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Survey at 10.5 years of children and parents of the Elfe and Epipage 2 cohorts: Protocol and participation report

Contents

Introduction

These survey questionnaires, like those of the previous surveys, were designed in accordance with the proposals of the thematic groups and tested in a pilot survey. The pilot survey conducted between 12 April and 16 July 2018 also enabled us to validate the complex survey protocol based on CATI, CAPI and CAWI questionnaires and on a series of tests on the children, including anthropometric measurements and physical exercises.

CPP approval N°2021-A00023-38 dated 04/03/2021 for Elfe; N°2020-A03471-3 dated 27/05/2023 for Epipage 2. Registered with CNIL under the number 921-424.

Several orginal features of the survey at 10.5 years should be mentioned:

1. For the first time, the children of the Elfe and Epipage 2 cohorts were included in the same survey programme, with the administration of several almost identical questionnaires to the children and parents of both cohorts.

2. This was the second time, after the survey at 3.5 years, that the Elfe cohort children were invited to take part in person. Unlike the survey at 3.5 years, this participation took a variety of forms, including complex tests, questionnaires, physical exercises, anthropometric measurements and biological parameters (pulse, blood pressure, respiratory capacity, etc.).

   The children of the Epipage 2 cohort had never been seen by an interviewer in their home, but had been invited to take part in a medical assessment in a hospital setting. During the home visit in the 10.5 years survey, with a few rare exceptions, they were surveyed in the same way as the Elfe children.

3. The survey programme combined three survey methods: a phone survey of the parents (CATI questionnaire) followed by a survey of children in their home (CAPI questionnaire) and a tablet survey administered to the parent present (CAWI questionnaire) conducted at the same time as the survey of their child.

4. The CAWI questionnaire administered to the parent present during the home visit was also sent to the other cohabiting parent, whether absent or not, who was invited to complete it online at his or her convenience (an invitation was sent by email).

5. The survey included a “biological module”. However, unlike the survey at 3.5 years, if the parents and child gave their consent, the child was invited to undergo various biological analyses, some of which required a blood sample, in a biological analysis laboratory close to their home.

6. The families of both cohorts living in Réunion could participate in the phone survey, as could the children of the Epipage 2 cohort living in Guadeloupe, Martinique and French Guiana.

In various respects, however, the survey protocol was similiar to that of the most recent previous surveys:

1. As was the case for the surveys at 3.5 years and 5 years, there was no distinction between the "mother's questionnaire" and the "father's questionnaire".
   The reference parent (father or mother) in the most recent previous survey of the family was contacted first, and was free to decide whether he/she wished to be the reference parent this time around.

2. As in the survey at 3.5 years, only one of the two parents living in the child's home, the reference parent, was interviewed by phone.

3. As in the surveys at 3.5 and 5 years, if it became clear on initial contact that the parents were separated and shared custody of the child, the contacted parent was called "reference parent 1" and the other parent, contacted later, was called "reference parent 2".

4. As for the survey at 5 years, a hotline and a dedicated website were provided for the families:

   - The hotline enabled families to contact the service provider directly, by email or phone, to ask questions or obtain information.

   - The main purpose of the dedicated website was to enable families to arrange appointments, first to take part in the phone survey, and later, after giving their consent, to take part in the home survey. It also included several pages giving information about the survey and allowing parents to ask questions.

Telephone survey protocol

1. Surveyable sampling frame

It comprises all Elfe and Epipage 2 families whose contact details were supplied to the service provider.

The Elfe cohort includes 12,629 families and 12,814 children, and the Epipage 2 cohort 3,186 families and 3,792 children, giving a total of 15,815 families and 16,606 children.

The sampling frame was divided into four separate waves,[1] taking two criteria into account:

- The children's date of birth, so that the survey date was as close as possible to the day they reached 10.5 years of age.
- The school holiday dates of their region of residence to maximize the number of home surveys conducted during the school holidays.

Note, however, that Elfe supplied the service provider with the contact details of families that had not taken part since the survey at 2 years and had never formally notified their withdrawal (n=258). These families, presumed to be difficult to survey, were included in a special wave, called wave 5, distributed across the different batches associated with each wave.

[1]Each wave was divided into batches (6) to ensure that the volume of phone surveys conducted each day was compatible with the availability of the interviewers conducting the home surveys.

Last, the households that refused to take part in the phone survey when first contacted by phone were grouped together and contacted a second time to reiterate the invitation to take part.

2. Announcing the survey

    - The survey was announced to the families by letter around two weeks before the phone calls began,

    - followed by a reminder email two days before.

In the letter and the email, the families were informed that they could make an appointment on the service provider's dedicated survey website. [2]

3. Telephone contact

    Independently of the phone survey itself, the parents were contacted for several reasons:

    - To check the eligibility of the contacted family
        - To check that the Elfe child actually lived with the parent talking on the phone to the interviewer.
        - To check the parent's situation with respect to the child.
        - To check all contact details (address, telephone, email) of the person on the phone, and of the other parent (if there was a "reference parent 2).

    - To present the survey programme and the likely amount of time needed to administer the phone survey and the home survey.

    - To obtain the family's consent to take part in each survey, in the knowledge that:

        - Only families living in mainland France (excluding Corsica) were invited to take part in the home survey
        - Only respondents who took part in the phone survey were asked to consent to the home survey
        - The home visit did not necessarily take place after the phone survey.

When a home visit was decided, the person on the phone was asked to give further details, if necessary, of the family's address to help the interviewer find their home.

The family's preferences and availability for the home visit were also recorded.

The table below summarizes the family contact protocol, from the the survey announcement up to the reminders sent to families that did not answer the initial phone calls. The date when home visits could commence is also given.

[2]Instructions for making an appointment on the dedicated website were given in the announcement letter and email sent before the start of the survey.

