

05/29/2003

IASSIST 2003 **Statistical Literacy Survey: Reading Tables & Graphs** 1

IASSIST 2003

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05/29/2003

IASSIST 2003 **Subjects** 2

Convenience survey of 191 subjects:

Q1. 36% have discomfort with formal statistics
 Q3. 95% have quantitative occupations/majors.
 Q4. 41% college students (20% are college teachers)
 Q6. 29% were not native speakers of English.
 Q7: 39% had taken at least 2 courses in statistics
 46% had not taken any course in statistics.

A unique sample!

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IASSIST 2003 **Reading a Pie Chart** 3

90% said "20% of smokers are Catholics"
 47% said "Protestants (40%) are twice as likely to be smokers as are Catholics (20%)"

Religion	Percentage
Catholics	20%
Protestants	40%
Other	40%

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IASSIST 2003 **Reading A Bar Chart** 4

50% said "20% of Protestant Males are runners."

Religion	Male (%)	Female (%)
Catholics	10%	15%
Other	25%	10%
Protestants	20%	20%

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IASSIST 2003 **Reading a Scatter Plot** 5

53% said "Protestants are more likely to commit suicide than non-Protestants [are]."

Percentage of Population in Province who are Protestants	Suicides per 100,000 population
~10	~20
~20	~40
~40	~70
~50	~60
~60	~80
~80	~150
~90	~220
~95	~240

05/29/2003

IASSIST 2003 **Reading 100% Tables** 6

30% said, "25% of females are black."
 48% said, "Whites are two times as likely to be female than are blacks."

RACE	SEX		TOTAL
	Male	Female	
Black	75%	25%	100%
White	50%	50%	100%
Other	40%	60%	100%
TOTAL	50%	50%	100%

05/29/2003

IASSIST 2003 7

Reading Percentages in a Two-Way Half Table

39% said “20% of runners are female smokers.”
 39% said “20% of females are runners who smoke”

PERCENTAGE WHO ARE RUNNERS			
	Non-smoker	Smoker	Total
Female	50%	20%	40%
Male	25%	10%	20%
Total	37%	15%	30%

05/29/2003

IASSIST 2003 8

Reading Half Tables of Percentages

42% said “In 1996 in the US,
 6% of low-weight births were in California (CA).”

STATE	PERCENT OF BIRTHS WITH LOW BIRTH WEIGHT ¹		
	1990	1995	1996
U.S.	7.0	7.3	7.4
AL.	8.4	9.0	9.3
AK.	4.8	5.3	5.5
AZ.	6.4	6.8	6.6
AR.	8.2	8.2	8.5
CA.	5.8	6.1	6.0

05/29/2003

IASSIST 2003 9

Reading Multiple Half-Tables of Percentages

54% said 10% of women having HIV test are 40-44.
 59% said “20% is two times more than 10%”

Percent of Women, 15 to 44, Who Received Selected Medical Services				
Age At Interview	HIV Test	Pregnancy Test	Pap Smear	
15-19 years old	14.6	16.1	33.5	
20-24 years old	20.0	27.4	68.7	
25-29 years old	25.6	25.3	70.9	
30-34 years old	18.5	17.4	69.5	
35-39 years old	14.2	8.1	62.9	
40-44 years old	10.0	4.3	62.7	
Total	17.3	16.0	61.9	

05/29/2003

IASSIST 2003 10

Statistical Literacy Survey: Reading Tables of Rates

42% said, “In 1995 for Alaskans who were in motor vehicle accidents, the death rate was 16.1 per 100,000”

STATE 1995	Total	Heart disease	Cancer	Cerebro-vascular diseases	Accidents	Motor vehicle	Chronic obstructive pulmonary disease	Diabetes mellitus	HIV	Suicide	Homicide
United States	880.0	280.7	204.9	60.1	35.5	16.5	39.2	22.6 (NA)	11.9	8.7	
D.C.	1,244.2	302.4	267.2	66.8	34.8	12.3	24.2	39.5	117.8	7.0	56.8
West Virginia	1,107.0	378.9	259.4	67.9	40.4	21.2	60.0	32.8	0.0	15.1	5.5
Florida	1,081.3	351.6	263.5	69.9	38.1	19.8	52.9	26.0	30.8	15.3	8.8
Arkansas	1,075.1	339.8	244.7	91.5	48.8	26.3	45.0	32.4	6.8	14.5	11.6
Pennsylvania	1,059.2	359.7	250.7	68.6	35.3	13.1	43.9	28.2	11.5	12.1	6.5
Missouri	1,021.9	345.3	230.7	72.9	43.5	20.6	46.1	23.4	8.8	13.5	8.9
California	709.8	216.3	162.8	51.4	28.3	14.1	38.2	16.2	20.4	11.7	11.6
Colorado	667.6	172.1	145.9	42.7	39.8	18.6	42.3	14.3	10.9	17.5	5.7
Hawaii	643.1	196.0	156.4	51.5	27.6	12.0	20.4	14.2	10.4	12.0	4.9
Utah	560.6	148.1	109.6	39.9	32.4	17.2	24.1	31.3	4.8	14.8	3.9
Alaska	423.0	90.6	95.1	24.0	56.2	16.1	17.7	9.3	5.0	17.1	8.9

05/29/2003

IASSIST 2003 11

Respondents' Evaluations

78% said *tasks harder than expected.* Q64

90% said “*These tables and graphs are the kind I need and/or want to be able to read or understand.*” Q68

93% said “*College students should be able to read these kinds of tables and graphs.*” Q69

05/29/2003

IASSIST 2003 12

IASSIST Action: Give Institutional Support

Institutional support is needed on:

1. Teaching using empirical data as evidence
2. Using summary data (versus micro-data)
3. Using observational data with confounding
4. Reading tables of rates and percentages
5. Describing/comparing rates and percentages
6. Distinguishing association and causation
7. Taking associated factors into account