



Alumni survey

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helping you understand, fast

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Executive Summary



he first 1000 days of a child's life (from conception to age two) is a time of significant brain, body and immune system development, and an opportunity to establish a foundation for children's health, cognition and general well-being.

It is also a time of vulnerability to stunting, a nutritional disorder experienced by 27% of children under the age of 5 in South Africa. Stunting is identified when a child is significantly shorter for their age than expected. It is a largely preventable condition that results from prolonged undernutrition in the early years of life. Flourish, a national network of antenatal and postnatal classes is Grow Great's flagship intervention that supports and empowers moms through the critical first 1000 days of their child's life with the broader aim to support caregivers to adopt evidence-based behaviours that can contribute to protecting their children from stunting.

To understand the impact of the Flourish classes, Grow Great tasked ikapadata with conducting a survey of Flourish alumni from the beginning of October until the end of November, 2021. To this end, 57 Flourish mom alumni were surveyed to assess whether the behaviours that were encouraged in the classes were sustained during and after their children's first 1000 days of life. In addition, children's anthropometric measurements such as height and weight were taken to identify their nutritional status, as well as assess acute and chronic malnutrition. The survey asked mothers about their Flourish classes, pregnancy, education, employment, grant income and their child's nutrition. Through statistical modelling, associations between the various behaviours and social factors and the child's nutritional status were tested.

The study participants rated Flourish very positively. Many mothers stayed in touch with each other after the classes

had ended, and they would welcome the establishment of a more formal alumni network.

Many Flourish alumni stated that Flourish had a significant influence on their feeding decisions for their children. Mothers who attended Flourish tended to stick to Flourish recommendations regarding feeding and nutrition for their newborns in that they largely relied on breastfeeding in the first six months of their children's lives and provided a diverse diet to their children later. In fact, 62% of Flourish mothers reported exclusively breastfeeding their children in the first six months, an encouraging finding when compared to national rates of 32%*.

The study also found that of the children surveyed, only twelve percent were found to be suffering from stunting. This is an encouraging finding compared to the provincial prevalence rate of 34%¹ and considering that these alumni moms mostly came from underprivileged backgrounds, the majority did not have any educational qualifications beyond matric and most were unemployed at the time of the study.

Whilst sampling methodology and relatively low response rate do not allow for final conclusions, the high acceptability of Flourish expressed by respondents and uptake of the desired newborn feeding practises as well as the low stunting prevalence amongst Flourish alumni moms serve as encouraging indications of the positive impact of the programme. 🧡





1 Introduction

The first 1000 days of a child's life range from when they are conceived until they are two years old. During this time their brain, body and immune system develop significantly. It is an opportunity to establish a foundation for children's health, cognition and general well-being. Grow Great's Theory of Change aims to create the conditions for the reduction of the prevalence of stunting in South Africa. Stunting is a nutritional disorder that is identified when a child is significantly shorter for their age than expected. It results from long-term (chronic) poor nutrition, infection and other factors. Grow Great's Flourish programme helps mothers optimise this window of opportunity through a national network of antenatal and postnatal classes that support, celebrate and empower mothers through these critical first 1000 days of a child's life. The information discussed in these classes seeks to address behaviour change linked to nutrition-sensitive and -specific drivers of stunting such as the dangers of drinking alcohol during pregnancy, the benefits of exclusive breastfeeding and delaying complementary feeding to six months and maternal mental health support. Classes are presented by Flourish hosts, who undergo competitive recruitment and an evidence-based training programme and receive ongoing support and coaching from the Grow Great team.

To understand the impact of the Grow Great's Flourish classes, Grow Great tasked ikapadata with conducting a survey of Flourish alumni from the beginning of October until the end of November, 2021. To this end, 63 Flourish mothers alumni were surveyed to assess whether the behaviours that were taught in the classes were sustained during and after their children's first 1000 days of life and their babies' anthropometric measurements were taken. Anthropometry is used to identify children's nutritional status, and can indicate both acute and chronic malnutrition. The survey asked mothers about their Flourish classes, pregnancy, education, employment, grant income and their child's nutrition. The anthropometric measurements were of the children's height, weight and mid-upper arm circumference. Through statistical modelling, associations between the various behaviours and social factors and the child's nutritional status were tested.

