

Homeopathy for COVID-19 Prevention: Report of an Intervention at a Brazilian Service Sector Company

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Abstract

Background COVID-19 quickly became a serious public health problem worldwide, with serious economic and social repercussions. Homeopaths around the world have been studying to find a *genus epidemicus* (GE) medicine that might help in the prevention and treatment of this disease.

Objective To compare the incidence of COVID-19 between employees who received or did not receive a homeopathic GE medicine for disease prevention.

Methods Retrospective cohort analysis. The study population comprised all employees of a service sector company in São Paulo, Brazil, and followed up by the corporate Occupational Health department. Intervention consisted of administering *Arsenicum album* 30cH in a one-weekly dose. Primary outcome was incidence of COVID-19 during 3-months' follow-up (April to July, 2020).

Results We analyzed 1,642 of 1,703 employees without previous diagnosis of COVID-19 at onset of the study period: 53.34% of employees were referred to telework at home and did not receive intervention (Group 1, G1); 24.66% remained working on-premises in the state of São Paulo and received the intervention (Group 2, G2); 21.98% remained working on company premises in other states and did not receive intervention (Group 3, G3). Incidence rate of COVID-19 was respectively 13.35%, 0.74%, and 67.87% ($p < 0.001$). The odds ratio of being infected in (1) G3 versus G1 was 13.70 (95% confidence interval [CI], 10.21 to 18.39), (2) G3 versus G2 was 283.02 (95% CI, 88.98 to 900.18), and (3) G1 versus G2 was 20.66 (95% CI, 6.53 to 65.39).

Limitations The present is a retrospective analysis of a real-world experience. We could not ensure direct observed treatment, and neither could we control adherence to general prevention measures outside company premises.

Conclusion The incidence of COVID-19 was significantly lower amongst on-premises employees who received the GE medication in comparison to workers who did not receive the intervention (those either at other company premises or teleworking at home).

Keywords

- COVID-19
- prevention
- company workers
- homeopathy
- genus epidemicus

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Introduction

Coronavirus disease 2019 (COVID-19) was initially reported in Wuhan, China, in December 2019, and rapidly became a global phenomenon. On January 30th 2020, the World Health Organization (WHO) declared it a public emergency and, on March 11th 2020, a pandemic.¹ Brazil has had one of the highest number of cases and deaths in the world, and São Paulo state has had the worst statistics for morbidity and mortality since the beginning of the pandemic.²

Whilst early manifestations of the disease include some flu-like symptoms, the clinical presentation of COVID-19 varies considerably, from asymptomatic or mild to severe and fatal. COVID-19 has been described as a complex systemic disease that causes inflammation and hypercoagulability.³ Mortality is highest amongst individuals aged over 60 and with comorbidities: particularly diabetes, heart or lung disease, high blood pressure, and obesity.⁴

With specific and non-specific treatment strategies gradually becoming available, the disease has become increasingly controllable over time. Several vaccines have also now been approved as a means to control the spread of the disease, reducing hospitalization and death rate. Nevertheless, social distancing, use of masks and handwashing have together proven to be crucial method of prevention.⁵

Since homeopathy has had a prominent role in some previous epidemics,^{6–10} it was expected that this approach could also be relevant in COVID-19 prevention and treatment. One approach to the use of homeopathy in epidemic diseases is known as the '*epidemic genius* or *genus epidemicus*' (GE). It consists of establishing the set of characteristic signs and symptoms of a definite outbreak to identify the homeopathic medicine(s) that best match them.¹¹ Many groups across the world, including ours, have sought to identify GE medicines for COVID-19.^{12–17}

Author KAGF worked as occupational physician at a large engineering consulting company in São Paulo, SP, Brazil. This company has established a corporate health policy focusing on disease prevention and health promotion that covers all its employees. Workers are allocated to (1) administrative tasks, or (2) department operations, either at headquarters (material analysis) or fieldwork (civil construction sites, gas and oil industry). Since 2016, the corporate health program has also included homeopathy, and individualized homeopathic medicines have been routinely prescribed. It is noteworthy that homeopathy has been an officially recognized medical specialty in Brazil since 1980, prescribed exclusively by duly accredited health care professionals (physicians, veterinary doctors, dentists), and is regulated by public health authorities.

