The Implementation of Home Office Work in a Large Psychiatric University Hospital in Switzerland during the Covid-19 Pandemic: A Field Report

Jana Sophia Krückl, Julian Moeller, Rainer Gaupp, Christoph Meier, Carl Bénédict Roth, Undine Emmi Lang, Christian G. Huber

Submitted to: JMIR Mental Health
on: March 16, 2021

Table of Contents

The Implementation of Home Office Work in a Large Psychiatric University Hospital in Switzerland during the Covid-19 Pandemic: A Field Report

Jana Sophia Krückl[1, 2*] BSc, MSc; Julian Moeller[1, 1*] BSc, MSc, DPhil; Rainer Gaupp[1]; Christoph Meier[1]; Carl Bénédict Roth[1]; Undine Emmi Lang[1]; Christian G. Huber[1]

[1]University Psychiatric Clinics Basel (UPK) University of Basel Basel CH
[2]Division of Clinical Psychology and Epidemiology Department of Psychology University of Basel Basel CH
[*]these authors contributed equally

Corresponding Author:
Jana Sophia Krückl BSc, MSc
University Psychiatric Clinics Basel (UPK)
University of Basel
Wilhelm Klein- Strasse 27
Basel
CH

Abstract

Background: During the Covid-19 pandemic in 2020, psychiatric hospitals all over the world had to adapt their services to the prevailing governmental regulations. As a consequence, home office (HO) and telepsychiatry boomed.

Objective: To evaluate the potential of HO use, its adoption, and the association of HO use with employees' mental health in a large Psychiatric University Hospital in Switzerland.

Methods: Information about the implementation and use of HO were gathered by analyzing routine data and information provided by our IT services. Moreover, a cross-sectional online survey was conducted to assess the employee's attitudes towards the clinic's crisis management during the Covid-19 pandemic in early 2020. Part of this online survey consisted of questions about HO use in the period between March and June 2020, the employees' attitude towards HO implementation and their mental health. Three mental health measures assessed depressive symptoms, anxiety and stress factors.

Results: A total of 200 employees completed the online survey. About one third of the employees reported to work at least partially from home (34.5%). HO use differed significantly across the professional groups. Employees experienced no or mild depressive symptoms and anxiety. The number of reported stress factors varied significantly across the HO groups.

Conclusions: HO appears to be generally feasible in large psychiatric hospitals. However, HO is not equally possible for all professional groups. Professional groups with personal contact to patients and technical or manual tasks have to work onsite. Further evaluation of HO use in psychiatric hospitals up to the development of virtual clinics will follow in future research. In conclusion, the worldwide pandemic served as a stepping stone that should be further used to promote HO use and to take full advantage of HO for employees as well as employers (to improve employees' work-life balance, to save costs, etc.).

(JMIR Preprints 16/03/2021:28849)
DOI: https://doi.org/10.2196/preprints.28849

Preprint Settings

1) Would you like to publish your submitted manuscript as preprint?
Please make my preprint PDF available to anyone at any time (recommended).
Please make my preprint PDF available only to logged-in users; I understand that my title and abstract will remain visible to all users.
Only make the preprint title and abstract visible.
✓ **No, I do not wish to publish my submitted manuscript as a preprint.**
2) If accepted for publication in a JMIR journal, would you like the PDF to be visible to the public?

✓ **Yes, please make my accepted manuscript PDF available to anyone at any time (Recommended).**
Yes, but please make my accepted manuscript PDF available only to logged-in users; I understand that the title and abstract will remain v
Yes, but only make the title and abstract visible (see Important note, above). I understand that if I later pay to participate in <a href="http

Original Manuscript

Corresponding author
Jana Sophia Krückl, MSc
Klinik für Erwachsene
Universitäre Psychiatrische Kliniken
Wilhelm Klein-Str. 27, CH-4002 Basel
Tel.: +41-61-325-8157
E-Mail: jana.krueckl@upk.ch

Original Paper

The Implementation of Home Office Work in a Large Psychiatric University Hospital in Switzerland during the Covid-19 Pandemic: A Field Report

Jana S. Krückl[1,2*], Julian Moeller[1,2*], Rainer Gaupp[1], Christoph Meier[1], Carl Roth[1], Undine E. Lang[1] and Christian G. Huber[1]

[1]University Psychiatric Clinics Basel (UPK), University of Basel, Wilhelm Klein-Str. 27, CH-4002 Basel

[2] Division of Clinical Psychology and Epidemiology, Department of Psychology, University of Basel, Missionsstr. 60/62, CH-4055 Basel

[*]equal contribution

For publication in: Journal of Medical Internet Research, Mental Health
Publication type: Original Article
Running title: Home Office Work in a Large Psychiatric University Hospital
Authors' contributions: CGH designed the study, and JSK and CGH wrote the initial draft of the paper. JSK, RG, and CM collected the data. JSK, JM and CGH analyzed and interpreted the data. All authors have contributed to, read and approved the final version of the manuscript. JSK has full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.
Conflicts of interest: There are no conflicts of interests.
Role of funding source: JSK is supported by an internal research grant of the UPK to CGH.
Ethics committee approval: According to current legal regulation and a statement of the responsible ethics committee (EKNZ), no formal approval from the local ethics committee was required for the current analyses.
Word count: 5,277 words

Abstract

Background: During the Covid-19 pandemic in 2020, psychiatric hospitals all over the world had to adapt their services to the prevailing governmental regulations. As a consequence, home office (HO) and telepsychiatry boomed.
Objective: To evaluate the potential of HO use, its adoption, and the association of HO use with employees' mental health in a large Psychiatric University Hospital in Switzerland.
Methods: Information about the implementation and use of HO were gathered by analyzing routine data and information provided by our IT services. Moreover, a cross-sectional online survey was conducted to assess the employees' attitudes towards the clinic's crisis management during the Covid-19 pandemic in early 2020. Part of this online survey consisted of questions about HO use in the period between March and June 2020, the employees' attitude towards HO implementation and their mental health. Three mental health measures assessed depressive symptoms (PHQ-2), anxiety (GAD-2) and stress factors (stress module of the PHQ-D).
Results: 69 of the 200 participating employees reported to work at least partially from home (34.5%). HO use differed significantly across the professional groups ($Chi^2(16) = 72.72$, P = <.001, n = 200). Compared to the cut-off scores of ≥ 3 for the PHQ-2 and the GAD-2, employees experienced no or mild depressive symptoms (M = 0.76, SD = 1.14) and anxiety (M = 0.70, SD = 1.03). The employees reported minor psychosocial stressors (M = 2.83, SD = 2.92). The number of reported stress factors varied significantly across the HO groups ($Chi^2(4) = 9.72$, $P = .04$).
Conclusion: HO appears to be generally feasible in large psychiatric hospitals. However, HO is not equally possible for all professional groups. Professional groups with personal contact to patients and technical or manual tasks have to work onsite. Further evaluation of HO use in psychiatric hospitals up to the development of virtual clinics will follow in future research. In conclusion, the worldwide pandemic served as a stepping stone that should be further used to promote HO use and to take full advantage of HO for employees as well as employers (e.g., to improve employees' work-life balance or to save costs).

Key words: home office; psychiatry; employees; mental health; depression; anxiety; stress factors; PHQ-2; GAD-2; PHQ-D

Introduction

Looking back on 2020, the coronavirus disease 2019 (Covid-19) had the world in its firm grip, with over 80 million confirmed cases and more than 1.8 million associated deaths [1]. After its first detection in China by the end of 2019, it spread at a tearing pace around the globe. As a consequence, governments all over the world imposed major restrictions on the general population, i.e., wearing face masks, social distancing and general lockdowns. In Switzerland, a national lockdown was declared shortly after the first confirmed cases in the country [2]. As a result, the general population was obliged to stay at home, shops were closed, and employees were urged to work from home, with only few exceptions.

