Survey of the Effect of *PRELIEF* on Food-Related Exacerbation of Interstitial Cystitis Symptoms

Analyzed and Compiled by
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December 15, 1999

SUMMARY

Participants from a large out-patient urology practice were survey regarding symptoms of interstitial cystitis, as well as factors that exacerbate symptoms.

1) SAMPLE

   a) Demographic Characteristics
      i) 379 individuals participated in the study. The sample was predominantly female (94%), Caucasian (97%), and above the age of 50 (59%).
      ii) About one-third of participants report having symptoms of IC for less than 5 years, while about one-third report having symptoms for more than 15 years.
      iii) Of these, 203 completed the follow-up survey, while 176 did not, yielding a response rate of 53.6%. Respondents were similar to non-respondents on gross demographic characteristics, symptoms of interstitial cystitis, pre-existing conditions, and food exacerbated symptoms

   b) Symptom History
      i) About 62% of participants report bladder pain and discomfort as the predominant symptom
      ii) About 38% report urgency to urinate or frequency of urination as the predominant symptom.
      iii) Fully 94% sought treatment for their symptoms.

2) SURVEY RESULTS

   a) Food-exacerbation
      i) Responses suggest that *Prelief* affords substantial reduction in food-related symptom exacerbation. The effect appears particularly pronounced for coffee, tomato-based products, such as pizza, and for acidic fruits and fruit juices.
      ii) *Prelief* reduced the average number of foods per person aggravating symptoms.

   b) Pain and Urgency
      i) 70.4% (n=126) reported a reduction in pain and discomfort, whereas 8.9 reported an exacerbation of symptoms. Thirty-seven respondents (20.7%) indicated no change in symptoms.
      ii) 61.3% (n=111) reported a reduction in urgency, while 13.8% (n=25) reported an increase in symptoms of urgency. 24.9% (n=45) indicated no change in urgency scores before or after using *Prelief*.

   c) Quality of Life
      i) Respondents indicated that there was improvement in quality of life measures, including mental attitude, ability to deal with stress, and ability to participate in social, interpersonal, and work-related activities.

3) CONCLUSION. Within the limits of the study design, *Prelief* appeared to reduce symptoms of IC, particularly those symptoms associated aggravated by food.

Survey of the Effect of *Prelief* on Food-Related Exacerbation of Interstitial Cystitis Symptoms

A survey was conducted among women and men suffering from symptoms of interstitial cystitis that are exacerbated by certain foods. Participants were identified through a large out-patient urology practice. They were queried about symptoms and history of interstitial cystitis, as well as general health and well-being, during the 4-week period prior to taking *Prelief*. Participants were again surveyed after using *Prelief* for 4 weeks. As the survey employed a pre-post design, the appropriate statistical approach is a paired analysis. In a paired analysis, a participant's responses prior to taking *Prelief* are compared to her responses after taking *Prelief*.

1. *Sample Characteristics*

Table 1 shows the demographic characteristics of survey responders. A total of 379 individuals participated in the study. The sample was predominantly female (94%), Caucasian (97%), and above the age of 50 (59%). More than 75% of the sample had at least some college level education and about 70% claimed total household incomes above $30,000 per year.

Table 2 presents the selected characteristics from the medical histories of study participants. These items were obtained from participant reports rather than from medical charts. About one-third of participants report having symptoms of IC for less than 5 years, while about one-third report having symptoms for more than 15 years.

Table 1. Demographic Characteristics of Survey Sample

Characteristic	N	%
Gender		
Women	355	94.2
Men	22	5.8
Age		
20 – 35	31	8.2
36 – 50	124	32.9
51 – 65	109	28.9
66 – 80	108	28.7
80+	5	1.3
Race		
Caucasian	357	97.3
Non-Caucasian	10	2.7
Education level		
Some High School	90	24.1
Some College	162	43.3
Advanced Degree	122	32.6
Household Income		
≤ $30,000	105	29.4
> $30,000	252	70.6
Employment Status		
Employed	154	41.2
Homemaker	127	34.0
Unemployed	92	24.6
Retired	1	0.3

About 62% of participants report bladder pain and discomfort as the predominant symptom of IC, whereas about 38% report urgency to urinate or frequency of urination as the predominant symptom. Fully 94% sought treatment for their symptoms. Participants were asked about other co-existing conditions. Those conditions that were reported in at least about 30% of participants were allergy-related (such as medication

allergies, allergic rhinitis, and sinusitis) and hysterectomy (about 35% of participants. About 21% of participants reported a history of migraines and about 18% reported a history of fibromyalgia.

Table 2. Medical History of Participants

Characteristic	N	%
Duration of Symptoms, *yrs*		
< 5	113	30.2
5 – 10	104	27.8
10 – 15	54	14.4
>15	103	27.5
Predominant Symptom		
Bladder Pain	229	62.1
Urge to Urinate	72	19.5
Frequency of Urination	68	18.4
Sought Treatment for IC	351	94.1
Co-existing Conditions		
Medication Allergy	207	55.1
Food Allergy	115	30.6
Allergic Rhinitis	107	28.4
Sinusitis	128	34.0
Migraine	80	21.2
Urticaria	23	6.1
Fibromyalgia	69	18.4
Hysterectomy	132	35.3

2. *Analysis of Attrition*

Overview.

Prior to analyzing participants' responses before and after using *Prelief*, it is prudent to examine those who dropped out of the study prior to completing the follow-up survey (i.e., attrition). The purpose of this analysis is to determine whether those who completed both surveys were comparable to those completing just the initial survey. The extent to which these groups are similar will influence how the results are interpreted and how the results may be generalized. A total of 379 individuals were enrolled initially and completed the first survey. Of these, 203 completed the follow-up survey, while 176 did not, yielding a response rate of 53.6%. The analyses in this section will compare the two groups on selected demographic and symptom characteristics obtained from the initial survey.

Demographic Characteristics.

Participants and non-participants were similar on age and gender. Participants were 55.7 (±14.3) years old compared to non-participants who were on average 54.3 (±14.6) years old (p=.35). Of participants, 95.5% were female, whereas among non-participants 92.6% were female (p=.23). Both groups were similar on race, being predominantly Caucasian: 97.5% of respondents and 97.1% of non-respondents (p=.81). The groups had nearly equal distributions on income (69.6% of respondents and 71.7% of non-respondents claimed incomes over $30,000, p=.67), and education level (p=.42).

Symptoms of Interstitial Cystitis.

Participants and non-participants were also comparable on symptoms relating to IC. Approximately 60% of participants and non-participants reported pain as the predominant symptom (61.8% vs. 62.4%). Responders reported urgency or pressure to urinate as the second most common symptom (22.1%), while non-responders reported frequency of urination as the second most common symptom (21.2%). These differences were not large enough to achieve statistical significance ($p \leq .25$).

Examining the IC symptom index and the IC problem index, participants and non-participants did differ on two items. Participants arose more frequently at night to urinate ($p \leq .03$) and also found the need to urinate with little warning to be more problematic ($p \leq .08$) than non-participants.

Participants and non-participants were similar on their age of symptom onset, as well as the duration of symptoms. The average age of symptom onset for responders and non-responders was, respectively, 44.6 ($\pm$15.6) years vs. 42.3 ($\pm$14.9) years ($p = .16$). With regard to duration of symptoms, 62.0% of responders reported having symptoms 10 years or less, whereas 53.5% of non-responders reported symptom duration for a similar period. Both groups claimed to have sought treatment for symptoms at a rate of about 90% of the time (93.0% for participants and 95.4% for non-participants). Both groups had similar reports of pain and discomfort ($p \leq .49$) and for urgency ($p \leq .81$) prior to using *Prelief*. Finally, for pre-existing conditions, such as medication allergies, food allergies, sinusitis, allergic rhinitis, migraines, hysterectomy, and fibromyalgia, participant reports of occurrence were nearly identical to non-participant reports (all p-values were .45 or larger).

