



# EIGHT YEAR FOLLOW-UP (Q8) DESCRIPTIVE REPORT

Fall 2024

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## Executive Summary

### Introduction

This report presents findings from the 8-year follow-up of the All Our Families (AOF) study, a longitudinal research project that has followed approximately 3,300 women and their children from Calgary, Alberta, since 2008. Initially designed to examine maternal and infant health outcomes and healthcare access during the perinatal period, the AOF study has expanded to capture a range of developmental and health-related data across multiple time points. Participants have completed questionnaires at various intervals—mid-pregnancy, late pregnancy, postpartum, and were later invited to participate in 1-year, 2-year, 3-year, and 5-year questionnaires. This report focuses on data from the 8-year follow-up conducted from 2017 to 2020, which included responses from 2,074 women. Data collection has since continued, including COVID-19-related follow-ups and a 12-14-year assessment. For further study details, please refer to the All Our Families Website: <https://ucalgary.ca/allourfamilies>.

### Objectives

1. To describe the AOF cohort with respect to demographics, lifestyle, mental health, social support, and service utilization at 8-years post-birth.
2. To describe the physical health, sleep habits, screen time, family activities, and child development outcomes of children in the cohort at 8-years post-birth.
3. To describe the parenting experience and close relationships at 8-years post-birth.

### Methods

Eligible participants included those who participated in at least one prenatal questionnaire and consented to follow-up. The 8-year questionnaire was developed with expert input and pilot-tested for clarity and length. Surveys were distributed online on the REDCap survey platform and by mail in 2017, with reminder follow-ups over two years. Participants received a \$25 gift card upon completion, and study updates were provided through semi-annual newsletters. For further methodology details, please refer to the All Our Families Website: <https://ucalgary.ca/allourfamilies>.

### Main Findings

The All Our Families participants represent a portion of the socio-demographic low-risk parenting population in Calgary. At the 8-year mark, most of the participants were in a married or common law relationship (91.4%), part of a two-parent family (89.0%), and had an average household income greater than \$125,000 (52.7%). In addition, most participants had limited financial stress with 71.7% reporting to have enough financial resources to meet family needs most of the time or always, and only having worries about having enough financial resources to do what is important to family sometimes (25.3%) or very rarely (53.0%). Moreover, the majority of women felt that they had moderate or high levels of social support (81.0%).

Based on participant self-report using standardized tools, 17.4% displayed symptoms of stress (PSS), 18.6% displayed symptoms of depression, 17.4% displayed symptoms of anxiety (SSAI-SF), and 17.6% displayed symptoms of fatigue (IFS). Participants also self-reported their own mental health conditions where 25.9% reported to have a type of anxiety disorder and 20.5% reported to have depression. In terms of physical health conditions, the most reported included backache (29.3%) and allergies (28.8%)

For participants with a spouse or partner at the time of the study (93.2%), majority reported to be happy in their relationship with their spouse/partner as 22.7% reported to be extremely happy or very happy (26.0%) overall.

The average age of the children at the time of the 8-year follow-up was 8.3 years old (SD 0.4). Based on maternal reporting, a small percentage of children were categorized to be at-risk or clinically significant for a variety of behaviors including 14.3% showing signs for internalizing problems (anxiety, depression, withdrawal), 11.3% for externalizing problems (aggression, hyperactivity), and 13.0% for adaptive skill problems (social skills, adaptability). Based on the general measure of the Behavioral Symptoms Index (BSI), 12.3% were shown to be within the at-risk or clinically significant category.

Regarding school life, most children were attending public school (65.9%). Nearly all children liked their teacher (99.0%) and had one or more friends at school (98.9%). Academically, the majority of children were performing in various subjects at their grade level or higher. Only about 7.7% of children had a Special Education code as identified by Alberta Education.

For children's physical health, a small proportion (19.8%) were seen by a doctor in the emergency department or urgent care at the time of this survey. The most commonly reported diagnosis by a registered health practitioner included environmental allergies (7.1%), eczema/dermatitis/psoriasis (6.7%), and asthma. Of these cases, 6.2% were treated for environmental allergies, 7.2% were treated for eczema/dermatitis/psoriasis, and 7.6% for asthma. Only 6.6% of children experienced chronic pain since grade 1, and was most commonly in the stomach (3.2%) and legs (1.5%), with 36.4% of those affected reporting pain in their most impacted area two to three times a month. The most commonly reported health issues by parents were gut-related issues (17.3%) and vision problems (14.1%). The majority of children (86.5%) were assessed as having low nutritional risk according to the modified NutriSTEP screening tool, indicating that majority maintained a healthy and balanced diet with minimal risk of nutritional deficiencies or related health issues.

With regards to screen use, 17.9% of children spent two to five hours on screens on weekdays and 43.1% on weekends. A majority of households (90.2%) had established screen time rules, and more than half of participants (53.5%) 'almost always' limited usage, including 69.2% of parents that enforced keeping screens out of bedrooms. Most women, (80.8%) reported that they believed their children met the threshold for the Canadian Guidelines for Physical Activity. Approximately 76.2% of children participated in an individual sport and 53.5% in a team sport at least once a week, while 71.4% engaged in unorganized physical activity at least once a week. The most common family activities included using local parks/playgrounds (76.0%) and walking or bike paths (68.6%).

## Next Steps

The next steps for the AOF study will include launching the 11-year follow-up survey. Similarly to this and previous follow up reports, the survey will continue to collect information at the 11-year mark, on different aspects of maternal wellbeing and child development. Overall, these surveys contribute to the comprehension and examination of various child and family outcomes in different domains including social, mental, and physical health.



## Introduction

### About this Cohort of Women & Children

This report presents findings from All Our Families women and children at 8 years of age and integrates information from earlier data collection time points. The history of this cohort is described briefly below, more details can be found on <https://ucalgary.ca/allourfamilies>.

### History of the All Our Families Study

The AOF study began as the All Our Babies study in 2008. It is a prospective cohort study of approximately 3,300 individuals and their children in Calgary, Alberta. AOF was designed to examine maternal and infant outcomes during the perinatal period and to identify current barriers and facilitators to accessing health care services. Individuals who agreed to participate were asked to complete three questionnaires: the first during mid-pregnancy (<25 weeks gestation), the second during the third trimester (34-36 weeks gestation), and the third at 4 months postpartum. Participants were also asked to provide consent to the research team to access their obstetrical and birth records.<sup>1,2,3</sup> Participants who met eligibility criteria and agreed to additional research opportunities were asked to participate in 1-year, 2-year, 3-year, and 5-year questionnaires.

In January 2017, the 8-year follow-up (Q8) was launched to continue to engage with participants and their children from the study. The 8-year questionnaire was sent to all active participants who were initially recruited into the study and agreed to additional research opportunities. In total, 2,074 women participated in the 8-year follow-up study. Data collection ended in May 2020.

Since the 8-year follow-up, data collection for three youth and maternal COVID-19 questionnaires has occurred, as well as a 12-14-year follow-up.

## Objectives

The objectives of this report were:

1. To describe the AOF cohort with respect to demographics, lifestyle, mental health, social support, and service utilization at 8-years post-birth.
2. To describe the physical health, sleep habits, screen time, family activities, and child development outcomes of children in the cohort at 8-years post-birth.
3. To describe the parenting experience and close relationships at 8 years post-birth.

## Methods

This report provides an overview of the All Our Families Study data collected at 8-years post-birth. Extensive information and consent for follow-up has been gathered. More information on the cohort and study methods can be found in previous reports and publications available on the All Our Families website: <https://ucalgary.ca/allourfamilies>.

## Design

Individuals who participated in at least one prenatal questionnaire, were eligible for follow-up and indicated at the time of enrollment that they would be willing to participate in future research were included in this follow-up study when AOF children were 8-years of age. The questionnaire was developed with input from health care providers, epidemiologists, child development experts, and community program experts.

## Recruitment and Data Collection

In total, 2,862 participants were eligible to receive the 8-year questionnaire. Participants were emailed online versions of the questionnaire or sent hard copies. If preferred, a mailed-out printed version of the survey included a postage-paid envelope was sent. Participants provide consent before completing the questionnaire.

The 8-year follow-up was formatted and finalized in late 2016. In January 2017, the study launched the 8-year survey online using the REDCap survey platform. Participants were asked to complete the comprehensive 60–90-minute questionnaire as close to their child’s 8<sup>th</sup> birthday as possible. Participants who received the 8-year questionnaire after their child’s 8<sup>th</sup> birthday were asked to answer the questions at their child’s current level of development rather than to recall back to when their child was 8 years old. At most, these participants’ children were 8.5 years of age at the launch of this follow-up. In over a period of 2 years, research assistants contacted participants to address questions and ensure participants had received the questionnaire.

If online or hardcopy surveys were not returned by participants 14 days post-mail out, trained research assistants placed reminder phone calls and emails. Twenty contact times were made either through email or phone, before the participant was moved to the “lost-to-follow-up” category in the study’s participant database. These participants remained eligible to complete the next data wave. Participants who completed the survey were sent a \$25 gift certificate to a fast-food outlet. Lastly, to keep participants engaged and updated, semi-annual newsletters were distributed containing study information such as project progress and findings, preliminary results, and research team member profiles.

## Pilot Testing

The questionnaire was pilot tested in 2016 to assess length, flow, comprehension, and response burden from 40 friends, family, mothers at the University of Calgary West Campus Child Care Centre, and mothers at the Varsity Out of School Care Program. The study team received feedback from approximately 20 of these participants and the questionnaire was revised based on comments during the pilot test.

## Components of the Questionnaire

Each section of the 8-year survey was categorized into the following topics in Table 1. Data and findings for each topic are briefly presented in this report.

Table 1. Components of questionnaire

Section	Topics
Your Child's School Life	<ul style="list-style-type: none"> <li>• Type of school</li> <li>• Opinion of teachers and friends</li> <li>• Performance in school subjects</li> <li>• Special programs</li> <li>• Special Education Codes</li> <li>• Parental involvement in school</li> </ul>
Your Child's Activities	<ul style="list-style-type: none"> <li>• Extra-curricular activities</li> <li>• Physical activity</li> <li>• Concussions</li> <li>• Injury</li> </ul>
Your Child's Screen Use	<ul style="list-style-type: none"> <li>• Screen exposure at home</li> <li>• Time spent on screens</li> <li>• Screen time rules</li> </ul>
Your Child's Health	<ul style="list-style-type: none"> <li>• Height and weight</li> <li>• Diagnosed conditions</li> <li>• Vaccines</li> <li>• Chronic pain</li> <li>• Bullying</li> <li>• Childcare arrangements</li> </ul>
Your Child's Sleep Behaviours	<ul style="list-style-type: none"> <li>• Sleep routines</li> <li>• Screen use before bed</li> </ul>
Your Child's Eating	<ul style="list-style-type: none"> <li>• Nutrition and diet</li> </ul>
Your Community	<ul style="list-style-type: none"> <li>• Community involvement</li> </ul>
Your Child's Behaviour and Development	<ul style="list-style-type: none"> <li>• Child behaviour</li> </ul>
Parenting	<ul style="list-style-type: none"> <li>• Parenting</li> <li>• Maternal Diagnosed conditions</li> <li>• Maternal height and weight</li> <li>• Alcohol and use</li> </ul>
Maternal Health and Well-Being	<ul style="list-style-type: none"> <li>• Life satisfaction</li> <li>• Social support</li> <li>• Partner relationship</li> <li>• Physical and emotional health</li> </ul>
Your Family	<ul style="list-style-type: none"> <li>• Marital status</li> <li>• Income</li> <li>• Number of family members in household</li> <li>• Work</li> <li>• Partner's work</li> </ul>

## Child School Life

At the 8-year follow-up, the majority of children (65.9%) were attending a public school. Nearly all participants reported that their child liked their teacher (99.0%) and that their child had one or more friends at school (98.9%). Academically, the majority of children were reported to be performing at their grade level or higher in the areas of language (90.8%), writing (83.7%), reading (86.4%), mathematics (93.0%), health and life skills (96.7%), music (97.1%), physical education (96.9%), science (97.2%), and social studies (96.6%).