	Announcement letter	Email from service provider	Phone calls	Reminders starting on:	Home visits starting on:
Wave 1	12/01/2022	24/01/2022	26/01/2022	17/03/2022	29/01/2022
Elfe: children in Waves 1 and 2 at time of maternity unit recruitment School holiday zones A and B: n=3,907 Epipage 2: children not concerned by Wave 1					
Wave 2	03/02/2022	11/02/2022	14/02/2022	31/03/2022	17/02/2022
Elfe: children in Waves 1 and 2 at time of maternity unit recruitment School holiday zone C: n=1,335 Epipage 2: children born between 28/03 and 31/07/2011: n=1903					
Wave 3	02/03/2022	11/03/2022	11/03/2022	28/04/2022	17/03/2022
Elfe: children in wave 3 at time of maternity unit recruitment n=3,567 Epipage 2: children born between 01/08 and 30/10/2011: n=957					
Wave 4	20/04/2022	29/04/2022	02/05/2022	16/06/2022	05/05/2022
Elfe: Children in wave 4 at time of maternity unit recruitment: n=3,820 Epipage 2: children born between 01/11 and 31/12/2011: n=327					

4. The questionnaire

The telephone questionnaire administered by the interviewer comprised the modules presented in the table below. Note that to simplify questionnaire administration, certain modules were shortened or omitted for the Epipage 2 families

Modules	Elfe	Epipage 2
Concerning the household		
Family situation	X *Updated at each survey*	X* *Updated at each survey*
Separations - Parents' relations		Not asked
Education - Arrivals in the household		Not asked
Labour market situation		X *Updated at each survey*
Housing		Not asked
Holidays	X *New*	X* *New*
Family living abroad		
Concerning the parents		
Parent's health (questions taken from the MINI questionnaire(1))	X *Asked at each survey*	X *Asked at each survey*
Child rearing practices (questions taken from the ALABAMA questionnaire(1))		X*
Living conditions	X *Asked periodically*	X* *Asked periodically*
Use of pesticides		Not asked
Consumption habits		X *New*
Concerning the child		

Health and sleep (questions taken from a screening questionnaire for sleep apnea in children (3) and the SDQ questionnaire (4))	X *Updated at each survey*	X *Updated at each survey*
Diet		X *New*
School		X *New*
Child's social life	*X* *Asked since survey at 3.5 years*	X *New*
Telecommunications devices and games		

** "Shortened" module - Epipage 2 children were not asked all questions*

1. (PDF) Mini International Neuropsychiatric Interview French current DSM-IV
2. *French version of the Alabama Parenting Questionnaire (APQ) (Pauzé et al., 2004)*
3. *Screening of Pediatric Sleep-Disordered Breathing, Spruyt Karen et al. CHEST, Volume 142, Issue 6, 1508 - 1515*
4. *Goodman R. The Strengths and Difficulties Questionnaire: a research note. J Child Psychol Psychiatry. 1997 Jul;38(5):581-6. doi: 10.1111/j.1469-7610.1997.tb01545.x. PMID: 9255702.*

As intended, the mean duration of the telephone questionnaire was slightly less than one hour (extending to 1 hour 50 minutes for an Epipage 2 family with quadruplets).

Home survey protocol

1. Consent

For the home visit, the CNIL required the consent of both parents.

Procedure for obtaining consent for the home visit:

In principle:

Written consent of both holders of parental authority (or legal guardians) was requested when the consent form was sent before the home visit. The signed form was then handed back to the interviewer at the time of the visit.

As an exception to the principle:

The written consent of at least one of the holders of parental authority was requested and at least one parent was required to confirm formally that the absent parent had indeed received the information document and the consent form and that he/she had given his/her consent for the child to take part in the study.

If no formal confirmation was received, the home visit could not take place.

2. Procedure for the child

One of the parents (or a person authorized by the parents) was present with the child during the visit. He/she was, of course, asked to not intervene in any way. The visit was in three (nested) parts: an interview with the child, cognitive tests and a physical examination.

The interview with the child was centred on several topics presented in the table below:

Modules	Elfe	Epipage 2
Bodily awareness, appearance		X*
Telecommunications devices and games	X	Not asked
Quality of life Standardized VSP-A questionnaire[1] Knowledge - perception of prematurity	 X Not asked	 X X
Participation in domestic tasks, relations with siblings[2]	X	X
Leisure activities and preferences	X	X
Moral and political values	X	Not asked
Cognitive tests		
"Mr Petit" reading test *from the E.L.F.E Cogni-Sciences battery*	X	X
WISC V matrices[3]	X	X
WISC V visual puzzles[3]	X	X
PPVT vocabulary test[4]	X	X
Physical examination		
Anthropometric (OMRON HN 289 scale) and blood pressure measurements (OMRON M3)	X	X
MINISPIR measurement of respiratory function (on a sub-group of children)	X	X
Mole count	X	X
Physical fitness tests (Eurofit battery) [5]: sit-ups and standing broad jump	X	X
Motor development tests (TGMD2 battery) [6]	X	X

** "Shortened" module - Epipage 2 children were not asked all questions*

Simeoni MC, Auquier P, Antoniotti S, et al. Validation of a French health-related quality of life instrument for adolescents: the VSP-A. Qual Life Res 2000;**9**:393–403. doi:10.1023/a:1008957104322) ;

[2] *Sibling Qualities Scale, Duncan R. D. Peer and sibling aggression : An Investigation of Intra- and Extra-Familial Bullying. Journal of Interpersonal Violence, 14(8), p. 871-886. 1999) ;*

[3] *WISC-V - Échelle d'intelligence de Wechsler pour enfants et adolescents - 5ème édition (pearsonclinical.fr) ;*

[4] *PPVT-5 et EVT-3 – Évaluation du vocabulaire réceptif et expressif (pearsonclinical.fr) ;*

[5] *EUROFIT (1988). Handbook for the eurofit tests of physical fitness. Rome: Committee for the Development of Sport, Council of Europe ;*

[6]*) Ulrich, D. A. (2000). Test of gross motor development 2: Examiner's manual (2nd ed.). Austin, TX: PRO-ED.*

Impedance audiometry tests (on a sub-group of children) were planned but could not be performed because the company was unable to deliver the necessary equipment in time (manufacturing delays following the COVID epidemic).

Points to note 1

The interviewers' scoring "skill" was assessed during the training course then tested at the end of the survey to check for the existence of any "learning" effects.

A study of the interviewer effect was conducted by Thierry Siméon within the team and is available on request. The general conclusions are as follows:

Pre- and post-survey successes were not correlated with interviewer variables:
If an interviewer effect exists, it remains constant over time.
The absence of a skill is judged more strictly than its presence:
If an interviewer noted the absence of a skill, this can be considered as a reliable judgement. Conversely, the reported presence of a skill might be more debatable. It is therefore preferable to use fail (or a small number of pass items) as the dependent variable in the models rather than success in a test.
Test success depends on the child's characteristics.

