Approach to develop Social, Emotion and Cognitive Skills in Neurodivergent children and adults



## Abstract

---

This report presents a comprehensive analysis of Autism360's Parent Training Telehealth Modality, focusing on the period from 1st January 2022 to 30th September 2023. Utilizing an AI-based assessment tool, Autism360 evaluates autistic children across various developmental domains, aiming to provide tailored objectives and support. Our analysis reveals significant correlations between parent satisfaction, perceived efficacy of the program, and observed progress in children. The findings underscore the vital role of parental perceptions in the effectiveness of telehealth modalities and highlight the impact of program attributes on parent and caregiver experiences. This study contributes to understanding how telehealth interventions can be optimized to support families with neurodivergent children.

## Introduction

---

Autism360 has introduced a sophisticated AI-based assessment tool designed for parents to evaluate their autistic children across various developmental domains. This innovative tool aims to provide tailored objectives and support, aligning with each child's developmental stage. Access to quality therapeutic intervention for families with neurodivergent children may be difficult. Millen (2023) discusses that many cases, parents must seek assistance independently. When developmental delays are recognized, most states provide early intervention, which usually consists of 2 hours a day, 3 days a week. The service ends at 2 years of age, but waitlists for initial evaluations can delay progress. Due to healthcare professionals' lack of knowledge on special needs children, parents may need to independently request speech, occupational, and feeding therapies. Once diagnosed, parents face longer waitlists for access to ABA service providers (Millen 2023). This strategic approach of Autism360 is meticulously designed to bridge a significant gap in the current support system for autistic children and their families. With the increasing demand for specialized autism services, waitlists have become a common and significant hurdle. Families find themselves navigating a prolonged period of uncertainty, during which their children may not receive the timely and targeted interventions they need. This delay can be particularly detrimental, as early and consistent intervention is key to supporting the developmental needs of autistic children. Autism360's initiative aims to address and mitigate these challenges by offering an accessible, AI-based assessment tool. This tool empowers families to take an active role in understanding and supporting their child's development during these waiting periods. By providing an immediate and user-friendly resource, Autism360 seeks to diminish the impact of these delays and financial barriers. The tool's purpose is to enhance accessibility to quality developmental assessments and provide critical, immediate support to those in the greatest need. In doing so, Autism360 aspires to level the playing field, ensuring that all children, regardless of their socio-economic status or place on a waiting list, have access to the tools and support necessary for their growth and development.

## Overview

This tool, grounded in Patrick Griffin’s methodology and influenced by neurodiversity principles, is user-friendly and employs straightforward language for ease of use by non-experts. It assesses play and regulation skills through observing “indicative behaviors,” such as verbal expressions and actions, to understand each child’s unique developmental needs. The development of this tool involved extensive research and indicator analysis, leading to a framework that allows parents to accurately identify their child’s developmental level through specific questions. This method balances quick completion with maintaining assessment validity, ensuring a detailed understanding of the child’s progress.

Complementing the assessment tool is the “Supporting the Development of Foundational Skills from an Autistic Perspective” guide. This resource provides interventionists with insights into including autistic voices and understanding autistic experiences. It covers strategies for emotional regulation, the role of stimming, and nuances in play skills, emphasizing the formulation of SMART goals in a family-centered therapeutic approach.

## Methods

The methodology of this study revolves around the development and application of a tool designed for caregivers, aiming to assess and support children with developmental challenges, particularly those with autism. This tool is notable for its transcultural applicability, ease of use, and the translation of technical language into more accessible terms for caregivers. The overarching approach comprises 90-day cycles with strategies for setting and achieving goals, supplemented by a comprehensive framework for assessing communication and social skills. The tool also integrates mental health support for caregivers and leverages an AI app for efficient assessment and strategy selection.

### Target Audience

The primary users of the tool are caregivers. This group was chosen due to their pivotal role in the daily lives and development of children with developmental challenges. The tool is tailored to their capabilities and needs, emphasizing a balance between assessment accuracy and time efficiency.

### 90 Day-Cycles

Our program utilizes a 90-day-cycle modality, carefully designed to enhance overall intervention success. This approach offers the unique advantage of short durations, enabling families to make significant strides in their short-term goals, fostering motivation and accomplishment. Additionally, it empowers families to make informed decisions about their intervention, promoting autonomy and

collaboration. A key element is the emphasis on selecting impactful goals that benefit the entire family's health and wellbeing. Parents receive education in behavior analytic principles, empowering them to actively participate and sustain positive outcomes. Regular reassessment and adaptation ensure the intervention evolves with changing needs. We maintain a supportive environment with accessible clinician support. This modality extends its focus beyond the child's needs to address overall family wellbeing and promotes gradual independence. Lastly, we encourage reflective practice among parents, fostering continuous learning and improvement.

### Additional Services in the Australian Cohort

The Australian cohort includes multidisciplinary support, on-demand expertise, personalized interventions, wraparound support, empowering families, stimuli and video library, continuous learning, and adaptation, enhancing consistency and continuity of care, reducing stress, and increasing convenience, and building a supportive community.

### Mental Health Support for Caregivers

Prioritizing caregivers' mental health is crucial for the overall success of the program. It addresses reducing caregiver burnout, improving family dynamics, enhancing caregiver-child interaction, modeling healthy coping mechanisms, increasing program efficacy, strengthening resilience, ensuring continuity of care, facilitating informed decision-making, promoting self-care, and creating a supportive community.

### Assessment Tool:

This tool provides a structured approach to assessing communication and social skills in autistic children. The Following is a breakdown of what the assessment tool involves:

1. Development Process
2. Developmental Stages and Levels
3. Six Domains of Communication and Social Capability
4. Assessment Questions

#### Number of Questions Per Domain Test:

Communication: 160

Play:

