Analysis of Publication Outcomes for Rejected Medical Manuscripts with Duplicate Submissions

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Abstract

【Objective】To enhance medical journal editors' ability to identify suspected academic misconduct submissions involving duplicate submission, and to provide references for improving the accuracy of initial manuscript review.

【Methods】Taking manuscripts rejected due to duplicate submission from the Journal of Sun Yat-sen University (Medical Sciences) between January 2021 and December 2021 as the research subjects, we tracked their publication status, analyzed duplicate submission behaviors, examined publication journal issues and database indexing status, and constructed a profile of first authors of suspected academic misconduct manuscripts involving duplicate submission.

【Results】In 2021, a total of 91 suspected academic misconduct manuscripts involving duplicate submission were identified as published after rejection, among which 55 had changes in author names and affiliations at the time of publication. Of the 91 published papers, 77 (84.6%) were published in various core journals: 27 (29.7%) in Peking University core journals, 17 (18.7%) in journals indexed in the Chinese Science Citation Database, and 68 (74.7%) in Chinese Science and Technology Core Journals. The profile of first authors of the 214 suspected academic misconduct manuscripts involving duplicate submission in 2021 exhibited the following characteristics: 60% were male and 40% were female; 54% held intermediate professional titles, 34% held associate senior professional titles, with some being current students; the vast majority held bachelor's and master's degrees; most were concentrated in tertiary hospitals in non-capital and non-municipality cities; most were clinical physicians, relatively concentrated in internal medicine, surgery, and radiology departments.

【Conclusion】It is recommended that medical journals strictly implement the three-review and three-proofreading system, and prevent academic misconduct through establishing technical processes for academic misconduct detection, strengthening academic integrity education for authors, and establishing an academic integrity alliance to share academic misconduct data.

Full Text

Analysis of Publication Status of Rejected Medical Manuscripts with Suspected Multiple Submissions

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Abstract

[**Purpose**] To enhance medical journal editors' ability to identify suspected academic misconduct in multiple submissions and provide reference for improving the accuracy of manuscript preliminary review. **Methods** This study examined manuscripts rejected from *Journal of Sun Yat-sen University (Medical Sciences)* between January and December 2021 due to suspected multiple submissions, tracking their subsequent publication status, analyzing submission behaviors, examining the journal issues and database indexing of published articles, and constructing a demographic profile of first authors involved in suspected multiple submission misconduct. **Results** In 2021, 91 suspected academic misconduct manuscripts were identified that had been published after rejection, with 55 showing changes in author names and affiliations at publication. Among these 91 published papers, 77 (84.6%) appeared in various core journals: 27 (29.7%) in Peking University core journals, 17 (18.7%) in Chinese Science Citation Database (CSCD) indexed journals, and 68 (74.7%) in Chinese Scientific and Technical Papers and Citations Database (CSTPCD) indexed journals. The demographic profile of first authors from 214 suspected multiple submission cases revealed: 60% male and 40% female; 54% held intermediate professional titles and 34% held associate senior titles, though some were still students; the vast majority held bachelor's or master's degrees; most were concentrated in tertiary hospitals in non-capital, non-municipal cities; the majority were clinical physicians primarily from internal medicine, surgery, and radiology departments. **Conclusion** Medical journals should strictly implement the three-review and three-proofreading system, establish technical workflows for academic misconduct detection, strengthen academic integrity education for authors, and form academic integrity alliances to share data on academic misconduct.

Keywords: medical journals; multiple submissions; academic misconduct; publication

Introduction

Academic misconduct refers to inappropriate behaviors in scientific research, including fabrication, falsification, plagiarism of data, and forging academic credentials or work experience, which may manifest as multiple submissions, falsified academic records, or ghostwriting services from paper mills [1-2]. To curb such misconduct, China has implemented measures at multiple levels: the Ministry of Education issued the *Measures for Preventing and Handling Academic Misconduct in Higher Education Institutions* in June 2016; the National Press and Publication Administration released *Academic Publishing Standards—Definition of Academic Misconduct in Journals (CY/T 174-2019)* in May 2019; the National Natural Science Foundation of China published the *Measures for Investigating and Handling Research Misconduct in NSFC Projects* in December 2020; and 22 ministries including the Ministry of Science and Technology issued the *Rules for Investigating and Handling Research Integrity Violations*. Despite these efforts, academic misconduct persists, seriously disrupting scientific research order.