These effects remain significant and similar in scale after adding interviewer characteristics.
The interviewer's sex affects the results, as does his/her age and experience.

Recommendation: Conduct sensitivity tests adding variables of interviewer's sex, age and experience when using the presence or absence of a skill in a model.

Points to note 2
Certain problems were observed when administering the cognitive tests, programmed by an external service provider. The main issue concerned administration time. The tests were designed to be conducted in a limited time, but data analysis shows that the tests were not correctly timed for a certain number of children. The allotted response times were exceeded by 5% for the matrices and by 31% for the visual puzzles. As a consequence, the scores were recalculated, applying a score of 0 rather than 1 when the time limit was exceeded, and then applying the stopping rules on these new corrected variables. An explanatory note will be given to users who request access to these data.

3. Self-administered questionnaire

The parent present during the visit was invited to complete a self-administered questionnaire on a tablet or computer while the child was performing the cognitive tests. The other parent was invited to complete it via a link sent to their email address (updated at the time of the home visit if necessary) by the service provider.

It covered the topics listed below:

Modules	Elfe	Epipage 2
Child's health perceived by the parent		
Stage of puberty (Tanner classification)	X	X
Cerebral palsy *(1)*	Not asked	X
Attentional capacity*(2)*	Not asked	X
Quality of life *(3)*	X	X
Parent's cognitive tests		

Abridged version of Raven's matrices [4]	X	X
UK BioBank test[5]	X	X
Parent's physical and mental health		
Dietary behaviour [6]	X	X
Quality of life – SF12 [7]	Not asked	X
Parent's lifestyle	X	Not asked
Sleep	X	X*
Life events over the past ten years	X	X
Description of dwelling	X	X*

[1] *Gross Motor Function Classification System*

[2] *Echelle de Conners- Fumeaux P, Mercier C, Roche S, et al. Validation of the French Version of Conners' Parent Rating Scale Revised, Short Version: Factorial Structure and Reliability. Can J Psychiatry 2016;**61**:236–42. doi:10.1177/0706743716635549*

[3] *Sapin C, Simeoni MC, El Khammar M, Antoniotti S, Auquier P. Reliability and validity of the VSP-A, a health-related quality of life instrument for ill and healthy adolescents. J Adolesc Health. 2005 Apr;36(4):327-36. doi: 10.1016/j.jadohealth.2004.01.016. PMID: 15780788.;*

[4] *Bilker WB, Hansen JA, Brensinger CM, et al. Development of abbreviated nine-item forms of the Raven's standard progressive matrices test. Assessment 2012;**19**:354–69. doi:10.1177/1073191112446655*

[5] *https://doi.org/10.1371/journal.pone.0231627), based on a version translated from English to French and tested in a pilot study by Franck Ramus (Laboratoire de sciences cognitives et psycholinguistique, École normale supérieure, Paris 5)*

[6] *TFEQ-R18 (Three-Factor Eating Questionnaire) : version abridged to 21 items proposed by Tholin (S. Tholin, F. Rasmussen, P. Tynelius, J. Karlsson Genetic and environmental influences on eating behavior: The Swedish young male twins stud American Journal of Clinical Nutrition, 81 (3) (2005), pp. 564-56). du questionnaire original de Stunkard ((Stunkard, A. J. & Messick, S. (1985) The three-factor eating questionnaire to measure dietary restraint, disinhibition and hunger. J. Psychosom. Res. 29: 71–83); traduit; validé par De Lauzon & al (de Lauzon B, Romon M, Deschamps V, Lafay L, Borys JM, Karlsson J, Ducimetière P, Charles MA; Fleurbaix Laventie Ville Sante Study Group. The Three-Factor Eating Questionnaire-R18 is able to distinguish among different eating patterns in a general population. J Nutr. 2004 Sep;134(9):2372-80. doi: 10.1093/jn/134.9.2372..)*

[7] *Short-Form Survey 12. Ware, J.E., Jr.; Kosinski, M.; Keller, S.D. SF-12: How to Score the SF-12 Physical and Mental Health Summary Scales; QualityMetric Inc.: Lincoln, RI, USA; Health Assessment Lab: Boston, MA, USA, 2002*

4. Biology

If the family confirmed the oral consent given during the phone contact, the interviewer recovered the specific enlightened consent form signed by both parents and left a sampling kit. The family then went to the biological test laboratory of their choice, which was informed in advance of the family's visit.

The families were invited to take the following samples from their child: saliva, urine, hair, veinous blood (performed at the test laboratory).

If the family refused to go to a laboratory, they could nonetheless provide a hair sample that was sent directly to the team by post.

In all, samples were taken in almost 60% of cases where the parents gave initial consent.

Procedure for obtaining consent to take biological samples:

In principle:

Written consent of both holders of parental authority (or legal guardians) was requested.

As an exception to the principle:

Written consent of at least one of the holders of parental authority was requested.

In this case, the parent present was asked to confirm formally that the absent parent had indeed received the information document and the consent form and that he/she had given his/her consent for the child to take part in the study.

If consent from both parents, or one consent and one confirmation were not obtained, the biological samples were destroyed.

Procedure for consenting to genetic analyses:

If the parents wished to allow genetic analyses to be performed on the biological samples, written consent signed by both parents was required.

If both signatories were not present, the samples could not be used for genetic analyses.

Data dissemination

The interviewers were asked to recover the signed consent forms before beginning the home interviews with the children. **When the documents were verified, certain consent forms were found to be missing. All concerned families were contacted again and received a new set of consent forms. Unfortunately, it was impossible to recover all the missing documents. The CAPI questionnaires of the families concerned were destroyed.**

Likewise, for the biological samples, all documents were verified, and families were recontacted if necessary, but around 70 samples (in most cases, locks of hair sent by the families) had to be destroyed.

All the variables of the survey at 10 years suitable for dissemination are grouped in 5 tables:

- The CATI table includes all variables relative to the “reference parent” questionnaires (all variables with prefixes A10R1_ and A10R2_).

As the questionnaires are identical, the variables with prefixes A10R1_ and A10R2_ are presented on the same line so that in cases of alternating custody, the responses of both parents of each child can be associated. As the data with prefix A10R2_ were only entered in this specific case (for 634 children), all the variables with prefix A10R2_ are empty in the vast majority of cases.

