

Concepts of patient groups in 10th-century Iraq and Persia

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Introduction

Two previous articles in the James Lind Library have shown that the famous Persian clinician Abū Bakr Muḥammad Zakarīyā' al-Rāzī (who died around 925 CE) made references to groups of patients. In one case, he reports having used a control group to judge the effects of a treatment.¹ In the other example, he refers to patient 'groups' (Arabic '*jamā'a*') in two further examples and refers to large patient numbers.²

These observations beg the question of whether his references to groups are underpinned by the concept of patient groups, and an awareness that large cohorts of patients and some 'statistical methods' are needed to assess treatment effects; or, alternatively, whether he is making general statements of no special methodological significance. If the former were to be the case, it would certainly challenge the current scholarly consensus that 'population thinking', with analyses of patient 'groups' and treatment 'outcomes' carefully counted, first emerged in the modern period.³

In order to shed additional light on the question of how al-Rāzī used the word '*jamā'a* (group)', I have systematically searched an electronic file of his *Comprehensive Book* (*Al-Kitāb al-Hāwī*). The file, shared on the website 'Al-Shāmila', is based on the reprint of this work by the Beirut publisher Dār al-kutub al-ilmīya in 2000 (<http://shamela.ws/index.php/book/10704>). The file (as well as the printed edition) contains numerous misprints and mistakes, and, as such, introduces a certain margin of error to my enquiry. Yet, as the examples below demonstrate, it is a powerful tool for assessing the use of '*jamā'a*' within this limited corpus.

A treatment comparison of two groups (*jamā'a*) of patients

Let us briefly review the previously published evidence of a controlled treatment comparison in

al-Rāzī's *Comprehensive Book*. The book consists of a massive collection of notes arranged thematically, and posthumously published by his students. These note files contain quotations from a variety of sources, many of them Greek in Arabic translation, and they are interspersed with al-Rāzī's personal remarks. The best-known example of al-Rāzī's use of the term 'group' was discovered by Albert Zaki Iskandar during his doctoral studies in Oxford in the 1950s, and then published by him in 1962 in a seminal article in the Lebanese journal *Al-Mashriq*.⁴

The context for the quotation is as follows: al-Rāzī discussed the topic of burning fevers (*ḥummā muhriqa*), including *phrenitis* or 'brain fever', called *sirsām* in Arabic. He quoted from *Questions on the 'Epidemics'*, which is an abridgment by Ḥunayn ibn Ishāq of Galen's *Commentary on Hippocrates' 'Epidemics'* in question-and-answer format. Al-Rāzī then added his own observation, as denoted by the word '*lī*' (mine), in which he listed the main symptoms of brain fever – including heaviness, continuous pain in the head and neck, sensitivity to light and watering of the eyes, yawning accompanied by severe insomnia and extreme exhaustion – declaring that the patient will then progress to 'brain fever':⁵

So when you see these symptoms, resort to bloodletting. For I once saved one group [of patients (*jamā'a*)] by it [bloodletting], whilst I intentionally left [did not bleed] another group (*jamā'a*), so as to remove the doubt from my opinion through this. Consequently all of these [latter] contracted brain fever. (Vol. 15, p. 122, lines 1–3)

Although we do not recognise today any therapeutic effect of bloodletting in meningitis and other conditions, the use of a control group here seems quite extraordinary. The context suggests that al-Rāzī divided the patients into two groups intentionally (*muta'ammidan*). The language of the passage suggests that this is not a thought experiment, but one where he confronts what he read in the literature with

his own experience, or, as he put it ‘according to what I have seen by way of experience and what I have read in this book’ (*alā mā ra’aytu bi-l-tajribati wa-mā ra’aytu fī hādihā l-kitābi*). This is the only passage in the whole of the *Comprehensive Book* (comprising some 1.1 m words and 23 volumes in the printed edition) in which two groups of patients are compared as a basis for inferring a treatment effect.