2 Methodology

Sample

In October 2021, seventy-two Flourish alumni in Gauteng Province were invited via phone calls and SMS to come to a central venue to participate in the survey. Initial inclusion criteria included alumni moms who had attended six or more Flourish antenatal classes between January and June, 2019 to ensure that their child was at the time of the study at least 2 years old, i.e. at least at the end of their first 1000 days period.

As there was a low turnout, phone interviews and house visits were arranged. Following this, thirty-seven (53%) alumni were interviewed. To increase the number of respondents, the sampling frame was expanded to include alumni mothers who attended six or more antenatal classes between June and August 2019 as well. This increased the sample by an additional thirty mothers. Twenty-six of those mothers participated in November 2021. Together, a total of 63 mothers were interviewed and 55 consented for their children to be measured. Six mothers and their children were subsequently dropped from the analysis because they were born in 2020 or 2021, leaving a total sample of 57 mothers and 49 children. All mothers were informed about the purpose of the study and gave their consent to be interviewed and have their children measured.

The mothers were offered R200 for travel costs to the central venue and as an incentive to participate in the study.

Data Collection

Two enumerators were trained in anthropometric measurements and the use of survey instruments over a two-day workshop. The respondents were interviewed either at their homes or at a central venue. The anthropometric measurements of the children were conducted immediately after the interview. Participants were requested to have their Road to Health Booklets ready for the children's health data. Some respondents were interviewed telephonically, and the enumerators visited their residence later to capture the anthropometric measurements of their children and confirm the child's health data in the Road to Health Booklet.

The questionnaire consisted of 41 questions categorised into six sections: Demographics, Flourish Experience, Antenatal Care, Child Nutrition, Child Health, and Activities. Height measurements required the child to stand erect under a stadiometer and weight was measured using a digital scale. Mid-upper arm circumference (MUAC) was measured using a flexible non-stretch tape laid at the midpoint between the acromion (shoulder) and olecranon (elbow) of the left arm for right handed children and vice-versa for left handed children.

3 Results

3.1. Socio-demographics

The mean age of mothers in the study was 31 years, with the youngest and oldest being 21 and 41 respectively.

All but one of the 57 participants had a high school education, and 45 (79%) had matric. Twenty-five (44%) participants had a post-matric qualification.

About half (51%) of survey participants were unemployed at the time of the study. Only nine mothers (16%) had permanent employment and a work contract, the others were in temporary or casual work situations (n=14; 25%) or were self-employed (n=5; 9%).

Two thirds of the participants (n=37; 65%) received the child support grant. None of them received the foster care or care dependency grant.



3.2. Flourish Classes

The Flourish programme provides antenatal and postnatal classes to mothers. All respondents attended at least six antenatal classes and the majority (n=34; 60%) attended all ten classes.

In contrast, most (n=46; 82%) respondents say that they did not attend any postnatal classes, and only seven attended all 10 classes.

All but one mothers say that they attended up to 20 (average: 9) antenatal care visits outside the Flourish programme, starting at an average of 12 weeks pregnant. This data point might be inaccurate though, because even though respondents were prompted not to count Flourish classes, some of them might have included Flourish classes in their response.

The respondents were asked about their experience in the Flourish program, their relationships with other alumni and suggestions for improvements. All respondents reported a positive experience and would recommend new moms to join. Respondents appreciated connecting with other new moms along with the community of support they received. They also noted the following as valuable knowledge gained through their experience with the Flourish program:

- *Communicating and bonding with their baby during pregnancy*
- *Breastfeeding and dietary diversification on a budget*
- *Financial literacy*
- *Pregnancy and motherhood.*

The community support and relatability between participants helped respondents form friendships with alumni and hosts: 41 (72%) respondents maintained relationships with fellow alumni and 24 (42%) were still in contact with their host. Also, 26 (46%) mothers said that they follow the Flourish Facebook page.

All but one would like to see Flourish start a new alumni program with a similar structure to the current program that will help them with:

- *Juggling life with kids*
- *Raising and disciplining toddlers*
- *Activities to encourage independence*
- *Dealing with child's illnesses*
- *Activities to do with a child*
- *Financial literacy that adapts with a child's growth and development*
- *Speech therapy or clear milestones to assess speech development*
- *Dietary diversification and nutrition for children older than 2 years*
- *Motivating a baby to reach milestones and monitoring development*
- *Moms' mental health - dealing with stress and depression*
- *Adjusting to different stages of baby's growth*
- *How to encourage your baby to read and sing.*