- The CAPI table includes all the variables of the questionnaire administered to the child during the home visit (variables with prefix A10F_), excepting:
    - variables collected during the cognitive tests (module 7 – matrices + concept + reading). These variables are available in a specific COG database;

  - variables collected during the home visit concerning the biological tests proposed during this visit (availability of kits, consent for sample taking, etc.).

- The CAWI table includes all the variables of the questionnaire administered to both parents during the home visits (variables with prefixes A10P1W_ and A10P2W_). Here too, the variables with the prefixes A10P1W_ and A10P2W_ are presented on the same line so that the responses of both parents who agreed to answer these questionnaires can be associated for each child.

- The COG table includes all the variables of the cognitive tests conducted during the home visit (WISC matrix, WISC puzzle, PPVT, variables with prefix A10COG_).

- The LABO table includes the variables collected during the home visit concerning the biological tests proposed during this visit (availability of kits, consent for sample taking, etc.), the laboratory analysis results (around 1500 results depending on the type of assay), and the variables collected during the home visit on the child's consumption, or not, of organic foods (around 2,500 questionnaires).

Participation report

CATI

At the end of 2022, a "basic questionnaire" was sent to eligible Elfe families who could not be contacted and to families living abroad. This questionnaire comprised around 30 questions on the child's health, height and weight, his/her school class and any difficulties at school, the parents' labour market situation and a few questions on family life. The questionnaire could be completed online (2,266 families with email addresses were contacted) or on paper (431 without a known email address). Information on 658 children was recovered in this way.

To facilitate access to these questionnaires, they were included in the final CATI database (even if they were not administered by telephone, the questions were identical to those asked to responding families in the CATI survey). These data are identified by a specific category of the participation variable.

Elfe study:
For 9,529 ELFE families (9,663 children), at least one CATI parent questionnaire was completed. We thus count:

A10X_PARTIMEN10A_CATI	Frequency	Percentage
0.0=the household is not included in the surveyable base	5242	28.6
1.0=the household is not taking part (CATI) AND has not completed the basic questionnaire	2622	14.31
1.1=the household is not taking part (CATI) – basic questionnaire completed	658	3.59
2.1=the household is taking part (CATI started)	9807	53.51

	A010X_REFCOMP10A_CATI	A010X_REF2COMP10A_CATI

0=not applicable, household is not taking part	8522	8522
1=Complete REF questionnaire	9663	613
1=Incomplete REF questionnaire	144	21
3=REF questionnaire not done		222
4=Not applicable, no REF2 (efvit ne 4)		8951

Epipage 2 study:

Among the 3186 families eligible for this follow-up stage (3,792 children), 1,972 (62%) did the phone interview.

CAPI

Elfe study:

The CAPI was completed for 7,749 Elfe children. Unfortunately, for 261 of them, the consent of both parents could not be correctly validated. A total of 7,488 CAPI questionnaires were used:

A10X_PARTIMEN10A_CAPI	Frequency	Percentage
0.0=the household is not included in the surveyable base	5242	28.6
1.0=the household is not taking part (CAPI)	5338	29.12
1.1=the household is taking part but consent NOT validated	261	1.42
2=the household is taking part (CATI started)	7488	40.85

Epipage 2 study:

1,338 families (1,591 children) took part in the home visit, representing 44% of the families contacted

CAWI

Elfe study:

Of the 7,633 Elfe families who took part in the home interview:

- 6,498 **Parents 1** (1st parent to respond), representing 85.1% of the CAPI respondents, answered the self-administered questionnaire for the Elfe cohort.
- 2,221 **Parents 2** (2nd parent who received the questionnaire by email following the consent of Parent 1), representing 47.6% of Parents 2 for whom the email was forwarded by Parent 1, responded (at least for one of the two parents) to the self-administered questionnaire for the Elfe cohort.

Epipage 2 study:

Of the 1,338 families who took part in the home interview:

- 1,158 **Parents 1,** representing 86.5% of the CAPI respondents, answered the self-administered questionnaire.

- 277 **Parents 2** responded (at least for one of the two parents) to the self-administered questionnaire.

Biology

In all:

- 1,500 samples were taken in more than 850 French laboratories (~ 1,320 for Elfe, 223 pour Epipage 2). Details of the sampling are available on demand.
- 1,150 locks of hair were collected directly by the parents (~ 825 for Elfe, 330 for Epipage 2).

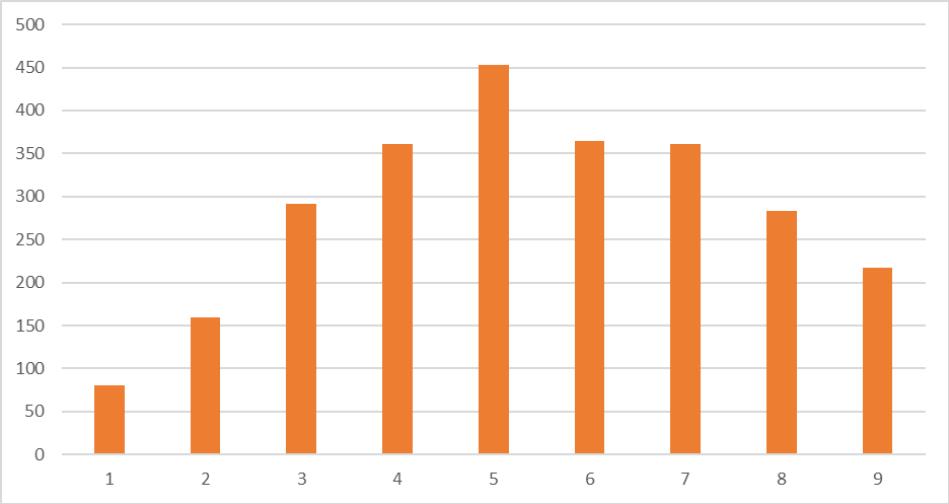
Appendix: Score calculation

"Scores" were calculated to facilitate the analysis of certain series of questions. They are available in the databases. These scores appear in the questionnaires as standard variables (name and title) followed by the words "**For these variables, refer to the appendix at the end of the Protocol for further information**", as an explanation of the calculation method may sometimes be needed for certain scores.
For example, the following variables are found in the questionnaires:

CATI Questionnaire

MINI

SCORE_MINI: counts the number of YES responses to the MINIx questions on episodes of depression (1 to 9) – exclusively for parents who answered yes to MINI1 or MINI3



SDQ

The scores of the four subscales of the Strengths and Difficulties Questionnaire (SDQ) (emotional symptoms, conduct problems, hyperactivity/inattention, and peer relationship problems) were calculated according to the standard scoring instructions[3], after recoding items in line with official recommendations (reversing positively worded items and harmonizing response categories). Subscale scores were obtained by summing the corresponding items.

