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Open Science Practices in Clinical Psychology Journals: An Audit Study

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Abstract

We conducted an audit of 60 clinical psychology journals, covering the first two quartiles by impact factor on Web of Science. We evaluated editorial policies in five domains crucial to reproducibility and transparency (prospective registration, data sharing, preprints, endorsement of reporting guidelines and conflict of interest/COI disclosure). We examined implementation in a randomly selected cross-sectional sample of 201 articles published in 2017 in the “best practice” journals, defined as having explicit supportive policies in 4/5 domains. Our findings showed that 15 journals cited prospective registration, 40 data sharing, 15 explicitly permitted preprints, 28 endorsed reporting guidelines, and 52 had mandatory policies for COI disclosure. Except for COI disclosure, few policies were mandatory: registration in 15 journals, data sharing in 1, and reporting guidelines for randomized trials in 18 and for meta-analyses in 15. Seventeen journals were identified as “best practice”. Analysis of articles showed extremely low compliance for prospective registration (3% articles) and data sharing (2%). One preprint could be identified. Reporting guidelines were endorsed in 19% of the articles, though for most articles this domain was rated as non-applicable. Only half of the articles included a COI disclosure. Desired open science policies should become clear and mandatory, and their enforcement streamlined by reducing the multiplicity of guidelines and templates.

General Scientific Summary: This study examined whether the most influential journals in clinical psychology have editorial policies implementing open science practices, such as registration of the study before it was conducted, data sharing or disclosure of competing interests. Our findings suggest great heterogeneity in journal policies and scarce enforcement.

Keywords: open science, reproducibility, transparency, audit, journal

Open Science Practices in Clinical Psychology Journals: An Audit Study

Despite growing awareness of endemic problems, the field of clinical psychology is still not completely attuned to open science principles, such as openness, reproducibility and transparency (Nosek et al., 2015). Several constructs have been proposed for the implementation of these principles, many of which are endorsed in various degrees by the publishing community, as for instance the International Committee of Medical Journal Editors (ICMJE). Prospective registration, primarily discussed in relationship to clinical trials (De Angelis et al., 2004; Hunter, Seidler, & Askie, 2018), entails the process of making key details about a planned study available in a “time frozen” (i.e., all subsequent changes openly visible) version in a publicly accessible repository before enrolment of the 1st participant. Data sharing commonly refers to the provision of de-identified individual patient data/IPD (i.e., not study materials or code for data analysis) available to other researchers (Naudet et al., 2018; Taichman, Backus, Baethge, & et al., 2016), either openly (e.g., repository, supplementary material) or upon request. Preprints allow for the immediate publication of scientific results online, on various dedicated repositories, without peer review (Annesley et al., 2017). Reporting guidelines generally provide guidance and structured forms on how to report research methods and findings (Blanco et al., 2017) and are specific to different study types ("Library for health research reporting, "). Finally, disclosure of conflict of interest (COI) is an established policy underpinning transparency. The COI refers to the situations when professional judgment regarding a primary interest (e.g., patient welfare, study validity) may be influenced by a secondary interest (ICMJE), most notoriously financial gain (Bero, 2017).

The implementation of these principles in clinical psychology has been scarcely examined. For prospective trial registration, a survey of 25 highest-impact clinical psychology journals that published randomized controlled trials (RCTs), showed that only a quarter of these had been prospectively registered (Cybulski, Mayo-Wilson, & Grant, 2016). A systematic review (Grant, Mayo-Wilson, Melendez-Torres, & Montgomery, 2013) on the adoption of reporting guidelines in high-impact journals in several fields publishing research on psychosocial interventions (including clinical psychology) showed that only 11 of 40 surveyed journals included reporting guidelines in their instructions to authors. For a sample of trials published in these journals, compliance to reporting standards was around 42%.

Nevertheless, systematic investigations regarding other crucial aspects of reproducibility and transparency, such as the adoption of data sharing policies, use of preprints and disclosure of conflict of interest (COI) in clinical psychology are absent (Cristea & Ioannidis, 2018). Influential journals in the field, more than single authors, hold considerable clout over which changes to the current status-quo are eventually implemented, effectively shaping which policies become mainstream. Consequently, beyond recommendations (Tackett et al., 2017), an important step involves dissecting current editorial policies of the most influential journals in the field, and examining compliance.

The proposed study is an audit of the leading clinical psychology journals with reference to five domains crucial to reproducibility and transparency (prospective registration, data sharing, preprints, reporting guidelines and COI disclosure). In selecting these areas, our aim was to focus on policies (1) long discussed in the editorial community at large, so as to ensure there is widespread agreement at least about their relevance, if not necessarily about their

implementation; (2) relevant for clinical and health fields in general; (3) publicly discussed for enough time for journal board to feel compelled to adopt a position.