Figure 1. Prenatal classes attended by mothers

n=57

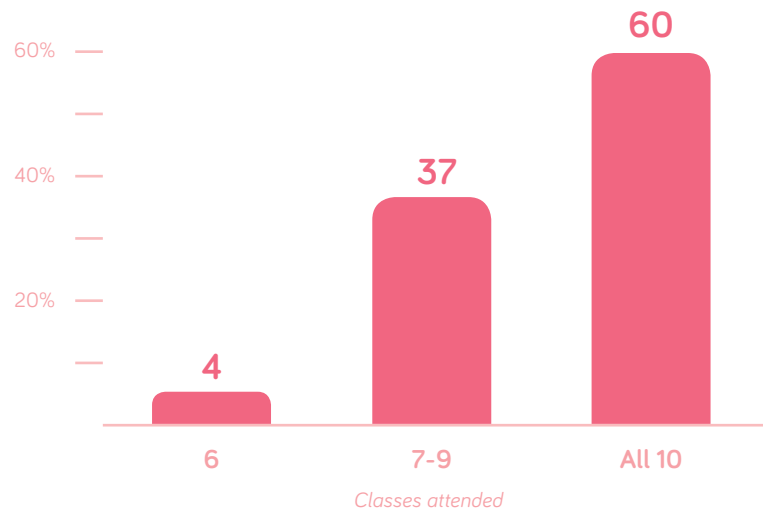
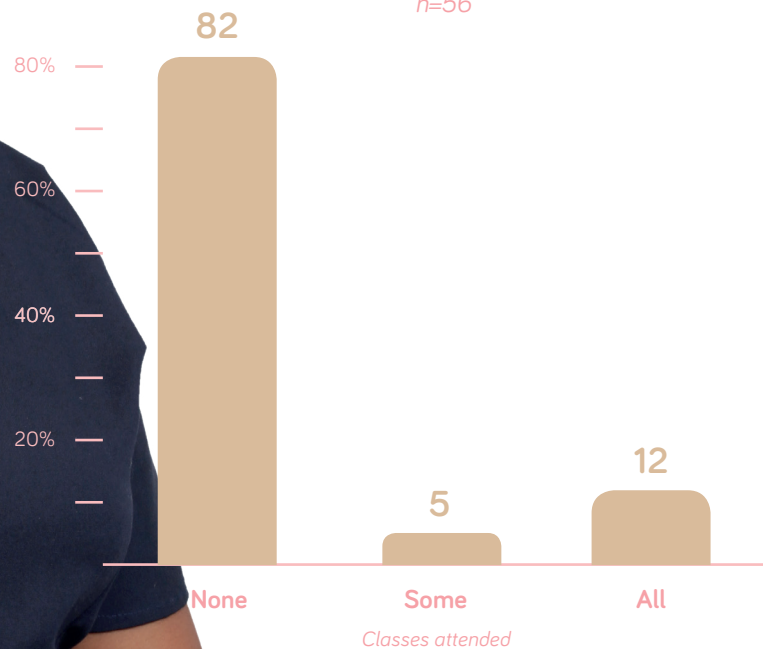


Figure 2. Postnatal classes attended by mothers

n=56



3.3. Children

Birth and Age

The babies included in the study were born between March and December 2019. The gestational age of the babies at birth ranged from 32 to 42 weeks, with an average of 39 weeks. Seventy-five percent of children were born between 36 and 40 weeks. The newborns weighed between 2.4kg and 4.8kg, with an average of 3.3kg. Only one child had a low birth weight at 2.4kg, compared to 13% of newborns with a low birth weight in Gauteng in 2018.

The mothers were asked if they consumed any alcohol during their pregnancy. One responded with “Rarely”, the others all negated the question.

Nutrition

According to the World Health Organisation (WHO) breastfeeding is one of the most effective ways to ensure child health. It recommends that children be exclusively breastfed for the first six months of life and no other foods or liquids to be provided, including water. The South African guidelines are aligned with the WHO recommendations and breastfeeding is promoted in public health facilities. A majority of 43 (75%) mothers reported that they breastfed their child for more than six months. Five (9%) said that they did not breastfeed their child at all, citing their HIV status, lack of breast milk and lack of time for pumping breast milk as reasons.

A majority of 32 (62%) mothers followed the WHO's recommendation of exclusively breastfeeding the child for the first six months i.e. no other liquids or solid foods for the first six months of the child's life, only breastmilk. The mothers who deviated from the recommendation introduced other foods to their children after 13 weeks, on average, and two mothers did so shortly after birth. Mothers who stuck to the recommendation started feeding their babies other foods after 25 weeks, on average, and after 30 weeks at the latest.