Besides the physical symptoms of Covid-19, researchers have reported numerous psychological effects of the pandemic [3-13]. Fear of transmission, isolation, unemployment, and economic recession were associated with increased distress, anxiety, depression, and insomnia in the general population [5, 7-10]. Particularly women, young people, those who have lost their job, and those with a history of mental illness seem to suffer from negative consequences [4, 7, 8, 10]. Moreover, (mental) health professionals reported increased distress during the pandemic, especially when facing Covid-19 infections at their workplace [3, 5, 6, 14]. Accordingly, mental health services would face a rather high demand for psychiatric treatment during the ongoing pandemic [15, 16]. However, they had to offer treatment within the scope of the prevailing governmental measures (like social distancing). This problem had to be solved, practically overnight, in psychiatric hospitals around the world. Traditional operating processes were adapted: new and especially safe approaches to offer psychiatric treatment while also preventing Covid-19 infections among patients as well as professionals had to be found within a very short time.

Home office (HO) and telepsychiatry, the process of providing healthcare from a distance through technology [17], therefore found their way into the daily routine of doctors, psychologists and nurses in large psychiatric hospitals. HO has been associated with several benefits during the worldwide pandemic (i.e., reduced Covid-19 infection risk due to reduced personal contact to co-workers and patients, less travel from and to work) as well as beyond this extraordinary situation (i.e., increased perceived autonomy in employees, higher job satisfaction, and less work-family conflicts [18-20]). Moreover, Fadinger & Schymik [21] showed that the use of HO during the Covid-19 pandemic was associated with an lower infection risk and is less costly than confinement. However, HO also exerts potentially detrimental effects on social relationships [18]. Moreover, HO may not be feasible for all professional groups (e.g., construction workers, nurses). Rutzer and Niggli [22] calculated an HO–index which indicates the probability of being able to work from home (whereby 0 represents HO is not possible, and 1 indicates that all the work can be done from home). They found that the HO–index differed between economic sectors as well as between professional groups. For the public health sector, the authors reported a HO-index of 0.19 as there are many positions in which HO is feasible only to a minor degree or not at all. In psychiatric hospitals, especially face-to-face treatments seem to challenge the implementation of HO.

However, numerous studies since the 1990s have shown that telepsychiatry is comparable concerning feasibility, validity, reliability of diagnoses, therapeutic alliance and patients' and doctors' satisfaction to onsite psychiatric assessments and treatments [23-27]. In addition, benefits of telepsychiatry are an increased accessibility for people living in rural areas, saved time due to decreased time to commute, and reduced costs [28]. However, there are also some challenges. Firstly, certain technical prerequisites (i.e., suitable devices for both, patient and healthcare professional, and a stable remote connection) are required. Secondly, data security has to be ensured. Thirdly, telepsychiatry may not be appropriate for certain populations (e.g. suicidal or involuntarily treated patients and patients who struggle with navigating online platforms) [28].

Regarding these challenges, the implementation of telepsychiatry is an extremely complex and challenging process for mental health professionals in general, and for large psychiatric hospitals, in particular. Before the Covid-19 pandemic, online treatment was not widely used in psychiatric hospitals in Switzerland, onsite treatment was the state of the art. However, the pandemic "has served as a catalyst for the rapid implementation and acceptance of telemental health" [28] as an effective option to deliver mental health services. Telepsychiatry (and HO) suddenly became an integral part of work in psychiatric hospitals. However, with regard to the above-mentioned challenges, the question arises how large psychiatric hospitals implemented HO during the Covid-19 pandemic successfully. This study will explore this issue by investigating the following research questions:

1. How did HO use change over the course of the year 2020?
2. Which employees were able to work in HO?
3. How did the implementation of HO work from the employees' viewpoint?
4. Is HO use associated with mental health of employees?

Methods

Background

In the spring of 2020, the coronavirus arrived in Europe. The first case of Covid-19 in Switzerland was confirmed on 25 February 2020, the first case in Basel on 27 February 2020. Shortly afterwards, on 16 March, the Federal Council declared extraordinary circumstances and simultaneously a national lockdown [2, 29]. Subsequently, the management board of the Psychiatric University Clinics Basel (UPK) requested all employees for whom it was possible to work from home. On 19 June 2020, the Federal Council eased the restrictions and ended the national status of extraordinary circumstances [2]. In autumn, the number of Covid-19 cases in Switzerland again rose, which led to renewed restrictions. On 19 October 2020, the Federal Council therefore again recommended that employees work from home whenever possible [30]. These restrictions remained for the rest of the year and beyond. Over the course of the whole year, a total of 8 patients with a Covid-19 infection have been treated in the UPK.Research design

The aim of the current analyses was to evaluate the potential of HO use, its adoption, and the association of HO use with employees' mental health in a large Psychiatric University Hospital with more than 1200 employees in Switzerland. Firstly, concerning background information about HO implementation and use, data were gathered by CM, the hospital's chief information officer (CIO). Secondly, data were collected as part of a retrospective analysis to assess the employees' attitudes towards the clinic's crisis management during the Covid-19 pandemic in early 2020. The cross-sectional online survey was mandated by the management board of the UPK as a consequence of the far-reaching policies and the extensive HO implementation in March 2020.