Our aims were to characterize journal policies across these five domains and examine their implementation in a sample of recent articles from journals with explicit supportive policies. Leading journals were defined as being in the upper half in terms of impact factor, as we wanted to minimize the influence of potential confounds, differentially impacting journals in the upper and lower half, such as asymmetries in resources, the number or overall quality of submissions regularly received, publication capabilities or lack of visibility.

Method

The research protocol was prospectively registered on the Open Science Framework (DOI 10.17605/osf.io/y5mfa).

Selection of journals

We selected all journals in the first two quartiles according to impact factor (Journal Citation Report/JCR 2017) in the Clarivate Analytics Web of Science (WoS) Psychology Social Science Citation Index (SSCI)-Clinical category.

Descriptive Outcomes

For each journal, we extracted descriptive information about the starting year, issues/year, impact factor, publisher, target populations, research domains and restrictions on article types.

Primary outcomes

We extracted five editorial policy outcomes: (1) prospective registration (including registered reports); (2) data sharing; (3) use of preprints; (4) endorsement of reporting guidelines for article types where these exist (e.g., PRISMA, CONSORT); (5) disclosure of conflicts of

interest. Relevant reporting guidelines for article types were identified from the EQUATOR network (<http://www.equator-network.org/>).

For each policy, we noted (a) whether a specific requirement is mentioned (Y/N); (b) when was the policy introduced (if available); (c) if relevant, types of articles targeted; (d) whether it was mandatory or recommended; (e) if relevant, whether the journal explicitly adheres to any established (e.g., ICMJE) or in-house guidelines; (f) if relevant, any templates available and whether these are standard (e.g., ICMJE disclosure), developed by a professional association (e.g., APA), the publisher (e.g., Elsevier), or in-house.

Data Extraction

One researcher extracted editorial policy data from journal websites, examining all author directed information (e.g., “author instructions”). A second researcher independently checked all cases with no information or marked as unclear. Journals with an explicit encouraging, even if not mandatory, policy, for at least 4/5 of the editorial outcomes were labeled as “best practices”. We randomly sampled approximately 200 articles published in these journals in 2017. Eligible articles had to include data, even if not statistically analyzed (e.g., systematic reviews and case reports were eligible). We searched the WoS Core Collection using “best practice” journals names and 2017 as publication year, with a subsequent filter for “article” and “review” as article types. The “sample” function in STATA (StataCorp., 2017) using the WoS number and the default seed was used to identify a random selection.

One researcher extracted data for article level outcomes from all papers, using both the main text and any supplementary material. Another researcher independently extracted information for a sample of 20% of the papers with data. Inter-rater reliability- Krippendorff’s alpha (Zapf, Castell, Morawietz, & Karch, 2016)- was computed for each domain prior to

resolving disagreements (using the *Kappaetc* package in Stata). Disagreements were then resolved by discussion and the first researcher revised all initial ratings accordingly.

Article Outcomes

For each article, we rated the presence of registration and whether it was prospective (Y/N), data sharing (Y/N), reporting guidelines (Y/non-applicable (NA)/N), and COI disclosure (Y/N). Links to the registration and shared data were extracted if available. We noted whether the article described an RCT or a systematic review/meta-analysis. Since journals often recommend some reporting guidelines but not others (e.g., CONSORT for RCTs, but not PRISMA for systematic reviews), we implemented the following procedure: (1) if the article explicitly mentioned a reporting guideline, or if it appeared to employ it even without explicitly labelling (e.g., displaying crucial parts such as CONSORT or PRISMA type diagram), we rated this domain “Y”, regardless of journal policy; (2) if the journal did not have a policy for that article type and no reporting guideline appeared to be used or applicable, we rated “NA”; (3) if the journal did have a policy for that article type and the article did not implement it, we rated “N”. Preprints were identified by searching each article title and perusing the first 10 relevant webpages for any link to preprint repositories (e.g., Open Science Framework, arXiv, BioArxiv). We also searched each title from our sample on Google Scholar, checking all listed versions. When a document was identified in a repository, we checked the identification details to determine whether it was a pre- or a post-print (i.e., post-publication copy of a published article). For COI disclosure, we rated “N” if the authors merely described study or personal funding without mentioning competing interests.

Analysis

Editorial policy outcomes were described at journal level and aggregated into categories, described by counts and percentages. Overall article level compliance for each of the 5 editorial outcomes were described as rates (expressed as percentages) and 95% confidence intervals, computed using the Clopper Pearson method, as implemented in Stata.

Protocol changes are detailed in Supplementary Methods.

Results

Description of Journals (Table S1)

Sixty journals were included, with impact factors ranging from 1.84 to 12.13. Twenty-four journals were first published after 1990 (9 of these after 2000). Five journals defined a target population: children and adolescents (3), elderly (1), couples and family (1). Four journals had a specific research focus: assessment (3) and implementation of procedures (1). Four journals (all the top 5) exclusively published reviews.

