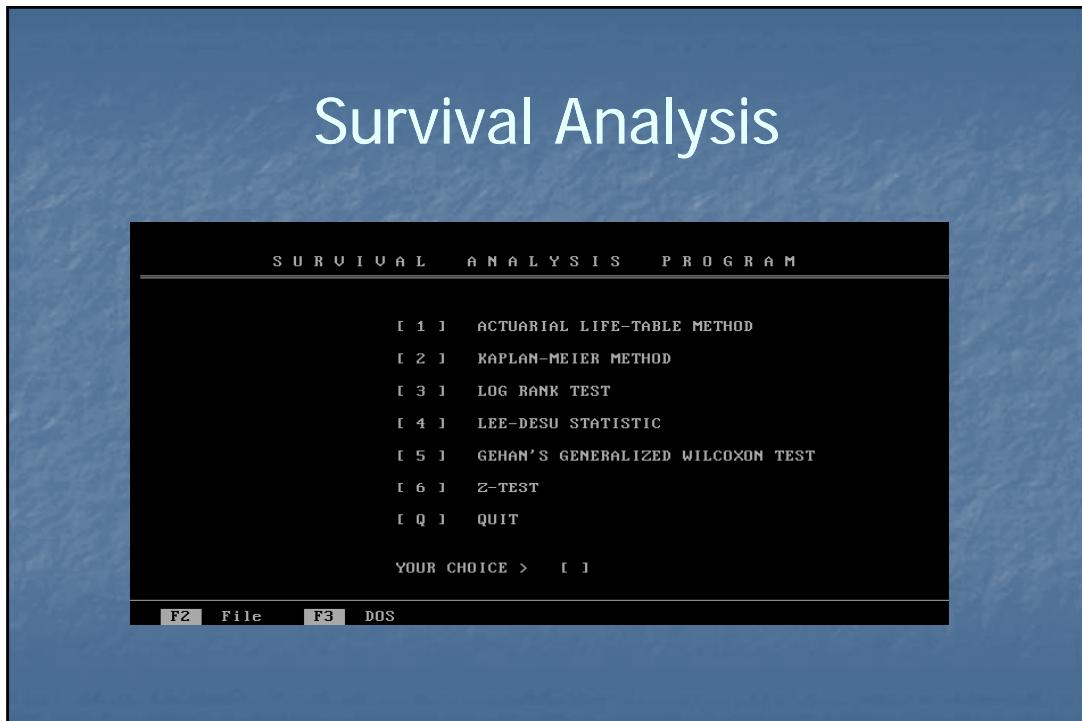


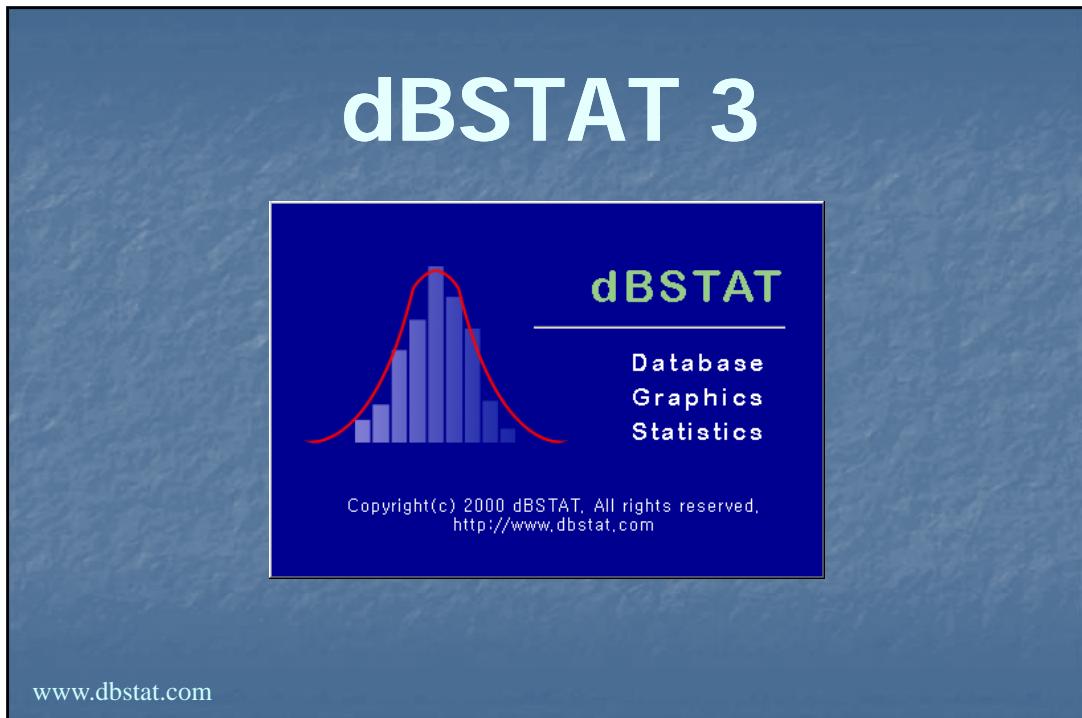
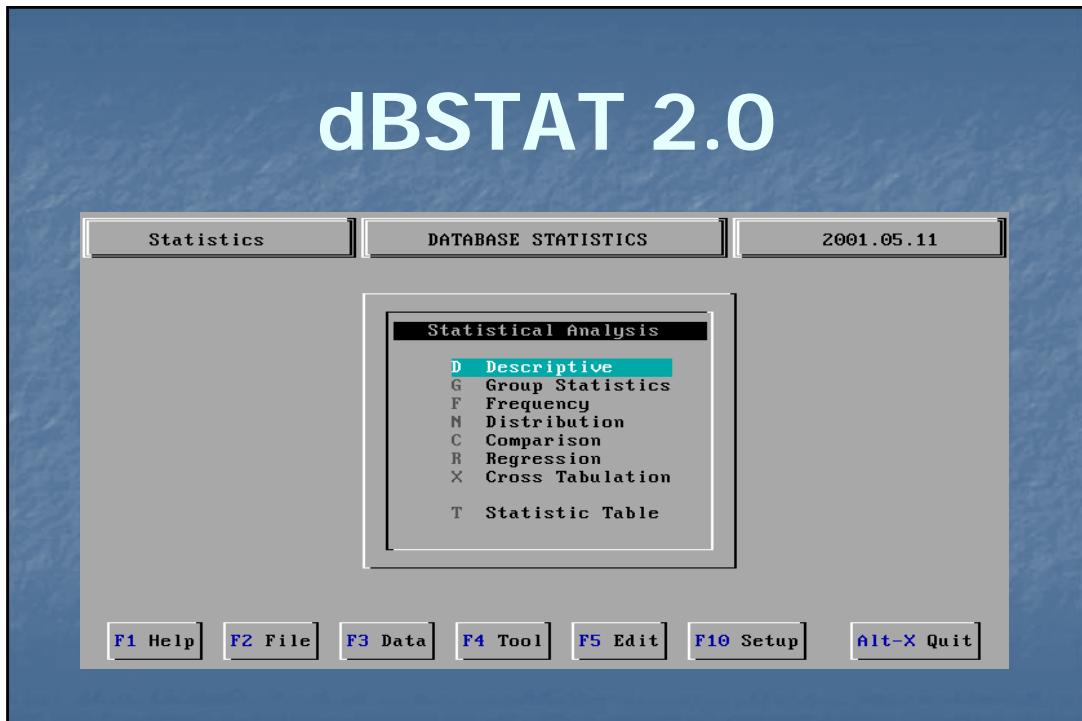
# **dBSTAT**

## **Statistical Package for Biostatistics**

### **Software Development**

- 1990 Survival Analysis Program
- 1992 dBSTAT for DOS 1.0
- 1993 Database Statistics Made Easy (Book)
- 1996 dBSTAT for DOS 2.0
- 2000 dBSTAT for Windows 3.0
- 2000 dBSTAT Homepage <http://www.dbstat.com>
- 2002 dBSTAT version 4.0
- 2006 dBSTAT version 4.5
- 2010 dBSTAT version 5





www.dbstat.com



www.dbstat.com

A screenshot of the dBSTAT Homepage. The main title "dBSTAT Homepage" is centered at the top in white. To the left is a vertical navigation menu with icons and text links: Home, Products, Downloads, WebBoard, LinkSite, and E-mail. The number "012587" is also present. The main content area features a "Products" section with a "Welcome to the dBSTAT web site." message. It mentions that dBSTAT is integrated software for database, statistics, and graphics analysis, and encourages users to send suggestions via Webboard or E-mail. Below this is a "Software" section featuring a thumbnail of the software interface and links for "Download" and "More Info". The final section is a "Book" section showing a thumbnail of a book cover and a small cartoon character. At the bottom, there is copyright information: "Copyright(c) 2000 dBSTAT. All rights reserved." and the email address "webmaster@dbstat.com".

**Indian Pediatrics**

Pedscapes

Indian Pediatrics 2002; 39:608

**Statistical analysis made easy**

A listing of various statistical analysis software available for download from the Internet are given below. Most of the statistical analysis software are shareware, demo or trial versions, implying that after a month they need to be purchased. Hence, it may be possible to access the complete features only for about a month after which some features may be deactivated.

**Epi Info** - [www.cdc.gov/](http://www.cdc.gov/) Though this has been mentioned previously in pedscapes, any listing of statistical packages is not complete without Epi Info. The two latest versions available presently are Epi Info 6.04 and Epi Info 2000. While Epi Info 6.04 is Dos based, and permits designing of questionnaires and complete statistical analysis, Epi Info 2000 is windows based and has in addition the *NutStat*, a nutrition anthropometry program.

**Statcalc** - [www.actastat.com](http://www.actastat.com). StatCalc allows various descriptive statistics, t-tests, ANOVA, z-tests, chi-square, correlation, and bivariate regression and sample size estimation. A *Stat Tutor*, which teaches the use of StatCalc modules and also basic statistics, is an interesting feature. This is a shareware and needs to be purchased after a trial period.

**Analyse-It for Excel**: [www.analyse-it.com](http://www.analyse-it.com). Analyse-it is an add on to the popular MS-Excel. Analyse-it loads with Excel and performs various statistical tests including parametric and non-parametric procedures, descriptive statistics, testing normality, comparing groups, correlation, and regression. Using the software has been made easy by the provision of tutorials. Data entry through MS Excel is a useful and user-friendly feature of this package.

**DBstat** - [www.dbstat.com](http://www.dbstat.com). Certain features like the help menu and the print command of the trial version of DBstat have been disabled. However, despite these shortcomings, use for an unlimited period has been permitted. Data entry is in Excel format and hence convenient. The full version needs to be purchased.

**Minitab** - [www.minitab.com](http://www.minitab.com). Minitab Statistical Software permits various basic and advanced statistical analysis and generation of graphs. The demo version is available for download from their website.