The dietary diversity questionnaire is a validated tool to measure the nutrient adequacy of populations. We analysed the mean dietary diversity score (DDS) aged six months to 23 months, as this is the age of vulnerability to malnutrition when children transition from breastfeeding to the household diet. There were only three children, all aged 23 months, that fell into this age category; two had a DDS of 4, the other 5, meaning that all three had an adequate dietary diversity score.

If one expands the DDS to children older than 23 months, 18 children (32%) have an inadequate score below 4, with an overall mean of 4.

Looking at the food groups consumed by children of all ages, the most popular food type was grains (100%), followed by dairy products (85%).

Flourish classes supported mothers with dietary guidance for optimal nutrition for their children and 81% of respondents report that Flourish played “the major influence” in their feeding choices and practices*.

* Six respondents answered that a (female) family member influenced them, two mentioned health workers, and three said that nobody influenced them.

Figure 3. Children's Gender
n=57

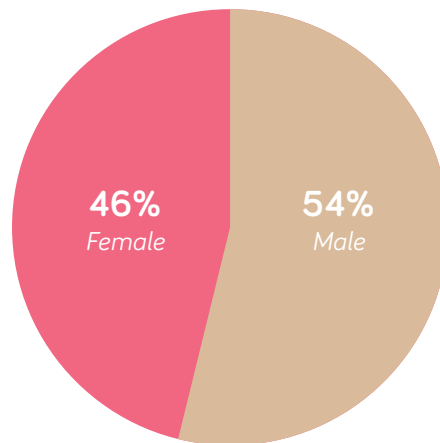


Figure 4. Total breastfeeding period
n=57

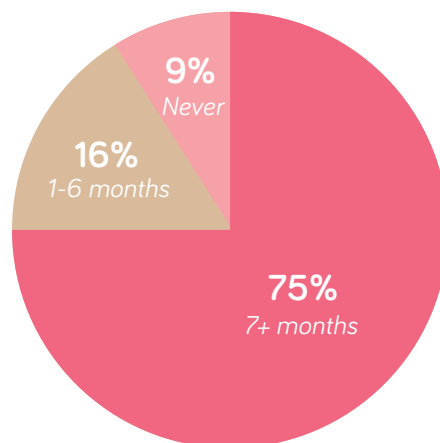


Figure 5. Mothers who only breastfed during the first 6 months
n=52

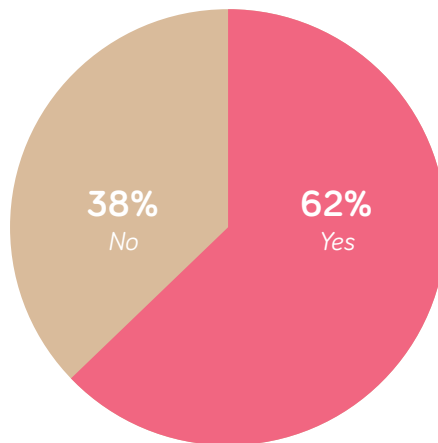


Figure 6. Flourish the major influence on feeding choices
n=57

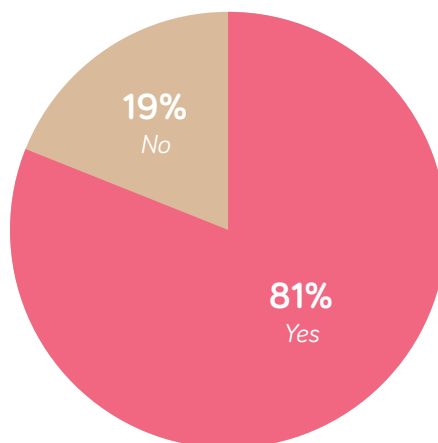
