

## STUDY DESIGN ARTICLE

## The COVID-19 International Student Well-being Study

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### Abstract

As a large international consortium of 26 countries and 110 higher-education institutions (HEIs), we successfully developed and executed an online student survey during or directly after the initial peak of the COVID-19 pandemic. The COVID-19 International Student Well-being Study (C19 ISWS) is a cross-sectional multicountry study that collected data on higher-education students during the COVID-19 outbreak in the spring of 2020. The dataset allows description of: (1) living conditions, financial conditions, and academic workload before and during the COVID-19 outbreak; (2) the current level of mental well-being and effects on healthy lifestyles; (3) perceived stressors; (4) resources (e.g., social support and economic capital); (5) knowledge related to COVID-19; and (6) attitudes toward COVID-19 measures implemented by the government and relevant HEI. The dataset additionally includes information about COVID-19 measures taken by the government and HEI that were in place during the period of data collection. The collected data provide a comprehensive and comparative dataset on student well-being. In this article, we present the rationale for this study, the development and content of the survey, the methodology of data collection and sampling, and the limitations of the study. In addition, we highlight the opportunities that the dataset provides for advancing social science research on student well-being during the COVID-19 pandemic in varying policy contexts. Thus far, this is, to our knowledge, the first cross-country student well-being survey during the COVID-19 pandemic, resulting in a unique dataset that enables high-priority socially relevant research.

**Keywords:** COVID-19, Corona, Higher education, Student well-being, multi-country study

### Background

The COVID-19 outbreak has had a significant impact on the health and well-being of the general population. States and national health care systems nonetheless differed significantly in their responses to this COVID-19 outbreak, in terms of the types of protective measures that were implemented, the speed at which these measures were implemented, and the way in which the general population was informed about these measures or penalized if these measures were not respected.

To date, only a handful of studies have examined well-being during the COVID-19 outbreak [1]. The vast majority of these studies were set in China [2–5], where the COVID-19 outbreak was first identified in December 2019, although studies were set in a selection of other countries (e.g., India [6], UK [7]). These single-country studies show a negative psychological impact of COVID-19 on the general population [8, 9] and on particular subgroups, such as medical and nursing staff [10]. The findings are in accordance with studies on past epidemics, which

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have shown that the health and social impact of such an epidemic is severe [11].

This paper describes the research protocol of the COVID-19 International Student Well-being Study (C19 ISWS), which collected information on well-being and health behaviors in *higher-education students* in a number of European and non-European countries (Turkey, Israel, Canada, the USA, and South Africa) during or immediately after the peak of the COVID-19 outbreak in the spring of 2020. The focus on higher-education students is valuable for several reasons. First of all, the student population is already a risk group for psychosocial problems: study pressure has increased steadily over the last decades, while social support by peers has decreased [12]. Secondly, students were confronted with COVID-19 measures implemented not only by the government but also by their respective higher-education institutions (HEIs). The COVID-19 epidemic quickly led to a complete reorganization of higher education in many countries: in-person lectures were transformed into online classes, internships were (partly) canceled, thesis planning was adjusted, examination and evaluation forms were changed, and so on. This may have created a lot of uncertainty in the student population. Thirdly, many social activities came to a standstill as well: most student activities were canceled, and many students moved back to the parental home. Finally, the epidemic also had economic consequences for many students: the stagnation of the economy also meant that the majority of student jobs were terminated immediately, with potentially severe consequences for students who relied on this income to finance their studies or student residences. On top of this, the COVID-19 protective measures implemented by the governments and HEIs did not come into effect immediately. There was a gradual build-up that also may have increased the uncertainty among students. Therefore, variation not only existed between countries in terms of policy responses but also within countries at the HEI level.

To our surprise, so far, to our knowledge, only a handful of studies have examined the impact of previous pandemics on this subpopulation [13]. However, scarce preliminary figures [14] about the current pandemic show that the population group aged 16–30 is one of the most affected in terms of mental well-being. In addition, there is an apparent dearth of multicountry research, which enables one to examine how various policy responses to the COVID-19 pandemic may relate to well-being and health. Responding to this gap in the literature, the C19 ISWS team designed an online, multicountry research study. This paper describes the development of this survey instrument, the method of sampling

and recruitment, and data management and access. The C19 ISWS data will create a unique opportunity for researchers to identify how the COVID-19 outbreak during the spring of 2020 relates to students' well-being across different countries and HEIs.