Table 2. School life at 8 years

Child School Experiences	N=2,074 N (%)
Type of school that participant's child attends	
Public school	1365 (65.9)
Catholic School (publicly funded)	440 (21.2)
Private school	117 (5.6)
Charter school	87 (4.2)
Taught at home	53 (2.6)
Other or not in school	9 (0.5)
Does your child generally like their teacher?	
Yes	2044 (99.0)
No	20 (1.0)
Does your child have one or more friends at school?	
Yes	2041 (98.9)
No	23 (1.1)
How is your child generally doing in the following areas at school: Language	
Significantly above grade level	334 (16.2)
Slightly above grade level	686 (33.2)
At grade level	855 (41.4)
Slightly below grade level	146 (7.1)
Significantly below grade level	44 (2.1)
How is your child generally doing in the following areas at school: Written	
Significantly above grade level	207 (10.0)
Slightly above grade level	589 (28.5)
At grade level	932 (45.2)
Slightly below grade level	264 (12.8)
Significantly below grade level	72 (3.5)
How is your child generally doing in the following areas at school: Reading	
Significantly above grade level	591 (28.7)
Slightly above grade level	585 (28.4)
At grade level	605 (29.3)
Slightly below grade level	223 (10.8)
Significantly below grade level	58 (2.8)

Child School Experiences	N=2,074 N (%)
How is your child generally doing in the following areas at school: Mathematics	431 (20.9)
Significantly above grade level	805 (39.0)
Slightly above grade level	683 (33.1)
At grade level	116 (5.6)
Slightly below grade level	29 (1.4)
Significantly below grade level	
How is your child generally doing in the following areas at school: Health / Life Skills	
Significantly above grade level	220 (10.7)
Slightly above grade level	775 (37.6)
At grade level	996 (48.4)
Slightly below grade level	53 (2.6)
Significantly below grade level	15 (0.7)
How is your child generally doing in the following areas at school: Music	
Significantly above grade level	218 (10.6)
Slightly above grade level	667 (32.3)
At grade level	1122 (54.2)
Slightly below grade level	49 (2.4)
Significantly below grade level	10 (0.5)
How is your child generally doing in the following areas at school: Physical Education	
Significantly above grade level	281 (13.6)
Slightly above grade level	760 (36.8)
At grade level	960 (46.5)
Slightly below grade level	52 (2.5)
Significantly below grade level	12 (0.6)
How is your child generally doing in the following areas at school: Science	
Significantly above grade level	239 (11.6)
Slightly above grade level	783 (37.9)
At grade level	986 (47.7)
Slightly below grade level	40 (2.0)
Significantly below grade level	17 (0.8)
How is your child generally doing in the following areas at school: Social Studies	
Significantly above grade level	149 (7.2)
Slightly above grade level	646 (31.3)
At grade level	1200 (58.1)
Slightly below grade level	54 (2.6)
Significantly below grade level	15 (0.8)

Note: Denominator varies due to missing data for some variables

For school programs, 47.4% of children were not enrolled in one. Of the approximately 38% who reported their children were enrolled in a special school program, 20.5% were in language immersion programs.

Table 3. Child school program

Type of School Program (check all that apply)	N=2,074 n (%)
Language immersion (e.g. French, Spanish, German)	424 (20.5)
Francophone	50 (2.4)
Arts school	49 (2.4)
Science school	27 (1.3)
Single-gender school (e.g. all boys or all-girls school)	6 (0.3)
Montessori	43 (2.1)
Traditional Learning Centre (TLC)	60 (2.9)
Aboriginal	**
Sports school	12 (0.6)
Specialized placement for learning disabilities, behaviour, or mental health concerns	25 (1.2)
Other	92 (4.4)
N/A	981 (47.4)

Notes: Denominator varies due to missing data for some variables

\*\* means cell size is less than 5

Survey results indicate that most children do not have a Special Education code as identified by Alberta Education (85.6%). Among the children with a Special Education code (7.7%), the most commonly reported were for learning disability (29.4%), gifted and talented (24.4%), physical or mental disability (13.8%) and emotional/behavioural disability (11.9%). Furthermore, 86.8% of children with a Special Education code were receiving accommodations to their education.

Table 4. Child special education code

Child Special Education Code	N=2,074 n (%)
Does your child have a Special Education code as identified by Alberta Education?	
Yes	
No	160 (7.7)
Unsure	1760 (85.6)
	136 (6.7)
If yes: Special Education Code	
Learning Disability	47 (29.4)
Gifted and Talented	39 (24.4)
Physical or Mental Disability	22 (13.8)
Emotional / Behavioural Disability	19 (11.9)
Communication Disability	15 (9.4)
Severe Physical or Medical Disability	13 (8.1)
Multiple Disability	8 (5.0)
Moderate Cognitive (Intellectual) Disability	7 (4.4)
Mild Cognitive (Intellectual) Disability	6 (3.8)
Severe Emotional / Behavioural Disability	5 (3.1)

Child Special Education Code	N=2,074 n (%)
Hearing Disability	**
Visual Disability	**
Severe Cognitive (Intellectual) Disability	**
Severe Multiple Disability	**
Deafness	**
Blindness	**
In regard to the above, is your child receiving Modifications or Accommodations?	
Yes	
No	138 (86.8)
	21 (13.2)

Notes: Denominator varies due to missing data for some variables  
 \*\* means cell size is less than 5

For involvement in their child's school, most participants reported that they almost always met with their child's teacher to discuss their progress in school (60.5%). Furthermore, 51.0% reported that they almost always communicated with their child's school. About 44.1% of participants occasionally volunteered, and 39.1% reported occasional involvement in activities that influenced the school priorities and future directions.

Table 5. Maternal school involvement

Maternal Involvement in Child's School	N=2,074 n (%)
Frequency of participant meeting face to face with their child's teacher to discuss how she/he is doing in school	
Never	11 (0.5)
Sometimes	314 (15.3)
Often	486 (23.7)
Almost always	1243 (60.5)
Frequency of participant communicating with their child's school via phone, email, letter, daily agenda, online and/or other means	
Never	12 (0.7)
Sometimes	354 (17.2)
Often	639 (31.1)
Almost always	1048 (51.0)
Frequency of participant volunteering in their child's school or classroom (e.g. field trips, extracurricular activities)	
Never	257 (12.6)
Sometimes	906 (44.1)
Often	510 (24.8)
Almost always	380 (18.5)

Maternal Involvement in Child's School	N=2,074 n (%)
Frequency of participant involved with their child's school in ways that shape the direction and/or priorities for the school (e.g. parent school council, fundraising)	
Never	
Sometimes	589 (28.7)
Often	801 (39.1)
Almost always	305 (14.9)
	355 (17.3)

Note: Denominator varies due to missing data for some variables

At the 8-year follow-up, participants were about 40.1 years old and the average age of the children at this timepoint was 8.3 years old.

Table 6. Age at 8-year follow-up

Age in years	N=2074 Mean (SD)
Child's age at 8-year follow-up	8.3 (0.4)
Maternal age at 8-year follow-up	40.1 (4.4)

## Child Activities

Approximately 76.2% of children were involved an individual sport and 53.5% were involved in a team sport at least once a week within the 12 months prior to when participants completed their surveys. Additionally, 71.4% of children engaged in unorganized physical activity at least once a week. Most participants (80.8%) reported that they believed their children met the threshold for the Canadian Guidelines for Physical Activity, which recommend accumulating at least 60 minutes of moderate-to-vigorous intensity physical activity each day. Apart from physical activities, 20.2% of children are involved in community programs at least once a week.

Table 7. Child activities at age 8

Child Activities	N=2,074 n (%)
Frequency of participant's children taking part in individual sports (e.g. swimming, gymnastics, dance, martial arts) in the past 12 months (outside of school hours)	
Most days	
A few times a week	127 (6.2)
Once per week	706 (34.3)
About once a month	735 (35.7)
Almost never	241 (11.7)
Never	152 (7.4)
Don't know	94 (4.7)
	**
Frequency of participant's children taking part in team sports (e.g. hockey, soccer) in the past 12 months (outside of school hours)	
Most days	110 (5.4)



Child Activities	N=2,074 n (%)
A few times a week	561 (27.3)
Once per week	428 (20.8)
About once a month	139 (6.8)
Almost never	294 (14.3)
Never	518 (25.2)
Don't know	5 (0.2)
Frequency of participant's children taking lessons or instruction in music, art or other classes outside of school hours in the last year	
Most days	27 (1.3)
A few times a week	134 (6.5)
Once per week	665 (32.5)
About once a month	209 (10.2)
Almost never	373 (18.2)
Never	631 (30.8)
Don't know	8 (0.5)
Frequency of participant's children taking part in unorganized sports or physical activities without a coach or instructor (e.g. playground, pick-up game of hockey or basketball, etc.) outside of school hours in the last year	
Most days	513 (25.0)
A few times a week	606 (29.5)
Once per week	403 (19.6)
About once a month	249 (12.1)
Almost never	135 (6.6)
Never	138 (6.7)
Don't know	9 (0.5)
Frequency of participant's children taking part in community programs like Brownies, Cub Scouts, 4-H, etc., in the last year outside of school hours	
Most days	8 (0.4)
A few times a week	32 (1.6)
Once per week	373 (18.2)
About once a month	87 (4.2)
Almost never	288 (14.0)
Never	1234 (60.0)
Don't know	33 (1.6)
Do you think your child meets the Canadian Guidelines for Physical Activity? Definition: accumulate at least 60 minutes of moderate-to-vigorous intensity physical activity daily.	
Yes	1662 (80.8)
No	266 (12.9)
Unsure	129 (6.3)

Notes: Denominator varies due to missing data for some variables

\*\* means cell size is less than 5

Regarding transportation to school, approximately 30.6% of children biked or walked to or from school. Among the 69.4% of children who do not walk or bike, 65.4% of participants reported that the school

was outside of walking proximity, 15.8% reported that driving their child was more convenient, 10.9% reported “other”, and 7.9% reported concern about the safety of their child walking or biking to school. Participant written responses in “other” included weather, attending before and after school care, having children that attended multiple schools, and their child being homeschooled.

Table 8. Child transportation to school

Child Transportation Methods	N=2,074 n (%)
On most days, does your child bike or walk to or from school?	
Yes	621 (30.6)
No	1411 (69.4)
If no, what is the primary reason your child does not walk or bike to or from school (choose only one)?	
My child's school is not in the walk zone (school is too far, child may travel on school bus)	923 (65.4)
I am concerned about the safety of my child walking or biking to school	111 (7.9)
It is more convenient to drive my child to school	223 (15.8)
Other	153 (10.9)

Note: Denominator varies due to missing data for some variables

In the past 12 months, approximately 19.8% of children were seen by a doctor in the emergency department or urgent care. Among the 141 (6.9%) of children that experienced a concussion, 12 (8.5%) had persistent problems with memory, dizziness or headaches. Of the 211 (10.3%) children who sustained injuries that required medical attention, 13 (6.3%) continued ongoing treatment to heal injuries.