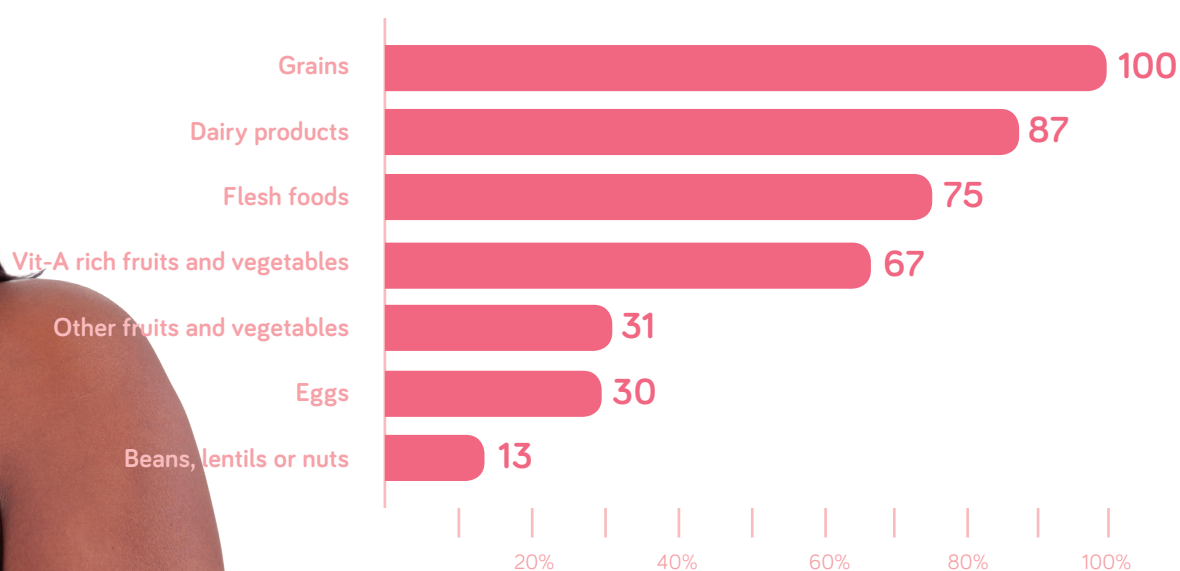


Figure 7. Food types consumed by children the previous day

n=61



3.4. Immunisations, Vitamin A and Deworming Treatments

Six mothers misplaced their Road to Health booklets, so their observations have been excluded from the analysis for this section, leaving 50 observations. Of those, 94% of children have received all the required immunisations. Measles Vaccine, Oral Polio Vaccine, and DTaP-IPV-Hib-HBV (2) were each missed by a different child.

All children received at least one dose of Vitamin A, but only 15 children (31%) received all doses for their age.

All but two children received at least one deworming treatment, but only nine (18%) received all treatments for their age.

It may be of some interest to note that while the topic of immunisations is covered in both antenatal and postnatal classes, the importance of Vitamin A and deworming is only discussed in the postnatal classes, of which the majority of respondents did not attend.

3.5. Mother-child Interaction

The mothers were asked how frequently they played and read books to their children. While 79% of mothers said that they play with their children daily, and the others weekly, less than half (39%) look at books or pictures with their child and less than a third (28%) read to them daily. According to the General Household Survey 2017 (StatsSA), 37% of parents in Gauteng read to their children “often” but that does not necessarily mean daily and included parents with children older than the children in the study.

