



Putting your best foot forward: An Insider's Insight into what makes a great title

Titles are the first thing readers see, yet often they are addressed at the end of your project, and just as often are the aspect of your work that is given the least attention. Creating a title can take no more than the time it takes to summarise your work in a sentence. And yet, their value is incalculable.

Titles directly influence the number of people who end up reading your work. With the increasing digitalization of research, more and more people are using online databases to search for relevant materials. That's why, if you want your article to appear in search results, you should ensure that its title is a good reflection of what you are reporting and that it attracts the right audience. The words you use will determine whether your audience will find your article using common search terms and whether they chose to simply overlook it or explore it further.

Before you start

Be aware that titles affect the impression journal reviewers' and editors' have of the quality of your work

Creating a succinct, informative and inviting title should be a priority

Choose whether you are going to use a declarative, descriptive or interrogative title form

Check the author instructions for your target journal for title requirements before submission.

Prepare to succeed

Avoid using abbreviations or filler phrases and use humour sparingly and wisely

Keep your title brief and focused on the most important point in your manuscript

Incorporate the three key elements of a strong title: keywords, emphasis, and impact

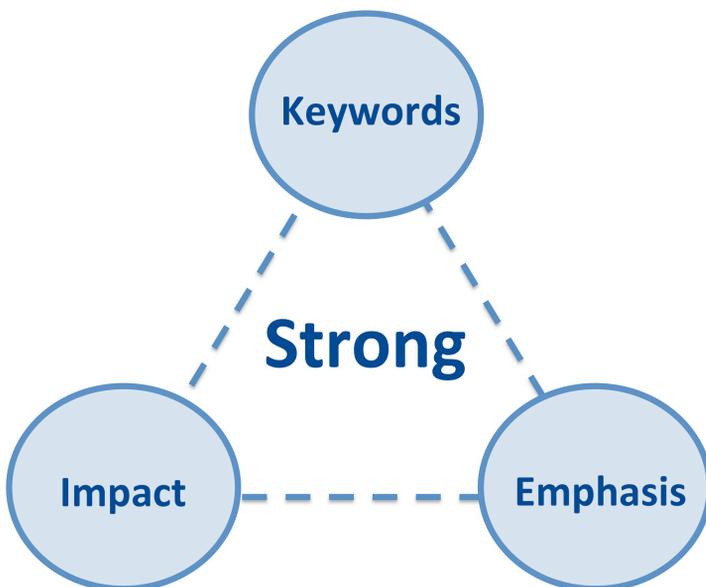
Time spent on writing an informative title is time well spent.

Use words that will enable your audience to find your article using common search terms

Key Insights

Busy editors often decide on the eligibility of a manuscript based on their initial impression of its title (and abstract) [1]. Even if the rest of your manuscript is perfect, a weak or poorly written title will affect a journal editors' impression of the importance of your work. Titles can similarly set the first impression of external peer reviewers [2]. Therefore, creating a succinct, informative and inviting title should be a priority. It is your 2-second opportunity to connect with the 'passer-by' – so make it count [3].

Strong titles have three elements: keywords, emphasis and impact. A strong title pulls the reader in, making it memorable, encouraging the reader to delve further. A weak title dulls the readers' expectations and negatively affects their view of your work, no matter how good it may be.



Times, they are a-changin'

Historically, it was important to understand that your title would appear in the contents pages of journals, where they would serve as an enduring advert for your work [2]. However, journal browsing per se is becoming a thing of the past. These days, most information is sought using online search engines. Although this has egalitarianised and democratised exposure to your work, the full text is often stored behind pay-to-view walls.

The title, abstract, and keywords are often the only parts of your work that are freely accessible (online). Give the reader reason to look deeper into your work and possibly use their limited resources on its purchase.

Form

Titles generally come in one of three forms:

- Declarative – providing the main findings or conclusions
- Interrogative – introducing the subject focus in the form of a question
- Descriptive – covering the focus of the article and not revealing the findings

Each approach can be useful. Choose the format that best conveys your message to your audience.

Declarative titles

A declarative title describes the principal outcome of the study, ideally highlighted in relation to the experimental hypothesis. It is generally touted as the preferred format for biomedical research articles. This approach perhaps conveys the largest amount of information. They are also good if you want to emphasize the technical side of your work. However, this approach is only acceptable if the study design and findings are adequate to support the use of a clear declarative statement. Thus, it assumes that the study had an adequate sample size and statistical power to declare the conclusion valid. Authors need to take care that understandings imputed in the discussion are not openly stated in the title.