Table 9. Child injuries

Child Injuries	N=2,074 n (%)
In the past 12 months, has your child been seen by a doctor in an Emergency Department/Urgent Care for any reason?	
Yes	408 (19.8)
No	1650 (80.2)
Has your child ever had a concussion (either diagnosed or not) or been “knocked out” or had their “bell rung”?	
Yes	141 (6.9)
No	1916 (93.1)
If Yes (child had a concussion): For any of the above concussions, have there been persistent problems with memory, dizziness or headaches?	
Yes	12 (8.5)
No	129 (91.5)
In the last 12 months, apart from any concussion(s), has your child experienced any injury which: required medical attention, resulted in them missing at least 1 day of participation from sport, or restricted normal daily activity	
Yes	211 (10.3)

Child Injuries	N=2,074 n (%)
No	1843 (89.7)
If Yes (child experienced an injury): For any of the above, are there any incompletely healed injuries requiring ongoing treatment?	
Yes	13 (6.3)
No	194 (93.7)

Note: Denominator varies due to missing data for some variables

## Child Media Exposure

With regards to child screen use, on weekdays, 17.9% of children spend two to five hours on screens, and this increased to 43.1% on the weekends. A large majority of households (90.2%) had set rules and boundaries about screen time and use. More than half of participants 'almost always' limited the amount of their child's screen time (53.3%) and removed screen privileges for inappropriate use, overuse, or failure to follow rules (58.1%). Furthermore, 35.1% of participants 'almost always' used parental controls or software blocks to protect their children, while 32.8% of parents reported ever checking the search history on their child's electronics technology. When it came to leaving screens outside of the bedroom, 69.2% of parents 'almost always' enforced this rule in their households.

Table 10. Child screen use

Child Screen Use	N=2,074 n (%)
Weekday minutes of screens on, recategorized: 2 hrs or less, between 2-5 hrs, and 5 or more hrs per day	
2 hrs/day or less (120 minutes or less)	1583 (77.4)
Greater than 2 and less than 5 hrs/day (121-299 minutes)	366 (17.9)
5 hrs/day or more (300 minutes or more)	97 (4.7)
Weekend minutes of screens on, recategorized: 2 hrs or less, between 2-5 hrs, and 5 or more hrs per day	
2 hrs/day or less (120 minutes or less)	709 (34.7)
Greater than 2 and less than 5 hrs/day (121-299 minutes)	883 (43.1)
5 hrs/day or more (300 minutes or more)	454 (22.2)
Do you have household rules about screen time and use (how much time, what shows/websites, types of video games)?	
Yes	1849 (90.2)
No	201 (9.8)
If Yes (household rules about screens):	
I limit the amount of my child's screen time	
Never	10 (0.5)
Sometimes	236 (12.8)
Often	614 (33.4)
Almost always	980 (53.3)
I use parent control or software blocks on internet/television	
Never	658 (35.8)
Sometimes	282 (15.3)

Child Screen Use	N=2,074 n (%)	
Often	253 (13.8)	
Almost always	645 (35.1)	
I check the search/webpage history regularly on my child's/home technology		
Never	601 (32.8)	
Sometimes	482 (26.3)	
Often	342 (18.8)	
Almost always	405 (22.1)	
I ask my child to leave their screen (e.g., smartphone, iPod) outside their bedroom		
Never	207 (11.4)	
Sometimes	148 (8.1)	
Often	205 (11.3)	
Almost always	1256 (69.2)	
I remove screen privileges for inappropriate use, overuse, or failure to follow rules		
Never	125 (6.9)	
Sometimes	302 (16.6)	
Often	336 (18.4)	
Almost always	1059 (58.1)	
Other household screen rules		
Never	247 (42.1)	
Sometimes	44 (7.5)	
Often	68 (11.6)	
Almost always	228 (38.8)	

Note: Denominator varies due to missing data for some variables

## Child Health Conditions

At the 8-year follow-up, the most commonly reported diagnoses in children by a registered health practitioner were environmental allergies (7.1%), eczema/dermatitis/psoriasis (6.7%), and asthma (6.2%). Similarly, the most commonly treated conditions by a registered health practitioner were asthma (7.6%), eczema/dermatitis/psoriasis (7.2%), and environmental allergies (6.2%).

In addition, the most frequently reported health issues noted by parents were gut-related issues (17.3%) and vision problems (14.1%).

Table 11. Child health

Child Health	N=2,074 n (%)	
Since Grade 1, has your child been diagnosed/treated by a registered health practitioner for any of the following conditions?	Diagnosed	Treated
Anemia (low blood cell count or low hemoglobin)	13 (0.6)	9 (0.4)
Asthma	125 (6.2)	154 (7.6)
Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder	111 (5.5)	90 (4.5)

Child Health	N=2,074 n (%)	
Autism/Autism Spectrum Disorder	28 (1.4)	25 (1.2)
Cardiac (heart) issues	10 (0.5)	10 (0.5)
Cerebral Palsy	**	**
Congenital abnormalities or birth defects	8 (0.4)	13 (0.6)
Eczema/dermatitis/psoriasis	136 (6.7)	146 (7.2)
Environmental allergies (e.g. dog dander or pollen)	143 (7.1)	125 (6.2)
Epilepsy, convulsions, or seizures treated with daily medications	5 (0.2)	6 (0.3)
Food allergies (e.g. peanuts)	93 (4.6)	61 (3.0)
Global Developmental Delay (GDD)/Intellectual disability	5 (0.2)	8 (0.4)
Kidney or urinary problems (e.g. bladder infections)	39 (1.9)	42 (2.1)
Learning delays	44 (2.2)	33 (1.6)
Mental health problems (e.g. anxiety or depression)	69 (3.4)	65 (3.2)
Speech/language delay (diagnosed by a Speech Language Pathologist)	105 (5.2)	100 (5.0)
Since Grade 1, has your child experienced any of the following?	N (%)	
Gut problems (e.g. chronic stomachache, constipation)	297 (17.3)	
Hearing problems	41 (2.4)	
Hospitalizations	52 (3.0)	
Surgery (operations)	95 (5.5)	
Vision problems	243 (14.1)	
Other health conditions	118 (7.6)	

Notes: Denominator varies due to missing data for some variables  
 \*\* means cell size is less than 5

Chronic pain, which is defined as persistent pain lasting for more than 3 months at a time, was experienced by 113 (6.6%) children since grade 1. Children experienced chronic pain most frequently in the stomach and legs, affecting 53 (3.2%) and 25 (1.5%) children, respectively. Furthermore, of the children who experienced chronic pain, 36.4% experienced pain in their most affected location two to three times a month.

Table 12. Child chronic pain

Child Chronic Pain	N=2,074 n (%)
Since Grade 1, has your child experienced chronic pain?	
Yes	113 (6.6)
No	1608 (93.4)
If your child has experienced chronic pain (lasting for more than 3 months at a time), in which location does your child experience the most pain?	
N/A	1568 (93.3)
Stomach	53 (3.2)
Head	13 (0.8)
Muscles and joints	9 (0.5)
Legs	25 (1.5)
Chest	**

Child Chronic Pain	N=2,074 n (%)
Other	10 (0.6)
If Yes (child experienced chronic pain), how often does your child have pain in this location?	N=113 N (%)
Less than once a month	14 (12.7)
Once a month	13 (11.9)
2-3 times per month	40 (36.4)
Weekly	23 (20.9)
Almost every day	16 (14.5)
Every day	**

Notes: Denominator varies due to missing data for some variables

\*\* means cell size is less than 5

Data from the 8-year survey showed that a large majority of participants (93.0%) reported their child was yet to show any signs of sexual development. Only a small proportion of children (2.3%) were reported to have ever questioned their gender identity. More than half of participants (56.8%) were planning to have their children receive the HPV vaccine in Grade 5. Interestingly, caregivers of boys were almost twice as likely to report “I have not thought about it yet” than caregivers of girls (n=200, 19.2% for boys; n=101, 10.4% for girls).

Table 13. Child development

Child Development	N=2,074 n (%)
Has your child shown signs of sexual development (e.g. breast buds, underarm hair)?	
Yes	137 (7.0)
No	1816 (93.0)
To the best of your knowledge, has your child ever questioned their gender identity?	
Yes	46 (2.3)
No	1957 (97.7)
Girls and boys in Alberta are eligible to receive the HPV (human papillomavirus) vaccine in Grade 5. Are you planning to have your child receive this vaccine?	
Yes	1138 (56.8)
No	218 (10.9)
I have thought about it, but am still undecided	338 (16.9)
I have not thought about it yet	308 (15.4)

Note: Denominator varies due to missing data for some variables

When asked about whether their child had been bullied, 68.0% of participants reported that their child had never experienced bullying.

Table 14. Child Bullying

Child Bullying	N=2,074 n (%)
Has your child been bullied?	
Yes	496 (24.7)
No	1364 (68.0)
Don't know	146 (7.3)

Note: Denominator varies due to missing data for some variables

When participants were asked about who is responsible for their child's care before and after school, most indicated that children (40.9%) were cared for by one stay-at-home parent or a parent not working outside the home. In addition, about a quarter (25.9%) of children were cared for by a non-parent before and after school. Children spent an average of 1.1 hours before school and 4.3 hours after school being cared for by a non-parent.

Table 15. Childcare arrangement

Childcare Arrangement	n (%)
On most days, who is responsible for care of your child before and after school?	
Care by one stay-at-home parent / parent not working outside the home	821 (40.9)
Two parents employed outside of the home whose work schedules allow alternating care by at least one parent at all times	493 (24.6)
Child is independent with before and after school care	34 (1.8)
Child is cared for/supervised by an older child in the home	49 (2.4)
Care by someone else (before / after school program, babysitter, nanny, or other caregiver)	519 (25.9)
Other	89 (4.4)
Time per week that child spends in care by a non-parent before school (hours)	
Mean (SD)	1.2 (6.2)
Time per week that child spends in care by a non-parent after school (hours)	
Mean (SD)	4.3 (27.0)

Note: Denominator varies due to missing data for some variables

## Child Sleep Behaviour

A large majority of children did not share a bedroom with their parents (96.4%) or with their siblings (76.1%). In a week, the number of days children engaged in screen-based activities the hour before bed greatly varied. For instance, 16.7% of children engaged in screen-based activities twice a week, 16.5% seven days a week, and 15.8% engaged in no screen time before bed.

Table 16. Children’s Sleep Habits Questionnaire

Children’s Sleep Habits Questionnaire	
Children’s Sleep Habits Questionnaire, total score	
Mean, (SD)	28.9 (6.3)
Min, Max	18, 60
N (%)	
Does your child share a bedroom with: Parents	
Yes	71 (3.6)
No	1893 (96.4)
Does your child share a bedroom with: Siblings	
Yes	473 (23.9)
No	1505 (76.1)
In the past week, how many days did your child engage in screen-based activities (TV, smartphone, computer, tablet) during the hour before going to bed?	
None	
1 day	316 (15.8)
2 days	288 (14.4)
3 days	334 (16.7)
4 days	250 (12.5)
5 days	161 (8.1)
6 days	233 (11.7)
7 days	86 (4.3)
	330 (16.5)

Note: Denominator varies due to missing data for some variables

## Child and Nutrition

The Children’s Eating Behaviour Questionnaire (CEBQ) is a parent-administered questionnaire designed for children older than 2 years old that assesses children’s eating behaviour over several aspects.<sup>2</sup> It was originally developed for research regarding early precursors of obesity and eating disorders. The questions are scored as a five-point Likert scale ranging from “Never” to “Always.” The original questionnaire included 35 questions across 8 subscales. A subset of 10 of these questions, across 3 subscales (Food Fussiness, Satiety Responsiveness, and Food Responsiveness) was used to create the abbreviated version used in the 8-year follow up. The scores for each subscale were summed to give separate scores. Higher scores indicated higher risk.

In the 8-year follow-up, the average score for the Children’s Eating Behaviour Questionnaire was 25.5 of a maximum score of 50.

Table 17. Children’s Eating Behaviour Questionnaire (CEBQ)

CEBQ	N = 2,074
Children's Eating Behaviour Questionnaire (Short Form), total score	
Mean (SD)	25.5 (4.8)
Min, Max	10, 41
CEBQ Subscale Score	Mean (SD)



CEBQ	N = 2,074
Food Responsiveness	9.2 (3.1)
Satiety Responsiveness	8.3 (2.2)
Food Fussiness	8.0 (2.7)

Note: Denominator varies due to missing data for some variables

The NutriSTEP is a 17-question parent-administered nutrition risk screening tool designed for preschoolers.<sup>3</sup> It assesses several nutrition risk components such as food and nutrient intake, physical growth, developmental and physical capabilities, physical activity, and food security and the feeding environment with an emphasis on eating frequency.