After the first case of COVID-19 among employees was diagnosed in March 2020, the company implemented prevention actions as recommended by government agencies and technical guidelines. A protocol was established for prevention, identification, and treatment of cases. Actions included reinforcement of workplace hygiene, immediate leave for high-risk employees (above the age of 60), telework for all administrative employees or all those whose tasks

could be performed at home, alternative working hours, and mandatory use of masks. Hand sanitizer was made liberally available. Telemedicine resources were implemented, including remote training sessions. The prevention program also included administration of one homeopathic medicine selected as GE.

The present study is a report of a cohort of company employees, who were followed up retrospectively for 3 months from April 28th to July 30th 2020. All workers who were not diagnosed with COVID-19 at the onset of this study were included, and we compared the incidence of confirmed/suspect cases of COVID-19 between those who received or did not receive the homeopathic GE medicine.

Methods

Study Design

A retrospective analysis was performed on available data from all employees of the company, from April 28th to July 30th 2020. Data were obtained from health records kept at the company's Occupational Health department. We compared incidence of COVID-19 between workers who received, or not, a homeopathic GE medicine as part of the corporate program of disease prevention. In addition, for sick workers, we considered admission to hospital/intensive care unit (ICU), and the overall cost of the intervention.

On retrospective analysis of Occupational Health records, we identified 3 sub-groups of employees:

- 1) Workers who were allocated to telework at home: this sub-group was exposed to the same risk factors as the general population in the urban setting of a large Latin American megalopolis, namely the city of São Paulo (Group 1, G1).
- 2) Workers whose tasks demanded daily commuting to company worksites in the city of São Paulo, including civil construction sites, gas and oil companies, and laboratories and offices at company headquarters. Whilst headquarters were considered a protected environment, these workers had to commute daily using public transport, and some were further exposed to SARS-CoV-2 in worksites run by other companies—in this case, on-premises prevention measures could not be assessed (Group 2, G2). *It is this group that received the homeopathic intervention* – see also below.
- 3) Workers allocated to company premises outside the city of São Paulo: the overall working conditions of this group (Group 3, G3) were similar to those of G2, including commuting modes.

All company employees were followed up weekly by the Occupational Health department through telemedicine resources. Workers with COVID-19-like symptoms were referred to health care services to undergo real-time polymerase chain reaction (RT-PCR) diagnosis for confirmation. All symptomatic cases in any group were prescribed the homeopathic GE medicine with therapeutic intent, and evaluated daily through telemedicine resources.

Participants

All employees without a previous diagnosis of COVID-19 at the onset of this study were included. Since we analyzed data collected by the company's Occupational Health department, there was no possibility of drop-out or of missing data. All employees were monitored weekly (primary prevention), any COVID-19-compatible symptoms were reported, and disease progression was evaluated on a daily basis via telemedicine.

Intervention

Intervention consisted of weekly administration of the GE medicine for prevention, or daily with therapeutic intention. For logistic reasons, only employees who remained working on the company premises in the city of São Paulo (G2) were able to receive the intervention.

Choice of GE Medicine and Potency

In a previous pilot study, we analyzed COVID-19 symptoms of patients in private practice, public healthcare facilities, and the company described in the present report. As per standard practice, we identified what seemed to be the most characteristic symptoms, and subjected them to analysis using Kent's repertory¹⁸ (►Table 1). We then cross-checked the medications with the highest coverage against the corresponding information in the homeopathic *Materia Medica*.^{19–21} On those grounds, *Arsenicum album* (Ars) emerged as the homeopathic remedy that best matched

the entire spectrum of COVID-19 manifestations. We selected potency 30cH based on published reports of the use of GE medicines in Dengue fever in Brazil.^{8–10}

Medicine Administration

Ars 30cH was delivered to all employees who remained working on-premises in São Paulo. The medicine was obtained in individual vials from Farmácia Camomilla, São Paulo, which purchases standardized sources from HN Cristiano. Each vial contained about 300 doses. All subjects were instructed to take two drops on the tongue weekly, and were invited to share the medication with their relatives. For logistic reasons, direct observed treatment was not possible; compliance with prevention measures, including intake of the homeopathic medicine was assessed based on employee self-reporting.

All workers with COVID-19-compatible symptoms were instructed to self-isolate at home, and to take the homeopathic medicine, at the same dose but daily. These workers were monitored daily for clinical progression via telemedicine. Given that admission to ICU was set as an end-point, this procedure can also be considered as secondary prevention.