Editorial Policy Outcomes (Table 1, Figure 1, Supplementary Data)

Inspection of author instructions in journal websites by the 1st rater was conducted from April 24th through May 11th 2018, with additional checks from a 2nd rater conducted from May 20th to June 1st 2018.

Prospective Registration. 23/60 journals (38%) mentioned any specific policy requesting that studies be registered, either prospectively or not. In three cases, requirements were ambiguous: one stated that pre-registration was recommended, but both registered and unregistered trials will be considered, one referred to clinical trial registration as “legislation requires” and another inquired about publication of the review protocol on PROSPERO. Registration policies were targeted to clinical trials in 20 journals, reviews in 2 and all article

types in one. 15/60 journals (25%) specifically requested prospective registration. In 14/60 journals (23%), the registration policy was mandatory and in all of these it targeted clinical trials. No journal mentioned registered reports.

Data Sharing. 40/60 journals (67%) had a specific policy for data sharing. In three cases, we were uncertain if a rating of “Y” was warranted (see Supplementary Results). Only one journal mandated data sharing, while 37 journals recommended it and for 2 this was unclear. Data sharing instructions recommended up-front archiving in public/third-party repositories or supplementary material for 29 journals, availability of data and sharing upon request for 8, and were unclear for 3. Public repositories were the most recommended data sharing option (27/40 journals).

Use of Preprints. 15/60 journals (25%) specifically mentioned posting of preprints was permitted, with three recommending non-commercial servers and one, institutional repositories.

Endorsement of Reporting Guidelines. 28/60 (47%) journals specifically endorsed one or more sets of reporting guidelines. Nineteen additional journals made generic requirements that manuscripts should follow the ICMJE requirements (4) or the APA publication manual (15), with no explicit mention to reporting guidelines. The EQUATOR guide network guidelines exclusively were endorsed for 22/28 journals, the APA guidelines for one, and in-house guidelines for another. The remaining journals endorsed a mix between EQUATOR and APA (2) or EQUATOR and in-house guidelines (2). For RCTs, guidelines were mandated for 18/60 journals (30%), recommended in one, and for all journals except one, they referenced the EQUATOR CONSORT. For systematic reviews or meta-analyses, reporting guidelines were mandated at 15/60 journals (25%) and recommended at 4. Most reporting guidelines (16) for this article type referred to the PRISMA (see Supplementary Results).

Disclosure of Conflict of Interest. 52/60 (87%) journals stated an explicit and mandatory policy regarding COI disclosure. Three additional journals made generic references to the publisher being member of COPE (2) or the publisher requiring disclosure for some of its journals (1). Templates for COI disclosure were available for 29 journals, and their enforcement was mandatory at 12 journals. Authors were obligated to fill in a COI disclosure form adhering to established guidelines (ICMJE) at one journal. The template developer was the APA at 9 journals, the publisher at 4, and both the ICMJE and the publisher's form were given as examples at 7 journals. For the remaining 8 journals, example forms were available on the publisher website, and could be accessed from the author instructions, but they did explicitly refer to the journal.

“Best practices” journals. 17/60 (28%) journals had an explicit encouraging policy (i.e., mandatory, recommended or, for preprints, permitted) for 4/5 of the domains considered (Table 1). Figure 1 presents the distribution of “best practice” journals across quartiles by impact factor. Only three journals were in the top 10 by impact factor.

Article-level policy enforcement audit

Sample Selection. An WoS search identified 1557 records, some of which were in fact duplicates, leading to 1350 unique records exported. We selected a random section of 218 articles (16.3%). Fourteen articles did not have any data, and we did not have access to 1, leaving a total of 201 articles with data. We classified 17 of these articles as RCTs and 24 as systematic reviews/meta-analyses.

Article Outcomes (Table S2). Inter-rater reliability is presented in the Supplementary Results. Registration was reported in 16/201 articles (8%, 95% CI 4% to 13%), of which 6/201 were prospective (3%, 95% CI 1% to 6%). Twelve of these were clinical trials, and one was a meta-

analysis. Two studies that were secondary analyses of primary trial data included the registration number of the primary trial, considered insufficient for a rating of “Y”. For RCTs, 11 were registered (9 published in journals with mandatory registration), and 6 did not appear to be registered, though published in journals mandating it. For systematic reviews/meta-analyses, none of the best-practice journals mandated registration, and we identified 1 article that was registered.

Sharing of data was reported in 4/201 (2%, 95% CI 0.5% to 5%): a BioProject link, a national database accessible only to Chinese nationals, a malfunctioning link and data availability from the authors upon request. We note that the only journal with mandatory data sharing was not included in our “best practice” selection. We identified one preprint. Reporting guidelines were employed in 38/201 (19%, 95% CI 14% to 25%) papers, and rated as non-applicable in 151/201 (75%, 95% CI 68% to 81%). 14/17 RCTs were published in journals where reporting guidelines were mandatory, and 3 of them were not compliant. 7/24 systematic reviews/meta-analyses were published in journals mandating reporting guidelines and all were compliant. Cases where guidelines were solely recommended are described in Supplementary Results. A COI disclosure, including those specifying no COI to declare, was present in 103/201 (51%, 95% CI 44% to 58%). All the articles with absent COI disclosures came from journals mandating it. Sensitivity analyses yielded very similar results (Supplementary Results).