With Objects:37

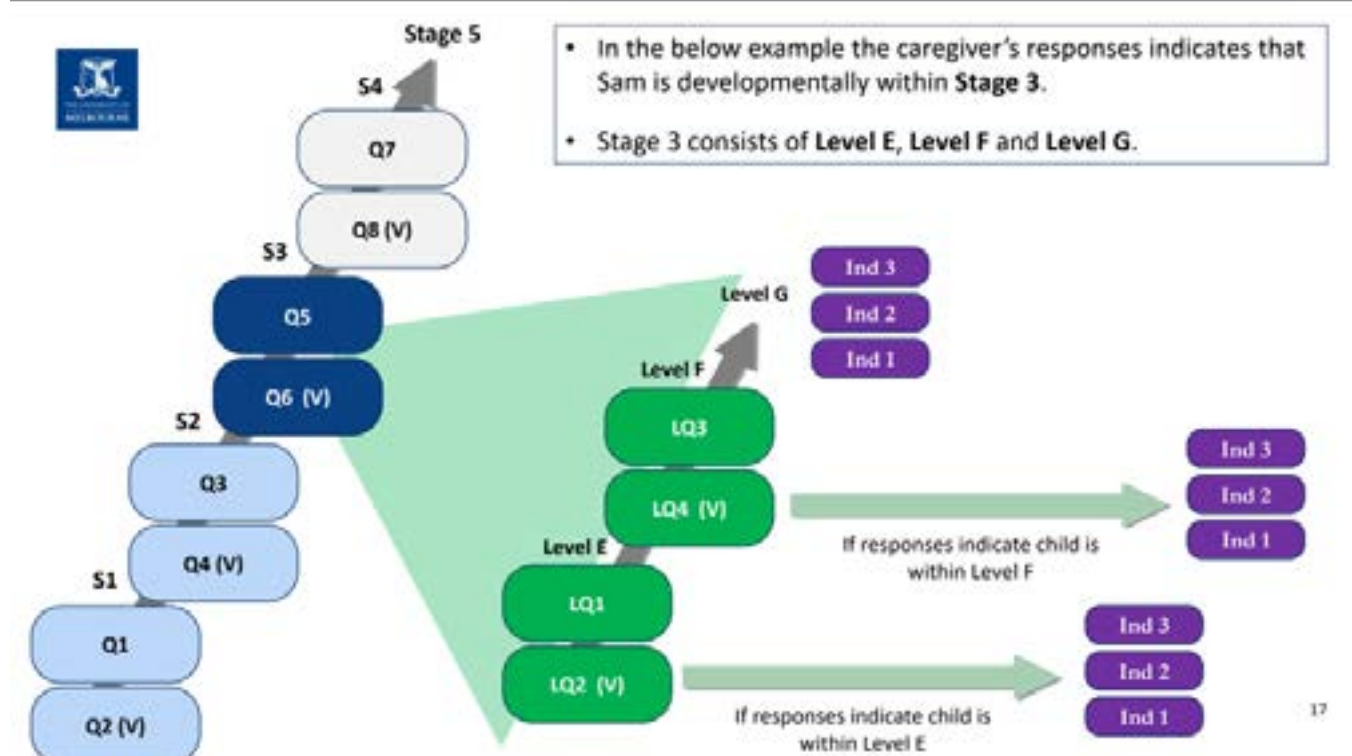
Social Play/ With Others: 38

Social/ Emotional Regulation: 63



## Operational Definitions and Indicative Behaviors

The tool operates utilizing a question branching pathway. The level scoping questions facilitate a more precise evaluation within each stage. The indicator questions consist of binary yes-or-no inquiries aimed at determining a specific level for the client and ultimately identifying potential goals. As depicted in the image below, Stages are denoted by the letter “S”. Two questions per stage are administered – one to distinguish between two potential levels for the client, and the second to confirm the chosen level. Subsequently, the questions progress until an accurate level is determined. Once the level of need is ascertained, the process continues within that level by employing indicator questions. These questions further refine the client’s skill level and address specific areas of need.



## Implications of Parent Observer Bias and Mitigating Bias

Parent assessments can be subject to various biases, including subjectivity, confirmation, recall, social desirability, observer, and lack of comparative perspective. These biases can lead to inaccurate assessments, misguided decision-making, and impact broader research and policy.

To address this issue, weekly clinician meetings and direct observation can mitigate these biases through guidance on operational definitions, objective oversight, consistency in reporting, training and support, real-time feedback, and correction, reducing recall bias, addressing social desirability bias, enhanced understanding of contextual factors, building a comprehensive picture, and monitoring parental learning and adaptation.

## Goal Banks and SMART Goal Guidelines

This phase focuses on developing goal banks and guidelines for writing SMART goals. Key aspects include the purpose of goals, writing SMART goals, using the goal bank, steps for goal translation, evaluating progress and the program, and reviewing goal achievement.

## Strategy Banks

The document outlines the development of strategy banks, which interact with the developmental continuum and goal bank to support communication and social skills. The approach includes developmental continuum, goal bank, and strategy banks interaction, strategy selection and design considerations, stages, and levels within six domains, format of strategy banks, and next steps for the project.

## Integration of AI App with Strategy Banks

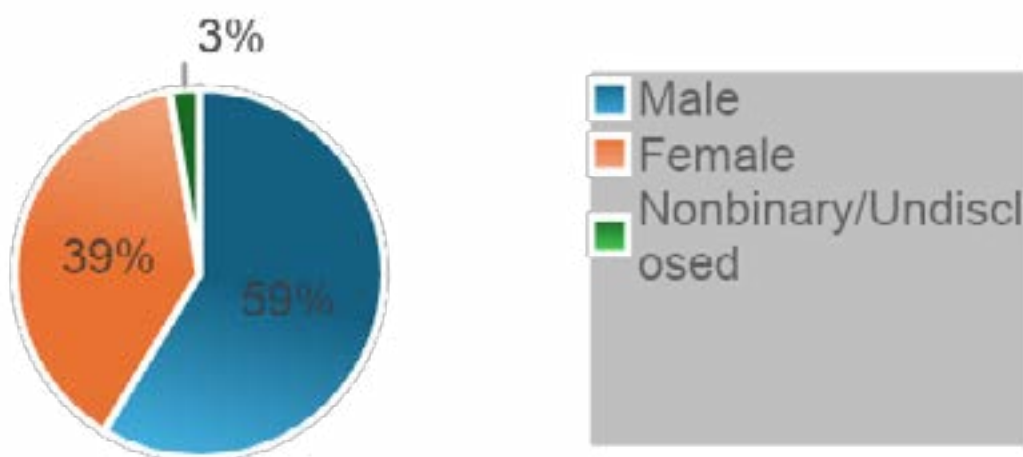
An AI app integrated with strategy banks streamlines the assessment and intervention process. This integration enables rapid initial assessment, parental involvement and empowerment, efficient strategy selection, clinician oversight and customization, a comprehensive and structured approach, accessibility, and practical implementation, being informed by evidence-based practices, adaptability across developmental stages, and futureproofing through next steps.