EXPLORE NUMBER 117 PAGE 25

**Software Recommended for Geochemists**

Product	Description	Cost US \$
<b>STATISTICS</b>		
<i>Fully featured commercial statistical packages with numerous statistical processes, data management and graphing</i>		
Statistica	<a href="http://www.statsoft.com">www.statsoft.com</a>	\$1190
Statgraphics	<a href="http://www.statpoint.com">www.statpoint.com</a>	\$1195
Systat	<a href="http://www.systat.com">www.systat.com</a>	\$1299
SPSS	<a href="http://www.spss.com">www.spss.com</a>	\$1498
<i>Cheaper commercial, shareware and free statistical applications. They provide an adequate range of statistical functions but lack the fancy graphs</i>		
Xlstat	Statistical add on for Excel. <a href="http://www.xlstat.com">www.xlstat.com</a>	\$195
NCSS	Full range of statistical functions. <a href="http://www.ncss.com">www.ncss.com</a>	\$399
DBStat	Shareware stats package which operates on Dbase files. <a href="http://www.dbstat.com">www.dbstat.com</a>	Shareware
Openstat2	Full range of univariate and multivariate stats. Uses csv text files for input and output. <a href="http://openstat.homestead.com/OS2.html">openstat.homestead.com/OS2.html</a>	Freeware
<b>GRAPHING</b>		
SigmaPlot	One of a number of top end scientific graphing packages. Difficult to justify at the cost for normal geochemical work where the graphing is best provided by Excel, the packages below or a statistical package if you go for the top end products. <a href="http://www.spss.com">www.spss.com</a>	\$699
Grapher	Comprehensive graphing package with a wide range of plot types including box and whisker plots, ternary plots and rose diagrams. <a href="http://www.goldensoftware.com">www.goldensoftware.com</a>	\$299
Harvard Chart XL	Low cost simple to use (csv text data files) Numerous plot styles including Box and Whisker. <a href="http://www.harvardgraphics.com">www.harvardgraphics.com</a>	\$135



*The Korean Journal of Pathology*  
2004; 38: 259-64

## Evaluation of Self-collected Pad Sampling for the Detection of HPV In Cervicovaginal Secretion

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Dae Shick Kim<sup>1</sup> · Jung Won Lee<sup>2</sup>  
Chang Soo Park<sup>1</sup> · Duk Soo Bae<sup>2</sup>  
Hyen-Ji Lee<sup>3</sup> · Kyung-Tae Kim<sup>3</sup>  
Oh-Joong Kwon<sup>1</sup> · Eun-Seop Song<sup>4</sup>  
Hee Jae Joo<sup>5</sup> · Gheungwhan Ahn<sup>1</sup>

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**Background :** Self-collection of secretion samples for HPV testing is a feasible alternative method for women who would decline to participate in population based cervical cancer programs. The purpose of this study was to determine the sensitivity and specificity of self-sampling for HPV in determining high grade squamous intraepithelial lesion (HSIL) using the pad, and we also wished to compare the results from samples collected by women themselves and those results from samples collected by physicians. **Methods :** Fifty patients voluntarily participated in the sensitivity and specificity study at the university hospitals and 290 volunteers participated in the agreement study at local clinics. DNA was extracted and amplified using HPV L1 consensus primers for the direct sequencing of the pad samples. **Results :** For the detection of HSIL, self-collected pad sampling showed good sensitivity (75.0%) and excellent specificity (100%). Two hundreds eighty-six samples from the pads and concurrent physicians' samples showed the agreement at 98.6% with the Kappa, 0.9622 ( $p<0.0000$ ). **Conclusions :** A self-sampling method using the pad for the detection of HPV DNA is suggested to be an efficient method to access many women for screening easily, rapidly and conveniently. Testing the pad method's utility for a country- or large area-based mass screening study will be necessary in the future.

### Statistical analyses

The sensitivity, specificity and Kappa analysis were performed using dBSTAT for windows (version 4.0, [www.dbstat.com](http://www.dbstat.com)) com-

Neuroscience Letters 447 (2008) 1–6

Contents lists available at ScienceDirect  
 Neuroscience Letters  
journal homepage: [www.elsevier.com/locate/neulet](http://www.elsevier.com/locate/neulet)

**Dysfunction of the neural network associated with sustained attention in cancer patients with clinically significant depressive symptoms**

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<sup>a</sup> Department of Breast and Endocrine Surgery, Hallym University Sacred Heart Hospital, Anyang, South Korea  
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**ARTICLE INFO**

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**Keywords:**  
Depressive symptoms  
Attention deficit  
Prefrontal dysfunction  
Breast cancer

Independent-samples *t*-tests were used to compare age, education, assessment interval, and symptom severity scores between the depressed and nondepressed groups. Results with normal distributions are presented as mean  $\pm$  standard deviation (S.D.) values. The chi-square test was used to compare the distribution of cancer stage between the two groups. Pearson correlation analyses were performed to examine any correlations of behavioral performance of the task with regional FDG uptake or depressive symptoms severity of the subjects. Statistical analyses were performed using DBSTAT software (Windows version 4.0, <http://www.dbstat.com/intro-e.html>). Results were considered significant when the two-sided probability was less than 0.05.

## What is dBSTAT ?

- ❖ DATABASE STATISTICS
- ❖ The BIO STATISTICS
- ❖ Major Features
  - ✓ Database - DBF / Excel
  - ✓ Statistics - Biostatistics
  - ✓ Graphics - Graphics Server

You Will Need  
Data Management Skills



# Data Management



## Data Management Process

Data Collection

Data Entry Screen

Data File

Clean Data

Recode / Transform

# Data Management Process

## Data Collection

- Interviews
- Questionnaires
- Record reviews
- Observations
- Electronic download of data

# What is Database?



## Statistics and Data

- Statistics
    - The mathematics of the collection, organization, and interpretation of numerical data
    - Statistic – a single bit of data
  - Data
    - Information, especially information organized for analysis or used as the basis for a decision; numerical information
  - Database
    - Data bank, a collection of data often arranged for ease and speed of retrieval

# Database System

# Data Management Questionnaire

- Age ( ) yr
- Sex
  - male (1) --- ( )
  - female (2) --- ( )
- Height ( ) cm



## Example: Data Management

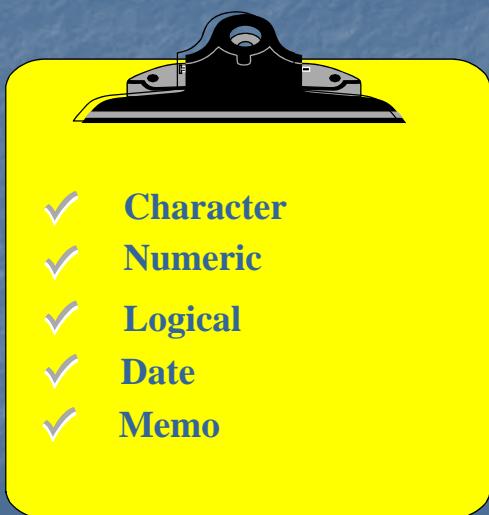
ID	AGE	SEX	HEIGHT
1	35	1	172
2	23	2	168
3	25	2	170
4	27	1	163
5	52	1	180
6	40	2	158

## Variables, Cases and Values

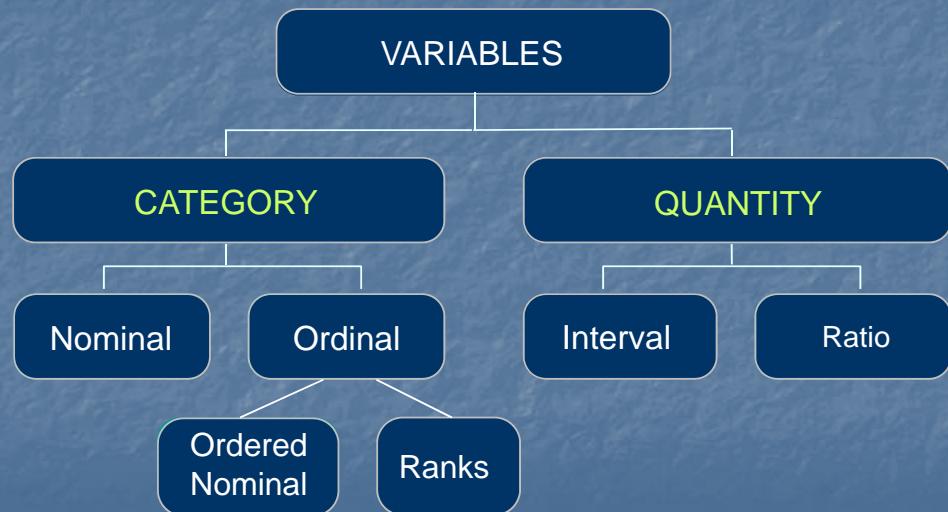
Case	Variable 1 Age	Variable Sex	Variable 3 Height
1	35	1	172
2	23	2	168
3	25	2	170
4	27	1	163

Record/Row → Field/Column ↓ Cell/Value

## Field Type



## Statistical Variables



## Data Management Process

Database Software

- ❖ Access
- ❖ dBASE
- ❖ FoxPro
- ❖ FileMaker Pro

# Data Management Process

## Statistical Package

- ❖ Export data to statistical package
- ❖ Import data from statistical package
- ❖ Use statistical package

## Statistical Variables

<i>Variables</i>	<i>dBSTAT</i>	<i>EXCEL</i>	<i>SPSS</i>
Nominal	Character	Numeric	Numeric
Ordinal	Numeric	Numeric	Numeric
Interval	Numeric	Numeric	Numeric
Ratio	Numeric	Numeric	Numeric