Participants & Procedure

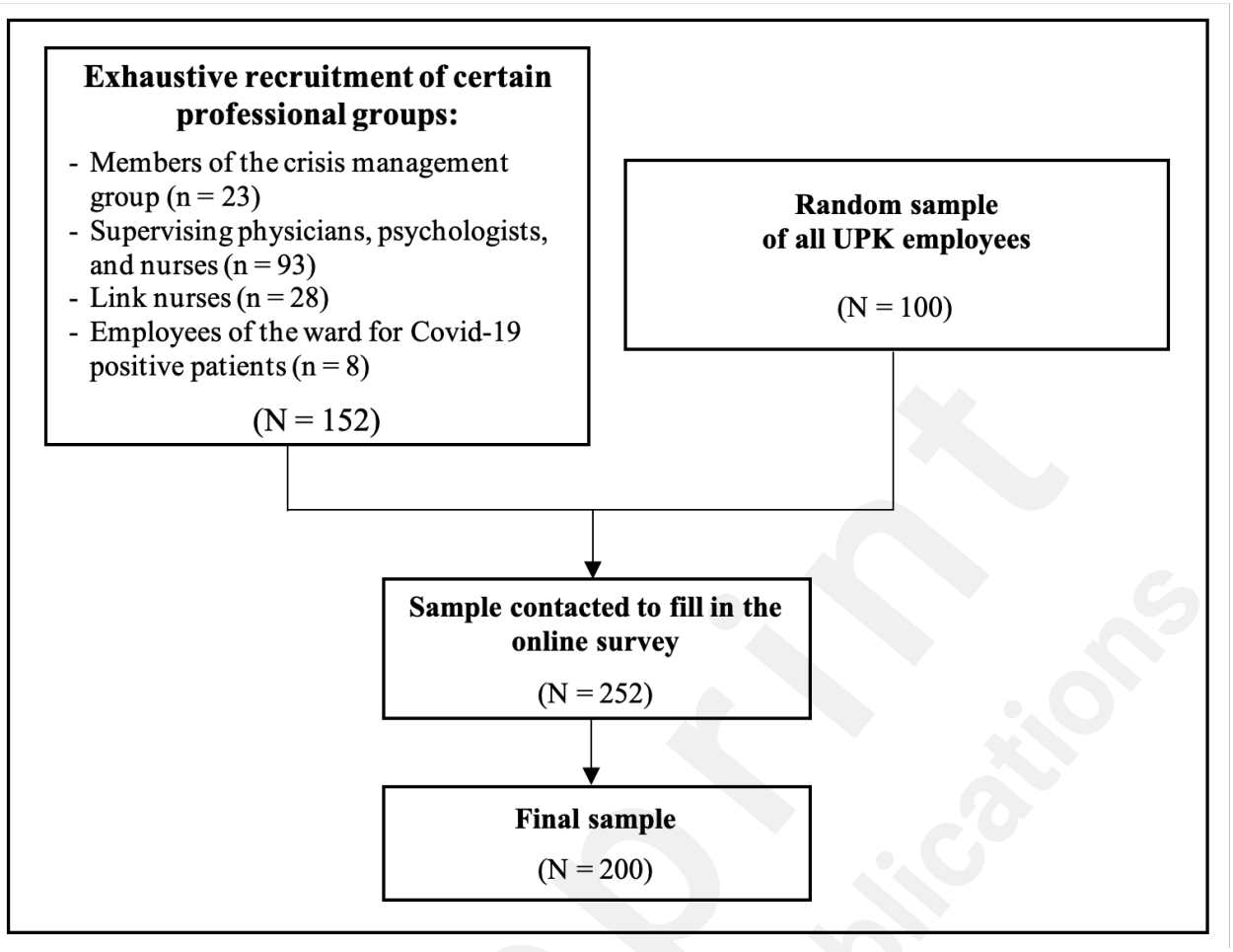
HO users had access to the hospital's HO environment (i.e., their desktop and pre-installed applications) by the program Citrix Workspace app®; Citrix Systems Inc., 2020 [31]) by access to their own data center. It allows access from a large range of end devices with a broad selection of supported operating systems. This infrastructure was established already before the pandemic but was at this time only used by a very limited number of employees. The e-mail service was provided by internal Microsoft Office Outlook® Server (version Windows 10; Microsoft, 2020 [32]). In addition, a webmail service offered flexible e-mail checking. Finally, the program ZOOM® (version 4.x.x; Zoom Video Communications Inc., 2020 [33]) as a cloud service was used for video conferences. It was introduced in the UPK in March 2020 to ensure efficient exchange between teams and individual employees and to provide a platform for telepsychiatry.

Concerning the online survey, we estimated the required sample size for the study using G*Power (version 3.1 for Mac OSx). Assuming medium effect sizes ($f = 0.25$ [34]), setting α at 0.05 and targeting a statistical power of 0.8 [35], the required calculated sample size was 196. Based on expected drop-outs, we included 252 persons in the online survey. As data for the current paper were collected as part of a retrospective survey to assess the employees' attitudes towards the clinic's

crisis management during the Covid-19 pandemic in spring 2020, the drawn sample was designed as follows. Professional groups with a direct and significant effect on crisis management were completely included in the study: members of the crisis management group (n = 23), supervising physicians, psychologists and nurses (n = 93), link nurses (n = 28) and employees of the ward, which was established for Covid-19 positive patients (n = 8; $n_{total.exhaustive}$ = 152). «Link nurses» are responsible for the hospital hygiene on their division, they connect their division to the authorized representative for hospital hygiene of the canton Basel-City. In addition, a representative sample (with respect to profession, organizational unit and years of professional experience) from all other employees of the UPK Basel was drawn ($n_{total.rand}$ = 100). The only exclusion criteria were a small workload (< 50%) as well as certain professional groups (i.e., interns, medical student assistants and employees without clinical or administrative duties). It was assumed that these employees were not sufficiently affected by the hospitals` clinical crisis management.

In total, 252 employees were asked by e-mail on June 10th, 2020 to fill in the online survey. They received a reminder seven days after this date as well as three days before the assessment phase ended on June 26th in 2020. Finally, a total of 200 employees (79.4% of the 252 initially approached employees) completed the online survey. Figure 1 shows a flowchart depicting the sample composition. Employees did not receive any compensation for their participation in the study. The data was anonymized and stored on a local server of the department of Quality and Processes at the UPK Basel. Participants agreed to the publication of the anonymized data.

Figure 1. Sample composition of the online survey.



No ethics committee approval was necessary, as the present analyses does not meet the criteria specified in the Human Research Act art. 51 par. 2. This was formally confirmed by the responsible local ethics committee (Ethics Committee of Northwestern and Central Switzerland, EKNZ) on request of the authors.

Measurements

Home office use

HO was assessed by two means. Firstly, frequencies and distributions of the video conferences on ZOOM® were retrieved from the administrator account of the hospital's CIO (CM). Data were downloaded on 15 January 2021. Frequencies and distributions of video conferences on ZOOM® were included to depict the development of HO over the course of the year 2020. Due to data protection regulations, detailed information about accesses to the HO environment are deleted after 30 days in the UPK. They therefore cannot be retrospectively restored. Secondly, the online survey assessed several questions about HO use ("Do you work from home?") as well as employees' attitudes towards the HO implementation (e.g., "I have the necessary IT infrastructure available at home."). Concerning HO use, employees chose one of the following categories: "Yes, always", "Yes, partially", "No, it is not possible for my position", "No, I did not want to" and "No, I was rejected to work from home". Concerning their attitudes towards the HO implementation, employees rated several statements on a 5-point Likert scale from "strongly disagree" to "strongly agree". All items are listed in the multimedia appendix.

Depression (PHQ-2) [36]

The Patient Health Questionnaire (PHQ)-2 scale consists of the first two items of the PHQ-8. These two items assess two main criteria of depressive disorders: “little interest or pleasure in doing things” and “feeling down, depressed or hopeless”. Participants are asked to rate the frequency of these symptoms over the last two weeks on a 4-point Likert scale from 0 (“Not at all.”) to 3 (“Nearly every day”). The sum score therefore lies between 0 and 6. The cut-off score of ≥ 3 has been shown to screen reliably for a current depressive episode [36]. This brief screening scale showed consistently good reliability and validity, comparable to the longer PHQ-8 [36-38].

Anxiety (GAD-2) [36]

The General Anxiety Disorder (GAD)-2 scale contains the first two items of the GAD-7. They assess two core criteria of general anxiety disorder, which also have shown to validly screen for other anxiety and stress disorders (like panic, social anxiety and posttraumatic stress disorder). The rating scale is comparable to the PHQ-2, and a cut-off score of ≥ 3 has been identified as optimal for screening purposes. The GAD-2 has been shown to be a similarly valid and reliable screening instrument for all anxiety disorders compared to the GAD-7 [36, 38, 39].

Stress (stress scale of the PHQ-D) [40]

The stress scale of the Patient Health Questionnaire (PHQ)–D consists of ten items to assess common psychosocial stressors (e.g., financial status, family relationships, work). Each item is rated on a scale from 0 (“not bothered”) to 1 (“bothered a little”) and 2 (“bothered a lot”) [41]. The sum score (between 0 and 20) stands for the level of experienced stress. A score of 0 represents no stress factors being present, whereas a score of 20 stands for heavily experienced stress factors. No valid cut-off score is currently available for this stress scale [42]. In the present sample, the stress scale of the PHQ-D showed an acceptable to good internal consistency (Cronbach’s $\alpha = 0.78$) [43]. The German version was found to be a valid, reliable, and well accepted screening instrument [40].

