# Publish or perish — the growing trend towards multiple authorship

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## Summary

This study was undertaken to investigate the subjective impression that medical articles written by a single author predominated a decade ago, whereas multiple authorship is the rule today. Samples from 1971 and 1982 issues of the *South African Medical Journal* were studied, and the impression is shown to be valid. The mean number of authors per article increased from 1,77 in 1971 to 2,35 in 1982, while the proportion of articles with only 1 author decreased from 60,8% to 40,8%. Possible reasons for this are mentioned, of which the pressure to publish may not be the least.


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A few years ago some copies of the *South African Medical Journal* survived a spring-clean at our hospital library, and curiosity drove me to examine the oldest of them. It struck me that articles written by only 1 author seemed to predominate, while articles with more than 2 authors were rare. This is no longer the case — 7 or even more authors per article is not unusual nowadays. This study was undertaken to find out whether these impressions could be confirmed statistically.

## Method

The first sample comprised all the 1971 issues of the *SAMJ* available in the hospital library (14 - 25% of the year's numbers). The issues were dated as follows: 13, 20 and 27 February, 6, 13 and 27 March, 3 April, 1 May, 19 June, 10 and 17 July, 28 August, and 4 and 18 December. Recent issues of the *SAMJ* in our library are not chronologically arranged but are placed on a pile as the doctors finish reading them. The uppermost 14 issues from 1982 chosen by chance constituted the second sample, and were dated as follows: 9 January, 27 February, 6 March, 3, 17 and 24 April, 1, 8, 15, 22 and 27 May and 5, 12 and 17 June.

The number of authors of each article was noted; editorials, letters and abstracts were excluded. The frequency distribution of the number of authors per article is given in Table I, and the frequency distribution of the numbers of articles per issue in Table II. The mean, median and mode of the number of authors per article for the 2 years is given in Table III, and the reliability interval estimation of the proportion of articles with only 1 author (as opposed to those with multiple authors) for each year is shown in Table IV.

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**TABLE I. FREQUENCY DISTRIBUTION OF THE NUMBER OF AUTHORS PER ARTICLE**

| | No. of articles | |
|---|---|---|
| Authors/article | 1971 | 1982 |
| 1 | 45 | 53 |
| 2 | 15 | 21 |
| 3 | 4 | 27 |
| 4 | 6 | 15 |
| 5 | 4 | 8 |
| 6 | 0 | 5 |
| 7 | 0 | 1 |
| Total | 74 | 130 |

**TABLE II. FREQUENCY DISTRIBUTION OF THE NUMBER OF ARTICLES PER ISSUE**

| | No. of issues | |
|---|---|---|
| Articles/issue | 1971 | 1982 |
| 3 | 1 | 0 |
| 4 | 4 | 0 |
| 5 | 4 | 0 |
| 6 | 2 | 1 |
| 7 | 1 | 2 |
| 8 | 2 | 2 |
| 9 | 0 | 1 |
| 10 | 0 | 5 |
| 11 | 0 | 1 |
| 12 | 0 | 2 |
| Total | 14 | 14 |

**TABLE III. MEAN, MEDIAN AND MODE OF THE NUMBER OF AUTHORS PER ARTICLE**

| | 1971 | 1982 |
|---|---|---|
| Mean | 1,7703 | 2,3538 |
| Median | 1 | 2 |
| Mode | 1 | 1 |

## Discussion

It is not surprising that there were more articles per issue in 1982 than in 1971, considering that two new medical schools opened in the interim and many more doctors have qualified. However, there was also a clear shift from predominantly single authorship in 1971 to multiple authorship in 1982. This is reflected in the frequency distribution, and summarized as the mean number of authors for each year. The difference between the situation in 1971 and that in 1982 (mean number of authors 1,77 and 2,35 respectively) is highly significant ($P < 0,005$).

**TABLE IV. PROPORTION, AND RELIABILITY OF ESTIMATION OF PROPORTION, OF SINGLE-AUTHOR ARTICLES**

| | Proportion of articles with 1 author | Reliability of estimation of proportion |
|---|---|---|
| **1971** | $P_1 = 0{,}6081$ | $0{,}4969 < P_1 < 0{,}7193$ |
| **1982** | $P_2 = 0{,}4077$ | $0{,}3232 < P_2 < 0{,}4922$ |

In 1971 60,8% of the articles had only 1 author; by 1982 this percentage had fallen to 40,8. The interval estimation of the proportion of single-author articles in the two years does not overlap, which shows that this is not just a sampling error. Multiple authorship of articles is now the norm rather than the exception, and the number of authors per article continues to increase.

It is interesting to speculate on the reasons for this trend. It might be that review articles used to predominate, while research articles do now. Possibly heads of departments are now more prone to tag their names onto articles that emanate from their departments, and perhaps those people whose contribution towards another person's article in 1971 merited a mere mention in the acknowledgements now insist on their inclusion as an author. Perhaps, however, department members collaborate better these days. Whatever the reasons, it is true that authorship of journal articles is an important touchstone of merit in the academic world, and obviously the more authors' names that are cited per article, the greater the number of people who can claim an addition to their list of published work. In all events, it seems that the academic rat race, together with its 'publish or perish' attitude, is spreading into southern Africa.

# Dance — a suitable form of exercise?

## A physiological appraisal

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### Summary

Dance in its many forms has recently received much attention in the medical literature and considerable promotion in the lay press. This has been in keeping with current awareness of physical fitness, which has been the result of increasing evidence linking cardiovascular disease to physical inactivity, lack of cardiopulmonary fitness and obesity. Many authors have suggested dance as a suitable alternative to 'traditional' forms of exercise for modification of sedentary habits and the maintenance of physical fitness and ideal weight. This review considers the physiological demands and effects resulting from various dance forms and describes the unique alterations in body build and composition, musculoskeletal and cardiovascular adaptations, and abnormalities in menstrual function and pubertal progression found in dancers.


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Tables prepared by the author, containing data from the studies cited on the physiological requirements of various dance forms and the physiological characteristics of the dancers, are available on request (present address: Department of Clinical Science and Immunology, University of Cape Town Medical School, Observatory, 7925 RSA).

> 'It is my firm belief that human society
> is divided into three distinct castes:
> Russian dancers, dancers, and very ordinary people.'
> Arnold Haskell.[1]

For Arnold Haskell, ballet critic of international renown, it was an 'emotional unreasoning passion' that led him to give up a career in law and embark upon a long and fruitful association with the dance. Even for those who are unmoved by an emotional unreasoning passion for the dance itself, it is evident that dance forms an integral part of our everyday lives. However, only recently have physiological variables which allow the recommendation of dance as an 'alternative' form of exercise been evaluated. In addition, the sylph-like appearance of the ballet dancer has recently inspired many investigations into the unique morphological and physiological adaptations that occur as a result of years of painstaking training which is often commenced at a very early age. This review considers these adaptations and the physiology of dance. For this purpose it is necessary to define dance as 'patterned, rhythmic movement in space and time'.[2] This definition succeeds in avoiding the issue of the traditional theories of art, namely expression, imitation and creation of form. This allows ballet, contemporary, jazz, national (ethnic) and social dancing as well as aerobic dancing to be considered under the umbrella of 'dancing'.

### Body build and composition

Body composition and body build have been used for some time to classify and quantify the physical characteristics of