

# Children's well-being after the COVID-19 pandemic in French-speaking primary schools of the Federation Wallonia-Brussels in Belgium

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## 1. Background and rational

We have conducted a study named DYNAmic TRANsmission of Coronavirus in Schools (DYNAtacs) from January 14 to May 18, 2021, in 11 primary schools in the Federation Wallonia – Brussels. 11 primary schools were selected according to 3 extreme criteria : a low or a high SARS-CoV-2 local incidence level (incidence  $<$  or  $\geq 5.0/1000$  persons during the 1<sup>st</sup> wave in May 2020), a small or a large school ( $<$  or  $\geq 230$  children), and a low or a high socioeconomic status (SES) ( $SES \leq 7$  or  $\geq 13$ ).

We enrolled 932 children ( $932/2488=38\%$ ) and 242 staff ( $242/444=55\%$ ). In each school, we went 6 times. At the inclusion, every participant was tested by a serological test. Each participant was asked to perform a salivary PCR test and to complete a questionnaire at each visit.

21% of children and 25% staff had a positive (IgG+) serological test.(1) PCR results have shown a low positive rate among participants : 3% in children and 2% in staff.(2)

The well-being data collected during the COVID-19 is still under analysis.

### 1.1 References and previously obtained results or data related to the study and used as a basis for the study

- Frère, J.; Chatzis, O.; Cremer, K.; Merckx, J.; De Keukeleire, M.; Renard, F.; Ribesse, N.; Minner, F.; Ruelle, J.; Kabamba, B.; Rodriguez-Villalobos, H.; Bearzatto, B.; Delforge, M.-L.; Henin, C.; Bureau, F.; Gillet, L.; Robert, A.; Van der Linden, D. SARS-CoV-2 Transmission in Belgian French-Speaking Primary Schools: An Epidemiological Pilot Study. *Viruses* 2022, 14, 2199. <https://doi.org/10.3390/v14102199> SARS-CoV-2 transmission in Belgian primary schools of the Federation Wallonie - Bruxelles. An epidemiological pilot study (2);
- Kelly Cremer, Julie Frère, Olga Chatzis et al. SARS-CoV-2 antibody seroprevalence in children and workers from Belgian French-speaking primary schools, 13 July 2022, PREPRINT (Version 1) available at Research Square [<https://doi.org/10.21203/rs.3.rs-1781857/v1>](1)
- Study protocol DYNAtacs « SARS-CoV-2 Transmission in Belgian Primary Schools of the Federation Wallonia - Brussels: An Epidemiological Pilot Study (DYNAtacs) » published on September 16<sup>th</sup>, 2021 (identification number NCT05046470);
- Study protocol DYNAtacs « Study of COVID-19 transmission in Belgian French-speaking primary schools of the Federation Wallonia – Brussels in Belgium » published on April 20<sup>th</sup>, 2022 (identification number ISRCTN16837012).

## 2. Objectives and outcomes

The general objective of our initial study was to describe the transmission dynamics of SARS-CoV-2 in primary schools in Federation Wallonia-Brussels.

The general objective of this present study is to document children and staff well-being after the COVID-19 pandemic in primary schools in Federation Wallonia-Brussels.

The aim of this study is to propose concrete public health actions to help manage and develop tools to limit longer-term damage of the COVID-19 pandemic.

## 3. Methodology

### 3.1 Study design

We will conduct a cross-sectional observational study.

### 3.2 Study period

This study will be conducted in February 2023. Participants will be involved for no more than one day.

### 3.3 Study population

All children attending the 11 primary schools in Federation Wallonia-Brussels selected in the initial study in 2021.

All adults working in the 11 primary schools in Federation Wallonia-Brussels selected in the initial study in 2021.

### 3.4 Inclusion criteria

All children registered and attended the selected primary schools of the Federation Wallonia-Brussels and all adults working in the same selected schools

Participants were enrolled into the study if the consent was signed by both parents and the child or by the staff.

### 3.5 Exclusion criteria

Refusal or absence to provide written informed consent before enrolment.

### 3.6 Expected number

There will be approximately 2488 children in 125 classes and 444 workers in the 11 schools of the Federation Wallonia-Brussels.

### 3.7 Stop or continuation rules

This is a cross-sectional observational study, there are no drop-out criteria or stopping rules.

