

THE NWCS-COVID-19 COHORT STUDY: FIVE WAVES (2019-2020-2021)

Reading guide

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TNO innovation
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COHORT (NWCS-COVID-19)

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Table of contents

1	Introduction.....	3
1.1	Objective of the research	3
1.2	Objective and content of this reading guide	3
2	Method	4
2.1	Study population	4
2.2	Recruitment procedure.....	4
2.3	Response NWCS-COVID-19	5
3	Justification of the questionnaire.....	7
3.1	Modules.....	7
4	References	21

1 Introduction

Each year, TNO and Statistics Netherlands monitor the employment status of the Dutch workforce with the Netherlands Working Conditions Survey (NWCS). The NWCS is an annual survey conducted amongst a new group of representatives from the workforce in the Netherlands. The NWCS follows changes in the work and working conditions of people in the Netherlands, along with the consequences of these changes for health and sustainable, as well as for their productivity and innovative capacity.

In 2020, the working lives of many people in the Netherlands changed due to the sudden emergence of COVID-19. It was necessary for the Dutch government to adopt and adjust (ease or strengthen) a package of measures. These measures also have direct consequences for the working population in the Netherlands. Some members of the workforce have worked primarily from home, while others have continued to work on-site (thereby running a greater risk of infection) and yet others had no job or tasks in specific time periods (either temporarily or permanently).

1.1 Objective of the research

The NWCS-COVID-19 cohort study was set up to gain insight into the effects and consequences of the COVID-19 pandemic at work. The objective of this cohort is to gain insight in the impact of the pandemic for workers, also in comparison to the situation in 2019. This will allow a precise overview of the consequences for members of the workforce with regard to working conditions, health and specific indicators during the COVID-19 pandemic (including exposure risks, general measures and measures taken by employers). In this regard, we distinguished three types of target groups: members of the workforce who have continued to work on-site (of the employer or client), members of the workforce who have started working from home (at least part of the time) and participants who had no job or tasks (either temporarily or permanently).

1.2 Objective and content of this reading guide

This reading guide is intended to provide a methodological justification for the NWCS-COVID-19 measurements that were conducted in June-July 2020 (first follow-up measurement), October-November 2020 (second follow-up measurement), March 2021 (third follow-up measurement) and November-December 2021 (fourth follow-up measurement). Section 2 presents the methodological part of the cohort, including a description of the data collection. In Section 3, all variables included are presented and described. Section 4 contains the global results of the NWCS-COVID-19 cohort (in tabular form) based on the fourth measurement at the end of 2021. The results of the first three follow-up measurements are upon request by first author.

2 Method

2.1 Study population

The NWCS-COVID-19 cohort study is a follow-up study of the regular NWCS in 2019. The sample for the NWCS 2019 was selected by Statistics Netherlands. In the NWCS 2019, the target population consists of members of the workforce between the ages of 15 and 74 years who were working in the Netherlands, thereby excluding self-employed. The exact methods used in the NWCS are described in the annual NWCS methodology report (Hooftman et al., 2020 (*in Dutch*)). For the NWCS-COVID-19, a group of participants who had responded to the NWCS 2019 were approached again. Respondents were invited if they had granted permission to be re-contacted and stated that such contact could be made by email. Some respondents had already been approached for another follow-up study, and they did not receive an invitation for the NWCS-COVID-19 cohort study.

2.2 Recruitment procedure

The NWCS-COVID-19 cohort study consisted of an online questionnaire. Each respondent received an email containing a reference to the original NWCS study, a brief explanation of the current study and a request to participate. The invitation also stated that participation would always be voluntary, and the email contained a text concerning how privacy and data linking would be handled. Finally, the email stated the manner in which respondents could indicate that they no longer wished to be approached. The TNO Internal Review Board assessed the NWCS-COVID-19 cohort study as not being subject to the requirements of the Medical Research (Human Subjects) Act (2020-057 and 2021-101).

The NWCS consists of five waves, the baseline in 2019 (before the pandemic; Wave 1) and four follow-up measurements. The invitation for the first follow-up measurement (Wave 2) was sent to all participants on 22 June 2020. Each respondent received up to two email reminders containing a reference to the original email and a new request to respond. These email reminders were sent only to those from whom no response (or an incomplete response) had been received at the time of sending and who had not indicated that they were not willing or able to participate in the study. The first email reminder was sent on 2 July 2020, and the second was sent on 13 July 2020. On July 31, 2020, the questionnaire closed.