Discussion

An audit of policies related to reproducibility and transparency in top clinical psychology journals revealed a variable and uneven landscape. First, though all of the practices surveyed are considered essential for open science (Nosek et al., 2015), their implementation as journal

policies was asymmetrical. Under 40% of the surveyed journals had any policy related to registration and just under half recommended one or more types of reporting guidelines. Only a quarter of the journals explicitly supported the posting of preprints. Two thirds of the journals had a data sharing policy and just under 90% one for COI disclosure. Secondly, except for COI disclosure, policies were generally nonbinding, which raises questions about their enforcement. Registration was mandated in about a quarter of the journals, reporting guidelines for trials or meta-analyses in roughly a third, and data sharing in just one journal. Of course, the distinction between mandating and recommending does not apply uniformly to the policies considered. For example, while most authors and editors would probably agree that COI disclosure should be mandatory, and many would also support mandating prospective registration and reporting guidelines at least for some types of research like randomized trials, mandatory data sharing is still controversial (Barbui, 2016; Tannenbaum et al., 2018), and few would even consider posting preprints as compulsory. Though the ICMJE guidelines could potentially serve as a framework in deciding what should be mandatory versus recommended, not all clinical psychology journals adhere to them.

Third, there was large variability and ambiguity in what exactly editorial policies were requesting or recommending. For instance, only a quarter of the journals mentioned registration needed to be prospective and some even specified that both prospective and retrospective were permitted. Though COI disclosure was generally mandatory, the specifics of its enforcement were often unclear or heterogeneous. Only half of the journals included any disclosure form and only for a fifth of these the use of this template was mandatory. There was considerable variability among templates, from the standard ICMJE template (mandated in 1 journal) to ones

developed by the publisher or professional associations. It is unclear whether the same disclosure rules or definitions apply across the multiplicity of templates.

Vague and general formulations were sometimes employed. For instance, nineteen journals only mentioned generic references to the ICMJE requirements or the APA publication manual, both of which do mention reporting guidelines for trials and meta-analyses. In the absence of explicit requirements, interpreting these instructions is at authors' discretion. Many may reason that while other journals specifically require adherence to reporting guidelines, the ones that make no explicit mention might not have such requirements.

Predictably, enforcement of the policies even in journals retained, by a very minimal standard, as "best practices" was mostly lax. An evaluation of a cross-section sample of recently published articles demonstrated the predicament of ambiguous, nonbinding and, consequently, poorly implemented journal policies. Only 3% of the surveyed articles were prospectively registered, and 2% shared data. Though only 4 articles mentioned data sharing, they nonetheless represented a heterogeneous array of options, several of which might not guarantee data access, such as availability from authors upon request or restricted to certain nationalities. About 20% used reporting guidelines, though we mostly rated this domain as non-applicable, usually because the journal did not endorse a reporting guideline for a particular type of research, even though such guidelines did exist (e.g., observational research). Finally, only half of the articles included a COI disclosure statement even though this was mandatory. This finding clearly points to issues in the enforcement of editorial policies, even when compulsory. Whether the authors are unsure about what they need to declare, whether they consciously choose to withhold disclosure, or whether some journals opt for not publishing accompanying disclosures, particularly when there is nothing to declare, are all possible reasons for this finding. A number

of articles simply mentioned study or author funding (usually grant), without any reference to competing interests. Though not a valid way to disclose COI and hence not considered for a positive rating, vague or mixed instructions or the lack of a specific disclosure form might have left authors with the impression declaring funding was sufficient.

We could only identify one preprint, though we supplemented information extracted from the articles with a general web search and Google scholar. Preprints have to become identifiable and linked to published articles. Promising initiatives in this sense are the pilot “Preprints with the Lancet” (Kleinert & Horton, 2018) or the indexing of preprints in Europe PMC (Levchenko, 2018).

Clearly, our selection of open science policies is not exhaustive and several other relevant ones could be added, such as sharing of data analysis code/scripts or sharing of materials. We believed auditing journals on these policies is still premature, as they have not penetrated the clinical field. For instance, most analyses on code sharing focused on non-clinical fields (Stodden, Guo, & Ma, 2013) or on top transdisciplinary journals like Science (Stodden, Seiler, & Ma, 2018). Even flag-carrying journals with mandatory data sharing policies, such as the *BMJ* or *Plos Medicine*, have no explicit policies on code sharing. Sharing materials might be less relevant or less feasible for certain types of clinical research, such as trials or large observational studies, where it could involve sharing copyrighted scales or treatment manuals.