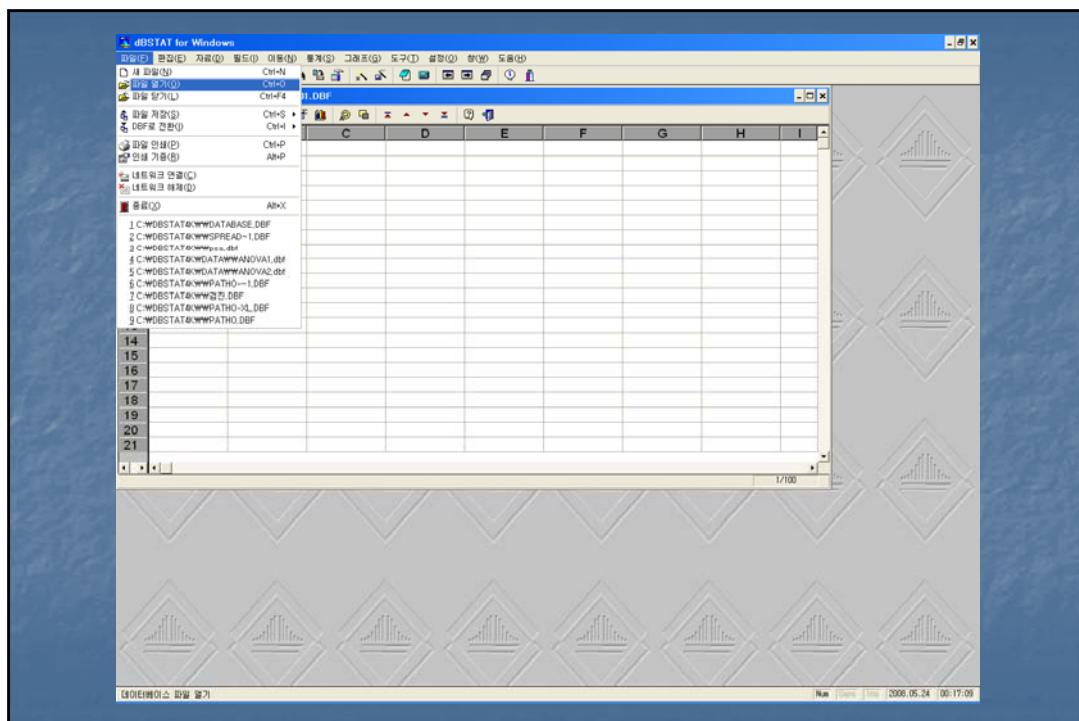
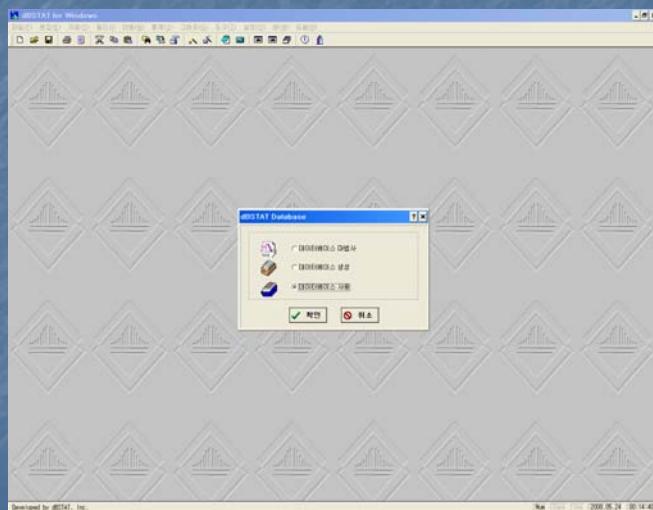
## Why Choose dBSTAT Over SPSS / Excel?

- dBSTAT is best used for long-term data storage and/or data sharing.
- dBSTAT is best used for data collection, manipulation, and especially visualization.
- It is easy to export data from dBSTAT to Excel → SPSS

## Enter Your Data with Statistical Analysis in Mind.

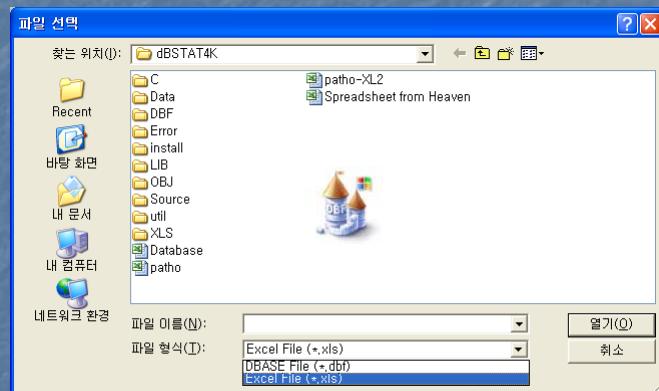
- For small projects enter data into Microsoft Excel or directly into dBSTAT.
- For large projects, create a database with dBSTAT, Microsoft Access.
- Keep variables names in the first row, with <=8 characters, and no internal spaces.
- Enter as little text as possible and use codes for categories, such as 1=male, 2=female.

## Start-Up Window of dBSTAT





## Spreadsheet To Database



## Database Table

	CASE	GROUP	AGE	SEX	HT	WT	HCT	BPSYS	BPDIAS	STAGE	RACE	DATE1	COMPLIC	
1	1	1	25.01	61	350	38	120	80.3	3	1999.01.15	0			
2	2	1	65.02	68	161	32	140	90.2	1	1999.02.05	1			
3	3	1	25.01	47	150	38	160	110.4	2	1998.01.15	1			
4	4	1	31.01	66	161	40	140	105.2	2	1999.04.01	0			
5	5	1	42.02	72	177	39	130	70.2	1	1999.02.15	0			
6	6	1	45.02	67	160	29	120	80.1	2	1999.03.08	0			
7	7	1	44.01	72	145	35	120	80.1	1	1999.02.28	0			
8	8	1	55.01	72	161	39	120	95.4	2	2000.06.15	1			
9	9	1	0.52	66	174	38	160	110.3	4	2000.12.14	1			
10	10	1	21.02	60	155	40	190	120.2	2	2000.11.14	0			
11	11	2	55.01	61	145	41	120	80.4	5	1999.06.20	1			
12	12	2	45.02	59	166	39	135	95.2	1	1999.07.14	0			
13	13	2	32.01	73	171	38	140	80.1	1	1999.08.30	0			
14	14	2	44.02	65	155	40	120	80.2	2	2000.09.01	0			
15	15	2	66.02	71	145	41	140	90.4	1	1999.09.14	1			
16	16	2	71.01	68	199	38	160	110.3	2	1999.01.14	1			
17	17	2	45.01	69	204	32	140	105.1	2	2000.12.25	0			
18	18	2	34.01	66	145	36	130	75.3	1	1997.07.15	0			
19	19	2	13.01	66	161	39	166	115.2	1	1999.06.06	0			
20	20	2	66.01	68	176	41	120	80.3	1	1998.11.21	0			

# Data Management Process

## Data Entry Screen

- ❖ Use software data package
- ❖ Determine
  - ✓ Types of variables
  - ✓ Range
  - ✓ Consistency
  - ✓ Skip Logic

## Record Data Screen

Field	Value
CASE	10
GROUP	1
AGE	21.0
SEX	2
HT	60
WT	155
HCT	40
BPSYS	190
BPDIAS	120
STAGE	2
RACE	2
DATE1	2000.11.14
COMPLIC	0

# Data Management Process

## Naming Variables

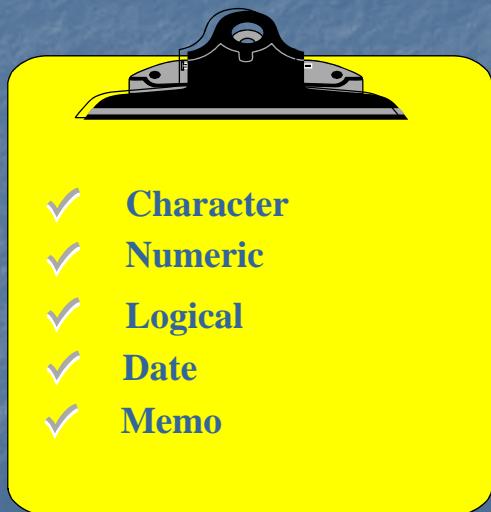
- ❖ 8 letters/numbers/symbols
- ❖ Full name when possible: age, race
- ❖ Short name (common abbreviation): BP, Wt
- ❖ Consecutive numbers
  - ✓ CD4 lymphocyte - CD41, CD42
- ❖ Variable labels
  - ✓ Description of variables, longer than 8 characters
  - ✓ matdep6m – “maternal depression at 6 months”

# Data Management Process

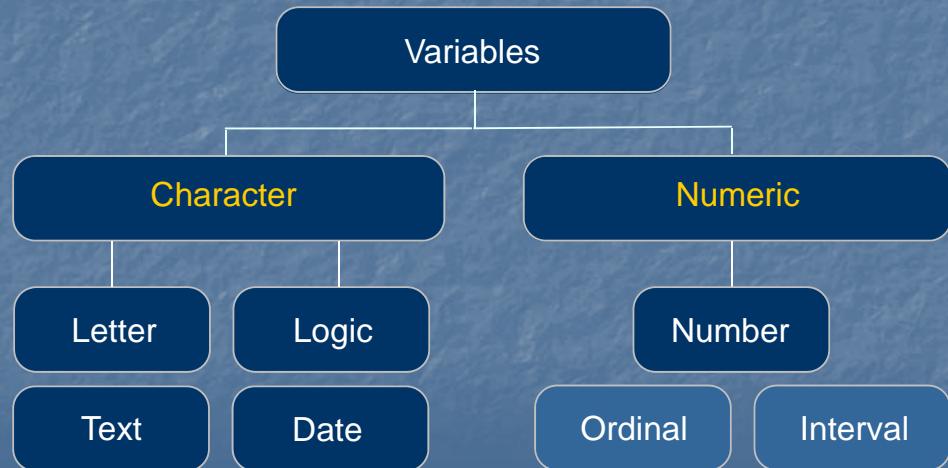
## Value Labels

- ❖ Description of different possible responses to variables
- ❖ Categorical variables
  - ✓ Sex “1” male “2” female
- ❖ Non-numeric responses
  - ✓ “NA” (value) – “non-applicable” (label)
- ❖ Numeric responses
  - ✓ weight (variable) - 63 (value) – “kilogram”