Emotional symptoms:
SCORE_SDQ_EMO_10Y = sum(PLAINT, INQUIE, PLEURE, ANXIEU, PEURFREQ)

Conduct problems:
SCORE_SDQ_COMP_10Y = sum(CRISES, OBEIS, BAGAR, MENTTRI, VOLEMA)

Hyperactivity/inattention:
SCORE_SDQ_HYPER_10Y = sum(AGITE, NTIENTP, DISTRA, REFLECH, ATTENTI)

Peer relationship problems:
SCORE_SDQ_RELA_10Y = sum(SOLITA, AAMI, ESTAIME, HARCEL, PREADUL)

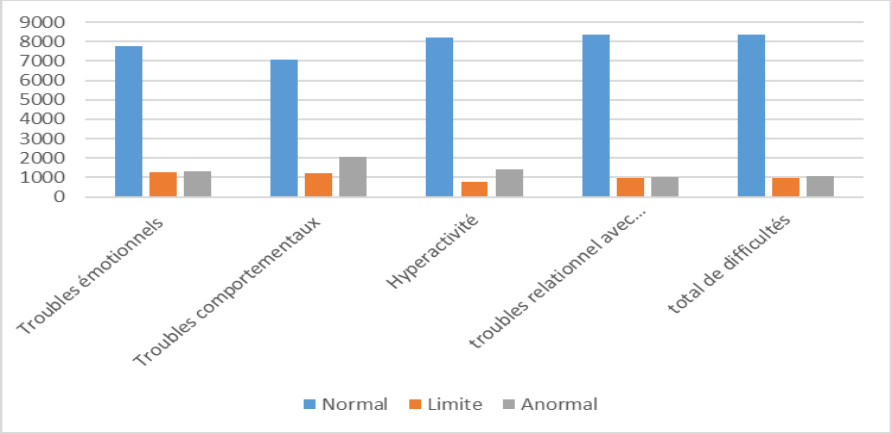
Scores were classified into three categories (normal, borderline, abnormal) based on SDQ population norms established from representative samples of the general population[1,2].

Thresholds were defined using a percentile-based approach in this reference population: ≤80th percentile for the "normal" category, 80th–90th percentile for "borderline," and ≥90th percentile for "abnormal," corresponding approximately to 80%, 10%, and 10% of children in the reference population:

	Normal	Borderline	Abnormal
Questionnaire completed by parents			
Total problems score	0 - 13	14 – 16	17 - 40
Emotional problems score	0 - 3	4	5 - 10
Behavioural problems score	0 - 2	3	4 - 10
Hyperactivity score	0 - 5	6	7 - 10
Relational problems score	0 - 2	3	4 - 10

The total difficulties score was calculated by summing the four difficulty subscales (emotional, conduct, hyperactivity/inattention, and peer problems) and was categorized using the same population-based thresholds.

Among ELFE children who responded at 10 years:



Captions:
Emotional problems
Behavioural problems
Hyperactivity
Relational problems
Total problems
Normal /Borderline/Abnormal

Référence :
1. Goodman R. The Strengths and Difficulties Questionnaire: a research note. *J Child Psychol Psychiatry*. 1997;38:581–586.
2. Goodman R. Psychometric properties of the Strengths and Difficulties Questionnaire. *J Am Acad Child Adolesc Psychiatry*. 2001;40:1337–1345.
3. SDQ scoring manual (UK 4–17). https://www.sdqinfo.org

ALABAMA

4 scores of parental engagement are given for parents who answered the ALABAMAx questions These scores are calculated using the following formulae:

ALABAMA11 is recoded

```
if ALABAMA11 =1 then ALABAMA11R = 2;
if ALABAMA11 =2 then ALABAMA11R = 3;
if ALABAMA11 =3 then ALABAMA11R = 4;
if ALABAMA11 =4 then ALABAMA11R = 5;
if ALABAMA11 =5 then ALABAMA11R = 1;
```

then:

```
ALABAMA_engagt_parental= mean
(ALABAMA1,ALABAMA4,ALABAMA7,ALABAMA9,ALABAMA11r,ALABAMA14,ALABAMA15,ALABAMA20,ALABAMA23,ALABAM
A26);

ALABAMA_comp_positif= mean (ALABAMA2,ALABAMA5,ALABAMA13,ALABAMA16,ALABAMA18);

ALABAMA_incoherence= mean (ALABAMA3,ALABAMA8,ALABAMA12,ALABAMA22,ALABAMA25);

ALABAMA_fbl_supervision= mean (ALABAMA6,ALABAMA10,ALABAMA17,ALABAMA19,ALABAMA21,ALABAMA24);
```

Variable	Title	N	Minimum	25th ctl	50th ctl	75th ctl	Maximum	Mean
A10R1_ALABAMA_engagt_parental	ALABAMA: parental engagement (10,5 years survey)	9702	1,40	3,70	3,90	4,20	5,00	3,91
A10R2_ALABAMA_engagt_parental	ALABAMA: parental engagement (10,5 years survey)	614	2,00	3,60	3,90	4,20	5,00	3,85
A10R1_ALABAMA_comp_positif	ALABAMA: positive educational behaviours (10,5 years survey)	9701	1,00	3,40	3,80	4,20	5,00	3,83
A10R2_ALABAMA_comp_positif	ALABAMA: positive educational behaviours (10,5 years survey)	614	2,40	3,40	3,80	4,20	4,80	3,77
A10R1_ALABAMA_FBL_SUPERVISION	ALABAMA: low supervision (10,5 years survey)	9698	1,00	1,00	1,00	1,17	3,50	1,12
A10R2_ALABAMA_FBL_SUPERVISION	ALABAMA: low supervision (10,5 years survey)	614	1,00	1,00	1,00	1,17	2,83	1,14
A10R1_ALABAMA_incoherence	ALABAMA: inconsistent discipline (10,5 years survey)	9701	1,00	1,60	2,20	2,60	5,00	2,19
A10R2_ALABAMA_incoherence	ALABAMA: inconsistent discipline (10,5 years survey)	614	1,00	1,40	2,00	2,40	4,00	1,99