Figure 8. On track with Vitamin A doses

n=49

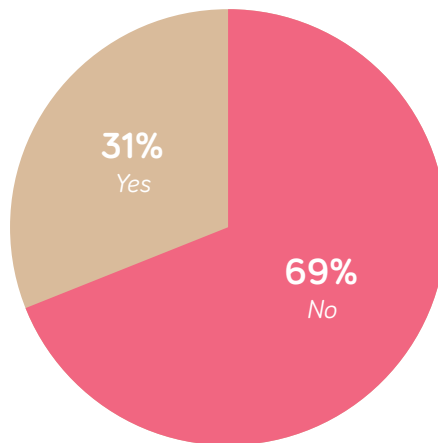


Figure 9. Deworming status up-to-date

n=49

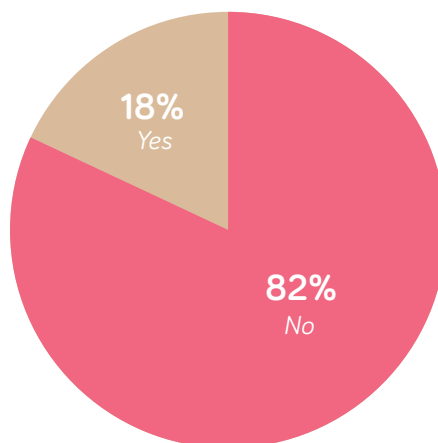


Figure 10. Frequency of playing with child

n=57

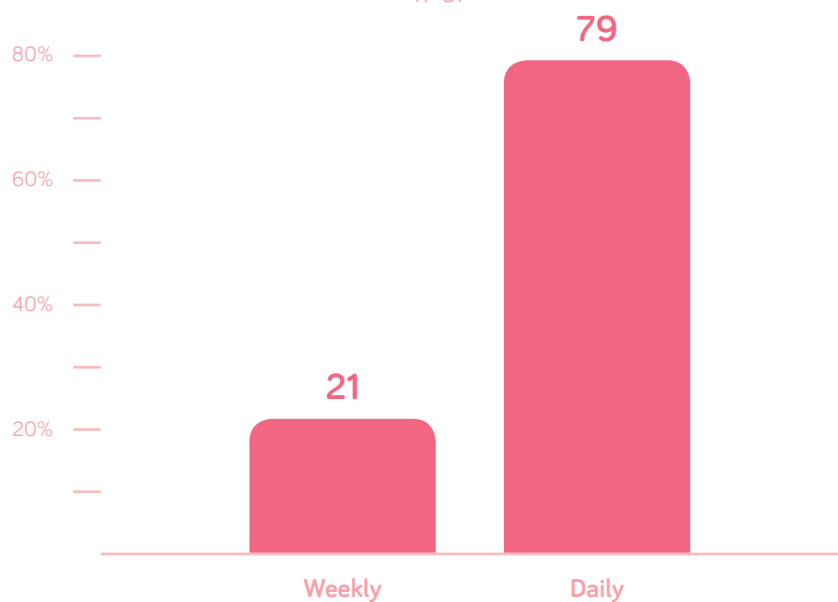


Figure 11. Frequency of looking at a book or pictures

n=57

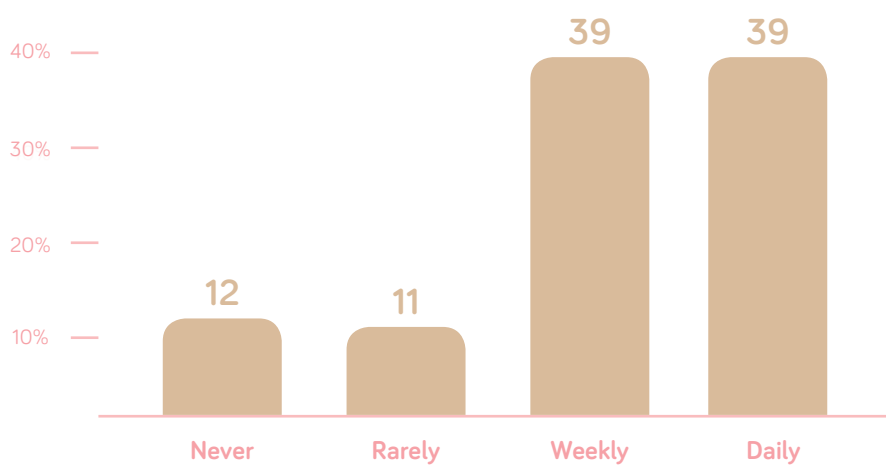
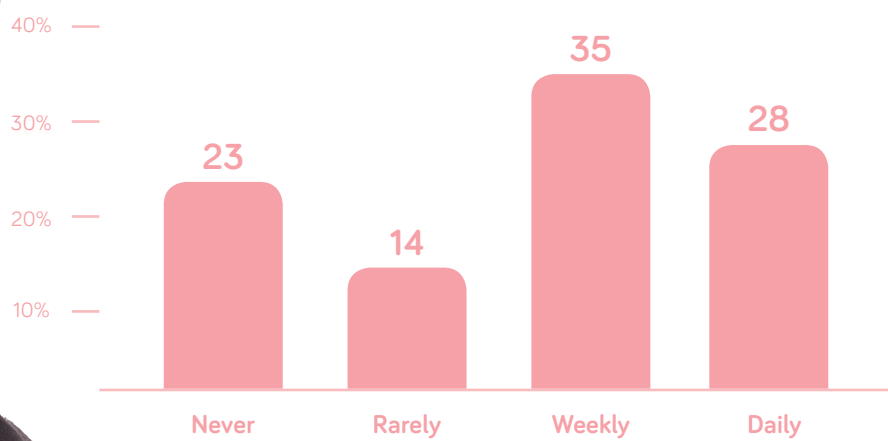




Figure 12. Frequency of reading books
n=57



3.6. Anthropometry

The results of the anthropometric measurements are displayed in the table below.