Outcomes

As primary outcome we identified incidence of COVID-19 during the study period, including both confirmed and suspected cases. Secondary outcome was the need for

Table 1 Characteristic symptoms of COVID-19 and repertory analysis

	Symptoms	Acon	Ant-t	Ars	Bell	Bry	Camph	Chin	Lyc	Phos
1	Conjunctival congestion	3	1	3	3	1			1	
2	Nasal congestion	2	1	3	3	1	1	1	3	2
3	Loss of smell		1	1	3	1	1		1	3
4	Loss of taste		2	1	3	2		1	1	3
5	Throat, pain, when swallowing	1	1	3	3	2	1	3	3	2
6	Pace, face/lips		1	3					2	
7	Bluish, lips	1	3	2			3	2	3	2
8	Dry cough	3	1	3	3	3	1	3	2	3
9	Respiration, difficult	2	3	3	2	3	2	3	3	3
10	Respiration, difficult/cough	1	3	3	2	1		1	2	3
11	Chest, pain, burning	1	2	3	2	1			2	2
12	Chest, pain, burning, when coughing			1		1			1	1
13	Chest, pain, burning, sternum, under	1		1						1
14	Chest, palpitation, irregular			1						
15	Dropsy/pericardium			3					3	
16	Suppression of urine	3		3	2		1		3	2
17	Anxiety, health, about	1		1		1				2
18	Fear, death	3	1	3	2	2	1		2	3
19	Fear, diseases	1		1		1				3
	Total Score	23	20	42	28	20	11	14	32	35

hospital admission and/or ICU. We also estimated the cost of the intervention.

We defined as a COVID-19-confirmed case each of those with a positive result on RT-PCR. However, the test was not universally available in Brazil at that time. Therefore we also considered suspected cases, namely workers with acute onset of fever and cough, or acute onset of any three or more of the following signs or symptoms: fever, anosmia and/or ageusia, cough, dyspnea, chest pain or tightness, vomiting and/or diarrhea, sore throat, muscle pain, and oxygen saturation $<95\%$ in room air. We also took into consideration a history of close contact with a confirmed case in the past 7 days.²²

We also collected data on socio-demographic and health variables, namely risk factors for COVID-19 severity: excess weight (body mass index $\geq 25 \text{ kg/m}^2$),²³ high blood pressure (systolic ≥ 130 ; diastolic $\geq 80 \text{ mm Hg}$),²⁴ presence of chronic pulmonary obstructive disease, diabetes mellitus, and/or cardiovascular disease, history of cancer, and smoking.

Data were collected independently from any knowledge of exposure status, inasmuch as all workers reported to one and the same center, namely the company's Occupational Health department. Data analysis was made retrospectively by an independent group of investigators (the current authors), of whom only KAGF worked as occupational physician at the analyzed company. The company's Occupational Health department made the decision on diagnosis in each and every case, and workers with symptoms compatible with COVID-19 were instructed to isolate at home and take the homeopathic medicine daily as per protocol.

Data Analysis

The chi-square goodness-of-fit test was used to determine whether the proportion of cases (e.g., participants) for a single clinical characteristic (e.g., 'high blood pressure') was equal or unequal between groups (G1, G2, G3). To determine whether there was an association between group and diagnostic [COVID-19(-) or COVID-19(+)], a chi-square test of independence was conducted. The assumption of the chi-square test, that no cell should have an expected frequency of less than 5, was checked before the analysis, and it was met. The statistical significance level was $\alpha = 0.05$. For paired comparison, appropriate corrections were performed (Bonferroni adjustment). All statistical analyses were performed with Microsoft Excel and IBM SPSS Statistics (v. 21).

Ethics-related Matters

Homeopathy has had official status as a medical specialty in Brazil since 1980, and has been routinely used at the analyzed company since 2016. Therefore, intervention did not differ from routine practice at the company concerned. All employees were monitored by the company's Occupational Health department, and all agreed to receive the homeopathic medication included in the corporate health program. For analysis and publication, we obtained approval from the Research Ethics Committee of Santo Amaro University, on 18th August 2020, ruling no. 4.220.285. The company board gave access to the employees' medical records. All the

employees signed an informed consent form granting access to their data. Confidentiality and anonymity were ensured.