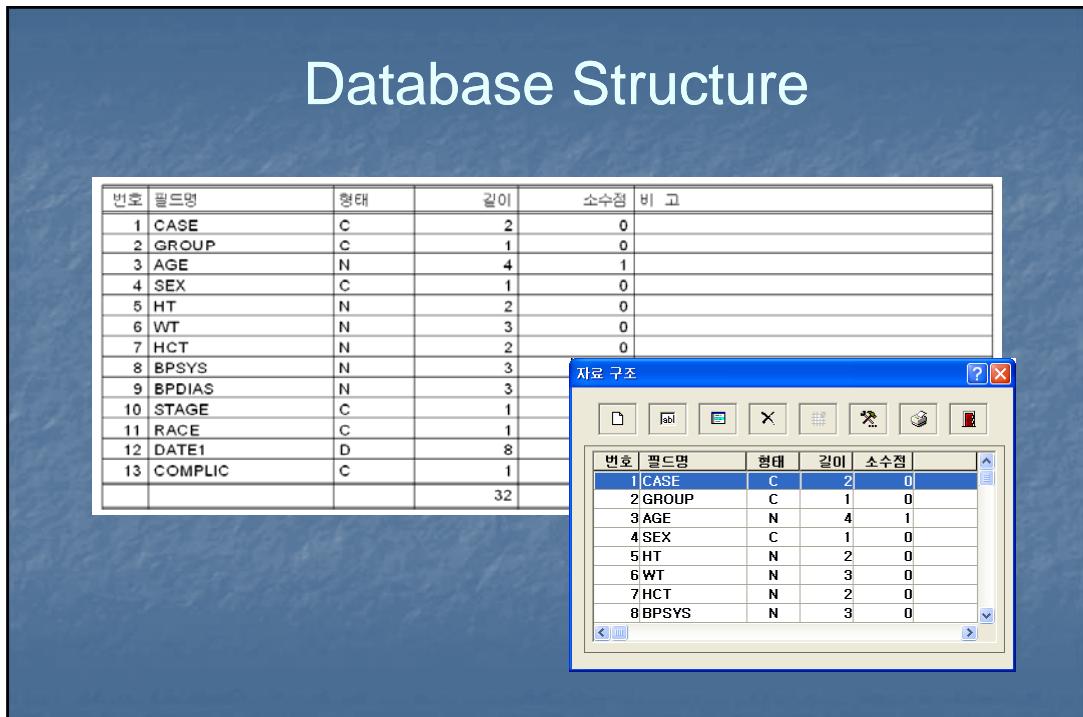
## *Field Type*



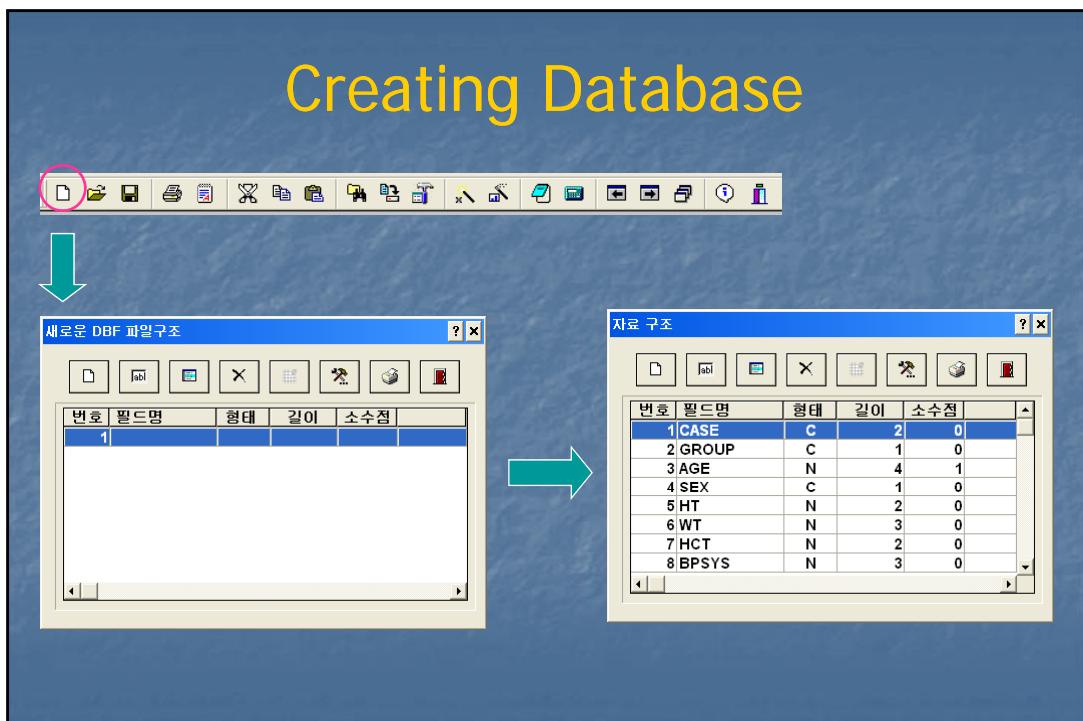
## Type of Variables



## Database Structure

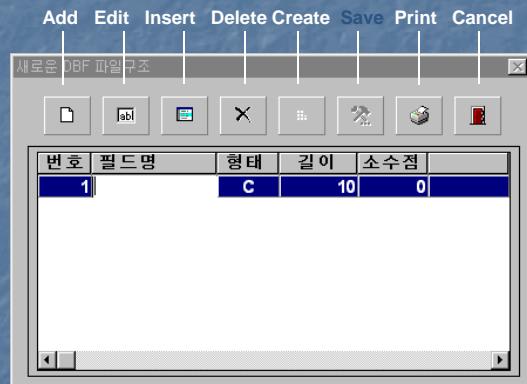


## Creating Database



## Create a New Data File

- Field Name
- Field Type
- Field Width
- Field Format

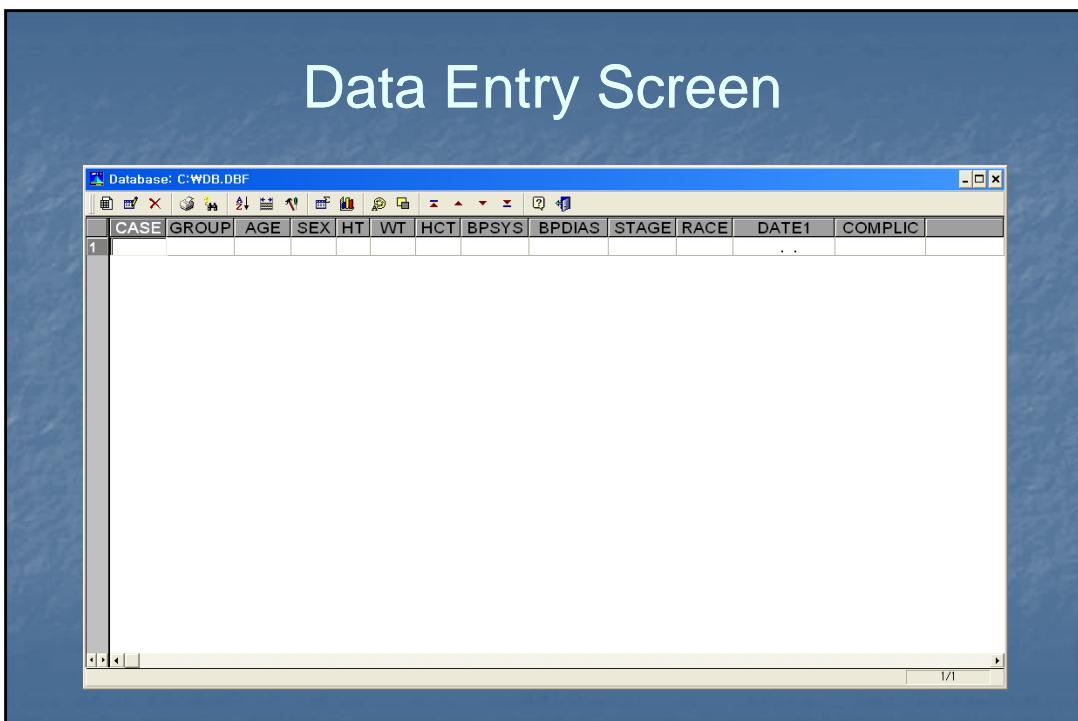
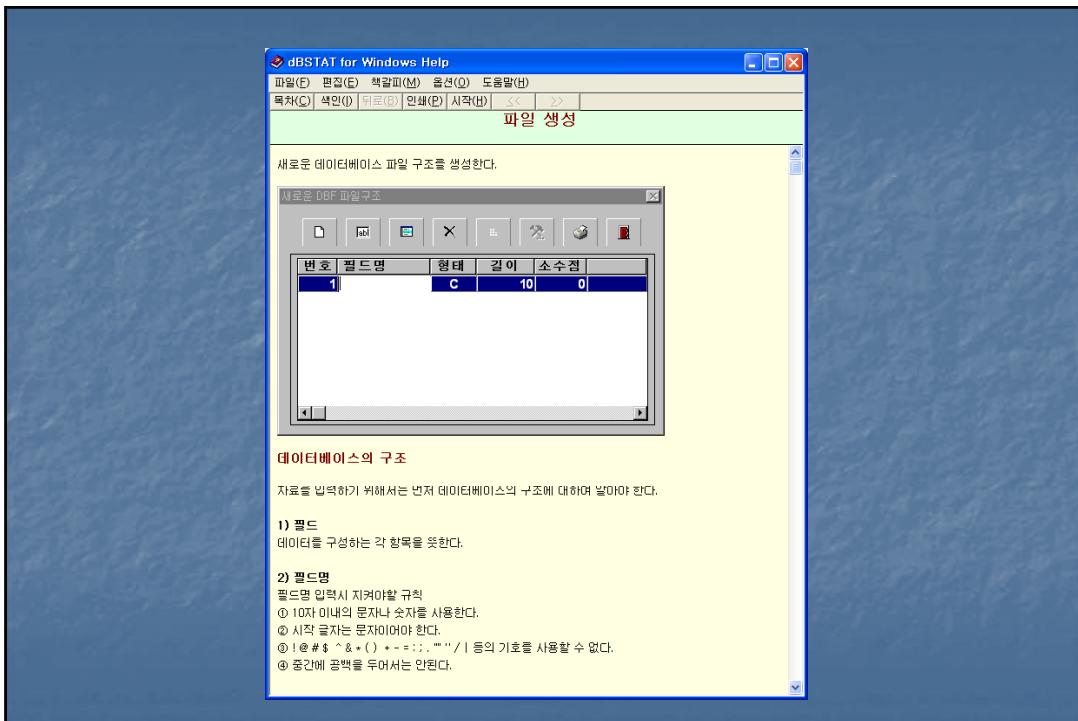


## Field Name

- Characters or digits of which length is up to 10.
- The first word should be a character.
- Do not use a symbol such as ! @ # \$ ^ & \* ( ) + - = : ; . “” “ / | etc.
- There should not be a space in the name.



Patient\_ID, YR2005-08, Tx Type, 2008Year, Case #

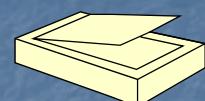


## Data Entry Screen

Field	Value
CASE	
GROUP	
AGE	0.0
SEX	
HT	0
WT	0
HCT	0
BPSYS	0
BPDIAS	0
STAGE	
RACE	
DATE1	...
COMPLIC	

## Data Management Process

Data File



- ❖ Single entry
- ❖ Double entry by same person
- ❖ Double entry by different people
- ❖ Software package

# Data Management Process

## Clean Data

- ❖ Review Frequencies
  - ✓ Implausible values
  - ✓ Missing data
  - ✓ Sample size of follow-up
  - ✓ Sparse data

# Data Management Process

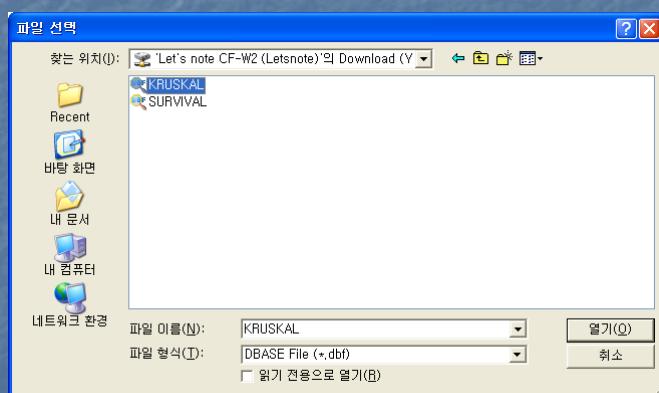
## Recode / Transform

- ❖ Recode
  - ✓ Sparse data
  - ✓ Variables that form a common scale
- ❖ Derive variables
  - ✓ Variable whose value depends on another variable(s) in your dataset

# Database Features

- ❖ Networking Database
- ❖ Web Database (MySQL)
- ❖ Image Database
- ❖ MDI ( Multiple Document Interface )
- ❖ Dynamic Data Exchange (DDE)

## Networking Database



The figure displays four Microsoft Access database windows side-by-side, each showing a different table:

- Top Left:** Database C:\WDBSTAT4\WWW\MySQL.DBF. Shows a table with columns ID, NAME, DISC, and TEL. Data includes entries like '1 aimeekg' and '2 snkim'.
- Top Right:** Database C:\WDBSTAT4\WWW\DATABASE.DBF. Shows a table with columns CASE, GROUP, AGE, SEX, HT, WT, HCT, BPSYS, BPDIAS, and AI. Data includes entries like '1 1 25.1 61 350 38 120 80.3' and '2 2 1 65.2 68 161 32 140 90.2'.
- Bottom Left:** Database C:\WDBSTAT4\WWW\전용분석.DBF. Shows a table with columns V1, V2, V3, V4, and V5. Data includes entries like '1 1 5.10 3.50 1.40 0.20' and '2 1 4.90 3.00 1.40 0.20'.
- Bottom Right:** Database C:\WDBSTAT4\WWW\W\_회계단위\Ygeneese.dfb. Shows a table with columns Y, X, E, and U. Data includes entries like '1 56 50 218.37214186 0.11589463' and '2 38 25 114.77897512 0.06091559'.