General use of the word ‘*jamā’a*’ (group) in Al-Rāzī’s *Comprehensive Book*

The other occurrences of the word ‘*jamā’a*’ can usefully be divided into two kinds: general use and specific references to groups of patients. In reviewing the first of these uses, I shall begin with a quotation from a Greek source, Galen’s book *On the Method of Healing*. Al-Rāzī quotes a passage extolling the virtues of honey water (water mixed with honey, called *melikraton* in Greek and *mā al-‘asal* in Arabic) when a patient is weak from fever. Galen enjoins his readers to ‘use honey water alone during the first three days, massaging *in turn* (τῷ μελικράτῳ μόνῳ χρῆσθαι κατὰ τὰς τρεῖς τὰς πρώτας ἡμέρας, ἐκ διαδοχῆς τρίβοντα)’ (my emphasis; Johnston and Horsley,⁶ pp. 242–245). In al-Rāzī, this becomes ‘use honey water alone for three days, *whilst they are constantly given a massage by a group [of people] taking turns* (*wa-yudlakūna dalikan dā’iman tatadāwaluhū jamā’atun*)’.⁵ (I was able to identify this quotation thanks to Weisser⁷.) So the Greek expression ‘in turn (*ek diadochēs*)’ is rendered periphrastically, but the word *jamā’a* has no terminological meaning here. This is not surprising, as we know from the Graeco-Arabic translation literature that *jamā’a* can translate a whole range of words meaning ‘large group of people’ such as *óchlos* (see Ullmann,⁸ under *jamā’a*).

Al-Rāzī’s *Comprehensive Book* provides five examples of the use of ‘*jamā’a*’ to refer to a group of other people, such as:

- ‘a group [of people] counted among the ophthalmologists (*jamā’at al-mā’dūdīn bayn al-kaḥḥālīn*)’⁵
- ‘the group said in the *Compilation on the Eye* (*al-jamā’atu qālat fī l-Kitābi l-Majmū’i fī l-‘ayni*)’⁵
- ‘a group [of people/practitioners] who have tested colocynth root (*jamā’atun jarrabū asla l-hanzali*)’⁵
- ‘a group of physicians (*jamā’a min al-atibbā*)’⁵
- ‘one of modern authors said (and a group agreed with this), (... *wa-qāla bāḍu l-muḥdathūna wa-jtamā’a ‘alā dhālika jamā’atun*)’.⁵

This shows that the word ‘*jamā’a*’ can be used when referring to a ‘large number of people’, without any technical or terminological implications.

Use of ‘*jamā’a*’ when referring to a group of treated patients, but not to any formal comparison group

Let us now turn to the examples where ‘*jamā’a*’ refers to a group of patients. I have previously published two such examples.² In one, al-Rāzī advocates the use of a powder that provokes sneezing (*sa’ūt*) as a protection against epilepsy, saying that ‘a group [of patients] were cured by it (*qad bara’a ‘alayhi jamā’atun*)’.⁵

In the other example, al-Rāzī recommends blood-letting in the corner of the eye in case of chronic pannus (*sabal qaḍīm*), trachoma (*jarab*) and red ‘ulcerative blepharitis’ (*al-sulāq al-aḥmar*). He then reports that ‘In front of me, a group (*jamā’a*) was phlebotomised who were suffering from pannus. It [the pannus] receded and they were able to rest’.⁵

In both these previously published examples, there is no suggestion of a control group and it would appear that al-Rāzī could have easily referred to a ‘sizeable number of patients’ when using the word ‘*jamā’a*’. The same can be said for the first three of the four new examples: in each case, a ‘group of patients’ was deemed to have been cured. Only in the last is the outcome possibly negative.

The first additional example comes from the section in the *Comprehensive Book* dealing with warm swellings (*waram ḥārr*) in the stomach. It runs as follows⁵:

على ما رأيت في العلل المرارية في المعدة: الإيارج في طبيخ الأفسنتين لا نظير له. ونقيع الصبر سقيته جماعة معودين فيروا عليه. أفسنتين عشرة دراهم، دارصيني خمسة دراهم، عود البلسان ثلاثة، سنبل ثلاثة، ورق ورد درهمان، عود درهم، مصطكى درهمان. يطبخ وينقع الصبر فيه. يسقى في كل يوم أوقية.

My opinion about bilious diseases affecting the stomach is that the ‘holy remedy’ in epithyme decoction has no equal. I have given aloe mucilage to drink to a group [of patients] suffering from stomach disorders (*jamā’at mamūdīn*), and they were cured by it. [This is how to administer it. Take] epithyme, ten dirham; cinnamon, ten dirham; balsam wood, three; nard, three; rose leaves, two dirham; aloeswood, one dirham; mastix, two dirham. Cook, macerate the aloe in it, and give to drink each day, one ounce.

Here, the gist appears to be that in al-Rāzī’s opinion, *iyāraj*, a kind of compound drug going back to Greek

hierá the ‘holy (remedy)’, is best for bilious diseases, but that he also treated a number of patients successfully with aloe mucilage.

The second example concerns limbs that are paralysed because they are too cold. The treatment should consist of strongly warming remedies, containing, for instance, ‘sulphur not touched by fire and pyrethrum (*‘āqirqarhā*)’. Al-Rāzī continues⁵:

وَقَدْ دَاوَيْتُ بِهَذَا الطَّرِيقِ جَمَاعَةَ فَبُرُؤُوا.

