

Reporting quality of the literature on the pharmacological and psychological treatments of the alcohol-deprivation effect

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Introduction

Adequate reporting practices are essential to transparent and reproducible research. A lack of adequate reporting could notably reflect methodological deficiencies, a rampant problem in experimental and biological psychology (Macleod et al., 2015). We assessed the reporting quality in the literature on pharmacological and psychological treatments of alcohol-deprivation effect (ADE), a popular behavioral animal model of alcohol relapse.

A literature search on PubMed yielded 154 titles among which we extracted 68 articles meeting the inclusion criteria.

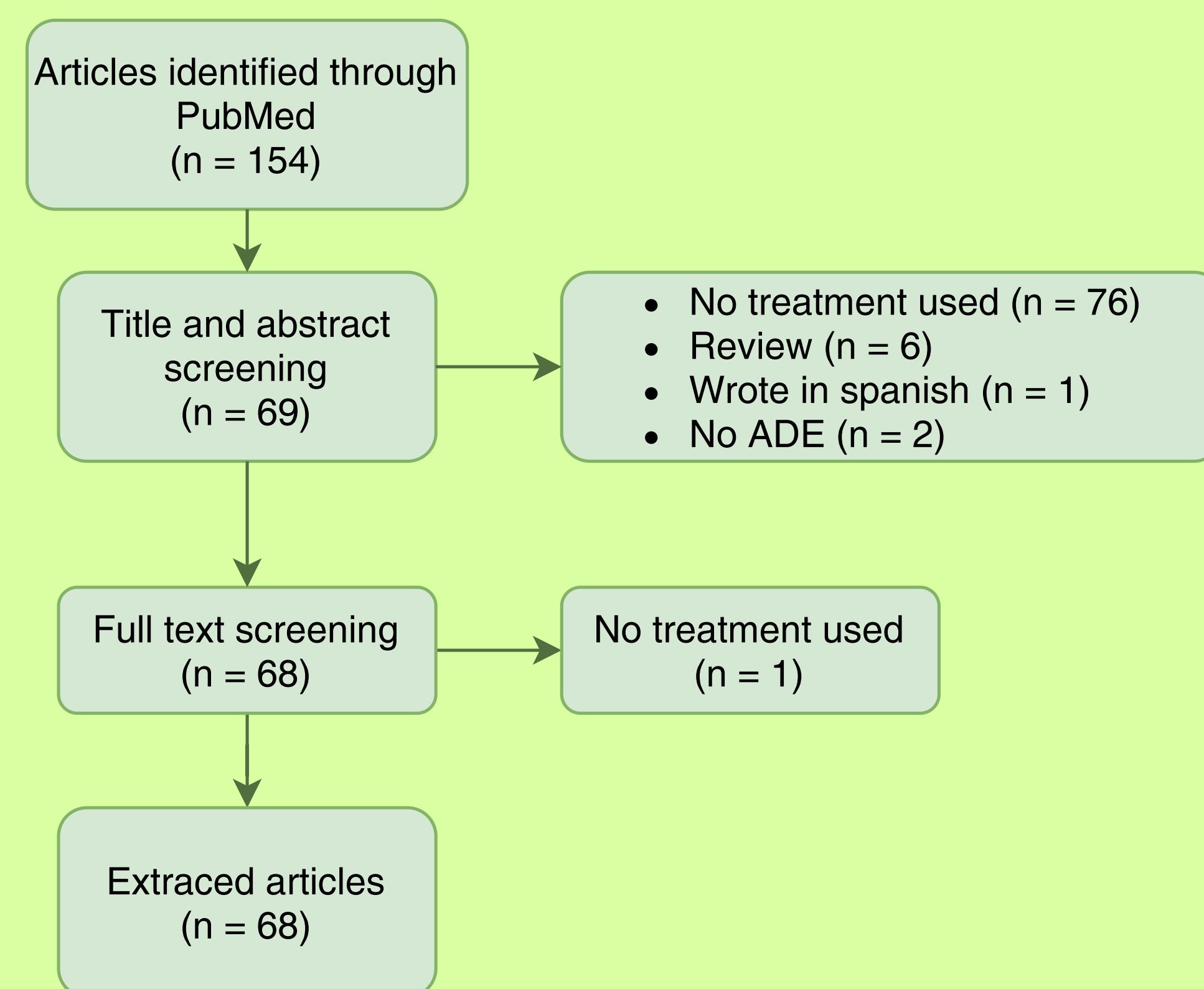


Illustration 1: flowchart of included articles

Methods

We evaluated these articles according the reporting guide ARRIVE 2.0 (du Sert et al., 2020) that comprises 54 items, each of which being coded as properly reported or not. On a 55-point scale (including 0).