## Development of the C19 ISWS questionnaire

### *Development of the core questionnaire*

The C19 ISWS was initialized by members from two Belgian research groups (the Centre for Population, Family and Health from the University of Antwerp and the Health and Demographic Research group from Ghent University), hereafter referred to as the coordinating team, as well as partners from 75 universities in 26 countries across Europe and a selection of high- and middle-income countries outside of Europe, who worked in partnership to develop a standardized student well-being survey instrument for use in various HEIs. The C19 ISWS team consists of both the coordinating team and the other involved partners.

A flowchart of the survey development, preliminary testing, and launch is presented in Figure 1. The coordinating team developed the initial version of the questionnaire, based on a comprehensive literature review. The content of the questionnaire was based on the social stress model [15], and a recent review of evidence on the psychological impact of quarantine [11]. If possible, validated survey instruments from previous international surveys (e.g., the European Social Survey, the Eurobarometer) or existing student surveys were selected (e.g., the Head in the Clouds study [16], the Young Adult Survey Switzerland [17]). Where existing instruments were not available because of the specificity of the COVID-19 epidemic, the coordinating team developed new questionnaire items.

For several of the included questions, participants were asked to describe the situation both before and since the COVID-19 outbreak. Regarding the situation before the COVID-19 outbreak, participants were asked to describe the average situation during the month prior to the moment that the first COVID-19 measures (e.g., social distancing measures) were implemented. To assess the situation since the COVID-19 outbreak, participants were asked to refer to the week prior to filling out the survey. Included items covered the following domains: (1) living conditions, financial conditions, and academic workload before and during the COVID-19 outbreak; (2) current level of mental well-being and effect on healthy lifestyles; (3) perceived stressors; (4)

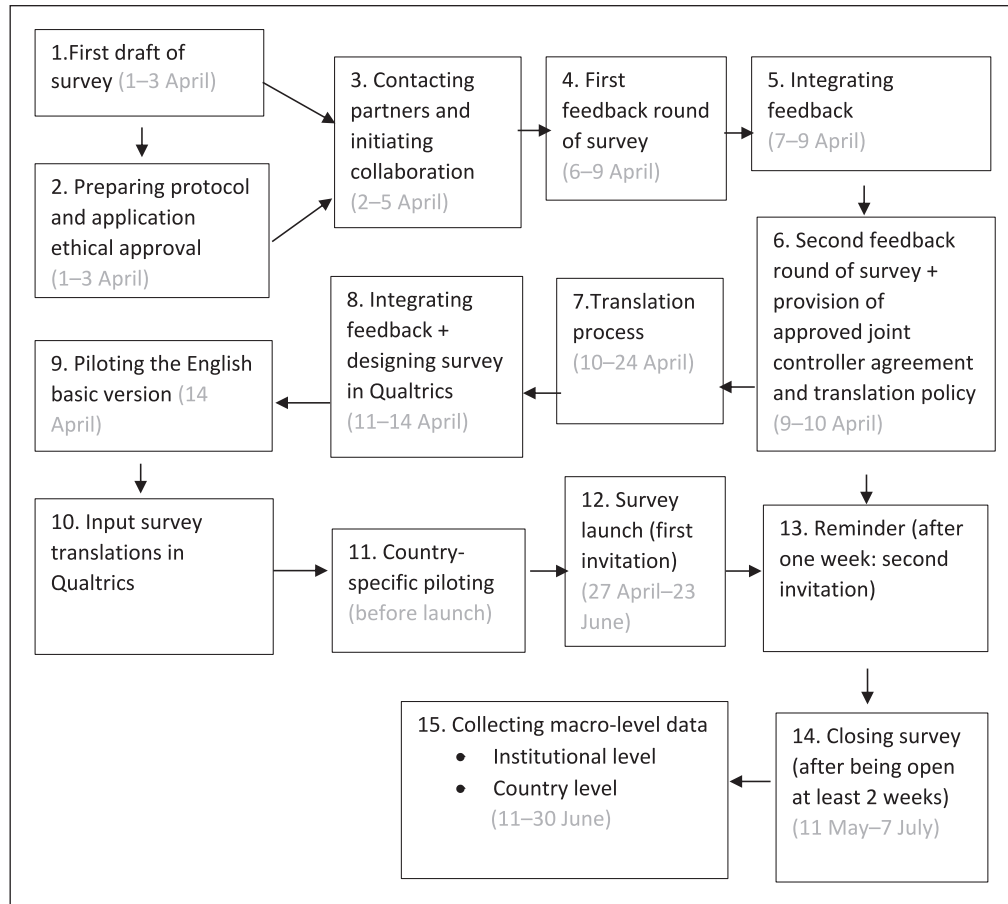


Figure 1. Flowchart of survey development, preliminary testing, and launch.

resources (e.g., social support and economic capital); (5) knowledge related to COVID-19; and (6) attitudes toward COVID-19 measures implemented by the government and HEI.

