Introduction

With the advancement of tools for gaining knowledge, we have access to data with larger complexity and information. To understand the structures of the acquired knowledge, the data have to be analyzed, and this analysis can only be performed using statistical tools. Unfortunately, in the process of employing statistical methods in scientific research, inappropriate applications can be encountered. When statistical errors are committed, both scientists and users of scientific findings are exposed to the negative consequences [1]. Mistakes and errors occur if a rule, a principle or a fact is violated in some way. When this situation occurs purposefully or unknowingly, it is defined as a "mistake" or "error", respectively. Consequently, ethical problems arise when either "errors" are committed or "mistakes" are made. Based on investigations of errors in the scientific process, the causes can be classified into the four groups:

a. Not consulting a specialist on the topic,
b. Falsely assuming that it is known,
c. Not having adequate knowledge, and
d. Carelessness.

While errors can be application-related, they can also occur at different stages of the study such as planning, implementation, analysis, interpretation, and presentation, all of which are related to the statistical topics. The statistical errors in the study process can be categorized as the ones that occur
i. In the research process (before reporting) and
ii. In presentations or publications.

Some statistical errors in a publication can be assessed, while some others cannot be. In publications, not all of the statistical quantities can be checked; it is only possible to check the accuracy of some of the statistics via reported descriptive values. In addition, some terminology, demonstration and interpretation errors can be identified. As such, discussions related to the statistical errors in publications are limited to errors that can possibly be determined.

When we evaluate the statistical errors that are committed in published articles in terms of their effects on the study results, we need to acknowledge the fact that some of the errors
a) Are directly pertinent to the results, some of them,
b) Occur in demonstration and terminology only and do not affect the results.

Reviewers are expected to take part in the task of prevention of statistical errors in publications. The reviewer of a manuscript, who is an expert in the subject matter areas related to the evaluation, should request from the editor that the manuscript be reviewed by a biostatistics specialist. The most important factor in preventing statistical errors in publications is having the editor submit all manuscripts for a statistical review. Nothing can be done for errors that cannot be detected in the process of publication; nevertheless, prospectively speaking, it is important that the journal editors publish papers that carry educational qualifications on statistical topics, and are oriented towards statistical errors committed in research studies, in the sense of informing the researchers and drawing attention to the topic.

Keywords: Statistical Errors; Statistical Review; Publication Review.
Statistical Errors in Medical Publication

classifications can be outlined based on various studies that unique definition of either "statistical error" or "statistical error rate" [2]. The statistical errors committed in the journals in the medical field can be summarized under the categories below [3]:

A.

Statistical technique used but not defined,
Insufficient data presented for the statistical test,
Statistical technique defined but not used,

C.

Incorrect and insufficient demonstration of descriptive analyses could be a waste of time and financial resources, and most importantly, considering scientific ethics, it is detrimental to the scientific concepts and to humanity. Even when a study be reviewed by a biostatistics specialist. From researchers’

(i) Are directly pertinent to the results, some of them
(ii)

At the publication stage, the last stage of a study, which has been reached after overcoming huge difficulties, three

1) 
2) When these errors are identified during the reviewers’ assessment, they will cause a loss of academic confidence
3) loss of an author’s academic credibility.

Statistical technique used but not defined,
Insufficient data presented for the statistical test,
Statistical technique defined but not used,

the submitted manuscripts are first assessed by a biostatistics manuscripts first to the biostatistics reviewer rather than

Copyright ©2015 Ercan et al.
10.15406/bbij.2015.02.00021
2) Knowledge of basic biostatistics
3) Consultation with a biostatistics specialist in the planning, analysis and interpretation stages of the research
4) Review by a biostatistics specialist before submitting the manuscript to a journal
5) The statistical approach from other similar research studies should not be copied
6) Avoiding overreliance and overconfidence on “user friendly” software programs just by ease they seem to provide
7) When writing the manuscript, avoiding a “copy-paste” approach

Conclusion
All in all, the most important factor in preventing statistical errors in publications is having the editor submit all manuscripts for a statistical review. Nothing can be done for errors that cannot be detected in the process of publication; nevertheless, prospectively speaking, it is important that the journal editors publish papers that carry educational qualifications on statistical topics, and are oriented towards statistical errors committed in research studies, in the sense of informing the researchers and drawing attention to the topic.

Acknowledgement
None.

Conflict of Interest
None.

References