Results

Intervention lasted from April 28th to July 30th 2020. Intervention would have ideally reached all the company's employees ($n = 1,703$). However, for logistic reasons, only the workers who remained in the city of São Paulo were able to receive the homeopathic medication. As a consequence, on retrospective analysis we identified 3 groups of employees, after excluding those diagnosed with COVID-19 before the onset of intervention ($n = 61$). Therefore, the total analyzed population comprised 1,642 employees, distributed as follows (►Fig. 1):

- G1: Employees allocated to telework at home, who therefore did *not* receive *Ars 30cH* ($n = 876$, 53.34%).
- G2: Workers who remained working on the company premises in the city of São Paulo, and received *Ars 30cH* ($n = 405$, 24.66%).
- G3: On-the-premises workers outside the city of São Paulo, who therefore did *not* receive *Ars 30cH* ($n = 361$, 21.98%).

G2 ($n = 405$) was distributed as follows: on-premises administrative tasks ($n = 106$), laboratories ($n = 87$), and civil construction/gas and oil industry sites ($n = 212$). G3 ($n = 361$) included 267 operational technicians in Macaé (RJ), and 94 in the city of Rio de Janeiro. Teleworkers ($n = 876$) resided mainly in other cities of the states of São Paulo ($n = 695$), Rio Grande do Norte ($n = 122$), and several others (Minas Gerais, $n = 27$; Maranhão, $n = 1$; Bahia, $n = 9$; Espírito Santo, $n = 20$; Pará, $n = 2$). During the period of the study, incidence of COVID-19 was in an ascending curve, from 72,142 to 2,610,102 confirmed cases in Brazil as a whole,² and from 15,213 to 223,571 in the city of São Paulo.^{25,26}

G2 and G3—operational workers in laboratories or field-work—did not differ significantly in age range (20 to 60 years old), type of job, educational level, or income. Risk of exposure to SARS-CoV-2 was similar for both, since all these employees used the public transport system for work, and were subjected to similar working conditions, protective measures, and follow-up by the company's Occupational Health department.

By contrast, G1 (i.e., administrative employees who worked from home) were exposed to the same risk of transmission as the general population; their age was 16–77 years, and comprised all employees above the age of 60 (high-risk group).

Of the 1,642 participants recruited to the study, 1,249 (76.07%) were male, 1,158 (70.52%) were overweight, 340 (20.71%) had high blood pressure, 63 (3.84%) had chronic pulmonary obstructive disease, 37 (2.25%) had diabetes mellitus, 7 (0.43%) had cardiovascular disease, 5 (0.30%) had had cancer, and 95 (5.79%) were smokers. A chi-square goodness-of-fit test was conducted to determine whether the participants recruited in each group had the same