Demographic Information

Standard sociodemographic information was obtained including gender, professional group and workload of the employees.

Statistical Analysis

For further analyses, descriptive statistics are given in frequencies and percentages for nominal data. For interval data (i.e., the questionnaires about mental health), mean (*M*) and standard deviation (*SD*) were calculated. We divided the sample, firstly, on the basis on professional groups (i.e., doctors, psychologists, nurses, employees working in administration, and others). The category “others” consisted of employees who do not belong to any of the other groups (i.e., trainees, housekeeping, social services etc.). Secondly, five groups were built according to the employees’ HO use (i.e., “Yes, always”, “Yes, partially”, “No, it is not possible for my position”, “No, I did not want to” and “No, I was rejected to work from home”). The distribution of participants among the five HO groups were compared across the five professional groups using an exact Fisher-Test as expected group sizes appeared to be small. *Cramers V* was calculated to estimate the effect size.

Due to the nature of sample structure (i.e., small group sizes), non-parametric tests (namely, the Kruskal-Wallis test) were used for group comparisons regarding psychological well-being across HO groups as well as across professional groups. Due to small group sizes, the exact calculation of the Monte-Carlo significance was chosen. For the final analysis, the five groups were reduced to two groups of “HO yes” (including the two former groups “Yes, always” and “Yes, partially”) and “HO no” (consisting of the other three groups) as some groups turned out to be too small to reliably

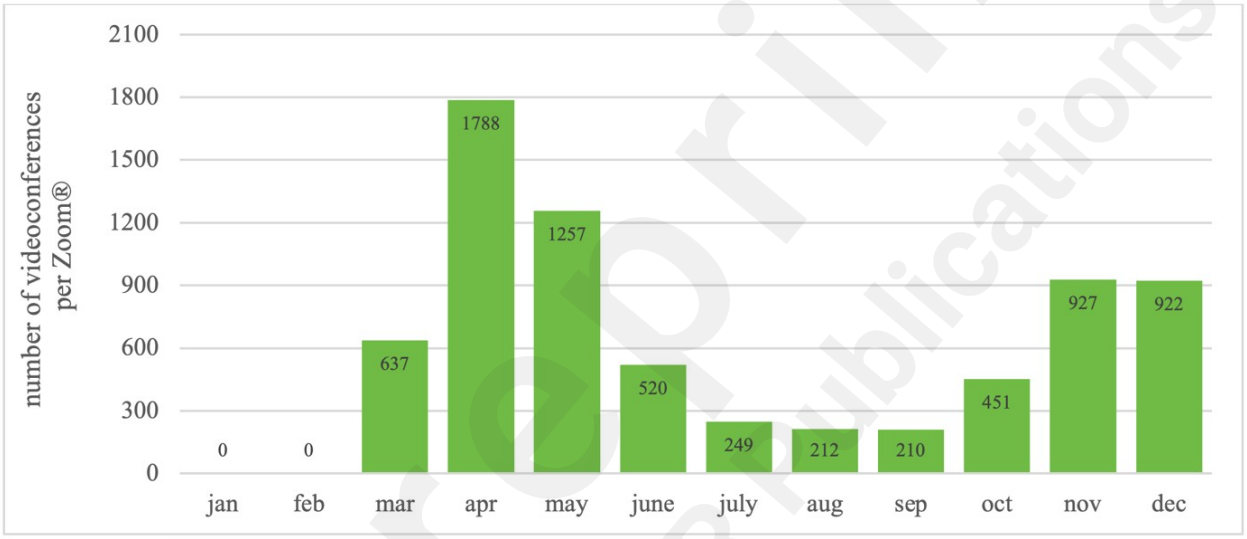
conduct post-hoc analyses (especially, the groups “No, I was rejected to work from home” (n = 3) and “Yes, always” (n = 8)). A Mann-Whitney U test was administered to compare the two groups.

Statistical analyses were performed by using IBM SPSS Statistics for Mac OS (version 27.0), graphical analyses were conducted in Microsoft® Excel for Mac (version 16.45). Following the exploratory nature of this study, outliers were included in all analyses and no correction for multiple testing was applied. For all analyses, two-tailed tests and a significance level at 5% was chosen. Missing values were excluded pairwise.

Results

Figure 2 depicts the frequencies of video conferences in the UPK per month over the course of 2020. In total, 7173 video conferences took place in 2020. Comparing months, more video conferences were held in April 2020 (n = 1788) than in any other month that year. Per day, 125 video conferences were the maximum in the month of April (on 20 April 2020, Tuesday). Since then, the number of video conferences gradually decreased over the months. For example, the maximum video conferences per day in June (on 1 and 3 June 2020, Tuesday and Thursday) was 39. In August, it was 17 (on 12 August 2020, Thursday). Since October 2020, video conferences again increased to over 900 video conferences per month in November and December. More detailed information (e.g. concerning who was involved in the video conferences and the purpose of video conferences) was not available due to data protection regulations.

Figure 2. Distribution of video conferences in 2020.



Due to privacy protection of individual employees, there is only limited demographic information about the sample of the online survey. 115 of the 200 participants (57.5%) were female. More than half of the sample (n = 117, 58.5%) worked full-time (i.e., level of employment between 90 – 100%), whereas the rest (n = 83, 41.5%) worked between 50 and 89% (employees with a workload below 50% were excluded in advance, see above).

Table 1 compares the frequencies of HO categories between the five professional groups during the Covid-19 pandemic in early 2020. The majority of the employees continued to work at their original workspace rather than working from home ($n_{orig.work}$ = 131 vs. $n_{at.home}$ = 69, resp. 65.5% vs. 34.5%). 104 of the 131 employees who were still working in person at the hospital said that HO was not possible for their position (79.4%). This seems to be true for nurses especially, as 84.9% of them reported that HO is not possible for them (62 out of 73 nurses). In other professional groups, HO seems to be more feasible, e.g., in administration. Only every fifth employee who works in administration stated that HO was not possible for his or her position (6 out of 30 employees in administration). 61 of the 69 employees in HO worked part-time from home and part-time in person at their original working environment (88%). A minority of eight employees worked full-time from home (12%). Of the whole sample, three employees were denied the possibility of working from home (1.5%). The distribution across the five HO groups varied between the professional groups ($Chi^2(16) = 72.72$, $P = <.001$, $n = 200$). The effect size of *Cramers V* = .31 indicates a medium effect [44].

Table 1. Comparison of the HO status in the five professional groups.

	Did you work from home?					
	Yes, always.	**Yes, partially.**	**No, it was not possible for my position.**	**No, I did not want to.**	**No, I was rejected to work from home.**	**Total**
Doctors	1 (2.4%)	19 (45.2%)	17 (40.5%)	4 (9.5%)	1 (2.4%)	42
Psychologists	1 (4.3%)	14 (60.9%)	6 (26.1%)	1 (4.3%)	1 (4.3%)	23
Nurses	0 (0.0%)	7 (9.6%)	62 (84.9%)	4 (5.5%)	0 (0.0%)	73
Administration	3 (10.0%)	11 (36.7%)	6 (20.0%)	10 (33.3%)	0 (0.0%)	30
Others	3 (9.4%)	10 (31.3%)	13 (40.6%)	5 (15.6%)	1 (3.1%)	32
Total	8 (4.0%)	61 (30.5%)	104 (52.0%)	24 (12.0%)	3 (1.5%)	200

Note: the percentages in each professional category are accumulated horizontally. The category "Others" refers to employees who do not belong to any of the other categories, i.e. trainees, housekeeping, social services etc.