Reporting scores were then analyzed with a LOWESS regression to evaluate the evolution of reporting practices over time. A two-sided Mann-Whitney U test of the scores derived from the articles published before 2010 (first publication of ARRIVE (Kilkenny et al., 2010)) and those published after 2012 was performed to test whether a significant increase in reporting practices occurred after the first publication of ARRIVE article.

Computations were realized with the R software (R Development Core Team, 2009).

Results

The overall median reporting scores was 25 [IQR: 22; 28]. The articles reporting scores moderately increased from 1993 to 2020, as suggested by a LOWESS regression generated from 100 000 bootstraps, the R^2 being 0.158 [CI95%: 0.036; 0.316; $p=0.0007$] (Figure 1).

This trend was supported by the comparison, using a two-sided Mann-Whitney U test, of the scores derived from the articles published before 2010 (first publication of ARRIVE) and those published after 2012, which resulted in a 9.61% increase with a moderate effect size r of 0.34 [CI95: 0.11; 0.55; $p=0.005$] (Figure 2).

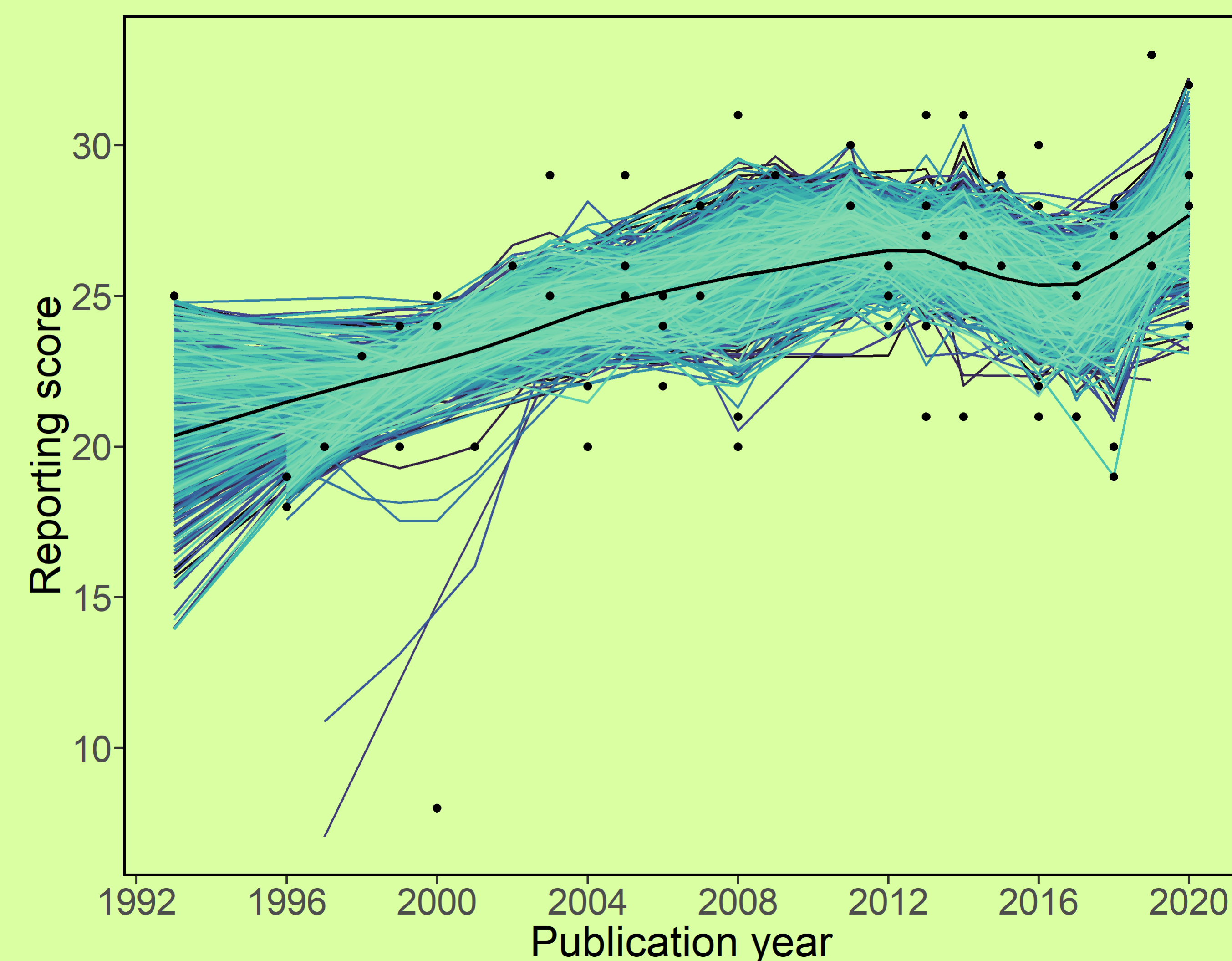


Figure 1: Evolution of reporting score in function of publication year. Colored lines represent 1000 bootstrap regressions and the black line is the overall regression. Dots are the score for each included articles.