Descriptive or 'neutral' titles

A descriptive title includes all the elements of the research work (patient group, intervention, outcome, comparisons etc.), while not revealing the main findings of the study or its conclusion. This is one of the more common formats seen in the scientific literature [4]. The popularity of this format probably reflects, in part, the relative ease with which it can be written. However, it lends little to your reader's understanding of your work's importance or the reasoning behind it. Titles structured in this fashion can be undervalued (by editors, reviewers and readers) as they imply that the work was not hypothesis driven and the findings are unexciting.

Running Titles

Many journals require a running title or running head. It usually appears at the top of the page. Previously the running head served as a guide to readers browsing a print journal, it is often now seen as an anachronism; however, the running head is frequently used in RSS feeds and mobile applications instead of more unwieldy main titles (unless the main title is sufficiently brief).

Requirements for running titles vary between journals, but generally, they must be 50–60 characters long, (including spaces). To achieve brevity, they typically include abbreviations, even where journal guidelines precludes abbreviations in the main title. Unlike the main title, being catchy is not a priority whereas clarity and accuracy are required. Some suggest that as much content as possible should be preserved from the main title, although in practice this approach is difficult; authors instead tend to include only what they deem most important.

Interrogative titles

The question-based or interrogative title poses the study's hypothesis as a query. This format can be distracting and authors are often advised to avoid it as it details only one of the two aspects of a study most sought-after by the readers the hypothesis [1,3]. By failing to summarize the findings the interrogative title is considered to do little that might foster interest in potential readers. And yet, research suggests that articles with query titles tend to get downloaded more frequently, even though they tend to be cited less frequently [4].

Fundamental Aspects: the 3 B's

Your title should be both informative and specific; using words or phrases likely to be employed when searching for this type of work. Second, it should be concise while conveying the work's main ideas clearly; articles with short titles reporting study findings have been found to attract higher numbers of 'views' and citations. Third, it should include details of the study design to assist the reader in making an informed choice about the type of project being reported.

- Be clear
- Be concise
- Be informative

Be clear

When rushing to complete and submit your manuscript, quickly taking a cursory look at the title, checking that it has all the relevant components and editing to ensure that it is suitably concise, can lead you to error. In a 2016 article on title creation, several examples of humorous author oversights highlighted this problem [5]. It is likely that readers will figure out your intended meaning, but their subsequent mindset when reading the remainder of the article (assuming they don't stop reading then and there) may be negative. The hypothetical examples of odd titles provided and their modifications illustrate how syntax deserves your close attention. There should only be one meaning to your title. It is good practice to show your title to colleagues and ask them to tell you the message they take away from it.

Be concise

Avoid titles that are too long. Recommendations often suggest that a title be no more than 12 to 16 words [6]. A title should balance the number of words needed to describe the content of the article against losing or confusing the reader. In all honesty, the title needs to be as long as it needs to be to communicate your message clearly. Just remember that articles with longer titles are more difficult to grasp, and are cited less frequently than those with shorter titles (at least in biological sciences) [4,7]. Shorter titles are not only less intimidating for readers, but they also are easier to read on mobile devices such as phones or tablets. The content you create should fit on all the lanes of the information highway, or it will get left behind.

Be informative

Although it is considered a virtue for titles to be concise, they can also be so short that they tell the reader little about the focus of the article. Over-zealous editing for brevity can be detrimental. A helpful acronym to remember when considering the composition of a balanced title is 'SPICED' [8]. The acronym refers to the six key elements of a title, i.e., Setting, Population, Intervention, Condition, End-point, and Design.

- **Setting:** This refers to the situation in which the research took place. For example, it could be community-based, home-based, school-based, hospital-based or conducted in the laboratory based. It might have been performed in outpatients or inpatients.
- **Population:** Explicitly state the profile of the subjects studied including age and/or sex, where relevant.
- **Intervention:** Identify any procedure or intersession.
- **Condition:** The clinical presentation or study subject characteristics.
- **Endpoint:** This would include the parameter measured to determine whether or not the objective of your hypothesis had been achieved.
- **Design:** Describe the study structure use to perform your hypothesis testing.