Our research group previously analyzed characteristics of ghostwritten and agency-submitted manuscripts, proposing that academic misconduct cannot be judged solely through plagiarism detection software based on text similarity ratios [3]. Manual comparison of login passwords and multiple submission patterns is also required. Wang Jingzhou found that retracted papers from "paper mills" commonly exhibited image/table reuse, manipulation, plagiarism, or falsification [4]. Qi Lijuan et al. discovered that ghostwritten submissions accounted for 19.7% of all submissions to *Computer Systems and Applications* [5]. Wang Qinjian et al. tracked and analyzed manuscripts with multiple sales of single papers, finding that among 93 agency-submitted manuscripts rejected from their journal, 41 were subsequently published in the CNKI database, with only 6 maintaining consistent author names and affiliations [6]. While journal editors study paper mills, these mills also study journals, raising the bar for editorial offices to identify academic misconduct. To strengthen preliminary review and enhance editors' ability to identify misconduct, this study tracked the publication status of manuscripts rejected for suspected multiple submissions between January and December 2021 from *Journal of Sun Yat-sen University (Medical Sciences)*, providing a basis for more editorial offices to identify academic misconduct.

Methods

1.1 Study Subjects We selected all manuscripts rejected in 2021 from our journal due to suspected multiple submission misconduct and tracked their publication status. The specific procedure involved logging into the Academic Misconduct Literature Check System (AMLC), clicking "Manuscript Tracking," and setting the detection period to the entire year of 2021, which revealed 281 manuscripts simultaneously submitted to other editorial offices. Based on our previous research [3], submissions to more than four editorial offices within 30

days can be defined as suspected multiple submission misconduct. After manual screening and comparison, 214 of the 281 manuscripts were identified as suspected multiple submission cases, all of which were rejected by our journal. Since Li Geng's research found that the average publication delay for Chinese scientific journals is 357 days [7], we tracked the publication status of these 214 manuscripts through June 23, 2023.

1.2 Research Methods We searched for these 214 manuscripts in the CNKI full-text database using "title/abstract/keywords" and "subject" fields to track their publication status. If tracking was unsuccessful, we conducted advanced searches using the first author's name and affiliation. As AMLC's "Manuscript Tracking" indicated that some author names and affiliations changed during the submission process, we searched CNKI using both original and changed first author information. Only when publication could not be tracked through these methods was the manuscript considered unpublished.

Publication data were recorded in Excel, including: AMLC first detection time, author name at AMLC first detection, submission time to our journal, author name at submission to our journal, affiliation at submission, manuscript title, number of submissions by June 23, 2023, as well as publication details (submission time, publication time, author names, affiliations, title, and journal name). We compared and analyzed information from first submission, submission to our journal, and final publication.

To profile authors 倾向于 multiple submissions, we searched the 214 first authors' names individually in our editorial system to collect demographic information including affiliation, gender, discipline, professional title, and degree, constructing a group portrait of these suspected misconduct authors.

Results

In 2021, among 700 rejected manuscripts, 214 were suspected of multiple submission misconduct, with submission frequencies ranging from 4 to 77 times (median: 18). All were rejected before database entry, and 91 were subsequently published, yielding a publication rate of 42.5% (91/214) for suspected misconduct manuscripts. One of these 91 published papers was later retracted due to "research integrity issues."

2.1 Analysis of Submission Behaviors in 91 Published Manuscripts The 91 published suspected multiple submission manuscripts fell into four categories: Type A (36 manuscripts) showed consistent author names across AMLC first detection, submission to our journal, and final publication; Type B (23 manuscripts) had consistent names between AMLC first detection and final publication but different names at submission to our journal; Type C (21 manuscripts) had consistent names between AMLC first detection and submission to our journal but different names at publication; and Type D (11 manuscripts) had completely different names at all three stages (Table 1).

Our analysis revealed that Type A manuscripts had a median submission frequency of 17 (maximum: 51). One manuscript submitted 51 times showed submission patterns in AMLC of 5 times on June 18, 2021, 6 times on the 19th, 3 times on the 20th, 7 times on the 21st, and 9 times on the 22nd—behavior hardly credible as normal submission activity, strongly suggesting agency submission.

Authors of Types B, C, and D might exhibit 2-3 of these behaviors simultaneously. For example, "Zhong*chuan" in Table 1 exhibited both Type B and Type C behaviors. Type A authors demonstrated relatively singular submission patterns without BCD behaviors. The median submission frequencies for authors with BCD behaviors (24, 31, and 18 respectively) were higher than for Type A (17).