# Key Findings

## Demographics

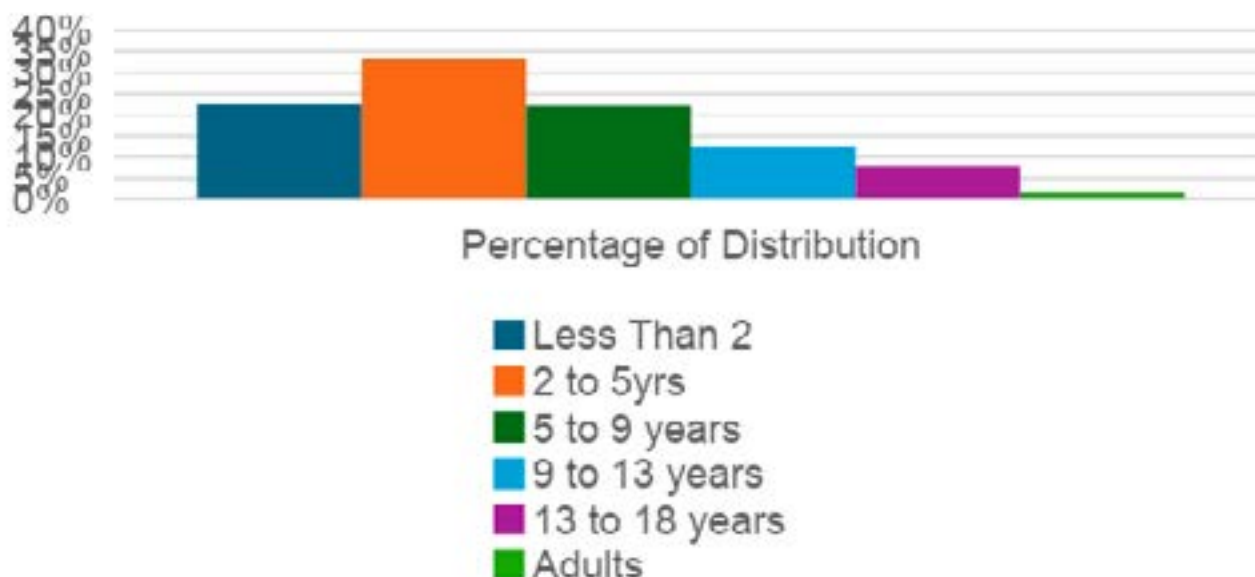
The cohort under study comprises 1,632 participants with a diverse distribution across gender, age, and geography. Gender-wise, the majority are male (59%), followed by female (39%), with nonbinary or undisclosed making up a smaller segment at 3%.

## Gender Distribution



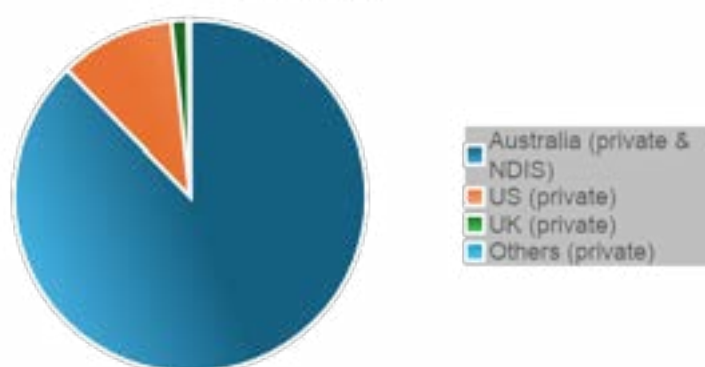
Age distribution indicates a focus on younger age groups: children under 2 years represent 22%, those between 2 to 5 years form the largest group at 33%, and 22% are aged between 5 to 9 years. The 9 to 13 years and 13 to 18 years categories constitute 12% and 8%, respectively, with adults (over 18 years) accounting for only 2%.

## Percentage of Distribution by Age



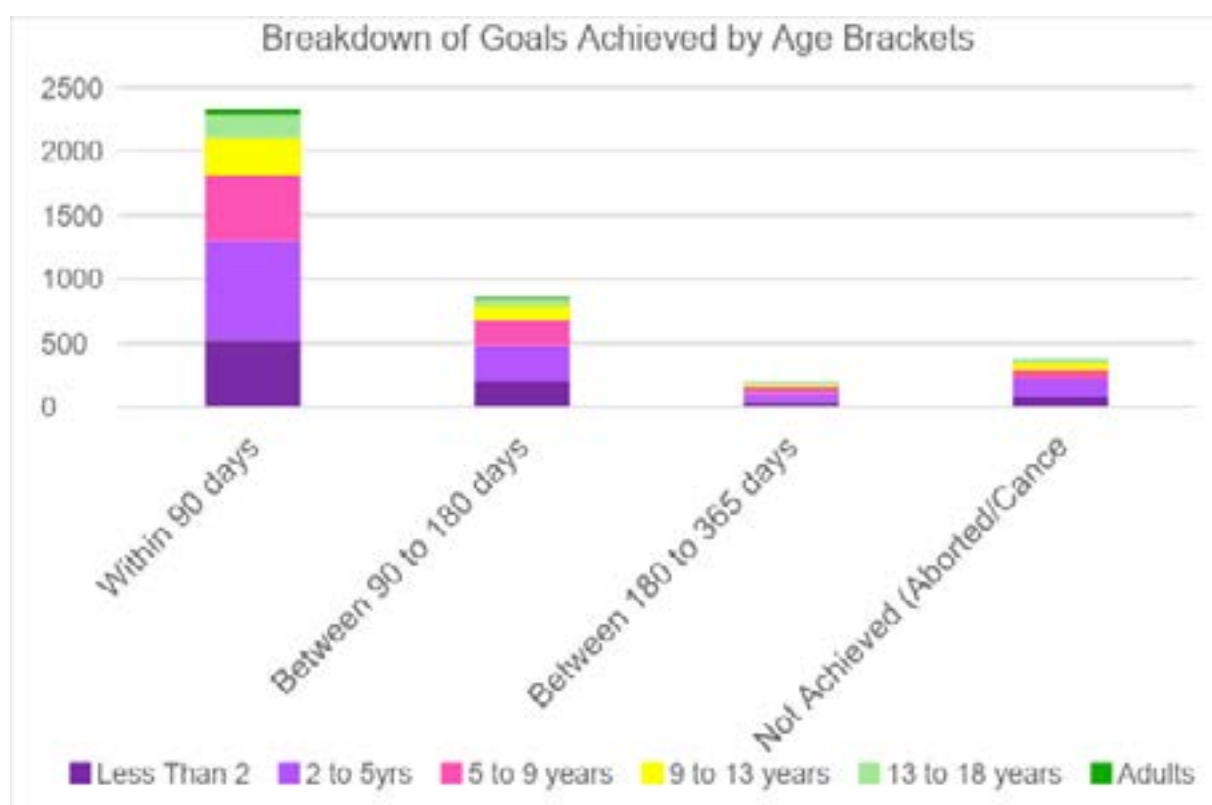
Geographically, the participants are predominantly from Australia, which includes private and NDIS contributors, making up a significant 88% of the cohort. The United States (private) participants represent 11%, while those from the UK (private) account for 1.5%, and a small fraction labeled as 'Others (private)' comprise 0.2%. This demographic snapshot reveals a predominantly Australian, young, and male-skewed population in the study.