Process and Approach

Guides on writing scientific papers recommend starting with the Methods section, followed by Results, Discussion, Introduction, Abstract, and then Title. There is a certain degree of logic to this linear order. It can take anything from a few days to several months to write a manuscript. During this time, it is natural to change some aspects of your paper or introduce ideas that you haven't considered before. Consequently, it is good to revisit the title you wrote at the outset simply as a working title, leaving you to focus on writing the rest of the paper, perhaps noting possible alternatives if you get any inspiration along the way.

Once you have analysed the text, you can return to the title and decide on the final version. In some cases, this strategy can have a significant impact as when you are distracted by all the editing and rewriting you may simply forget to make relevant adjustments to the title along the way. Take the time to write a few possible titles and to experiment using different types or alternative formats [9]. Once you're ready with the various ideas, get your colleagues to help you pick the best or even brainstorm some better alternatives.

Key words

Key words and terms play an important role and should be chosen carefully using the same terms that indexing services (e.g., PubMed) and search engines (e.g., Google) employ [10]. Avoid using generic terms such as animal, bacteria, or antibiotic as your key words, each of which can be used in different contexts.

Using the right keywords will make internet retrieval more likely [11]. The specificity of a paper is directly proportional to the number of keywords used in the title [12]. In order to determine which keywords you should use, read through your paper and list the terms, phrases and abbreviations that appear frequently. The key words or terms used in a title should mirror those in the body of your text.

Try also to include variants of a term/phrase already used in your title as keywords. Refer to an indexing standard like the Medical Subject Headings (MeSH) database of the US National Library of Medicine [13]. Check if these terms are listed therein. The MeSH uses two: MeSH on demand and MeSH browser. A good way to identify keywords is to search similar research work on PubMed and copy the MESH headings they have used. Remember that keywords are not necessarily single words, they can also be a combination of words. However, before deciding on any our keyword combinations, try typing them into a search engine like PubMed to see if the results identified resemble your work.

Search engines such as Google typically show only the first 6–7 words of a title so put words and terms you consider important towards the beginning of the title. This is also another reason to remove unnecessary phrases such as 'validation of'.

Doh!

Many journals have limits on the number of words or characters that can be included in the title, so it always helps to look for words that can be removed without affecting its clarity or message.

Avoid using redundant wording such as 'a study of' or 'development of'. Readers understand that you would not be writing the paper unless you had studied, developed, investigated or observed something.

Similarly, avoid including adjectives such as new or novel, improved or sensitive. It is implicit to the reader that a journal would only consider publishing work that is new, validated or sensitive.

Only mention the methods used if the technique is the primary focus of the paper research shows that articles with titles focused on methods are read less frequently [7]. As most of the indexed journals have distinct sections for case reports, review articles and the like, titles with endings such as 'a review' and 'a case report' are generally unnecessary.

Target Audience

However, you still need to adhere to the journals requirements on formatting, style, word limits, etc. In spite of access to this information, authors frequently submit papers with titles that do not meet their target journal's requirements. Some journals have a limit on the number of words or characters in a title, or may request that titles be written as phrases, not sentences (e.g., "Reduction in inflammation with aspirin treatment" vs. "Inflammation is reduced with aspirin treatment"). Other journals prohibit subtitles or the designation of articles as part of a series (e.g., Part 1 or Part 2). A good tip is to review past issues of the journal to see what titles have been published.

When creating your title you need to think about what is going to appeal to your target audience – the people you want to read your manuscript. Success often comes down to being in tune with your audience, and by that I mean the journal's audience. If you are publishing in a journal with a broad readership, your title will be very different than one for a specialized journal. Use the right keywords. The order in which words and terms are used in a title can also influence readers' interest in your paper.

Too much detail can make your title esoteric. Readers can also be put off by too much detail, missing the wider implications of the work—particularly if you focus on a protein with complicated name that forms part of a large pathway or network.

Abbreviations

In many cases, the use of abbreviations in titles is not permitted or is discouraged. Whatever the positions of your target publication, they should be avoided [14,15]. First, they could possibly confuse and lose readers if they are not experts in your subject matter. Second, unless an abbreviation is an accepted standard abbreviation (used by indexing services), your article would not get indexed properly (and thus missed by potential readers). Third, it would only be right and proper to define the abbreviation within the title itself making the whole exercise superfluous.