Food Exacerbation of Interstitial Cystitis.

Participants and non-participants were compared on their initial reports of symptoms of IC that were exacerbated by food. None of the foods that were considered differed significantly between participants and non-participants. Indeed, the distributions of symptoms exacerbation were nearly identical for both groups (all p-values were greater than .24). The largest difference occurred for chocolate. Among those not responding to the follow-up questionnaire, 58.3% reported IC symptoms exacerbated by chocolate, while among those who continued to participate, 50% reported symptom aggravation by chocolate. This difference, however, was negligible (p=.17).

Section Summary. Response rate for both initial and follow-up surveys was 53.6%. Although 46.4% of the total participant pool failed to complete the follow-up survey, attrition appears to be independent of the gross demographic characteristics, symptoms of interstitial cystitis, pre-existing conditions, or food exacerbated symptoms. Based on these analyses, it would appear that those completing both surveys are comparable to the total sample initially enrolled. Only two items of those analyzed suggested that participants experienced IC as a greater problem than non-participants.

3. *Effect of Prelief on Food-Specific Symptoms*

Participants were questioned about exacerbation of IC symptoms when consuming certain foods in the 4 weeks prior to taking *Prelief* and after taking *Prelief* for 4 weeks. The analysis is restricted to those participants who indicated consuming foods

during the specified periods. McNemar's test (a paired chi-square test) is used to compare the proportion of participants reporting symptom reduction versus those reporting symptom exacerbation. The change in risk due to use of *Prelief* is given as an odds ratio (OR) with an associated 95% confidence interval and level of significance. The odd ratio describes the proportional increase or decrease in IC symptoms relating to the use of *Prelief*. It should be noted that, characteristic of McNemar's test, participants reporting no change are ignored. The table accompanying each food analysis shows the proportion of study participants reporting symptoms before and after use of *Prelief*. The number of participants providing usable responses for each food varies substantially.

a) *Pizza*: Among the 71 participants consuming pizza, 67.6% reported symptoms prior to using *Prelief* compared to 15.5% after using *Prelief*. The odds of symptoms prior to *Prelief* was 15.5 times higher than the odds while using *Prelief* (OR=15.5, 95% CI: 5.0, 166.7). This difference was significant at $p<.001$.

Symptoms		N	%
Before	After		
Yes	Yes	9	12.7
Yes	No	39	54.9
No	Yes	2	2.8
No	No	21	29.6
Total		71	100.0

b) *Coffee*: A total of 81 respondents reported drinking coffee before and after using *Prelief*. Among these participants, 84.0% reported symptoms prior to using *Prelief* compared to 37.0% after using *Prelief*. The odds ratio cannot be computed due to missing data. However, symptom reduction when using *Prelief* is significant at p<.001.

Symptoms		N	%
Before	After		
Yes	Yes	30	37.0
Yes	No	38	46.9
No	Yes	0	0.0
No	No	13	16.1
Total		81	100.0

c. *Carbonated Drinks*: Forty-eight participants reported drinking carbonated beverages. Among these individuals, 77.1% reported symptoms prior to using *Prelief* compared to 47.9% after using *Prelief*. The odds of symptoms prior to *Prelief* was 15 times higher than the odds while using *Prelief* (OR=15, 95% CI: 2.3, 631.4). This difference was significant at p<.001.

Symptoms		N	%
Before	After		
Yes	Yes	22	45.8
Yes	No	15	31.3
No	Yes	1	2.1
No	No	10	20.8
Total		48	100.0

d. *Alcohol*: Among the 51 participants consuming alcohol, 84.3% reported symptoms prior to using *Prelief* compared to 62.7% after using *Prelief*. The odds ratio of symptom reduction could not be computed because of a zero cell. However, the effect of *Prelief* in reducing symptoms was significant at $p \leq .001$.

Symptoms		N	%
Before	After		
Yes	Yes	32	62.7
Yes	No	11	21.6
No	Yes	0	0.0
No	No	8	15.7
Total		51	100.0

e. *Acidic Fruits and Juices*: Forty-six individuals indicated that they had consumed acidic fruits or fruit juices. Among these participants, 89.1% reported symptoms prior to using *Prelief* compared to 37.0% after using *Prelief*. The odds of symptoms prior to *Prelief* was 25 times higher than the odds while using *Prelief* (OR=25, 95% CI: 4.1, 1026.7). This difference was significant at $p < .001$.

Symptoms		N	%
Before	After		
Yes	Yes	16	34.8
Yes	No	25	54.3
No	Yes	1	2.2
No	No	4	8.7
Total		46	100.0

f. *Tomato-based Products*: A total of 124 individuals reported using tomato-based products for the survey. Among these participants, 74.2% reported symptoms prior to using *Prelief* compared to 37.9% after using *Prelief*. The odds of symptoms prior to *Prelief* was 5.5 times higher than the odds while using *Prelief* (OR=5.5, 95% CI: 2.8, 12.1). This difference was significant at $p<.001$.

Symptoms		N	%
Before	After		
Yes	Yes	37	29.8
Yes	No	55	44.4
No	Yes	10	8.1
No	No	22	17.7
Total		124	100.0

g. *Chocolate*: Among the 109 participants consuming chocolate, 47.7% reported symptoms prior to using *Prelief* compared to 32.1% after using *Prelief*. The odds of symptoms prior to *Prelief* was 2.9 times higher than the odds while using *Prelief* (OR=2.9, 95% CI: 1.3, 7.0). This difference was significant at $p\leq.006$.

Symptoms		N	%
Before	After		
Yes	Yes	26	23.9
Yes	No	26	23.9
No	Yes	9	8.2
No	No	48	44.0
Total		109	100.0

h. *Spicy Foods.* Sixty-eight individuals indicated that they had consumed spicy foods. Among these participants, 82.4% reported symptoms prior to using *Prelief* compared to 17.6% after using *Prelief*. The odds of symptoms prior to *Prelief* were 13.5 times higher than the odds while using *Prelief* (OR=13.5, 95% CI: 3.39 to 117.13). This difference was significant at p<.001.

Symptoms		N	%
Before	After		
Yes	Yes	29	42.7
Yes	No	27	39.7
No	Yes	2	2.9
No	No	10	14.7
Total		68	100.0

Reduction in the Number of Foods Exacerbating Symptoms. It is interesting to note that *Prelief* also appeared to reduce the number of foods that aggravated symptoms. Prior to using *Prelief*, participants reported an average of 4.3 foods (of the 8 considered) aggravating IC symptoms. After using *Prelief* for four weeks, the average number of foods reported was 1.7. This difference represents a significant reduction in the number of foods cited as aggravating symptoms (p<.001).

Section Summary. The survey suggests that *Prelief* affords substantial reduction in IC symptoms among those participants reporting food-related symptom exacerbation. The effect appears particularly pronounced for symptom exacerbation related to coffee, tomato-based products, such as pizza, and for acidic fruits and fruit juices. *Prelief* also appeared to reduce the average number of foods per person cited as aggravating symptoms.

4. *General Symptom Evaluation Before and After Use of Prelief*

a) *Pain and Discomfort.* Participants rated bladder pain and discomfort on a 10-point scale (0 to 9), where higher scores indicated more pain. A total of 179 respondents provided pain ratings before and after using *Prelief.* The mean pain rating prior to using *Prelief* was 5.3 (±2.2), whereas the mean pain rating after using *Prelief* was 3.6 (± 2.0). This difference indicates a reduction in pain and discomfort after using *Prelief* and was significant at $p<.0001$.

When respondents were classified by their change in ratings (pre – post), 70.4% (n=126) reported a reduction in pain and discomfort, whereas 8.9 report an exacerbation of symptoms. Thirty-seven respondents (20.7%) indicated no change in symptoms. The substantial reduction in pain and discomfort was significant at $p<.0001$ using the signed-rank test.

b) *Urgency.* A total of 181 respondents rated urgency before and after the use of *Prelief.* Urgency was defined as the urge or pressure to urinate and was measured on a 10-point scale. The mean rating prior to using *Prelief* was 5.3 (± 2.2), while the mean rating after using *Prelief* was 4.1 (± 2.1). The difference in mean scores indicates a reduction in urgency after using *Prelief.* This difference is significant at $p<.001$.

