

From: SHIELD Researchers
To: Readers of the 24 month Shield effects paper
Re: 24 month paper scale and physiological index information
Date: 2/19/16

Summary

This report gives specific information on how scales and indices were constructed for the 24-month Shield project. Table 1 contains the scale/index and the items used to make the scale/index. The scale or index is written in bold. After each scale or index name, the items that were used to make the scale are listed. Table 2 lists the specific questions and response options for each scale/index. Table 3 lists the coefficient alpha for each scale. The coefficient alpha reliability measure is not appropriate for indices. The fruits and vegetables measures are treated as an index rather than a scale because individual items are added to measure amount of fruits and vegetables consumed rather than a scale where each item is treated as a measure of a latent variable. Table 4 lists the test-retest correlations for each scale and physiological measure. Table 5 contains the matrix of evolving and refined themes and representative quotes from the participants in the group interviews. Figure 1 contains a plot of the average sleep quality for the intervention and control group at each wave.

Fruit and Vegetable Intake. The NCI Fruit and Vegetable Screener (Thompson et al., 2002) was used to measure daily nutrition behaviors in the form of fruit and vegetable consumption (available at <http://appliedresearch.cancer.gov/diet/screeners/fruitveg/bymeal.pdf>). The screener measures the frequency with which respondents ate 10 food items, along with the portion size of these items, over the past month. Total fruit and vegetable intake was used for this study, which represents a daily combined average of fruit and vegetable servings.

Sleep Quality. Sleep quality was assessed using four self-reported measures with items from the Pittsburgh Sleep Quality Index (available at

<http://www.sleep.pitt.edu/includes/showFile.asp?fltype=doc&flID=2532>) and the National Institutes of Health Patient-Reported Outcomes Information System (PROMIS) sleep disturbance (information available at <http://www.nihpromis.org/Measures/domainframework1>). Participants were asked about quality of sleep and satisfaction with sleep as well as trouble sleeping. Cronbach's alphas ranged from .886 to .914 across the four waves.

Sleep Quantity. Sleep quantity was assessed using three self-reported measures with items from the Pittsburgh Sleep Quality Index and the National Institutes of Health Patient-Reported Outcomes Information System (PROMIS) sleep disturbance. Participants were asked to provide the amount of hours slept on average in the past month as well as how often they felt they had gotten enough sleep in the past week. Cronbach's alphas ranged from .796 to .820 across the four waves.

General Health. Participants' self-reported general health was measured with the 'General Health' subscale of the SF-36 (Ware, Snow, Kosinski, & Gandek, 1993). This widely used subscale measures respondents' perceptions of their own general health in relation to others. Cronbach's alphas ranged from .742 to .770 across the four waves.

Stress Self. Participant stress was assessed with a scale of four items, in which respondents answered questions about the extent to which stress affected them at work and home, and healthy management of stress. Cronbach's alphas ranged from .777 to .792 across the four waves.

Healthy Eating Self. Participant healthy eating habits were assessed with a scale of five items, in which respondents answered questions about making healthy food choices at home and in restaurants. Cronbach's alphas ranged from .783 to .823 across the four waves.

Physical Activity Habits. Physical activity habits were assessed with an index of four items of the number of days in which respondents performed moderate or heavy exercise for at least 30 minutes, along with a single item assessing the extent to which respondents performed daily exercise for 30 minutes. Cronbach's alphas ranged from .879 to .911 across the four waves.

Alcohol Consumption. Alcohol was assessed using seven items from the Health Maintenance Consortium (available at <http://hmcrc.srph.tamhsc.edu/Measures/MeasuresMain.html>). Cronbach's alphas ranged from .786 to .810 across the four waves.

Tobacco Use. Tobacco use was measured by one item, in which respondents answered whether they were ever tobacco users and if so, how frequently and how recently they used tobacco.

Depression. Depression was assessed using five items from the Health Maintenance Consortium (available at <http://hmcrc.srph.tamhsc.edu/Measures/MeasuresMain.html>). Cronbach's alphas ranged from .826 to .839 across the four waves.

