

The case of the disappearing teaspoons: longitudinal cohort study of the displacement of teaspoons in an Australian research institute

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Abstract

Objectives To determine the overall rate of loss of workplace teaspoons and whether attrition and displacement are correlated with the relative value of the teaspoons or type of tearoom.

Design Longitudinal cohort study.

Setting Research institute employing about 140 people.

Subjects 70 discreetly numbered teaspoons placed in tearooms around the institute and observed weekly over five months.

Main outcome measures Incidence of teaspoon loss per 100 teaspoon years and teaspoon half life.

Results 56 (80%) of the 70 teaspoons disappeared during the study. The half life of the teaspoons was 81 days. The half life of teaspoons in communal tearooms (42 days) was significantly shorter than for those in rooms associated with particular research groups (77 days). The rate of loss was not influenced by the teaspoons' value. The incidence of teaspoon loss over the period of observation was 360.62 per 100 teaspoon years. At this rate, an estimated 250 teaspoons would need to be purchased annually to maintain a practical institute-wide population of 70 teaspoons.

Conclusions The loss of workplace teaspoons was rapid, showing that their availability, and hence office culture in general, is constantly threatened.

Introduction

In January 2004 the authors found their tearoom bereft of teaspoons. Although a flunky (MSCL) was rapidly dispatched to purchase a new batch, these replacements in turn disappeared within a few months. Exasperated by our consequent inability to stir in our sugar and to accurately dispense instant coffee, we decided to respond in time honoured epidemiologists' fashion and measure the phenomenon.

A search of the medical and other scientific literature through Google, Google Scholar, and Medline using the keywords "teaspoon", "spoon", "workplace", "loss" and "attrition" revealed nothing about the phenomenon of teaspoon loss. Lacking any guidance from previous researchers, we set out to answer the age old question "Where have all the bloody teaspoons gone?" We aimed to determine the overall rate of loss of teaspoons and the half life of teaspoons in our institute, whether teaspoons placed in communal tearooms were lost at a different rate from teaspoons placed in individual tearooms, and whether better quality teaspoons would be more attractive to spoon shifters or be more highly valued and respected and therefore move and disappear more slowly.

Methods

The Macfarlane Burnet Institute for Medical Research and Public Health (Burnet Institute) based in Melbourne, employs about 140 people. The institute has eight tearooms; four are "programme linked"—that is, predominantly used by the staff of a single programme—and four are communal: two are attached to formal meeting rooms, one is a large multipurpose staff room, and one is a rather barren corridor with kitchen facilities.

Pilot study

Between 5 February 2004 and 18 June 2004 we carried out a pilot study to gain an initial impression of the manner of teaspoon loss at the institute and to refine our methods for the full study. We purchased 32 plain stainless steel teaspoons, discreetly numbered with red nail polish on the undersides of the handles, and distributed into a subset of the eight tearooms: 16 in the programme linked tearooms and 16 in the communal tearooms. We carried out a weekly audit over five months to assess any changes in the distribution of the teaspoons throughout the institute.

Main study

At the completion of the pilot study we carried out a longitudinal cohort study. We purchased and numbered a further 54 stainless steel teaspoons. In addition we purchased and discreetly numbered 16 teaspoons of higher quality. The teaspoons were distributed (stratified by spoon type) throughout the eight tearooms, with a higher proportion allocated to those tearooms with the highest teaspoon losses in the pilot study.

We carried out counts of the teaspoons weekly for two months then fortnightly for a further three months. Desktops and other immediately visible surfaces were scanned for errant spoons.

After five months we revealed our previously covert research project to the institute's staff. They were asked to return or anonymously report any marked teaspoons that had made their way into desk drawers or homes. Two days after the revelation, staff were asked to complete a brief anonymous questionnaire, which dealt with their attitudes towards and knowledge of teaspoons and teaspoon theft.