When participants were classified by their change in ratings (pre – post), 61.3% (n=111) reported a reduction in urgency, while 13.8% (n=25) reported an

increase in symptoms of urgency. 24.9% (n=45) indicated no change in urgency scores before or after using *Prelief*.

5. *Quality of Life Questionnaire*

Respondents were asked to indicate the proportion of time that the interstitial cystitis prevented them from participating in or performing various activities. The activities were rated on a 4-point scale with high scores indicating that the condition substantially interrupted with the activity. Results are also summarized in Table 3.

a) *Full-time work.* A total of 124 individuals rated changes in the intrusiveness of IC into their full-time work. 22 individuals (17.7%) reported a reduction in intrusiveness, while 5 individuals (4.0%) reported an increase in intrusiveness of the condition. 97 individuals (78.2%) reported no change in level of intrusiveness. The reduction in intrusiveness into full-time work was significant at $p \leq .002$.

b) *Social life.* A total of 173 individuals rated the intrusiveness of the condition into social life. 57 individuals (32.9%) reported a reduction in intrusiveness, while 16 individuals (9.2%) reported an increase in intrusiveness. 100 individuals (57.8%) reported no change. The reduction in intrusiveness into social life was significant at $p < .001$.

c) *Travel.* A total of 175 participants rated the level of intrusiveness into travel before and after use of *Prelief*. 64 individuals (36.6%) reported an increase in the level of

their ability to travel, while 15 persons (8.6%) reported a decrease in ability to travel. 96 persons (55.2%) reported no change. The increase in ability to travel because of reduced IC symptoms was significant at $p<.0001$.

d) *Uninterrupted Sleep.* A total of 174 participants rated the level of intrusiveness into sleep before and after use of *Prelief.* 71 individuals (40.8%) reported an increase in the level of uninterrupted sleep, while 10 persons (5.7%) reported a decrease in sleep. 93 persons (53.4%) reported no change in the degree of uninterrupted sleep. The increase in degree of uninterrupted sleep was significant at $p<.0001$.

e) *Having Sex.* A total of 138 participants rated the intrusiveness of interstitial cystitis into their sex life before and after use of *Prelief.* 47 individuals (34.1%) reported a reduction in intrusiveness, while 13 individuals (8.7%) reported an increase in intrusiveness. 79 individuals (57.2%) reported no change in the level of intrusiveness of IC. The reduction in level of intrusiveness was significant at $p<.0001$.

f) *Exercise.* A total of 171 participants rated the intrusiveness of interstitial cystitis into their ability to exercise as they had previously. 69 individuals (40.4%) reported a reduction in intrusiveness, while 13 individuals (7.6%) reported an increase in intrusiveness. 89 individuals (52.1%) reported no change in the level of intrusiveness of IC. The reduction in level of intrusiveness into exercise was significant at $p<.0001$.

g) *Take Care of Responsibilities.* A total of 173 participants rated their their ability to take care of their responsibilities before and after use of *Prelief*. 41 individuals (23.7%) reported an increase in their ability, while 18 individuals (10.4%) reported a reduction. 114 individuals (65.9%) reported no change in their ability. The increase in participants' ability to take care of responsibilities was significant at $p<.0001$.

h) *Positive Mental Attitude.* A total of 180 participants rated their ability to maintain a positive mental attitude before and after use of *Prelief*. 63 individuals (35.0%) reported an increase in positive mental attitude, while 21 individuals (11.7%) reported a decrease. 96 individuals (53.3%) reported no change in their level of mental attitude. The increase in positive mental attitude was significant at $p<.0001$.

i) *Deal with Stress.* A total of 179 participants rated their ability to deal with stress before and after use of *Prelief*. 69 individuals (38.6%) reported a reduction in intrusiveness, while 20 individuals (11.2%) reported an increase in intrusiveness. 90 individuals (50.3%) reported no change in the level of intrusiveness of IC. The increase in participants' ability to deal with stress was significant at $p<.0001$.

Section Summary. Respondents indicated that there was improvement in quality of life measures, including mental attitude, ability to deal with stress, and ability to participate in social, interpersonal, and work-related activities. Although improvements were substantial, approximately half of those responding reported no change for many of the measures.

Table 3. Quality of Life Questionnaire

Characteristic	Total Number	Positive Change	Negative Change	No Change	p-value
Full-time Work	124	22	5	97	.002
Social Life	173	57	16	100	< .0001
Travel	175	64	15	96	< .0001
Sleep	174	71	10	93	< .0001
Have Sex	138	47	12	79	< .0001
Exercise	171	69	13	89	< .0001
Take Care of Family Responsibilities	173	41	18	114	.004
Positive Mental Attitude	180	63	21	96	< .0001
Deal with Stress	179	69	20	90	< .0001

Discussion and Comments

This survey employed a pre-post design in which participants responded to questions regarding IC symptoms before and after using *Prelief*. While this design is more rigorous than one obtaining measurements at single point in time, the design as employed here has several limitations that will influence how the results may be interpreted.

First, the survey design is observational. Observational studies, including surveys, lack the rigor of clinical trials because they neither randomize subjects to treatments nor do they employ placebo-controlled comparisons. Thus, participants clearly knew what treatment they received and when they received it. The process of randomization, placebo control, and blinding of subjects and investigators is especially critical when subjective ratings of symptoms, health, and well-being are the primary outcomes. However, an observational study as conducted here is quite appropriate for gathering preliminary data in developing a protocol for controlled clinical trials.

Secondly, as with most studies conducted over time, the attrition rate (drop-out rate) was substantial. Approximately half (53.6%) of those entering the study completed items from both assessments. Notwithstanding the high rate of attrition, there did not appear to be any discernable pattern to withdrawal. Comparisons between those who withdrew and those who participated indicated that the two groups were quite similar on demographic characteristics, symptoms and history of interstitial cystitis, pain and discomfort, and food-related exacerbation of symptoms. The two items where participants and non-participants did differ would suggest that participants perceive IC as

slightly more intrusive than non-participants. Given the degree of comparability of the two groups, one has more confidence that the results of the survey can be generalized the total sample initially enrolled (n=379). It should be noted that before the results of this study can be extended to patient populations at other out-patient urology clinics, one would have to determine how representative this patient sample is. These data however are not available.

With respect to the limitations stated above, the results suggest that *Prelief* provides relief to symptoms of interstitial cystitis which are exacerbated by certain types of foods. *Prelief* appeared to reduce both pain and discomfort associated with IC, the urgency to urinate, and the average number of foods that were cited as aggravating symptoms. The reduction in symptoms was accompanied by an increase in positive well-being.

From the perspective of future studies, the survey provides much useful information. First, while the relief of symptoms appeared to be substantial, it should be noted that there was also a sizable proportion of participants for whom the treatment did not produce any benefit. It is not clear from the data provided whether longer follow-up (perhaps eight weeks of use) would have reduced the proportion who did not respond to *Prelief*. Other factors may account for the non-response in this context: subjects may not have consumed the "trigger" food, they may not have consumed a sufficient quantity of the "trigger" food, or other aspects of the diet or lifestyle may have changed.

Secondly, given the variable nature of the condition and "triggers", as well as variability in subjects' lifestyles over time, it would be prudent to examine study designs that would minimize the length of follow-up (this would also reduce the drop-out rate).

The survey suggests that for many participants, the effects of *Prelief* were experienced within 4 weeks of use, perhaps sooner. Finally, because of the potential for selection bias and the influences on subjective reporting, any clinical trial designed to evaluate the efficacy of *Prelief* should plan to test for more moderate effects of the treatment than those found in this survey.

