Новые подходы к оценке исследований в области здравоохранения

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Довести до сведения

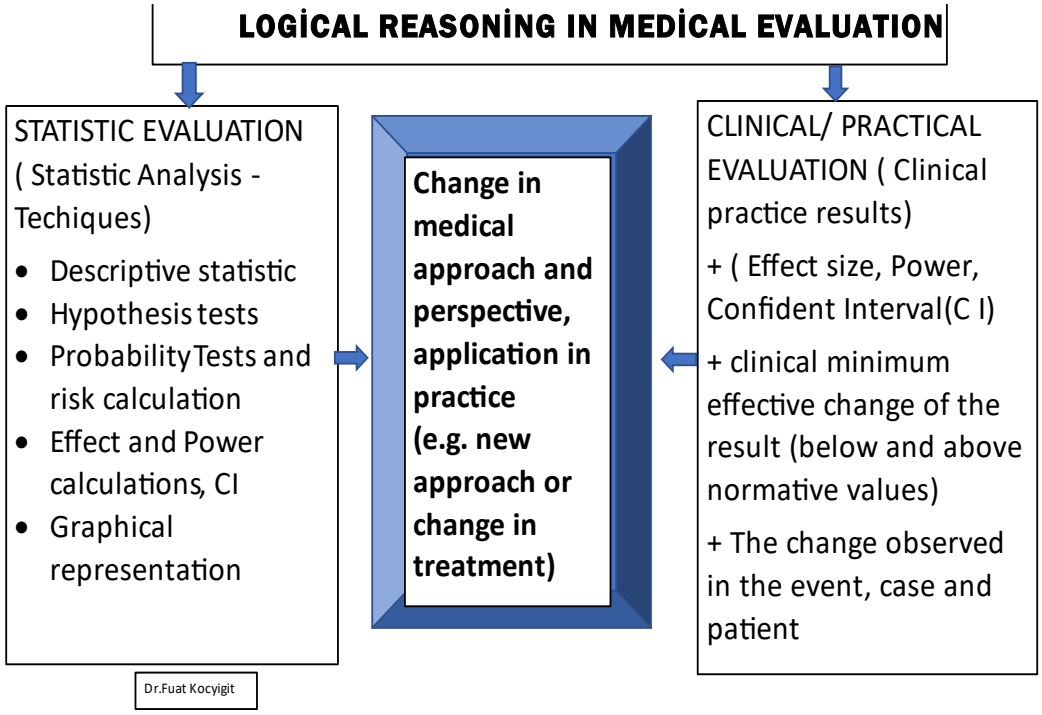
Nowadays, the debate in research environment about the impact of the P value on research results seems to have progressed to the point of rejecting the P value and even the application of hypothesis tests. Even more exaggerated are developments that almost lead to rejecting statistical evaluations in research. The reason is the claim that statistical results are not compatible with clinical results. Our view of the comments on the subject is, of course, that the understanding of neglecting statistics in all studies and making progress only with clinical experiences is a return to the period of development in medicine, and even in science, to the beginning of the new era 300 years ago. Because rejecting the opportunities provided by mathematics in research means rejecting the developments in medical science. If we look at the issue more realistically, we do not have the opportunity to apply all the research done in medicine on the population, and in addition, we cannot think that all research related to the solution of the research problem does not contain any errors. In a phenomenon that is constantly changing and where many active factors, internal or external, are effective, we cannot consider the flawless, measurable effect of all factors.

When we add to our predictions the evaluations we obtained from the opinions of other authors, we must say that the source of the errors we encountered in the research results is not just about using hypotheses and leaving the entire decision regarding the results to the (P) value. We collected the source of the error in 3 stages of the research activity. We stated that the errors in the first stage are mostly caused by creating more problems, the design of the experimental group or data to be studied, and choosing the appropriate analysis technique. In the second stage, the resulting errors are related to the inadequacy of statistical techniques that have not yet completed their development process but are being developed with new software programs. Of course, interpreting the statistical calculation that determines the (P) value as stated by the researchers as falling at least 2 or 3 standard deviations away from the mean as meaning that the error is not coincidental, and strictly limiting this decision area to 2 standard deviations of the test, seems even contrary to the nature of research. More flexible and

functional evaluations of this gap are now proposed, with range comparisons such as effect size and Confidence interval (CI) providing more direct comparisons between variables such as mean, ratio, correlation coefficient, regression coefficient or variance. On the other hand, approaches such as Bayesian analyzes applied to examine the result under known probability conditions, such as model proposals that include combinations of variables suggested by Hayes and the structural equal model, aimed at revealing the effects of more factors related to the phenomenon, seem promising. Our expectation from these developments is to achieve more reliable results regarding case analysis and decision-making by creating new combinations or algorithms with new software. Although the issue is not clearly stated, the main reason for the discussion is the understanding that statistical significance findings and clinical results are not compatible. This may be thought to be due to the more flexible structure of clinical results, which have not yet been fully standardized, compared to mathematical results based on precise measurement of statistical findings. In order to close this difference, Some also come across the view that the experimental results have an individual effect and recommends the (D) value instead of the (P) valu e (In fact, the central measures used in the techniques we carry out hypothesis testing are obtained using the data of all individuals in the research set. , Another view is that clinical results should be used as repeated evaluation. This is already included in statistics programs. In our opinion, the compatibility of clinical results and statistical findings remains a matter of study. Because, at this point, two issues are waiting for solution. First, the response of participants exposed to the same effect to the application is not always in the direction of improvement or regression. the variable value measured at the beginning of the research may be below or above the average, regardless of direction. In group comparisons, this difference may be perceived as a limiting situation in the application of statistical results to clinical results. The second important issue is that in the application of research or findings obtained from research, the answers given by the participant are not just changes that can be expressed in absolute numbers. Nowadays, cancer or any organ dysfunction evaluations are expressed with numerical grading, however, it will be necessary to give an exact value regarding the mathematical measurement of changes such as psychological morale, mobility, social recovery. Another issue, as is known, is that in clinical research, all the factors included in the test are evaluated. Only central tendency measures can determine the amount of changes in factors, their units, and the values between the upper limit and lower limit in the data set. In this case, it may be necessary to classify the distance between two limits as cells or cutoffs. It seems that harmonizing statistical analysis techniques with clinical values by categorizing them will undoubtedly require the cooperation

of software developers, mathematicians interested in statistics, and physicians. Finally, the issue that needs to be discussed is that with today's technological opportunities in health sciences, it is possible to obtain very large data in a short time, especially on epidemiological research. On the other hand, it is stated that existing hypothesis methods respond more appropriately to small population or sample studies Working with very large data obtained may require a different approach. Because it is debatable how reliable results will be obtained by applying today's statistical techniques to large data as ratios or by reducing them. This issue also needs more explanation in medical statistics. Considering the current situation, the following table 2 has been created to consider the statistical analysis results and clinical and practical evaluations together. In other words, a common understanding can be created by considering evaluations from both sources together.

Table 2 : Combination of Statistic Analysis Between Clinical and Practical Evaluation,



As a result, although we agree with the criticism in some circles that all studies are conducted to find the (P) value significant, it would be more useful to develop methods that will evaluate both methods together, instead of choosing one of statistical significance and clinical significance over the other, in order to obtain more efficient results in medical statistics. We are of the opinion.