The AOF team used a modified NutriSTEP questionnaire at the 8-year follow-up, similar to the modified version used at the 5-year follow-up. The tool was modified to reflect diet quality among 8-year-olds by asking about the number of servings each day and adding example serving sizes. The original screen time food intake item was asked three separate times to address breakfast, lunch, and dinner. Due to changes in wording, one omitted item, inclusion of other questions, and slight changes to answer options, a new scoring algorithm for this “version” was required.

In collaboration with Tanis Fenton PhD and Raylene Reimer PhD, University of Calgary nutrition experts, a new scoring algorithm was created for this modified NutriSTEP. The maximum possible score for the AOF 8-year version of the NutriSTEP questionnaire was 83 and the minimum possible score was 0. Higher scores indicated higher risk. We recommend that the AOF 8-year NutriSTEP total score be used as a continuous variable rather than to assign certain values to create risk categories.

In the 8-year follow-up, most children (86.5%) had low nutritional risk in the modified NutriSTEP screening tool. This indicated that a large proportion of the children were assessed to have a healthy and balanced diet with minimal risk of nutritional deficiencies or related health concerns.

Table 18. Nutrition Screening Tool for Every Toddler and Preschooler, Modified

Modified NutriSTEP	N=2,074
Modified NutriSTEP, total score	
Mean (SD)	11.9 (7.2)
Min, Max	0, 45
	N (%)
Risk score	
Lower nutrition risk (<20)	1627 (86.5)
Higher nutrition risk (≥20)	255 (13.5)

Note: Denominator varies due to missing data for some variables

## Family Activities

In the past year, the most frequent participant family activities were using local parks/playgrounds (76.0%) and using local walking paths or bike paths (68.6%). Families occasionally participated in the following activities: recreational events in their community (66.3%), helping out a neighbour (57.5%), going to the library (46.4%), going to a recreational facility (48.4%), going to a neighbourhood

association or Community Centre (45.0%), or attending the child’s school as a community hub (49.0%). Families were least likely to report participation in working with a children’s group, club, or team (34.7%); going to a meeting for community concerns (70.9%); using a tutor for their child outside of school (89.0%); and going to a faith-based centre (56.7%). The frequency of participation in activities is crucial in identifying potential gaps in support systems and community engagements. For instance, low participation in certain activities may indicate barriers to access or a lack of resources available for families and understanding these patterns can allow for intervention to address any underlying issues affecting participation.

Table 19. Family activities

Family Activities	N=2,074 n (%)
Frequency of participant or their family attending or taking part in a recreational event in their community (e.g. a sporting event, concert, picnic) in the last year	
Not at all	
Occasionally	226 (11.4)
Frequently	1315 (66.3)
	442 (22.3)
Frequency of participant or their family working with a children’s group, club, or team in the last year	
Not at all	684 (34.7)
Occasionally	661 (33.5)
Frequently	628 (31.8)
Frequency of participant or their family helping out a neighbour (e.g. childcare, yard work) in the last year	
Not at all	439 (22.2)
Occasionally	1136 (57.5)
Frequently	401 (20.3)
Frequency of participant or their family going to a meeting dealing with community concerns (e.g. Block Parents, Community Development) in the last year	
Not at all	1404 (70.9)
Occasionally	464 (23.4)
Frequently	112 (5.7)
Frequency of participant or their family going to the library (e.g. story time, borrowing books or videos for you or your child, using public computers) in the last year	
Not at all	285 (14.4)
Occasionally	918 (46.4)
Frequently	775 (39.2)
Frequency of participant or their family going to a recreational facility (e.g., YMCA, leisure center, city pool or recreation facility) for an event or use of the facility in the last year	
Not at all	72 (3.6)
Occasionally	958 (48.4)

Family Activities	N=2,074 n (%)
Frequently	951 (48.0)
Frequency of participant or their family going to a neighbourhood association or Community Center (local facility with sports facilities and/or community groups meeting space) in the last year	
Not at all	640 (32.4)
Occasionally	888 (45.0)
Frequently	446 (22.6)
Frequency of participant or their family going to a faith-based centre (e.g. church, mosque, temple) in the last year	
Not at all	1122 (56.7)
Occasionally	389 (19.6)
Frequently	469 (23.7)
Frequency of participant or their family attending their child's school as a "hub" for supporting and hosting activities that benefit the community in the last year	
Not at all	742 (37.6)
Occasionally	969 (49.0)
Frequently	264 (13.4)
Frequency of participant or their family using local parks / playgrounds in the last year	
Not at all	27 (1.4)
Occasionally	449 (22.6)
Frequently	1508 (76.0)
Frequency of participant or their family using local walking paths or bike paths in the last year	
Not at all	56 (2.9)
Occasionally	562 (28.5)
Frequently	1352 (68.6)
Frequency of participant or their family using a tutor for their child outside of school in the last year	
Not at all	1757 (89.0)
Occasionally	107 (5.4)
Frequently	110 (5.6)
Frequency of participant or their family going to, or participating in, another community organization or activity not described above in the last year	
Not at all	1455 (77.9)
Occasionally	275 (14.7)
Frequently	138 (7.4)

Note: Denominator varies due to missing data for some variables

## Child Behaviour

The Behaviour Assessment System for Children, Second Edition (BASC-II), Parent Rating Scales-Child (PRS-C) Ages 6-11 is a behavioural assessment tool that measures behavior and self-perceptions of children.<sup>4</sup> It focuses on both positive and adaptive behaviours and negative and maladaptive behaviours. It uses a 4-point scale with options of Never, Sometimes, Often, or Almost Always.

Clinical scales measure maladaptive behaviours. Higher scores on clinical scales represent negative or undesirable characteristics that cause impaired functioning in home, school, or peer relationships, or community contexts. Clinical scales were categorized as low, average, at-risk and clinically significant; and were comprised of scales for aggression, anxiety, attention problems, atypicality, conduct problems, depression, hyperactivity, somatization, and withdrawal. Adaptive scales measure positive behaviours. Higher scores on the adaptive scales represent positive or desirable characteristics, and low scores represent possible problem areas. Adaptive scales were categorized as very high, high, average and at-risk. Adaptive scales were activities of daily living, adaptability, functional communication, leadership and social skills.

Children were categorized as clinically significant if they scored  $\leq 30$  on an adaptive scale or  $\geq 70$  on a clinical scale. AOF used the PRS-C Ages 6-11 scoring tables from the BASC-II Instruction Manual to score the 8-year follow-up. The sum of the raw scoring was converted to a normative score (t-score), which was then presented based on all responses from participants, as well as responses based on sex. For 2-category cut-offs: T-scores  $> 60$  (scores above the 86<sup>th</sup> percentile of the normative sample) represent potentially meaningful clinical evaluations, or “positive screens.”

The results of the BASC-II assessment revealed important insights into the behavior and self-perceptions of children in this cohort. Although the majority scored average for all categories, there was a group of children who were categorized as at risk or clinically significant. A small percentage of children were considered at risk or clinically significant for hyperactivity (15.1%), aggression (12.5%), conduct problems (8.2%), anxiety (13.4%), depression (13.9%), somatization (13.7%), atypicality (13.7%), withdrawal (19.9%), attention problems (15.4%), activities of daily living (17.8%), adaptability (15.8%), social skills (15.3%), leadership (9.1%), and adaptive skills (13.8%) (not mutually exclusive). These trends reflect a fair number of children in this cohort were at risk for emotional and behavioural problems, primarily with social avoidance and internalizing behaviors (withdrawal) and the ability to self-care (activities of daily living).

Table 20. BASC-II primary scale T scores at 8 years

BASC-II: Primary Scale T Scores	N=2,074 n (%)
<b>Hyperactivity</b>	
Low (31-40)	193 (10.6)
Average (41-59)	1355 (74.3)
At risk (60-69)	202 (11.1)
Clinically significant ( $\geq 70$ )	72 (4.0)
<b>Aggression</b>	
Low (31-40)	188 (10.3)
Average (41-59)	1411 (77.2)
At risk (60-69)	184 (10.1)
Clinically significant ( $\geq 70$ )	44 (2.4)
<b>Conduct Problems</b>	
Low (31-40)	353 (19.4)
Average (41-59)	1320 (72.4)

BASC-II: Primary Scale T Scores		N=2,074 n (%)
At risk (60-69)		113 (6.2)
Clinically significant ( $\geq 70$ )		36 (2.0)
<b>Anxiety</b>		
Very low ( $\leq 30$ )		23 (1.3)
Low (31-40)		336 (18.4)
Average (41-59)		1220 (66.9)
At-risk (60-69)		165 (9.1)
Clinically significant ( $\geq 70$ )		78 (4.3)
<b>Depression</b>		
Low (31-40)		193 (10.6)
Average (41-59)		1374 (75.5)
At-risk (60-69)		175 (9.6)
Clinically significant ( $\geq 70$ )		78 (4.3)
<b>Somatization</b>		
Low (31-40)		476 (26.1)
Average (41-59)		1097 (60.2)
At-risk (60-69)		183 (10.0)
Clinically significant ( $\geq 70$ )		65 (3.7)
<b>Atypicality</b>		
Average (41-59)		1572 (86.3)
At-risk (60-69)		188 (10.3)
Clinically significant ( $\geq 70$ )		61 (3.4)
<b>Withdrawal</b>		
Low (31-40)		355 (19.5)
Average (41-59)		1104 (60.6)
At-risk (31-40)		273 (15.0)
Clinically significant ( $\leq 30$ )		89 (4.9)
<b>Attention Problems</b>		
Low (31-40)		372 (20.3)
Average (41-59)		1179 (64.3)
At-risk (31-40)		255 (13.9)
Clinically significant ( $\leq 30$ )		28 (1.5)
<b>Adaptability</b>		
High (60-69)		361 (19.8)
Average (41-59)		1177 (64.4)
At-risk (31-40)		239 (13.1)
Clinically significant ( $\leq 30$ )		50 (2.7)
<b>Social Skills</b>		
High (60-69)		366 (20.1)
Average (41-59)		1176 (64.6)
At-risk (31-40)		254 (13.9)
Clinically significant ( $\leq 30$ )		25 (1.4)

BASC-II: Primary Scale T Scores	N=2,074 n (%)
<b>Leadership</b>	
Very high ( $\geq 70$ )	38 (2.1)
High (60-69)	319 (17.5)
Average (41-59)	1305 (71.3)
At-risk (31-40)	149 (8.2)
Clinically significant ( $\leq 30$ )	16 (0.9)
<b>Activities of Daily Living</b>	
Very high ( $\geq 70$ )	11 (0.6)
High (60-69)	216 (11.9)
Average (41-59)	1270 (69.7)
At-risk (31-40)	268 (14.7)
Clinically significant ( $\leq 30$ )	57 (3.1)
<b>Functional Communication</b>	
High (60-69)	319 (17.5)
Average (41-59)	1250 (68.7)
At-risk (31-40)	201 (11.0)
Clinically significant ( $\leq 30$ )	50 (2.8)

Note: Denominator varies due to missing data for some variables

Regarding children's overall behavior and emotion functions, the majority of the cohort fell under the average range for the domains in the BASC-II composite scale. The composite scale measures externalizing problems (outward behaviours such as aggression, hyperactivity, conduct), internalizing problems (anxiety, depression, withdrawal), adaptive skills (social skills, adaptability, activities of daily living), and finally, the Behavioral Symptoms Index (BSI), which is a general measure of the composite scale measures. There was a small percentage of children that were at-risk or clinically significant in externalizing problems (11.3%), internalizing problems (14.3%), generally based on the Behavioral Symptoms Index (12.3%), and adaptive skills (13.0%).