Table 1 List of Items for each Scales and Index

Fruits: single variable, c_frsrv, is the sum of the 2 calculated fruit daily serving scores.

Vegetables: single variable, c_vgsrv, is the sum of the 8 calculated vegetable daily serving scores.

Fruits/Vegetables: single variable, c_fvsrv, is the sum of the 10 calculated fruit and vegetable daily serving scores.

Sleep Quality: z scores computed for all 4 items, 2 items reverse coded to reflect higher score = better sleep quality (2 items not reverse coded are slpsat and slp7qly), then 4 items averaged to compute scale.

Sleep Quantity: z scores computed for all 3 items, items reflect higher score = more sleep, then 3 items averaged to compute scale.

Sf-36: General Health: all 5 items retain their raw format as all items are in the same metric, 2 items reverse coded to reflect higher score = better general health (3 items not reverse coded are d_sick, d_hlth, and d_worse), then 5 items averaged to compute scale.

Stress Self: all 4 items retain their raw format as all items are in the same metric, 3 items reverse coded to reflect higher score = less stress (item not reverse is imngstr), then 4 items averaged to compute scale.

Healthy Eating Self: z scores computed for all 5 items, 1 item reverse coded to reflect higher score = healthier eating (4 items not reverse coded are hlthffd, hlthres, me5fv, and melowft), then 5 items averaged to compute scale.

Physical Activity Self: z scores computed for all 5 items, all items reflect higher score = more physical activity, then 5 items averaged to compute scale.

Alcohol: z scores computed for all 7 items, all items reverse coded to reflect higher score = less alcohol use/issues, then 7 items averaged to compute scale.

Tobacco: 1 question, tobac, reverse coded to reflect higher score = absence of/less tobacco use.

Depression: all 5 items retain their raw format as all items are in same metric, 3 items reverse coded to reflect higher score = less depression (2 items not reverse coded are happywk and happymo), then 5 items averaged to compute scale.

Table 2 Scale items, names, and response options

| Question # (for F/V) | Variable name | Question text | Values | Construct |
|-------------------------|------------------|--------------------------------------|---|-----------|
| Q1 | c_juice | Q1-How many times drank juice | 1-Never 2-1 to 3x last month 3-1 to 2x/week 4-3 to 4x/week 5-5 to 6x/week 6-1x/day 7-2x/day 8-3x/day 9-4x/day 10-5 or more x/day | Fruit |
| Q1a | c_juchm | Q1a-How much juice | 1-less than 3/4 c. 2-3/4 to 1 1/4 c. 3-1 1/4 to 2 c. 4-more than 2 c. | Fruit |
| calculated | c_jcfrq | Q1-Times have juice per day | | Fruit |
| calculated | c_jcamt | Q1-Juice portion size | | Fruit |
| calculated | c_jcscr | Q1-Juice score (daily avg. servings) | | Fruit |

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|------------|----------|---|---|------------|
| | | | 1-Never 2-1 to 3x last month 3-1 to 2x/week 4-3 to 4x/week 5-5 to 6x/week 6-1x/day 7-2x/day 8-3x/day 9-4x/day 10-5 or more x/day | |
| Q2 | c_fruit | Q2-how many times per mo/wk/day did you eat fruit | 1-less than 1 med fruit or 1/2 c. 2-1 med fruit or 1/2 c. 3-2 med fruits or 1 c. 4-more than 2 med fruits or 1 c. | Fruit |
| Q2a | c_frthm | Q2a-total amount of fruit per mo/wk/day | | Fruit |
| calculated | c_ffrq | Q2-Times have fruit per day | | Fruit |
| calculated | c_ftamt | Q2-Fruit portion size | | Fruit |
| calculated | c_ftscr | Q2-Fruit score | | Fruit |
| | | | 1-Never 2-1 to 3x last month 3-1 to 2x/week 4-3 to 4x/week 5-5 to 6x/week 6-1x/day 7-2x/day 8-3x/day 9-4x/day 10-5 or more x/day | |
| Q3 | c_lett | Q3-how often did you eat lettuce. | 1-about 1/2 c. 2-about 1 c. 3-about 2 c. 4-more than 2 c. | Vegetables |
| Q3a | c_letthm | Q3a-how much lettuce salad. | | Vegetables |
| calculated | c_ltfreq | Q3-Times have lettuce per day | | Vegetables |
| calculated | c_ltamt | Q3-Lettuce portion size | | Vegetables |
| calculated | c_ltsr | Q3-Lettuce score (daily avg. servings). | | Vegetables |
| | | | 1-Never 2-1 to 3x last month 3-1 to 2x/week 4-3 to 4x/week 5-5 to 6x/week 6-1x/day 7-2x/day 8-3x/day 9-4x/day 10-5 or more x/day | |
| Q4 | c_frfr | Q4-how often did you eat french fries. | 1-smaller order or less 2-medium order 3-large order 4-super size order or more | Vegetables |
| Q4a | c_fryhm | Q4a-how much fries. | | Vegetables |
| calculated | c_frfrq | Q4-Times have fries per day | | Vegetables |
| calculated | c_framt | Q4-Fries portion size | | Vegetables |
| calculated | c_frscr | Q4-French fry score (daily avg. servings). | | Vegetables |