Appendix 1: Demographic Data Analysis

Program: Response_demo

```
do response_demo

. /*
> This program was used to generate a file of the IDs of responders to the
> post-Prelief questionnaire and merge it with the prelief demo file.
> The responders were identified from the food survey file  */
.
. run prelief

. *keep id _merge
. *keep if _merge==1
. sort id

. save id_file
file id_file.dta saved

.
. run predemo

. sort id

. save demo_file
file demo_file.dta saved

.
. use demo_file, clear

. merge id using id_file, _merge(mergevar)

.
. erase id_file.dta

. erase demo_file.dta

.
. label variable response "Responded to follow-up"

. label define noyes 1 no 3 yes

. label values response noyes

.
. for var age age_symp: ttest X, by(response)
```

```
-> ttest age, by(response)

Two-sample t test with equal variances

------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
      no |     176    54.34091    1.100111    14.59463    52.16972    56.5121
     yes |     202    55.67822    1.001601    14.23542    53.70323   57.65321
---------+--------------------------------------------------------------------
combined |     378    55.05556    .7406614     14.4001    53.59921    56.5119
---------+--------------------------------------------------------------------
    diff |           -1.337309    1.485212               -4.257671   1.583054
------------------------------------------------------------------------------
Degrees of freedom: 376

                    Ho: mean(no) - mean(yes) = diff = 0

     Ha: diff < 0                 Ha: diff ~= 0                 Ha: diff > 0
       t =  -0.9004                 t =  -0.9004                 t =  -0.9004
   P < t =   0.1842             P > |t| =   0.3685             P > t =   0.8158

-> ttest age_symp, by(response)

Two-sample t test with equal variances

------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
      no |     171    42.30409    1.141068     14.9214    40.05161    44.55658
     yes |     199    44.44221    1.111781     15.6836    42.24976    46.63466
---------+--------------------------------------------------------------------
combined |     370    43.45405    .7981417    15.35256    41.88458    45.02353
---------+--------------------------------------------------------------------
    diff |           -2.138117    1.599168               -5.282771   1.006536
------------------------------------------------------------------------------
Degrees of freedom: 368

                    Ho: mean(no) - mean(yes) = diff = 0

     Ha: diff < 0                 Ha: diff ~= 0                 Ha: diff > 0
       t =  -1.3370                 t =  -1.3370                 t =  -1.3370
   P < t =   0.0910             P > |t| =   0.1820             P > t =   0.9090
```

```
. for var gender race income treat predsymp: tab response X, row chi2

-> tab response gender, row chi2

 Responded |
        to |          gender
 follow-up |      male     female |     Total
-----------+----------------------+----------
        no |        13        163 |       176
           |      7.39      92.61 |    100.00
-----------+----------------------+----------
       yes |         9        193 |       202
           |      4.46      95.54 |    100.00
-----------+----------------------+----------
     Total |        22        356 |       378
           |      5.82      94.18 |    100.00

          Pearson chi2(1) =   1.4740   Pr = 0.225

-> tab response race, row chi2

 Responded |
        to |           race
 follow-up |         1          2 |     Total
-----------+----------------------+----------
        no |       165          5 |       170
           |     97.06       2.94 |    100.00
-----------+----------------------+----------
       yes |       193          5 |       198
           |     97.47       2.53 |    100.00
-----------+----------------------+----------
     Total |       358         10 |       368
           |     97.28       2.72 |    100.00

          Pearson chi2(1) =   0.0599   Pr = 0.807

-> tab response income, row chi2

 Responded |
        to |         income
 follow-up |         1          2 |     Total
-----------+----------------------+----------
        no |        47        119 |       166
           |     28.31      71.69 |    100.00
-----------+----------------------+----------
       yes |        58        134 |       192
           |     30.21      69.79 |    100.00
-----------+----------------------+----------
     Total |       105        253 |       358
           |     29.33      70.67 |    100.00

          Pearson chi2(1) =   0.1543   Pr = 0.695
```

```
-> tab response treat_, row chi2
```

Responded to follow-up	treat_ 1	2	Total
no	164	8	172
	95.35	4.65	100.00
yes	188	14	202
	93.07	6.93	100.00
Total	352	22	374
	94.12	5.88	100.00

Pearson chi2(1) = 0.8719 Pr = 0.350

```
-> tab response predsymp, row chi2
```

Responded to follow-up	predominant symp pain	urge	freq	Total
no	106	28	36	170
	62.35	16.47	21.18	100.00
yes	124	44	32	200
	62.00	22.00	16.00	100.00
Total	230	72	68	370
	62.16	19.46	18.38	100.00

Pearson chi2(2) = 2.7854 Pr = 0.248

```
. for var dur_symp edu: ranksum X, by(response)


-> ranksum dur_symp, by(response)

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

response |      obs    rank sum    expected
---------+---------------------------------
      no |      174       33958       32712
     yes |      201       36542       37788
---------+---------------------------------
combined |      375       70500       70500

unadjusted variance  1095852.00
adjustment for ties   -79999.94
                     ----------
adjusted variance    1015852.06
```

```
Ho: dur_symp(response==no) = dur_symp(response==yes)
             z =   1.236
    Prob > |z| =   0.2164

->  ranksum edu, by(response)

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

response |      obs    rank sum    expected
---------+---------------------------------
      no |      175     33700.5       32900
     yes |      200     36799.5       37600
---------+---------------------------------
combined |      375       70500       70500

unadjusted variance  1096666.67
adjustment for ties  -142978.43
                     ----------
adjusted variance     953688.24

Ho: edu(response==no) = edu(response==yes)
             z =   0.820
    Prob > |z| =   0.4124

.
. for var med food rhin migrane sinus hyster fibro: tab X response, col chi2

->  tab med response, col chi2

           |     Responded to
       med |       follow-up
   allergy |        no        yes |     Total
-----------+----------------------+----------
       yes |        95        112 |       207
           |     54.29      55.45 |     54.91
-----------+----------------------+----------
        no |        80         90 |       170
           |     45.71      44.55 |     45.09
-----------+----------------------+----------
     Total |       175        202 |       377
           |    100.00     100.00 |    100.00

          Pearson chi2(1) =   0.0509   Pr = 0.821
```

```
-> tab food response, col chi2
```

food allergy	Responded to follow-up: no	yes	Total
yes	57	59	116
	32.57	29.21	30.77
no	118	143	261
	67.43	70.79	69.23
Total	175	202	377
	100.00	100.00	100.00

Pearson chi2(1) = 0.4980 Pr = 0.480

```
-> tab rhin response, col chi2
```

allergic rhinitis	Responded to follow-up: no	yes	Total
yes	49	58	107
	28.00	29.00	28.53
no	126	142	268
	72.00	71.00	71.47
Total	175	200	375
	100.00	100.00	100.00

Pearson chi2(1) = 0.0458 Pr = 0.831

```
-> tab migrane response, col chi2
```

migraine	Responded to follow-up: no	yes	Total
yes	38	42	80
	21.59	20.79	21.16
no	138	160	298
	78.41	79.21	78.84
Total	176	202	378
	100.00	100.00	100.00

Pearson chi2(1) = 0.0360 Pr = 0.850

```
-> tab sinus response, col chi2
```

sinus	Responded to follow-up: no	yes	Total
yes	58	70	128
	32.95	34.65	33.86
no	118	132	250
	67.05	65.35	66.14
Total	176	202	378
	100.00	100.00	100.00

Pearson chi2(1) = 0.1212 Pr = 0.728

```
-> tab hyster response, col chi2
```

hysterectomy	Responded to follow-up: no	yes	Total
yes	64	68	132
	36.78	33.83	35.20
no	110	133	243
	63.22	66.17	64.80
Total	174	201	375
	100.00	100.00	100.00

Pearson chi2(1) = 0.3560 Pr = 0.551

```
-> tab fibro response, col chi2
```

fibromyalgia	Responded to follow-up: no	yes	Total
1	31	38	69
	17.71	18.91	18.35
2	144	163	307
	82.29	81.09	81.65
Total	175	201	376
	100.00	100.00	100.00