## Percentage of Distribution by Country

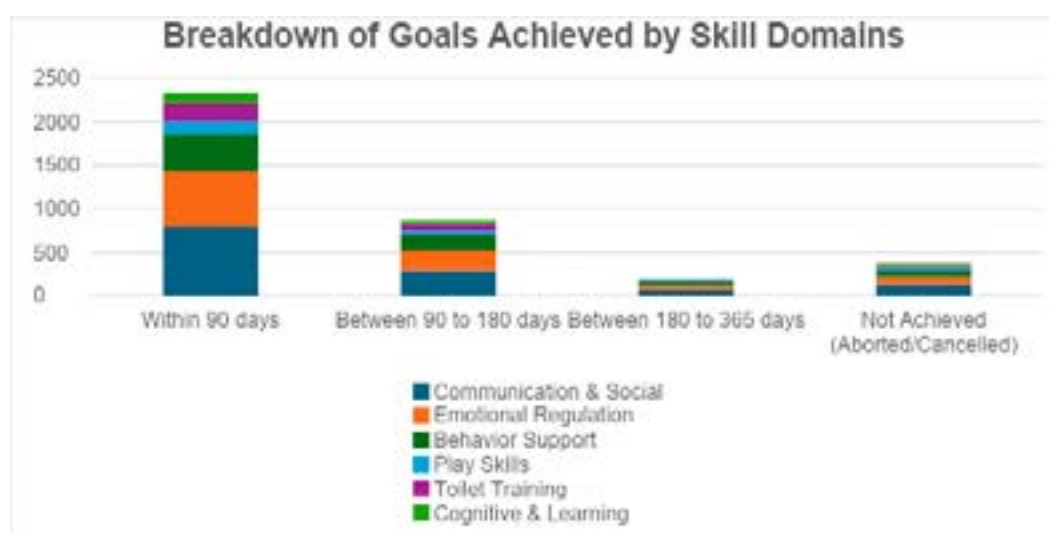


## Overall Cohort Clinical Outcomes

For the age brackets, goals were most frequently achieved within 90 days for all age groups, with the 2 to 5 years bracket showing the highest number of goals achieved (777), followed by those less than 2 years (522). The trend of achieving goals decreases with age, as observed by lower goal completions in the 13 to 18 years and adult brackets. Notably, goals not achieved (either aborted or cancelled) also follow a similar pattern with the highest in the 2 to 5 years group (125) and the least in adults (6).



The goals achieved by skill domains also show a significant number of accomplishments within 90 days, particularly in the areas of Communication & Social (791) and Emotional Regulation (628). Fewer goals were achieved in the longer time frames across all domains. The Cognitive & Learning domain had the lowest figures in goal achievements and not achieved status. Overall, the trend indicates that the majority of the goals are achieved within the first 90 days across various skill domains, with diminishing completions as the time frame extends.



The comprehensive data from both tables indicates that there were 2,327 goals met within the first 90 days, signifying a highly effective start to the program. This is followed by 863 goals achieved between 90 to 180 days and 188 goals between 180 to 365 days, illustrating a gradual decline in the rate of goal achievement over time. A total of 375 goals were not accomplished for various reasons. The trend in this data underscores the propensity for early-stage interventions in this cohort to yield prompt successes. However, as time elapses, there is a tendency for the rate of effectiveness and participation to diminish. This pattern is consistent with the expectations of the program, which is designed to secure early wins and then engage in more complex, skill-intensive work as participants progress, with an understanding that some goals may require extended time frames and intensive support to achieve.

### Proportional Goal Mastery

In the breakdown by domain, the cohort had a total of 3,754 SMART goals planned. The majority were in the domain of Communication & Social (1,276), followed by Emotional Regulation (1,014), and Behavior Support (713). Fewer goals were set for Play Skills (225), Toilet Training (338), and Cognitive & Learning (188).



The dataset highlights a prominent early success within the program’s 90-day cycle, with 2,327 goals, or 61.99%, being met during this initial phase. This represents a strong start, showcasing the effectiveness of the program’s early stages. Following this, a considerable number of goals, 1,051 or 28%, were achieved between the 90-day mark and the end of the year, signaling continued progress. The remaining 376 goals, making up 10.02% of the total, were not reached within the year, including those discontinued by clients, cancelled, or simply unmet. Rather than indicating a negative outcome, this distribution reflects the expected course of the program, which is designed to prioritize rapid goal mastery and anticipates a natural decline as goals become more complex. This decline may also reflect the transition to more intensive, in-home ABA therapy, which tackles deeper skill development. The importance of parental involvement is underscored, as their sustained engagement is crucial to navigating the more demanding latter stages of the program, where the depth of skill-building is intensified.



This data suggests that the cohort has a high rate of early success, particularly in the first 90 days, with a decrease in goal achievement as time progresses. The high initial success rate may reflect the effectiveness of early interventions or the participants’ motivation and resources at the beginning of the program. The observed decline in the rate of goal achievement post this period aligns with the program’s design, where a steep learning curve is anticipated and even desired at the outset. The significant success in the early stages likely mirrors the initial impact of interventions, as well as high levels of motivation and resource allocation. As the program matures, the tapering of completion rates is not necessarily indicative of a dip in program efficacy but rather a transition towards tackling more complex skills that require intensive, in-home ABA practices. This progression towards more challenging goals is an expected and constructive phase of the program, reflecting a deepening of the skill-building process as participants consolidate and build upon their early gains.