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| Q5 | c_potat | Q5-how often did you eat non fried potatoes. | 1-Never 2-1 to 3x last month 3-1 to 2x/week 4-3 to 4x/week 5-5 to 6x/week 6-1x/day 7-2x/day 8-3x/day 9-4x/day 10-5 or more x/day | Vegetables |
| Q5a | c_pothm | Q5a-how much non fried potatoes. | 1-1 sm or less (1/2 c. or less) 2-1 med (1/2 to 1 c.) 3-1 large (1 to 1 1/2 c.) 4-2 med or more (1 1/2 c. or more) | Vegetables |
| calculated | c_pofrq | Q5-Times have non-fried potatoes per day | | Vegetables |
| calculated | c_poamt | Q5-Potato portion size | | Vegetables |
| calculated | c_poscr | Q5-Non-fried potatoes score (daily avg. servings). | | Vegetables |
| Q6 | c_beans | Q6-how often did you eat cooked dried beans. | 1-Never 2-1 to 3x last month 3-1 to 2x/week 4-3 to 4x/week 5-5 to 6x/week 6-1x/day 7-2x/day 8-3x/day 9-4x/day 10-5 or more x/day | Vegetables |
| Q6a | c_bnshM | Q6a-how much beans. | 1-1/2 c. or less 2-1/2 to 1 c. 3-1 to 1 1/2 c. 4-1 1/2 c. or more | Vegetables |
| calculated | c_bnfrq | Q6-Times have beans per day | | Vegetables |
| calculated | c_bnamt | Q6-Beans portion size | | Vegetables |
| calculated | c_bnscr | Q6-Cooked dried beans score (daily avg. servings). | | Vegetables |
| Q7 | c_oveg | Q7-how often did you eat other vegetables over last month | 1-Never 2-1 to 3x last month 3-1 to 2x/week 4-3 to 4x/week 5-5 to 6x/week 6-1x/day 7-2x/day 8-3x/day 9-4x/day 10-5 or more x/day | Vegetables |
| Q7a | c_veghm | Q7a-total amount vegies each time | 1-1/2 c. or less 2-1/2 to 1 c. 3-1 to 2 c. 4-2 c. or more | Vegetables |
| calculated | c_ovfrq | Q7-times have other veggies per day | | Vegetables |
| calculated | c_ovamt | Q7-other veggies portion size | | Vegetables |
| calculated | c_ovscr | Q7-other veggies score | | Vegetables |