The first invitation for the second follow-up measurement (Wave 3) was sent on 28 October 2020 to all participants who had also been invited for the first follow-up measurement. The participants who had indicated in the first measurement that they were unwilling or unable to participate in the study were not invited for the second measurement. Each respondent again received up to two email reminders containing a reference to the original email and a new request to respond. The first email reminder was sent on 9 November 2020, and the second was sent on 19 November 2020. On December 6, 2020, the questionnaire closed.

The first invitation for the third follow-up measurement (Wave 4) was sent on 1 March 2021 to all participants who had also been invited for the previous measurements. The participants who had indicated in the first or second measurement that they were unwilling or unable to participate in the study were not invited for the second measurement. Each respondent again received up to two email reminders containing a reference to the original email and a new request to respond. The first email reminder was sent on 11 March 2021, and the second was sent on 23 March 2021. The questionnaire closed on March 31.

The first invitation for the fourth follow-up measurement (Wave 5) was sent to all participants who had also been invited for the previous measurements. The participants who had indicated no longer want to or are no longer able to participate have not received an invitation for this measurement. In the 4th follow-up measurement, prior to the questionnaire, explicit permission is asked from the participants for the use of their filled-in data for research. Each respondent again received up to two email reminders, namely on November 24, 2021 and 7 December 2021. On December 17, the questionnaire was closed.

2.3 Response NWCS-COVID-19

Response to the first follow-up measurement (Wave 2)

In the period 22 June 2020 through 31 July 2020, 26,337 participants received questionnaires, and 11,334 of these participants (partially) completed at least part of the questionnaire. Several participants differed in terms of gender and age relative to the first wave, and these participants were excluded. In all, data from 10,115 participants (response rate: 38%) were available from Wave 2.

Response to the second follow-up measurement (Wave 3)

In the period 28 October 2020 through 30 November 2020, 26,115 participants received questionnaires, and 10,609 of these participants (partially) completed at least part of the questionnaire. Several participants differed in terms of gender and age relative to the 2019 measurement, and others had not entered any information other than age and gender. These participants were excluded. In all, information from 9,475 participants (response rate: 36%) was available from Wave 3.

Response to the third follow-up measurement (Wave 4)

In the period 1 March 2021 through 31 March 2021, 25,720 participants received questionnaires, and 9,682 of these participants (partially) completed at least part of the questionnaire. Several participants differed in terms of gender and age relative to the first wave, and these participants were excluded. In all, data from 8,553 participants (response rate: 33%) were available from Wave 4.

Response to the fourth follow-up measurement (Wave 5)

In the period 15 December 2020 through 17 December 2021, 25,397 participants received a questionnaire, and 8834 of them (partially) completed the questionnaire. Several participants differed in terms of gender and age relative to the 2019 measurement, and others had not entered any information other than age and gender. These participants were excluded. In all, data from 8,099 participants (response rate: 32%) were available from Wave 5.

Information available at all five waves

In all, 3,928 participants completed the questionnaire at all five waves.

Weighting of the measurements

To prevent the marginal totals from being disproportionately determined, for example by oversampling according to education sector (from NWCS 2019, Hoofman et al., 2020), gender and/or age, the results presented here are weighted for gender, age, level of educational and sector. The data are therefore made as representative as possible regarding the 2019 employee population.

3 Justification of the questionnaire

In this section, we present the different modules (i.e. themes), the included variables and their origin. If a variable was not included in all waves, this is especially mentioned in the text. A number of fixed constructs that were already known from the NWCS 2019 (e.g., educational level, migration background, job title and presence of a chronic condition) are not described further in this section.

We distinguish three target groups: members of the workforce who have continued to work on-site, members of the workforce who have started working from home and participants who have no job or tasks (either temporarily or permanently). For this reason, we conclude this section with an overview of the modules and constructs that were surveyed in each target group (Table 1). Each of the three different target groups received a general questionnaire, supplemented by important indicators specific to the particular group (Subsection 3.2).

3.1 Modules

3.1.1 *Module: Demographic information*

At the beginning of the online questionnaire, age and gender were requested to verify whether each questionnaire had been completed by the right person. Wave 2 also included a question on household composition.

In addition to the aforementioned personal data, we inquired about the occupational status of the partner, if relevant.