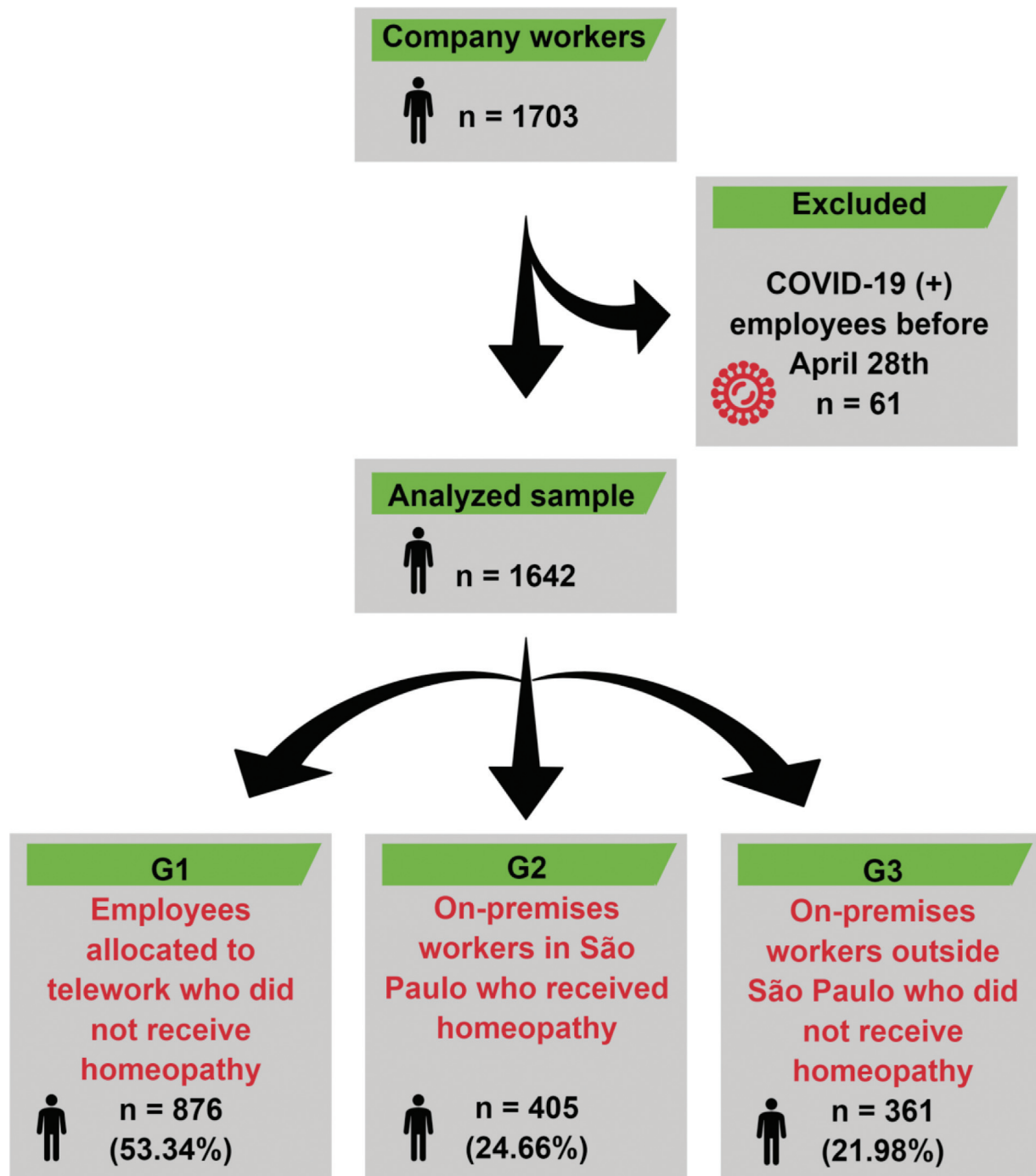


Fig. 1 Workers' distribution.

proportion of these characteristics. ► **Table 2** shows that, except for cardiovascular disease and history of cancer, the proportion of cases were unequal between groups. Pairwise comparisons are also shown.

In G1, 117 subjects (13.36%) had a positive diagnosis of COVID-19 at some time. In G3, 361 subjects (67.87%) had a positive diagnosis of COVID-19. However, in G2 (those who received homeopathy), only 3 cases (0.74%) were positive (► **Table 3**). A chi-square test of independence was conducted between group and diagnosis. All expected cell frequencies were greater than

five. There was a statistically significant association between group and diagnosis, $\chi^2_{(2)} = 583.00$, $p < 0.001$.

Cramer's V is a measure (range, 0 to 1) that provides an estimate of the strength of the association between two nominal variables. In this case, the association was strong,²⁷ as indicated by Cramer's V = 0.596 (value of Cramer's V > 0.5 indicates a large magnitude of effect size). By analyzing the adjusted standardized residuals, one can make a cell-by-cell comparison of the expected versus observed frequencies to help understand the nature of the evidence against the null

Table 2 Sociodemographic and clinical characteristics of the analyzed population

					<i>p</i> value			
	G1, <i>n</i> = 876	G2, <i>n</i> = 405	G3, <i>n</i> = 361	Chi square (<i>df</i> = 2)	Overall	G1×G2	G1×G3	G2×G3
Gender, male	587 (67.01%)	338 (83.46%)	324 (89.75%)	21.243	<0.001*	0.001 [#]	<0.001 [#]	0.350
Overweight	633 (72.26%)	324 (80.00%)	201 (55.68%)	16.812	<0.001*	0.136	0.001 [#]	<0.001 [#]
High blood pressure	120 (13.70%)	164 (40.49%)	56 (15.51%)	102.061	<0.001*	<0.001 [#]	0.442	<0.001 [#]
Chronic pulmonary obstructive disease	27 (3.08%)	26 (6.42%)	10 (2.77%)	9.413	0.009*	0.006 [#]	0.773	0.020
Diabetes mellitus	15 (1.71%)	17 (4.20%)	5 (1.39%)	9.139	0.010*	0.009 [#]	0.681	0.022
Cardiovascular disease	1 (0.11%)	4 (0.99%)	2 (0.55%)	5.134	0.077	0.020	0.153	0.499
Cancer, history	2 (0.23%)	2 (0.49%)	1 (0.28%)	0.653	0.722	0.429	0.874	0.632
Smoker	61 (6.96%)	25 (6.17%)	9 (2.49%)	8.970	0.011*	0.612	0.003 [#]	0.016 [#]

*Overall significant differences, $\alpha = 0.05$.