There are some instances where abbreviations have become more widely used than the actual spelled-out names, e.g. DNA. Similar common terms include RNA, AIDS, CDC, and FDA. In these circumstances, the abbreviation itself may be more informative to the reader than full text. When in question check with the specific journal or seek out reference materials and/or style guides as most specialist journals have their own list of acceptable use.

Regulatory titles

A fair proportion of clinical papers in the scientific literature are written from documents such as clinical protocols and study reports that have been written for regulatory authorities. Not as 'snappy' as their literature counterparts, the content of titles for these documents tend to be highly defined. Authors are generally required to include the following components:

- Study design (including the experimental design, control method, level of blinding, and method of assignment to study treatment)
- Investigational product name(s)
- Dose(s), as appropriate to the study design (e.g., specific doses, dose ranges, dose escalation, or specify if doses are individualized)
- Duration of study treatment (e.g., single dose, number of days, weeks, or months, or individualized duration)
- Indication, if applicable
- Study population
- Health outcomes, pharmacokinetic/ pharmacodynamics/biomarker if any of these are either a primary or secondary objective of the study.

The name of the species or strain involved in your study will almost certainly be a key term that your colleagues and peers will search for

An interview with our Managing Director

Q What is the easy-to-avoid error you see most frequently?

A Authors often oversee their manuscripts. Do not use terms such as novel or first time unless you are absolutely sure no one has published anything similar. These terms are red flags for reviewers and editors. Make sure you can deliver on your title. If you mention uncovering the “molecular mechanism of insanity in professors” you should provide a clear understanding of the mechanism from your results. If your results do not reveal the complete mechanism, say “Protein P contributes to chromosome rearrangement in academics.” Everything in your manuscript should relate back to the title.

Q What is the hardest thing to engineer into a title?

A Impact. A title with impact communicates why readers should pay attention to the article. You can try to add impact to your title by indicating what is novel or innovative about the results, or how your work will affect the field. However, audiences are fickle and there is no guarantee that what works one time will work every time.

Sign of the times

In today's world you don't have to explain everything in the title. Long titles usually end up being more perplexing than they are informative. The practice of providing a comprehensive title has become less important since papers now tend to be identified by keyword or even whole-text database searches, so long-winded titles just aren't helpful and, as we have seen, can work against you.

Use of Colons

Colons are sometimes used to add additional information to a title, such as the methodology that was used (e.g., ‘Bladder activation during volume stimulation: An augmented ultrasound imaging study’). Research suggests that some readers actually prefer titles that employ colons [16].

However, as we have seen, a long subtitle can be cumbersome and counterproductive. At times it may be better to rewrite the title without the colon before you decide which approach to take; so you can see if any crucial information is lost.

Q What do you think is the best advice you can give to a would-be author?

A Look into the 'information to authors' section of the journal you intend to submit. Look for capitalization styles, length and general form. Some journals want descriptive titles, while others declarative ones, and still others a combination of both. Most journals prefer short titles, preferably less than 100 characters including the spaces. Most journals will provide you with information.

Q What was the best title-related tip anyone ever gave you?

A When you have finished writing, ensure that the title you are using still reflects the core message of your article and, if it does not, change it! Bear in mind that titles are usually read in conjunction with an abstract so it is important that they are complementary and convey the same point. This may seem obvious, but you would be surprised how many people forget this simple fact.

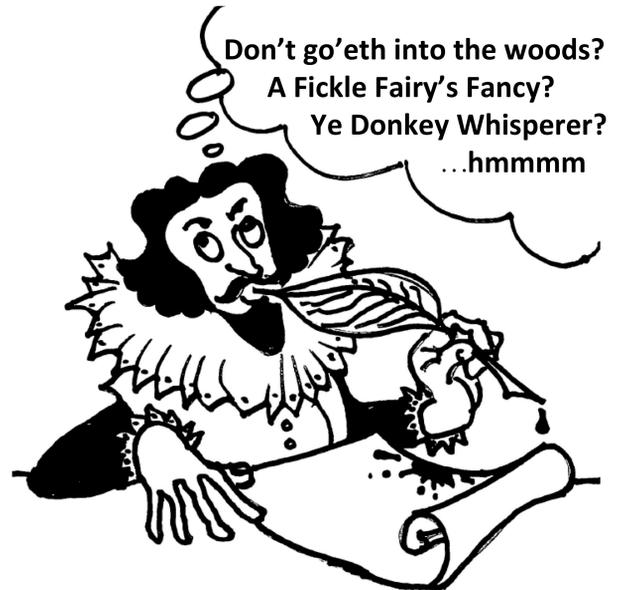
Humour

Using irony, puns, and humour in your title may attract more 'spectators' of your work but will it attract more readers? It is generally advised that loud and/or amusing titles should be avoided [18]. It is easy to understand that titles which depend on humour may not be understood by readers who are not native speakers, equally, humour tends to be culture-specific.