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| | | | 1-Never 2-1 to 3x last month 3-1 to 2x/week 4-3 to 4x/week 5-5 to 6x/week 6-1x/day 7-2x/day 8-3x/day 9-4x/day 10-5 or more x/day | |
| Q8 | c_tomat | Q18-how often did you eat tomato sauce. | | Vegetables |
| Q8a | c_tomhm | Q8a-total amt.of tomato sauce eaten. | 1-1/4 c. 2-1/2 c. 3-1 c. 4-more than 1 c. | Vegetables |
| calculated | c_tmfrq | Q8-Times have tomato sauce per day | | Vegetables |
| calculated | c_tmamt | Q8-Tomato sauce portion size | | Vegetables |
| calculated | c_tmscr | Q8-tomato sauce score (daily avg. servings). | | Vegetables |
| | | | 1-Never 2-1 to 3x last month 3-1 to 2x/week 4-3 to 4x/week 5-5 to 6x/week 6-1x/day 7-2x/day 8-3x/day 9-4x/day 10-5 or more x/day | |
| Q9 | c_vsoup | Q9-how often did you eat vegetable soup. | | Vegetables |
| Q9a | c_vsphm | Q9a-total amt.of vegetable soup eaten. | 1-less than 1 c. 2-1 to 2 c. 3-2 to 3 c. 4-more than 3 c. | Vegetables |
| calculated | c_vsfrq | Q9-Times have vegie soup per day | | Vegetables |
| calculated | c_vsamt | Q9-Vegie soup portion size | | Vegetables |
| calculated | c_vsscr | Q9-vegetable soup score (daily avg. servings). | | Vegetables |
| | | | 1-Never 2-1 to 3x last month 3-1 to 2x/week 4-3 to 4x/week 5-5 to 6x/week 6-1x/day 7-2x/day 8-3x/day 9-4x/day 10-5 or more x/day | |
| Q10 | c_vmixt | Q10-how often did you eat mixtures with veggies. | | Vegetables |
| calculated | c_frsrv | Avg. servings of fruit per day - sum all fruit scores | | Fruit |
| calculated | c_vgsrv | Avg.servings vegies per day -sum all veg scores | | Vegetables |
| calculated | c_fvsrv | total avg. servings of fruit and veggies per day | | Fruits//vegetables |

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| slpsat | In the past 7 days I was satisfied with my sleep | 1-Not at all 2- 3- 4-Somewhat 5- 6- 7-Very much | sleep quality |
| slp7qly | In the past week my sleep quality was | 1-Very poor 2- 3- 4-Fair 5- 6- 7-Very good | sleep quality |
| slptrbl | In the past 7 days how often have you had trouble sleeping | 0-Never 1-Rarely 2-Sometimes 3-Often 4-Always | sleep quality |
| slpqual | During past month how would you rate your sleep quality overall | 0-Very good 1-Fairly good 2-Fairly bad 3-Very bad | sleep quality |
| amt | In past month, avg. hours of sleep during each sleep period (taken from vigilance questionnaire) | open-ended | sleep quantity |
| slpenuf | In the past 7 days how often have you gotten enough sleep | 0-Never 1-Rarely 2-Sometimes 3-Often 4-Always | sleep quantity |
| slpavg | In the past month, how many hours of sleep did you average in a 24 hr period? | 1- Less tha 4 hrs 2- 4-5 hours 3- 6-7 hours 4- 7-8 hours 5- 9 or more hours | sleep quantity |
| d_genhl | In general, would you say your health is | 1-Excellent 2-Very good 3-Good 4-Fair 5-Poor | SF-36: general health |
| d_sick | how true/false: I seem to get sick easier than other | 1-Definitely true 2-Mostly true 3-Don't know 4-Mostly false 5-Definitely false | SF-36: general health |
| d_hlth | how true/false: I am as healthy as anybody | 1-Definitely true 2-Mostly true 3-Don't know 4-Mostly false 5-Definitely false | SF-36: general health |
| d_worse | how true/false: I expect my health to get worse | 1-Definitely true 2-Mostly true 3-Don't know 4-Mostly false 5-Definitely false | SF-36: general health |

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| d_excel | how true/false: my health is excellent | 1-Definitely true 2-Mostly true 3-Don't know 4-Mostly false 5-Definitely false | SF-36: general health |
| strwork | I feel significant stress at work | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | stress self |
| strhome | Worrying about work issues makes it hard to relax at home | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | stress self |
| strjob | Overall I feel like there is too much stress in my job | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | stress self |
| imngstr | In general I manage stress in a healthy way | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | stress self |
| fastfd | On average how often do you eat fast food | 0-Hardly ever 1-2-3 times a month 2- 2-3 times a week 3-One or more times a day | healthy eating self |
| hlthffd | I make healthy choices when ordering fast food | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | healthy eating self |
| hlthres | I select healthy food items when eating at restaurants | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | healthy eating self |