While some authors may have mismanaged their research data or experienced manuscript theft, all 91 published manuscripts exhibited multiple submission misconduct. Eleven manuscripts (12%) were submitted to over 30 editorial offices, inconsistent with normal author behavior. Therefore, these cases cannot be simply dismissed as mere multiple submission misconduct; we can reasonably speculate they involve more severe violations such as "paper trading" or "ghostwriting and agency submission."

During data collection, we identified several special cases (Table 2). In Case 1, AMLC detection occurred after publication, suggesting the publishing journal did not conduct AMLC screening, likely indicating the manuscript was exploited by a paper mill after publication. Case 2 involved a manuscript published as a conference abstract in CNKI in November 2019 under authors Lu* and Hui*, submitted to a university journal in December 2019, then submitted to our journal in January 2021 under author Du* with identical content. The final publication in June 2022 listed Hui* and Lu* as authors, with sample size more than doubled and substantial content changes. Considering the AMLC detection timeline, CNKI publication date, and significant content modifications, Hui* and Lu* were likely the legitimate copyright holders, with the manuscript possibly leaked during submission. The absence of the final publishing journal from AMLC's "submitted editorial offices" suggests either the journal did not use AMLC or substantial revisions prevented detection of similarity to the originally detected manuscript.

These findings suggest editorial offices should conduct plagiarism checks upon receipt to retain data alerting other journals to multiple submissions. However, editors must rationally interpret AMLC's "number of submitted editorial offices"—2-3 submissions alone should not trigger automatic multiple submission judgments. Comprehensive assessment combining AMLC first detection time, original author names, and submission patterns is necessary [8]. The results also remind authors to adhere to academic norms prohibiting multiple submissions and paper trading. Authors should avoid purchasing plagiarism checks from online platforms that may register manuscripts as "submitted," and instead use personal services offered by check providers. During revision and editing,

manuscripts should not be shared with unfamiliar websites or individuals.

2.3 Analysis of Publication Status in 91 Published Manuscripts We collected publication journals for the 91 manuscripts and analyzed their publication frequency and domestic database indexing. Seven were published in ten-day periodicals, 15 in semimonthly journals, 52 in monthly journals, 15 in bimonthly journals, and 2 in quarterly journals. Seventy-seven (84.6%) were published in various core journals (Table 3): 27 (29.7%) in Peking University core journals, 17 (18.7%) in CSCD-indexed journals, and 68 (74.7%) in CSTPCD-indexed journals; only 14 appeared in non-core journals. If our speculation about "paper trading" and "ghostwriting" is correct, core journals represent primary targets for paper mills, indicating that journals indexed in core databases must strengthen preliminary review to identify academic misconduct.

2.4 Demographic Profile of First Authors from 214 Suspected Multiple Submission Cases We identified 116 unique first authors from the 214 suspected cases. After excluding 16 with incomplete information, we analyzed 100 authors. This suspected misconduct author group exhibited these characteristics: 60% male, 40% female; 54% held intermediate professional titles and 34% held associate senior titles, with some students included; the vast majority held bachelor's or master's degrees; most worked in tertiary hospitals in non-capital, non-municipal cities; the majority were clinical physicians concentrated in internal medicine, surgery, and radiology departments (Table 4). These findings suggest editors should pay special attention to manuscripts from non-capital/non-municipal tertiary hospitals, with first authors holding intermediate to associate senior titles, bachelor's or master's degrees, and content related to internal medicine, surgery, or radiology.

Recommendations

Academic journals serve as the final gatekeepers before research publication, and editors bear responsibility and obligation to participate in frontline misconduct prevention. We propose three recommendations from the journal perspective to prevent academic misconduct.

3.1 Implement Three-Review and Three-Proofreading System, Establish Academic Misconduct Detection Workflow From manuscript submission, editors should conduct academic misconduct detection before database entry, during initial review, and at proofreading stages, followed by manual comparison (Figure 1). Before entry, editors should examine whether author registration email addresses follow patterns or contain suggestive abbreviations like "tg" (submit) or "yxtg" (medical submit), encouraging institutional email use; verify whether phone numbers are personally registered or virtual numbers; check ID numbers for authenticity; assess authors' qualifications to conduct the reported research; examine formatting and biography presentation styles—if not

following journal templates, note whether multiple manuscripts from different authors, regions, and specialties share similar formatting; verify whether fund project leaders and participants are manuscript authors. During plagiarism checking, multiple systems should be used simultaneously, combined with manual comparison. However, high text similarity alone or suspicious ID numbers cannot serve as sole evidence for misconduct determination—comprehensive manual assessment is required.