Employees who worked at least partially in HO (n = 69) rated their work from home as a mainly positive experience. The majority of this subgroup had the necessary IT infrastructure available at home and promptly received a HO account by the IT department (76.9% & 93.9%, respectively). Most employees (83.3%) had a quiet working space at home. Video conferences via ZOOM® connected those working from home and those in the hospital. ZOOM® was seen as suitable for video conferences and/or online therapy by 73.1% of the whole sample. Whereas the program was provided in time for 81.4% of the employees, many did not have sufficient equipment (e.g., headset, webcam) for video conferences (50.7%). Almost half of the sample (48.8%) reported that the help desk service of the IT department was not available as usual.

Table 2 shows descriptive statistics of the three mental health measures (depression, anxiety, and psychosocial stressors) for the whole sample as well as separately for the five HO groups. With respect to the cut-off scores of ≥ 3 for the PHQ-2 and the GAD-2 [36], the sample of the present analyses seems to experience only mild psychological distress, if at all. On average, employees reported minor psychosocial stressors (M = 2.83, SD = 2.92). The only exception are employees who were rejected to work from home. They reported a rather high number of psychosocial stressors (M = 7.00, SD = 5.20) compared to the other groups.

Table 2. Depression, anxiety, and psychosocial stressors for the whole sample and for the five HO groups separately.

			Depression (PHQ-2)	**Anxiety** (GAD-2)	**Stress factors** (stress scale of the PHQ-D)
		n	*M (SD)*	*M (SD)*	*M (SD)*
Whole sample		200	0.76 (1.14)	0.70 (1.03)	2.83 (2.92)
Did you work from home?	**Yes, always.**	8	1.75 (1.91)	1.38 (1.77)	5.13 (4.19)
	Yes, partially.	61	0.69 (1.01)	0.53 (0.73)	2.12 (2.24)
	No, it was not possible for my position.	104	0.73 (1.11)	0.73 (1.14)	3.09 (3.08)
	No, I did not want to.	24	0.57 (0.99)	0.57 (0.73)	2.18 (1.94)
	No, I was rejected to work from home.	3	1.67 (2.08)	2.00 (0.00)	7.00 (5.20)

Note: *n* = number of employees, *M* = mean, *SD* = standard deviation.

A Kruskal Wallis-H test revealed that the five HO groups differed concerning their reported number of stress factors ($Chi^2(4) = 9.72$, $P = .04$). Anxiety was trending toward being significant ($Chi^2(4) = 8.56$, $P = .07$), whereas no significant differences were found concerning depression scores ($Chi^2(4) = 3.62$, $P = .47$). Due to the extremely small group sizes, post-hoc analyses would not allow a reliable interpretation. Therefore, the five groups were merged into two groups “HO yes” and “HO no” to answer the question whether working from home or working at the original workspace is associated with an increased level of stress. A Mann-Whitney U test showed that these two groups did not differ regarding their reported stress factors ($Chi^2 = 3344.50$, $P = .17$). The five professional groups also did not differ on any of the three psychological scales (depression: $Chi^2(4) = 8.06$, $P = .08$; anxiety: $Chi^2(4) = 3.17$, $P = .54$; stress factors: $Chi^2(4) = 7.01$, $P = .13$).

Discussion

The aim of this field report was to describe the implementation process of home office (HO) work in the UPK in Basel, Switzerland, during the Covid-19 pandemic. The present analyses showed that the national lockdown declared by the Swiss government in March 2020 boosted the use of HO and related programs (like Zoom®), but HO was not equally frequent in the different professional groups. Employees of the UPK experienced no or only mild psychological distress during the current Covid-19 pandemic. In conclusion, the implementation of HO in the UPK can be seen as relatively successful. However, the broad implementation of HO in large psychiatric hospitals has to be viewed as a process, which has just started [18].

Covid-19 and consequently declared governmental restrictions have provided a major impetus to telepsychiatry and HO in Switzerland and all over the world [28]. In the UPK, the use of the video conferencing program Zoom® has been fluctuating along with the governmental restrictions. In March 2020, the number of video conferences increased sharply with the declaration of the national lockdown. Within days, the technical requirements to offer video conferences were set up by the hospital's IT. HO users grew from less than 100 to almost 400 employees, as every person had to work from home as long as the government's extraordinary circumstances [2, 30] prevailed. The dramatically increasing capacity utilization and lack of applications in the hospital's HO environment were two major challenges in this time according to the hospital's CIO. In June 2020, the Federal Council eased the restrictions, [2] which led to a decreasing demand of video conferences to less than 250 per month between July and September 2020. With the renewed rise of coronavirus infections in October 2020, the Federal Council again recommended employees to work from home if possible [2, 30]. Video conferences therefore increased again at the end of this year to almost 1000 video conferences per month in the UPK Basel.

Interestingly, only one third (34.5%) of the UPK employees who responded to the online survey worked at least partially in HO. The rest – approximately two thirds – did not work from home at all. This ratio is in line with the HO–index of 0.19 reported by Niggli & Rutzer [22] for the public health sector, where 19% of the positions/tasks can potentially be performed from home. Moreover, the present analyses also support the large differences between professional groups that have also been reported by Niggli & Rutzer. Almost two thirds of the psychologists (65.2%) answered that they work at least partially from home whereas only every tenth nurse did (9.6%). These percentages are in line with the HO–indices reported by Niggli & Rutzer [22].

These large differences across professional groups correspond to work-related factors. According to Niggli & Rutzer [22], personal contact to clients/patients as well as mainly technical/manual tasks (e.g., administering injections) require the employee to work at their working space (and, therefore, make HO impossible). Strategic, administrative or creative tasks, on the other hand, can easily be completed from home (or any other place). According to the authors, this includes psychotherapeutic treatment [22]. Concerning the comparability between online treatment vs. onsite treatment [23-25], HO is without question feasible in a large Psychiatric University Hospital. However, as mentioned above, feasibility strongly differs between professional groups and may also depend on other factors (e.g., inpatient vs. outpatient services).

In the UPK Basel, a substantial part of all investigated employees did not want to work from home (12.0%), especially those in administration (33.3%). This choice belonged to the employees as the Federal Council only recommended – but not obliged – employees to work from home in March 2020. The attractiveness of HO may therefore also depend on other factors (like the employee's personal living conditions). In spring 2020, more than 1200 employees of the UPK were challenged to adapt to novel working circumstances within a very short time. However, employees rated the HO implementation as mainly positive. They reported having the technical requirements as well as the

necessary environmental conditions (like a quiet working space). However, at this time many people worked from home and schools were closed, therefore the result is not self-evident. Suddenly whole families were confined in their apartments, parents worked from home and children had to be home-schooled. Several studies conducted before the Covid-19 pandemic reported benefits of working from home (like higher perceived autonomy, increased job satisfaction and less work-family conflicts [18-20]), which might however have been reduced during these chaotic and insecure times.

Employees might have experienced heightened psychological distress as their daily routines suddenly dissolved and they had to take on new responsibilities (e.g., home-schooling of their children). However, employees of the UPK reported no or only mild psychological distress in the online survey. In a meta-analysis, Batra et al. [3] reported several risk factors for experiencing higher levels of depression and anxiety in healthcare workers, e.g. being a nurse and being at risk of contact with Covid-19 patients. In the present analyses, no differences between professional groups concerning the mental health measures were detected. Therefore, nurses do not experience heightened psychosocial stress in comparison to other professional groups in the present analyses. In the UPK, only a limited number of 8 patients with Covid-19 were treated. Employees might therefore have experience only mild anxiety and stress concerning possible Covid-19 infections.