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| me5fv | In general I eat 5+ servings of f/v per day | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | healthy eating self |
| melowft | In general I eat a low-fat diet | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | healthy eating self |
| exhrd | How many days per wk did you exercise or take part in hard physical activities | 0-7 days per wk | physical activity self |
| exmodr | How many days per wk did you exercise or take part in moderate physical activities | 0-7 days per wk | physical activity self |
| exstrng | How many days per week did you exercise to strengthen or tone muscles | 0-7 days per wk | physical activity self |
| exsweat | In a typical wk how many days do you take part in any phys activity long enough to work up a sweat | 0-7 days per wk | physical activity self |
| ex30m | I exercise for 30 minutes almost every day | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | physical activity self |
| alcone | In past 30 days how frequently do you have at least one alcoholic drink | 0-Never 1-About once a month 2-Several times per month 3-About once a week 4-Several times per week 5-Almost every day | alcohol |
| alcsevl | In past 30 days how frequently do you have several drinks in one sitting | 0-Never 1-About once a month 2-Several times per month 3-About once a week 4-Several times per week 5-Almost every day | alcohol |
| alcbuzz | In past 30 days how frequently do you drink to the point of getting buzzed | 0-Never 1-About once a month 2-Several times per month 3-About once a week 4-Several times per week 5-Almost every day | alcohol |
| alcdrnk | in past 30 days how frequently do you drink to the point of getting drunk | 0-Never 1-About once a month 2-Several times per month 3-About once a week 4-Several times per week 5-Almost every day | alcohol |

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| alcglt | How often during last 30 days have you had feelings of guilt or remorse after drinking | 0-Never 1-Once 2-Two or three times 3-Weekly 4-More than once a week | alcohol |
| alfam | In the last 6 mo, my family or friends have been concerned with my drinking | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | alcohol |
| alcquit | In the last 6 mo, I have tried to quit drinking | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | alcohol |
| tobac | Do you currently use tobacco (cigarettes, cigars, pipe or chewing tobacco) Mark one. | 0-No and never was regular user 1-No and quit more than 6 mo ago 2-No and quit less than 6 mo ago 3-Yes current user (1 pack/day or less) 4-Yes, current user (>1 pack/day) | tobacco |
| happymo | Overall in the last month I have been happy | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | depression |
| happywk | I feel happy to go to work each day | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | depression |
| depr7dy | In the past 7 days, I felt depressed | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | depression |
| deprwk | Feelings of depression interfere with my work | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree 6-Agree 7-Strongly agree | depression |
| jobdepr | Overall my job makes me feel depressed | 1-Strongly disagree 2-Disagree 3-Slightly disagree 4-No Opinion 5-Slightly agree | depression |

6-Agree
7-Strongly agree

Table 3. Baseline, 6-month, 12-month, and 24-month follow-up Reliability of Constructs Measured in Questionnaire