P+ Details of the statistical analysis and study limitations are on bmj.com

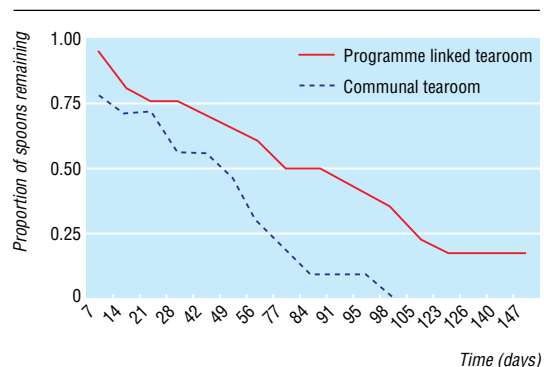


Fig 1 Proportion of teaspoons remaining by final tearoom type

Results

After five months, 56 (80%) of 70 teaspoons had disappeared. The half life of the teaspoons was 81 days (that is, half had disappeared permanently after that time) compared with 63 days in the pilot study. The type of tearoom in which spoons were initially placed did affect the rate of loss. The amount of time a teaspoon survived in its final room did, however, vary significantly according to final tearoom type: half life 42 days for communal rooms (observed 28, expected 20.5) and 77 days for programme linked rooms (observed 57, expected 64.5, $P < 0.05$; fig 1). The rate of loss of the higher quality teaspoons (observed 12, expected 12.4) was not significantly different to that of standard quality teaspoons (observed 44, expected 43.6, $P = 0.88$; fig 2).

We observed the teaspoons for a total of 5668 teaspoon days. The rate of teaspoon loss over the period of observation was 0.99 per 100 teaspoon days (95% confidence interval 0.76 to 1.28), or 360.62 per 100 teaspoon years. Assuming an average daily population of 140 people in the institute, this translates to a rate of loss of 2.58 teaspoons per person per 100 teaspoon years. Therefore to maintain a workable population (one spoon for every two people) 252.4 (194.3 to 328) teaspoons would need be purchased every year.

If we assume that the annual rate of teaspoon loss per employee can be applied to the entire workforce of the city of Melbourne (about 2.5 million), an estimated 18 million teaspoons are going missing in Melbourne each year. Laid end to end, these lost teaspoons would

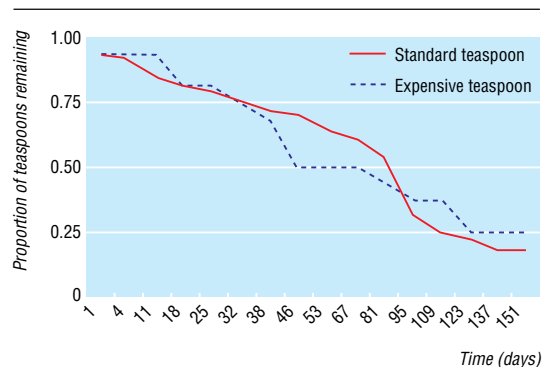


Fig 2 Proportion of teaspoons remaining by teaspoon type

Results of follow-up teaspoon questionnaire

| Questions and possible answers | No (%) of responses (n=94) |
|--|----------------------------|
| Have you ever stolen a teaspoon? | |
| Yes | 36 (38) |
| No | 58 (62) |
| If yes, from where?* | |
| Work | 22 (61) |
| School or university | 11 (31) |
| Home of a friend or relative | 13 (36) |
| Shop or store | 6 (17) |
| Pub or restaurant | 10 (28) |
| Aeroplane | 4 (11) |
| Have you stolen a teaspoon in the past year? | |
| Yes | 18 (19) |
| No | 76 (81) |
| If yes, from where?* | |
| Work | 10 (56) |
| School or university | 5 (28) |
| Home of a friend or relative | 9 (50) |
| Shop or store | 4 (22) |
| Pub or restaurant | 6 (33) |
| Aeroplane | 2 (11) |
| Stealing teaspoons is wrong: | |
| Strongly agree | 31 (33) |
| Agree | 23 (24) |
| Unsure | 15 (16) |
| Disagree | 13 (14) |
| Strongly disagree | 12 (13) |
| How satisfied are you with teaspoon coverage in the institute? | |
| Very satisfied | 0 (0) |
| Satisfied | 6 (6) |
| Unsure | 19 (20) |
| Dissatisfied | 17 (18) |
| Very dissatisfied | 52 (55) |