3.1.2 *Module: Employment*

The following aspects were surveyed with regard to the respondent's position on the labour market:

- Employment status;
- Contract hours (only in Wave 1, Wave 3, Wave 4, Wave 5);
- Work location;
- Choice of the place of work (only in Wave 3, Wave 4, Wave 5);
- Reasons to work from home (only in Wave 3);
- Influence of COVID-19 on work;
- Influence of COVID-19 on having work;
- Influence of COVID-19 on working hours (only in Wave 2, Wave 3, Wave 4);
- Irregular working hours (evening, night or weekend (only in Wave 1, Wave 5);
- Overtime work;
- Number of hours of overtime work.

The question concerning employment status is relevant, given the possibility that major changes had occurred in the employment status of members of the workforce relative to the NWCS 2019. Based on a Dutch cohort study (STREAM, Van den Heuvel et al., 2016), the question provides insight into whether a participant was employed, self-employed or unemployed at the time of the NWCS-COVID-19.

From wave 2 onwards, we also asked participants about their contract hours per week. This question was copied from the NWCS 2019.

Given that nearly everyone's working life has changed due to the COVID-19 crisis, we asked about the place of work. Based on this question, we distinguished three target groups: people who have continued working onsite, people who have begun working primarily from home and people who had no job or tasks. Wave 3 to 5 also included a question concerning whether working on-site was necessary (i.e., the work cannot be performed from home), whether the respondent preferred to work on-site or whether the employer had requested this of the employee. In wave 4, participants were asked if they are able or willing to work from home after specific adjustments in their situations (i.e. equipment, home or technical adjustments)

The influence of the COVID-19 pandemic on work was surveyed according to three questions. These questions are used to examine whether the work has changed (different working conditions or tasks that have come to a standstill), whether their number of working hours has changed and/or whether they have lost their jobs as a result of COVID-19.

The questions concerning working overtime (all Waves) and working in the evening and night and on Saturdays and Sundays (only in Wave 5) are derived from the NWCS 2019.

3.1.3 *Module: Company and occupation*

The following aspects were surveyed for workers that changed of job during the study:

- Change of job;
- Change of job due to COVID-19 measures;
- New job title;
- Sector in new job;
- Company size in new job.

The information concerning occupation, sector and company size were copied from the NWCS 2019, unless the participant had changed jobs between the NWCS 2019 and one of the waves of the NWCS-COVID-19. Respondents who had changed jobs were asked whether this had been a consequence of COVID-19. In addition, we obtained the new job title, sector, and company size. These questions were based on the NWCS 2013 (see Zwieten et al., 2014).

3.1.4 *Module: Working from home*

The following aspects were surveyed with regard to the working conditions of people who were (partly) working from home:

- Number of hours working from home;
- Number of hours working behind a screen;
- Workplace equipment at home;
- Need for ICT (or other) tools;
- Rest breaks;
- Sedentary behaviour at work;
- Sedentary behaviour during leisure time;
- Physical activity (only in Wave 3, Wave 4 and Wave 5).

The questions about working from home, number of hours working with a screen per day and sedentary behaviour were identical to the measures used in the NWCS 2019.

The number of hours working from home was measured with an open-ended question on the number of hours per week that respondents work from home for their employers. Working with a screen was surveyed with a single question. The question refers to the average length of time per day spent working with a computer screen for work-related purposes. This question is also asked of people who worked on location. In Wave 2, Wave 4 and Wave 5, we distinguish between sedentary behaviour at work and during leisure time. Two questions were used to calculate the number of hours that participants spend sitting at work and in their leisure time.

The questions on workplace equipment at home and rest breaks are newly included in the NWCS-COVID-19. With regard to workplace equipment at home, the availability of various aspects of the workplace are asked (e.g. laptop, screen, mouse, table and chair). In Wave 2-4, it is also asked whether the employer has played a role in setting up the workplace. In addition, the need for additional equipment for an ergonomic workplace at home are also questioned.

The question about rest breaks consisted of asking whether participants took short rest breaks in addition to a lunch break during the working day. The question was developed specifically for the NWCS-COVID-19.

Two questions were asked about physical activity in Wave 3 to Wave 5. One question concerned the number of days per week that respondents engaged in at least 30 minutes of physical exercise, and the other concerned the number of days that they engaged in an average of fewer 20 minutes of intensive exercise based on the SQUASH questionnaire.

