$$w_j \pm z_{1-\alpha/2}\hat{\sigma}_{w_j}. \quad (3)$$

When referring to numbered equations, write out the reference; for example, write *Equation 3* (do not abbreviate as *Eq. 3*), or write *the third equation.*

4.49 Preparing Statistical and Mathematical Copy

If possible, type all signs and symbols in mathematical copy. Supply as camera-ready copy any special symbols that cannot be produced by a word-processing program. Type fences (i.e., parentheses, brackets, and braces), uppercase and lowercase letters, punctuation, subscripts and superscripts, and all other elements exactly as you want them to appear in the published article. Follow the conventions for the use of symbols, equations, and reporting results presented in the earlier sections of this chapter.

5 Displaying Results

Since the last edition of the *Publication Manual*, few areas have been affected by technological developments more dramatically than the methods available for the display of results of experimentation and inquiry—tables, graphs, charts, maps, drawings, and photographs. Almost all displays are now the results of electronic manipulation of basic data—be it with word-processing programs, spreadsheet programs, statistical packages, or highly specialized software for creating digital images. These changes have greatly increased the flexibility that authors have for effectively displaying results.

Tables and figures enable authors to present a large amount of information efficiently and to make their data more comprehensible. Tables usually show numerical values or textual information (e.g., lists of stimulus words) arranged in an orderly display of columns and rows. A figure may be a chart, a graph, a photograph, a drawing, or any other illustration or nontextual depiction. At times the boundary between tables and figures may be unclear; however, tables are almost always characterized by a row–column structure. Any type of illustration other than a table is referred to as a *figure.*

In this chapter, we discuss the purposes that data displays can serve and provide guidance on designing and preparing data displays so that they communicate most effectively. We provide specific guidance on formatting and constructing tables and figures, along with a number of illustrative examples.

General Guidance on Tables and Figures

5.01 Purposes of Data Displays

Data displays can serve several purposes:

- **exploration:** the data contain a message, and you would like to learn what it is (exploratory data analysis and data mining techniques are examples of displays that are principally exploratory);

- **communication:** you have discovered the meaning contained in the data and want to tell others about it (this is the traditional purpose of most data displays in scientific documents);
- **calculation:** the display allows you to estimate some statistic or function of the data (nomographs are the archetype of this);
- **storage:** you can store data in a display for retrieval later, including the results of a study for later use in a meta-analysis (historically, this role has been fulfilled by tables, but figures sometimes serve this purpose more efficiently); and
- **decoration:** data displays attract attention, and you may choose to use them to make your manuscript more visually appealing (as in newspapers and other media reports).

In scientific publication, the communication function of graphical displays dominates; however, other features (e.g., storage) may be useful in a graphical representation.

5.02 Design and Preparation of a Data Display

The first step in preparing a display for submission is to determine the purposes of the display and the relative importance of those purposes. For example, the detail required for a storage display may conflict with the clarity required for a communicative one. Once you have decided on a display's hierarchy of purposes, choose the template best designed for its primary purpose—the *canonical form* of a display. Such a display (e.g., a scatterplot) has shown itself to be flexible (it works for many kinds of data), robust (it works reasonably well even when it is not exactly suitable), and adaptive (it shows a capacity for adaptation to make it suitable). Further, the use of canonical forms simplifies the task of readers trying to make sense of a display because they can rely on past experience with the form.

The preparation of graphic materials requires careful attention to organization and content. Graphical elements need to be edited with the same care as the textual elements of a manuscript. Changes in text often demand changes in graphical elements, and failure to edit graphical materials and to sharpen the focus of the display is a major shortcoming in much scientific writing.

Design your graphical display with the reader in mind; that is, remember the communicative function of the display.

- Place items that are to be compared next to each other.
- Place labels so that they clearly abut the elements they are labeling.
- Use fonts that are large enough to be read without the use of magnification.
- Include all of the information needed to understand it within the graphical image—avoid novel abbreviations, use table notes, and label graphical elements.
- Keep graphical displays free of extraneous materials, no matter how decorative those materials may make the graphic look.

Communication is the primary purpose of the graphic. This does not mean, however, that well-designed, aesthetically pleasing graphics are not important. An attractive graphical display makes a scientific article a more effective communication device.

5.03 Graphical Versus Textual Presentation

Be selective in choosing how many graphical elements to include in your paper. First, a reader may have difficulty sorting through a large number of tables and figures and

may lose track of your message. Second, a disproportionately large number of tables and figures compared with a small amount of text can cause problems with the layout of typeset pages; text that is constantly broken up with tables will be hard for the reader to follow. Third, graphical presentations are not always optimal for effective communication. For example, the results of many standard statistical significance tests can often be effectively presented in text:

> The one-way ANOVA, $F(1, 136) = 4.86$, $MSE = 3.97$, $p = .029$, $\eta^2 = .03$, demonstrated statistically significant differences between the two groups, as theory would dictate.

Information that used to be routinely presented in tables (e.g., analysis of variance [ANOVA] tables) is now routinely presented in text.

5.04 Formatting Tables and Figures

Most manuscripts are now submitted electronically; therefore, all the elements of the manuscript must be in electronic format. These elements may be produced in many different file formats (e.g., .doc, .jpg, .pps, .pdf), and any publisher may limit the formats it accepts. Most tables are constructed with the tables feature of the word-processing program used to generate the manuscript text. However, tables are sometimes cut and pasted from computer outputs (rarely recommended) or may be PDF images created from scans of tables prepared in other ways. When tables are prepared with standard word-processing programs, the text can be converted directly into typographic files, thereby lowering the probability of typesetting errors. Figures are generally submitted in a variety of formats, as is necessitated by the multiple ways in which they are produced. Often, figures such as graphs and charts are initially produced with presentation software such as Microsoft PowerPoint. Photographic elements are generally limited to specific image formats that allow for clear resolution of the image in its printed application. As a rule, figures are reproduced in the print version of articles as they are received from the author (following any editorial changes approved by the editor).

For publishers that offer online supplemental archives, carefully delineate the materials that will appear with the article from those that will be placed in the online supplemental archive (see section 2.13). Because of the relatively high cost of color reproduction, include it only when the color representation adds significantly to the understanding of the material. If color representation is not crucial for immediate understanding, you may consider placing it online as supplemental material.

5.05 Table and Figure Numbers

Number all tables and figures with Arabic numerals in the order in which they are first mentioned in text, regardless of whether a more detailed discussion of the table or figure occurs later in the paper. Do not use suffix letters to number tables and figures; that is, label them as Table 5, Table 6, and Table 7 or Figure 5, Figure 6, and Figure 7 instead of 5, 5a, and 5b. If the manuscript includes an appendix with tables or figures, identify those elements of the appendix with capital letters and Arabic numerals (e.g., Table A1 is the first table of Appendix A or of a sole appendix that is not labeled with a letter; Figure C2 is the second figure of Appendix C).