Pearson chi2(1) = 0.0886 Pr = 0.766

```
.
end of do-file

.
```

Program: An2prelief

```
do an2prelief

. *These analyses compare those who responded to the follow-up survey to
. *those who did not.  203 responded, while 176 did not.
.
.
. for var fbp2 fbc2 fbaj2 fbcho2 fbtb2 fbsf2 fbcd2 fba2:/*
> */tab response X, row chi2

-> tab response fbp2, row chi2
```

Responded to follow-up	fbp2 0	1	Total
yes	43	73	116
	37.07	62.93	100.00
no	50	88	138
	36.23	63.77	100.00
Total	93	161	254
	36.61	63.39	100.00

Pearson chi2(1) = 0.0190 Pr = 0.890

```
-> tab response fbc2, row chi2
```

Responded to follow-up	fbc2 0	1	Total
yes	31	86	117
	26.50	73.50	100.00
no	32	119	151
	21.19	78.81	100.00
Total	63	205	268
	23.51	76.49	100.00

Pearson chi2(1) = 1.0312 Pr = 0.310

```
-> tab response fbaj2, row chi2

Responded |
       to |       fbaj2
 follow-up |         0          1 |     Total
-----------+----------------------+----------
       yes |        19         92 |       111
           |     17.12      82.88 |    100.00
-----------+----------------------+----------
        no |        17        126 |       143
           |     11.89      88.11 |    100.00
-----------+----------------------+----------
     Total |        36        218 |       254
           |     14.17      85.83 |    100.00

          Pearson chi2(1) =   1.4047   Pr = 0.236

-> tab response fbcho2, row chi2

Responded |
       to |      fbcho2
 follow-up |         0          1 |     Total
-----------+----------------------+----------
       yes |        50         70 |       120
           |     41.67      58.33 |    100.00
-----------+----------------------+----------
        no |        81         81 |       162
           |     50.00      50.00 |    100.00
-----------+----------------------+----------
     Total |       131        151 |       282
           |     46.45      53.55 |    100.00

          Pearson chi2(1) =   1.9246   Pr = 0.165

-> tab response fbtb2, row chi2

Responded |
       to |       fbtb2
 follow-up |         0          1 |     Total
-----------+----------------------+----------
       yes |        36         99 |       135
           |     26.67      73.33 |    100.00
-----------+----------------------+----------
        no |        42        131 |       173
           |     24.28      75.72 |    100.00
-----------+----------------------+----------
     Total |        78        230 |       308
           |     25.32      74.68 |    100.00

          Pearson chi2(1) =   0.2289   Pr = 0.632
```

```
-> tab response fbsf2, row chi2

Responded |
       to |       fbsf2
follow-up |         0          1 |     Total
----------+----------------------+----------
      yes |        26         88 |       114
          |     22.81      77.19 |    100.00
----------+----------------------+----------
       no |        30        107 |       137
          |     21.90      78.10 |    100.00
----------+----------------------+----------
    Total |        56        195 |       251
          |     22.31      77.69 |    100.00

          Pearson chi2(1) =   0.0297   Pr = 0.863

-> tab response fbcd2, row chi2

Responded |
       to |       fbcd2
follow-up |         0          1 |     Total
----------+----------------------+----------
      yes |        31         86 |       117
          |     26.50      73.50 |    100.00
----------+----------------------+----------
       no |        34        112 |       146
          |     23.29      76.71 |    100.00
----------+----------------------+----------
    Total |        65        198 |       263
          |     24.71      75.29 |    100.00

          Pearson chi2(1) =   0.3593   Pr = 0.549

-> tab response fba2, row chi2

Responded |
       to |        fba2
follow-up |         0          1 |     Total
----------+----------------------+----------
      yes |        18         75 |        93
          |     19.35      80.65 |    100.00
----------+----------------------+----------
       no |        26        101 |       127
          |     20.47      79.53 |    100.00
----------+----------------------+----------
    Total |        44        176 |       220
          |     20.00      80.00 |    100.00

          Pearson chi2(1) =   0.0419   Pr = 0.838
```

```
.
. for var pd_prior urgprior f_t_w social travel have_sex ex_past uninte_s tcfr
> pos_men: /*
> */ ranksum X, by(response)

->  ranksum pd_prior, by(response)

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

response |      obs    rank sum    expected
---------+---------------------------------
     yes |      173       31646       32351
      no |      200       38105       37400
---------+---------------------------------
combined |      373       69751       69751

unadjusted variance  1078366.67
adjustment for ties   -26967.63
                     ----------
adjusted variance    1051399.03

Ho: pd_prior(response==yes) = pd_prior(response==no)
             z =  -0.688
    Prob > |z| =   0.4917

->  ranksum urgprior, by(response)

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

response |      obs    rank sum    expected
---------+---------------------------------
     yes |      174     32388.5       32625
      no |      200     37736.5       37500
---------+---------------------------------
combined |      374       70125       70125

unadjusted variance  1087500.00
adjustment for ties   -27792.70
                     ----------
adjusted variance    1059707.30

Ho: urgprior(response==yes) = urgprior(response==no)
             z =  -0.230
    Prob > |z| =   0.8183

->  ranksum f_t_w, by(response)

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

response |      obs    rank sum    expected
---------+---------------------------------
     yes |      131     18809.5     18929.5
      no |      157     22806.5     22686.5
---------+---------------------------------
combined |      288       41616       41616
```

```
unadjusted variance    495321.92
adjustment for ties   -122903.35
                      ----------
adjusted variance      372418.56

Ho: f_t_w(response==yes) = f_t_w(response==no)
             z =  -0.197
    Prob > |z| =   0.8441

->  ranksum social, by(response)

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

response |      obs    rank sum    expected
---------+--------------------------------
     yes |      171     30181.5       31635
      no |      198     38083.5       36630
---------+--------------------------------
combined |      369       68265       68265

unadjusted variance  1043955.00
adjustment for ties  -134273.33
                     ----------
adjusted variance     909681.67

Ho: social(response==yes) = social(response==no)
             z =  -1.524
    Prob > |z| =   0.1275

->  ranksum travel, by(response)

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

response |      obs    rank sum    expected
---------+--------------------------------
     yes |      169       30662     31180.5
      no |      199       37234     36715.5
---------+--------------------------------
combined |      368       67896       67896

unadjusted variance  1034153.25
adjustment for ties   -86922.00
                     ----------
adjusted variance     947231.25

Ho: travel(response==yes) = travel(response==no)
             z =  -0.533
    Prob > |z| =   0.5942
```

```
-> ranksum have_sex, by(response)

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

response |      obs    rank sum    expected
---------+---------------------------------
     yes |      156       25620       25506
      no |      170       27681       27795
---------+---------------------------------
combined |      326       53301       53301

unadjusted variance    722670.00
adjustment for ties    -60885.87
                       ----------
adjusted variance      661784.13

Ho: have_sex(response==yes) = have_sex(response==no)
                z =   0.140
    Prob > |z| =   0.8886

-> ranksum ex_past, by(response)

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

response |      obs    rank sum    expected
---------+---------------------------------
     yes |      170       30097       31280
      no |      197       37431       36248
---------+---------------------------------
combined |      367       67528       67528

unadjusted variance  1027026.67
adjustment for ties   -82179.68
                      ----------
adjusted variance     944846.99

Ho: ex_past(response==yes) = ex_past(response==no)
                z =  -1.217
    Prob > |z| =   0.2236

-> ranksum uninte_s, by(response)

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

response |      obs    rank sum    expected
---------+---------------------------------
     yes |      175       31563     32987.5
      no |      201       39313     37888.5
---------+---------------------------------
combined |      376       70876       70876

unadjusted variance  1105081.25
adjustment for ties  -279777.83
                     ----------
adjusted variance     825303.42
```

```
Ho: uninte_s(response==yes) = uninte_s(response==no)
              z =  -1.568
    Prob > |z| =   0.1169

->  ranksum tcfr, by(response)

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

response |      obs    rank sum    expected
---------+---------------------------------
     yes |      168     30168.5       30660
      no |      196     36261.5       35770
---------+---------------------------------
combined |      364       66430       66430

unadjusted variance  1001560.00
adjustment for ties  -189690.12
                     ----------
adjusted variance     811869.88

Ho: tcfr(response==yes) = tcfr(response==no)
              z =  -0.545
    Prob > |z| =   0.5854

->  ranksum pos_men, by(response)

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

response |      obs    rank sum    expected
---------+---------------------------------
     yes |      169     31214.5       31265
      no |      200     37050.5       37000
---------+---------------------------------
combined |      369       68265       68265

unadjusted variance  1042166.67
adjustment for ties   -80993.73
                     ----------
adjusted variance     961172.94