Table 21. BASC-II composite scale T scores at age 8

BASC-II: Composite Scale T Scores	Combined Sexes N=2,074 n (%)
<b>Externalizing Problems</b>	
Low (31-40)	216 (11.9)
Average (41-59)	1399 (76.8)
At-risk (60-69)	163 (8.9)
Clinically significant ( $\geq 70$ )	44 (2.4)
<b>Internalizing Problems</b>	
Very low ( $\leq 30$ )	3 (0.2)
Low (31-40)	368 (20.2)
Average (41-59)	1188 (65.3)
At-risk (60-69)	193 (10.6)
Clinically significant ( $\geq 70$ )	68 (3.7)

BASC-II: Composite Scale T Scores	Combined Sexes N=2,074 n (%)
Behavioural Symptoms Index	223 (12.3)
Low (31-40)	1372 (75.4)
Average (41-59)	170 (9.3)
At-risk (60-69)	55 (3.0)
Clinically significant ( $\geq 70$ )	
Adaptive Skills	
Very high ( $\geq 70$ )	12 (0.7)
High (60-69)	279 (15.3)
Average (41-59)	1293 (71.0)
At-risk (31-40)	204 (11.2)
Clinically significant ( $\leq 30$ )	32 (1.8)

Note: Denominator varies due to missing data for some variables

For the BASC-II PRS-C content scales in the 8-year study comprised of anger control, bullying, developmental social disorders, emotional self-control, executive functioning, negative emotionality, and resiliency. Approximately three-quarters of participants reported average scores for their children in anger control (73.6%), and emotional self-control (75.4%). Anger control is the tendency for a child to become angry or irritated quickly with an inability to self-regulate. Emotional self-control is the child's ability to regulate emotions and expression of emotions. The majority (82.9%) reported average in bullying. About 70% of participants reported average in all developmental social disorders (69.7%), executive functioning (68.7%), negative emotionality (67.5%), and resilience (68.6%). Developmental social disorders look at potential deficits in social skills and communication, e.g., withdrawal and inappropriate responses to social cues. Executive function refers to a child's abilities of memory, processing, planning and inhibiting activity in response to surrounding stimuli. Finally, negative emotionality refers to a child reacting overly negative (e.g., anger, fear, sadness, jealousy) to changes in activities and routines. Overall, these average scores show that most children were not at elevated risk for behavioural challenges.

Table 22. BASC-II content scale T scores at age 8

BASC-II: Content Scale T Scores	Combined Sexes N=2,074 n (%)
Anger Control	
Low (31-40)	266 (14.6)
Average (41-59)	1341 (73.6)
At-risk (60-69)	152 (8.3)
Clinically significant ( $\geq 70$ )	64 (3.5)
Bullying	
Low (31-40)	181 (9.9)
Average (41-59)	1520 (82.9)
At-risk (60-69)	105 (5.7)

BASC-II: Content Scale T Scores	Combined Sexes N=2,074 n (%)
Clinically significant ( $\geq 70$ )	27 (1.5)
Developmental Social Disorders	
Low (31-40)	361 (19.8)
Average (41-59)	1267 (69.7)
At-risk (60-69)	128 (7.0)
Clinically significant ( $\geq 70$ )	63 (3.5)
Emotional Self-Control (Negative)	
Low (31-40)	195 (10.7)
Average (41-59)	1372 (75.4)
At-risk (60-69)	194 (10.7)
Clinically significant ( $\geq 70$ )	59 (3.2)
Executive Functioning (Inhibited)	
Very low ( $\leq 30$ )	5 (0.3)
Low (31-40)	339 (18.6)
Average (41-59)	1252 (68.7)
At-risk (60-69)	181 (9.9)
Clinically significant ( $\geq 70$ )	45 (2.5)
Negative Emotionality	
Low (31-40)	279 (15.3)
Average (41-59)	1229 (67.5)
At-risk (60-69)	258 (14.2)
Clinically significant ( $\geq 70$ )	55 (3.0)
Resilience	
High (60-69)	294 (16.1)
Average (41-59)	1252 (68.6)
At-risk (31-40)	223 (12.2)
Clinically significant ( $\leq 30$ )	57 (3.1)

Note: Denominator varies due to missing data for some variables

## Parenting Practices

AOF used a parenting questionnaire taken from National Longitudinal Survey of Child and Youth (NLSCY) assessing parenting styles and practices to ask participants about their parenting experience at the 8-year follow-up.<sup>5</sup> The parenting scale in NLSCY adapted questions from Strayhorn and Weidman's (1988) Parent Practices Scale.<sup>6</sup> Participants were categorized as having high levels of ineffective or hostile parenting, or positive interaction parenting if they scored more than one standard deviation above the mean of the sample data. Participants were categorized with low levels of ineffective or hostile parenting, or positive interaction parenting if they scored more than one standard deviation below the mean of the sample data.

Based on this cut-off, 17.3% of participants had high levels of ineffective or hostile interactions with their child or practiced more undesirable parenting behaviors that focused on the negative behaviours of the child. 86.5% of the participants had high levels of positive interaction parenting, which indicates that they practiced more positive parenting behaviors.



Table 23. Positive interaction and ineffective/hostile parenting at 8 years.

Parenting	n (%)
Positive Interaction parenting subscale (NLSCY Parenting)	
Higher levels, scored > 1 SD above mean (10)	1683 (86.5)
Lower positive interaction, scored ≤ 1 SD above mean (10)	262 (13.5)
Ineffective/Hostile parenting subscale (NLSCY Parenting)	
Higher ineffective/hostile levels, scored ≥ 1 SD above mean (14)	336 (17.3)
Lower levels, scored < 1 SD above mean (14)	1601 (82.7)

Note: Denominator varies due to missing data for some variables

Children were asked to rate their relationship with their siblings and the other parent on a scale from 1 (very good) to 7 (very bad) (8 = N/A). In this cohort, 39.8% reported a very good relationship with their siblings and 1.1% were unsatisfied.† Almost 70% reported a satisfied or very satisfied relationship with their other parent and 3.3% unsatisfied. Overall, AOF children reported positive interactions with their siblings and other parent.

†Levels 6 and 7 combined

Table 24. Child's relationships with siblings and other parent at 8 years.

Child's Relationships	n (%)
Child's relationship with their sibling(s)	
1 (very good)	776 (39.8)
2	566 (29.1)
3	251 (12.9)
4	84 (4.3)
5	50 (2.6)
6	18 (0.9)
7 (very poor)	3 (0.2)
8 N/A (no siblings)	198 (10.2)
Satisfaction with child's relationship with their other parent	
1 (very satisfied)	898 (46.0)
2	465 (23.9)
3	214 (11.0)
4	111 (5.7)
5	111 (5.7)
6	65 (3.3)
7 (very unsatisfied)	85 (4.4)

Note: Denominator varies due to missing data for some variables

## Women's Health Conditions

Women's physical activity was measured based on the Canadian guidelines for physical activity definition, which was to accumulate at least 150 minutes of moderate-to-vigorous intensity aerobic physical activity per week, in bouts of 10 minutes or more. 28.1% reported that they were meeting these guidelines for physical activity. This indicated that the majority (71.9%) of women in the cohort were not meeting physical activity guidelines. The mean maternal weight at the 8-year follow up is 71.3 kg, with an average Body Mass Index (BMI) of 25.9 kg/m<sup>2</sup>.

Table 25. Women's physical activity, weight, height and Body Mass Index (BMI)

Physical Activity	n (%)
Do you think you meet the Canadian guidelines for physical activity (Definition: accumulate at least 150 minutes of moderate-to-vigorous intensity aerobic physical activity per week, in bouts of 10 minutes or more)	
Yes	547 (28.1)
No	1400 (71.9)
Average Maternal Weight (kg), Height (cm) and BMI (kg/m <sup>2</sup> )	Mean (SD)
Weight	71.3 (16.8)
Height	164.5 (7.2)
BMI	25.9 (5.9)

In terms of women's health, the most commonly reported physical and mental health conditions were backache (29.3%), allergies (28.8%), anxiety (25.9%), and depression (20.5%). The least commonly reported conditions included drug/alcohol dependence (0.7%), diabetes (1.2%), and domestic violence/abuse (2.2%).

Table 26. Women's health conditions at 8-year follow-up

Maternal Health Conditions	n (%)
Backache	565 (29.3)
Allergies	558 (28.8)
Anxiety	501 (25.9)
Depression	395 (20.5)
Asthma	256 (13.3)
Chronic headaches	230 (12.0)
Chronic pain	200 (10.5)
Chronic sleep problems	161 (8.4)
Other health/mental health problems	149 (7.9)
Irritable bowel syndrome	135 (7.0)
Urinary incontinence	112 (5.9)
Menopausal symptoms	110 (5.7)
Recurrent Urinary Tract infection (e.g. bladder)	97 (5.1)

Maternal Health Conditions	n (%)
High blood pressure	82 (4.3)
Cancer	61 (3.2)
Celiac disease	49 (2.6)
Cardiac issues	46 (2.4)
Eating Disorder (e.g. anorexia, bulimia, binge eating disorder)	45 (2.3)
Domestic violence/abuse	42 (2.2)
Diabetes	22 (1.2)
Drug/alcohol dependence	14 (0.7)

Note: Denominator varies due to missing data for some variables

## Smoking, Drinking, Marijuana, and Other Recreational Drug Use

The majority (73.2%) of participants consumed alcohol during the time of the 8-year study. During the 12-months prior to completion of the survey, participants reported drinking 5 or more drinks on one occasion an average of 2.84 (SD 9.3) times. Most participants did not use marijuana (91.9%) or other recreational drugs (99.4%)

Table 272. Substance use (alcohol, smoking, marijuana, and other recreational drugs)

Substance Use (alcohol, smoking marijuana, and other recreational drugs)	n (%)
Drink alcohol	
Yes	1425 (73.2)
No	523 (26.8)
In the last year, how many times have you had 5 or more drinks on any one occasion?	
Mean (SD)	2.84 (9.3)
Min, Max	0, 200
Use marijuana	
Yes	157 (8.1)
No	1790 (91.9)
Use other recreational drugs	
Yes	12 (0.6)
No	1937 (99.4)

Note: Denominator varies due to missing data for some variables

## Social Support

Social support can be defined as an individual's access to assistance through ties to other individuals in their community, groups, and interpersonal relationships. The AOF study used the National Longitudinal Survey of Children and Youth (NLSCY) Social Support Scale to assess maternal social support at the 8-year follow-up.<sup>7</sup> The NLSCY questions were acquired from the Government of Ontario's Better Beginnings, Better Futures Project and from suggestions by Dr. Tom Hay, an experimental psychologist recognized for his expertise in child development and well-being. Questions were also an adapted version of Robert Weiss's Social Provisions Scale. Low scores on the NLSCY Social Support Scale

represent low levels of maternal social support and high scores represent high levels of maternal social support.<sup>11</sup>

Participants who scored 1 SD below the sample mean were categorized as having lower social support.

Based on this cut-off, 81.0% reported that they had moderate or high levels of social support. This indicated that the majority of participants in the cohort felt like they were socially supported.

Contrastingly, one in five (19%) reported experiencing lower levels of social support.

Table 28. Women’s social support

Social Support	n (%)
Social support (NLSCY Social Support)	
Moderate or high levels, scored > 1 SD above mean (16)	1560 (81.0)
Lower levels, scored ≤ 1 SD below mean (16)	366 (19.0)

Note: Denominator varies due to missing data for some variables

## Mental Health

Mental health characteristics were assessed using standardized tools in the 8-year follow-up questionnaire. Stress was measured using the Perceived Stress Scale (PSS), where participants scoring at or above 1 SD above the mean indicated symptoms of stress.<sup>8</sup> Depression was measured using the Centre for Epidemiologic Studies Depression Scale (CES-D), where participants scoring 16 or greater were categorized as displaying symptoms of depression.<sup>9</sup> Anxiety was measured using the shortened form of the Spielberger State Anxiety Inventory (SSAI) by Marteau and Bekker (1992), where participants who scored at or above 1 SD above the mean were categorized as displaying symptoms of anxiety.<sup>10</sup> Fatigue was measured using the two-item fatigue subscale of the Iowa Fatigue Scale (IFS), where participants who scored at or above 1 SD above the mean were categorized as displaying symptoms of fatigue.<sup>11</sup>

Based on this cut-off, the majority (82.6%) of participants reported low symptoms of stress, while 17.4% reported experiencing symptoms of stress. A notable proportion of respondents indicated symptoms of stress (17.4%), depression (18.6%), anxiety (18.6%), and mental fatigue (17.6%).

