

## Love of Coffee in the Time of Corona

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### Abstract

#### **Introduction**

In this study, we introduced a free coffee initiative for doctors in a university teaching hospital with an optional donation component. We wished to investigate donation patterns and coffee consumption among doctors and whether COVID-19 would impact on this.

#### **Methods**

A pod-based coffee machine was provided with suggested donations of 50c and €1. Donations were accepted piggy bank and through a mobile phone based digital banking application. The study ran from 6<sup>th</sup> January to 6<sup>th</sup> March 2020 and 6<sup>th</sup> April to 6<sup>th</sup> June before and after the onset of 'lockdown measures'.

#### **Results**

A total of 460 cups of coffee were drunk throughout the study period at a cost of €165.60. The total amount donated was €177.46. Donations fell significantly during the COVID-19 pandemic  $p=.048$ . Despite the fall in overall donations, digital donations increased. Coffee consumption per week also fell during pandemic but this did not reach significance  $p=.085$ .

#### **Conclusion**

We present a successful free coffee initiative for hospital doctors that was fully funded by solicited donations. While donations and consumption fell throughout the COVID-19 pandemic, net donations yielded enough money to cover the costs of supplying the coffee.

## Introduction

Coffee consumption is common among hospital doctors and has been shown to be associated with a range of health benefits including reduced all-cause mortality, cardiovascular mortality, type 2 diabetes, depression, and Alzheimer's disease<sup>1</sup>.

The aim of this study was to introduce a free coffee initiative to doctors in a university teaching hospital with an optional donations component. We wish to prospectively assess whether doctors would donate enough to cover the costs associated with it. We also wished to determine the impact of the COVID-19 pandemic on coffee consumption and donation patterns.

## Methodology

A pod-based coffee machine was provided with a suggested donations reference scale of 50c to €1. Quantities absent from this pricing scale were also accepted. Coffee pods were dispensed to doctors in batches of twenty which cost €7.20 (36c per pod).

The donation system consisted of a large bright pink piggy bank which accepted all denominations of euro currency. These were made on an anonymised basis in accordance with GDPR regulations. Donations were also accepted through a mobile phone based digital banking application.

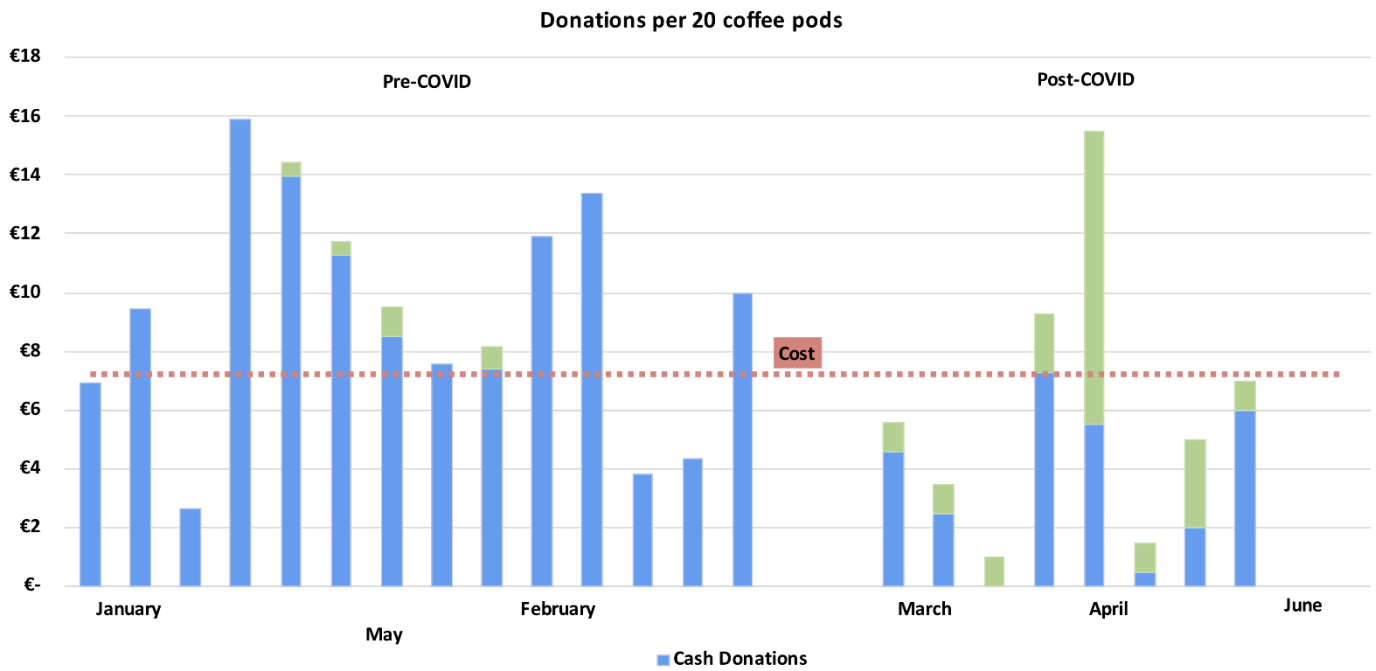
Donation amounts and coffee consumption were monitored prospectively during the study period. The study commenced on 6<sup>th</sup> January 2020 and was stopped temporarily after two months due to COVID-19 enforced staff absences. The study was recommenced on the 6<sup>th</sup> April and ran for a further two-month period.

The primary outcome measure was whether donations covered the cost of the initiative. We also wished to monitor coffee consumption and the mode of donation (cash vs digital). These outcome measures were assessed for the full study duration and also before and after the start of the lockdown measures. Continuously variable data (money donated and coffee consumption) was analysed using the two-tailed independent student t-test. Cohen's *d* test was used for calculating the effect size. Statistical significance was set at  $p < 0.05$ . Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) software version 25<sup>2</sup>.