5.06 Permission to Reproduce Data Displays

If you reproduced or adapted a table, figure, questionnaire, or test item from a copyrighted source, you must obtain written permission for print and electronic reuse from the copyright holder and give credit in the table or figure caption to the original author and copyright holder. A number of commercial instruments—for example, intelligence tests and projective measures—are highly protected. Permission is required, and may be denied, to republish even one item from such instruments. Any reproduced table (or figure) or part thereof must be accompanied by a note at the bottom of the reprinted table (or in the figure caption) giving credit to the original author and to the copyright holder (see section 2.12 for the correct wording of copyright permission footnotes). For detailed information on copyright and permissions, see section 6.10.

Tables

When planning tables for inclusion in a manuscript, determine (a) the data readers will need to understand the discussion and (b) the data necessary to provide the "sufficient set of statistics" (see section 4.44) to support the use of the inferential methods used.

5.07 Conciseness in Tables

Limit the content of your tables to essential materials. Tables with surplus elements are less effective than lean tables. The principle of conciseness is relevant not only for text tables but also for tables to be placed in online supplemental archives. Although supplemental tables may be longer and more detailed than text tables, they must be directly and clearly related to the content of the article (see section 2.13). Tables should be integral to the text but should be designed so that they can be understood in isolation.

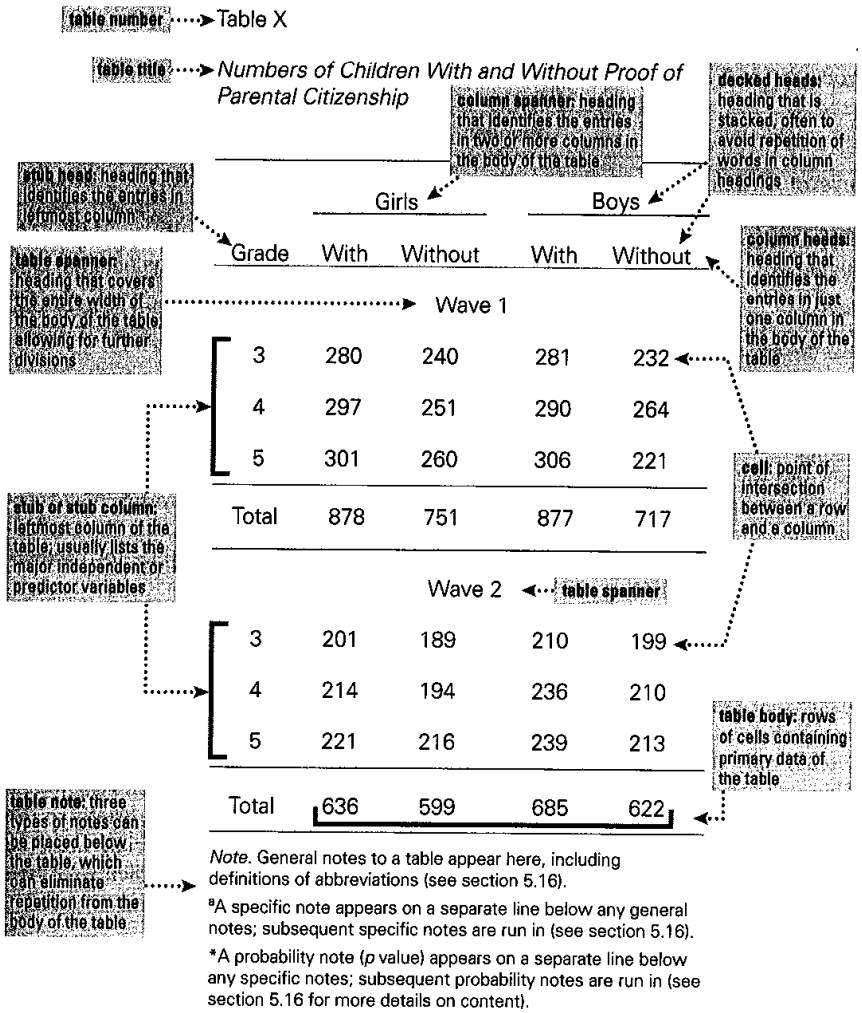
5.08 Table Layout

The basic components of a prototypical table are shown in Table 5.1, including the technical term, location, and definition of each element.

Table layout should be logical and easily grasped by the reader. Table entries that are to be compared should be next to one another. Following this principle, in general, different indices (e.g., means, standard deviations, sample sizes) should be segregated into different parts or lines of tables. Position variable and condition labels in close proximity to the values of the variable to facilitate comparison. Table 5.2 illustrates these principles.

All tables are meant to show something specific; for example, tables that communicate quantitative data are effective only when the data are arranged so that their meaning is obvious at a glance (Wainer, 1997). Often, the same data can be arranged in different ways to emphasize different features of the data. In Table 5.3, the same factor loading data are displayed in two different ways. The first example emphasizes the factor structure of the two test batteries by keeping the subscales of the batteries adjacent to each other. The second arrangement of the same data

Table 5.1. Basic Components of a Table



emphasizes the nature of the factors by grouping the subscales of the test batteries according to the pattern of the factor loadings. Which arrangement is better depends on your purpose.

5.09 Standard Forms

Some data tables have certain standard (canonical) forms. The advantage of using the canonical form is that the reader generally knows where to look in the table for certain kinds of information. In some situations, one may want to use a format other than

Table 5.2. Sample of Effective Table Layout

Table X

Proportion of Errors in Younger and Older Groups

	Younger			Older		
Level of difficulty	*n*	*M* (*SD*)	95% CI	*n*	*M* (*SD*)	95% CI
Low	12	.05 (.08)	[.02, .11]	18	.14 (.15)	[.08, .22]
Moderate	15	.05 (.07)	[.02, .10]	12	.17 (.15)	[.08, .28]
High	16	.11 (.10)	[.07, .17]	14	.26 (.21)	[.15, .39]

Note. CI = confidence interval.

the canonical table form to make a specific point or to stress certain relationships. The judicious use of nonstandard forms can be effective but must always be motivated by the special circumstances of the data array. When using nonstandard forms, make certain that labeling is extremely clear because most readers will assume that the canonical form is being used. Section 5.18 includes examples of standard tables for presenting several types of data.

5.10 Relation of Tables and Text

Discussing tables in text. An informative table supplements—rather than duplicates—the text. In the text, refer to every table and tell the reader what to look for. Discuss only the table's highlights; if you find yourself discussing every item of the table in the text, the table is unnecessary. Similarly, if additional tables are to be included in online supplemental archives, mention their existence only briefly in the print version of the article. Tables designated as supplemental materials must be accompanied by enough information to be completely understood on their own (see section 2.13).