The image shows a screenshot of a web application titled "Colon Cancer Survival Analysis". The main title "Web Database" is displayed prominently in large yellow letters at the top center. Below the title, there is a navigation bar with links for "Home", "Histologic markers", "Immunohistochemical markers", "Molecular markers", and "Site map". On the left side, there is a sidebar with a logo for "Korean Society of Pathology" and sections for "Member Login", "Introduction", "Member", "Help", "Downloads", "Database", "Web Links", "Web Board", and "Contact Us". The main content area features a heading "Homepage 소개" (Homepage Introduction) with a brief description in Korean. Below this, there is a large, circular histological image of colon tissue, showing various cellular structures and potential cancerous changes.

**MySQL Import**

HostName	<input type="text"/>
Database	<input type="text"/>
UserName	<input type="text"/>
Password	<input type="text"/>

 **SQL**

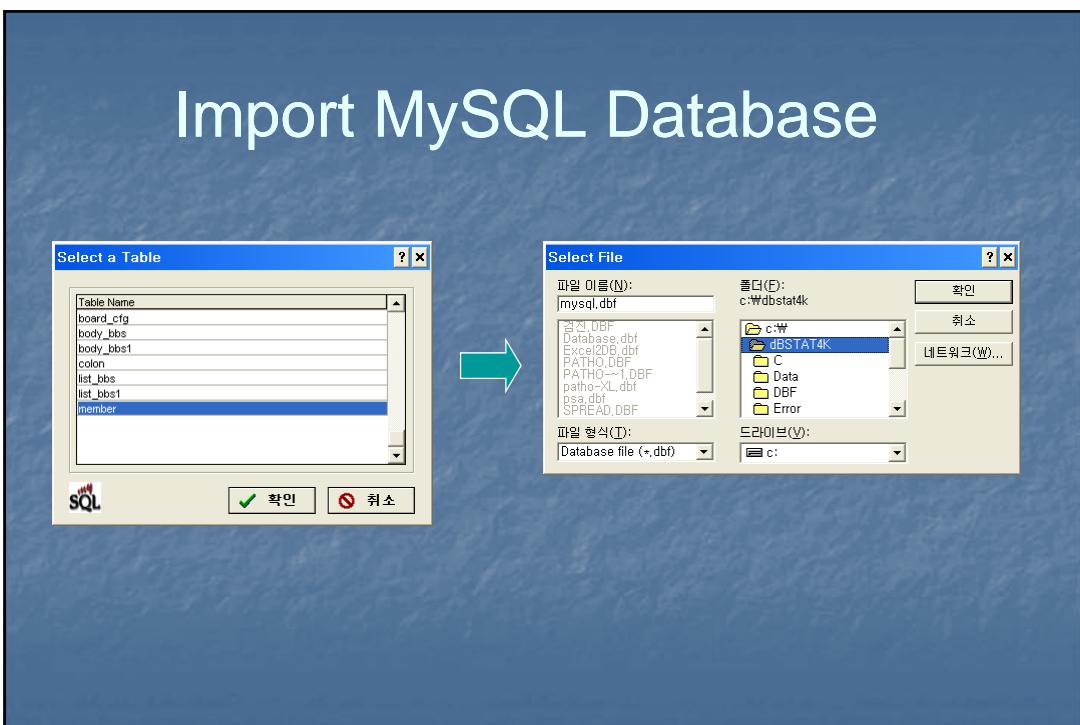
 확인
 취소

**MySQL Import**

HostName	www.colonca.org
Database	coloncancer
UserName	webdbmaster
Password	*****

  확인

# Import MySQL Database



# Data Entry Screen

NO	GENDER	AGE	HNPNO	OP_DATE	OP	FAMILY	HNPCC	LOCAT	TNM	MAC	SIZE1	SIZE2	GROSS	DEPTH	EC	PT
1	1087	1	783020807	1996.06.03	1	1	0	5	2	3	3.0	3.0	4	4	0	
2	1101	1	403010578	1996.06.14	1	1	0	7	2	3	6.0	6.0	5	5	4	
3	1171	1	403010578	1996.06.14	1	1	0	3	2	6	4.0	4.0	5	5	0	
4	1166	1	783010630	1996.06.17	1	1	0	5	2	3	6.0	6.0	3	4	0	
5	917	1	602874615	1995.04.19	2	1	0	5	2	3	0.5	0.3	1	6	3	
6	1102	1	663042212	1996.06.26	1	1	0	7	2	3	5.0	5.0	5	4	0	
7	1103	2	683042377	1996.07.01	1	1	0	6	2	3	7.0	5.0	3	4	0	
8	1071	1	453072789	1996.09.23	1	1	0	6	3	6	5.0	4.5	5	4	0	
9	1165	2	663042212	1996.09.30	1	1	0	7	3	6	4.0	3.5	4	5	0	
10	1105	1	742031689	1996.10.01	1	1	0	5	2	3	4.5	4.0	5	4	0	
11	1072	2	483074144	1996.10.08	1	1	1	5	2	3	3.5	2.0	5	4	0	
12	852	2	722119226	1996.10.10	1	1	0	5	1	2	8.0	10.0	6	3	0	
13	1036	1	623060617	1996.10.11	1	1	0	2	2	3	8.0	5.0	4	4	0	
14	1	503077725	1996.10.14	1	1	0	8	2	3	3.0	3.0	5	5	0		
15	1526	1	313072181	1996.10.16	1	1	0	7	3	6	5.0	4.0	5	4	4	
16	1074	2	643077554	1996.10.23	1	1	0	8	2	3	5.0	4.0	5	5	0	
17	1184	2	733030692	1996.10.24	1	1	0	2	1	2	4.0	3.0	4	4	0	
18	1058	1	643082526	1996.10.25	1	1	0	4	3	6	3.0	3.0	5	4	2	
19	909	1	782665270	1996.10.30	1	1	0	5	3	8.0	7.0	5	6	0		
20	1064	2	483084214	1996.11.04	1	1	0	5	3	7	4.5	0.0	5	6	0	
21	1077	1	653089244	1996.11.14	1	1	0	8	3	6	5.0	3.0	3	5	3	
22	1997	2	423087616	1996.11.18	1	1	1	6	3	5	4.0	4.0	5	4	0	
23	809	2	532703846	1996.12.04	1	1	0	2	3	6	5.5	4.0	4	6	0	
24	813	1	742748016	1996.12.05	1	1	0	5	1	2	4.5	3.5	5	3	0	
25	1387	2	663042212	1996.12.09	1	1	0	5	2	3	5.0	4.0	5	6	0	
26	1580	1	663100236	1996.12.11	1	1	0	8	3	3	3.0	3	5	0		
27	1385	1	523102533	1996.12.23	1	1	1	2	4	8	10.0	6.0	4	6	2	
28	1532	2	662971327	1996.12.20	1	1	0	2	3	6	13.0	7.0	4	6	0	
29	1381	1	613103222	1997.01.06	1	1	0	4	4	8	16.0	0.0	5	6	0	
30	1046	1	513095704	1997.01.13	1	1	0	6	3	6	5.0	4.0	4	4	0	
31	1529	1	642703997	1997.01.27	1	1	0	8	3	6	5.0	4.0	5	4	0	
32	1394	1	783117523	1997.02.06	1	1	0	5	3	6	3.5	3.0	5	4	3	
33	1387	1	393117518	1997.02.10	1	1	0	8	4	8	8.0	5.0	5	5	3	
34	1441	1	532703815	1997.02.12	1	1	0	6	3	6	8.0	7.0	3	4	0	
35	1365	1	363119622	1997.02.13	1	1	0	7	3	6	6.5	0.0	4	5	0	

# Image Database

The screenshot shows a database application window titled "Database: C:\WDBSTAT4K\WFLOWER.DBF". The main table has columns "ID" and "PICTURE". The "PICTURE" column contains file paths such as "[메모]" and "[메모]". A context menu is open over the fourth row, showing options like "메모 생성" (Create Memo), "메모 텍스트 열기" (Open Memo Text), and "그림 파일" (Image File). A secondary window titled "자료 구조" (Data Structure) is displayed, showing the structure of the "PICTURE" field:

번호	필드명	형태	길이	소수점
1	ID	C	5	0
2	PICTURE	M	10	0

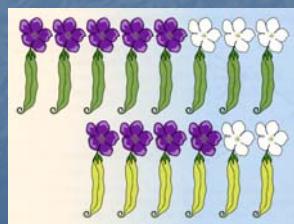
# Image Database

The screenshot shows a database application window titled "Database: C:\WDBSTAT4K\WFLOWER.DBF". The main table has columns "ID" and "PICTURE". The "PICTURE" column contains file paths such as "[메모]" and "[메모]". A context menu is open over the fourth row, showing options like "메모 생성" (Create Memo), "메모 텍스트 열기" (Open Memo Text), and "그림 파일" (Image File). A file selection dialog box titled "Select File" is displayed, showing a list of files: "flower1.bmp", "flower2.bmp", and "flower3.bmp". The "파일 이름(N):" field is set to "flower1.bmp". The "파일 형식(F):" dropdown is set to "BMP - Bitmap File (\*.br)".

## Image Database

The screenshot shows a Windows application titled "Image Database". On the left is a database table window titled "Database: C:\WDBSTAT4\KWFLOWER.DBF". The table has two columns: "ID" and "PICTURE". The "ID" column contains values from 1 to 10, and the "PICTURE" column contains the text "<메모>" for all rows. On the right is a modal dialog box titled "Image Database" with a central image preview area showing a pink flower with a red center. To the right of the preview are six buttons with Korean labels: 복원 (Restore), 선택 (Select), 제거 (Delete), 저장 (Save), 인쇄 (Print), and 종료 (Exit).