Fine-tuning of the questionnaire was an interactive process between the coordinating team and the consortium partners. Consortium partners were allowed to provide feedback on the core questionnaire in two separate rounds. After the incorporation of this feedback, the questionnaire was additionally pilot-tested within a group of higher-education students and feedback on the comprehensibility of the questions, the duration, the design, and usability of the survey was collected through an online focus group. Most students needed about 10 min to complete the questionnaire. The final core questionnaire consists of 67 items and 10 conditional questions, grouped together in seven modules (Table I).

#### *Adaptation of core questionnaire to local context*

Translation of the core questionnaire into local languages was performed through a committee approach, ensuring that the process remained steeped in

the target language and avoiding the loss of quality associated with back translation [18]. A committee approach implies that at least two partners, who were proficient in both English and the local language, independently translated the questionnaire, after which they met to review and refine their translations. If necessary, these translations were then presented at a meeting where an additional third native-speaking person adjudicated disagreements concerning the translation. Specific questions (e.g., names of HEIs, currencies) were adapted to the local context. Partners were additionally allowed to add new questions at the end of the questionnaire, but only if this did not significantly increase the time needed to complete the survey. The use of one questionnaire per country was preferred. However, if this was not possible (because of additional HEI-specific questions or different launch and distribution timelines), a separate HEI-specific questionnaire was developed.

The translated questionnaires were inserted into the Qualtrics survey tool by the coordinating team, along with the original questionnaire in British English. The Qualtrics software is a commonly used online survey platform, which conforms to the EU

Table I. The seven modules of the C19 ISWS and the number of items per module.

Module	Topic	Measurements	Number of items (+ filter questions)
1	Sociodemographic information	Sex; age; relationship status; migration status; parental migration status; parental education; social and economic capital	8 (+ 4)
2	Study-related information	Study field; higher-education institution (HEI); whether first-year student; educational program; (international) student status; study importance; study tuition	7 (+1)
3	Before and during COVID-19 outbreak	Financial resources; time spent on studies and paid jobs; living situation; smoking; drinking; cannabis use; moderate and severe physical activity	10 (+1) × 2 (before + during)
4	COVID-19 diagnosis, symptoms, perceived worries	Underlying diseases or conditions; symptoms; stigma (hiding symptoms); diagnosis; risk perception; personal worries about (re-)infection, getting severely ill; worries about the personal network and the health care system; knowing someone with COVID-19; adherence to COVID-19 measures	11 (+2)
5	Stressors, informal support, and mental well-being	Social activities; contact with family and friends; social support; CES-D8 depression scale; frustration; anxiety; boredom; loneliness; sleep	18
6	Student-specific questions and concerns	Help-seeking behavior (contacting teaching staff, student, and counseling services) for financial, psychosocial, and study-related worries; statements about workload; perceived quality of education; stress due to changed education and examination formats; satisfaction with the communication strategy of the HEI	11 (+1)
7	COVID-19 knowledge and information	COVID-19-related knowledge; attitudes toward government communication strategy (regarding timely and comprehensible information)	10
<b>Total</b>			<b>67 (+ 10)</b>

General Data Protection Regulation (GDPR) guidelines. The coordinating team generated separate Qualtrics links per country (and in some cases per HEI), which they could use to pre-test the survey and to distribute among their HEI population. Consortium partners were asked to pre-test the national questionnaire, in order to guarantee that the survey instrument worked as intended from a technical point of view, e.g., in terms of routing techniques, and to exclude possible language errors. The translated surveys were administered together in the same Qualtrics survey tool in order to maintain the consistency and comparability of the surveys across the HEIs and countries and to facilitate data-merging and cross-country analyses afterward. Two countries, Norway and Russia, however, developed their own survey link using different software (Nettskjema and ASKIA). However, consistency with the Qualtrics survey flow was pursued.