Citing tables. In the text, refer to tables by their number:

> as shown in Table 8, the responses were provided by children with pretraining . . .

Do not write "the table above" (or below) or "the table on page 32," because the position and page number of a table cannot be determined until the pages are typeset.

5.11 Relation Between Tables

Consider combining tables that repeat data. Ordinarily, identical columns or rows of data should not appear in two or more tables. Be consistent in the presentations of all tables within a manuscript to facilitate comparisons. Use similar formats, titles, and headings, and use the same terminology throughout (e.g., *response time* or *reaction time*, not both).

Table 5.3. Sample Factor Loadings Table (With Rotation Method Specified)
The following table is formatted to emphasize the structure of the test batteries.

Table X

Factor Loadings for Exploratory Factor Analysis With Varimax Rotation of Personality Pathology Scales

Scale	Introversion	Emotional Dysregulation	Peculiarity
SPQ Constricted Affect	**.77**	.33	.21
Excessive Social Anxiety	**.43**	**.52**	.29
Ideas of Reference	−.08	.17	**.67**
No Friends	**.84**	.19	.13
Odd Beliefs	−.03	.13	**.50**
Odd Behavior	.23	.19	**.56**
Odd Speech	.15	.34	**.56**
Unusual Perceptions	.09	.14	**.76**
DAPP Submissiveness	.24	**.70**	.11
Cognitive Distortion	.26	**.70**	.36
Identity Problems	**.52**	**.58**	.16
Affective Lability	.11	**.73**	.34
Restricted Expression	**.69**	.31	.02
Passive Oppositionality	.25	**.70**	.12
Intimacy Problems	**.63**	.18	.03
Anxiousness	.24	**.83**	.18
Conduct Problems	.27	.10	.24
Suspiciousness	.39	.36	.23
Social Avoidance	**.59**	**.67**	.10
Insecure Attachment	.04	**.58**	.26
Self-Harm	.30	.38	.28
Chapman Magical Ideation	.12	.17	**.72**
Social Anhedonia	**.78**	.04	.26
Perceptual Aberrations	.12	.25	**.49**
Physical Anhedonia	**.61**	.05	−.15

Note. Factor loadings > .40 are in boldface. SPQ = Schizotypal Personality Questionnaire; DAPP = Dimensional Assessment of Personality Pathology—Basic Questionnaire.

(continued)

Table 5.3. Sample Factor Loadings Table (continued)
The following table is formatted to emphasize the structure of the factors.

Table X

Factor Loadings for Exploratory Factor Analysis With Varimax Rotation of Personality Pathology Scales

Scale	Introversion	Emotional Dysregulation	Peculiarity
SPQ No Friends	**.84**	.19	.13
Chapman Social Anhedonia	**.78**	.04	.26
SPQ Constricted Affect	**.77**	.33	.21
DAPP Restricted Expression	**.69**	.31	.02
DAPP Intimacy Problems	**.63**	.18	.03
Chapman Physical Anhedonia	**.61**	.05	−.15
DAPP Social Avoidance	**.59**	**.67**	.10
DAPP Identity Problems	**.52**	**.58**	.16
SPQ Excessive Social Anxiety	**.43**	**.52**	.29
DAPP Anxiousness	.24	**.83**	.18
DAPP Affective Lability	.11	**.73**	.34
DAPP Cognitive Distortion	.26	**.70**	.36
DAPP Passive Oppositionality	.25	**.70**	.12
DAPP Submissiveness	.24	**.70**	.11
DAPP Insecure Attachment	.04	**.58**	.26
DAPP Self-Harm	.30	.38	.28
SPQ Unusual Perceptions	.09	.14	**.76**
Chapman Magical Ideation	.12	.17	**.72**
SPQ Ideas of Reference	−.08	.17	**.67**
SPQ Odd Speech	.15	.34	**.56**
SPQ Odd Behavior	.23	.19	**.56**
SPQ Odd Beliefs	−.03	.13	**.50**
Chapman Perceptual Aberrations	.12	.25	**.49**
DAPP Suspiciousness	.39	.36	.23
DAPP Conduct Problems	.27	.10	.24

Note. Factor loadings > .40 are in boldface. SPQ = Schizotypal Personality Questionnaire; DAPP = Dimensional Assessment of Personality–Basic Questionnaire. Adapted from "A Dimensional Model of Personality Disorder: Incorporating *DSM* Cluster A Characteristics," by J. L. Tackett, A. L. Silberschmidt, R. F. Krueger, and S. R. Sponheim, 2008, *Journal of Abnormal Psychology, 117,* p. 457. Copyright 2008 by the American Psychological Association.

5.12 Table Titles

Give every table a brief but clear and explanatory title. The basic content of the table should be easily inferred from the title.

Too general:

Table 1

Relation Between College Majors and Performance [It is unclear what data are presented in the table.]

Too detailed:

Table 1

Mean Performance Scores on Test A, Test B, and Test C of Students With Psychology, Physics, English, and Engineering Majors [This duplicates information in the headings of the table.]

Good title:

Mean Performance Scores of Students With Different College Majors

Abbreviations that appear in the headings or the body of a table sometimes can be parenthetically explained in the table title.

Hit and False-Alarm (FA) Proportions in Experiment 2

Explain abbreviations that require longer explanations or that do not relate to the table title in a general note to the table (see section 5.16 and Table 5.2). Do not use a specific footnote to clarify an element of the title.

5.13 Table Headings

A table classifies related items and enables the reader to compare them. Data form the body of the table. Headings establish your organization of the data and identify the columns of data beneath them. Like a table title, a heading should be brief and should not be many more characters in length than the widest entry.

Poor:

Grade level
3
4
5

Better:

Grade
3
4
5

You may use standard abbreviations and symbols for nontechnical terms (e.g., *no.* for *number*, % for *percent*) and for statistics (e.g., *M*, *SD*, χ^2, or any other abbreviation in Table 4.4) in table headings without explanation. Abbreviations of technical terms, group names, and the like must be explained in the table title or in a note to the

table (see section 5.12). Abbreviations may also be explained parenthetically following entries in the stub column.

Each column of a table must have a heading, including the *stub column* or *stub*, which is the leftmost column of the table (see Table 5.1 for illustration of technical terms). Subordination within the stub is easier to comprehend if you indent the stub items rather than create an additional column (e.g., Tables 5.4 and 5.5). The stub usually lists the major independent or predictor variables. In Table 5.1, for instance, the stub lists the grades. Number elements only when they appear in a correlation matrix (see Table 5.6) or if they are referred to by number in text.