## Statistical Features for Biostatistical Analysis



## Commonly Used Statistical Methods

- Student's t-test
- Paired *t*-test
- One-way analysis of variance (ANOVA)
- Chi-square test
- Fisher's exact test
- Mann-Whitney U (Wilcoxon rank-sum) test
- Wilcoxon signed-rank test
- Kruskal-Wallis test

## Commonly Used Statistical Methods

- Pearson correlation
- Spearman rank-order correlation
- Linear regression analysis
- Repeated-measures analysis of variance
- Analysis of covariance (ANCOVA)
- Discriminant analysis
- Logistic regression
- Kaplan-Meier method
- Log-rank test

## Statistical Features

Normality Test	Equal Variance Test
Kolmogorov-Smirnov test	Levene test
Shapiro-Wilk test	Bartlette test
Lilliefors test	F test
Q-Q Plot	

## Nonparametric Test

- Sign test
- Runs test
- Binomial test
- McNemar test
- Cochran test
- Friedman test
- Mantel-Haenszel test
- Johnkeer-Terpstra test

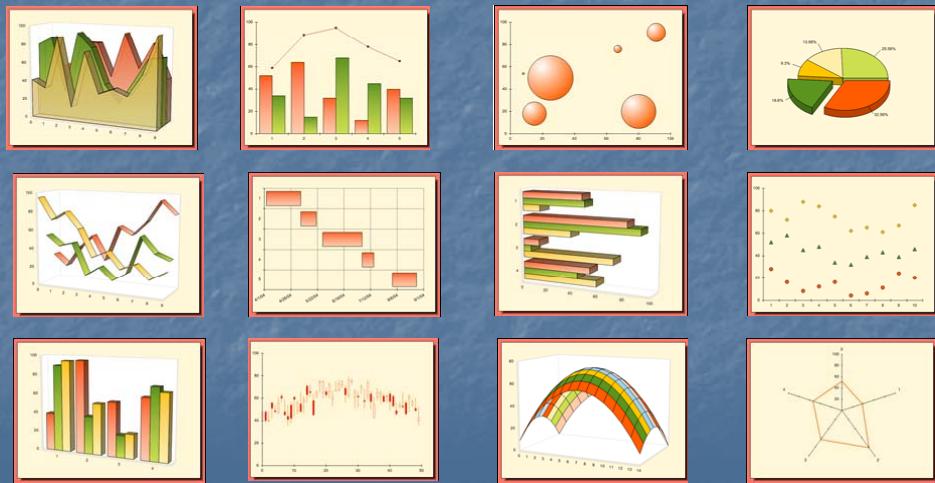
## Statistical Features

- Rank correlation - Kendall's tau
- Partial correlation
- Two-way analysis of variance
- MANOVA (Multivariate Analysis of Variance)
- Cox proportional-hazards regression
- Factor analysis
- Cluster analysis
- Principal component analysis

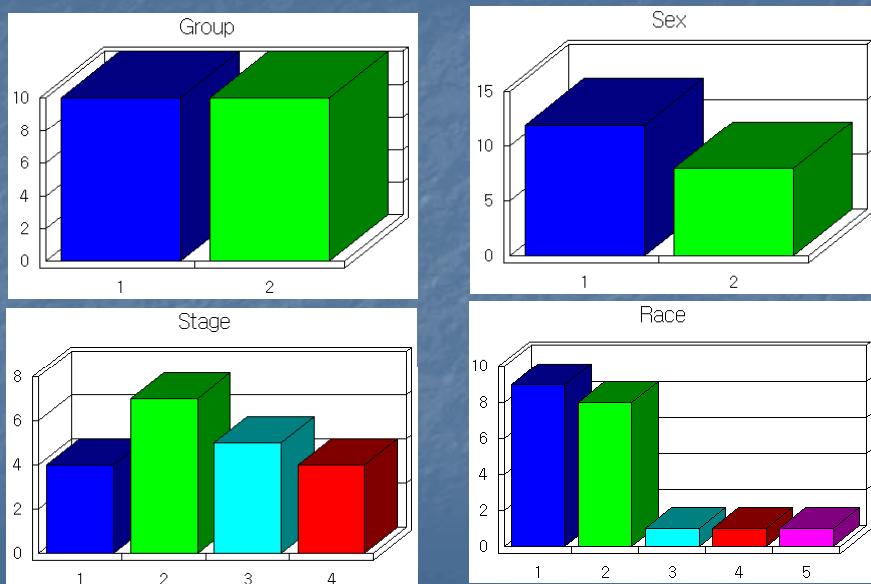
## Graphical Features for Describing Data



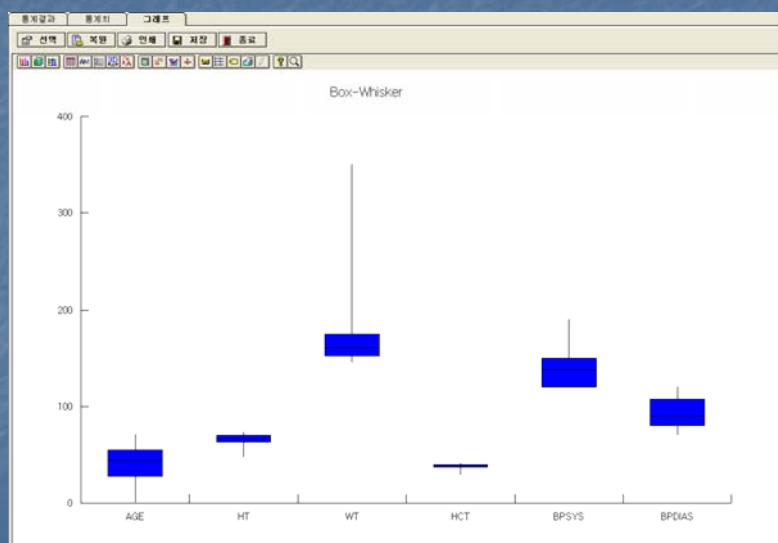
## Graphics Gallery



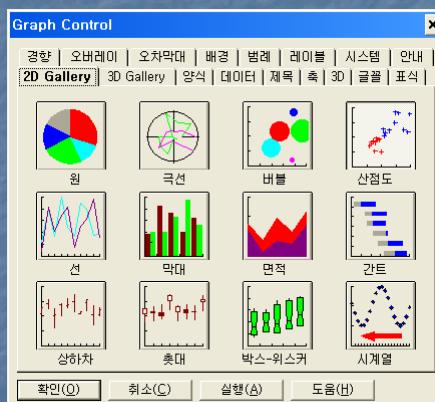
## Descriptive Statistics

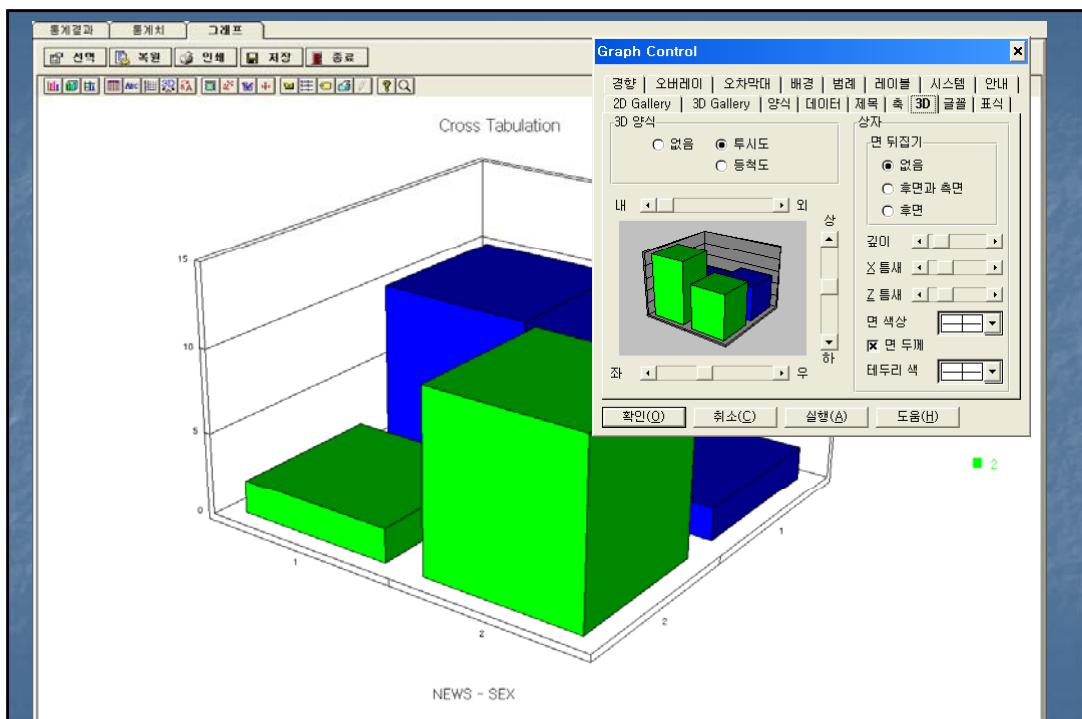
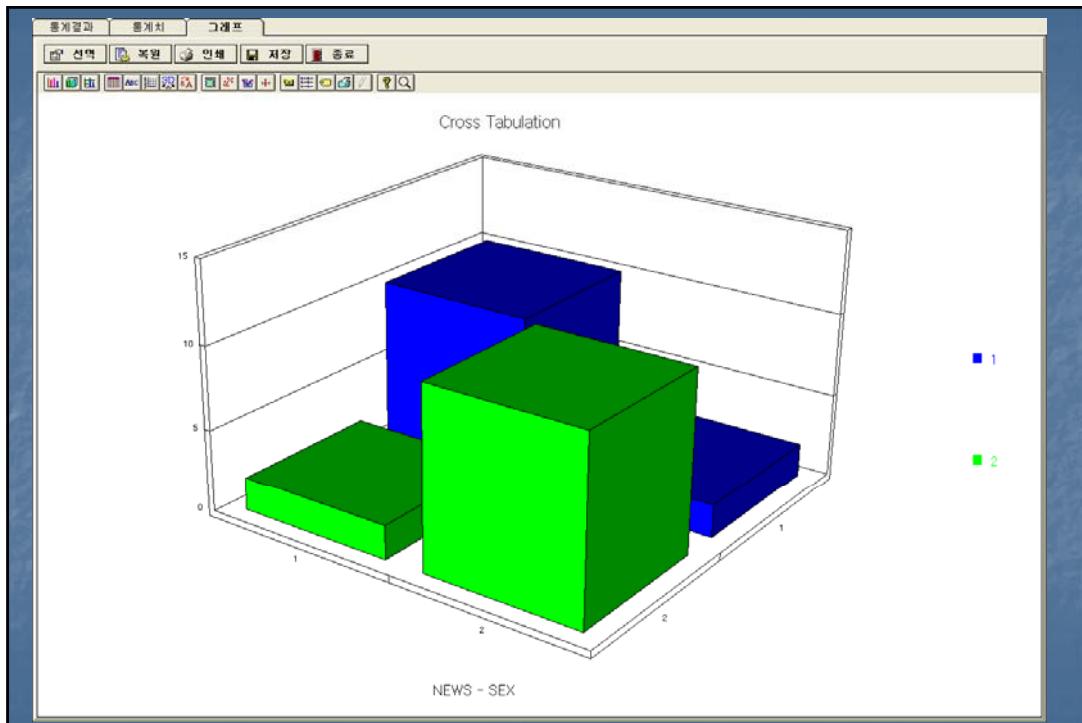