Ho: pos_men(response==yes) = pos_men(response==no)
              z =  -0.052
    Prob > |z| =   0.9589


. for var q1 q2 q3 q4 total: ttest X, by(response)
```

```
-> ttest q1, by(response)

Two-sample t test with equal variances

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
     yes |     173    2.346821    .1295227    1.703606    2.091162     2.60248
      no |     200       2.495    .1221659    1.727686    2.254094    2.735906
---------+--------------------------------------------------------------------
combined |     373    2.426273    .0888434    1.715852    2.251575    2.600972
---------+--------------------------------------------------------------------
    diff |           -.1481792    .1782282               -.4986433    .2022849
------------------------------------------------------------------------------
Degrees of freedom: 371

                     Ho: mean(yes) - mean(no) = diff = 0

     Ha: diff < 0                 Ha: diff ~= 0                 Ha: diff > 0
       t =  -0.8314                 t =  -0.8314                 t =  -0.8314
   P < t =   0.2031             P > |t| =   0.4063             P > t =   0.7969

-> ttest q2, by(response)

Two-sample t test with equal variances

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
     yes |     175    3.628571    .1067288    1.411889    3.417922    3.839221
      no |     201    3.751244    .1052789    1.492585    3.543645    3.958843
---------+--------------------------------------------------------------------
combined |     376    3.694149    .0750332    1.454948     3.54661    3.841687
---------+--------------------------------------------------------------------
    diff |           -.1226724    .1504938               -.4185924    .1732477
------------------------------------------------------------------------------
Degrees of freedom: 374

                     Ho: mean(yes) - mean(no) = diff = 0

     Ha: diff < 0                 Ha: diff ~= 0                 Ha: diff > 0
       t =  -0.8151                 t =  -0.8151                 t =  -0.8151
   P < t =   0.2078             P > |t| =   0.4155             P > t =   0.7922
```

```
-> ttest q3, by(response)

Two-sample t test with equal variances

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
     yes |     174    2.787356    .1148603    1.515111    2.560648    3.014064
      no |     201    3.154229    .1137575    1.612791    2.929911    3.378547
---------+--------------------------------------------------------------------
combined |     375       2.984    .0814268    1.576824    2.823888    3.144112
---------+--------------------------------------------------------------------
    diff |           -.3668725    .1623889                -.686185    -.04756
------------------------------------------------------------------------------
Degrees of freedom: 373

                     Ho: mean(yes) - mean(no) = diff = 0

     Ha: diff < 0                 Ha: diff ~= 0                 Ha: diff > 0
       t =  -2.2592                 t =  -2.2592                 t =  -2.2592
   P < t =   0.0122             P > |t| =   0.0244             P > t =   0.9878

-> ttest q4, by(response)

Two-sample t test with equal variances

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
     yes |     175    2.211429    .1001111    1.324346     2.01384    2.409017
      no |     201    2.243781    .0981235    1.391141    2.050292    2.437271
---------+--------------------------------------------------------------------
combined |     376    2.228723    .0700724    1.358754    2.090939    2.366507
---------+--------------------------------------------------------------------
    diff |           -.0323525    .1406588               -.3089337    .2442287
------------------------------------------------------------------------------
Degrees of freedom: 374

                     Ho: mean(yes) - mean(no) = diff = 0

     Ha: diff < 0                 Ha: diff ~= 0                 Ha: diff > 0
       t =  -0.2300                 t =  -0.2300                 t =  -0.2300
   P < t =   0.4091             P > |t| =   0.8182             P > t =   0.5909
```

```
-> ttest total, by(response)

Two-sample t test with equal variances

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
     yes |     175    10.90286    .3119591    4.126832    10.28715    11.51857
      no |     200       11.64    .3185268    4.504649    11.01188    12.26812
---------+--------------------------------------------------------------------
combined |     375      11.296     .224238     4.34235    10.85507    11.73693
---------+--------------------------------------------------------------------
    diff |           -.7371429    .4484567               -1.618963    .1446774
------------------------------------------------------------------------------
Degrees of freedom: 373

                     Ho: mean(yes) - mean(no) = diff = 0

     Ha: diff < 0                 Ha: diff ~= 0                 Ha: diff > 0
   t =  -1.6437               t =  -1.6437               t =  -1.6437
P < t =   0.0505           P > |t| =   0.1011           P > t =   0.9495


. for var q1p q2p q3p q4p totall: ttest X, by(response)

-> ttest q1p, by(response)

Two-sample t test with equal variances

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
     yes |     172    2.872093    .0822938    1.079273     2.70965    3.034536
      no |     201    2.880597    .0774491    1.098031    2.727875    3.033319
---------+--------------------------------------------------------------------
combined |     373    2.876676    .0563329    1.087968    2.765905    2.987446
---------+--------------------------------------------------------------------
    diff |            -.008504    .1131591               -.2310177    .2140097
------------------------------------------------------------------------------
Degrees of freedom: 371

                     Ho: mean(yes) - mean(no) = diff = 0

     Ha: diff < 0                 Ha: diff ~= 0                 Ha: diff > 0
   t =  -0.0752               t =  -0.0752               t =  -0.0752
P < t =   0.4701           P > |t| =   0.9401           P > t =   0.5299
```

```
-> ttest q2p, by(response)

Two-sample t test with equal variances

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
     yes |     172    2.610465    .0963253    1.263295    2.420325    2.800605
      no |     201    2.825871    .0896241    1.270641    2.649141      3.0026
---------+--------------------------------------------------------------------
combined |     373    2.726542     .065764    1.270115    2.597226    2.855857
---------+--------------------------------------------------------------------
    diff |           -.2154055    .1316309               -.4742417    .0434307
------------------------------------------------------------------------------
Degrees of freedom: 371

                     Ho: mean(yes) - mean(no) = diff = 0

     Ha: diff < 0                 Ha: diff ~= 0                 Ha: diff > 0
   t =  -1.6364               t =  -1.6364               t =  -1.6364
P < t =  0.0513          P > |t| =  0.1026          P > t =  0.9487

-> ttest q3p, by(response)

Two-sample t test with equal variances

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
     yes |     172    1.854651    .1058223    1.387847    1.645765    2.063537
      no |     201    2.114428    .0977824    1.386305    1.921611    2.307245
---------+--------------------------------------------------------------------
combined |     373    1.994638    .0720339    1.391206    1.852993    2.136283
---------+--------------------------------------------------------------------
    diff |           -.2597767     .14407               -.5430729    .0235195
------------------------------------------------------------------------------
Degrees of freedom: 371

                     Ho: mean(yes) - mean(no) = diff = 0

     Ha: diff < 0                 Ha: diff ~= 0                 Ha: diff > 0
   t =  -1.8031               t =  -1.8031               t =  -1.8031
P < t =  0.0361          P > |t| =  0.0722          P > t =  0.9639
```

```
-> ttest q4p, by(response)

Two-sample t test with equal variances

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
     yes |     172    2.906977    .0833867    1.093606    2.742377    3.071577
      no |     201    2.940299    .0902296    1.279226    2.762375    3.118222
---------+--------------------------------------------------------------------
combined |     373    2.924933    .0619139    1.195757    2.803188    3.046678
---------+--------------------------------------------------------------------
    diff |           -.0333218    .1243591               -.2778588    .2112152
------------------------------------------------------------------------------
Degrees of freedom: 371

                     Ho: mean(yes) - mean(no) = diff = 0

     Ha: diff < 0                 Ha: diff ~= 0                 Ha: diff > 0
      t =  -0.2679                 t =  -0.2679                 t =  -0.2679
 P < t =   0.3944             P > |t| =   0.7889             P > t =   0.6056

-> ttest total1, by(response)

Two-sample t test with equal variances

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
     yes |     172    10.27326    .2794078    3.664399    9.721723    10.82479
      no |     200      10.875    .2789011    3.944257    10.32502    11.42498
---------+--------------------------------------------------------------------
combined |     372    10.59677    .1982723    3.824138     10.2069    10.98665
---------+--------------------------------------------------------------------
    diff |           -.6017442    .3969791               -1.382362    .1788739
------------------------------------------------------------------------------
Degrees of freedom: 370

                     Ho: mean(yes) - mean(no) = diff = 0

     Ha: diff < 0                 Ha: diff ~= 0                 Ha: diff > 0
      t =  -1.5158                 t =  -1.5158                 t =  -1.5158
 P < t =   0.0652             P > |t| =   0.1304             P > t =   0.9348

.
end of do-file

.
```