All headings identify items below them, not across from them. The headings just above the body of the table (called *column heads* and *column spanners*) identify the entries in the vertical columns in the body of the table. A column head covers just one column; a column spanner covers two or more columns, each with its own column

Table 5.4. Sample Table With Detailed Specifications of Complex Experimental Designs

Table X

Summary of Experimental Designs

Group	Stage I	Stage II	Test
Experiment 1			
Block	A+	AB+	B vs. D
		CD+	
Unblock intensity	A+	AB**+**	
		CD**+**	
Unblock number	A+	AB++	
		CD++	
Experiment 2	A+	AB+	AD vs. BC
	C+		
Experiment 3	A+		AD vs. BC
	B**+**		A, B, C, D
	C+		
	D++		
Experiment 4a	A+	AB**+**	AD vs. BC
	C+		
Experiment 4b	A+	AB++	AD vs. BC
	C+		
Experiment 5	A+	AB**+**	AD vs. BC
	C+	CD++	A, B, C, D

Note. A, B, C, and D were four conditioned stimuli: a clicker, tone, light, and flashing light, respectively (counterbalanced). + denotes a 0.4-mA shock unconditioned stimulus; ++ denotes two 0.4-mA shocks; **+** denotes a 0.8-mA unconditioned stimulus. Adapted from "Unblocking in Pavlovian Fear Conditioning," by L. Bradfield and G. P. McNally, 2008, *Journal of Experimental Psychology: Animal Behavior Processes, 34,* p. 259. Copyright 2008 by the American Psychological Association.

Table 5.5. Sample Table Display of a Sample's Characteristics

Table X

Individual and Family Characteristics as a Percentage of the Sample (Census Data in Parentheses)

Characteristic	Mother (*n* = 750)		Father (*n* = 466)		Child (*n* = 750)	
Self-identity						
Mexican	77.2		71.0		41.0	
Mexican American	22.8		29.0		59.0	
Nativity[a]						
Mexico	74.2	(38.2)	80.0	(44.2)	29.7	
United States	25.8	(61.8)	20.0	(55.8)	70.3	
Language preference[b]						
English	30.2	(52.7)	23.2	(52.7)	82.5	(70.0)
Spanish	69.8	(48.3)	76.8	(48.3)	17.5	(30.0)
Education level completed[a]						
8th grade or less	29.2	(30.7)	30.2	(33.4)		
Some high school	19.5	(20.9)	22.4	(22.6)		
12th grade	23.1	(22.5)	20.9	(20.7)		
Some college/vocational training	22.0	(19.2)	20.2	(17.1)		
Bachelors or higher	6.2	(6.8)	6.2	(6.2)		
Employment status[c]						
Employed	63.6	(46.6)	96.6	(97.1)		
Unemployed	11.2	(3.5)	3.5	(2.9)		
Housewife	25.2					

Note. Adapted from "Sampling and Recruitment in Studies of Cultural Influences on Adjustment: A Case Study With Mexican Americans," by M. W. Roosa, F. F. Liu, M. Torres, N. A. Gonzales, G. P. Knight, and D. Saenz, 2008, *Journal of Family Psychology, 22,* p. 300. Copyright 2008 by the American Psychological Association.

[a]Census data are for all women or men and are not limited to parents or adults in our age group. [b]The most comparable census data for mothers and fathers are for all adults 18 and older and for children are for 15- to 17-year-olds. [c]Census data are for all women, not just mothers, whereas the male data are limited to husbands.

head. Headings stacked in this way are called *decked heads.* Often decked heads can be used to avoid repetition of words in column heads (see Table 5.1). If possible, do not use more than two levels of decked heads.

Incorrect:

Temporal lobe:	Left	Right

Wordy:

Left temporal lobe	Right temporal lobe

Correct:

Temporal lobe	
Left	Right

Table 5.6. Sample Table of Correlations in Which the Values for Two Samples Are Presented

Table X

Summary of Intercorrelations, Means, and Standard Deviations for Scores on the BSS, BDI, SAFE, and MEIM as a Function of Race

Measure	1	2	3	4	*M*	*SD*
1. BSS	—	.54*	.29*	−.23*	1.31	4.32
2. BDI	.54*	—	.34*	−.14*	8.33	7.76
3. SAFE	.19*	.30*	—	−.074	47.18	13.24
4. MEIM	−.09	−.11	−.08	—	47.19	6.26
M	1.50	9.13	39.07	37.78		
SD	3.84	7.25	13.17	7.29		

Note. Intercorrelations for African American participants (n = 296) are presented above the diagonal, and intercorrelations for European American participants (n = 163) are presented below the diagonal. Means and standard deviations for African American students are presented in the vertical columns, and means and standard deviations for European Americans are presented in the horizontal rows. For all scales, higher scores are indicative of more extreme responding in the direction of the construct assessed. BSS = Beck Suicide Scale; BDI = Beck Depression Inventory; SAFE = Societal Attitudinal Familial Environmental; MEIM = Multigroup Ethnic Identity Measure. Adapted from "An Empirical Investigation of Stress and Ethnic Identity as Moderators for Depression and Suicidal Ideation in College Students," by R. L. Walker, L. R. Wingate, E. M. Obasi, and T. E. Joiner, 2008, *Cultural Diversity and Ethnic Minority Psychology, 14,* p. 78. Copyright 2008 by the American Psychological Association.
*p < .01.

A few tables may require *table spanners* in the body of the table. These table spanners cover the entire width of the body of the table, allowing for further divisions within the table (see Tables 5.1 and 5.15). Also, table spanners can be used to combine two tables provided they have identical column heads.

Any item within a column should be syntactically as well as conceptually comparable with the other items in that column, and all items should be described by the column head:

Nonparallel:

Condition
Functional psychotic
Drinks to excess
Character disorder

Parallel:

Condition
Functional psychosis
Alcoholism
Character disorder

Stub heads, column heads, and column spanners should be singular unless they refer to groups (e.g., *Children*), but table spanners may be plural. Capitalize only the first letter of the first word of all headings (column heads, column spanners, stub heads, and table spanners) and word entries. Also, capitalize the first letter of each word of all proper nouns and the first word following a colon or em dash.