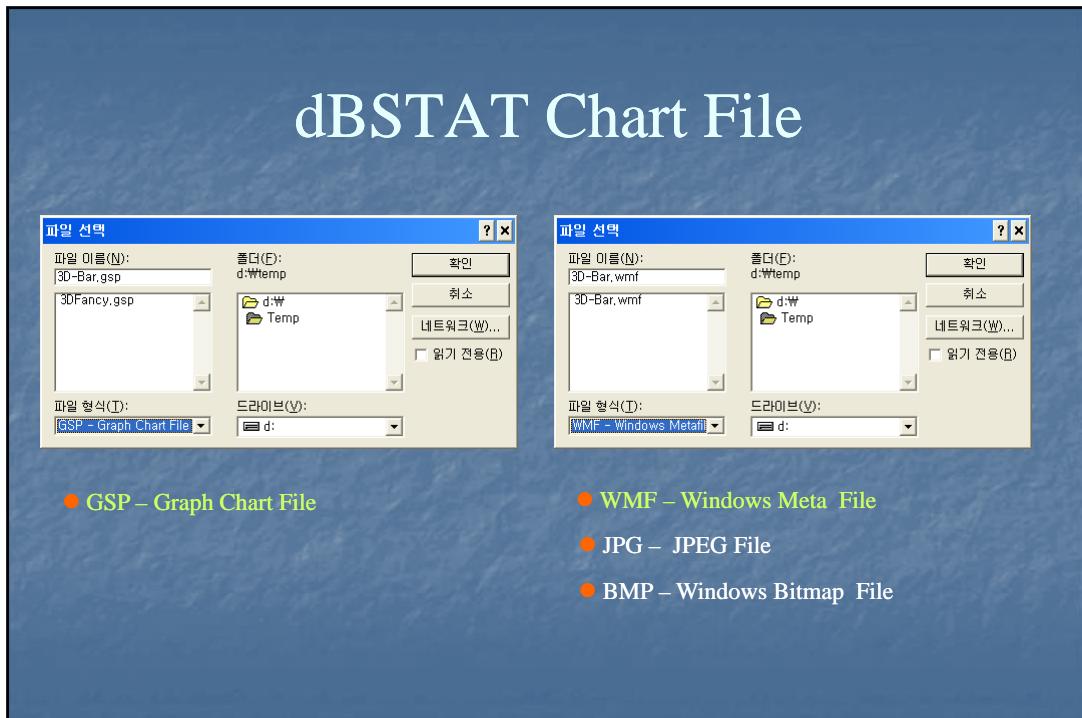
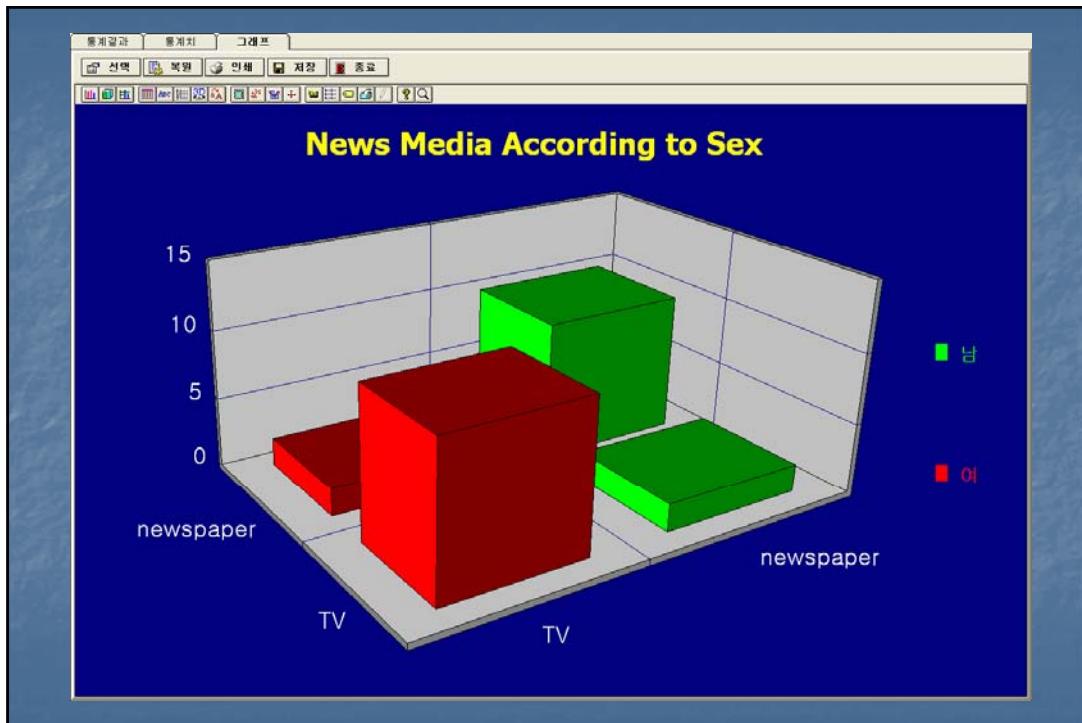
## Descriptive Statistics



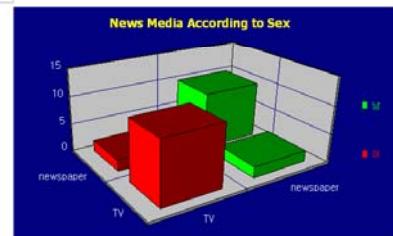
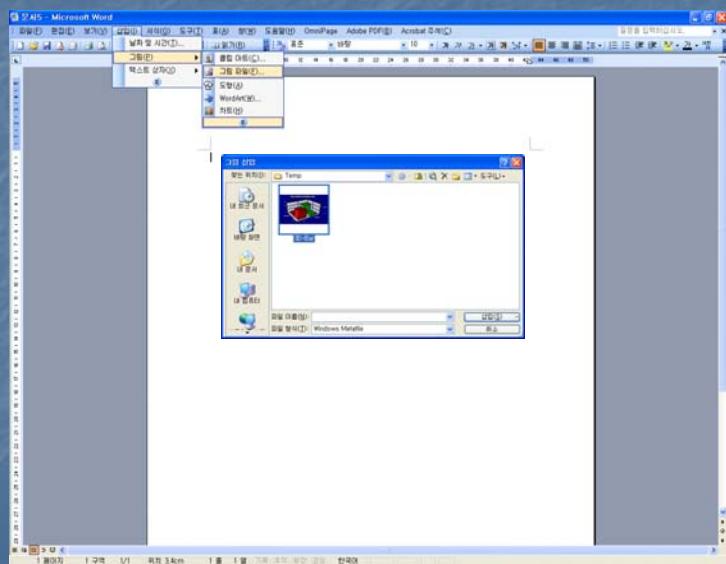
## Graphics Control

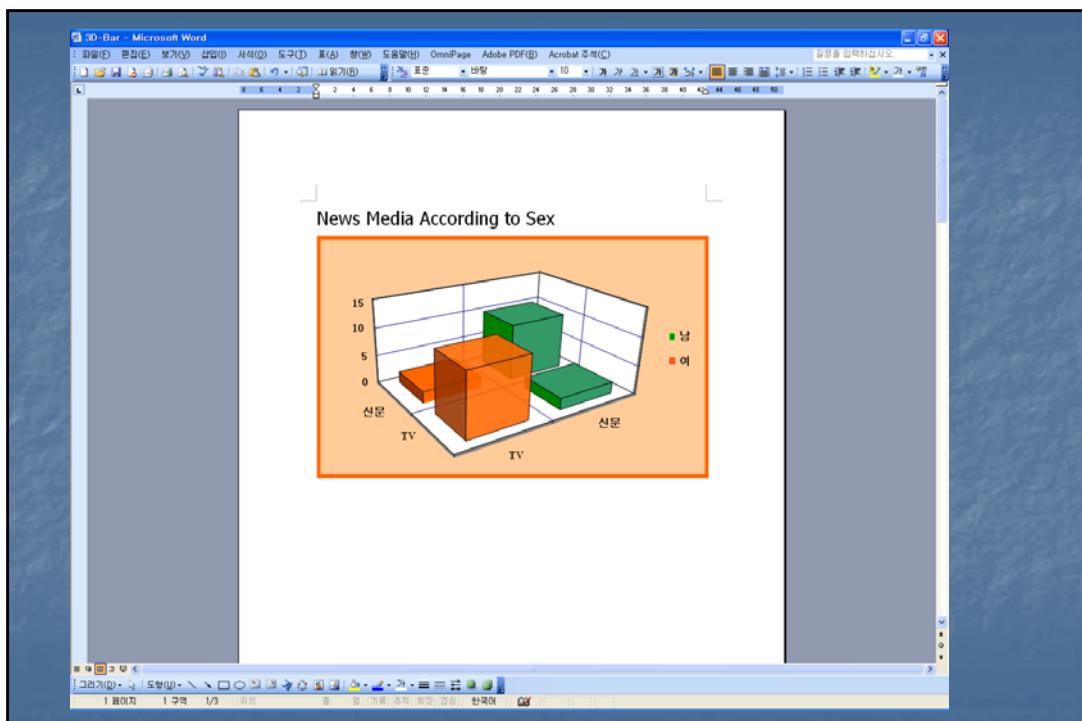
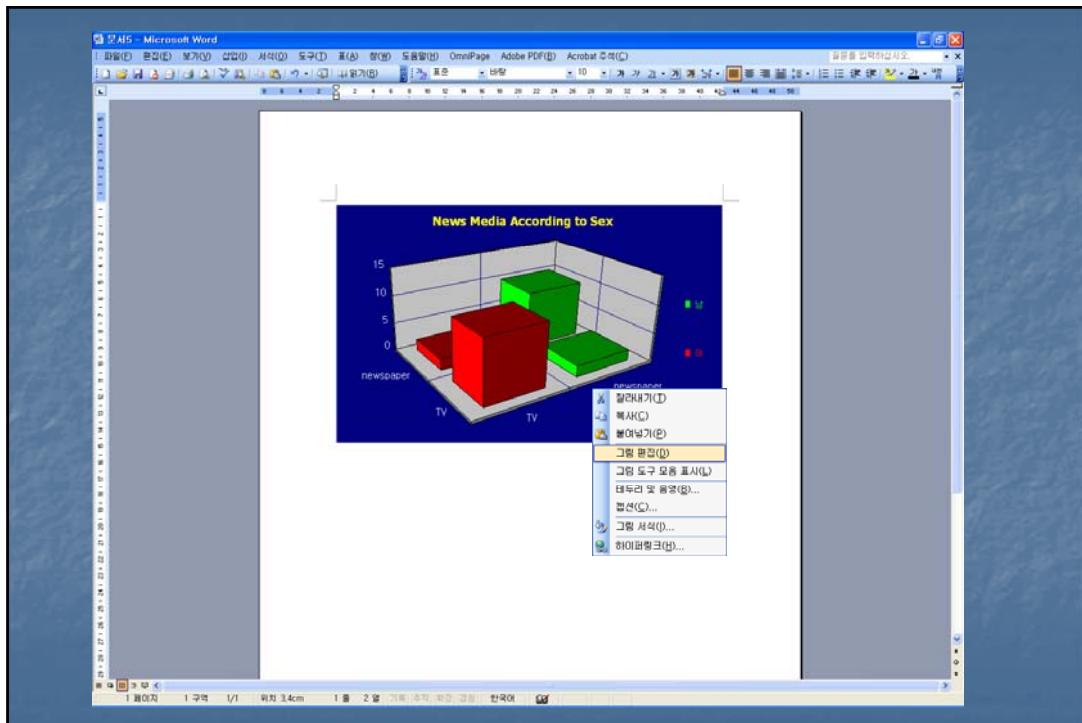