*Multiple answers possible.

cover over 2700 km—the length of the entire coastline of Mozambique¹—and weigh over 360 metric tons—the approximate weight of four adult blue whales.²

After the revelation of the study to the institute's staff, five potentially lost teaspoons were recovered from miscreant hoarders. Four of these were returned from areas far removed from their place of last observation; one had been missing for 20 weeks. No one admitted to the permanent removal of a teaspoon from the institute, and no plausible explanations were advanced for the high rate of teaspoon loss.

Follow-up questionnaire

Overall, 94 employees (response rate 67%) responded to the follow-up questionnaire. Thirty six (38%) were male, 57 were female (61%), and one was undecided. The table shows selected results.

Discussion

Displacement of teaspoons outside tearooms at the Burnet Institute, Australia, was highly efficient, at the rate of nearly one teaspoon lost per 100 teaspoon days. Despite the purchase of substantial numbers of replacement teaspoons during the study period, most employees (73%) remained dissatisfied with teaspoon coverage in the institute.



Although the scientific literature is strangely bereft of teaspoon related research, the phenomena we have described are capable of interpretation using some well known theoretical perspectives. For example, in his classic essay *The tragedy of the commons*,³ Garrett Hardin describes the destruction of commons (grazing land open for all local cattle herders to use) owing to individual herders grazing extra cattle at the expense of their community. If every herder takes the same approach, eventually the commons is completely overgrazed and useless to everyone.

The tragedy of the commons applies equally well to teaspoons. In the Burnet Institute the commons consists of a communally owned set of teaspoons; teaspoon users (consciously or otherwise) make decisions that their own utility is improved by removing a teaspoon for personal use, whereas everyone else's utility is reduced by only a fraction per head ("after all, there are plenty more spoons . . ."). As more and more teaspoon users make the same decision, the teaspoon commons is eventually destroyed. The fact that teaspoons were lost significantly more rapidly from the Burnet Institute's communal tearooms (the "commons") compared with programme linked rooms, correlates neatly with Hardin's principle.

We propose a somewhat more speculative theory (with apologies to Douglas Adams and Veet Voojagig). Somewhere in the cosmos, along with all the planets inhabited by humanoids, reptiloids, walking treeoids, and superintelligent shades of the colour blue, a planet is entirely given over to spoon life-forms. Unattended spoons make their way to this planet, slipping away through space to a world where they enjoy a uniquely spoonoid lifestyle, responding to highly spoon oriented stimuli, and generally leading the spoon equivalent of the good life.⁴

Our data might also be contemplated through the prism of counterphenomenological resistentialism, which holds that *les choses sont contre nous* (things are against us).⁵ Resistentialism is the belief that inanimate objects have a natural antipathy towards humans, and therefore it is not people who control things but things that increasingly control people. Although it seems unreasonable to say that the teaspoons are exerting any influence over the Burnet Institute's employees (with the exception of the authors), their demonstrated ability to migrate and disappear shows that we have little or no control over them.

Future studies investigating the pattern of movement and loss of other types of cutlery or other equipment (perhaps even more expensive or important than teaspoons) could provide a broader picture of the phenomenon under study. Microchipping and satellite tracking systems would have enabled determination of the teaspoons' ultimate location (assuming they remained on planet Earth).

We have no reason to believe that beverage production or consumption or any other teaspoon related activities at the Burnet Institute are significantly different from that occurring at other medical research institutions, or indeed any other similar sized organisation; thus we believe our results are widely applicable.