Table 5.7. Sample Table of Results of Fitting Mathematical Models

Table X

Estimates [and 95% Confidence Intervals] for the Parameters of the Simplified Conjoint Recognition Model for Experiment 5

Parameter	List condition: Target-first	List condition: Target-last	List condition: Control	$\Delta G^2_{(df=2)}$	p
a	.43 [.30, .57]	.28 [.16, .40]	.24 [.10, .38]	4.26	.12
b	.26 [.19, .32]	.27 [.21, .33]	.19 [.13, .24]	4.68	.10
G_t	.29 [.00, .63]	.38 [.14, .63]	.28 [.03, .53]	0.39	.82
G_r	.43 [.19, .67]	.70 [.55, .84]	.72 [.56, .88]	4.86	.09
V_t	.89 [.83, .94]	.81 [.75, .87]	.86 [.80, .91]	3.20	.20
V_r	$.72_a$ [61, .82]	$.05_b$ [.00, .42]	$.23_b$ [.00, .62]	20.89	<.01

Note. Parameter estimates in each row that share subscripts do not differ significantly. a = probability of guessing "target"; b = probability of guessing that an item is either a target or a related probe; G_t = probability of retrieving a target's gist trace given a target probe; G_r = probability of retrieving a target's gist trace given a related probe; V_t = probability of retrieving a target's verbatim trace given a target probe; V_r = probability of retrieving a target's verbatim trace given a related probe. Adapted from "A Simplified Conjoint Recognition Paradigm for the Measurement of Gist and Verbatim Memory," by C. Stahl and K. C. Klauer, 2008, *Journal of Experimental Psychology: Learning, Memory, and Cognition, 34,* p. 579. Copyright 2008 by the American Psychological Association.

5.14 Table Body

Decimal values. The table body contains the data. Express numerical values to the number of decimal places that the precision of measurement justifies (see section 4.35), and if possible, carry all comparable values to the same number of decimal places.

Empty cells. If the point of intersection between a row and a column (called a *cell*) cannot be filled because data are not applicable, leave the cell blank. If a cell cannot be filled because data were not obtained or are not reported, insert a dash in that cell and explain the use of the dash in the general note to the table. By convention, a dash in

the main diagonal position of a correlation matrix (see Table 5.6) indicates the correlation of an item with itself, which must be 1.00, and is simply replaced by the dash. If you need to explain that an element of a table is unavailable or inapplicable, use a specific note rather than a dash (see section 5.16).

Conciseness. Be selective in your presentation. Do not include columns of data that can be calculated easily from other columns:

Not concise:

	No. responses			
Participant	First trial	Second trial	Total	*M*
1	5	7	12	6

The example could be improved by giving either the number of responses per trial or the total number of responses, whichever is more important to the discussion, and by not including the column with the mean because its calculation is simple.

5.15 Confidence Intervals in Tables

When a table includes point estimates, for example, means, correlations, or regression slopes, it should also, where possible, include confidence intervals. You may report confidence intervals in tables either by using brackets, as in text (see section 4.10) and in Table 5.8, or by giving lower and upper limits in separate columns, as in Table 5.9. In every table that includes confidence intervals, state the confidence level, for example, 95%. It is usually best to use the same confidence level throughout a paper.

5.16 Table Notes

Tables may have three kinds of notes placed below the body of the table: general notes, specific notes, and probability notes.

A *general note* qualifies, explains, or provides information relating to the table as a whole and ends with an explanation of any abbreviations, symbols, and the like. Included within general notes would be any acknowledgments that a table is reproduced from another source. General notes are designated by the word *Note* (italicized) followed by a period. (See Tables 5.1 and 5.4, among others.)

> *Note.* Factor loadings greater than .45 are shown in boldface. M = match process; N = nonmatch process.

A *specific note* refers to a particular column, row, or cell. Specific notes are indicated by superscript lowercase letters (e.g., [a, b, c]). Within the headings and table body, order the superscripts from left to right and from top to bottom, starting at the top left.

Table notes, general or specific, apply only to that specific table and not to any other table. Begin each table's first footnote with a superscript lowercase *a* (see Table 5.5).

> [a]*n* = 25. [b]This participant did not complete the trials.

Table 5.8. Sample Table Including Confidence Intervals With Brackets

Table X

Weight Status, Body Dissatisfaction, and Weight Control Behaviors at Time 1 and Suicidal Ideation at Time 2

	Unadjusted[a]		Adjusted for demographic variables[b]	
Variable	OR	95% CI	OR	95% CI
Weight status				
Young men	0.97	[0.78, 1.21]	0.94	[0.75, 1.19]
Young women	1.06	[0.88, 1.26]	1.02	[0.85, 1.23]
Body dissatisfaction				
Young men	0.88	[0.50, 1.54]	0.99	[0.56, 1.75]
Young women	1.06	[0.77, 1.46]	1.02	[0.74, 1.42]
UWCB				
Young men	0.81	[0.54, 1.24]	0.77	[0.50, 1.19]
Young women	0.89	[0.65, 1.21]	0.93	[0.68, 1.27]
EWCB				
Young men	1.36	[0.55, 3.36]	1.73	[0.69, 4.37]
Young women	1.98	[1.34, 2.93]	2.00	[1.34, 2.99]

Note. OR = odds ratio; CI = confidence interval; UWCB = unhealthy weight control behaviors; EWCB = extreme weight control behaviors. Adapted from "Are Body Dissatisfaction, Eating Disturbance, and Body Mass Index Predictors of Suicidal Behavior in Adolescents? A Longitudinal Study," by S. Crow, M. E. Eisenberg, M. Story, and D. Neumark-Sztainer, 2008, *Journal of Consulting and Clinical Psychology, 76,* p. 890. Copyright 2008 by the American Psychological Association.
[a]Four weight-related variables entered simultaneously. [b]Adjusted for race, socioeconomic status, and age group.

A *probability note* indicates how asterisks and other symbols are used in a table to indicate *p* values and thus the results of tests of statistical hypothesis testing. For results of statistical significance testing in text and tables, report the exact probabilities to two or three decimal places (e.g., $p = .023$ as opposed to $p < .05$; see Table 5.7 and section 4.35). When displaying the result in graphical modes (including certain tables such as tables of correlation matrices), it may be difficult to follow this recommendation without making the graphic unruly. Therefore, when displaying results graphically, revert to reporting in the "$p <$" style if using exact probabilities would make it difficult to comprehend the graphic. When discussing the results in the text, use exact probabilities regardless of the display mode. Include a probability note only when relevant to specific data within the table.

If the "$p <$" style is required, asterisks indicate ranges of *p* values. Assign the same number of asterisks from table to table within your paper, such as $*p < .05$, $**p < .01$, and $***p < .001$. Do not use any value smaller than $***p < .001$.

Table 5.9. Sample Table Including Confidence Intervals With Upper and Lower Limits

Table X

Estimated Distance (cm) for Letter and Digit Stimuli

		95% CI	
Condition	*M* (*SD*)	*LL*	*UL*
Letters	14.5 (28.6)	5.4	23.6
Digits	31.8 (33.2)	21.2	42.4

Note. CI = confidence interval; *LL* = lower limit, *UL* = upper limit.