3.1.5 *Module: Exposure risks to COVID-19 infection*

This module is relevant for people working on-site. It examines the risk factors that increase the likelihood of becoming infected with COVID-19, and are all developed for the NWCS-COVID-19 cohort study. Distinctions were made between working with patients, with customers (e.g., students, passengers) and/or with colleagues. The following aspects were included in this module:

- Working with patients;
- Physical contact with patients;
- Working with patients with COVID-19;
- Contact with customers (e.g., clients, students, passengers);
- Location of contact (indoors/outdoors);
- Working with products or surfaces touched by customers;
- Cooperation with colleagues;
- Location of working with colleagues (indoors/outdoors);
- Physical contact with colleagues (only in Wave 2, Wave 3, Wave 4);
- Shared use of objects and products (only in Wave 2, Wave 3, Wave 4);
- Use of public transport (only in Wave 2, Wave 3, Wave 4);
- Public transport – 1.5 metres (only in Wave 2, Wave 3, Wave 4);
- Public transport – travel time (only in Wave 3, Wave 4).

The questions about working with patients include questions about the number of contacts, whether these contacts are physical and whether the patients had (suspicion of) COVID-19.

With regard to contact with customers (e.g., passengers, students), respondents were asked about the number of contacts, the location of the contacts (indoors or outdoors) and whether their work involved using objects (e.g., goods) and materials (e.g., desks) that were also used by customers.

Cooperation with colleagues included questions concerning the number of colleagues and/or supervisors with whom respondents worked per day, the location of their work (indoors or outdoors), whether their work also involved physical contact with colleagues, and whether they made shared use of objects (e.g., tools) and materials.

Finally, two questions were included in Wave 2 to Wave 4 about the use of public transport and whether it was possible to maintain a distance of 1.5 metres while using public transport. In the Wave 3 and Wave 4, respondents were also asked to indicate the number of hours per week that they used public transport for commuting to work.

3.1.6 *Module: Working conditions*

In this module, we asked questions about the following physical and psychosocial working conditions:

- Hazardous work;
- Physical work demands;
- Autonomy;
- Psychological work demands;
- Emotional demands;
- Social support from colleagues;
- Social support from supervisor;
- Extent of contact with colleagues (only in Wave 3);
- Extent of contact with supervisor (only in Wave 3);
- Cooperation with colleagues, supervisors (only in Wave 3);
- Concentration and attention;
- Inappropriate behaviour (only in Wave 1, Wave 3, Wave 4, Wave 5).

The following constructs were surveyed in the same manner as in the NWCS 2019: hazardous work, physically demanding work, autonomy, pressure of work, emotionally demanding work, social support from colleagues and social support from supervisor.

Two questions were used to determine how often a member of the workforce reported having performed various forms of hazardous work. The first question is about the type hazards to which a member of the workforce reports having been exposed. This question is nearly identical to the NWCS 2019, except for the inclusion of contact with people or materials infected with COVID-19. The second question addresses the frequency of exposure.

Physical demands concerned exerting force, vibrations, working position and repetitive movements. Exposure to noise was measured by asking members of the workforce whether they had to raise their voices in order to make themselves understood at work. Respondents were also asked whether their work had become more physically demanding as a result of

the COVID-19 measures. This last question was specifically developed for the NWCS-COVID-19.

Variables constructs of psychosocial working conditions were surveyed. Autonomy—also referred to as independence—refers to the extent to which employees are able to regulate their own work. It concerns freedom of choice with regard to the manner of working, as well as with regard to the scheduling and sequence of tasks. In Wave 5 a question was added for homeworkers about the possibility of determining the location to work (at home or on location). This question was developed for the NWCS-COVID-19. Three questions on quantitative task demands (pressure of work) were included, along with three items intended to measure the emotional burden of the work. In addition, four questions were included with regard to social support from the supervisor and colleagues. In Wave 3, these questions were supplemented by three items on cooperation (developed for the NWCS-COVID-19 cohort study). These items concerned how respondents had experienced the changes in contact and cooperation with their colleagues and/or supervisors during the COVID-19 pandemic.

Two questions were included in order to measure the extent of concentration. These questions were developed for the NWCS-COVID-19 and derived from Meijman (1991). They are intended to survey the difficulty of concentrating and maintaining attention.