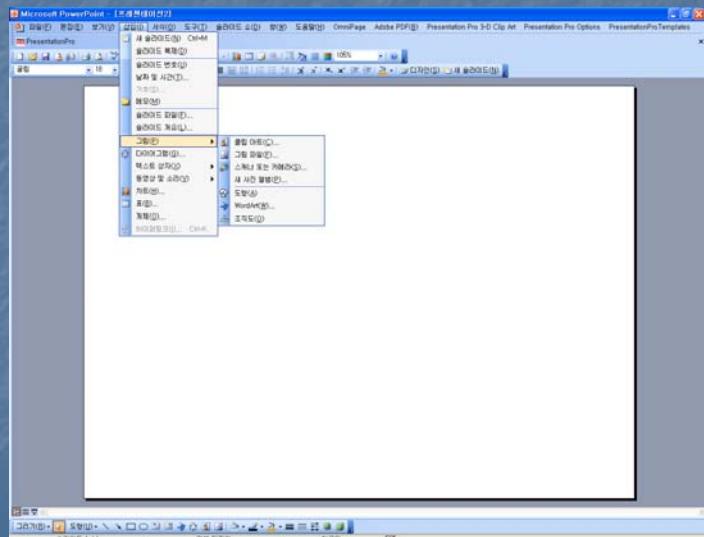


# Microsoft Word

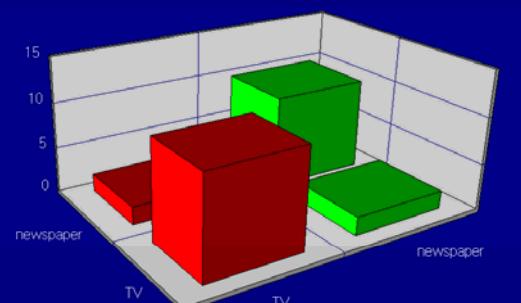


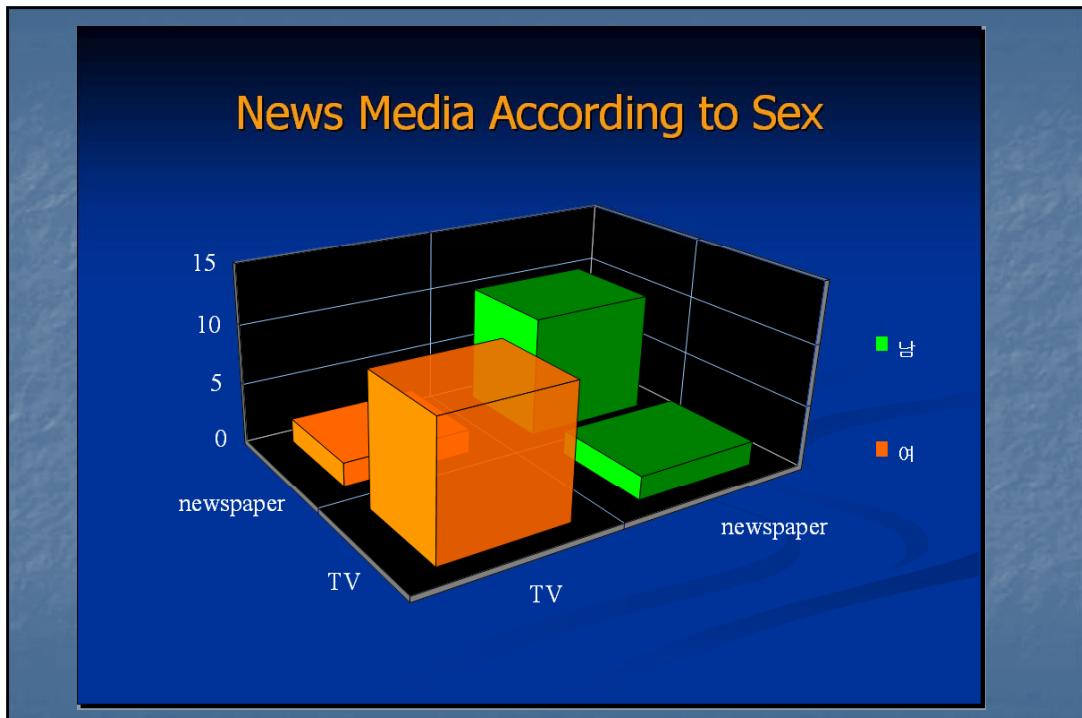
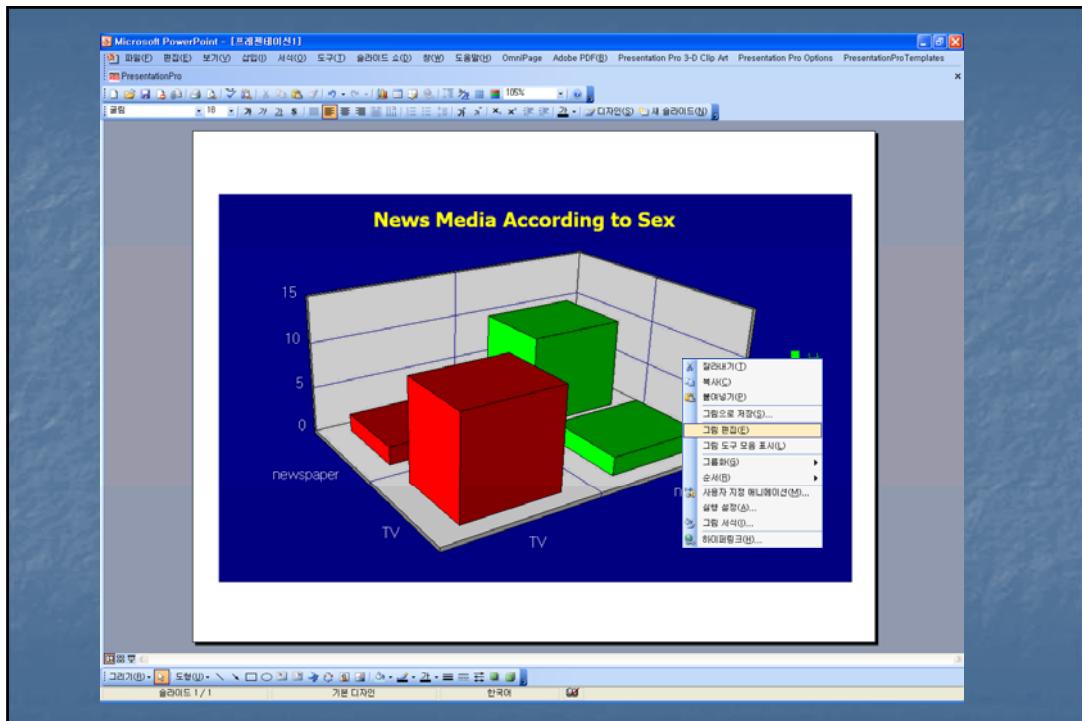


# Microsoft PowerPoint

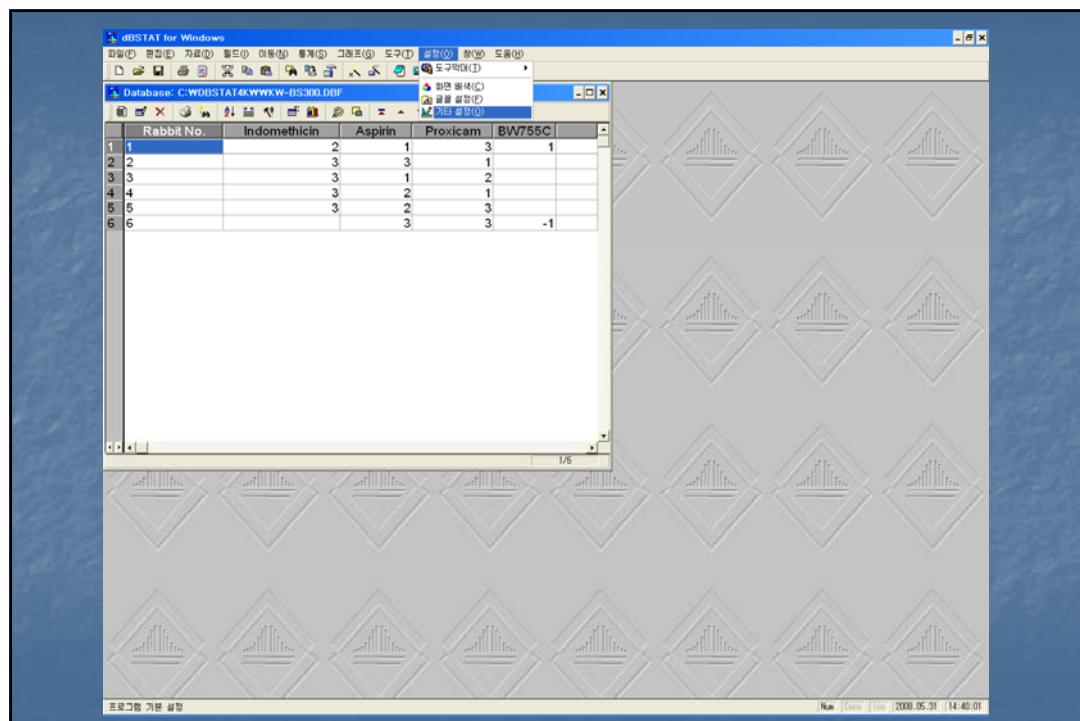


News Media According to Sex

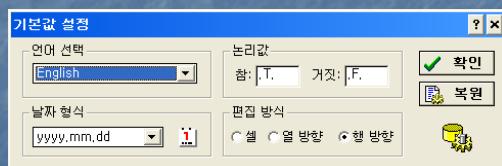
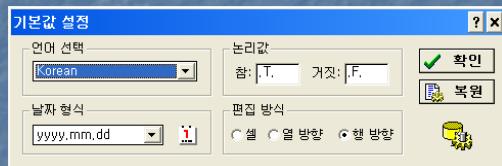




# Configuration Tools



# Language Selection



The application window is titled 'dbSTAT for Windows'. The menu bar includes File, Edit, Data, Field, Navigation, Statistics, Graphs, Tools, Options, Windows, Help. The toolbar contains various icons for database operations. The main area displays a table with the following data:

	Rabbit No.	Indomethicin	Aspirin	Proxicam	BW755C
1	1		2	1	3
2	2		3	3	1
3	3		3	1	2
4	4		3	2	1
5	5		3	2	3
6	6		3	3	-1

At the bottom left, it says 'Developed by dbSTAT, Inc.' and at the bottom right, 'Run Date Time : 2008.05.31 | 14:47:50'.