If you need to distinguish between one-tailed and two-tailed tests in the same table, use an asterisk for the two-tailed p values and an alternate symbol (e.g., dagger) for the one-tailed p values.

$^{*}p < .05$, two-tailed. $^{**}p < .01$, two-tailed. $^{\dagger}p < .05$, one-tailed.
$^{\dagger\dagger}p < .01$, one-tailed.

To indicate statistically significant differences between two or more table entries—for example, means that are compared with procedures such as a Tukey test—use lowercase subscripts (see Table 5.7). Explain the use of the subscripts in the table note (see the following sample table notes).

Note. Means sharing a common subscript are not statistically different at $\alpha = .01$ according to the Tukey HSD procedure.

Order the notes to a table in the following sequence: general note, specific note, probability note (see Table 5.1).

Note. The participants . . . responses.
$^{a}n = 25$. $^{b}n = 42$.
$^{*}p < .05$. $^{**}p < .01$.

Each type of note begins flush left (i.e., no paragraph indentation) on a new line below the table. The first specific note begins flush left on a new line under the general note; subsequent specific notes are run in (lengthy specific notes may be set on separate lines when typeset). The first probability note begins flush left on a new line; subsequent probability notes are run in.

Notes can be useful for eliminating repetition from the body of a table. Certain types of information may be appropriate either in the table or in a note. To determine the placement of such material, remember that clearly and efficiently organized data enable the reader to focus on the data. Thus, if probability values or subsample sizes are numerous, use a column rather than many notes. Conversely, if a row or column contains few entries (or the same entry), eliminate the column by adding a note to the table:

Poor:

Group	n
Anxious	15
Depressed	15
Control	15

Better:

Group[a]
Anxious
Depressed
Control

$^{a}n = 15$

5.17 Ruling of Tables

Limit the use of *rules* (i.e., lines) in a table to those that are necessary for clarity. Appropriately positioned white space can be an effective substitute for rules; for example, long, uninterrupted columns of numbers or words are more readable if a horizontal line of space is inserted after every fourth or fifth entry. In the manuscript, use spacing between columns and rows and strict alignment to clarify relationships within a table.

Tables may be submitted either single- or double-spaced. Consider the readability of the table during the review process in making your decision.

5.18 Presenting Data in Specific Types of Tables

Complex experimental designs can be summarized in compact tables, making the entire structure of the experiment clear without the need for lengthy textual descriptions (see Table 5.4).

Important characteristics of a sample can be concisely summarized in a well-organized table. Providing comparable census data can help the reader understand the generalizability of the results (see Table 5.5).

Key psychometric properties of the major variables can be easily summarized in a table (see Table 5.10). Clearly state the index of reliability (or other psychometric property) being used and the sample on which the reliability was based (if different from the study sample).

Table 5.11 shows one-degree-of-freedom within-subject contrasts within a larger set of effects, including both confidence intervals and effect sizes. In Table 5.6, note the compact, yet information-packed, form in which the intercorrelations among the variables for two different groups are presented in the same table—one group below the main diagonal, the other above the main diagonal. Means and standard deviations for the two groups are similarly positioned, with the Group 1 means and standard deviations given in the last two data columns and those for Group 2 in the last two data rows. Construction of a correlation matrix of this type not only is concise in terms of the amount of page space used but also makes the visual comparison of correlational elements much easier.

Clearly label the type of regression (e.g., hierarchical) and type of regression coefficients (raw or standardized) being reported (see Tables 5.12 and 5.13). For hierarchical and other sequential regressions, be sure to provide the increments of change (see section 4.44).

In model-comparison tables, ensure that the competing models are clearly identified and that the comparisons are clearly specified. Comparative fit indices can be useful for the reader (see Tables 5.14 and 5.15).

Table 5.10. Sample Table Display of Psychometric Properties of Key Outcome Variables

Table X

Psychometric Properties of the Major Study Variables

Variable	*n*	*M*	*SD*	α	Range		Skew
					Potential	Actual	
Dispositional affectivity							
Positive	560	3.27	0.77	.91	1–5	1.0–5.0	–0.36
Negative	563	2.26	0.79	.91	1–5	1.0–4.7	0.63
Social support							
Mother	160	4.17	1.08	.92	1–5	1.0–5.0	–1.54
Partner	474	4.03	1.19	.94	1–5	1.0–5.0	–1.26
Friend	396	4.37	0.89	.90	1–5	1.0–5.0	–1.94
Social conflict							
Mother	159	1.22	0.47	.81	1–5	1.0–3.6	3.07
Partner	471	1.40	0.79	.90	1–5	1.0–5.0	2.63
Friend	381	1.15	0.45	.79	1–5	1.0–5.0	5.27
Postabortion adjustment							
Distress	609	0.59	0.63	.90	0–4	0.0–3.0	1.56
Well-being	606	4.60	0.69	.85	1–6	2.3–6.0	–0.53

Note. The variation in *sample size* is due to the variation in the number of women who told a particular source about the abortion. Adapted from "Mixed Messages: Implications of Social Conflict and Social Support Within Close Relationships for Adjustment to a Stressful Life Event," by B. Major, J. M. Zubek, M. L. Cooper, C. Cozzarelli, and C. Richards, 1997, *Journal of Personality and Social Psychology, 76,* p. 1355. Copyright 1997 by the American Psychological Association.

The two illustrative samples in Table 5.3 demonstrate how table formatting can be varied depending on the emphasis desired. Tables may contain entries other than just numerals (e.g., text; see Table 5.16) as long as the basic row by column structure is maintained.

Table 5.11. Sample Table of One-Degree-of-Freedom Statistical Contrasts

Table X

Contrast of Time 1 With Time 2 For Exhaustion-Only Group That Changed Toward Burnout

Variable	Time 1		Time 2		*t*(34)	*p*	95% CI		Cohen's *d*
	M	*SD*	*M*	*SD*			*LL*	*UL*	
Workload	2.79	0.89	2.61	0.66	1.61	.12	–0.06	0.42	0.72
Control	3.60	0.83	3.13	1.18	1.91	.06	–0.05	0.98	0.85
Reward	3.58	0.82	3.26	0.62	1.68	.10	–0.08	0.70	0.75
Community	3.75	0.79	3.21	1.01	2.96	.006	0.16	0.92	1.32
Fairness	2.77	0.65	2.32	0.97	2.33	.03	0.05	0.85	1.04
Values	3.25	0.78	2.65	0.93	3.70	<.001	0.26	0.94	1.65
Exhaustion	3.16	0.96	3.62	0.95	–2.08	.05	–0.92	0.00	–0.93
Cynicism	0.92	0.38	3.30	1.05	–8.71	<.001	–2.95	–1.81	–3.89
Efficacy	4.54	1.08	4.38	1.25	0.51	.61	–0.49	0.80	0.23

Note. CI = confidence interval; *LL* = lower limit; *UL* = upper limit. Adapted from "Early Predictors of Job Burnout and Engagement," by C. Maslach and M. Leiter, 2008, *Journal of Applied Psychology, 93,* p. 509. Copyright 2008 by the American Psychological Association.