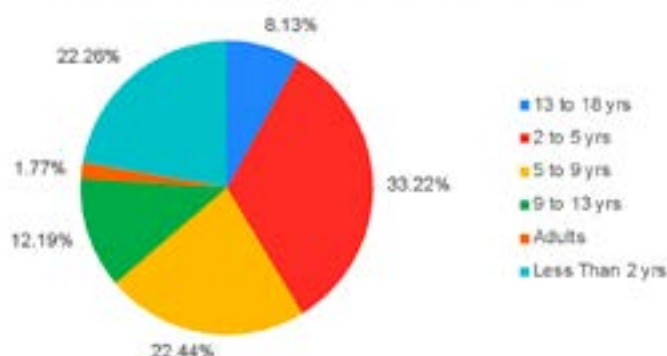
The graph presents a strategic outline of goal completion within the program, highlighting an impressively strong start with more than 2,000 goals being achieved within the initial 90 days, reflecting a success rate near 60%. Such a high rate of early accomplishment is indicative of the program's effective kickoff, spurred by strong participant engagement and the fresh momentum characteristic of the program's onset. As time progresses beyond the 90-day benchmark, a deliberate shift occurs; the count of goals achieved dips to around half of the initial figure, and the success rate falls to near 30%. This stage is part of the program's structured design, signifying a shift towards more complex and advanced goals that require a longer duration to master. The final phase of the graph indicates less than 500 goals achieved past the one-year mark, with success hovering just above 10%. Rather than signaling a problem, this trend aligns with the program's expectations of intensive skill acquisition and consolidation over time. The decrease in numbers represents a natural progression to more nuanced and sophisticated skill sets, necessitating active, in-home ABA interventions. The graph's narrative doesn't just depict a reduction in goal attainment over time but, more importantly, mirrors a calculated approach to skill development, with an anticipated early peak of achievements followed by a focused, deepened learning curve.

# Parent Feedback Survey Outcomes

## Demographics of Age Ranges

The parent survey reflects a diverse range of age groups for the children. Most responses are from parents of children aged “2 to 5 yrs,” representing approximately 33.22% of the respondents. The next significant age group is “5 to 9 yrs,” accounting for 22.44%, closely followed by the “Less Than 2 yrs” age group with 22.26%. The “9 to 13 yrs” age group comprises 12.19% of the responses. Responses from parents of older children (“13 to 18 yrs”) and adults make up a smaller portion of the survey, at 8.13% and 1.77%, respectively.

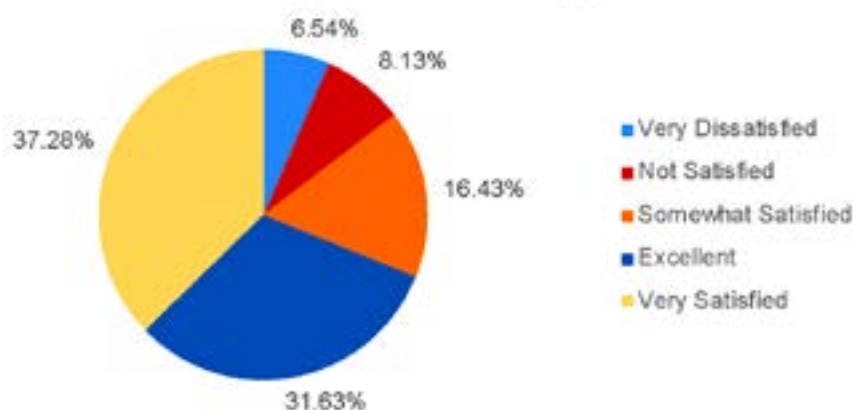
Demographics of Age Ranges



## Review of Parent Survey: Overall Satisfaction with the Program Journey

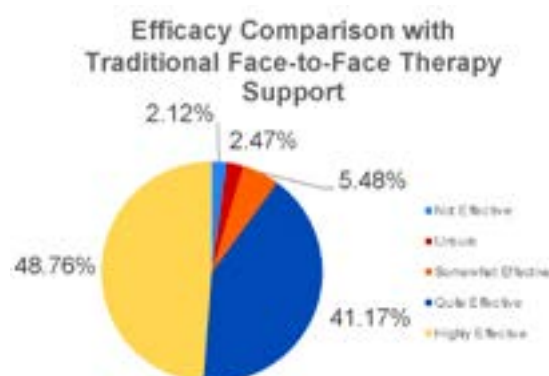
The survey responses show a positive trend in overall satisfaction with the program journey. The highest percentage of parents rated their satisfaction as “Very Satisfied” (37.28%) and “Excellent” (31.63%). This indicates that a significant majority (approximately 69%) of the respondents are highly content with the program. The “Somewhat Satisfied” category is represented by 16.43% of the responses, suggesting a moderate level of satisfaction. Fewer parents expressed lower satisfaction levels, with “Not Satisfied” and “Very Dissatisfied” accounting for 8.13% and 6.54% of responses, respectively. This distribution highlights a generally positive reception of the program among parents, with a majority expressing high levels of satisfaction.

Overall Satisfaction with the Program Journey



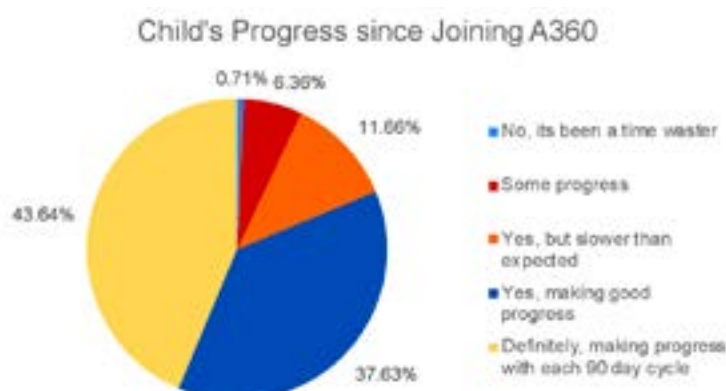
## Review of Parent Survey: Efficacy Comparison with Traditional Face-to-Face Therapy SupportJourney

In the survey, a significant number of parents perceive the program as more effective compared to traditional face-to-face therapy. Notably, 48.76% of the respondents consider the program “Highly Effective,” and 41.17% find it “Quite Effective.” This shows that a vast majority (about 90%) of parents view the program positively in terms of its effectiveness. Only a small fraction of the respondents are less convinced about the program’s efficacy, with 5.48% considering it “Somewhat Effective” and 2.12% finding it “Not Effective.” A negligible 2.47% are “Unsure” about its efficacy compared to traditional methods. These results suggest a strong endorsement of the program’s effectiveness from most participating parents.