Limitations. Our sampling method relies of WoS categories, which might have led to a heterogeneous sample. We did not access submission systems, though it is possible that for instance for data sharing, some journals might have asked authors to attest to it when submitting the manuscript, leading them to believe that an explicit manuscript statement was not necessary. It is uncertain whether journals with no specific mentions to preprints forbid or allow them. Our

audit was conducted through April and May 2018 and thus does not reflect editorial changes implemented after that date. The identification of “best practice” journals was not intended to rank journals, but merely to identify a sample of recently published articles to which these policies would have been presumably applicable so as to assess compliance. For reporting guidelines, we chose a procedure that would not penalize articles using these despite no explicit journal policies. Some articles might have used guidelines without specifically labeling them. To address this, we also rated articles as compliant when we identified essential guideline parts, like the flowchart.

In conclusion, an audit of top journals in clinical psychology revealed several problems with the implementation of policies furthering open science. It is obvious that imprecise requirements are interpreted loosely and the mere recommendation of a desired policy insufficient. Consequently, we believe an important first step involves journals resolving which open science policies they categorically value and want implemented, and making them explicit and mandatory. As a minimum, policies such as prospective registration for trials, where there is already a shared, ubiquitous agreement from the editorial community, as expressed by the ICMJE, should be mandatory. Editorial boards need to recognize that simply recommending a desired policy will most likely not bring results. Overseeing enforcement, even for mandatory policies like COI disclosure, is clearly problematic. Steps can be taken to streamline implementation, such as clarifying instructions, and reducing the multiplicity and diversity of guidelines and templates to instead mandate standard forms, widely embraced by the community of editors, such as the ICMJE COI disclosure form.

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All authors have completed the ICMJE uniform disclosure form at

http://www.icmje.org/doi_disclosure.pdf (available upon request from the corresponding author)

and have nothing to disclose. All extracted data and a preprint of this article are available on the Open Science Framework repository (DOI 10.17605/OSF.IO/BJ3X5).

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Table 1
Editorial policy outcomes

Journal	Registration			Data sharing		Pre-prints ^{a)}	Reporting guideline ^{b)}		Conflict of interest disclosure ^{c)}			Explicit supporting policy ^{d)}
	Pol	Pr	M	Pol	M		Pol	M	Pol	Te	M	
Annual Review of Clinical Psychology						*			*	*	*	2
Clinical Psychology Review				*		*	*		*	*		4
Health Psychology Review				*	*		*	*	*			3
Neuropsychology Review	*	*		*			*	*	*	*		4
Journal of Clinical Psychiatry	*	*	*	*e)			*	*	*	*		4
Psychological Medicine									*			1
Depression and Anxiety									*	*	*	1
Journal of Consulting and Clinical Psychology	?			*			*	*	*	*	*	3
Journal of Clinical Child and Adolescent Psychology				*			*	*				2
Clinical Child and Family Psychology Review				*					*	*		2
Journal of Abnormal Psychology				*		*	?		*	*	*	3
Behaviour Research and Therapy	*	*	*	*		*	*	*	*	*	*	5
Journal of Abnormal Child Psychology				*			?		*	*		2
International Journal of Eating Disorders	*	*	*	*		*	*	*	*			5
Health Psychology	*	*	*	*			*	*	*	*	*	4
Behavior Therapy				*		*	*	*	*	*		4
European Eating Disorders Review	*	*	*	*			*	*	*			4
Psychological Assessment				*			?		*	*	*	2
Neuropsychology	*	*		*			*	*	*	*	*	4
European Journal of Psychotraumatology	?								*			1
Journal of Anxiety Disorders				*		*			*	*		3
Assessment							?		?			0
Mindfulness				*					*	*		2
British Journal of Clinical Psychology							?		*			1
Addictive Behaviors				*		*			*	*		3
Body Image				*		*	*	*	*	*		4

Sexual Abuse							?		*			1
Journal of Sex Research							?		*			1
Journal of Substance Abuse Treatment				*		*			*	*		3
Archives of Sexual Behavior							?		*	*		1
Personality Disorders-Theory Research and Treatment				*			?		*	*	*	2
Psychotherapy				*			?		*	*	*	2
International Journal of Clinical and Health Psychology				*			*	*	*	*		3
Psychotherapy Research	*	*	*				?		*			2
British Journal of Health Psychology	*			* e)			*		*			4
Cognitive and Behavioral Practice	*		*			*	*	*	*			4
Journal of Behavior Therapy and Experimental Psychiatry	*		*	*		*	*	*	*			5
Journal of Behavioral Medicine				*			*	*	*	*		3
International Psychogeriatrics	*	*	*				*	*	*			3
Family Process				*		*	?					2
Clinical Psychology-Science and Practice	*			?		*	*	*	*			4
Cognitive Therapy and Research				*			?		*	*		2
Cognitive Behaviour Therapy	*	*	*				?		*			2
Eating Behaviors				*		*	*	*	*	*		4
Journal of Traumatic Stress							*	*				1
Psychology of Violence				*			*	*	*	*	*	3
Experimental and Clinical Psychopharmacology				*			?		*	*	*	2
Journal of Health Psychology	*	*	*	* e)			*	*	*			4
American Journal of Drug and Alcohol Abuse	*	*	*	*			?		*			3
Journal of Clinical Psychology									*			1
Criminal Justice and Behavior							?					0
Archives of Clinical Neuropsychology							*	*	*			2
Journal of Personality Assessment	*	*		*			*		?			3
Journal of Mental Health	?			*			*	*	*			3
Journal of Sex & Marital Therapy									?			0
Clinical Psychology & Psychotherapy	*	*	*	*					*			3