| Construct | Baseline (Wave 1) | | 6 Months (Wave 2) | | 12 Months (Wave 3) | | 24 Months (Wave 4) | |
|------------------------------|----------------------|-------|----------------------|-------|-----------------------|-------|-----------------------|-------|
| | Cronbach's α | | Cronbach's α | | Cronbach's α | | Cronbach's α | |
| | Raw | Std. | Raw | Std. | Raw | Std. | Raw | Std. |
| Fruit Consumption* | 0.048 | 0.057 | 0.381 | 0.431 | 0.154 | 0.198 | 0.007 | 0.010 |
| Vegetable Consumption* | 0.428 | 0.526 | 0.390 | 0.494 | 0.503 | 0.583 | 0.407 | 0.496 |
| Fruit/Vegetable Consumption* | 0.499 | 0.533 | 0.465 | 0.521 | 0.531 | 0.572 | 0.439 | 0.473 |
| Healthy Eating Self | 0.823 | 0.823 | 0.816 | 0.817 | 0.815 | 0.814 | 0.783 | 0.784 |
| Physical Activity | 0.888 | 0.887 | 0.879 | 0.882 | 0.905 | 0.906 | 0.911 | 0.911 |
| Sleep Quality | 0.914 | 0.914 | 0.908 | 0.907 | 0.886 | 0.886 | 0.909 | 0.906 |
| Sleep Quantity | 0.820 | 0.817 | 0.811 | 0.811 | 0.812 | 0.816 | 0.796 | 0.797 |
| SF36: General Health | 0.770 | 0.767 | 0.764 | 0.761 | 0.770 | 0.767 | 0.742 | 0.739 |
| Stress Self | 0.781 | 0.781 | 0.792 | 0.788 | 0.780 | 0.776 | 0.777 | 0.774 |
| Tobacco Use | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Alcohol Consumption | 0.810 | 0.809 | 0.786 | 0.790 | 0.798 | 0.800 | 0.790 | 0.797 |
| Depression | 0.833 | 0.834 | 0.826 | 0.829 | 0.839 | 0.840 | 0.833 | 0.834 |

* The construct is an index and Cronbach's α is not interpreted as a measure of internal consistency because individual items are summed to form the index.

Table 4. Baseline, 6-month, 12-month, and 24-month follow-up Test-Retest Correlations

| Construct | Wave 1 - Wave 2 | Wave 1 - Wave 3 | Wave 2 - Wave 3 | Wave 1 – Wave 4 | Wave 2 – Wave 4 | Wave 3 – Wave 4 |
|--------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| | Test-Retest Correlation | Test-Retest Correlation | Test-Retest Correlation | Test-Retest Correlation | Test-Retest Correlation | Test-Retest Correlation |
| Fruit Consumption | 0.485 | 0.451 | 0.597 | 0.486 | 0.504 | 0.609 |
| Vegetable Consumption | 0.480 | 0.450 | 0.560 | 0.539 | 0.466 | 0.434 |
| Fruit/Vegetable Consumption | 0.554 | 0.539 | 0.710 | 0.565 | 0.547 | 0.626 |
| Healthy Eating Self | 0.733 | 0.726 | 0.808 | 0.681 | 0.683 | 0.728 |
| Physical Activity Self | 0.632 | 0.603 | 0.727 | 0.581 | 0.601 | 0.674 |
| Sleep Quality | 0.652 | 0.581 | 0.591 | 0.533 | 0.520 | 0.536 |
| Sleep Quantity | 0.652 | 0.640 | 0.630 | 0.590 | 0.593 | 0.609 |
| SF36: General Health | 0.743 | 0.719 | 0.790 | 0.683 | 0.688 | 0.715 |
| Stress Self | 0.732 | 0.738 | 0.788 | 0.632 | 0.709 | 0.750 |
| Tobacco Use | 0.909 | 0.875 | 0.873 | 0.850 | 0.836 | 0.855 |
| Alcohol Consumption | 0.835 | 0.778 | 0.866 | 0.784 | 0.788 | 0.844 |
| Depression | 0.701 | 0.664 | 0.707 | 0.658 | 0.701 | 0.729 |
| Systolic Blood Pressure | N/A | 0.649 | N/A | 0.665 | N/A | 0.602 |
| Diastolic Blood Pressure | N/A | 0.674 | N/A | 0.695 | N/A | 0.616 |
| BMI | N/A | 0.955 | N/A | 0.952 | N/A | 0.932 |

Note: Systolic blood pressure, Diastolic blood pressure, and BMI data were not collected at Wave 2 (6 Months).