Clearly, when an author devises a humorous title, they are trying to grab the attention of their audience but internet search engines are notoriously immune to humour, and it will impact negatively on citation of your work [17]. Overall, the scientific endeavour is considered a serious matter, and perhaps humour is misplaced [18,19]. However, we shouldn't discard the approach completely.

In an appropriate setting such as an editorial or a letter to the editor, it undoubtedly has its place. However, caution is advised. For example, the title "Sodium-glucose co-transporter 2 inhibitor: from apple tree to 'Sweet Pee' [20]" might be seen as making light of a serious condition. If you must persist, a good rule of thumb is to be cautious about including humorous content in titles and refrain from incorporating a double entendre or other questionable attempts at humour [17].

You may also want to check the literature to see if your target journal ever publishes articles with humorous titles.



Shakespeare – stuck on the title page

Lessons from social media

Can we learn anything from clickbait websites that delve the depths of the human psyche to compose the most compelling, click-me headlines for social media?

The marketing analyst BuzzSumo studied the 100 million headlines that generated the most engagement on Facebook and Twitter in terms of likes, shares, clicks and comments.

It found that as a species we cannot resist a list, with "X reasons why . . ." and "X things you . . ." the most effective phrases to gain traction online. It is hard to see how we can build this into the titles of serious scientific articles. And what should X be? The study shows that 5, 10 and 15 are the most click-worthy. The team also reported that by far the most powerful three-word phrase for use anywhere in a headline was: "will make you". Make of that what you can.....

Place of Study?

Sometimes, a given study, if conducted with the same methodology, by the same researcher but in a new setting, may yield completely different results. Consider a study on prevalence of hypertension in young adults in Mumbai. Here the location of the study is vital to the study itself.

The prevalence of hypertension at a certain geographical location is dependent on its prevalent lifestyle habits, which in turn are affected by the economic status and cultural and social practices. So, inclusion of the place of study in the title for this study would be desirable for sake of completing of information.

And finally...

A study comparing title length to total citations in English-language scientific journals showed a positive correlation between an increased number of words in the title and the number of citations received [21]. This effect was most pronounced in articles published in journals with impact factors greater than 10 and was true for both medical and general science journals. Similar findings were noted in a review of manuscripts published in three British medical journals, comparing title length in the 25 most cited articles, which had a mean of 18 words, and the 25 least cited articles, presenting with a mean of 9 words [22].

Interestingly, this study also reported positive correlations between the number of citations and the presence of both a colon and acronyms in the title. From this, one might infer that the ideal title is 18 words long and contains a colon and at least one abbreviation. However, as is common in the clinical and biomedical sciences, another study offered conflicting conclusions, observing a negative, although weak, correlation between title length, presence of colon, and citations [4].

In the end, irrespective of the format you finally use, the ideal title must be succinct and well thought out and should clearly outline the significance and main findings of the accompanying article. In view of the ever-growing number of articles and journals that can be accessed electronically, time spent on writing an informative title is, indeed, time well spent. You don't get a second chance to make a first impression. The title of an article has the power to influence the first impression of your work by a reader, reviewer, or editor.

Syntax

In an analysis of article titles it was shown that the use of emotive or abstract language has varied over time, with a clear shift in modern times towards more concrete and definitive titles.

This trend seems to have started in the mid-1980s [23]. It is possible that this is due, in most part, by the rise of electronic databases, with authors focusing on the words or phrases that are likely to be used in searches. Being specific in your title will aid its retrieval.

Next Steps

Like many things, writing brilliant titles takes practice. Don't shy away from the challenge, but rather seize every opportunity.

We hope that this fully referenced guide will give you the tools for the job. We have also provided some of our trade secrets on what distinguishes an ordinary title from the extraordinary.