Journal of Positive Behavior Interventions							?					0
Journal of Psychopathology and Behavioral Assessment				*					*	*		2
International Journal of Behavioral Medicine	*			*			*	*	*	*		4
Journal of Clinical and Experimental Neuropsychology	*	*	*	*			?		*			3

Note. M, mandatory; Pr, prospective; SF, standardized form; Supp, supportive; Te, template available

*, explicit journal-specific mention; ?, ambiguous or non-specific mention

a) In all cases use of preprints was just permitted

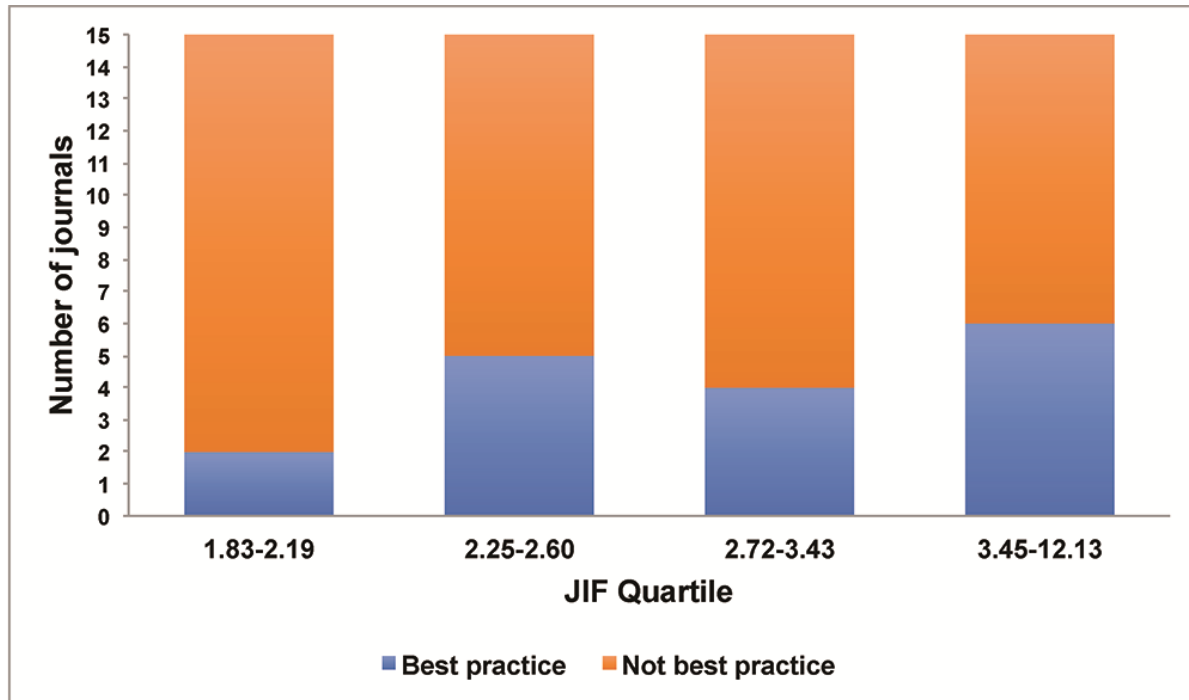
b) If more reporting guidelines are listed, at least one has to be mandatory

c) The disclosure policy was mandatory in all cases where it was explicitly mentioned (i.e., “*”). The last column (i.e., M) refers to whether the use of a template is mandatory.

d) Number of domains with explicitly supportive policies. Shaded cells denote journals labeled as “best practice”.

e) Uncertainty about the rating

Figure 1. Distribution of “best practice” journals across quartiles by journal impact factor (JIF).



Supplementary Methods

The study was exempt from ethical approval as it exclusively used secondary, published data and no human or animal participants were involved.

Protocol changes

Though we had initially planned to randomly sample 300 articles and then select the first 200 containing data, we realized a more efficient solution for both data extraction and ensuring sample randomness was using the WoS search filter for “article” and “reviews” (categories generally containing data) and then selecting slightly over 200 from these. Moreover, to ensure all “best practices” journals were represented, we stratified randomization by journal.