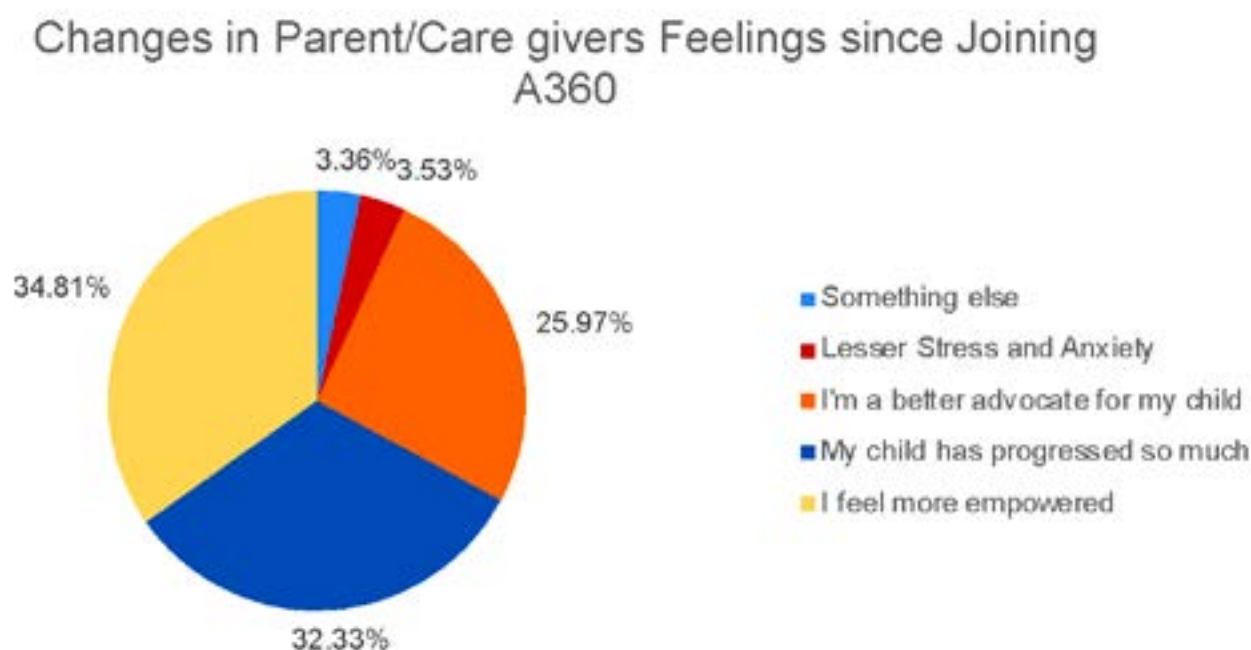
## Review of Parent Survey: Child’s Progress since Joining A360

The survey data indicates a favorable view of the children’s progress since joining the program. A substantial portion of the parents, 43.64%, report that their child is “Definitely, making progress with each 90-day cycle,” highlighting significant advancements. Additionally, 37.63% of the parents acknowledge that their child is “Yes, making good progress,” contributing to over 80% of parents observing positive progress. A smaller group, 11.66%, feel the progress is “Yes, but slower than expected,” indicating some advancements but at a pace below expectations. Only 6.36% report “Some progress,” and a very minimal 0.71% consider the experience as “No, it’s been a time waster.” These findings underscore a high level of satisfaction among parents regarding their child’s developmental progress in the program.



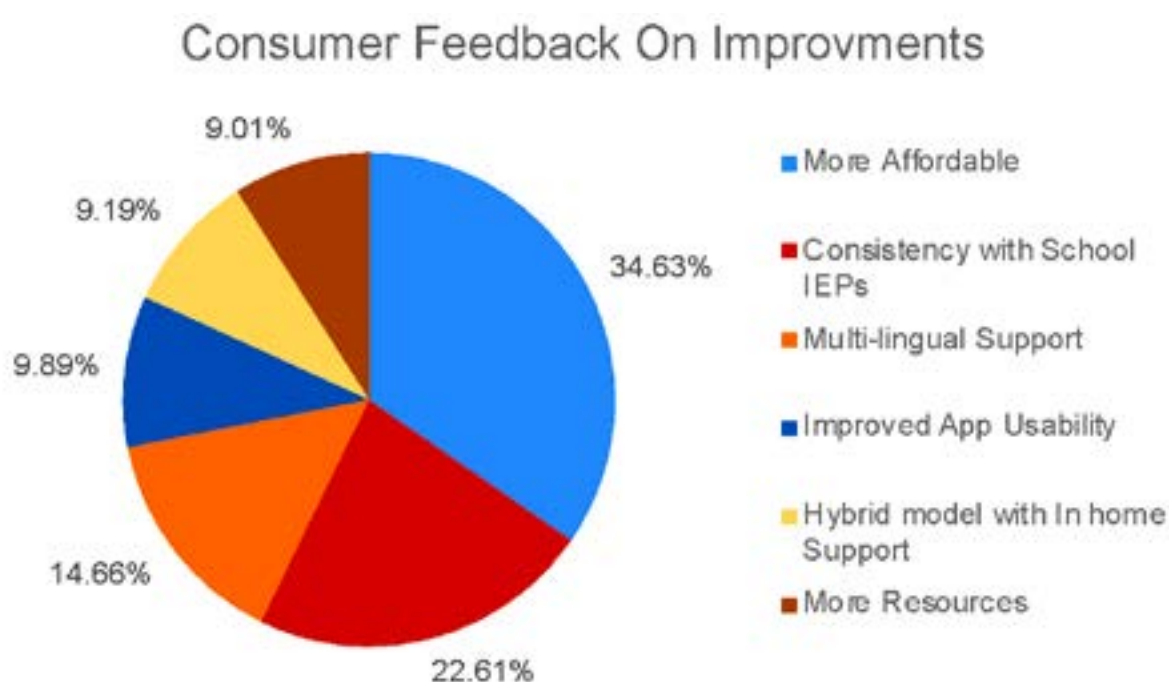
## Review of Parent Survey: Changes in Parent/Care givers Feelings since Joining A360

The survey responses reveal significant positive changes in the feelings of parents and care givers since joining the program. A considerable percentage, 34.81%, feel “I feel more empowered,” and 25.97% believe they have become “a better advocate for my child.” This indicates that over 60% of the respondents experienced a positive shift in their feelings and perceived empowerment. Moreover, 32.33% of parents report that “My child has progressed so much,” reflecting a direct correlation between the child’s progress and the parent’s emotional state. Only a small fraction of respondents’ experience “Lesser Stress and Anxiety” (3.53%) or have “Something else” to say about their feelings (3.36%). These findings highlight the program’s significant impact on improving the confidence and emotional well-being of parents and care givers.