Table 29. Women’s mental health

Mental Health	n (%)
Stress (Perceived Stress Scale)	
Low symptoms of stress, scored < 1 SD above mean (20)	1583 (82.6)
Symptoms of stress, scored ≥ 1 SD above mean (20)	334 (17.4)
Depression (CES-D)	
Low symptoms of depression, scored < 16	1584 (81.4)
Symptoms of depression, scored ≥ 16	363 (18.6)
Anxiety (Spielberger State Anxiety Inventory (short form))	
None to lower anxiety, scored < 1 SD above mean (14)	1594 (82.6)
Higher anxiety, scored ≥ 1 SD above mean (14)	335 (17.4)
Fatigue (Iowa Fatigue Scale)	
None to lower fatigue, scored < 1 SD above mean (7)	1599 (82.4)

Mental Health	n (%)
Higher fatigue, scored $\geq 1$ SD above mean (7)	341 (17.6)

Note: Denominator varies due to missing data for some variables

## Partner Relationship

The majority (93.2%) of participants reported having a spouse or partner at the time of the 8-year study, and 26.0% were very happy and 22.7% were extremely happy in their partnership. When asked about practical support, most participants reported to have support all of the time (30.5%) or most of the time (35.6%). In addition, participants had positive responses with the social/emotional support received from their spouse/partner with 40.2% being very satisfied and 39.9% satisfied. Regarding conflict and argument resolution, most participants reported some or no difficulty, with only 4.3% reporting great difficulty.

Table 30. Relationship with partner

Relationship with Partner	n (%)
Do you currently have a spouse or partner?	
Yes	1820 (93.2)
No	133 (6.8)
If yes (has a partner/spouse): Satisfaction with the social and/or emotional support received from spouse/partner?	
Very satisfied	731 (40.2)
Satisfied	725 (39.9)
Unsatisfied	188 (10.3)
Very unsatisfied	175 (9.6)
If yes (has a partner/spouse): Does your spouse/partner provide practical support? (e.g. caring for child(ren), preparing meals, helping with household chores, etc.)	
None of the time	26 (1.5)
A little of the time	189 (10.4)
Some of the time	401 (22.0)
Most of the time	648 (35.6)
All of the time	555 (30.5)
If yes (has a partner/spouse): Happiness in relationship with spouse/partner	
Extremely unhappy	69 (3.8)
Quite unhappy	148 (8.1)
A little unhappy	190 (10.5)
Happy	343 (18.9)
Very happy	473 (26.0)
Extremely happy	412 (22.7)
Perfectly happy	183 (10.1)
If yes (has a partner/spouse): Difficulty of working out arguments with spouse/partner	
Great difficulty	78 (4.3)
Some difficulty	923 (50.8)

Relationship with Partner	n (%)
No difficulty	816 (44.9)

Note: Denominator varies due to missing data for some variables

## Women’s Personality

The 10-item personality inventory assesses the Big Five domains of personality at the “broadest level of abstraction”: Extraversion (“sociable, assertive, talkative, active, NOT reserved, or shy”), Agreeableness (“trusting, generous, sympathetic, cooperative, NOT aggressive, or cold”), Conscientiousness (“dependable, organized, responsible, self-disciplined, thorough, NOT careless or impulsive”), Emotional Stability (“relaxed, self-confident, NOT anxious, moody, easily upset, or easily stressed”), and Openness to Experience (“curious, reflective, creative, deep, open-minded, NOT conventional”).<sup>12</sup> Items are scored on a 7-point scale ranging from 1 (Disagree Strongly) to 7 (Agree Strongly). To score each domain, the average of items making up the scale was used. Higher scores indicated a greater presence of the personality trait.

All 5 personality domains scored at similar levels, with the means as follows: extraversion (4.3), agreeableness (5.4), conscientiousness (5.8), emotional stability (5.1), and openness to experiences (5.2)

Table 31: Ten Item Personality Inventory

Personality Inventory	
Extraversion subscale	
Mean (SD)	4.3 (1.7)
Min, Max	1.0, 7.0
Agreeableness subscale	
Mean (SD)	5.4 (1.1)
Min, Max	1.0, 7.0
Conscientiousness subscale	
Mean (SD)	5.8 (1.1)
Min, Max	1.0, 7.0
Emotional Stability subscale	
Mean (SD)	5.1 (1.3)
Min, Max	1.0, 7.0
Openness to Experiences subscale	
Mean (SD)	5.2, (1.1)
Min, Max	1.0, 7.0

Note: Denominator varies due to missing data for some variables

## Demographic Characteristics

Based on the demographics questions:

- Most participants were married or in a common law relationship (91.4%)
- Most were in a two-parent family (both biological parents) (89.0%)
- Most participants reported an income of greater than \$125,000, with the highest brackets being \$175,000 or more (29.4%) and \$125,000-\$174,999 (23.3%)

Table 32. Demographic characteristics of participants at 8 years post-delivery

Characteristic	n (%)
Marital status	
Married/Common-law	1784 (91.4)
Single/Separated/Divorced/Widowed	168 (8.6)
Family status as it relates to child	
Two parent family (both biological parents)	1740 (89.0)
Two parent family (one biological parent, one non-biological parent)	67 (3.4)
Single parent family	130 (6.7)
Other	17 (0.9)
Total household income (before taxes and deductions)	
\$79,999 or less	341 (17.7)
\$80,000-\$99,999	217 (11.3)
\$100,000-\$124,999	353 (18.3)
\$125,000-\$174,999	450 (23.3)
\$175,000 or more	568 (29.4)

Note: Denominator varies due to missing data for some variables

## Financial Resources

Approximately three quarters (74.3%) of participants reported that they sometimes had financial difficulty fulfilling family, work, or other responsibilities. Most participants reported having enough financial resources to do what was important for the family (71.7%).

Furthermore, about half (53.0%) reported they rarely or never had to worry about having enough resources to do what was important for the family. The majority (97.7%) did not have to use the food bank in the 12 months prior to completion of the survey.

Table 33. Financial resources

Financial Resources	N=2,074 n (%)
Ability to fulfill family, work, or other responsibilities (e.g. volunteer work, household duties, and children)	
Never difficult	267 (13.7)
Sometimes difficult	1451 (74.3)
Difficult most of the time	202 (10.3)
Always difficult	33 (1.7)
Enough financial resources to meet family needs	
Rarely or never (1-3)	153 (7.9)
Sometimes (4-5)	398 (20.4)
Most of the time or always (6-7)	1400 (71.7)
Worrying about having enough financial resources to do what is important to family	

Financial Resources	N=2,074 n (%)
Rarely or never (1-3)	1036 (53.0)
Sometimes (4-5)	493 (25.3)
Most of the time or always (6-7)	423 (21.7)
Used food bank in the past 12 months	
No	1909 (97.7)
Yes	44 (2.3)

Note: Denominator varies due to missing data for some variable

## Women's Activities and Work

Among the women who were working, over half of them were working a regular daytime schedule (53.1%). Of those employed, 37.2% were working 30 to 44 hours a week. Of those who were self-employed, 15.5% worked less than 30 hours a week. Aside from work, 8.6% reported to be engaging in some form of schoolwork, and over half (58.2%) participated in volunteer work for any amount of time during the week.

Table 34. Women's daily activities at 8 years

Daily Activities	n (%)
Hours per week spent working for pay (employed)	
Less than 30 hours	461 (23.8)
30 to 44 hours	721 (37.2)
More than 44 hours	136 (7.0)
N/A	619 (32.0)
Hours per week spent working for pay (self-employed)	
Less than 30 hours	293 (15.5)
30 to 44 hours	84 (4.4)
More than 44 hours	59 (3.2)
N/A	1453 (76.9)
Hours per week spent doing schoolwork	
Less than 30 hours	128 (6.8)
30 to 44 hours	25 (1.3)
More than 44 hours	8 (0.5)
N/A	1718 (91.4)
Hours per month spent in volunteer work	
Less than 30 hours	1082 (57.2)
30 to 44 hours	16 (0.8)
More than 44 hours	4 (0.2)
N/A	790 (41.8)
Work schedule	
Regular daytime schedule	1038 (53.1)
Regular evening shift	32 (1.6)
Regular night shift	15 (0.8)
Rotating shift (one that changes regularly from days to evenings or nights)	94 (4.8)
Split shift (one consisting of two distinct periods each day)	21 (1.1)



Daily Activities	n (%)
Irregular schedule (one that changes from day to day)	359 (18.4)
N/A	353 (18.1)
Other	41 (2.1)

Note: Denominator varies due to missing data for some variables

Regarding participant's partners, half (49.5%) were working 30 to 44 hours a week with a regular daytime schedule (70.6%). Of those who were self-employed, most worked more than 44 hours a week (10.5%). Aside from work, 4.0% reported to be engaging in some form of schoolwork and 30.2% participated in volunteer work for any amount of time during the week.

Table 35. Partner daily activities at 8 years

Daily Activities	n (%)
Hours per week spent working for pay (employed) by partner	
Less than 30 hours	62 (3.5)
30 to 44 hours	889 (49.5)
More than 44 hours	543 (30.3)
N/A	300 (16.7)
Hours per week spent working for pay (self-employed) by partner	
Less than 30 hours	120 (6.9)
30 to 44 hours	103 (6.0)
More than 44 hours	181 (10.5)
N/A	1326 (76.6)
Hours per week spent doing schoolwork by partner	
Less than 30 hours	59 (3.5)
30 to 44 hours	7 (0.4)
More than 44 hours	2 (0.1)
N/A	1643 (96.0)
Hours per month spent in volunteer work by partner	
Less than 30 hours	507 (29.6)
30 to 44 hours	9 (0.5)
More than 44 hours	1 (0.1)
N/A	1194 (69.8)
Work schedule by partner	
Regular daytime schedule	1282 (70.6)
Regular evening shift	23 (1.3)
Regular night shift	19 (1.0)
Rotating shift (one that changes regularly from days to evenings or nights)	129 (7.1)
Split shift (one consisting of two distinct periods each day)	9 (0.5)
Irregular schedule (one that changes from day to day)	222 (12.2)
N/A	76 (4.2)
Other	56 (3.1)

Notes: Denominator represents the number of participants who have a partner  
Denominator varies due to missing data for some variables

## Conclusion

The All Our Families participants represent a portion of the socio-demographic low-risk parenting population in Calgary. At the 8-year mark, most of the participants were in a married or common law relationship (91.4%), part of a two-parent family (89.0%), and had an average household income greater than \$125,000 (52.7%). In addition, most participants found themselves to have limited financial stress with 71.7% reporting to have enough financial resources to meet family needs most of the time or always, and only having worries about having enough financial resources to do what is important to family sometimes (25.3%) or very rarely (53.0%). Moreover, the majority of women in this cohort felt that they had moderate or high levels of social support (81.0%).

Based on participants self-report using standardized tools, 17.4% displayed symptoms of stress (PSS), 18.6% displayed symptoms of depression, 17.4% displayed symptoms of anxiety (SSAI-SF), and 17.6% displayed symptoms of fatigue (IFS). This survey also asked participants to self-report their own mental health conditions where 25.9% reported to have a type of anxiety disorder and 20.5% reported to have depression. As well, in terms of physical health conditions, the most reported included backache (29.3%) and allergies (28.8%)

For participants with a spouse or partner at the time of the study (93.2%), the majority reported to be happy in their relationship with their spouse/partner as 22.7% reported to be extremely happy or very happy (26.0%) overall.