Computing editorial policy compliance at single article level and distinguishing between journals with mandatory and non-mandatory policies also proved unfeasible since, except for COI disclosure, most policies were non-mandatory and the vast majority of sampled articles were rated as “N” or “NA” across all domains. Though classifying articles by design would have been beyond the scope of this research and probably contentious, we did attempt to distinguish between compliance with mandatory versus non-mandatory policies for RCTs and systematic reviews/meta-analysis.

Supplementary Results

Editorial Policy Outcomes

Information about the dates of introduction was absent across all domains in all cases but one (prospective registration for Behavior Research and Therapy). Verbatim quotes are presented in the Supplementary Data.

Data sharing. Upon re-inspection of extracted information on data sharing policies, we realized three cases we had classified as “Y” were somewhat ambiguous. In two cases (British Journal of Health Psychology, Journal of Health Psychology), the author instructions specified that the journal encourages or is able to host additional supplementary materials specifically mentioning datasets, but there was no more explicit reference to data sharing. Additionally, another journal (Journal of Clinical Psychiatry) specified that details regarding the accessing of datasets need to be provided for manuscripts reporting analyses of such datasets, a formulation that we had considered as indicative of some form of data sharing, but that might be overly ambiguous.

Endorsement of Reporting Guidelines. From the four journals exclusively publishing reviews, two mandated the PRISMA guidelines (for Health Psychology Review, the authors could choose between the PRISMA and the APA’s MARS guidelines), one (Clinical Psychology Review) recommended them, and finally another (Annual Review of Clinical Psychology) made no reference to reporting guidelines.

Article-level policy enforcement audit

Sample selection. We use the sample procedure in STATA with the default seed (123456789). However, we ran the sample selection code three times without re-launching STATA as we were looking to define the percentage of the sample that would lead to a number of articles close to 200.

Article Outcomes.

Inter-rater reliability (Krippendorff’s alpha) was 0.80 for registration, 0.83 for reporting guidelines and 0.90 for COI disclosure. For data sharing, due to the low prevalence of the “Y”

category, Krippendorff's alpha could not be computed (Zapf et al., 2016). The raw agreement percentage was 97%.

For RCTs, three were published in a journal that recommended the use of all EQUATOR network guidelines relevant for the study design: two trials were rated as compliant. For systematic reviews/meta-analyses, 12/24 were published in journals that recommended specific guidelines (8 compliant), 3 employed them in the absence of journal specific recommendations, and 2 were rated as N/A (i.e., the journal had a reporting guidelines policy, but not for systematic reviews/meta-analyses).

Sensitivity analyses

We conducted sensitivity analyses, excluding three journals for which we recognized a rating of “Y” for data sharing was ambiguous from the “best-practices” set. This analysis included 167 articles, 152 of which included data. Registration was reported in 14/152 articles (9%, 95% CI 5% to 15%), out of which 5/152 were prospective (3%, 95% CI 1% to 7%). Eleven of these articles were clinical trials (10 RCTs), and one was a meta-analysis. Sharing of data was reported in 1/152 (1%, 95% CI 0 % to 4%). We identified one pre-print. Reporting guidelines were employed in 33/152 (22%, 95% CI 15% to 29%) papers, and rated as non-applicable in 107/152 (70%, 95% CI 62% to 77%). A COI disclosure, including those specifying no COI to declare, was present in 62/152 (41%, 95% CI 33% to 49%).

Table S1
Characteristics of included journals

Journal	1 st r=Year	Issues/year	Impact factor	Target population	Target research	Article types	Publisher
Annual Review of Clinical Psychology	2005	1	12.13 6	Ns	Ns	Rev	Annual Reviews
Clinical Psychology Review	1981	8	8.897	Ns	Ns	Rev	Elsevier
Health Psychology Review	2007	4	7.241	Ns	Ns	Original, conceptual rev, systematic rev, meta	Taylor & Francis
Neuropsychology Review	1990	4	6.352	Ns	Ns	Rev, edit, comm	Springer
Journal of Clinical Psychiatry	1940	24	5.291	Ns	Ns	Var	Physicians Postgradu ate Press
Psychological Medicine	1969	16	5.23	Ns	Ns	Var	Cambridg e University Press
Depression and Anxiety	1993	12	4.971	Ns	Ns	Var	Wiley
Journal of Consulting and Clinical Psychology	1937	12	4.593	Ns	Ns	Var	APA
Journal of Clinical Child and Adolescent Psychology	1971	6	4.396	Child, adolesc	Ns	Var	Taylor & Francis
Clinical Child and Family Psychology Review	1998	4	4.171	Child, adolesc, fam	Ns	Var	Springer
Journal of Abnormal Psychology	1906	8	4.133	Ns	Ns	Var	APA
Behaviour Research and Therapy	1963	12	4.064	Ns	Ns	Rev, interventio ns	Elsevier