## Results

A total of 460 cups of coffee were provided throughout the study period at a cost of €165.60. This corresponded with 3.8 cups of coffee per day (€1.37 per day). The total amount donated was €177.46 (€1.46 per day), which fully covered of costs of the coffee with a surplus of €11.86. Coffee consumption and donations are illustrated in Figure 1.

**Figure 1: Donations per 20 coffee pods pre-COVID and post-COVID**



*Donations per 20 coffee pods during the pre-COVID period ( $M = 9.27$ ,  $SD = 4.01$ ) compared to the post-COVID period ( $M = 5.37$ ,  $SD = 4.84$ ) demonstrated significantly higher donations per pod,  $t(21) = 2.1$ ,  $p = .048$ ,  $d = 0.88$ . Despite the fall in overall donations, digital donations increased in the post-COVID period ( $M = 2.00$ ,  $SD = 2.94$ ) compared to the pre-COVID period ( $M = 0.20$ ,  $SD = 0.34$ ),  $t(22) = 2.29$ ,  $p = .03$ ,  $d = 0.86$ . Coffee consumption per week fell during the post-COVID period ( $M = 35$ ,  $SD = 14.14$ ) compared to the pre-COVID period ( $M = 22.5$ ,  $SD = 12.82$ ) but this did not reach significance, despite a large effect size,  $t(14) = 1.85$ ,  $p = .085$ ,  $d = 0.93$ .*

## Discussion

Doctors consumed a large amount of coffee throughout this study period. It is reassuring that, as a whole, the doctors in this study proved themselves to be altruistic in their consumption of coffee and their donations allowed this initiative to continue to fund itself. Doctors who donated may have done so because they valued coffee drinking, because they wished to ensure the availability of coffee for other doctors, for the positive psychological effects of drinking coffee, or for the “warm glow” effect of giving regardless of the cause<sup>3</sup>.

The suggested donations scale provided a satisfactory pricing model. From a purely monetary perspective, doctors had to consider both internal pricing referents, which are operationalised through past spending behaviour, and external pricing referents such as the cost of coffee in the hospital coffee shop (€3.65 to €3.85)<sup>6</sup>. Our pricing scale proved successful in nudging contributors towards donation amounts that covered the cost of the initiative. Setting deliberately low suggested donation amounts can increase the number of donations meaning the total donations frequently exceeds that when a higher suggested amount is chosen<sup>5,7</sup>.

Donations for our coffee initiative fell during the COVID-19 pandemic. This shortfall in donations has been mirrored across society where multiple charities are suffering from a fundraising collapse as a result of COVID-19<sup>8</sup>. While a lot of funding may have re-directed charitable donations towards COVID-19 related causes, the opportunity cost of donating to one charity means that another charity often misses out<sup>4, 9</sup>. This provides a timely reminder that many charities are struggling to continue operations due to cancellation of regular fundraising events and many have issued direct appeals for support.

Reduced cash withdrawals from automated teller machines (ATM) across the country throughout the COVID-19 pandemic represents another possible contributory factor to the reduction in donations received during this time period. ATM withdrawals were down by 57% in April 2020 compared to the same period last year as many retailers aimed to move to contactless payments to reduce spread of COVID-19<sup>10</sup>. This is reflected in our data where there was a statistically significant increase in digital donations.

Coffee consumption in our study fell throughout the COVID-19 pandemic. The fall in coffee consumption did not reach statistical significance but had a large effect size. There are numerous considerations for why this may have occurred. Concern regarding the spread of COVID-19 may have resulted in reduced usage of a communal coffee machine within the doctors' residence particularly for team meetings. Similarly, less staff may have used communal dining facilities within the doctors' residence to ensure adequate social distancing. Less staff were rostered in many departments within the hospital to reduce unnecessary staff exposure or because much of the elective activity within the hospital ceased or were outsourced to other departments. Many doctors were required to isolate during the pandemic and would not have been able to avail of the free coffee. Other possible reasons include doctors such as anaesthetists who received less coffee breaks due to the greater workload associated with the pandemic.

## **Limitations**

We were unable to determine the average individual cash donation as these were only collected on a weekly basis. This would have been helpful to determine the impact of the suggested donation scale on donation amounts. Framing and asymmetry are important considerations for pricing<sup>11</sup>. Whereas we only provided binary pricing referents, perhaps we could have manipulated pricing donations greater by provided a greater range of suggested donation amounts. This could include an upwardly adjusted extreme non-dominant alternative with the target alternative at the centre of a trinary set. Mental accounting theories indicate that individuals display aversion to extremes and tend to choose the 'safe' middle option<sup>11</sup>.

The money collected from the piggy bank was accessed removing a plastic cap from the sole of the pig's foot. This plastic cap was easily removable however and we cannot exclude the presence of burglars which would have affected our total donations.

This may particularly have been the case for the last allocation of coffee pods, where there were no cash donations made. We are unable to state whether this reflected expected variation in donation patterns amongst doctors or whether the data was compromised. Similarly, for digital donations, a single particularly large digital donation of €10 was made which was a significant outlier compared to other digital donations. This may represent a particularly generous donor or a typo.

## **Conclusion**

We present a successful free coffee initiative for hospital doctors that was fully funded by solicited donations. While donations and consumption fell throughout the COVID-19 pandemic, net donations yielded enough money to cover the costs involved. Digital donations increased throughout the pandemic. The reduction in charitable donations for our initiative throughout COVID-19 provides a timely reminder that many charities are struggling in light of the restrictions to fundraising activities and the opportunity cost of COVID-19 related spending.

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## **Declaration of Conflicts of Interest:**

The authors have no conflicts of interest to declare.

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