

					II-B-2
제목	국문	인터넷 웹상에서의 메타분석을 위한 MetaKorea의 개발 및 적용			
	영문	Development and Implementation of MetaKorea for Web-Based Meta-Analysis			
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<p>1. 목적</p> <p>Worldwide, quantitative meta-analysis is gaining in popularity over traditional narrative as a rigorous method to integrate results from multiple primary studies. It is hoped that meta-analysis will gain increased prominence in the fields of health and medical research as more investigators become aware of the option of using software systems designed specifically to perform the full complement of meta-analytic calculations. To overcome the demerits of the exiting software available including EasyMa et al. during the last twenty years, we have been attempting to develop a automation system for meta-analysis utilizing an internet web-server and by sharing interdisciplinary information. Therefore, the purpose of this study was to develop a meta-analytic software program (MetaKorea) designed to perform these statistical computations through an internet web-server. This program will help to support the web-based education and research.</p> <p>2. 방법</p> <p>To undertake this study, firstly, an extensive literatures search, with priority given to Korean and International Journals (fields of study including trends of preventive medicine research according to The Korean Journals of Preventive Medicine, the association between bladder cancer and Glutathione S transferase mu genetic polymorphism, ambient air pollution in relation to daily mortality in Seoul, the risk factors of cerebrovascular disorders and coronary heart disease, body mass index in breast cancer prognosis, the association between chronic noise exposure and blood pressure, etc.), was conducted on publications from 1980 to 1999. As well, critical reviews and syntheses considering the common odds ratio, average standardized mean difference, weighted regression coefficient and standard error, etc., were used to evaluate the empirical evidence and significant outcomes of some diseases. Secondly, the available software for meta-analysis (including EasyMa, Meta-Analysis0.998, MetaWin, meta-analytic software system using SAS-DOS in Korea, etc.) was critically reviewed.</p>					

### 3. 결과

#### 1. Experience of meta-analysis:

Studies of a topic are first systematically identified. Criteria for including and excluding studies are defined. In traditional meta-analysis, data from the eligible studies are abstracted or collected from the investigators in the study. The data are then analyzed. The analysis includes statistical tests of the heterogeneity of the study results, and, if the results are homogeneous, estimation of a overall estimate of the size of the effect of treatment. If the studies are not homogeneous, clinically or statistically, the heterogeneity is explored. We have published eight articles related with quantitative meta-analysis.

#### 2. Development of MetaKorea:

According to the outcome of these process, we have taken the input and output for developing MetaKorea. Following these meta-analytic experiences and a critical review of available software for meta-analysis, we found that many modern meta-analysis techniques were not specifically supported by leading statistical software packages. This could make their implementation problematic (including single user systems, older versions, the performance of only fixed-effect analyses, the loading of data from a specifically structured text file, etc) for researchers who are not statistical experts. Consequently our project team is developing the first version of MetaKorea using the flow chart below Both fixed-effects and random-effects models can be calculated for two different types of data structure: categorical data (two x two contingency data) and continuous data (regression coefficient). Specially, categorical data can be calculated using the Mantel-Haenszel, Peto, and rate difference methods. This consists of five different modules: engine design, user interface, input data handling, meta-analytic model testing, and meta-analytic graphics display. Therefore, this MetaKorea menu consists of four main networks: Input/Output consists of Interface Unit, Function processing Unit, User Interface processing Unit, and DB processing Unit. Categorical data and continuous data can be input directly into the MetaKorea spreadsheet. The address of the site where this program is running is <http://www.metakorea.or.kr/> with Linux operating system and MySQL DB.

#### 3. Running MetaKorea:

You can start MetaKorea the same way you start any Internet-based application by entering the MetaKorea program icon in Explorer. The Start-Menu/Main Dialog tree window of MetaKorea is visible upon start-up. This window is a shell that contains all subsequent program windows. When first opened the estimation menu of effect size as a sample, the Estimation-Menu tree is visible in the Main Dialog window. And so when selected subsequently by double-clicking the 2x2 contingency table bar, the 2x2 Data Input window, the 2x2 Data Spreadsheet window by study subject, the 2x2 Output window, and the 2x2 Individual Study Output and Graphics window is visible in the Main Dialog window.

### 4. 고찰

#### 가. Discussions and Conclusions:

This program represents the initial stage of software development of a Korean version for meta-analysis. Therefore, it is our hope that the many beta-testers

(both individuals and meta-analysis workshop participants) may find further errors from carefully plodding through the seemingly endless list of options as they have been a consistent source of comments and recommendations for the improvement of our programming. In conclusion, we also would like to see the advancement of the various studies which are using MetaKorea. This program will help to support the web-based education and research.

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