

Intention-to-treat analysis of South African e-publications

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To the Editor: When a clinical trial is conducted, various issues complicate the analysis, including adherence to the study protocol and missing data. When data are missing, bias may be introduced into the analysis. An intention-to-treat (ITT) analysis is a strategy that has been adopted in order to address the issue of protocol violators. ITT advocates that subjects are analysed according to their assigned treatment group regardless of actual adherence to the treatment protocol.^{1,2} ITT analysis guards against bias, maintains similar treatment groups and is pragmatic.³

In real life situations, deviations will always occur within the clinical scenario, often resulting in missing data. Implementation of the ITT strategy is only feasible when complete data exist, therefore care must be taken to minimise the loss of data. Various techniques are available in the literature for handling missing data.

We carried out an online survey of the use of the ITT strategy in randomised controlled trials (RCTs) in medical and health journals appearing in South African (SA) e-publications under various titles from 2002 to mid-2007.

The aim of our study was to determine whether RCTs appearing in SA e-publications used the ITT principle, as recommended by the Consolidated Standards of Reporting Trials (CONSORT) statement.⁴ The reviewers were interested more in the handling of protocol violators with regard to the ITT principle. Ethical approval was not required for this study, since it was an online review.

Search terms

1. "Randomised"
2. "Randomised controlled trials"
3. "Randomised trials"
4. "Intention-to-treat"
5. "Intention-to-treat-analysis"

Inclusion criteria

1. Medical or Clinical study
2. RCTs appearing on the SA ePublication website
3. Original articles

Exclusion criteria

1. Systematic reviews
2. Continuous medical education (CME) articles
3. Non-RCTs
4. Conference abstracts

The key outcome measure in this study was whether the authors mentioned and utilised ITT analysis. Where this was not mentioned, we examined the numbers initially randomised and those finally analysed.

Our search strategy was designed to identify RCTs in all areas of clinical research. Our overall goal was to develop a list of SA e-publications that reported analysing data using the ITT strategy appropriately. All SA-based medical journals listed in SA e-publications and providing full-text articles were searched online.

The papers chosen for inclusion in the study were reviewed independently by KN Otwombe, A Kirton and U Galal. Where there was disagreement on

the assessment of a paper, the paper was discussed in further detail and a consensus was reached. Where ITT was not mentioned but utilised, all three researchers reviewed the article and reached a consensus based on our definition of ITT.

An RCT search of SA e-publications retrieved 84 publications that mentioned the search terms. Using the inclusion and exclusion criteria mentioned above, only 26 studies from 12 journals qualified to be included in this study. All the papers identified were published in English, except one that was published in Afrikaans. Table I presents the results of this study.

Table I: Breakdown on the use of ITT in the reviewed papers

	No	Percentage (%)
Mentioned and utilised ITT	4	15
Failed to mention but utilised ITT	12	46
ITT not mentioned or utilised	10	39
Total	26	100

Of the 26 randomised studies in the SA e-publications that met our inclusion and exclusion criteria, only four (15%) mentioned the ITT principle. Twelve (46%) utilised ITT without mentioning it by including all the cases initially randomised in the analysis, while 10 (39%) did not mention ITT in their discussion or use it in their analysis.

Compared to previous studies that have investigated the quality of reporting in clinical trials with regard to ITT, the number of studies utilising ITT is low,² although a more recent study reported a similar percentage of publications reporting on ITT in conference proceedings.⁵ The difference in the reporting of ITT internationally and in SA e-publications may be attributed to the adoption of the CONSORT statement by journals in the West.

Possible obstacles to the application of the ITT principle in the analysis of data from RCTs in SA e-publications include statistical competence, access to specialised statistical software and a lack of awareness of the ITT principle.

A potential source of bias in this online study is that SA e-publications with full papers are only available from 2002, thus limiting the scope of journals and leading to a reduced sample size. With access to funding, older RCTs may be retrieved manually, increasing the sample size. In closing, we encourage the use of ITT analysis where appropriate.

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