## Review of Parent Survey: Parent Feedback of Requests for Improvement

The pie chart titled “Consumer Feedback On Improvements” reflects the priorities and desired enhancements from the Australian cohort of a program, where traditional insurance systems are not applicable. The most prominent feedback, accounting for 34.63% of responses, indicates a desire for the program to be more affordable, underscoring cost as a significant factor for consumers. Following affordability, 22.61% of the feedback calls for consistency with school Individualized Education Programs (IEPs), suggesting the need for the program to align more closely with educational support structures already in place. The request for multi-lingual support (14.66%) and more resources (9.89%) highlights the diversity of needs within the cohort, emphasizing the importance of accessibility and comprehensive support. Although improvements to the app’s usability have already been addressed, 9.19% of consumers still noted it as an area for further enhancement, while 9.01% suggested a hybrid model with in-home support, reflecting a desire for a more blended approach to therapy. These insights are critical for program development and tailoring services to meet the specific needs of the Australian cohort, especially considering their unique context without the same insurance system support as in other countries.

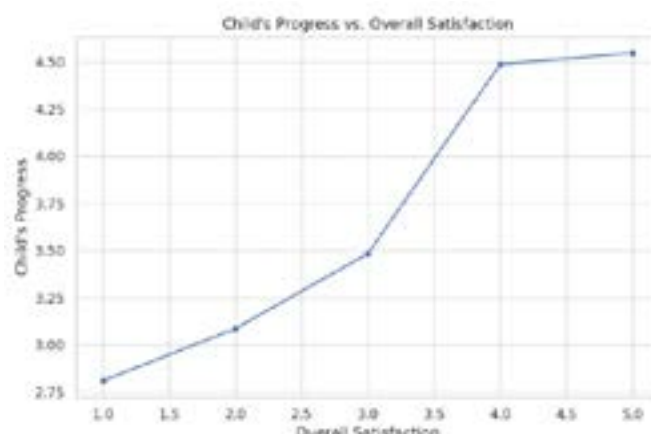


# Cross Sectional Analysis

## Overall Satisfaction vs. Child's Progress:

The moderate positive correlation between overall satisfaction and the perceived progress of the child suggests a significant link between these two factors. This implies that parents who observe more progress in their child's development are likely to report higher satisfaction with the program. The implication for program designers and facilitators is clear: initiatives

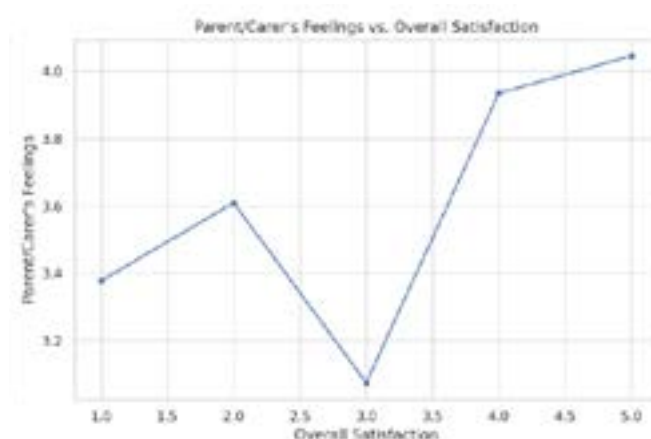
that effectively and visibly enhance a child's development are likely to boost parental satisfaction. This could also lead to increased parental engagement, as satisfied parents are often more involved and supportive of the program's activities. Therefore, focusing on clear, measurable outcomes that parents can observe in their children could be a key strategy in enhancing the program's effectiveness and reputation.



## Overall Satisfaction vs. Efficacy Comparison:

The moderate correlation between overall satisfaction and perceived efficacy compared to traditional therapy suggests that parents who view the program as more effective are generally more satisfied. This finding is crucial for those responsible for marketing and communicating the program's benefits. Highlighting the program's effectiveness,

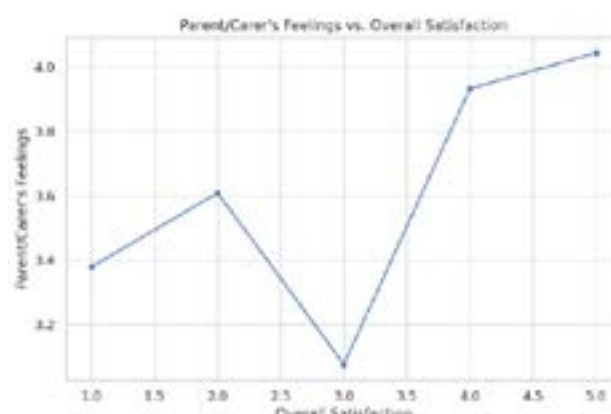
especially in comparison to traditional therapies, could be a persuasive factor for parents considering or currently participating in the program. Additionally, this correlation underscores the importance of continuous improvement and effectiveness in program offerings. Enhancing the program's efficacy can lead to higher satisfaction, potentially increasing retention rates and positive word-of-mouth referrals.



## Overall Satisfaction vs. Parent/Care givers Feelings:

The positive correlation between overall satisfaction and the change in parents/ care givers' feelings highlights an important aspect of parental experience in the program. It suggests that as parents become more satisfied with the program, they also experience more positive changes in their feelings, such as feeling more empowered or less stressed.

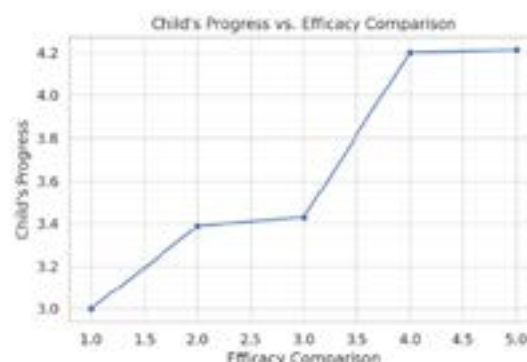
This relationship underscores the need for a holistic approach that caters not only to the child's development but also to the emotional and psychological well-being of the parents or care givers. Programs could consider incorporating support services and strategies that focus on improving the overall experience and feelings of parents and care givers, which in turn could enhance their satisfaction with the program.