Appendix 2: Pre-Post Data Analysis of Participants

Program: Anprelief

```
do anprelief

. ttest pd_prior=fuses_a

Paired t test

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
pd_prior |     179    5.329609    .1670896    2.235506    4.999878     5.65934
 fuses_a |     179    3.553073    .1505587    2.014339    3.255963    3.850182
---------+--------------------------------------------------------------------
    diff |     179    1.776536    .1761875    2.357228    1.428851    2.124221
------------------------------------------------------------------------------

                Ho: mean(pd_prior - fuses_a) = mean(diff) = 0

  Ha: mean(diff) < 0           Ha: mean(diff) ~= 0          Ha: mean(diff) > 0
      t =  10.0832                 t =  10.0832                 t =  10.0832
   P < t =   1.0000          P > |t| =   0.0000           P > t =   0.0000

. ttest urgprior=fuses_c

Paired t test

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
urgprior |     181    5.298343    .1622707    2.183129    4.978145     5.61854
 fuses_c |     181    4.066298    .1556393    2.093912    3.759186    4.373411
---------+--------------------------------------------------------------------
    diff |     181    1.232044     .162116    2.181047     .912152    1.551936
------------------------------------------------------------------------------

                Ho: mean(urgprior - fuses_c) = mean(diff) = 0

  Ha: mean(diff) < 0           Ha: mean(diff) ~= 0          Ha: mean(diff) > 0
      t =   7.5998                 t =   7.5998                 t =   7.5998
   P < t =   1.0000          P > |t| =   0.0000           P > t =   0.0000

.
. signtest pd_prior=fuses_a

Sign test

    sign |   observed   expected
---------+------------------------
positive |        126         71
negative |         16         71
    zero |         37         37
---------+------------------------
     all |        179        179
```

```
One-sided tests:
Ho: median of pd_prior - fuses_a = 0 vs. Ha: median of pd_prior - fuses_a > 0
    Pr(#positive >= 126)
    = Binomial(n = 142, x >= 126, p = 0.5) =  0.0000

Ho: median of pd_prior - fuses_a = 0 vs. Ha: median of pd_prior - fuses_a < 0
    Pr(#negative >= 16)
    = Binomial(n = 142, x >= 16, p = 0.5) =  1.0000

Two-sided test:
Ho: median of pd_prior - fuses_a = 0 vs. Ha: median of pd_prior - fuses_a ~= 0
    Pr(#positive >= 126 or #negative >= 126)
    = min(1, 2*Binomial(n = 142, x >= 126, p = 0.5)) =  0.0000

. signtest urgprior=fuses_c

Sign test

    sign |    observed    expected
---------+------------------------
positive |         111          68
negative |          25          68
    zero |          45          45
---------+------------------------
     all |         181         181

One-sided tests:
Ho: median of urgprior - fuses_c = 0 vs. Ha: median of urgprior - fuses_c > 0
    Pr(#positive >= 111)
    = Binomial(n = 136, x >= 111, p = 0.5) =  0.0000

Ho: median of urgprior - fuses_c = 0 vs. Ha: median of urgprior - fuses_c < 0
    Pr(#negative >= 25)
    = Binomial(n = 136, x >= 25, p = 0.5) =  1.0000

Two-sided test:
Ho: median of urgprior - fuses_c = 0 vs. Ha: median of urgprior - fuses_c ~= 0
    Pr(#positive >= 111 or #negative >= 111)
    = min(1, 2*Binomial(n = 136, x >= 111, p = 0.5)) =  0.0000


. signrank f_t_w = af_t_w if _merge==3

Wilcoxon signed-rank test

    sign |      obs    sum ranks    expected
---------+--------------------------------
positive |       22       2421.5      1498.5
negative |        5        575.5      1498.5
    zero |       97         4753        4753
---------+--------------------------------
     all |      124         7750        7750

unadjusted variance    160812.50
adjustment for ties       -68.25
adjustment for zeros   -77236.25
                       ----------
```

```
adjusted variance       83508.00

Ho: f_t_w = af_t_w
              z =   3.194
    Prob > |z| =   0.0014

. signrank social = asocial if _merge==3

Wilcoxon signed-rank test

    sign |      obs   sum ranks    expected
---------+--------------------------------
positive |       57        7746      5000.5
negative |       16        2255      5000.5
    zero |      100        5050        5050
---------+--------------------------------
     all |      173       15051       15051

unadjusted variance   435224.75
adjustment for ties     -2559.00
adjustment for zeros   -84587.50
                     ----------
adjusted variance     348078.25

Ho: social = asocial
              z =   4.654
    Prob > |z| =   0.0000

. signrank have_sex = ahavesex if _merge==3

Wilcoxon signed-rank test

    sign |      obs   sum ranks    expected
---------+--------------------------------
positive |       47        5093      3215.5
negative |       12        1338      3215.5
    zero |       79        3160        3160
---------+--------------------------------
     all |      138        9591        9591

unadjusted variance   221392.25
adjustment for ties      -965.50
adjustment for zeros   -41870.00
                     ----------
adjusted variance     178556.75

Ho: have_sex = ahavesex
              z =   4.443
    Prob > |z| =   0.0000

. signrank uninte_s = asleep if _merge==3

Wilcoxon signed-rank test

    sign |      obs   sum ranks    expected
---------+--------------------------------
positive |       71      9596.5        5427
```

```
negative |        10       1257.5         5427
    zero |        93         4371         4371
---------+-----------------------------------
     all |       174        15225        15225

unadjusted variance    442793.75
adjustment for ties     -2148.75
adjustment for zeros   -68114.75
                       ----------
adjusted variance      372530.25

Ho: uninte_s = asleep
              z =   6.831
    Prob > |z| =   0.0000

. signrank ex_past = aex_past if _merge==3

Wilcoxon signed-rank test

    sign |      obs   sum ranks    expected
---------+-----------------------------------
positive |       69      9120.5      5350.5
negative |       13      1580.5      5350.5
    zero |       89        4005        4005
---------+-----------------------------------
     all |      171       14706       14706

unadjusted variance    420346.50
adjustment for ties     -2583.50
adjustment for zeros   -59741.25
                       ----------
adjusted variance      358021.75

Ho: ex_past = aex_past
              z =   6.301
    Prob > |z| =   0.0000

. signrank tcfr = atcfr if _merge==3

Wilcoxon signed-rank test

    sign |      obs   sum ranks    expected
---------+-----------------------------------
positive |       41      5866.5        4248
negative |       18      2629.5        4248
    zero |      114        6555        6555
---------+-----------------------------------
     all |      173       15051       15051

unadjusted variance    435224.75
adjustment for ties     -1802.50
adjustment for zeros  -125091.25
                       ----------
adjusted variance      308331.00

Ho: tcfr = atcfr
              z =   2.915
```

```
    Prob > |z| =   0.0036

. signrank pos_men = apos_men if _merge==3

Wilcoxon signed-rank test

    sign |      obs    sum ranks    expected
---------+--------------------------------
positive |       63       8762.5        5817
negative |       21       2871.5        5817
    zero |       96         4656        4656
---------+--------------------------------
     all |      180        16290       16290

unadjusted variance    490057.50
adjustment for ties     -3148.25
adjustment for zeros   -74884.00
                       ----------
adjusted variance      412025.25

Ho: pos_men = apos_men
                z =   4.589
    Prob > |z| =   0.0000

. signrank dws = adws if _merge==3

Wilcoxon signed-rank test

    sign |      obs    sum ranks    expected
---------+--------------------------------
positive |       69       9362.5      6007.5
negative |       20       2652.5      6007.5
    zero |       90         4095        4095
---------+--------------------------------
     all |      179        16110       16110

unadjusted variance    481957.50
adjustment for ties     -4218.62
adjustment for zeros   -61766.25
                       ----------
adjusted variance      415972.62

Ho: dws = adws
                z =   5.202
    Prob > |z| =   0.0000

.
.
. *  PIZZA
. symmetry fbp2 afbp2 if fbp1==1 & afbp1==1, exact

----------+-------------------
          |        afbp2
     fbp2 |   0       1    Total
----------+-------------------
        0 |   21       2       23
        1 |   39       9       48
```

```
           |
     Total |    60      11      71
-----------+--------------------

                                           Chi-Squared     df       Prob>chi2
-------------------------------------------+-----------------------------------
Symmetry (asymptotic)                      |     33.39       1         0.0000
Marginal homogeneity (Stuart-Maxwell)      |     33.39       1         0.0000
-------------------------------------------+-----------------------------------
Symmetry (exact significance probability)                                0.0000

.
. *  COFFEE
. symmetry fbc2 afbc2 if fbc1==1 & afbc1==1, exact

-----------+--------------------
           |         afbc2
      fbc2 |    0       1     Total
-----------+--------------------
         0 |   13       0        13
         1 |   38      30        68
           |
     Total |   51      30        81
-----------+--------------------

                                           Chi-Squared     df       Prob>chi2
-------------------------------------------+-----------------------------------
Symmetry (asymptotic)                      |     38.00       1         0.0000
Marginal homogeneity (Stuart-Maxwell)      |     38.00       1         0.0000
-------------------------------------------+-----------------------------------
Symmetry (exact significance probability)                                0.0000

.
. *  CARBONATED DRINKS
. symmetry fbcd2 afbcd2 if fbc1==1 & afbc1==1, exact

-----------+--------------------
           |        afbcd2
     fbcd2 |    0       1     Total
-----------+--------------------
         0 |   10       1        11
         1 |   15      22        37
           |
     Total |   25      23        48
-----------+--------------------

                                           Chi-Squared     df       Prob>chi2
-------------------------------------------+-----------------------------------
Symmetry (asymptotic)                      |     12.25       1         0.0005
Marginal homogeneity (Stuart-Maxwell)      |     12.25       1         0.0005
-------------------------------------------+-----------------------------------
Symmetry (exact significance probability)                                0.0005

.
. *   ALCOHOL
. symmetry fba2 afba2 if fba1==1 & afba1==1, exact
```

```
----------+--------------------
          |        afba2
     fba2 |   0      1    Total
----------+--------------------
        0 |   8      0        8
        1 |  11     32       43
          |
    Total |  19     32       51
----------+--------------------
```