Dr Ryan Russell
Medical Writer
ryan.russell@niche.org.uk

Get in touch



+44 (0)20 8332 2588
www.niche.org.uk

References

1. Fox CW, Burns CS. The relationship between manuscript title structure and success: editorial decisions and citation performance for an ecological journal. *Ecol Evol*. 2015;5:1970-80.
2. Peh WC, Ng KH. Title and title page. *Singapore Med J*. 2008;49:607-8; quiz 609.
3. Lebrun JL. *Scientific writing: A reader and writer's guide*. Hackensack, NJ, London: World Scientific; 2007. p. 210.
4. Jamali, H. R., & Nikzad, M. (2011). Article title type and its relation with the number of downloads and citations. *Scientometrics*, 88(2), 653–661. doi: 10.1007/s11192-011-0412-z
5. Dewan P, Gupta P. Writing the title, abstract and introduction: Looks Matter! *Indian Pediatr* 2016; 53:235-141
6. American Psychological Association. (2009). *Publication manual of the American Psychological Association* (6 ed.). Washington DC: Author.
7. Hartley, J. (2008). *Academic writing and publishing: A practical guidebook*. Abingdon, Oxon: Routledge.
8. Paiva, C. E., Lima, J. P. & Paiva, B. S. Articles with short titles describing the results are cited more often. *Clinics* 2012, 67, 509–13.
9. Gupta P. Framing a suitable title. In: Gupta P, Singh N (Eds). *How to Write the Thesis and Thesis Protocol. A Primer for Medical, Dental and Nursing Courses*. First Edition. New Delhi: Jaypee Brothers Medical Publishers; 2014. p. 45-9.
10. Hays, J. C. (2010). Eight recommendations for writing titles of scientific manuscripts. *Public Health Nursing*, 27(2), 101-103. doi: 10.1111/j.1525-1446.2010.00832.x
11. Darmoni SJ, Soualmia LF, Letord C, et al. Improving information retrieval using Medical Subject Headings Concepts: a test case on rare and chronic diseases. *J Med Libr Assoc*. 2012;100:176-83.
12. Kabirzadeh A, Siamian H, Abadi EB, Saravi BM. Survey of keyword adjustment of published articles medical subject headings in journal of Mazandaran University of Medical Sciences (2009-2010). *Acta Inform Med*. 2013;21:98-102.
13. Lebrun JL. *Scientific writing: A reader and writer's guide*. Hackensack, NJ, London: World Scientific; 2007. p.210.
14. Neveol A, Shooshan SE, Humphrey SM, Mork JG, Aronson AR. A recent advance in the automatic indexing of the biomedical literature. *J Biomed Inform*. 2009;42(5):814-23.
15. Hartley, J. Planning that title: practices and preferences for titles with colons in academic articles. *Library & Information Science Research* 2007, 29, 553–568.
16. Matthews JR, Matthews RW. Successful scientific writing: A step-by-step guide for the biological and medical sciences. In: Matthews JR, Matthews RW, editors. 3 rd ed. Cambridge: Cambridge University Press; 2008. p. 240.
17. Hartley, J. (2012). New ways of making academic articles easier to read. *International Journal of Clinical and Health Psychology*, 12(1), 143-160.
18. Sagi I, Yechiam E. Amusing titles in scientific journals and article citation. *J Inf Sci*. 2008;34:680-687.
19. Hartley, J. There more to a title than meets the eye: Exploring the possibilities. *J Tech Writting Comm* 2007;37:95-101
20. Vallance E. A Deadpan look at humour in curriculum discourse (or, the serious versus the solemn in education). *Curriculum Inquiry* 1980;10:179-189
21. Hardman TC, Rutherford P, Dubrey SW, et al. Sodium-glucose co-transporter #2 inhibitors: from apple tree to 'Sweet Pee', *Curr Pharm Des* 2010;16:3830-8.
22. Habibzadeh F., Yadollahie M. Are shorter article titles more attractive for citations?: Cross-sectional study of 22 scientific journals. *Croat Med J*. 2010;51:165-170.
23. Jacques TS, Sebire NJ. The impact of article titles on citation hits: an analysis of general and specialist medical journals. *JRSM Short Rep*. 2010;1:2.
24. Whissell C. The trend toward more attractive and informative titles: *American Psychologist* 1946-2010. *Psychol Rep*. 2012;110:427-44.