However, the number of psychosocial stress factors differed across the HO groups, but not between employees who worked from home and those who did not. Employees working full-time from home (N = 8) as well as employees who were denied working from home (N = 3) seem to experience substantially more stress factors than other groups. These are two groups who reported some form of constraint (not being allowed to HO vs. having to work in HO). This constraint may be seen in the framework of the locus of control theory by Julian B. Rotter [45]. An external locus of control means that a person believes that his or her life is controlled by factors outside his or her person, e.g., by other people or fate [45]. In previous studies, an external LOC has been associated with mental health problems [46-48]. These findings are in line with the result of the present study that employees who did not have the choice of where to work seem to experience more stress factors. Moreover, data analysis revealed a small group of employees who seem to be excessively suffering during the pandemic (N = 8). Most of these employees seem to perceive more psychological stress across several measures. However, there seems to be no trend concerning professional group, workload, or HO status. Although underlying reasons remain unknown, it is of special importance that employers maintain supportive relationships to their employees during such exceptional times. Detrimental work relationships, especially between employees, have been reported as negative consequences of HO [18]. This risk has to be addressed during the implementation of HO. Nevertheless, most employees of the UPK reported no psychological distress, even during the insecure and challenging times of the Covid-19 pandemic.

Several limitations of the current analyses are to be mentioned. Firstly, the cross-sectional design might not be appropriate to investigate the effects of the ongoing Covid-19 pandemic nor of the time-consuming implementation process of HO. However, the present analyses did not pursue the aim to draw a complete picture of a complex situation. As exploratory analyses, the aim was to gain first impressions of how HO is implemented in a large psychiatric hospital. Without question, further research is needed, e.g., about maximizing the effectiveness of HO in psychiatric hospitals. Secondly, only a subgroup of the whole workforce of the UPK participated in the online survey. However, all key employees were included (like the crisis management group, link nurses as well as all employees of the newly established ward for Covid-19 positive patients) and with the random sample, it is assumed that all employees of the UPK are reliably represented. Thirdly, a certain number of Zoom® video conferences were possibly held onsite (instead of in HO) as reunions of more than five employees were prohibited for certain time periods. Video conferences may therefore not reliably display HO use. This limitation is to be considered in future studies. Fourth, other variables that may have affected employees' mental health (like children of school-age in the household, financial problems etc.) have not been assessed. This limits generalizability. However, the

focus of the present analyses was on the process of HO implementation. Moreover, employees appeared to experience generally no or little psychological distress. It therefore can be assumed that the assessment of these variables would not have added substantial value to the present analyses. Fifth, the online survey was mandated by the management board of the UPK. This might have hindered employees to openly answer all questions, e.g., about their mental health. As absolute anonymity was guaranteed, the bias is assumed to be, however, negligible.

In conclusion, the Covid-19 pandemic served as a stepping stone for HO and telepsychiatry in psychiatric hospitals all over the world. In large psychiatric hospitals, HO is clearly feasible, and it will probably remain an inherent component in the working world. This development offers numerous benefits for all involved as long as the “pitfalls” of HO are considered. However, the broad implementation of HO in psychiatry has just started. It is an ongoing process that requires further observation and research (e.g., about the efficient use of HO in large psychiatric hospitals). Thus, the pandemic, in spite of its sudden appearance, will probably have long-term effects on our daily live and the way we perform mental health care.

Multimedia Appendix: Items of the Online Survey concerning HO and IT Services.

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Home Office (HO)	I have the necessary IT infrastructure available at home.					
	I promptly received a home office account by the IT department.					
	I have a quiet working space at home.					
IT Services	Zoom® is suitable for video conferences and/or online therapy.					
	The program ZOOM® was provided in time by the IT department.					
	I have sufficient equipment for video conferences (e.g., headset, webcam).					
	The help desk service of the IT department was available all the time.					

References

1. World Health Organization (WHO). WHO Coronavirus Disease (COVID-19) Dashboard. 2020; Available from: and archived at: https://web.archive.org/web/20210101095149/https://covid19.who.int/.
2. Bundesamt für Gesundheit (BAG). Coronavirus: Massnahmen und Verordnungen. 2020 [31.01.2021]; Available from: and archived at: https://web.archive.org/web/20210129053026/https://www.bag.admin.ch/bag/de/home/krankheiten/ausbrueche-epidemien-pandemien/aktuelle-ausbrueche-epidemien/novel-cov/massnahmen-des-bundes.html.
3. Batra K, Singh TP, Sharma M, Batra R, Schvaneveldt N. Investigating the Psychological Impact of COVID-19 among Healthcare Workers: A Meta-Analysis. International journal of environmental research and public health. 2020;17(23). doi: 10.3390/ijerph17239096.
4. Debowska A, Horeczy B, Boduszek D, Dolinski D. A repeated cross-sectional survey assessing university students' stress, depression, anxiety, and suicidality in the early stages of the COVID-19 pandemic in Poland. Psychological Medicine. 2020:1-4. doi: 10.1017/S003329172000392X.
5. Barzilay R, Moore TM, Greenberg DM, DiDomenico GE, Brown LA, White LK, et al. Resilience, COVID-19-related stress, anxiety and depression during the pandemic in a large population enriched for healthcare providers. Translational psychiatry. 2020;10(1):1-8.
6. Zhang W-r, Wang K, Yin L, Zhao W-f, Xue Q, Peng M, et al. Mental health and psychosocial problems of medical health workers during the COVID-19 epidemic in China. Psychotherapy and psychosomatics. 2020;89(4):242-50. doi: 10.1159/000507639.
7. Every-Palmer S, Jenkins M, Gendall P, Hoek J, Beaglehole B, Bell C, et al. Psychological distress, anxiety, family violence, suicidality, and wellbeing in New Zealand during the COVID-19 lockdown: A cross-sectional study. PloS one. 2020;15(11):e0241658. doi: 10.1371/journal.pone.0241658.
8. Rodríguez-Rey R, Garrido-Hernansaiz H, Collado S. Psychological impact and associated factors during the initial stage of the coronavirus (COVID-19) pandemic among the general population in Spain. Frontiers in psychology. 2020;11:1540. doi: 10.3389/fpsyg.2020.01540.
9. Salari N, Hosseinian-Far A, Jalali R, Vaisi-Raygani A, Rasoulpoor S, Mohammadi M, et al. Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: a systematic review and meta-analysis. Globalization and health. 2020;16(1):1-11. doi: 10.1186/s12992-020-00589-w.
10. Xiong J, Lipsitz O, Nasri F, Lui LM, Gill H, Phan L, et al. Impact of COVID-19 pandemic on mental health in the general population: A systematic review. Journal of affective disorders. 2020. doi: 10.1016/j.jad.2020.08.001.
11. McIntyre RS, Lee Y. Preventing suicide in the context of the COVID-19 pandemic. World psychiatry. 2020;19(2):250. doi: 10.1002/wps.20767.
12. Mamun MA, Ullah I. COVID-19 suicides in Pakistan, dying off not COVID-19 fear but poverty?–The forthcoming economic challenges for a developing country. Brain, behavior, and immunity. 2020. doi: 10.1016/j.bbi.2020.05.028.
13. Thakur V, Jain A. COVID 2019-suicides: A global psychological pandemic. Brain, behavior, and immunity. 2020. doi: 10.1016/j.bbi.2020.04.062.
14. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA network open. 2020;3(3):e203976-e. doi: 10.1001/jamanetworkopen.2020.3976.
15. Titov N, Staples L, Kayrouz R, Cross S, Karin E, Ryan K, et al. Rapid report: Early demand, profiles and concerns of mental health users during the coronavirus (COVID-19) pandemic. Internet