Discussion

Our results generalize the low quality of reporting practices found in several fields of experimental and biological psychology to the field of ADE. Although we found a measurable and encouraging increase in the quality of reporting, there is still much room for improvement.

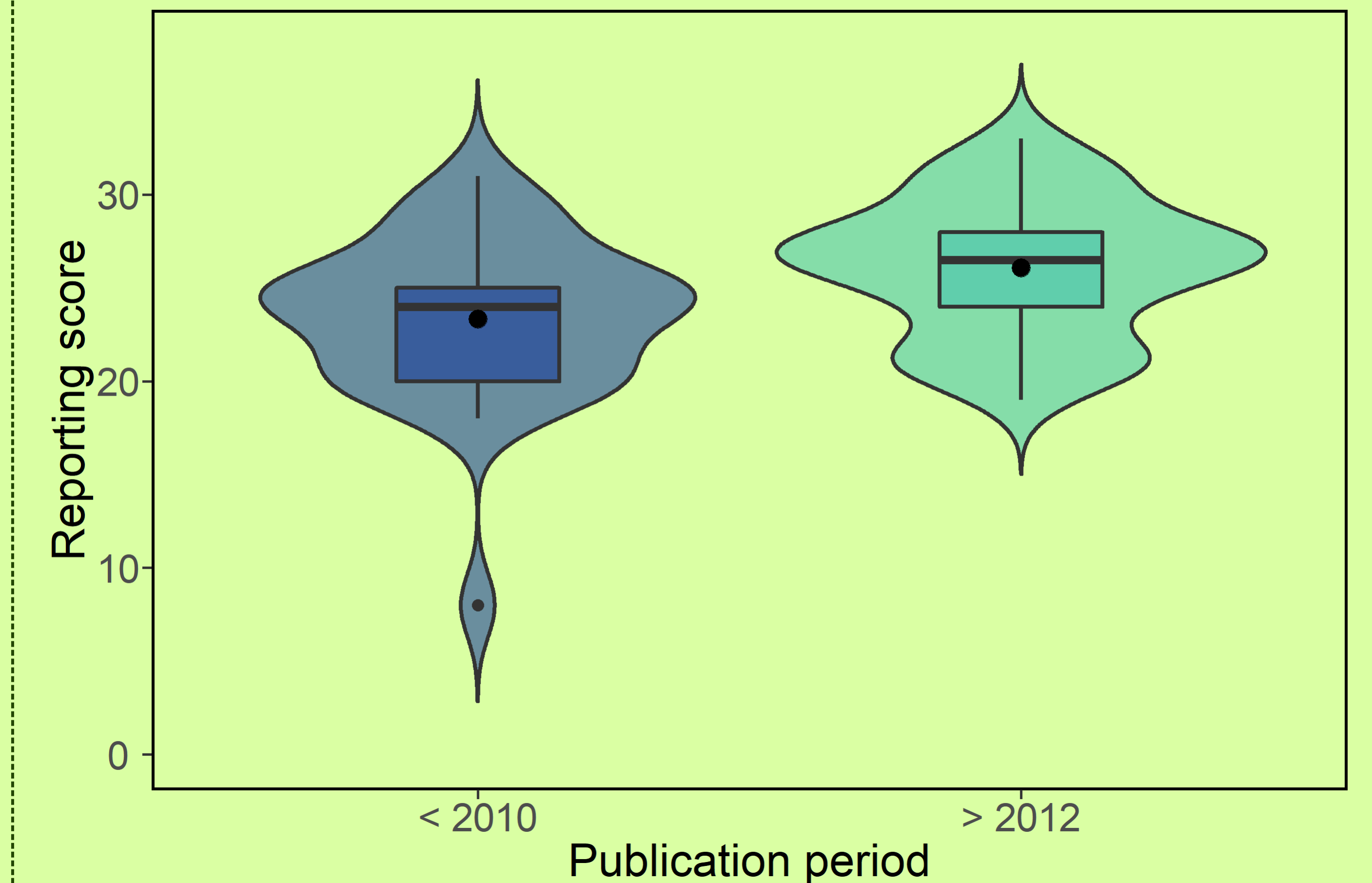


Figure 2: Violin plot and boxplot of < 2010 and > 2012 groups. The point in each boxplot represents the mean and the horizontal line represents the median. The median of the < 2010 group was 24 [IQR: 20;25] and the median of > 2012 group was 26.5 [IQR: 24;28].

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