Table 1. Anthropometric measurements of children

	Mean	SD	Min	Max
<i>Female</i>	Height (cm)	85.2	3.8	77.5
	Weight (kg)	12.1	1.8	9.7
	Weight at Birth (kg)	3.2	0.5	2.4
	MUAC (cm)	16.0	1.8	13.2
<i>Male</i>	Height (cm)	86.1	4.4	75.4
	Weight (kg)	12.4	1.6	9.3
	Weight at Birth (kg)	3.4	0.5	2.5
	MUAC (cm)	15.7	1.6	12.0

These values were used to calculate the z-scores for height-for-age (HAZ), weight-for-age (WAZ), and weight-for-height (WHZ). The z-scores were calculated in Stata using the zanthro ado-package. They are based on WHO 2006 growth reference charts for boys and girls and have been adjusted for gestational age. Eight observations were excluded from the analysis involving z-scores because either one or more required values were missing or outside the expected range, or the z-value has an absolute value larger than 5.

Table 2. Z-Scores

	Mean	SD	Min	Max
<i>Female</i>	Height-for-Age (n=24)	-0.8	0.9	-2.6
	Weight-for-Age (n=24)	0.0	1.2	-2.0
	Weight-for-Height (n=25)	0.7	1.3	-2.2
<i>Male</i>	Height-for-Age (n=24)	-0.9	1.3	-4.2
	Weight-for-Age (n=24)	-0.2	1.0	-2.6
	Weight-for-Height (n=25)	0.5	0.9	-0.7

Figure 13. Children who were found to be suffering from stunting
n=43

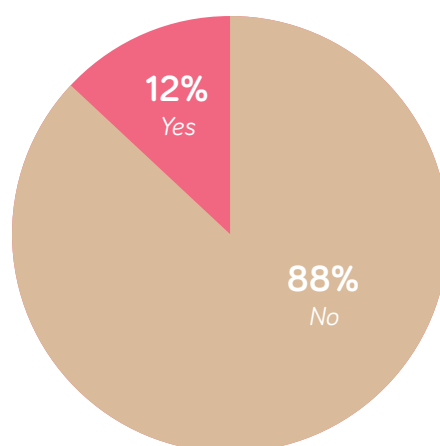
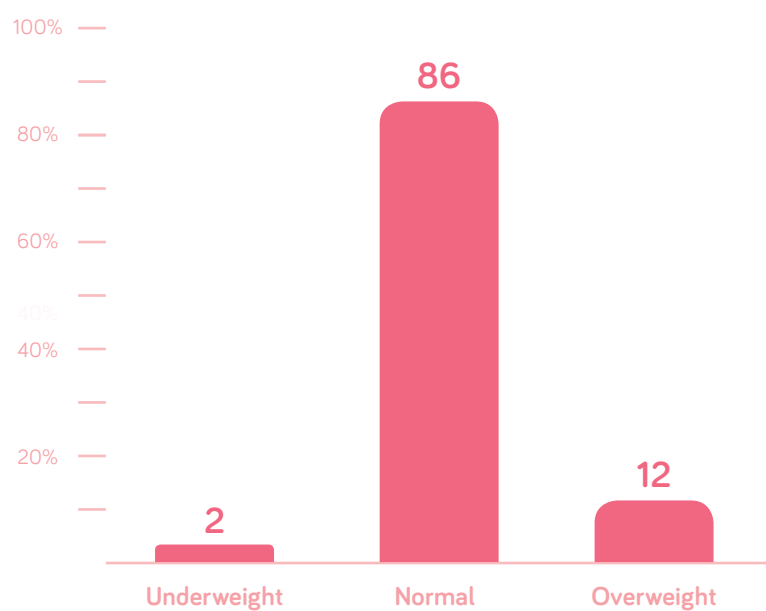


Figure 14. Weight-for-Height Categorisation
n=43



Five of the children, three male and two female, were found to be suffering from stunting at the time of the study (HAZ $\leq$ -2). Based on mid-upper arm circumference, one child showed signs of moderate acute malnutrition (MUAC=12cm).

Based on weight-for-height, out of 43 children, five are considered overweight (WHZ>2), with one being obese (WHZ>3) and one underweight (WHZ<-2).

Simple linear regression was used to test whether attendance of Flourish classes has an impact on height-for-age z-scores. The overall regression was statistically not significant ($R^2 = 0.53$, $F(11, 20) = 2.06$, $p = 0.08$).