The average age of the children at the time of the 8-year follow up was 8.3 years old (SD 0.4). Based on maternal reporting, a small percentage of children were categorized to be at risk or clinically significant for a variety of behaviors including 14.3% showing signs for internalizing problems (anxiety, depression, withdrawal), 11.3% for externalizing problems (aggression, hyperactivity), and 13.0% for adaptive skills problems (social skills, adaptability). Based on the general measure of the Behavioral Symptoms Index (BSI), 12.3% were shown to be within the at-risk or clinically significant category.

Regarding school life, most children in the 8-year follow up were attending public school (65.9%). Nearly all children liked their teacher (99.0%) and had one or more friends at school (98.9%). Academically, the majority of children were performing in various subjects at their grade level or higher. Only about 7.7% of children had a Special Education code as identified by Alberta Education.

For children's physical health, a small proportion (19.8%) were seen by a doctor in the emergency department or urgent care at the time of this survey. The most commonly reported diagnosis by a registered health practitioner included environmental allergies (7.1%), eczema/dermatitis/psoriasis (6.7%), and asthma. Of these cases, 6.2% were treated for environmental allergies, 7.2% were treated for eczema/dermatitis/psoriasis, and 7.6% for asthma. Only 6.6% of children experienced chronic pain since grade 1, and was most commonly in the stomach (3.2%) and legs (1.5%), with 36.4% of those affected reporting pain in their most impacted area two to three times a month. The most commonly reported health issues by parents were gut-related issues (17.3%) and vision problems (14.1%). The majority of children (86.5%) were assessed as having low nutritional risk according to the modified NutriSTEP screening tool, indicating that majority maintained a healthy and balanced diet with minimal risk of nutritional deficiencies or related health issues.

With regards to screen use, 17.9% of children spent two to five hours on screens on weekdays and 43.1% on weekends. A majority of households (90.2%) had established screen time rules, and more than half of participants (53.5%) 'almost always' limited usage, including 69.2% of parents that enforced keeping screens out of bedrooms. Most women, (80.8%) believed their children met the threshold for the Canadian Guidelines for Physical Activity. Approximately 76.2% of children participated in an individual sport and 53.5% in a team sport at least once a week, while 71.4% engaged in unorganized physical activity at least once a week. The most common family activities included using local parks/playgrounds (76.0%) and walking or bike paths (68.6%).

The next steps for the AOF study will include launching the 11-year follow-up survey. Similarly to this and previous follow up reports, the survey will continue to collect information at the 11-year mark, on different aspects of maternal wellbeing and child development. Overall, these surveys contribute to the comprehension and examination of various child and family outcomes in different domains including social, mental, and physical health.

## References

1. Tough SC, McDonald SW, Collisson BA, Graham SA, Kehler H, Kingston D, Benzies K. Cohort profile: the All Our Babies pregnancy cohort (AOB). *Int J Epidemiol.* 2017; 46(5):1389–1390. <https://doi.org/10.1093/ije/dyw363.32>.
2. Wardle J., Guthrie C.A., Sanderson S., Rapoport L. (2001). Development of the Children's Eating Behaviour Questionnaire. *Child Psychology and Psychiatry.* 42,7,963-970.
3. Randall Simpson JA, Keller HH, Rysdale LA, Beyers JE. Nutrition Screening Tool for Every Preschooler (NutriSTEP®): validation and test-retest reliability of a parent-administered questionnaire assessing nutrition risk of preschoolers. *Eur J Clin Nutr* (2007), 1-11
4. Reynolds C.R., Kamphaus R.W. (2008). *BASC-2 Parent Rating Scales – Child Behavior Assessment System for Children, Second Edition Clinical Report.* NCS Pearson.
5. Statistics Canada, National Longitudinal Survey of Children and Youth.
6. Strayhorn, J.M. & Weidman, C.S. (1988). A Parent Practices Scale and its relation to parent and child mental health. *Journal of the American Academy of Child and Adolescent Psychiatry,* 27, 613-618.
7. NLSCY Cycle 5 – User Guide. Section 9.5.8 Social Support Scale.
8. Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure for perceived stress. *Journal of Health and Social Behavior,* 24, 385-396.
9. Radloff, L.S. (1977). The CES-D Scale. A Self-Report Depression Scale for Research in the General Population, 1(3), 385-401.
10. Marteau, T. M., & Bekker, H. (1992). The development of a six-item short-form of the state scale of the Spielberger State-Trait Anxiety Inventory (STAI). *British Journal of Clinical Psychology,* 31, 301–306.
11. Hartz AH, Bentler SE, Watson D. (2003). Measuring Fatigue Severity in Primary Care Patients. *Journal of Psychosomatic Research,* 54(6); 515-21.
12. Gosling, S.D., P.J. Rentfrow and W.B. Swann (2003), “A very brief measure of the Big-Five personality domains”, *Journal of Research in Personality,* Vol. 37/6, pp. 504-528, [http://doi.org/10.1016/S0092-6566\(03\)00046-1](http://doi.org/10.1016/S0092-6566(03)00046-1).

## Appendix I: Standardized Measurement Tools

### Child Eating: Children's Eating Behaviour Questionnaire (CEBQ)

The Children's Eating Behaviour Questionnaire (CEBQ) is a parent-administered questionnaire designed for children above 2 years old, which assesses children's eating behaviour over several aspects. The tool was developed for research regarding early precursors of obesity and eating disorders. The questions are scored as a five-point Likert scale ranging from "Never" to "Always." The original questionnaire included 35 questions across 8 subscales, including food responsiveness, emotional over-eating, emotional under-eating, enjoyment of food, desire to drink, satiety responsiveness, and food fussiness. A subset of 10 of these questions, across 3 subscales, was used to create this abbreviated version.

Higher scores indicate greater risk.

This 10-item CEBQ is scored the same way the original 35-item version was scored. Items are scored as a five-point Likert scale ranging from Never (1) to Always (5). The scores of questions belonging to each subscale are summed to give a separate total score for each subscale. The mean and standard deviation of each subscale are calculated.

#### References:

- 1) Wardle J., Guthrie C.A., Sanderson S., Rapoport L. (2001). Development of the Children's Eating Behaviour Questionnaire. *Child Psychology and Psychiatry*. 42,7,963-970.
- 2) Raylene Reimer & Tanis Fenton, University of Calgary.

### Child Eating: NutriSTEP Scale (MODIFIED)

NutriSTEP® (Nutrition Screening Tool for Every Preschooler) is a 5-minute parent-administered nutrition risk screening tool for preschoolers (age 3-5 years). The questionnaire includes 17-items that assess several nutrition risk components such as food and nutrient intake, physical growth, developmental and physical capabilities, physical activity, and food security and the feeding environment. Cronbach's alphas ranged from 0.13-0.78 in the original tool in 2013. The AOF team has modified the NutriSTEP questionnaire at this follow up survey (similar modified version is used in the 5 year questionnaire). The original screen time food intake item has been asked three separate times to address breakfast (q8modsntep8), lunch (q8modsntep9), and dinner (q8modsntep10). Wording, one omitted item, inclusion of other questions, and slight changes to answer options of the original tool may require a new scoring algorithm for this "version". Psychometrics are not available for this heavily modified nutrition scale.

Differences with the 8-year modified NutriSTEP compared to original: AOF used a modified NutriSTEP questionnaire at the 5-year and 8-year follow-up of the NutriSTEP questionnaire asks about how many servings each day and added example serving sizes, which are not in the original NutriSTEP questionnaire. The original NutriSTEP questionnaire focuses on eating frequency which is less a reflection of diet quality among 8-year olds than 3-year olds than quantities eaten.

In collaboration with Tanis Fenton and Raylene Reimer, a new scoring algorithm was created for the modified NutriSTEP. The maximum possible score for the AOF 8-year version of the NutriSTEP questionnaire is 83 and a minimum possible score of 0. We recommend that the AOF 8-year NutriSTEP total score be used as a continuous variable rather than to assign certain values to create risk categories. Some researchers may wish to focus in on certain questions of interest as some questions suggest health and parenting concerns on their own, for example, focusing on if any of the food groups are not

consumed at all, if food is expensive, or the choking questions. Some of the questions are asked subjectively about whether the parent is concerned, for example, their comfort with how the child is growing and the judgement about the child's weight. Since these questions indicate parental concerns, they may or may not reflect a true health concern.

The "expensive food" question does not measure food insecurity that it appears to be aimed to assess. Rather it may blame people for food insecurity, and it could direct the health professional into inappropriate responses to food insecurity, such as providing budgeting resources. Food insecurity is a prevalent problem even in Canada, so it is unfortunate that this question does not assess food insecurity.

The original NutriSTEP questionnaire (used in AOF at 3 years) asked about TV watching during meals in one question while the AOF 5-year and 8-year versions of the NutriSTEP questionnaire asks 3 questions about TV watching during breakfast, lunch and dinner, so this questionnaire puts more weight on this behavior. This questionnaire also asks about specified screen time outside of meal-times on weekend and weekdays, thereby placing even greater emphasis on screen usage.

While the original NutriSTEP questionnaire rates taking supplements as risk indicators that contribute to the total NutriSTEP score, the AOF 5-year and 8-year versions of the NutriSTEP questionnaire does not rate taking supplements as risk indicators since many people are recommending vitamin D supplements and some children may be on, for example, an iron supplement for therapeutic reasons. The parent responses to this question and the others are in the AOF database if people wish to examine the answer, but this question does not contribute to the total score.

Scoring Information for the Original NutriSTEP: All 17 items range from 0 (no risk) to 4 (risk) with the potential of two to five frequency response options. A total score is created by summing all items to provide a nutrition risk score ranging from 0 to 68. Higher scores indicate greater risk.

Recommended risk cut points:

- Low risk: 20 or less (expected prevalence of 55-70%)
- Moderate risk: 21-25 – public health services and interventions (expected prevalence of 20-30%)
- High risk: 26 or greater – referral to a dietitian for further assessment and treatment (expected prevalence of 10-15%)

Scoring Information for the AOF Modified NutriSTEP: Scoring instructions here are adapted from the AOF 5 year modified NutriSTEP scoring. Possible scores for the AOF 8-year version of the NutriSTEP questionnaire range between 0 to 83. A lower score is considered a lower nutrition risk, therefore, a higher score is considered higher nutrition risk.

We recommend that the AOF 8-year NutriSTEP total score be used as a continuous variable rather than to assign certain values to create risk categories. Some researchers may wish to focus in on certain questions of interest as some questions suggest health and parenting concerns on their own, for example, focusing on if any of the food groups are not consumed at all, if food is expensive, or the choking questions. Some of the questions are asked subjectively about whether the parent is concerned, for example, their comfort with how the child is growing and the judgement about the child's weight. Since these questions indicate parental concerns, they may or may not reflect a true health concern. However, if it is necessary to create a dichotomous variable of the total score, a 1 SD above the mean cutoff is recommended to indicate risk.

For the 8-year modified NutriSTEP, the coding and scoring can be the same as the AOF 5 year questionnaire, since the old Canada Food Guide recommendations (servings of milk, meat, etc.) are the same for children ages 4-8. Once the children move into the 9-13 age group, we will need to re-adjust questions/scoring. (Reimer, R.)

References:

- 1) Randall Simpson JA, Keller HH, Rysdale LA, Beyers JE. Nutrition Screening Tool for Every Preschooler (NutriSTEP®): validation and test-retest reliability of a parent-administered questionnaire assessing nutrition risk of preschoolers. *Eur J Clin Nutr* (2007), 1-1

### Child Behavior & Development: Behavior Assessment System for Children - 2nd Edition (BASC-II)

There are 11 forms of the BASC-2 available to be assessed on individuals ages 2-25 according to parent-ratings, teacher-ratings and self-ratings. The Behaviour Assessment System for Children, Second Edition, Parent Rating Scales-Child (PRS-C) Ages 6-11 is a behavioural assessment tool that measures behavior and self-perceptions of children and focuses on both positive and adaptive behaviours and negative and maladaptive behaviours. The BASC-2 has 14 primary scales, 7 optional scales, and 4 composite scales.