**Sampling and recruitment method**

The C19 ISWS applied a stratified convenience sampling design. In a first step, HEIs were selected within countries, covering western (Belgium, France, Germany, the Netherlands, Swiss, the UK), Central-Eastern (Czech Republic, Slovakia), eastern (Romania, Hungary, the Russian Federation), northern (Sweden, Finland, Norway, Iceland, Denmark), and southern (Spain, Italy, Portugal, Greece, Cyprus) European countries and including some additional

high-, and upper-middle-income countries (Canada, Israel, South Africa, Turkey, and the USA). A selection of various HEIs within the same country was preferred, to achieve variation in the types of HEI within the countries as well. These partners were initially selected from scientific organizations of which the coordinating team is a member (e.g., the European Society of Health and Medical Sociology), or from previous scientific collaborations with members of the coordinating team (e.g., the SNIPE project). Partners were sent a concise study protocol, which included the main research aims, sampling methodology, and plan of analysis, as well as requisites for participation in the study and publication guidelines. Only a small number of partners declined this initial invitation, mostly owing to lack of time (fewer than 10 HEIs) or to a delay in acquiring institutional review board (IRB) approval (three HEIs from the UK). Several partners contacted other HEIs within or outside their own countries through their own scientific networks, to increase the sample size. This resulted in a sample size of 110 HEIs. The sampling of HEIs was initially aimed at obtaining a sufficient sample of institutions that would allow multilevel modeling. While the initial sampling of HEIs was not aimed at the European continent, in later stages of the recruitment, we restricted the participation of HEIs to Europe in order to obtain a sample that was comparable in terms of timing of the epidemic, as well as in terms of the cultural and political context.



Within each HEI, a consortium partner was appointed, who was responsible for the distribution of the survey within his or her own HEI. In a few countries, partners additionally recruited participants from outside their own HEI through social media platforms or their professional networks. In Finland, a central research institution distributed the survey across all Finnish HEIs. A joint controller or data-sharing agreement was signed by each participating HEI or research institution, and IRB approval was obtained prior to launching the survey.

The HEI partners distributed the survey link by e-mail to all students within their HEI. First, an invitation e-mail was sent, which included a link to an online website that covered relevant information concerning the study and protection of the participant's privacy (see Supplemental material, Table 1A). After one week, a reminder e-mail was sent. Alternative recruitment methods were the use of newsletters, student-specific platforms, and social media platforms. Sampling participants through the internet was preferred as this allowed people to participate anonymously and with little effort. In addition, it is one of the only possible methods of data collection in times of quarantine.

Data collection took place between 27 April, 2020, and 7 July, 2020, with two-thirds of HEIs collecting the data within the first month of the initial launch. Within each HEI, the survey was active for 2 weeks. The HEIs had the opportunity to prolong this period by one or a maximum of two weeks if the response rate initially remained low. This prolongation allowed several HEIs to set up additional attempts to increase the response rate (such as adding additional communication channels, sending out a new reminder, involving more HEIs).

Inclusion criteria were: (1) being enrolled at a HEI, and (2) being 18 years or above. HEI students at bachelor's, master's, and Ph.D. levels were included, as well as international or exchange students. A target was set to recruit at least 10% of the student population of each participating HEI. The count of respondents by HEI and country is provided in the Supplemental material, Table 1B.

In each HEI where the study was implemented, the local partner was required to check the IRB guidelines and, if this was necessary, to seek approval of the appropriate ethics committee or review board. The multicountry research design was approved by the Ethics Committee for the Social Sciences and Humanities of the University of Antwerp, as well as by the Ethics Committee for the Social Sciences of Ghent University. Before starting the survey, each participant was asked to read an informed consent form and indicate consent by checking a box.

## Collection of HEI information

HEI partners were asked to fill out a questionnaire themselves in order to collect information on HEI-specific measures and characteristics. In the same manner, as with the core questionnaire, the coordinating team developed this questionnaire, after which the questionnaire was sent out to all the partners for feedback. After one round of feedback, the questionnaire was finalized and sent back to the partners who were asked to collect specific information concerning their own HEI. Because teaching methods and COVID-19 measures might vary significantly within a particular HEI, partners were asked to contact the central administration of the own HEI to double-check the information. In addition, they were asked to describe the average situation within their HEI, thereby ignoring particular deviations of certain departments within the HEI. Information was collected on the status of the HEI (private, private non-profit, public), the types of program offered, the number of students enrolled at the various academic levels, and experience with blended learning methods. In addition, information was collected on COVID-19 measures at the HEI, such as whether and when in-person classes were canceled, whether other HEI facilities and counseling services were (partially) closed, whether and how examination forms were changed. Information was collected on future plans by the HEI related to COVID-19. Finally, the count and distribution of students by age, sex, and study program was collected, which was used in the construction of a weighting variable.