Table 3. Linear Regression of Height-for-Age (z-score)

Variable	Coefficient	Standard Error	t-statistic	p-value
Age of mother	-.0127718	.036798	-0.35	0.732
Mother employed	.8158597	.3797107	2.15	0.044
Receives child support grant	.8546981	.4049552	2.11	0.048
Gender (Male)	-.3942144	.4013048	-0.98	0.338
Weight at birth	.2743424	.5103699	0.54	0.597
Breastfeed only first 6 months	-.6038252	.3711693	-1.63	0.119
All Flourish prenatal classes	-.7042809	.3996557	-1.76	0.093
All Flourish postnatal classes	.0384952	.578131	0.07	0.948
Flourish major influence	-.7016971	.5597006	-1.25	0.224
On track: Vitamin A	.4706299	.4999832	0.94	0.358
On track: Deworming	-.4671462	.6360663	-0.73	0.471

The results of the regression analysis are inconclusive as only two factors, Mother employed ($p=0.04$) and Receives child support grant ($p=0.05$) were found to reliably predict height-for-age z-scores.

A logistic regression was used to test whether attendance of Flourish classes has an impact on being stunted or not. The overall regression was statistically not significant (Pseudo- $R^2 = 0.41$, $p = 0.15$). The variables “Mother employed”, “Breastfeed only first 6 months” and “All Flourish postnatal classes” had to be excluded from the regression due to collinearity (e.g. all mothers who have employment have children who are not stunted).

Table 4. Regression of Stunting

Variable	Coefficient	Standard Error	z	p-value
Age of mother	.0586133	.2306083	0.25	0.799
Gender (Male)	5.24744	3.789813	1.38	0.166
Weight at birth	-9.338739	5.254383	-1.78	0.076
All Flourish prenatal classes	3.248521	3.163271	1.03	0.304
Flourish major influence	-.508181	1.910598	-0.27	0.790
On track: Vitamin A	1.214425	2.349313	0.52	0.605
On track: Deworming	-.9289518	2.751825	-0.34	0.736
Receives child support grant	-3.139149	2.036325	-1.54	0.123

4 Discussion and recommendations

The study found that mothers who are part of the Flourish programme generally come from underprivileged backgrounds. The majority do not have any educational qualifications beyond matric and most are unemployed. They are also a relatively old cohort of mothers, with the average alumni being in their early 30s, which might be a point to consider for future iterations of the programme.

The study participants rate the programme very positively, and attendance of prenatal classes is high. Postnatal classes, however, were attended regularly only by a small number of mothers. Many mothers stay in touch after the classes have ended and at least some continue to follow the programme via their host or Facebook. Many Flourish alumni state that the programme has had a significant influence on their feeding decisions for their children, and they would welcome the establishment of a more formal alumni network.

Mothers who participated in the programme tend to stick to recommendations regarding feeding and nutrition for their newborns in that they largely rely on breastfeeding in the first six months of their children's lives and provide a diverse diet to their children later. In fact, 62% of Flourish mothers exclusively breastfeed their children in the first six months, compared to 32% nationally (South African Demographic and Health Survey; SADHS 2016).

Twelve percent of the children are stunted, compared to a provincial prevalence of 34% (SADHS 2016) and only one is underweight. Five children are overweight and one is obese. The answer to the question whether the programme improves height-for-age z-scores and reduces stunting in children remains inconclusive as the analysis does not provide any evidence to this effect.

It is necessary to point out that the sampling methodology and relatively low response rate do not allow for final conclusions. The above observations serve as useful indications of key characteristics of the programme, but they have limitations in terms of the reliability and validity of the results.

Whilst taken from a very small sample and therefore not statistically significant, a closer look at the seven respondents who attended 7-10 classes of both antenatal and postnatal journeys reveal better outcomes when compared to the overall sample. For example none of these children were stunted, 33% had their deworming up to date as opposed to 18% in the overall sample, 86% were exclusively breastfed and 43% were read to daily as opposed to 28%. The insights gained from this small sample group call for further investigation into the potential impact of a near full dose of Flourish on child nutrition practices and outcomes.

In order to allow for a more stringent evaluation design, future evaluations will be based on pre- and post-Flourish comparisons. The evaluation will make use of the baseline and endline surveys already collected from moms which assess their knowledge, attitudes and practice as it relates to pregnancy and child health and nutrition. 🍌

To find out more, please contact Dr Kopano Matlwa Mabaso

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