## Efficacy Comparison vs. Child's Progress:

The weaker correlation between perceived efficacy and the child's progress suggests that parents' perceptions of efficacy do not always align closely with the observed progress of the child. This indicates a need for individualized approaches in the program, as different children may show varying levels of progress. Furthermore,

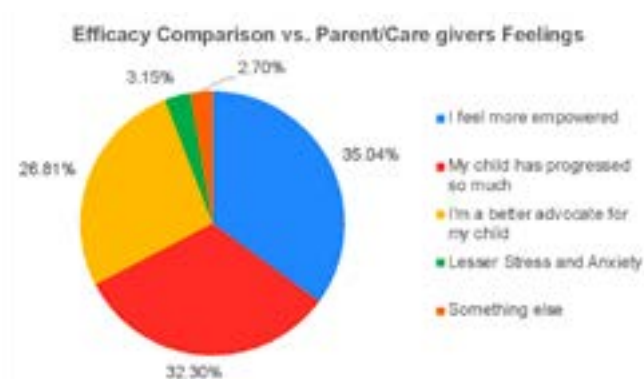
this finding highlights the importance of setting realistic expectations and educating parents about the nature of progress in such programs. By aligning parental expectations with the actual progress of their children, programs can help ensure a more accurate understanding of efficacy, potentially leading to more satisfaction and support from the parents.



## Efficacy Comparison vs. Parent/Care givers Feelings:

The relatively weak correlation between perceived efficacy and parents/care givers' feelings indicates that while the perceived efficacy of the program plays a role, it is not the sole factor influencing the feelings of parents and care givers. This suggests the need for a balanced program approach that addresses various aspects of the parent/care giver

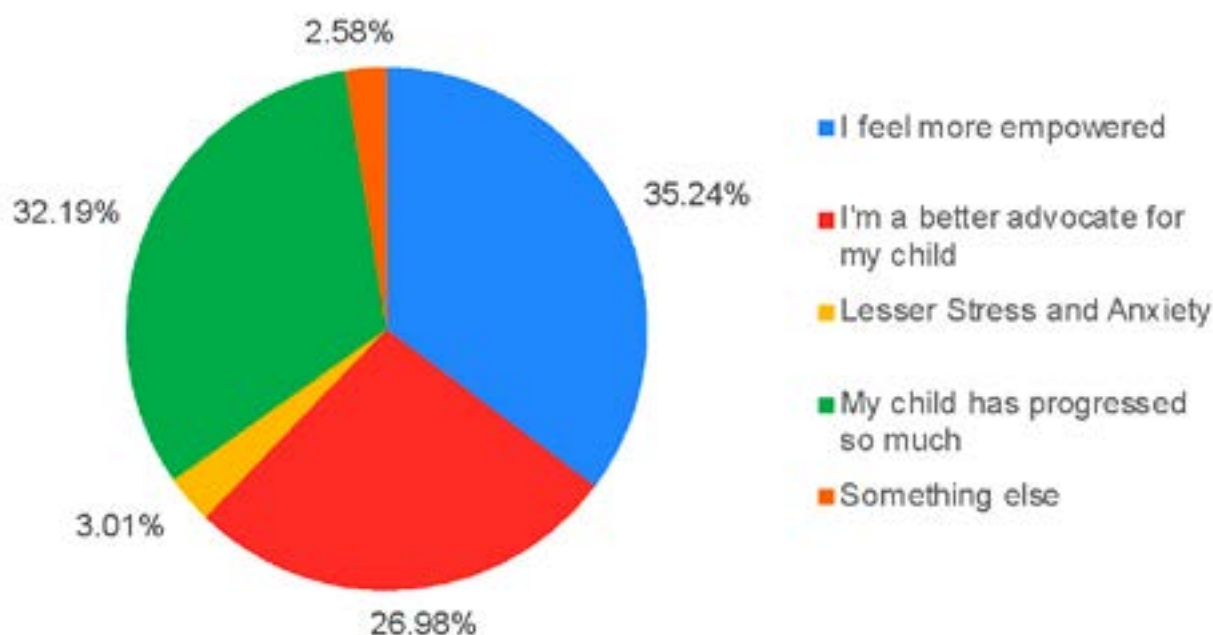
experience. In addition to focusing on the efficacy of the program, understanding, and addressing the specific concerns, expectations, and emotional needs of parents and care givers can be critical. Implementing feedback mechanisms to capture and respond to these needs can significantly enhance the feelings of parents and care givers towards the program.



## Child's Progress vs. Parent/Care givers Feelings:

The pie chart titled "Child's Progress vs. Parent/Caregivers Feelings" presents the distribution of parents' and caregivers' feelings in relation to their child's progress in a program. The largest segment, 35.24%, indicates that parents feel they have become better advocates for their children. Close behind, 32.19% of respondents feel more empowered by the program's influence. A significant 26.98% have noticed substantial progress in their child's development, which is a direct reflection of the program's impact. Smaller portions of the respondents' report reduced stress and anxiety (3.01%) or have other feelings (2.58%) not specified by the given options. This distribution suggests that while child's progress is an important factor, it is closely linked with the empowerment and advocacy felt by parents and caregivers, highlighting the multifaceted benefits of the program beyond just the progress of the child. The connection between the program's perceived efficacy and the feelings of parents and caregivers is moderately strong, pointing out that other factors also play a crucial role in their experience. Therefore, while child progress and program efficacy are important, addressing the broader emotional and practical needs of parents and caregivers is critical for the program's overall success. Implementing feedback mechanisms to understand and act upon the unique needs and concerns of parents and caregivers can significantly improve their experience and satisfaction with the program, creating a more comprehensive support system. These correlations and their implications offer valuable insights for program developers, educators, and clinicians, guiding them in enhancing both the effectiveness of the program and the satisfaction and engagement of parents and care givers.

## Child's Progress vs. Parent/Care givers Feelings



## Implications:

The results of this analysis have profound implications for the design and delivery of telehealth interventions for families with neurodivergent children. First, the strong correlation between parent satisfaction and child progress indicates that visible and measurable child development outcomes are key drivers of parental satisfaction. This suggests that Autism360's programs should prioritize strategies that enhance observable child development. Second, the correlation between satisfaction and perceived program efficacy highlights the need for clear communication about the effectiveness of the program, potentially influencing parent engagement and trust. Finally, the relationship between child progress and parent/caregiver feelings emphasizes the importance of involving parents actively in the therapeutic process, fostering a collaborative and transparent environment. These insights are pivotal for program developers, educators, and clinicians in enhancing the effectiveness of telehealth programs and ensuring high levels of satisfaction and engagement among parents and caregivers.

## References

Millen, C. (2023). The reality of accessing care for autism spectrum disorder. *Journal of Pediatric Health Care*, 37(3), 217–218. <https://doi.org/10.1016/j.pedhc.2022.08.007>