View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by Explore Bristol Research

Peters, T. J. (2008). Multifarious terminology: multivariable or multivariate? univariable or univariate? Paediatric and Perinatal Epidemiology, 22(6), 506. DOI: 10.1111/j.1365-3016.2008.00966.x

Peer reviewed version

Link to published version (if available):
10.1111/j.1365-3016.2008.00966.x

Link to publication record in Explore Bristol Research
PDF-document

This is the author accepted manuscript (AAM). The final published version (version of record) is available online via Wiley at http://onlinelibrary.wiley.com/doi/10.1111/j.1365-3016.2008.00966.x/abstract. Please refer to any applicable terms of use of the publisher.

University of Bristol - Explore Bristol Research

General rights

This document is made available in accordance with publisher policies. Please cite only the published version using the reference above. Full terms of use are available:
http://www.bristol.ac.uk/pure/about/ebr-terms.html

Multifarious terminology: multivariable or multivariate; univariable or univariate?

Perhaps all discussions of terminology can be thought of as semantics, but arguably some have implications that go beyond the pure version. One seemingly perennial issue for epidemiological reports is the use of the terms "multivariate"/"multivariable", "univariate"/"univariable, and even more variations on the theme, such as "bivariate". PPE therefore decided some time ago to adopt the following terminology for the various forms that regression models can take in terms of the number of outcomes and explanatory variables (this writer for one tries to avoid the terms "dependent" and "independent" respectively here given their technical connotations):

Regression models of all kinds (standard, logistic etc.) that involve a single outcome are "univariate" regardless of how many explanatory variables are included in the model. The term "multivariate" regression should be restricted to those cases where there is more than one outcome (strictly speaking, a more general specification is where the model requires the assumption of a joint distribution of some kind, including certain applications of repeated measures regression). In practice, virtually all regression models in articles submitted to PPE therefore involve "univariate" techniques; hence, unless you have a situation that is otherwise, we would not expect you to state this explicitly.

Where there clearly is a very common distinction to be made is when the models move from including just one explanatory variable to models involving more than one explanatory variable (when issues such as confounding and effect-modification are being taken into account and/or investigated). The terminology adopted by PPE is that where there is just one explanatory variable the model should be termed "univariable" (rather than "univariate" or "bivariate"), and where there is more than one, then "multivariable" should be the label used (rather than "multivariate").

No system is perfect if for no other reason than it doesn't accord with everyone's established practice, but PPE hopes that the above approach is one that is both consistent from article to article, and moreover does have a rationale that avoids dangers of ambiguity.

Tim J Peters

tim.peters@bristol.ac.uk
Department of Community Based Medicine
University of Bristol
25 Belgrave Road
Bristol
BS8 2AA
UK