Wave 3 to Wave 5 included eight items about inappropriate conduct taken from the NWCS 2019. This refers to inappropriate sexual attention, intimidation, physical violence and bullying. For each form of inappropriate conduct, a distinction was made between internal aggression (e.g., by supervisors or colleagues) and external aggression (e.g., by clients, patients or students).

3.1.7 *Module: Work and home*

In this module, we asked the following construction about the balance between work and home:

- Work-life balance;
- Work-life neglect (only in Wave 2);
- Interdependence of work and private life (only in Wave 3).

Work-life balance was measured according to two questions taken from the NWCS 2019 concerning the mutual influence that the work and home situation have on each other.

The three questions intended to measure work-life neglect refer to concerns about working outside of working hours, feeling too tired after work to perform household tasks and working during free time to meet work demands. These questions were taken from Eurofound's 2015 European Working Conditions Survey (Parent-Thirion et al., 2015).

For the second measurement, a question was developed regarding the extent to which work and private life are intertwined.

3.1.8 *Module: COVID-19 Measures*

The module on COVID-19 measures comprises the following aspects (developed for this NWCS-COVID-19 cohort study):

- General measures;
- On-site measures;
- Influence of on-site measures on productivity (only in Wave 2);
- Compliance to measures (only in Wave 4, Wave 5);
- Fear for a COVID-19 infection at work (only in Wave 4).

This module starts with a question that deals with general measures that a company has taken in response to COVID-19, such as working from home, working in fixed group of workers on-site, a maximum number of people allowed to attend the worksite. Specific measures for working on-site were surveyed as well, which includes the ability to keeping distance, direct cooperation with colleagues and customers/students/patients. A question about ventilation was added in Wave 5. Finally, Wave 2 asked about the influence of the measures on productivity. These questions were developed for the NWCS-COVID-19.

In Wave 4 and Wave 5, compliance with the measures was asked with two questions. This concerned compliance with the measures taken at work and whether participants stay at home with mild complaints. Finally, they were asked whether they are afraid of contracting with Sars-Cov-2 at work. These questions have been developed for the NWCS-COVID-19.

3.1.9 *Module: Change in work*

The questions in the module about change in work are asked to all employees. The module includes the following aspects:

- Changes in work due to the COVID-19 pandemic (only in Wave 5);
- Permanent changes (only in Wave 5);
- Requirements to be able to adapt (only in Wave 5).

The questions are inspired by questions from the NWCS 2020, but have been adapted for the NWCS-COVID-19. Changes in work due to the COVID-19 are asked in the domains of technology, products and services, way of doing work, manner of leadership and manner and/or amount of contact with customers or colleagues and supervisors. Then, they are asked about the expectation that these changes will be permanent. Finally, the questions are asked what the workers need to be able to adapt to the changes.

3.1.10 *Module: Coping style*

To assess the resilience of people who are not part of the workforce, we used nine questions from the Utrecht Coping List Questionnaire (Schreurs et al., 1988) to measure their coping style (i.e. the manner in which they deal with problems and/or unpleasant events).

3.1.11 *Module: Health and well-being*

The following health indicators were included:

- General health;
- Burnout symptoms;
- Mental health (in Wave 3);
- Depression;
- Musculoskeletal symptoms;
- Loneliness (only in Wave 3, Wave 4, Wave 5);
- Satisfaction (only in Wave 3, Wave 4, Wave 5);
- Happiness (only in Wave 3).

The questions for measuring general health, burnout symptoms and musculoskeletal symptoms were identical to the questions included in the NWCS 2019.

The general state of health for members of the workforce was asked with a single question. This question was derived from the Statistics Netherlands Health Survey.

Burnout symptoms (i.e., 'work-related mental fatigue') were measured according to five questions. These questions were only presented to people who were working. The RAND-36 (Van der Zee & Sanderman, 2012) was used to survey the mental health of people who had no job or tasks (at least temporarily). This question included five items about feelings of depression and nervousness (for example: 'How much of the time during the past 4 weeks have you felt downhearted and blue?').

Depression was surveyed according to the CES-D10 (Center for Epidemiologic Studies Short Depression Scale, Andresen et al., 1994; Roberts et al., 1983). This set of questions was surveyed among people who did not work.

Musculoskeletal symptoms were surveyed using four questions. The first two questions provide insight into the prevention of RSI-related health complaints in the preceding three months. The other two questions concern complaints involving the back and hips/legs/knees/feet.