CAWI questionnaire

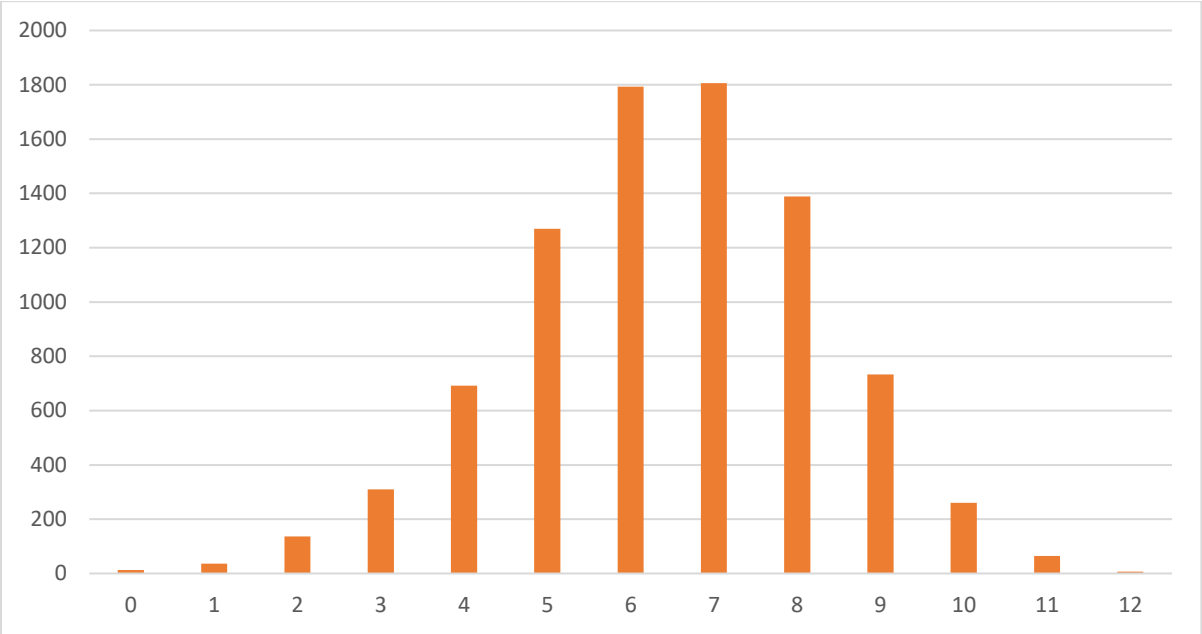
RAVEN's matrices

After each question RAV1 to RAV12, the variables

SCORERAV1 TO SCORERAV12 are coded

0 : wrong answer/1: right answer

RAVSCORETOT : counts the total number of right answers (0 to 12)



RAVSCORETOT FOR PARENTS 1 AND 2

SCORE_RAVEN : calculates a score using the following formula, taken from de Bilker WB, Hansen JA, Brensinger CM, Richard J, Gur RE, Gur RC. Assessment. 2012 Sep;19(3):354-69.

Score = 60 - (V + R), where

V = number of wrong answers

R = exp(0.969 + 0.127 RAV1 + 0.131 RAV2 + 0.083 RAV3 + 0.228 RAV4 + 0.194 RAV5 + 0.094 RAV6 + 0.423 RAV7 + 0.403 RAV8 + 0.219 RAV9 + 0.408 RAV10 + 0.268 RAV11 + 0.252 RAV12),

Where RAVi = 0 if the answer to item i is correct, 1 if incorrect.

If score is negative, Score = 0

Variable	Libellé	N	Minimum	25ème ctl	50ème ctl	75ème ctl	Maximum	Moyenne
A10P1W_Score_RAVEN	**RAVEN: Score**	6270	3,34	35,87	42,28	46,86	57,36	40,55
A10P2W_Score_RAVEN	**RAVEN: Score**	2240	3,34	37,27	43,88	47,67	57,36	41,85

RAVEN SCORE FOR PARENTS 1 AND 2

Variable	Title	N	Minimum	25th centile	50th centile	75th centile	Maximum	Mean

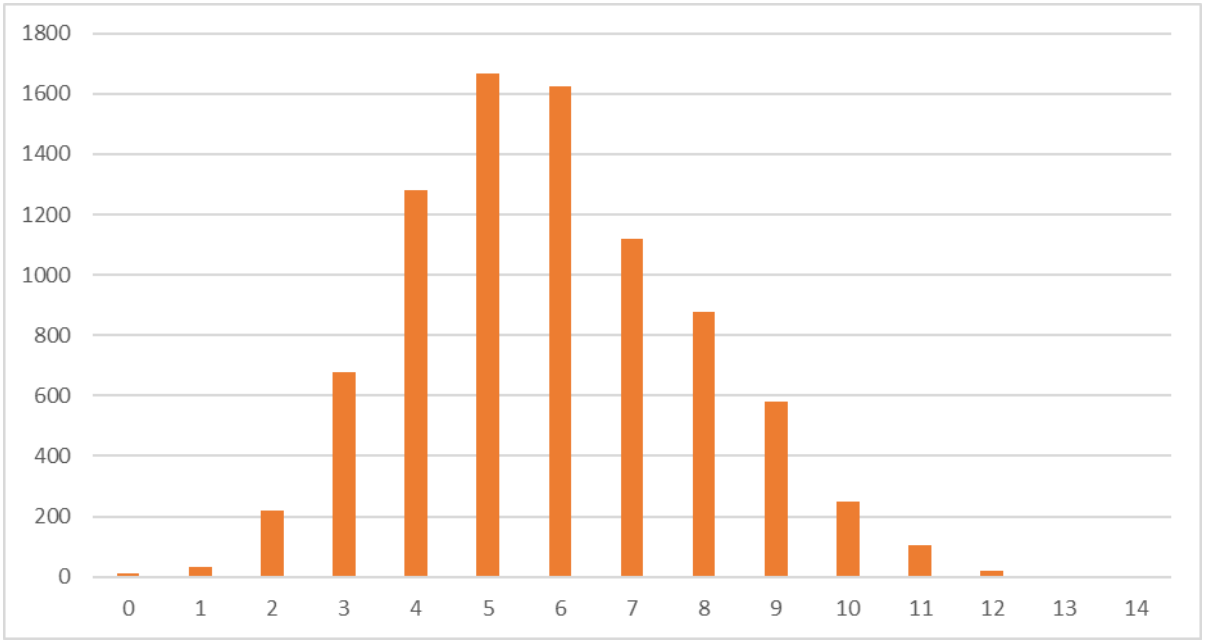
FLUID matrices

After each question FLUID1 to FLUID14, the variables

SCOREFL1 TO SCOREFL14 are coded

0 : wrong answer/1: right answer

FLUIDSCORETOT: counts the total number of right answers (0 to 14)



FLUIDSCORETOT FOR PARENTS 1 AND 2

Dietary behaviour

Three dietary behaviour scores are proposed for the parents who answered questions DTEFQ1 to DTEFQ19, CEFQ20 and DTEFQ.