	Chi-Squared	df	Prob>chi2
Symmetry (asymptotic)	11.00	1	0.0009
Marginal homogeneity (Stuart-Maxwell)	11.00	1	0.0009
Symmetry (exact significance probability)			0.0010

```
.
. *   ACIDIC FRIUTS/JUICES
. symmetry fbaj2 afbaj2 if fbajf1==1 & afbaj1==1, exact

----------+--------------------
          |       afbaj2
    fbaj2 |   0      1    Total
----------+--------------------
        0 |   4      1        5
        1 |  25     16       41
          |
    Total |  29     17       46
----------+--------------------
```

	Chi-Squared	df	Prob>chi2
Symmetry (asymptotic)	22.15	1	0.0000
Marginal homogeneity (Stuart-Maxwell)	22.15	1	0.0000
Symmetry (exact significance probability)			0.0000

```
.
. *   TOMATO-BASED PRODUCTS
. symmetry fbtb2 afbtb2 if fbtb1==1 & afbtb1==1, exact

----------+--------------------
          |       afbtb2
    fbtb2 |   0      1    Total
----------+--------------------
        0 |  22     10       32
        1 |  55     37       92
          |
    Total |  77     47      124
----------+--------------------
```

	Chi-Squared	df	Prob>chi2
Symmetry (asymptotic)	31.15	1	0.0000
Marginal homogeneity (Stuart-Maxwell)	31.15	1	0.0000

```
Symmetry (exact significance probability)                    0.0000

.
. *   CHOCOLATE
. symmetry fbcho2 afbchoc2 if fbchoc1==1 & afbchoc1==1, exact

----------+--------------------
          |      afbchoc2
   fbcho2 |   0       1    Total
----------+--------------------
        0 |   48       9     57
        1 |   26      26     52
          |
    Total |   74      35    109
----------+--------------------

                                          Chi-Squared     df       Prob>chi2
------------------------------------------+-----------------------------------
Symmetry (asymptotic)                     |      8.26       1         0.0041
Marginal homogeneity (Stuart-Maxwell)     |      8.26       1         0.0041
------------------------------------------+-----------------------------------
Symmetry (exact significance probability)                              0.0060

.
. *   SPICY FOODS
. symmetry fbsf2 afbsf2 if fbsf1==1 & afbsf1==1, exact

----------+--------------------
          |       afbsf2
    fbsf2 |   0       1    Total
----------+--------------------
        0 |   10       2     12
        1 |   27      29     56
          |
    Total |   37      31     68
----------+--------------------

                                          Chi-Squared     df       Prob>chi2
------------------------------------------+-----------------------------------
Symmetry (asymptotic)                     |     21.55       1         0.0000
Marginal homogeneity (Stuart-Maxwell)     |     21.55       1         0.0000
------------------------------------------+-----------------------------------
Symmetry (exact significance probability)                              0.0000

.
.
.
. *Compares the average number of foods per person cited as a problem
. ttest totfood1=totfood2

Paired t test

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
totfood1 |     203    4.261084    .1797674    2.561291    3.906623    4.615545
totfood2 |     203    1.674877    .1340217    1.909515    1.410616    1.939138
```

```
---------+--------------------------------------------------------------------
    diff |      203    2.586207    .1968662    2.804912    2.198031    2.974383
---------+--------------------------------------------------------------------

                Ho: mean(totfood1 - totfood2) = mean(diff) = 0

  Ha: mean(diff) < 0           Ha: mean(diff) ~= 0           Ha: mean(diff) > 0
       t =  13.1369                 t =  13.1369                 t =  13.1369
   P < t =   1.0000             P > |t| =   0.0000           P > t =   0.0000

. signrank totfood1=totfood2

Wilcoxon signed-rank test

    sign |      obs    sum ranks    expected
---------+---------------------------------
positive |      150        18500     10072.5
negative |       20         1645     10072.5
    zero |       33          561         561
---------+---------------------------------
     all |      203        20706       20706

unadjusted variance    702278.50
adjustment for ties     -2677.00
adjustment for zeros    -3132.25
                       ----------
adjusted variance      696469.25

Ho: totfood1 = totfood2
                z =   10.098
    Prob > |z| =    0.0000

.
end of do-file

.
```