Loneliness, satisfaction and happiness were also included as part of well-being. These questions refer to general well-being outside of work. Perceived loneliness (social and emotional loneliness) was measured using six statements concerning whether respondents did or did not experience a lack of social contacts, intimacy or support in social relationships, as taken from Van Tilburg and De Jong-Gierveld (2007). Satisfaction and happiness were measured according to two separate questions on the extent to which respondents, taking everything together, were happy/satisfied with life at that moment. The question about happiness is only measured in Wave 3.

3.1.12 *Module: COVID-19 Infection*

To gain insight into COVID-19 infections, the following items are measured:

- COVID-19 infection (only in Wave 4, Wave 5);
- Location of infection (only in Wave 4, Wave 5).

Participants were asked if they think they have been infected with COVID-19 in the past 12 months. The question about a COVID-19 infection and the answer options were taken over from the behavioural science research COVID-19 unit of the RIVM. In addition, participants were asked whether they know where the infection has taken place (at home, at work, or unknown). This question was developed for the NWCS-COVID-19 measurement.

3.1.13 *Module: Productivity*

Productivity was measured according to:

- Work ability (only Wave 2, Wave 3);
- Productivity (only Wave 2, Wave 3, Wave 4);
- Sickness absenteeism;
- Less work, related to the COVID-19 crisis (only Wave 2, Wave 3).

The question on work ability was derived from the Work Ability Index (WAI, Tuomi et al., 1998), and it indicates the extent to which respondents are capable of performing their work in a satisfactory manner.

Productivity was measured according to a question on the amount of work performed in the past four weeks, as compared to the usual amount of work. Respondents indicating that this was less than usual were asked to indicate the reasons. This question was also included in STREAM (Van den Heuvel et al., 2016).

Finally, respondents were asked whether the COVID-19 pandemic and the associated measures had made it impossible to work. Examples included situations in which participants had not worked due to mild flu-like symptoms or postponed care, a COVID-19 infection within the household or children who could not go to school. A subsequent question concerned how participants had arranged to work less: calling in sick, taking time off or special leave. These questions were developed for the NWCS-COVID-19.

The questions about sickness absenteeism covered the following aspects:

- Sickness absenteeism;
- Days absent;
- Complaints underlying absenteeism;
- Absenteeism due to COVID-19.

The questions used to measure sickness absenteeism, days absent and complaints underlying absenteeism were based on the NWCS 2019.

We also asked about absenteeism in the three months preceding the survey. This question was preceded by a definition of absenteeism. First, we determined whether the respondents had indeed been absent. If an absence had occurred, we also asked about the total length of the absence (in working days). These questions were also included in the NWCS 2019, albeit with a reference period of 12 months. Respondents were subsequently asked about the types of complaints during their most recent absence. If the complaints could possibly have been related to COVID-19, the respondent was asked whether the complaints had been caused by COVID-19, established with a test or not.

3.1.14 *Module: Informal care*

- Provision of informal care (only in Wave 1, Wave 3, Wave 4 and Wave 5).

Informal care was included in Wave 3 to Wave 5, based on two questions taken from the NWCS 2014 (Hooftman et al., 2015). Respondents were asked whether they had provided informal care within the past three months and, if so, the number of hours of informal care per week.

3.1.15 *Module: Employability*

Questions on the following topics were included with regard to the respondent's further career:

- Job (in)security;
- Desire for a job (only in Wave 1, Wave 3, Wave 4, Wave 5);
- Correspondence of knowledge and skills (only in Wave 1, Wave 3, Wave 4, Wave 5);
- Skills (only in Wave 1, Wave 3, Wave 4, Wave 5);
- Need for training/education (only in Wave 1, Wave 3, Wave 4, Wave 5);
- Finding a new job;
- Willingness to change type of job;
- Willingness to change sector (only in Wave 3, Wave 4, Wave 5).

Job (in)security, finding a new job and the correspondence (full or partial) of knowledge and skills are constructs taken from the NWCS 2019.

With regard to job (in)security, two questions were included on the risk of losing the current job and concerns about keeping the current job. Wave 3 to Wave 5 included a question on whether the respondent was looking for a job. Participants indicating that they were looking for a new job were presented with five questions about the correspondence of knowledge and skills. These questions were based on the NWCS 2019, supplemented by questions developed specifically for the NWCS-COVID-19. A final question on the need for additional training or training was added, as derived from the NWCS 2019.

