AGE

Mean	40.158	Median	41.000	Mode	34.000
Std dev	8.146	Variance	66.363	Range	28.000

ANXIETY

Mean	3.737	Median	4.000	Mode	3.000
Std dev	1.046	Variance	1.094	Range	3.000

COMPUTER

Mean	2.895	Median	3.000	Mode	3.000
Std dev	1.150	Variance	1.322	Range	4.000

PREDICT

Mean	3.895	Median	4.000	Mode	3.000
Std dev	.809	Variance	.655	Range	2.000

* Multiple modes exist. The smallest value is shown.

QUIZ1

Mean	7.858	Median	8.000	Mode	8.500
Std dev	1.209	Variance	1.461	Range	4.500

- - Correlation Coefficients - -

	AGE	ANXIETY	COMPUTER	PREDICT	QUIZ1
AGE	1.0000	-.0601	.4586	.3397	-.1132
	(19)	(19)	(19)	(19)	(19)
	P= .	P= .807	P= .048	P= .155	P= .644
ANXIETY	-.0601	1.0000	-.4402	-.6253	-.3476
	(19)	(19)	(19)	(19)	(19)
	P= .807	P= .	P= .059	P= .004	P= .145
COMPUTER	.4586	-.4402	1.0000	.5248	.1485
	(19)	(19)	(19)	(19)	(19)
	P= .048	P= .059	P= .	P= .021	P= .544
PREDICT	.3397	-.6253	.5248	1.0000	.4211
	(19)	(19)	(19)	(19)	(19)
	P= .155	P= .004	P= .021	P= .	P= .073
QUIZ1	-.1132	-.3476	.1485	.4211	1.0000
	(19)	(19)	(19)	(19)	(19)
	P= .644	P= .145	P= .544	P= .073	P= .

(Coefficient / (Cases) / 2-tailed Significance)

" . " is printed if a coefficient cannot be computed

Questionnaire

1. Rate your own competency with computers.	1 Very Poor	2	3 Ave.	4	5 Very Good
2. Rate your anxiety level regarding statistics.	1 No Anxiety	2	3 Ave.	4	5 Very High
3. What is your prediction about your performance in this class?	1 Very Poor	2	3 Ave.	4	5 Very High

Correlations

		HOURS_TV	HOURS_RA	AGE	WEIGHT
HOURS_TV	Pearson Correlation	1.000	-.347	.027	.335
	Sig. (2-tailed)	.	.061	.889	.071
	N	30	30	30	30
HOURS_RA	Pearson Correlation	-.347	1.000	.297	-.404*
	Sig. (2-tailed)	.061	.	.111	.027
	N	30	30	30	30
AGE	Pearson Correlation	.027	.297	1.000	-.041
	Sig. (2-tailed)	.889	.111	.	.830
	N	30	30	30	30
WEIGHT	Pearson Correlation	.335	-.404*	-.041	1.000
	Sig. (2-tailed)	.071	.027	.830	.
	N	30	30	30	30

*. Correlation is significant at the 0.05 level (2-tailed).

Descriptives

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std.
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
HOURS_TV	30	69.00	1.00	70.00	14.1333	15.6398
HOURS_RA	30	16.00	.00	16.00	4.8333	3.8693
AGE	30	26.00	24.00	50.00	33.9000	8.4255
WEIGHT	30	138.00	102.00	240.00	159.7000	36.2141
Valid N (listwise)	30					

Descriptive Statistics

	Variance	Skewness	
	Statistic	Statistic	Std. Error
HOURS_TV	244.602	2.207	.427
HOURS_RA	14.971	1.379	.427
AGE	70.990	.590	.427
WEIGHT	1311.459	.464	.427
Valid N (listwise)			

negative value, but this is not so. Two correlation coefficients having the same absolute value but differing in sign indicate the same degree of relationship. Only the direction of the relationship differs. Thus, a correlation coefficient of −.50 indicates just as strong a relationship between two variables as a coefficient of +.50.

To summarize the relationship between a scatter diagram and the correlation coefficient, *the correlation coefficient is a number that indicates how well the data points in a scatter diagram "hug" the straight line of best fit.* With perfect correlations, all the data points fall exactly on a straight line as in Figures 9.3*a* and 9.4*c* and the value of the coefficient is ±1.0. When the association between two variables is less than perfect, the data points show some scatter about the straight line that summarizes the relationship, and the *absolute* value of the correlation coefficient is less than 1.0. The weaker the relationship, the more scatter and the lower the absolute value of the correlation coefficient.

In the real world, perfect correlations occur only in trivial instances; for example, the correlation will be −1.00 between the number of correct answers on a test and the number of errors plus omissions. Table 9.4 lists typical values of

TABLE 9.4
Typical Values of *r*

VARIABLES	*r*
IQ from one form of Wechsler Adult Intelligence Test (WAIS) and IQ from an alternate form	+.90
Childhood IQ and adult IQ	+.70 to +.85
Age of man and age of woman among married American parents	+.85
Age of man and age of woman among unmarried American parents	+.70
Father's years of education and grown child's years of education	+.60
Verbal score on Scholastic Aptitude Test (SAT) and mathematics score on SAT	+.60
IQ of husband and IQ of wife	+.50
Total score on SAT and freshman-year grade point average (GPA)	+.35
Total score on Graduate Record Exam (GRE) and undergraduate GPA among applicants to a highly selective graduate program in psychology	+.20
Height of man and height of woman among American parents, married or unmarried	+.20
Weight of man and weight of woman among American parents, married or unmarried	+.10
Attitudes about school and cutting school among junior high and high school students	−.29
Authoritarianism and aestheticism among high school seniors	−.42
Latency of visual evoked response and conceptual age at time of birth	−.61

Sources: Information on WAIS from Matarazzo (1972); on childhood IQ from McCall (1977); on American parents from Plomin, DeFries, and Roberts (1977) and from Follman (1984); on SAT and GPA from Slack and Porter (1980); on GRE and GPA from Dawes (1975); on attitudes about school from Epstein and McPartland (1976); on attitudes about authoritarianism and aestheticism from Nolan, Bram, and Tillman (1963); on visual evoked response and conceptual age from Engel and Benson (1968).

Chapter 3: Misconceptions

When people read, hear, or prepare research summaries, they sometimes have misconceptions about what is or isn't "sound practice" regarding the collection, analysis, and interpretation of data. Here are some of these common (and dangerous) misconceptions associated with the content of Chapter 3.

1. A correlation coefficient does a better job of summarizing the strength and direction of a relationship between two variables than does a scatter diagram.

2. If the correlation between the scores on two variables is very high, then the two means must be very similar.

3. A correlation of .80 indicates twice the "relationship strength" as compared to a correlation of .40.

4. A correlation never speaks to the notion of "cause and effect."

5. If a single outlier is removed from a very large group, the value of r cannot change very much.

6. An r of -.90 signifies a "low" relationship.

7. If the correlation between two variables is equal to +.50 for a subgroup of men, and if the correlation between these same two variables is +.50 for a subgroup of women, then the correlation between these two variables will be +.50 for the combined group of men and women.

8. There are commonly agreed-upon guidelines that clarify for researchers when they should use terms such as "strong," "moderate," and "weak" to describe relationship strength.

9. A linear relationship between two variables exists only if the dots in a scatter diagram all fall on a straight line.

10. If the researcher's data correspond to two variables that are qualitative in nature, it's impossible to compute a correlation coefficient.