Data
Smokers:            = 17.5    = 16    = 4.4752
Non-Smokers:    = 12.4    =   9    = 4.8492
                            = .05

Calculation of Pooled Variance:

        
 Assumptions

* independent random samples
* normal distribution of the populations
* population variances are equal

Hypotheses

         :     
         :   > 

Test statistic

        
        (a) Distribution of test statistic

If the assumptions are met and  is true, the test statistic is distributed as Student's t distribution with 23 degrees of freedom.

        (b) Decision rule

With  = .05 and df = 23, the critical value of *t* is 1.7139.  We reject  if t > 1.7139.

Calculation of test statistic

        

 Statistical decision

Reject  because 2.6563 > 1.7139.

Conclusion

On the basis of the data, we conclude that > .

Actual values
    t = 2.6558
    p = .014