Respondents without jobs were asked to indicate the extent to which they were positive about finding a new job and to estimate their likelihood of finding a desired job within 3 months. These questions were developed for the NWCS-COVID-19. Finally, two questions were included on the willingness of respondents to change the type of job or sector if it would enhance their opportunities on the labour market. These questions were also developed for the NWCS-COVID-19.

3.1.16 *Module: Hybrid working*

To gain insight into the desired situation of homeworkers after the COVID-19 measures are lifted, the following items are surveyed:

- Working in the post-COVID-19 situation (only in Wave 3, Wave 4, Wave 5);
- Desired hours of working from home (only in Wave 4, Wave 5);
- Reasons to work on-site (only in Wave 4, Wave 5);
- Reasons to work from home (only in Wave 3, Wave 4);
- Agreements about hybrid work in the future (only in Wave 5);
- Permission of hybrid work in the future by the employer (only in Wave 5).

In Wave 3, Wave 4 and Wave 5 respondents who were working from home were asked how they would prefer to work—on-site or from home—once the measures have been lifted. Furthermore, these participants were asked how - if the measures have been lifted - they would prefer to divide their work between working on location and working from home. Finally, five reasons are asked for both working on-site and for working from home.

Wave 5 included questions on the existing agreements with the employer to work hybrid in the future, and the permission of the employer to work hybrid in the future.

All questions have been developed for the NWCS-COVID-19.

3.1.17 *Module: Financial situation*

- Financial situation of the household;
- Change in the financial situation of the household.

The financial situation of the household was measured according to two questions. The first question had to do with the extent to which the household had a shortage of money or had money over. This question has previously been asked in NWCS (Zwieten et al., 2014).

Finally, a question was added on the financial situation of the household in comparison to 3 months before completing the questionnaire. This question was developed for the NWCS-COVID-19, and it was inspired by questions from the Globe cohort study (van Lenthe, 2014).

Table 1. Modules and constructs of the questionnaire

	Items	Wave					Constructs asked to:		
		1	2	3	4	5	On-site workers	Home workers	Not working
DEMOGRAPHIC									
Gender	1	x	x	x	x	x	x	x	x
Age	1	x	x	x	x	x	x	x	x
Household composition	1	x	x				x	x	x
Job of partner	1		x	x	x	x	x	x	x
EMPLOYMENT									
Employment status	1		x	x	x	x	x	x	x
Contract hours	1	x		x	x	x	x	x	
Work location	1								
Choice of work location	1			x	x	x	x		
Reason for working on-site	1				x				
Reason for working at home								x	
Influence of COVID-19 on work	1		x	x	x	x	x	x	x
Influence of COVID-19 on having work	1		x	x	x	x	x	x	x
Influence of COVID-19 on working hours	1		x	x	x		x	x	
Working overtime	1	x	x	x	x	x	x	x	
Number of hours overtime	1	x	x	x	x	X	x	x	x
Working in the evening	1	x				x	x	x	
Working at night	1	x				x	x	x	
Working on Saturdays	1	x				x	x	x	
Working on Sundays	1	x				x	x	x	
COMPANY AND JOB TITLE									
Change of job compared to 2019	1		x	x	x	x	x	x	x
COVID-19 as cause for change	1		x	x	x	x	x	x	x
Job title	1	x	x	x	x	x	x	x	x
Sector	1	x	x	x	x	x	x	x	x
Company size	1	x	x	x	x	x	x	x	x
WORKING FROM HOME									
Number of hours of working from home	1	x	x	x	x	x		x	
Hours of screen use per day	1	x	x	x	x	x	x	x	
Equipment to work from home	4		x	x	x	x		x	
Needs for new equipment	1		x	x	x			x	
Breaks	1		x	x	x	x		x	
Sedentary behaviour during work	1	x	x		x	x		x	
Sedentary behaviour in leisure time	1	x	x	x	x	x		x	
Physical activity	2			x	x	x		x	