### 3.8 Research question and variables definition

Has the COVID-19 pandemic impacted children's well-being in primary schools of the Federation Wallonia-Brussels, according to the perception of well-being or anxiety of the children and staff who supervise them?

#### **Well-being :**

According to the who definition: *"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."*(3)

Mental health is : *"a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community."*(3)

Well-being is defined as a : *"pleasant state resulting from the satisfaction of the body's needs and the calm of the mind."*(4)

Well-being in this study will be evaluated by « *The Revised Children's Manifest Anxiety Scale* » (RCMAS)(5,6) and « *Hospital Anxiety and Depression Scale* » (HAD).(7,8)

**COVID-19** : Disease caused by the SARS-CoV-2 virus.

**SARS-CoV-2** : Severe Acute Respiratory Syndrome Coronavirus 2.

**Children in primary schools** : Children from the 1<sup>st</sup> to 6<sup>th</sup> primary.

**Staff:** Adults working in schools.

**Anxiety :** “Painful concern, nervous tension, caused by uncertainty, expectation, anguish.”(9)

#### **4. Conduct of the study**

We have developed questionnaires and informed consent. We will hire students and train them on the questionnaires. We will contact schools that we initially went in the previous DYNatracs study. We will provide the protocol and informed consent before the beginning of the study.

Within the 11 schools, there are approximatively 2488 children and 444 school attenders.

Then, we will go to each school one day for data collection. The questionnaires will be given to each participant who has returned a signed consent form. Each participant will be invited to answer the questionnaire anonymously and data will be collected in panel form.

Each child in grade 3 and 6 (n=830) will be invited to draw 3 pictures expressing their feelings about the COVID-19 pandemic. In order to achieve this task, 2 persons will supervise each child.

#### **5. Statistical analyses plan**

The proportions will be analyzed by chi-square tests.

The associations of these proportions with the characteristics of the child or adult will be analyzed by logistic regression.

#### **6. Subject confidentiality**

The child's or staff identity and participation to this study will remain strictly confidential. He/she will not be identified by name or in any other recognizable way in any of the records, results or publications related to the study. The protection of personal data is ensured by the Belgian law of July 30<sup>th</sup>, 2018 on the protection of individuals with regard to the treatment of personal data. Data will be processed in accordance with the General Data Protection Regulation (GDPR of May 25<sup>th</sup>, 2018) and the Belgian law of August 22<sup>nd</sup>, 2002 on the rights participants in a health study. UCLouvain will be responsible for the processing of this data. Participation in the study means that the nurse investigator collects data and that the study sponsor uses them for research purposes and for scientific and public health publications for

the community. The nurse investigator has a duty of confidentiality regarding the data collected. This means that not only will she never disclose the name of the child or staff member in any publication or conference, but she will also code (that the identity of the child or staff member will be replaced by a 12-digit study identification code) the data before passing it on to the manager of the collected database (Pr. Annie Robert). The personal data transmitted will not contain any association of elements that would allow to identify the child or the staff member. For the research data manager appointed by the sponsor (Pr. Annie Robert), the data submitted will not allow to identify the child or the staff member. The sponsor is responsible for the collection, processing, and protection of the data collected by all investigators involved in the research in accordance with requirements of the Belgian privacy law. The sponsor undertakes to use data collected only for the purpose of the study in which the child or staff member is participating. Any use of the child's or staff member's data outside the context described in this document could only be conducted after approval by the Ethics committee.

## 7. Ethics committee

The study is subject to the approval of the "Comité d'Ethique Hospitalo-Facultaire Saint- Luc – UCLouvain".

## 8. References

1. Cremer K, Frère J, Chatzis O, De Mendonca R, Minner F, Kabamba B, et al. SARS-CoV-2 antibody seroprevalence in children and workers from Belgian French-speaking primary schools [Internet]. In Review; 2022 Jul [cited 2022 Nov 8]. Available from: <https://www.researchsquare.com/article/rs-1781857/v1>
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3. Mental health: strengthening our response [Internet]. World Health Organization. [cited 2022 Nov 11]. Available from: <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response>
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7. Zigmond AS, Snaith RP. Échelle HAD : Hospital Anxiety and Depression scale. 1983;67:361–70.
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## 9. Annexes

- A) Children's well-being questionnaire
- B) Children's drawings questionnaire
- C) Staff questionnaire
- D) Informed consent form for children
- E) Informed consent form for parents
- F) Informed consent form for staff