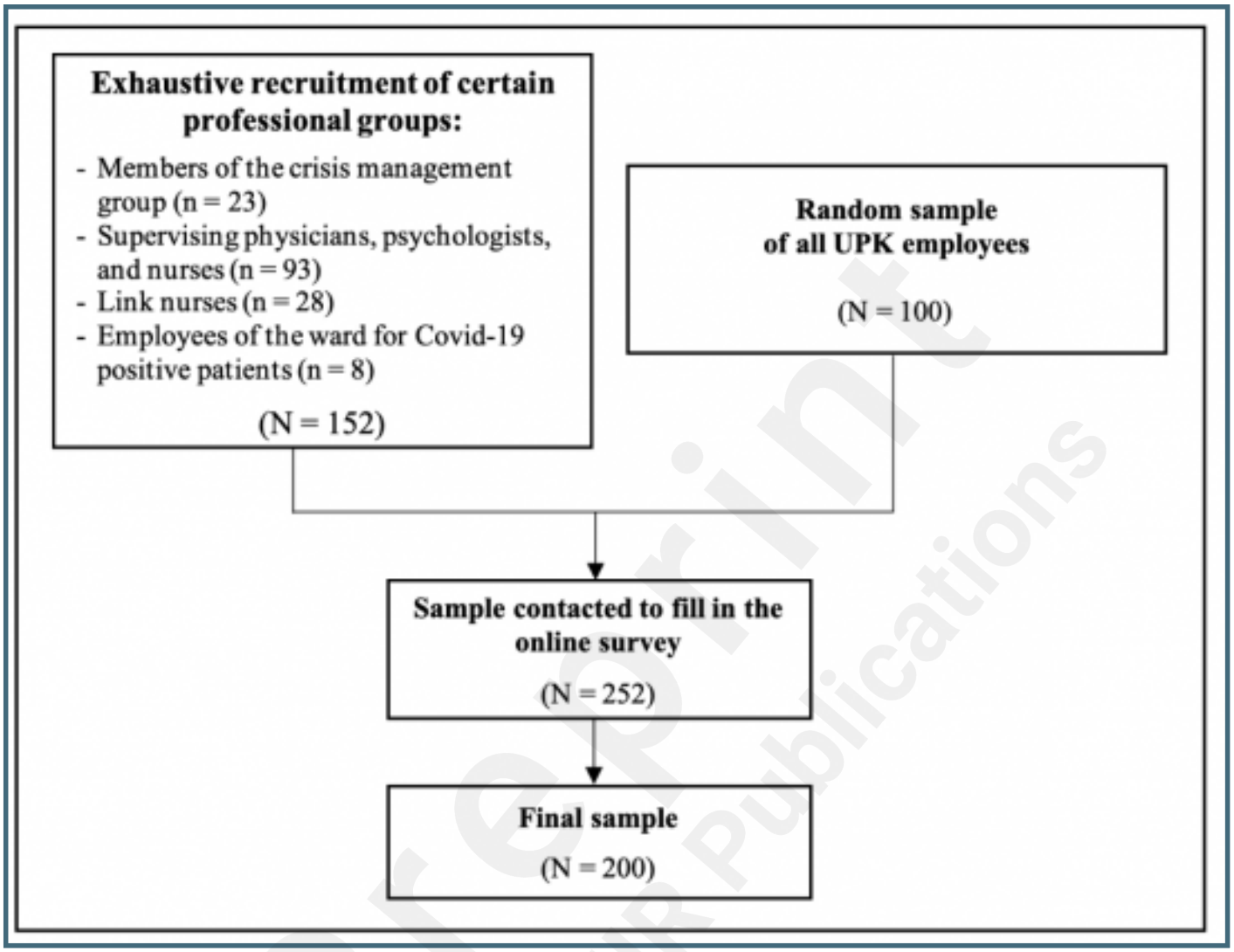
Interventions. 2020;21:100327. doi: 10.1016/j.invent.2020.100327.
16. Thome J, Deloyer J, Coogan AN, Bailey-Rodriguez D, da Cruz E Silva OA, Faltraco F, et al. The impact of the early phase of the COVID-19 pandemic on mental-health services in Europe. The World Journal of Biological Psychiatry. 2020:1-10. doi: 10.1080/15622975.2020.1844290.
17. American Psychiatric Association. What is Telepsychiatry? 2020 [13.01.2021]; Available from: and archived at: https://web.archive.org/web/20210113145702/https://www.psychiatry.org/patients-families/what-is-telepsychiatry.
18. Gajendran RS, Harrison DA. The good, the bad, and the unknown about telecommuting: meta-analysis of psychological mediators and individual consequences. Journal of applied psychology. 2007;92(6):1524. doi: 10.1037/0021-9010.92.6.1524.
19. Hill EJ, Ferris M, Märtinson V. Does it matter where you work? A comparison of how three work venues (traditional office, virtual office, and home office) influence aspects of work and personal/family life. Journal of Vocational Behavior. 2003;63(2):220-41.
20. Baruch Y. Teleworking: benefits and pitfalls as perceived by professionals and managers. New technology, work and employment. 2000;15(1):34-49. doi: 10.1111/1468-005X.00063.
21. Fadinger H, Schymik J. The costs and benefits of home office during the covid-19 pandemic: Evidence from infections and an input-output model for germany. COVID Economics: Vetted and Real-Time Papers. 2020;9:107-34. doi: 10.3886/E124902V2.
22. Rutzer CN, Matthias. Corona-Lockdown und Homeoffice in der Schweiz2020 01.11.2020. Available from: and archived at: https://web.archive.org/web/20201101125739/https://cieb.shinyapps.io/HomeOffice_CH/.
23. Hyler SE, Gangure DP, Batchelder ST. Can telepsychiatry replace in-person psychiatric assessments? A review and meta-analysis of comparison studies. CNS spectrums. 2005;10(5):403-15. doi: 10.1017/S109285290002277X.
24. García-Lizana F, Muñoz-Mayorga I. What about telepsychiatry? A systematic review. Primary care companion to the Journal of clinical psychiatry. 2010;12(2). doi: 10.4088/PCC.09m00831whi.
25. Hilty DM, Ferrer DC, Parish MB, Johnston B, Callahan EJ, Yellowlees PM. The effectiveness of telemental health: a 2013 review. Telemedicine and e-Health. 2013;19(6):444-54. doi: 10.1089/tmj.2013.0075.
26. Berryhill MB, Culmer N, Williams N, Halli-Tierney A, Betancourt A, Roberts H, et al. Videoconferencing psychotherapy and depression: a systematic review. Telemedicine and e-Health. 2019;25(6):435-46. doi: 10.1089/tmj.2018.0058.
27. Berger T. The therapeutic alliance in internet interventions: A narrative review and suggestions for future research. Psychotherapy research. 2017;27(5):511-24. doi: 10.1080/10503307.2015.1119908.
28. Madigan S, Racine N, Cooke JE, Korczak DJ. COVID-19 and telemental health: Benefits, challenges, and future directions. Canadian Psychology/Psychologie canadienne. 2020. doi: 10.1037/cap0000259.
29. Bundesamt für Gesundheit (BAG). Coronavirus: Bundesrat erklärt die «ausserordentliche Lage» und verschärft die Massnahmen. 2020.
30. Bundesamt für Gesundheit (BAG). Lockerungen und Verschärfungen der nationalen Massnahmen. In: EDI EDdI, editor. Bern: Bundesamt für Gesundheit BAG; 2020.
31. Citrix Systems I. Citrix Workspace app®. Fort Lauderdale, United States of America2020.
32. Microsoft. Microsoft Office Outlook®. Redmond, United States of America: Microsoft; 2020.
33. Zoom Video Communications Inc. Zoom®. San Jose, United States of America: Zoom Video Communications Inc.,; 2020.
34. Cohen J. Statistical power analysis for the behavioral sciences. 2nd ed. Lawrence Erlbaum: Academic press; 1988. ISBN: 1483276481.