	Items	Wave					Constructs asked to:		
		1	2	3	4	5	On-site workers	Home workers	Not working
EXPOSURE RISK TO COVID-19									
Working with patients	1		x	x	x	x	x		
Physical contacts with patients	1		x	x	x	x	x		
Working with patients with COVID-19	1		x	x	x	x	x		
Contact with customers	1		x	x	x	x	x		
Location of contact (indoors/outdoors)	1		x	x	x	x	x		
Working with products/surfaces touched by customers	1		x	x	x		x		
Cooperation with colleagues	1		x	x	x	x	x		
Location of working with colleagues	1		x	x	x	x	x		
Physical contact with colleagues	1		x	x	x		x		
Shared use of objects and products with colleagues	1		x	x	x		x		
Ventilation	1					x	x		
Use of public transport	1		x	x	x		x		
Public transport – travel time	1			x	x		x		
Public transport – 1.5 meter	1		x	x	x		x		
WORKING CONDITIONS									
Hazardous work	12	x	x	x	x	x	x		
Physical work demands	6	x	x	x	x	x	x	x	
Autonomy	6-7	x	x	x	x	x	x	x	
Psychosocial demands	3	x	x	x	x	x	x	x	
Emotional demands	3	x	x	x	x	x	x	x	
Social support from colleagues	2	x	x	x	x	x	x	x	
Social support from supervisor	2	x	x	x	x	x	x	x	
Extent of contact with colleagues	1			x				x	
Extent of contact with supervisor	1			x				x	
Cooperation	1			x				x	
Concentration	2		x	x	x	x	x	x	
Inappropriate behaviour	8	x		x	x	x	x	x	
Work-life									
Work-life balance	2	x	x	x	x	x	x	x	
Work-life neglect	3		x				x	x	
Interdependence of work and life	1			x			x	x	
COVID-19 MEASURES									
General measures	1		x	x	x	x	x	x	
Measures on-site	7		x	x	x	x	x		
Compliance with COVID-19 measures	2				x	x	x		
Fear of a COVID-19 infection	1				x	x	x		
Influence of COVID-19 on productivity	1		x	x			x	x	

	Items	Wave					Constructs asked to:		
		1	2	3	4	5	On-site workers	Home workers	Not working
CHANGE IN WORK									
Type of changes	7					x	x	x	
Permanent changes	7					x	x	x	
Requirements to adapt	1					x	x	x	
COPING									
Coping	9		x	x	x	x			x
HEALTH									
General health	1	x	x	x	x	x	x	x	x
Burn-out symptoms	5	x	x	x	x	x	x	x	
Mental health	5			x					x
Depression	10		x	x	x	x			x
Musculoskeletal symptoms	4	x	x	x	x	x	x	x	x
Loneliness	6			x	x	x		x	x
Happiness	1			x			x	x	x
Satisfaction	1			x	x	x	x	x	x
COVID-19 infection									
COVID-19 infection	1				x	x	x	x	x
Location of COVID-19 infection	1				x	x	x	x	x
PRODUCTIVITY									
Productivity	2		x	x	x		x	x	
Work ability	1		x	x			x	x	
Sickness absenteeism ¹	1	x	x	x	x	x	x	x	
Days of sickness absenteeism ¹	1	x	x	x	x	x	x	x	
Complaints underlying absenteeism	1	x ¹	x	x	X	X	x	x	
Sickness absenteeism due to COVID-19	1		x	x	x	x	x	x	
Absenteeism due to COVID-19	2		x	x	x		x	x	
INFORMAL CARE									
Informal care	2			x	x	x	x	x	
EMPLOYABILITY									
Job (in)security	2	x	x	x	x		x	x	
Desire for a job	1			x	x				x
Correspondence of knowledge and skills	1			x	x				x
Skills	5	x		x	x				x
Need for training/education	1	x		x	x				x
Finding a new job	2		x	x	x				x
Willingness to change type of job	1		x	x	x				x
Willingness to change sector	1			x	x				x

	Items	Wave					Constructs asked to:		
		1	2	3	4	5	On-site workers	Home workers	Not working
Hybrid work									
Work location post-COVID-19	1			x	x	x		x	
Hours working at home	1				x	x		x	
Reasons to work from home	1				x	x		x	
Reasons to work on-site	1				x	x		x	
Agreements on the organization of hybrid work	1					x		x	
Permission for hybrid work by employer	1					x		x	
FINANCIAL SITUATION									
Financial situation in the household	1		x	x	x	x	x	x	x
Change in the financial situation compared to 2019	1		x	x	x	x	x	x	x

¹ The questions on sickness absence were asked with a reference period of 12 months in the NWCS 2019 and with a reference period of 3 months in the NWCS-COVID-19.

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