Table 5.12. Sample Regression Table

Table X

Predictors of Self-Reported Moral Behavior

	Self-reported moral behavior		
		Model 2	
Variable	Model 1 *B*	*B*	95% CI
Constant	3.192**	2.99**	[2.37, 3.62]
Gender	0.18*	0.17	[–0.00, 0.33]
Age	–0.06	–0.05	[–0.14, 0.03]
Social desirability bias	–0.08**	–0.08**	[–0.10, –0.05]
Moral identity internalization	–0.17**	–0.16**	[–0.26, –0.06]
Moral identity symbolization	0.07*	0.06	[–0.01, 0.12]
Perceptual moral attentiveness		0.07*	[0.00, 0.13]
Reflective moral attentiveness		–0.01	[–0.08, 0.06]
R^2	.29	.31	
F	19.07**	14.46**	
ΔR^2		.01	
ΔF		2.39	

Note. $N = 242$. CI = confidence interval. Adapted from "Moral Attentiveness: Who Pays Attention to the Moral Aspects of Life?" by S. J. Reynolds, 2008, *Journal of Applied Psychology, 93,* p. 1035. Copyright 2008 by the American Psychological Association.
*$p < .05$. **$p < .01$.

Table 5.13. Sample Hierarchical Multiple Regression Table

Table X

Hierarchical Multiple Regression Analyses Predicting Postabortion Positive Well-Being From Preabortion Social Support and Preabortion Social Conflict With Mother, Partner, and Friend

	Source of social support and social conflict					
	Mother		Partner		Friend	
Predictor	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1	.13*		.10***		.10***	
Control variables[a]						
Step 2	.16***		.19***		.22***	
Positive affect		.31***		.32***		.35***
Negative affect		–.25***		–.27***		–.30***
Step 3	.02		.05***		.01*	
Social support		.17*		.17***		.08†
Social conflict		.09		–.08		–.06
Step 4	.01		.00		.00	
Social Support × Social Conflict		–.14		–.00		–.07
Total R^2	.32***		.33***		.34***	
n	153		455		373	

Note. Adapted from "Mixed Messages: Implications of Social Conflict and Social Support Within Close Relationships for Adjustment to a Stressful Life Event," by B. Major, J. M. Zubek, M. L. Cooper, C. Cozzarelli, and C. Richards, 1997, *Journal of Personality and Social Psychology, 72,* p. 1359. Copyright 1997 by the American Psychological Association.
[a]Control variables included age, race, education, marital status, religion, abortion history, depression history, and prior mental health counseling.
†$p < .10$. *$p < .05$. ***$p < .001$.

Table 5.14. Sample Model Comparison Table

Table X

Fit Indices for Nested Sequence of Cross-Sectional Models

Model	χ^2	NFI	PFI	χ^2_{diff}	NFI
1. Mobley's (1977) measurement model	443.18*	.92	.67		
2. Quit & search intentions	529.80*	.89	.69		
Difference between Model 2 and Model 1				86.61*	.03
3. Search intentions & thoughts of quitting	519.75*	.90	.69		
Difference between Model 3 and Model 1				76.57*	.02
4. Intentions to quit & thoughts of quitting	546.97*	.89	.69		
Difference between Model 4 and Model 1				103.78*	.03
5. One withdrawal cognition	616.97*	.87	.70		
Difference between Model 5 and Model 1				173.79*	.05
6. Hom, Griffeth, & Sallaro's (1984) structural model	754.37*	.84	.71		
Difference between Model 6 and Model 5				137.39*	.03
7. Structural null model	2,741.49*	.23	.27		
Difference between Model 7 and Model 6				1,987.13*	.61
8. Null model	3,849.07*				

Note. NFI = normed fit index; PFI = parsimonious fit index. Adapted from "Structural Equations Modeling Test of a Turnover Theory: Cross-Sectional and Longitudinal Analyses," by P. W. Hom and R. W. Griffeth, 1991, *Journal of Applied Psychology, 76*, p. 356. Copyright 1991 by the American Psychological Association.
*$p < .05$.

Table 5.15. Sample Multilevel Model Table

Table X

Fixed Effects Estimates (Top) and Variance–Covariance Estimates (Bottom) for Models of the Predictors of Positive Parenting

Parameter	Model 1	Model 2	Model 3	Model 4	Model 5
			Fixed effects		
Intercept	12.51 (0.04)	12.23 (0.07)	12.23 (0.07)	12.23 (0.07)	12.64 (0.11)
Level 1 (child-specific)					
Age		−0.49* (0.02)	−0.48* (0.02)	−0.48* (0.02)	−0.48* (0.02)
Age²		0.06* (0.01)	0.06* (0.01)	0.06* (0.01)	0.06* (0.01)
Negative affectivity		−0.56* (0.08)	−0.53* (0.08)	−0.57* (0.09)	−0.57* (0.09)
Girl		0.05 (0.05)	0.05 (0.05)	0.04 (0.05)	0.07 (0.05)
Not bio. mother		−0.34 (0.26)	−0.28 (0.26)	−0.28 (0.26)	−0.30 (0.28)
Not bio. father		−0.34* (0.10)	−0.31* (0.10)	−0.30* (0.10)	−0.29 (0.15)
Oldest sibling		0.38* (0.07)	0.37* (0.07)	0.37* (0.07)	0.36* (0.07)
Middle sibling		−0.36* (0.06)	−0.34* (0.06)	−0.35* (0.06)	−0.28* (0.06)
Level 2 (family)					
SES					0.18* (0.06)
Marital dissatisfaction					−0.43* (0.14)
Family size					−0.41* (0.08)
Single parent					0.09 (0.19)
All-girl sibship					−0.20 (0.13)
Mixed-gender sibship					−0.25* (0.10)
			Random parameters		
Level 2					
Intercept/intercept (σ^2_{s0})	5.13* (0.17)	4.87* (0.15)	4.92* (0.15)	4.86* (0.15)	4.79* (0.14)
Age/age (σ^2_{s1})			0.09* (0.01)	0.09* (0.01)	0.09* (0.01)

(continued)

Table 5.15. Sample Multilevel Model Table (continued)

Parameter	Model 1	Model 2	Model 3	Model 4	Model 5
Age/intercept (σ^2_{s10})			–0.04 (0.03)	–0.05 (0.03)	–0.05 (0.03)
Neg. affect/neg. affect (σ^2_{s3})				1.51* (0.46)	1.51* (0.46)
Neg. affect/ intercept (σ^2_{s30})				–0.03 (0.20)	–0.02 (0.20)
Neg. affect/ age (σ^2_{s31})				0.00 (0.05)	–0.00 (0.05)
Level 1					
Intercept/ intercept (w_0)	3.80* (0.08)	2.74* (0.06)	2.30* (0.07)	2.19* (0.07)	2.18* (0.07)
–2*log likelihood	38,369.7	37,001.9	36,919.6	36,899.8	36,849.4

Note. Standard errors are in parentheses. Not bio. mother = not living with the biological mother; Not bio. father = not living with the biological father; SES = socioeconomic status; Neg. affect = negative affectivity. Adapted from "The Role of the Shared Family Context in Differential Parenting," by J. M. Jenkins, J. Rasbash, and T. G. O'Connor, 2003, *Developmental Psychology, 39,* p. 104. Copyright 2003 by the American Psychological Association.
*$p < .05$.