I have treated a group [of patients] in this way, and they were cured (*wa-qad dāwaytu ... jamā‘atan fa-bara’ū*). (Vol. 6, p. 272, line 1)

In a third instance, al-Rāzī states⁵:

فَأَمَّا الْقُرُوحُ الْحَادِثَةُ فِي قِصْبَةِ الرَّئَةِ فِي الْعِشَاءِ الدَّاخِلِ خَاصَّةً إِذَا كَانَتْ قَرِيبًا مِنَ الْحَنْجَرَةِ أَوْ فِي الْحَنْجَرَةِ نَفْسِهَا، فَقَدْ يُمْكِنُ أَنْ تَبْرَأَ. وَقَدْ دَاوَيْتُ نَحْنُ جَمَاعَةً مِمَّنْ أَصَابَهُ ذَلِكَ فَبُرُؤُوا.

In case of ulcers occurring in the windpipe on the inside of the membrane, especially when they are close to the larynx or in the larynx itself, a cure may be effected. We, ourselves, treated a group of [patients] affected by this, and they were cured. (*wa-qad dāwaynā nahnu jamā‘atan mimman aṣābahū dhālika fa-bara’ū*) (Vol. 13, p. 99, lines 1012)

Nearly the same form of words is used in these examples; al-Rāzī merely records the success of a certain treatment that he has just described.

The fourth example, however, is different. In the context of discussing smallpox (*judarī*), a subject on which al-Rāzī has written a separate and rightly famous monograph, he says the following⁵:

وَرَأَيْتُ جَمَاعَةَ خَرَجَ بِهِمْ جَدْرِي حَارَ عَظِيمٍ وَأَصَابَهُمْ كُلَّهُمْ وَجَعُ السَّاقِ فِي آخِرِ أَمْرِهِمْ.

I have seen a group [of patients] in which a severe warm [type of] smallpox erupted. All were affected by a pain in the leg at the end. (Vol. 17, p. 25, lines 78)

This remark is followed by another one introduced by ‘*lī*’ (mine), which is not directly related. It is difficult to say whether the expression ‘at the end (*fī ākhirī amrihim*)’ suggests a negative outcome, as seems plausible, or whether this is just another symptom before the disease runs its course without killing the patient. Be that as it may, none of the four examples here suggest that al-Rāzī’s use of the term *jamā‘a*

meant anything more than ‘a large number of patients’.

I have previously presented some examples of al-Rāzī’s use of crude statistics when referring to patients in his work *Doubts about Galen*. One example includes a small number of patients: ‘Three were cured whilst one was affected by dropsy more quickly than those who were not treated, but by a lighter variety’. Another example involves large numbers: ‘For there were approximately three hundred out of two thousand patients whose state developed in a contrary fashion’.² These two remarks appear to be ad hoc, however, and suggest only a very rough counting of treatment outcomes.

Conclusion

A systematic search of an electronic file of al-Rāzī’s *Comprehensive Book (Al-Kitāb al-Hāwī)* has shed additional light on the question of his use of the word ‘*jamā‘a* (group)’. The famous example of his use of a control group to strengthen a judgement about the effects of bloodletting for ‘brain fever’ does not appear to have been reflected in other reports of formal treatment comparisons anywhere else in his *Comprehensive Book*.

There are several examples of treatment claims based on observations of groups of treated patients, but unsupported by reference to comparison groups. The very few instances of al-Rāzī’s use of numbers when describing the purported outcomes of treatments are rare, and there are no examples in his *Comprehensive Book*.

We should resist the temptation to read the present into the past: although al-Rāzī uses the word ‘group (*jamā‘a*)’ in connection with patients, and although there are some reports of his quantification of outcomes, these instances, when taken together, do not suggest that he was practising ‘population thinking’, let alone using statistical methods. His use of a treatment control group remains an intriguing, but singular example. In this, his writings are similar to those of most European medical writers prior to the contributions of British 18th-century writers in particular.⁹

With further digitisation of other medieval manuscripts in Arabic it will become possible to extend the findings reported here. But there are unanswered questions about the conceptualisation of and reference to groups of patients in modern times. As David Armstrong (Kings College London) has found, understanding the use of the word ‘group’ in more recent times is not straightforward. In the *New England Journal of Medicine*, he records a dramatic increase

from the beginning of the 20th century, which then peaked in the mid-1970s, and since then has declined slightly (Armstrong, personal communication). There would appear to be plenty of scope for further research on this interesting and fundamental concept.

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