After entry, during the three-review process, editors should particularly examine data consistency throughout manuscripts, such as whether patient enrollment numbers, animal group sizes, and totals remain consistent; review standard deviations and test statistics for statistical logic [9]; examine images for reuse, translation, rotation, or stretching [10].

After acceptance, during typesetting and proofreading, editors should conduct secondary plagiarism checks to prevent publication by other journals during the review period; further verify color images; check for author or fund additions/changes and altered author order; compare processing fee transfer records to identify whether multiple manuscripts from different authors and regions use the same payment account.

3.2 Strengthen Academic Integrity Education for Authors Preventing academic misconduct requires addressing root causes through author education [11]. Our previous research demonstrated that regular academic norm education can reduce misconduct to some extent [12]. Author misconduct can be categorized as intentional or unintentional based on subjective intent. Our findings indicate that working professionals with intermediate to associate senior titles, financial independence, limited spare time, but urgent need for advancement often become targets for paper mills (Table 4). For those intentionally committing misconduct, no amount of education can prevent violations. However, our survey revealed that confusion about academic norms and integrity concepts concentrates among senior graduate supervisors, causing unintentional misconduct [13]. Academic norm education serves crucial early warning and assistance functions for this group. These individuals completed their education before China clearly defined academic norms, with their understanding largely dependent on their research group's emphasis on standards. As Chinese core journals offer limited career advancement for this group, they often serve as corresponding authors on manuscripts primarily completed by graduate students or junior researchers. Without proper academic norm education and clear understanding of misconduct, they may inadequately supervise manuscripts, leading to academic misconduct when first authors also lack clarity. Therefore, journals should regularly publish academic integrity cases and commentary via WeChat or video platforms and conduct integrity workshops and training sessions [14] to enhance author awareness.

3.3 Establish Academic Integrity Alliance to Share Misconduct Data
Ghostwritten and agency-submitted manuscripts severely disrupt the research environment and publication order. Case 1 in Table 2 was submitted 42 times by an agency—most journals would reject manuscripts detected by over 40 editorial offices as multiple submissions. With sufficient manuscript sources, editorial offices typically won't invest time in suspected multiple submissions. If agencies obtain manuscripts through irregular channels and resell them, interfering with normal publication, the impact on original authors would be devastating. In 2021, Xiangya Hospital of Central South University led the establishment of the China Hospital Research Integrity Alliance, with 36 hospitals from 19 provinces as founding members. Sun Yat-sen University established the Medical Journal Alliance in 2022 to further open journal management concepts, explore resource-sharing mechanisms, and build a first-class medical journal cluster. Within the alliance, members can adopt a "Declaration Against Academic Misconduct," refuse misconduct submissions, share information on "suspected misconduct" authors and manuscripts, and conduct editor training to enhance identification capabilities. However, shared information and common authors within industry alliances remain limited. Developing a national-level big data comparison system for submitted manuscripts [8] to achieve intelligent sharing of academic misconduct data [15] would further maintain a clean research environment and publication order.

Conclusion

This study, from a single-journal perspective, examined rejected multiple submission manuscripts from 2021, tracking their publication status, analyzing submission behaviors, examining database indexing of publishing journals, and constructing demographic profiles of first authors involved in suspected misconduct. Limitations include using only one year of data and incomplete author information in our editorial system, resulting in missing samples for the demographic profile.

The data presented here, merely the tip of the iceberg, are already alarming. Editorial offices have no authority over rejected suspected misconduct manuscripts. We call upon academic journals to establish and implement academic misconduct detection workflows enabling editors to conduct plagiarism checks and manual comparisons upon receipt; strengthen author academic integrity training within capacity; and form academic integrity alliances to share misconduct data, thereby preventing publication and dissemination of academic misconduct.

Author Contributions

Yu Jing: Conceptualized research direction, designed methodology, drafted and revised manuscript, finalized manuscript;
Wu Jiajia: Collected data on 91 published cases, analyzed data, created tables and figures;
Sun Huilan: Collected demographic data on 214 multiple submission cases,

analyzed data, created tables;
Xu Jie: Conceptualized research direction, participated in manuscript review;
Gao Guoquan: Designed methodology, participated in manuscript revision and review.

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Note: Figure translations are in progress. See original paper for figures.