Clinical scales measure maladaptive behaviours. Higher scores on these scales represent negative or undesirable characteristics that cause impaired functioning in home, school, or peer relationships, or community contexts. Adaptive scales measure positive behaviours. Unlike on the clinical scales, high scores on the adaptive scales represent positive or desirable characteristics, and low scores represent possible problem areas.

Internal consistency produced a Cronbach's alpha of 0.75-0.88 overall. Cronbach's alpha for the clinical scales ranged from 0.69-0.83 in the general population. For the individual scales, Cronbach's alpha ranged from 0.60-0.92 in the general population, for children aged 8-12 years old. In the clinical population, Cronbach's alpha ranged from 0.52-0.93 for children aged 6-12 years old. For the composite scales, the alpha was generally in the 0.80-0.90s for composite scales, and 0.60-0.90s for individual scales. Scale was administered 1 to 8 weeks after the first testing. PRS reliabilities for mean & range of primary scales were level P: Alpha 0.84 (0.76-0.90); level C: Alpha 0.86 (0.79-0.92); level A: Alpha 0.89 (0.82-0.93). It is a 4-point scale with options of Never, Sometimes, Often, or Almost Always with four composite scales: Externalizing Problems, Internalizing Problems, Behaviour Symptoms Index, and Adaptive Skills.

References:

- 1) Community-University Partnership for the Study of Children, Youth, and Families (2011). Review of the Behavior Assessment System for Children – Second Edition (BASC-2). Edmonton, Alberta, Canada.
- 2) CureSearch Children's Oncology Group (2008). Neuropsychological, Social, Emotional, and Behavioural Outcomes in Children with Cancer: A Groupwide Non-Therapeutic Study. San Antonio, Texas, United States.
- 3) Reynolds C.R., Kamphaus R.W. (2008). BASC-2 Parent Rating Scales – Child Behavior Assessment System for Children, Second Edition Clinical Report. NCS Pearson.

- 4) Song J., Leventhal B., Koh Y., Cheon K., Ju Hong H., Kim Y., Cho K., Lim E., In Park J., Kim Y. (2017). Cross-Cultural Aspect of Behavior Assessment System for Children-2, Parent Rating Scale-Child: Standardization in Korean Children. *Yonsei Medical Journal*.

### NLSCY Parenting Scale

Parenting questionnaire taken from National Longitudinal Survey of Child and Youth assessing parenting styles and practices. Development of the parenting scale in NLSCY adapted questions from Strayhorn and Weidman's (1988) Parent Practices Scale. Reliability coefficients were calculated for ineffective/hostile parenting  $\alpha = 0.672$  (internal consistency).

For the Ineffective/Hostile Parenting Subscale from the NLSCY subscale, the total score varies from 0-28; higher score indicative of ineffective/hostile interactions. For the Positive Parenting Subscale from the NLSCY subscale, the total score varies from 0-20; higher score indicative of positive parenting interactions. No score given if one or more responses missing.

#### References:

- 1) Statistics Canada, National Longitudinal Survey of Children and Youth
- 2) NLSCY Cycle 1 – Content and Validation of NLSCY DATA (9.1-9.11). Retrieved from [http://people.ucalgary.ca/~libdata/adc/old\\_file\\_info/kids/k96-9a.htm](http://people.ucalgary.ca/~libdata/adc/old_file_info/kids/k96-9a.htm)
- 3) Strayhorn, J.M. & Weidman, C.S. (1988). A Parent Practices Scale and its relation to parent and child mental health. *Journal of the American Academy of Child and Adolescent Psychiatry*, 27, 613-618.

### Spielberger State Anxiety Scale

The Spielberger State Anxiety Scale is a self-report instrument measuring state anxiety. State anxiety refers to "subjective, consciously perceived feelings, tension and apprehension and heightened autonomic nervous system activity". The state anxiety scale consists of 20 items rated on a 4 point intensity scale based on "how you feel right now." Cronbach's alpha values for the State Anxiety Scale were found to be 0.83 for males and 0.92 for females. The original study consisted of both state and trait anxiety, however, only state anxiety was included in the AOB. Marteau and Bekker (1992) developed a 6 item short form of the Spielberger anxiety scale based on a sample of 200 pregnant women. Correlations between the 6 items were reported at  $r = 0.95$  and reliability coefficient of  $\alpha = 0.82$ .

Responses are scored from 1-4; items 1, 4, and 5 need to be reverse coded (in red). All responses are summed for a possible range of scores of 6-24. Higher scores represent higher state anxiety.

#### References:

- 1) Spielberger, C.D., Gorsuch, R.L., & Lushene, R.E. (1970). *State-Trait Anxiety Inventory for adults (Form X)*. Palo Alto, CA: Consulting Psychologists Press.
- 2) Gaudry, E., Vagg, P., & Spielberger, C.D. (1975). Validation of the State-Trait Distinction in Anxiety Research. *Multivariate Behavioral Research*, 10(3), 331-341.
- 3) Marteau, T. M., & Bekker, H. (1992). The development of a six-item short-form of the state scale of the Spielberger State-Trait Anxiety Inventory (STAI). *British Journal of Clinical Psychology*, 31, 301-306.



### Iowa Fatigue Scale (IFS)

The Iowa Fatigue Scale is a self-report instrument measuring fatigue. The IFS consists of 11 items rated on a 5-point scale based on “how you have felt in the past month.” The IFS has four subscales: cognitive, fatigue, energy, and productivity. Correlations between the four subscales ranged from .49-.66. All Our Families used the Fatigue Subscale of the Iowa Fatigue Scale, this subscale consists of two items to calculate a score.

Responses are scored from 1 (Not at All)-5 (Extremely). Responses from both items in the Fatigue Subscale are summed for a possible range of scores of 2-10. Higher scores represent higher states of fatigue.

References:

- 1) Hartz AH, Bentler SE, Watson D. (2003). Measuring Fatigue Severity in Primary Care Patients. *Journal of Psychosomatic Research*, 54(6); 515-21.

### Perceived Stress Scale

The Perceived Stress Scale (PSS) is a ten-item scale which assesses the degree to which individuals perceive situations in their lives to be stressful. Respondents are asked to rate how often they have felt or thought a certain way with response choices ranging from never to very often. The Cronbach’s alphas ranged from 0.67-0.91 (internal consistency).

Total stress scores can range from 0 to 40 with higher scores indicate more perceived stress. Few changes to wording of items in original scale by AOF (eg. Item 9: “outside of your control” vs. “couldn’t control”). AOF questionnaires had responses given on 5-point Likert scale where options are: Never, Almost never, Sometimes, Fairly often, and Often. Original scale choices were: Never, Almost never, Sometimes, Fairly often, and Very often.

References:

- 1) Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure for perceived stress. *Journal of Health and Social Behavior*, 24, 385-396.
- 2) Roberti JW, Harrington LN, & Storch EA. Further psychometric support for the 10-item version of the Perceived Stress Scale. *Journal of College Counseling*, 9:135-147.

### Dyadic Adjustment Scale (DAS)

The DAS is a 32-item self-administered measure of the quality of marriage and similar dyads. It can be completed in about 10 minutes and has been widely used in research on the marital or dyadic relationship. Content, criterion-related and construct validity were reported; and the scale was found to have an overall reliability of .80 using Cronbach’s coefficient alpha. The Cronbach’s alphas of the individual subscales ranged from .13-.88. This single-item question was also asked at the AOB 12 month follow-up (Q4).

The DAS score is computed by adding up the scores of all items. Total score ranges from 0 to 151. There is no norm for determining the cut-off for a happy or unhappy relationship. However, in a previous

study, the mean score of a divorced sample is 71, and the mean score of a married sample is 115. A score below 71 may be indicative of a “distressed” relationship, and a score above 115 may be indicative of a “non-distressed” relationship.

The one-item question is rated on a 7 point Likert scale ranging from 1 (extremely unhappy) to 7 (perfectly happy).

References:

- 1) Sharpley CF & Cross DG. 1982. A psychometric evaluation of the Spanier Dyadic Adjustment Scale. *Journal of Marriage and Family*. 44 (3): 739-741.

### Ten Item Personality Inventory (TIPI)

The 10-item personality inventory assesses the Big Five domains of the personality where the Big Five represents the “broadest level of abstraction”: Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience. The Cronbach alphas were .68, .40, .50, .73, and .45 for the Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience scales respectively. The relatively low internal consistency is due to the fact that the TIPI scales have only two items within it.

All 10 items are on a 7-point scale ranging from 1 (Disagree Strongly) to 7 (Agree Strongly).

References:

- 1) Gosling, S.D., P.J. Rentfrow and W.B. Swann (2003), “A very brief measure of the Big-Five personality domains”, *Journal of Research in Personality*, Vol. 37/6, pp. 504-528, [http://doi.org/10.1016/S0092-6566\(03\)00046-1](http://doi.org/10.1016/S0092-6566(03)00046-1).

### NLSCY Social Support Scale

The instrument contains 8 items scored on a 4-point Likert Scale with answers ranging from 1 (Strongly Agree) to 4 (Strongly Disagree). From Cycle 5 of the NLSCY onward, this section applies to all parents with children/youth less than 16 years of age. There are 8 questions regarding measures of guidance (two questions), reliable alliance (two questions), attachment (two questions), and religious/community services (two questions). These questions were acquired from the Government of Ontario’s Better Beginnings, Better Futures Project and from suggestions by Dr. Tom Hay. Reliability for social support in Cycle 1 was 0.82 (Statistics Canada, 1998)

The respondent indicates on a 4-point scale the extent to which each statement describes her current social network. Responses range from 1 (strongly agree) to 4 (strongly disagree). These will need to be recoded to 0 (strongly disagree) to 3 (strongly agree), with the following items reverse-coded: q8sss1, q8sss4, q8sss5, q8sss8. Higher scores indicate greater social support. No score given if one or more responses missing (NLSCY no response threshold value of 10%, no score calculated)

References:

- 1) NLSCY Cycle 5 – User Guide. Section 9.5.8 Social Support Scale  
[Haven’t found a reference that uses the Cycle 5 or later scale]

- 2) Letourneau, N., Fedick, C. B., Willms, J.D., Stewart, M., and White, K. (2007). Longitudinal study of social-environmental predictors of behaviour: children of adolescent and older mothers compared. *Canadian Studies in Population*, 34(1), 1-27.

### Center for Epidemiologic Studies Depression Scale (CES-D)

The CES-D scale is a short self-report scale designed to measure depressive symptomatology in the general population. The items of the scale are symptoms associated with depression which have been used in previously validated longer scales. The new scale was tested in household interview surveys and in psychiatric settings. The scale contains 20 symptoms, any of which may be experienced occasionally by healthy people. Scores of 16-20 indicate mild depression, 21- 30 moderate depression, and 31 or higher indicates severe depression. Test-retest reliabilities between .48 and .50 after 3 months have been found. Strong discriminant validity has been found in a number of studies. Concurrent and construct validity has been found with correlations of .8 with other longer tests of depression and other clinical measures. The CES-D scale proved acceptable to both general and clinical populations. Although the CES-D is not designed for clinical diagnosis, it is based on symptoms of depression as seen in clinical cases.

Higher scores indicate higher levels of distress. A score  $\geq 16$  suggests a clinically significant level of psychological distress; in a general population about 20% would be expected to score in this range

#### References:

- 1) Radloff, L.S. (1977). The CES-D Scale. A Self-Report Depression Scale for Research in the General Population, 1(3), 385-401.
- 2) Wang L, Wu T, Anderson JL, & Florence JE. 2011. Prevalence and risk factors of maternal depression during the first three years of child rearing. *Journal of Women's Health*. 20(5): 711-718.