35. Bühner M, Ziegler M. Statistik für Psychologen und Sozialwissenschaftler. München: Pearson Deutschland GmbH; 2009. ISBN: 3827372747.
36. Kroenke K, Spitzer RL, Williams JB, Löwe B. An ultra-brief screening scale for anxiety and depression: the PHQ–4. Psychosomatics. 2009;50(6):613-21. doi: 10.1016/S0033-3182(09)70864-3.
37. Löwe B, Kroenke K, Gräfe K. Detecting and monitoring depression with a two-item questionnaire (PHQ-2). Journal of psychosomatic research. 2005;58(2):163-71. doi: 10.1016/j.jpsychores.2004.09.006.
38. Kroenke K, Spitzer RL, Williams JB, Löwe B. The patient health questionnaire somatic, anxiety, and depressive symptom scales: a systematic review. General hospital psychiatry. 2010;32(4):345-59. doi: 10.1016/j.genhosppsych.2010.03.006.
39. Kroenke K, Spitzer RL, Williams JB, Monahan PO, Löwe B. Anxiety disorders in primary care: prevalence, impairment, comorbidity, and detection. Annals of internal medicine. 2007;146(5):317-25. doi: 10.7326/0003-4819-146-5-200703060-00004.
40. Gräfe K, Zipfel S, Herzog W, Löwe B. Screening psychischer Störungen mit dem "Gesundheitsfragebogen für Patienten (PHQ-D)". Diagnostica. 2004;50(4):171-81.
41. Klapow J, Kroenke K, Horton T, Schmidt S, Spitzer R, Williams JB. Psychological disorders and distress in older primary care patients: a comparison of older and younger samples. Psychosomatic Medicine. 2002;64(4):635-43. doi: 10.1097/PSY.0000000000000190.
42. Beutel TF, Zwerenz R, Michal M. Psychosocial stress impairs health behavior in patients with mental disorders. BMC psychiatry. 2018;18(1):375. doi: 10.1186/s12888-018-1956-8.
43. Blanz M. Forschungsmethoden und Statistik für die Soziale Arbeit: Grundlagen und Anwendungen: Kohlhammer Verlag; 2021. ISBN: 3170398202.
44. Ellis PD. The essential guide to effect sizes: Statistical power, meta-analysis, and the interpretation of research results: Cambridge university press; 2010. ISBN: 1139488155.
45. Rotter J. Generalized expectancies for internal versus external control of reinforcement. Psychological monographs. 1966;80 1:1-28.
46. Hovenkamp-Hermelink JH, Jeronimus BF, Spinhoven P, Penninx BW, Schoevers RA, Riese H. Differential associations of locus of control with anxiety, depression and life-events: A five-wave, nine-year study to test stability and change. Journal of affective disorders. 2019;253:26-34. doi: 10.1016/j.jad.2019.04.005.
47. Wiersma JE, van Oppen P, van Schaik DJ, Van Der Does AW, Beekman AT, Penninx BW. Psychological characteristics of chronic depression: a longitudinal cohort study. The Journal of clinical psychiatry. 2011;72(3):288-94. doi: 10.4088/JCP.09m05735blu.
48. Struijs SY, Groenewold NA, Voshaar RCO, de Jonge P. Cognitive vulnerability differentially predicts symptom dimensions of depression. Journal of affective disorders. 2013;151(1):92-9. doi: 10.1016/j.jad.2013.05.057.

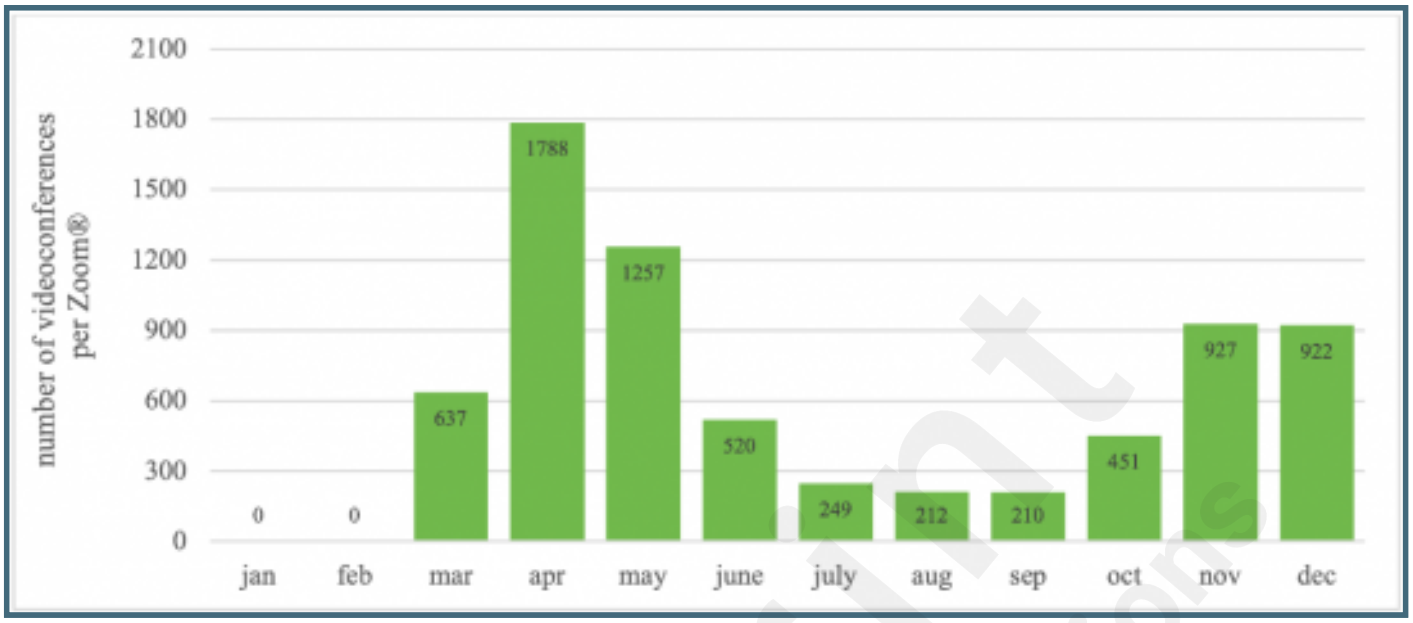
Supplementary Files

Figures

Sample composition of the online survey.



Distribution of video conferences in 2020.



Multimedia Appendixes

Online survey: items concerning HO and IT services.
URL: http://asset.jmir.pub/assets/53ea604cba1093a5319470c855c44ec3.docx