Journal of Abnormal Child Psychology	1973	8	3.615	Child, adolesc	Ns	Var	Springer
International Journal of Eating Disorders	1981	8	3.567	Ns	Ns	Var	Wiley
Health Psychology	1982	12	3.458	Ns	Ns	Var	APA
Behavior Therapy	1970	6	3.434	Ns	Ns	Var	Elsevier
European Eating Disorders Review	1993	6	3.391	Ns	Ns	Var	Wiley
Psychological Assessment	1989	12	3.307	Ns	Assess	Var	APA
Neuropsychology	1987	24	3.286	Ns	Ns	Var	APA
European Journal of Psychotraumatology	2010	1+ suppl	3.278	Ns	Ns	Var	Taylor & Francis
Journal of Anxiety Disorders	1987	24	3.105	Ns	Ns	Var	Elsevier
Assessment	1994	8	3.062	Ns	Assess	Var	SAGE
Mindfulness	2010	6	3.015	Ns	Ns	Var	Springer
British Journal of Clinical Psychology	1981	4	3	Ns	Ns	Var	Wiley
Addictive Behaviors	1975	12	2.944	Ns	Ns	Var	Elsevier
Body Image	2004	4	2.926	Ns	Ns	Var	Elsevier
Sexual Abuse	1988	4	2.926	Ns	Ns	Var	SAGE
Journal of Sex Research	1965	24	2.902	Ns	Ns	Var*	Taylor & Francis
Journal of Substance Abuse Treatment	1984	8	2.868	Ns	Ns	Var	Elsevier
Archives of Sexual Behavior	1971	24	2.72	Ns	Ns	Var	Springer
Personality Disorders-Theory Research and Treatment	2009	4	2.606	Ns	Ns	Var	APA
Psychotherapy	1963	4	2.573	Ns	Ns	Var	APA
International Journal of Clinical and	2001	4	2.567	Ns	Ns	Var	Elsevier

Health Psychology							
Psychotherapy Research	1990	24	2.556	Ns	Ns	Var	Taylor & Francis
British Journal of Health Psychology	1996	4	2.551	Ns	Ns	Var	Wiley
Cognitive and Behavioral Practice	1994	4	2.537	Ns	Procedure appl, implem	Var	Elsevier
Journal of Behavior Therapy and Experimental Psychiatry	1970	4	2.517	Ns	Ns	Var	Elsevier
Journal of Behavioral Medicine	1978	6	2.5	Ns	Ns	Var	Springer
International Psychogeriatrics	1989	12	2.423	Elders	Ns	Var	Cambridge University Press
Family Process	1962	4	2.421	Couple, fam	Ns	Var	Wiley
Clinical Psychology-Science and Practice	1994	4	2.38	Ns	Ns	Var	Wiley
Cognitive Therapy and Research	1977	6	2.313	Ns	Ns	Var	Springer
Cognitive Behaviour Therapy	1972	6	2.264	Ns	Ns	Var	Taylor & Francis
Eating Behaviors	2000	4	2.258	Ns	Ns	Var	Elsevier
Journal of Traumatic Stress	1988	24	2.254	Ns	Ns	Var	Wiley
Psychology of Violence	2010	24	2.192	Ns	Ns	Var	APA
Experimental and Clinical Psychopharmacology	1993	24	2.186	Ns	Ns	Var	APA
Journal of Health Psychology	1996	14	2.182	Ns	Ns	Var	SAGE

American Journal of Drug and Alcohol Abuse	1974	6	2.161	Ns	Ns	Var	Taylor & Francis
Journal of Clinical Psychology	1945	12	2.123	Ns	Ns	Var	Wiley
Criminal Justice and Behavior	1973	12	2.099	Ns	Ns	Var	SAGE
Archives of Clinical Neuropsychology	1986	8	2.044	Ns	Ns	Var	Oxford University Press
Journal of Personality Assessment	1936	6	2.024	Ns	Assess	Var	Taylor & Francis
Journal of Mental Health	1992	6	1.941	Ns	Ns	Var	Taylor & Francis
Journal of Sex & Marital Therapy	1975	8	1.935	Ns	Ns	Var	Taylor & Francis
Clinical Psychology & Psychotherapy	1993	24	1.933	Ns	Ns	Var	Wiley
Journal of Positive Behavior Interventions	1999	4	1.929	Ns	Ns	Var	SAGE
Journal of Psychopathology and Behavioral Assessment	1979	4	1.905	Ns	Ns	Var	Springer
International Journal of Behavioral Medicine	1994	6	1.846	Ns	Ns	Var	Springer
Journal of Clinical and Experimental Neuropsychology	1979	10	1.839	Ns	Ns	Var	Taylor & Francis

Note. Adolesc, adolescents; Appl, application; Assess, assessment; Child, children; Comm, commentary; Edit, editorial; Fam, family; Implem, implementation; Meta, meta-analysis; Ns, non-specific Rev, review; Suppl, supplement; Var, various.

* Except personal narratives, case reports