Table 5.16. Sample Word Table

Table X

Inductively Developed Thematic Categories

Category	Thematic category	Key terms	Characteristic Level 3 responses
Family traditionalism			Q1. How "should" husbands wives, and children act? What is the "right way" to act? What are certain family members supposed to do?
F1	Macho privilege	Man, woman, say, house OR mother	The husband is the one who gives "orders." The wife never says what she feels. The children should "obey," no matter what.
F2	Family trust and respect	Respect OR trust OR work OR help	Always share everything equally and there should be respect among everyone/ between couples and children.
F3	Family unity	Family OR unity	Above all, there should be family unity.
F4	Values traditions	Tradition OR continue OR important	If she is a true believer, she should always participate in the traditions.
Rural lifestyle			Q2. Many "traditional" people like Maria believe that life in a small rural town is better than life in a big city. Please tell me some of these beliefs.
R1	Small town life is better	Small town OR everybody knows each other	Because there is so much violence in the big city. . . . You know your town and people and you trust each other like family.
R2	Big city opportunities	Live OR believe OR big cities OR better	Better to live in a big city because there are more jobs and educational opportunities.
R3	Rural tranquility	Life OR less stress OR rural	I agree that life in a small town is better because in a small town life is more peaceful. There is less gang activity and overall life is more peaceful.
R4	It depends	It depends OR more opportunities OR the city	Sometimes it is true that rural life is better. However, it's also true that a big city can help you or can destroy you; that depends on you.

Note. Adapted from "Traditions and Alcohol Use: A Mixed-Methods Analysis," by F. G. Castro and K. Coe, 2007, *Cultural Diversity and Ethnic Minority Psychology, 13,* p. 276. Copyright 2007 by the American Psychological Association.

5.19 Table Checklist

The following checklist may help ensure that the data in your table are effectively presented and conform to the style rules presented in this chapter.

Table Checklist

- ☐ Is the table necessary?
- ☐ Does it belong in the print version of the article, or can it go in an online supplemental file?
- ☐ Are all comparable tables in the manuscript consistent in presentation?
- ☐ Is the title brief but explanatory?
- ☐ Does every column have a column head?
- ☐ Are all abbreviations explained, as well as special use of italics, parentheses, italics, dashes, boldface, and special symbols?
- ☐ Are the notes in the following order: general note, specific note, probability note?
- ☐ Are all vertical rules eliminated?
- ☐ Are confidence intervals reported for all major point estimates? Is the confidence level—for example, 95%—stated, and is the same level of confidence used for all tables and throughout the paper?
- ☐ If statistical significance testing is used, are all probability level values correctly identified? Are asterisks attached to the appropriate table entries only when needed (as opposed to stating exact probabilities)? When used, is a probability level assigned the same number of asterisks in all tables in the same paper?
- ☐ If all or part of a copyrighted table is reproduced or adapted, do the table notes give full credit to the copyright owner? Have you received written permission for reuse (in print and electronic form) from the copyright holder and sent a copy of that written permission to the journal editor with the final version of your paper?
- ☐ Is the table referred to in text?

Figures

5.20 Principles of Figure Use and Construction

There are many different types of figures; however, certain principles are the same for all figure types. The first consideration is the information value of the figure in the context of the paper in which it is to appear. If the figure does not add substantively to the understanding of the paper or duplicates other elements of the paper, it should not be

included. A second consideration is whether a figure is the best way to communicate the information. In some cases (particularly when quantitative information is being conveyed), a table may offer more precision than, say, a graph. A third consideration is the degree to which the figure can be produced in a way that captures the essential information features desired without visually distracting detail. When considering inclusion of a figure, always remember that the information value of the figure must dominate other decisions. If you focus on the principle of information value, other questions—for example, use of color, use of photographic images, or magnitude of cropping of a picture—should be relatively easy to resolve.

As with other elements of a manuscript, you may wish to consider placing some figures in online supplemental materials archives when those are available. Figures placed in online supplemental materials archives are those that would enrich the understanding of the material presented in the print version of the article but are not essential to the basic understanding of the material. You might want also to include materials that cannot be displayed in print format, such as video clips. As with other online supplemental materials, figures must be able to be understood on their own (see section 2.13). Therefore label them clearly and use detailed legends.

5.21 Types of Figures

Many types of figures can be used to present data to the reader. Sometimes the choice of which type to use will be obvious; at other times it will not. The more common types of figures used are described next.

- *Graphs* typically display the relationship between two quantitative indices or between a continuous quantitative variable (usually displayed as the *y* axis) and groups of subjects displayed along the *x* axis.
- *Charts* generally display nonquantitative information such as the flow of subjects through a process, for example, flow charts.
- *Maps* generally display spatial information.
- *Drawings* show information pictorially.
- *Photographs* contain direct visual representations of information.

Although these are general prototypes, there are many variations and versions of each, and the distinctions among many of them are not clear. Computer-generated images can be made to seem as if they are life-reflecting photographs, and photographs can be engineered to look more like drawings. Whenever photographic images are changed in a way that their basic information is modified, you must disclose the manipulation (see section 5.29).

Figures can be effectively used to illustrate complex theoretical formulations (see Figure 5.1) or to represent a theory graphically through a set of path models (see Figure 5.2). They can also show the sampling and flow of subjects through a randomized clinical trial or other experiment (see Figure 5.3) or the flow of participants in a survey study (see Figure 5.4). Figures can be used to illustrate the results of a one-way design with error bars representing precision of the resulting estimates (see Figure 5.5) or empirical results from a complex multivariate model (see Figure 5.6). They can also show details concerning the kinds of responses being gathered and scoring methods (see Figure 5.7) as well as details of an experimental laboratory set-up (see Figure 5.8) and an experimental procedure (see Figure 5.9).