## Data access

The C19 ISWS adheres to the principle of 'FAIR Data' [19], by making the data freely available to all C19 ISWS partners within the first year, and making the data freely accessible to all researchers 1 year after closing of data collection. To stimulate the use of the C19 ISWS data and to encourage research collaborations, the project was registered on the World Pandemic Research Network [20], while the questionnaire and (preliminary) research results are accessible through the Zenodo portal [21].

## Plan of analysis

All participating HEIs were encouraged to develop a policy brief and communicate research findings to their HEI. Partners were encouraged to develop within-country analyses of the national dataset and to develop or contribute to multicountry comparisons through a publication protocol. Because there are sufficient level-2 (HEI) and level-3 (country)

units, the C19 ISWS creates additional opportunities to develop multilevel modeling. Key outcomes of interest, including depression, academic stress, anxiety, smoking, alcohol and cannabis consumption, and physical activities will be related to COVID-19 measures implemented by the HEI (obtained from the partner's questionnaire) and implemented by the government (information will be obtained from several open-access datasets, such as the ACAPS dataset [22] or the Oxford COVID-19 Government Response Tracker [23]). Another strand of research will focus on the impact of the pandemic itself, which may be measured through the use of an excess mortality measure by country or by regions within countries. These will be estimated through  $P$  scores, defined as the number of excess deaths during the COVID-19 epidemic in a particular country or region, divided by the average for the corresponding week over the previous 5 years within that same country or region [24], and by  $z$  scores, calculated by dividing excess deaths by the standard deviation of deaths to capture the uncertainty around the weekly death count under normal conditions. Additional paths may be pursued to examine whether time-varying patterns within the same country can also be established. Preliminary reliability estimates (see Supplemental material, Table 1C) show that the depression scale and the loneliness scale have a high internal consistency (Cronbach's alpha is greater than 0.7), while the academic stress and academic satisfaction scale have sufficiently high internal consistency (Cronbach's alphas are greater than 0.6, except for the academic stress scale in Greece and Portugal, where the score is greater than 0.5).

## Discussion and conclusion

The C19 ISWS creates a number of unique research opportunities. It collected data during or right after the peak of the COVID-19 outbreak during the spring of 2020. Its multilevel nature enables both cross-country and cross-HEI comparisons. This allows researchers to evaluate the proportion in the variation in students' well-being that can be attributed to individual characteristics of the students surveyed, to HEI measures taken as a response to COVID-19, and to national characteristics (epidemic and its associated policy measures). In this way, the knowledge produced could be usefully applied to optimize the response of both HEI and national governments to future epidemic outbreaks in order to minimize the impact on the mental health and well-being of the student population as a whole and certain student subgroups in particular.

Nonetheless, the study has several limitations. First, it is a cross-sectional study and therefore, does not allow longitudinal effects to be examined. Where appropriate, participants were asked to describe the situation both prior to and since the COVID-19 outbreak. However, the questions related to emotions and feelings of distress were not asked retrospectively because, for these items, retrospective surveying is usually less valid [25]. As a result, our data do not allow us to disentangle causal paths for these items. Second, because we made use of a convenience sample, the study is not representative of the student population in higher education. Only a selection of HEIs in each country participated, and in some countries HEI participation rates were very low. In addition, participation in the survey was voluntary. Nevertheless, bias cannot be excluded, as it may be likely that students who experienced stress due to the COVID-19 pandemic were also more likely to respond to our invitation than students who did not experience stress. At the same time, past research has shown that students with a more vulnerable socioeconomic background are less likely to participate in surveys [26, 27]. The data collected through the partners' questionnaires will allow us to examine the extent of this bias and will allow us to partially correct this bias through the development of a weighting variable.

The study will generate important research with substantial policy implications. The study outcomes will help guide HEI policy and research related to student well-being and help to improve preparedness for future epidemics. To the best of our knowledge, the study is the first cross-country student well-being survey during the COVID-19 pandemic, resulting in a unique dataset to perform high-priority socially relevant research.

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**Supplemental material**

Supplemental material for this article is available online.

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