Ipsos Poll Conducted for Reuters

National Football League Topline 09.23.2014

These are findings from an Ipsos poll conducted for Thomson Reuters from September 19-23, 2014. For the surveys, a sample of 1,247 Americans 18+ were interviewed online. The precision of the Reuters/Ipsos online polls is measured using a credibility interval. In this case, the poll has a credibility interval of plus or minus 3.2 percentage points. For more information about credibility intervals, please see the appendix.

The data were weighted to the U.S. current population data by gender, age, education, and ethnicity. Statistical margins of error are not applicable to online polls. All sample surveys and polls may be subject to other sources of error, including, but not limited to coverage error and measurement error. Figures marked by an asterisk (*) indicate a percentage value of greater than zero but less than one half of one per cent. Where figures do not sum to 100, this is due to the effects of rounding. To see more information on this and other Reuters/Ipsos polls, please visit http://polling.reuters.com/.

NATIONAL FOOTBALL LEAGUE

Q1. Thinking back to last year's football (NFL) season, how often did you watch or attend games?

Once or more a week	30%
Once or twice a month	8%
A few times during the season	17%
Just the playoffs	3%
Just the Super Bowl	12%
Never	31%
Total Watches/Attends Games	*69%*

Q2. Recently the National Football League (NFL) has suspended several players, such as Ray Rice and Adrian Peterson, due to allegations that these players have been involved in domestic violence or child abuse incidents. How familiar are you with these issues?

Very familiar	32%
Somewhat familiar	39%
Not very familiar	8%
Have heard of it, but that's it	10%
Have not heard about it	10%
TOTAL FAMILIAR	*72%*
TOTAL HEARD ABOUT IT	*90%*

Q3. Do you approve or disapprove of the way the NFL is handling this issue? *(Asked of those who had heard about the issues at Q2, n=1,159)*

Strongly approve	19%
Somewhat approve	30%
Somewhat disapprove	23%
Strongly disapprove	16%
Don't know	11%
TOTAL APPROVE	*49%*
TOTAL DISAPPROVE	*39%*

Q4. In light of this, have you become more favorable, less favorable, or has your view not changed towards the NFL? *(Asked of those who had heard about the issues at Q2, n=1,159)*

Now more favorable	8%
My view has not changed	70%
Now less favorable	22%

Q5. In light of this, are you more or less likely to watch or attend NFL games? *(Asked of those who had heard about the issues at Q2, n=1,159)*

Now more likely	8%
About the same	78%
Now less likely	14%

Q6. Recently some of the NFL's largest sponsors expressed displeasure with the handling of recent domestic violence/child abuse incidents involving league players. In your opinion, should the sponsors..? (Select one) *(Asked of those who had heard about the issues at Q2, n=1,159)*

End their sponsorships	30%
End their sponsorships for this season	24%
Publicly protest the NFL's actions, but not end their sponsorships	26%
Do nothing	20%

How to Calculate Bayesian Credibility Intervals

The calculation of credibility intervals assumes that Y has a binomial distribution conditioned on the parameter θ\, i.e., Y|θ~Bin(n,θ), where n is the size of our sample. In this setting, Y counts the number of "yes", or "1", observed in the sample, so that the sample mean ($\bar{y}$) is a natural estimate of the true population proportion θ. This model is often called the likelihood function, and it is a standard concept in both the Bayesian and the Classical framework. The Bayesian [1] statistics combines both the prior distribution and the likelihood function to create a posterior distribution. The posterior distribution represents our opinion about which are the plausible values for θ adjusted after observing the sample data. In reality, the posterior distribution is one's knowledge base updated using the latest survey information. For the prior and likelihood functions specified here, the posterior distribution is also a beta distribution (π(θ/y)~β(y+a,n-y+b)), but with updated hyper-parameters.

Our credibility interval for ϑ is based on this posterior distribution. As mentioned above, these intervals represent our belief about which are the most plausible values for ϑ given our updated knowledge base. There are different ways to calculate these intervals based on π(θ/y). Since we want only one measure of precision for all variables in the survey, analogous to what is done within the Classical framework, we will compute the largest possible credibility interval for any observed sample. The worst case occurs when we assume that *a*=1 and *b*=1 and y=*n/2*. Using a simple approximation of the posterior by the normal distribution, the 95% credibility interval is given by, approximately:

$$\bar{y} \mp \frac{1}{\sqrt{n}}$$

For this poll, the Bayesian Credibility Interval was adjusted using standard weighting design effect 1+L=1.3 to account for complex weighting[2]

Examples of credibility intervals for different base sizes are below. Ipsos does not publish data for base sizes (sample sizes) below 100.

Sample size	Credibility intervals
2,000	2.5
1,500	2.9
1,000	3.5
750	4.1
500	5.0
350	6.0
200	7.9
100	11.2

[1] *Bayesian Data Analysis, Second Edition, Andrew Gelman, John B. Carlin, Hal S. Stern, Donald B. Rubin, Chapman & Hall/CRC | ISBN: 158488388X | 2003*

[2] *Kish, L. (1992). Weighting for unequal Pi . Journal of Official, Statistics, 8, 2, 183200.*