The variables DTEFQ1 to DTEFQ16 were recoded (from 4=completely true to 1=completely false)

```
m24_petitepart=DTEFQ1;
m24_manganxieu=DTEFQ2;
m24_pasarreter=DTEFQ3;
m24_cafard  =DTEFQ4;
m24_grossir =DTEFQ5;
m24_mangeraussi=DTEFQ6;
m24_crispe  =DTEFQ7;
m24_estomac=DTEFQ8;
m24_arreter=DTEFQ9;
m24_mangerseul=DTEFQ10;
m24_paspoids=DTEFQ11;
m24_grillade=DTEFQ12;
m24_tjsfaim=DTEFQ13;
m24_nerveu  =DTEFQ14;
m24_appetissant   =DTEFQ15;
m24_deprime=DTEFQ16;

do i=1 to 16;
      var2(i)=5-var1(i);
end;
```

Variables DTEFQ17 to DTEFQ19 and CEFQ20 were renamed:

```
m24_moinsmang=DTEFQ18;
```

```
m24_empiffrer=DTEFQ19;
m24_sensatfaim=CEFQ20;
```

The DTEFQ variable was recoded

```
m24_restriction=DTEFQ;

if m24_restriction>6 then m24_restrictionR=4;
else if m24_restriction>4 then m24_restrictionR=3;
else if m24_restriction>2 then m24_restrictionR=2;
else if m24_restriction>0 then m24_restrictionR=1;
```

then the scores were calculated:

```
%LET MECH_1=m24_petitepartR  m24_grossirR m24_paspoidsR m24_provision
m24_moinsmang m24_restrictionR;
if n(of &MECH_1)>=3 then Msc_1=mean(of &MECH_1)*6;
else if n(of &MECH_1)<3 then Msc_1=.;
DTFEQCR=((Msc_1-6)/18)*100;

%LET MECH_2=m24_pasarreterR  m24_mangeraussiR m24_estomacR m24_arreterR
m24_grilladeR m24_tjsfaimR m24_appetissantR m24_empiffrer m24_sensatfaim;
if n(of &MECH_2)>=5 then Msc_2=mean(of &MECH_2)*9;
else if n(of &MECH_2)<5 then Msc_2=.;
DTFEQAU=((Msc_2-9)/27)*100;


%LET MECH_3=m24_manganxieuR  m24_cafardR m24_crispeR m24_mangerseulR
     m24_nerveuR m24_deprimeR;
if n(of &MECH_3)>=3 then Msc_3=mean(of &MECH_3)*6;
else if n(of &MECH_3)<3 then Msc_3=.;
DTFEQAE=((Msc_3-6)/18)*100;
```

Variable	Libellé	N	Minimum	25ème ctl	50ème ctl	75ème ctl	Maximum	Moyenne
A10P1W_DTFEQCR	score de restriction cognitive	6284	0,00	16,67	33,33	44,44	100,00	32,50
A10P2W_DTFEQCR	score de restriction cognitive	2225	0,00	11,11	27,78	38,89	88,89	27,94
A10P1W_DTFEQAU	score d'alimentation incontrolée	6284	0,00	14,81	25,93	40,74	96,30	27,71
A10P2W_DTFEQAU	score d'alimentation incontrolée	2225	0,00	14,81	25,93	40,74	96,30	28,50
A10P1W_DTFEQAE	score d'alimentation émotionnelle	6284	0,00	11,11	33,33	55,56	100,00	34,80
A10P2W_DTFEQAE	score d'alimentation émotionnelle	2225	0,00	0,00	22,22	44,44	100,00	26,58

Variable	Title	N	Minimum	25th centile	50th centile	75th centile	Maximum	Mean
	Cognitive restraint score Cognitive restraint score Uncontrolled eating score Uncontrolled eating score Emotional eating score Emotional eating score							

CAPI questionnaire

Quality of life

Programme transmitted by par Julie Berbis (julie.berbis@univ-amu.fr)

The VSP-A (Lived and Perceived Health of the Child and the Adolescent) is a questionnaire to assess the quality of life of the child. This is a questionnaire developed from the child's own point of view and validated in French, which is used here as its self-assessment version (which it is recommended to collect whenever possible, rather than the parental assessment) adapted to the age range of a child aged 10 years. This is the short version of the questionnaire (20 items) that allows to calculate a quality of life score in 6 dimensions (Family relations; Self-esteem; Vitality & Physical and psychological well-being; Relationships with friends & Communication; Leisure time; School work) and an overall score index. Scores range from 0 to 100, a higher score indicating a better assessment of one's own quality of life.