Conclusions

The high level of dissatisfaction with teaspoon coverage identified in our follow-up survey shows that

What is already known on this topic

Information on the displacement of teaspoons in institutional settings is lacking in the medical and scientific literature

What this study adds

We lost nearly one teaspoon per 100 teaspoon days

People have no control over teaspoon migration; escape to a spoonoid planet and resistentialism are equally plausible explanations

teaspoons are an essential part of office life. Simultaneously, the rapid rate of teaspoon loss shows that their availability (and therefore office life) is under constant assault. Teaspoon displacement and loss leads to the use of forks, knives, and staplers to measure out coffee and sugar, inevitably causing a reduction in employee satisfaction; in addition, large amounts of time may be wasted searching for teaspoons, both factors leading to decreased employee efficiency. The cost of maintaining a workable teaspoon population, estimated at nearly \$A100 (£43; \$75; €63) a year for the study setting alone, must also be considered. We recommend that new institutes design their facilities so that programme linked tearooms predominate over communal tearooms and that existing institutes consider renovations to reduce the risk of teaspoon loss. We also advise that buying teaspoons of higher quality has no economic benefit. Finally, we suggest that the development of effective control measures against the loss of teaspoons should be a priority on national research agendas.

We thank the employees of the Burnet Institute for their unwitting participation in this project and for the vigorous debate that followed its revelation (particularly Tony Stewart); those employees who were aware of the study and contributed to its design and conduct—Steve Wesselingh, Ian Cooke, Greg Battistella, and staff from the Centre for Epidemiology and Population Health Research; Andrew Symon for help with data collection, Jane Hocking for help with statistical analysis, Nick Crofts for introducing us to the delights of resistentialism, and WSM Summerskill for calling the biroid phenomenon to our attention.

Contributors: All authors contributed to the conception, design, and management of the study and to the preparation of the manuscript. MSCL collected the data, which were analysed by all authors. CKA is guarantor.

Competing interests: None declared.

Ethical approval: Our study was approved by the director of the Burnet Institute.

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Letter

Disappearing teaspoons

Teabags and forks are confounding factors

Editor—The valuable piece of research by Lim et al will be circulated as urgent reading around my primary care trust, where institutional attrition of **teaspoons** may be a factor in the ongoing financial crisis for the NHS.¹

However, I suggest that the research team consider using a parallel supply of marked "forks" as well as **teaspoons** and monitor attritional loss again in a more in-depth study across a range of healthcare institutions. In England, where tea drinking often exceeds use of instant coffee in institutions, in the absence of available **teaspoons** (or clean spoons) tea drinkers will often use a fork to remove the teabag from their cup during the preparation of the beverage. This obviously is not an option available to coffee drinkers; one would therefore suspect that tearooms where coffee drinkers predominate would experience a higher rate of spoon loss. Therefore, a potential confounding factor in the study is the ratio of instant coffee drinkers to tea drinkers in each room. Including a parallel cohort of marked forks would allow this phenomenon to be monitored. Of course, any consumption of birthday cake during the monitoring period may lead to a rapid loss of forks, so birthday celebrations, etc will need to be adjusted for.

Alan A Woodall, *specialist registrar public health medicine*

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Competing interests: AAW had a hoard of three **teaspoons** and two mugs on his desk on 23 December 2005.

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Letter

Disappearing teaspoons

Spoon solutions

Editor—To solve the problem of disappearing spoons reported by Lee et al,¹ I would like to introduce the authors to the recently developed chaotic randomly uniform muddled botch-up system (CRUMBS), by which it is predicted that immobilisation and non-provision are the two possible ways of dealing with the matter.

The first solution, immobilisation, may be achieved by using chained **teaspoons** (analogous to the chained bibles of the Middle Ages), where a large chain with thick links attaches the spoon to a strongly mounted wall bracket. Non-provision solves the problem by not supplying **teaspoons**, forcing staff to bring their own, which they are more likely to protect than institutional spoons.

I hope this is helpful.