[#]Significant differences between groups, adjusted $\alpha = 0.017$. G1: employees allocated to telework who did not receive homeopathy; G2: on-premises workers who received homeopathy; G3: on-premises workers who did not receive homeopathy.

Table 3 Cross-tabulation of Group and COVID-19 Diagnosis

	Diagnosis			
Group	COVID-19 (–)	COVID-19 (+)	Total	COVID-19 (+)
G1	759 (9.2)	117 (–9.2)	876	13.36%
G2	402 (12.0)	3 (–12.0)	405	0.74%
G3	116 (–23.6)	245 (23.6)	361	67.87%

Adjusted residuals appear in parentheses below observed frequencies. G1: employees allocated to telework who did not receive homeopathy; G2: on-premises workers who received homeopathy; G3: on-premises workers who did not receive homeopathy.

hypothesis. Adjusted standardized residuals for each cell are far greater than 3 and can explain the rejection of the null hypothesis of independence (► **Table 3**). Pairwise comparisons were all significant (G1×G2: $\chi^2_{(1)} = 51.92$, $p < 0.001$; G1×G3: $\chi^2_{(1)} = 366.97$, $p < 0.001$; G2×G3: $\chi^2_{(1)} = 392.82$, $p < 0.001$).

If the odds ratio (OR) is greater than 1.00, the odds of having a COVID-19 positive diagnosis is greater in the first group than the second. ► **Fig. 2** shows OR and 95% confidence interval (CI) on a forest plot. The odds ratio of being infected in (1) G3 versus G1 is 13.70 (95% CI, 10.21 to 18.39); in (2) G3 versus G2 is 283.02 (95% CI, 88.98 to 900.18); and in (3) G1 versus G2 is 20.66 (95% CI, 6.53 to 65.39).

None of the sick workers in G1 or G2 required admission to hospital. In turn, 3/245 (1.22%) sick workers in G3 were admitted to ICU – however without the need of intubation and mechanical ventilation. A more detailed description of treatment and follow-up of these workers will be the subject of a separate publication.

It is noteworthy that the cost of intervention was USD 4.85 per vial, each vial containing about 300 doses: therefore, USD 0.016 per dose.

Discussion

COVID-19 arrived in Brazil in its south-east region, initially in the state of São Paulo, which has continued to bear the heaviest burden of disease and mortality in the country.² Social distancing was not implemented uniformly across the country: in São Paulo, it took until about one month after the confirmation of the first case, on February 26th 2020, which contributed to the rapid spread of the disease in this state.²⁸ The company, whose data we report here, was quick to implement prevention measures, which included homeopathy starting on April 28th 2020.

We hypothesized that using a GE medicine with prevention intent would reduce the incidence and severity of

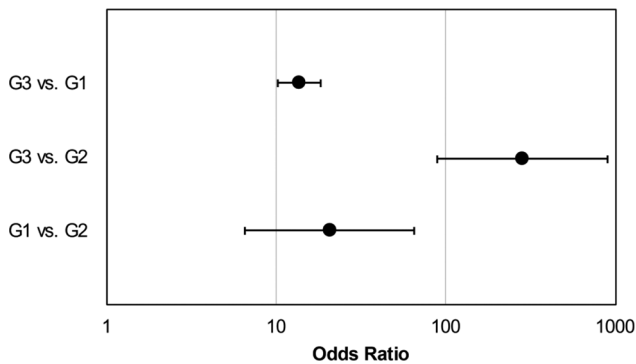


Fig. 2 Forest plot showing odds ratio (OR) and 95% confidence interval (CI). If OR is greater than 1, the odds of having a COVID-19 positive diagnosis is greater in the first group than the second. For example, as shown in G3 versus G2, the odds ratio of having a COVID-19 positive diagnosis is 283.02 (95% CI, 88.98 to 900.18). G1: employees allocated to telework who did not receive homeopathy; G2: on-premises workers who received homeopathy; G3: on-premises workers who did not receive homeopathy.

disease. Due to logistic reasons, however, only employees who remained working on company premises in the city of São Paulo could receive the homeopathic medication.