The variables used to produce this score are found in the FAF CHILD – 10.5 year survey (home visit questionnaire). They are identified in the questionnaire by the theme "DVSPAE" (DVSPAE1-DVSPAE18, DVSPAE29, DVSPAE32)

The variables produced by the scoring program to calculate dimensions are :

VSPAe1t (VSP-Ae Relations with the family): from variables DVSPAE1 DVSPAE2 DVSPAE4
VSPAe2t (VSP-Ae Self-esteem): from the variables DVSPAE12 DVSPAE13 DVSPAE14 DVSPAE16 DVSPAE29 DVSPAE32
VSPAe3t (VSP-Ae Vitality & Physical and psychological well-being): from the variables DVSPAE3 DVSPAE10 DVSPAE11 DVSPAE18
VSPAe4t (VSP-Ae Relations with friends – Communication): from the variables DVSPAE6 DVSPAE9
VSPAe5t (VSP-Ae Leisure time): from the variables DVSPAE5 DVSPAE7 DVSPAE8
VSPAe7t (VSP-Ae School work): from the variables DVSPAE15 DVSPAE17
VSPAet (VSP-Ae Index): overall score from the calculated dimensions

```
/*****************************************************************.
**** Scoring Qualité de Vie VSPA-e ELFE****
****************Version 20 items****************
*****************************************************************/

DATA donnees; SET donnees;
/** **** Renommer les items ****. **/
RENAME
DVSPAE1 = vspae06
DVSPAE2 = vspae07
DVSPAE3 = vspae09
DVSPAE4 = vspae10
DVSPAE5 = vspae13
DVSPAE6 = vspae15
DVSPAE7 = vspae19
DVSPAE8 = vspae20
DVSPAE9 = vspae22
DVSPAE10 = vspae24
DVSPAE11 = vspae08
DVSPAE12 = vspae26
DVSPAE13 = vspae28
DVSPAE14 = vspae30
DVSPAE15 = vspae31
DVSPAE16 = vspae33
```

```
DVSPAE17 = vspae34
DVSPAE18 = vspae35
DVSPAE29 = vspae29
DVSPAE32 = vspae32;
RUN;

*********************************************************;
DATA donnees; SET donnees;
*********************************************************;
** CODE OUT-OF-RANGE VALUES TO MISSING;
*********************************************************;
ARRAY IT20 vspae06 vspae07 vspae09 vspae10 vspae13 vspae15
           vspae19 vspae20 vspae22 vspae24 vspae08 vspae26
           vspae28 vspae29 vspae30 vspae31 vspae32 vspae33
           vspae34 vspae35 ;
DO OVER IT20;
IF IT20 NOT IN (1,2,3,4,5) THEN IT20=.;
END;
RUN;

*********************************************************;
DATA donnees; SET donnees;

*********************************************************;
*Inverser les items ;
*********************************************************;
IF vspae24=1 THEN vspae24i=5; ELSE
IF vspae24=2 THEN vspae24i=4; ELSE
IF vspae24=3 THEN vspae24i=3; ELSE
IF vspae24=4 THEN vspae24i=2; ELSE
IF vspae24=5 THEN vspae24i=1;
label vspae24i="VSP-Ae24 inversé";

IF vspae26=1 THEN vspae26i=5; ELSE
IF vspae26=2 THEN vspae26i=4; ELSE
IF vspae26=3 THEN vspae26i=3; ELSE
IF vspae26=4 THEN vspae26i=2; ELSE
IF vspae26=5 THEN vspae26i=1;
label vspae26i="VSP-Ae26 inversé";

IF vspae28=1 THEN vspae28i=5; ELSE
IF vspae28=2 THEN vspae28i=4; ELSE
IF vspae28=3 THEN vspae28i=3; ELSE
IF vspae28=4 THEN vspae28i=2; ELSE
IF vspae28=5 THEN vspae28i=1;
label vspae28i="VSP-Ae28 inversé";

IF vspae29=1 THEN vspae29i=5; ELSE
IF vspae29=2 THEN vspae29i=4; ELSE
IF vspae29=3 THEN vspae29i=3; ELSE
IF vspae29=4 THEN vspae29i=2; ELSE
IF vspae29=5 THEN vspae29i=1;
label vspae29i="VSP-Ae29 inversé";

IF vspae30=1 THEN vspae30i=5; ELSE
IF vspae30=2 THEN vspae30i=4; ELSE
IF vspae30=3 THEN vspae30i=3; ELSE
IF vspae30=4 THEN vspae30i=2; ELSE
IF vspae30=5 THEN vspae30i=1;
label vspae30i="VSP-Ae30 inversé";

IF vspae32=1 THEN vspae32i=5; ELSE
IF vspae32=2 THEN vspae32i=4; ELSE
IF vspae32=3 THEN vspae32i=3; ELSE
IF vspae32=4 THEN vspae32i=2; ELSE
IF vspae32=5 THEN vspae32i=1;
label vspae32i="VSP-Ae32 inversé";
```

```
IF vspae33=1 THEN vspae33i=5; ELSE
IF vspae33=2 THEN vspae33i=4; ELSE
IF vspae33=3 THEN vspae33i=3; ELSE
IF vspae33=4 THEN vspae33i=2; ELSE
IF vspae33=5 THEN vspae33i=1;
label vspae33i="VSP-Ae33 inversé";

*****************************************************************;
*SCORAGE DES 6 DIMENSIONS;
*****************************************************************;

IF N(OF vspae10,vspae06,vspae07) >= 2 THEN VSPAe1t = 25 *
(MEAN(vspae10,vspae06,vspae07) - 1);
label VSPAe1t ='VSP-Ae Relations avec la famille' ;

IF N(OF vspae26i,vspae28i,vspae29i,vspae30i,vspae32i,vspae33i) >= 3 THEN VSPAe2t =
25 * (MEAN(vspae26i,vspae28i,vspae29i,vspae30i,vspae32i,vspae33i) - 1);
label VSPAe2t ='VSP-Ae Estime de soi';

IF N(OF vspae08,vspae09,vspae24i,vspae35) >= 2 THEN VSPAe3t = 25 *
(MEAN(vspae08,vspae09,vspae24i,vspae35) - 1) ;
label VSPAe3t ='VSP-Ae Vitalité & Bien-être physique et psychologique' ;

IF N(OF vspae15,vspae22) >= 1 THEN VSPAe4t = 25 * (MEAN(vspae15,vspae22) - 1);
label VSPAe4t ='VSP-Ae Relations avec les amis - Communication';

IF N(OF vspae13,vspae19,vspae20) >= 2 THEN VSPAe5t = 25 *
(MEAN(vspae13,vspae19,vspae20) - 1);
label VSPAe5t ='VSP-Ae Loisirs' ;

IF N(OF vspae31,vspae34) >= 1 THEN VSPAe7t = 25 * (MEAN(vspae31,vspae34) - 1) ;
label VSPAe7t ='VSP-Ae Travail scolaire' ;

VSPAet = (VSPAe1t + VSPAe2t + VSPAe3t + VSPAe4t + VSPAe5t + VSPAe7t ) / 6;
label VSPAet ='VSP-Ae Index';
```

DIETARY BEHAVIOUR SCORE FOR PARENTS 1 AND 2