Trevor Watts, *consultant in periodontology*

King's College London Dental Institute at Guy's, King's and St Thomas's Hospitals, London SE1 9RT trevor.watts@kcl.ac.uk

Competing interests: TW keeps his teaspoon in a locked drawer in his office. He is thinking of starting a business in the supply of chained **teaspoons**.

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Trevor Watts

[bmj.com](#), 19 Jan 2006 [Full text]

Another possible solution to teaspoon migration.

David Hunt

[bmj.com](#), 26 Jan 2006 [Full text]

Re: Another possible solution to teaspoon migration.

Peter Llewellyn

[bmj.com](#), 10 Feb 2006 [Full text]

Missing Spoons, Socks, & Staplers

Gary A Moore

[bmj.com](#), 4 Mar 2007 [Full text]

Letter

Disappearing teaspoons

Method of spoon surveillance was not adequate

Editor—I am not convinced that the method of spoon surveillance used by Lim et al (scanning desktops and other immediately visible surfaces) is entirely adequate.¹

Not unlike the errant single socks cited by multiple other respondents on bmj.com,² **teaspoons** are unlikely to remain on immediately visible surfaces. Inevitable entropy aside, the teaspoon is a uniquely versatile implement (a search on www.google.com of "teaspoon" (30 December 2005, 1746 eastern standard time (EST)) yielded 7.2 million results; a search of "use a teaspoon" (quotes included) 15 700 (30 December 2005, 1748 hrs EST)).

Teaspoons in my own department are used to prop open doors, pry open file cabinets, and strategically position mousetraps in that annoyingly narrow space between the refrigerator and the wall. Scanning only visible surfaces may well result in undercounting of remaining spoons, or in counting only those utensils still used for stirring.

As it is unclear what exactly constitutes a teaspoon,³ can we be certain the authors started with **teaspoons** at all?

David A Silver, *fellow in cardiothoracic and intensive care anaesthesia*

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Competing interests: DAS pours coffee into a cup already containing milk, which obviates the need for stirring.

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1. Lim MSC, Hellard ME, Aitken CK. The case of the disappearing **teaspoons**: longitudinal cohort study of the displacement of **teaspoons** in an Australian research institute. *BMJ* 2005;331: 1498-500. (24-31 December.)[Abstract/Free Full Text]
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Letter

Disappearing teaspoons

French data indicate global phenomenon

Editor—I read with interest the longitudinal cohort study of the displacement of **teaspoons** in an Australian research institute reported by Lim et al.¹

In France, the tea ritual is not as widespread as in English speaking countries, but spoons are also used during conventional meals. Unpublished data obtained in our hospital located near Paris show that in the first five months of 2001, some 1800 spoons disappeared during lunchtime from the workplace cafeteria, which is attended by about 550 employees. These disappearances occurred despite (or because) of the fact that 6000 spoons had been purchased the previous year.

Lim et al may be right when they postulate that spoon disappearance may implicate the whole planet. Measures against the loss of (tea) spoons may be not only a national but a global priority.

Bertrand Herer, *physician*

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Competing interests: None declared.

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Letter

Disappearing teaspoons

Teaspoons may reappear

Editor—The paper by Lim et al has not taken account of the fact that **teaspoons** may reappear.¹ What steps were taken in this study to identify individuals? It is our experience in this institution that **teaspoons** regularly go on awaydays, when there are, of course, no **teaspoons** available in the office at all, but they then return, and a full cohort may be available and ready for use in a couple of days' time. Clearly, if **teaspoons** are replaced during the short absence of an awayday, they will feel under no obligation to return. This may invalidate the findings of this paper on number needed to keep an institution supplied.

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Competing interests: None declared.

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1. Lim MSC, Hellard ME, Aitken CK. The case of the disappearing **teaspoons**: longitudinal cohort study of the displacement of **teaspoons** in an Australian research institute. *BMJ* 2005;331: 1498-500. (24-31 December.)[Abstract/Free Full Text]

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