Our results show that the incidence of COVID-19 was significantly lower amongst on-premises employees who received the GE medication in comparison to workers who did not receive the intervention (either at other company premises or at home where they were teleworking).

On-premises workers (G2×G3, with/without intervention) did not exhibit significant socio-demographic, occupational or epidemiological differences, except for the frequency of high blood pressure or being overweight or a smoker. All three affected employees in the group that received the intervention exhibited mild symptoms and were treated at home. In turn, three on-premises workers who did not receive the intervention required admission to ICU—the entire dataset for this group is still under analysis, as a function of the long-term outcomes of COVID-19. Our results suggest that weekly treatment with *Ars 30cH* was effective in preventing the occurrence of symptomatic disease, especially in the most severe forms.

Both groups of on-premises workers were potentially more strongly exposed to viral transmission compared with the group of teleworkers, because the latter group could avoid crowded environments. Nevertheless, the rate of symptomatic cases was significantly higher among on-premises workers who did not receive the intervention compared with those who did. The homeopathic medication intervention was the single difference between the two groups of on-premises workers, and we could find no other plausible explanation but the intervention to account for the difference in incidence. Furthermore, though the risk of exposure in groups G2 and G3 was similar, G2 had a higher percentage of individuals who had high blood pressure, or who was overweight or a smoker, and yet G2 had a lower frequency of positive cases for COVID-19. It is noteworthy also that the low incidence of disease among teleworkers, like that of the general population,²⁹ points to the effectiveness of the recommended standard prevention measure of social distancing.

The present report has several and serious limitations. First, it is not a prospectively designed study of any standard modality, but a retrospective report of a real-life experience. The fact that the participants clustered into three groupings had nothing to do with methodological issues planning, but was a *post hoc* finding. Moreover, direct observed treatment could not be accomplished, and so compliance was assessed based on employee self-reporting. Neither were we able to control variable adherence to general prevention measures outside company premises.

We were further unable to locate any study in the literature that analyzed the effectiveness of *Arsenicum album* (or of any other homeopathic medication) for prevention of COVID-19 in any setting. During the write-up of the current report, however, we noted commentary about *Arsenicum album*, suggesting some importance of this homeopathic medicine in prophylaxis and/or treatment, even in cases with co-morbidities.^{30,31} To the best of our knowledge, several studies, including randomized controlled trials, are still under way³¹ – though none of them seemingly in the occupational setting. Therefore, there are no effectiveness data available for the purposes of comparison. *Ars* was suggested as GE medicine also by other researchers in different countries.^{13,32–34} Thorough studies with rigorous prospective experimental design are therefore necessary.

Finally, the low cost of each dose (USD 0.016) can only be seen as appealing. If *Arsenicum album* were confirmed as an effective adjuvant agent, the cost factor might increase the attractiveness of this complementary approach.

Conclusion

In the present article we describe an intervention with a homeopathic medication for COVID-19 prevention among company workers in Brazil. Despite considerable methodological limitations, the results are highly noteworthy: only 0.74% of on-premises workers who took the medication exhibited symptomatic COVID-19, compared with 67.87% of other on-premises workers and 13.35% of teleworkers who did not receive the intervention.

Highlights

- We describe an intervention with a homeopathic medication for COVID-19 prevention among workers in São Paulo, Brazil.
- There were 3 sub-groups of employees: teleworkers (at home), on-premises workers given *Arsenicum album* 30cH (as genus epidemicus, GE), and on-premises untreated workers.
- The incidence of COVID-19 was significantly lower among on-premises employees who received the GE medication in comparison both to on-premises workers and teleworkers who did not receive the intervention.
- Only 0.74% of on-premises workers who were medicated exhibited symptomatic COVID-19, versus 67.87% of on-premises workers who did not receive the intervention and 13.35% of teleworkers.
- The lower proportion of COVID-19 positive cases in the medicated group was despite the fact that it included a

higher proportion of individuals who had high blood pressure or who was overweight or a smoker.

- The cost of a single dose was USD 0.016.

Conflict of Interest

None declared.

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