Table 5. Matrix of Evolving and Refined Themes and Representative Quotes from group interviews

| Finalized Durability Influences | Representative Quotes |
|---|--|
| Individuals recalled information in each content area | <p>“I agree 100% with the sleep information and the effect it has on the heart, that was news to me. I knew it was important but not that important, I guess that’s what stood out to me.”</p> <p>“I think for the games and activities stood out – um the one with the butter, where we measured things out.”</p> <p>“...Just being more aware of adding more vegetables and knowing that that small change, even just adding one more vegetable a day, can help your health.”</p> <p>“... a small change can make a difference, like just losing 5 or 6 pounds can actually change your blood pressure.”</p> |

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| | <p>“The education that took place, new information, just sitting down and talking about it just raises your awareness. Like ‘oh yeah, I need to do that.”</p> <p>“I think, in my personal opinion, I think that SHIELD was great for the office as a whole for people to recognize the education piece. For a lot of people it opened up their eyes to their habits.”</p> <p>“For me, I think I became more aware of the damage that it can do to your body by not getting proper sleep. I wasn’t aware of how the heart kind of repairs itself during the time of sleep. I was totally unaware of that.”</p> <p>“I think wearing those pedometers that we were given was actually very surprising... I was actually surprised at how much I didn’t move, so kind of an awareness or walk up call for me...”</p> <p>“I think [SHIELD] was a good start for me because it made me realize a number of things, such as how I needed to exercise more, how I needed to exercise, period. And, you know, how I need t eat better and portion control and just a number of things.”</p> |
| <p>Differential ongoing reinforcement of behaviors</p> | <p>“...we would bug the other people in our group about did you eat your vegetables today. . “</p> <p>“I think there has been an influence with SHIELD. Our gatherings, our office gatherings... people want fruit.”</p> <p>“[Daily walks] is one of the things that [we] tried to incorporate. One, it’s a stress reducer, and two, to get away from the office and talk. Even if it is business stuff. At least close to a mile walk each day and around mid-day to break up the monotony and stretch out the legs. It’s different and it’s work out pretty well.”</p> <p>“...with sleep you can get the least impact on group accountability, you can go like let’s go for a walk or let’s go get this kind of lunch, but you can’t be like you need to go to bed.”</p> <p>“...so compared to exercise and eating, it (sleep) is harder to control? Yeah”</p> |
| <p>Accountability: need for external motivation once group stopped</p> | <p>“I liked the program, I just wish there was an accountability, either an accountability piece or accountability and an external facilitator so we were accountable to somebody that was going to be checking our work or whatever.”</p> <p>“You work in a group and it kinda gives you a bit of accountability to do things. I know I haven’t been a part of those accountability things, so I probably an not as good as I should be.”</p> <p>“And the group dynamic too. I think that’s super important too because we are not only there to support each other and make better decisions and healthier decisions, but holding each other accountable too. I think it’s pretty important so I think that was something that worked.”</p> |

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| | <p>“...I went back to my old habits when we weren’t meeting and talking about it. It was easier for me to slip back into my old ways when I didn’t have group participation holding me accountable.... I think I am one of those people that need structure. Without structure I easily get off track.”</p> <p>I noticed when you get away from the program and not meeting, it is more difficult to do that. You’re kind of on your own. You have knowledge, but who is going to make the choice and who is going to hold me accountable?”</p> |
| <p>Competing demands: life events hampered healthy actions</p> | <p>“Lately we’ve had some things happening in our building. We have had Wi-Fi installed new camera systems in and looking at a new software system, so I think we have all of those things going on, um, we tend to not be as conscious about, you know, what we are eating.”</p> <p>“I think its when stress comes that it tend to be the debunker. If I’m late I gotta go, I can get some [food] here, someone will have something. It’s the key roadblock at times.”</p> <p>“...You get stressed out, you just grab for whatever is easiest at the time, you know.”</p> <p>“If I’m being completely honest I made changes initially but I didn’t maintain and I still haven’t gone back to that. I did weight watchers for about 4 and a half years, real successful. But vacation happened, some things happened, and I stopped doing weight watchers and right now I’m not doing so well.”</p> <p>“So for me what is difficult is I have probably read every book there is and all of that about what you should and shouldn’t do and nutrition and blah, blah, blah. But it’s different when you are working all day running around. Go to pick up kids and go from work to activity to activity to activity. You know it’s great to say I’m going to pack my little lunch box and take it all with me, but something happens in the middle of the day. You know the lunch gets left in the car and you come out three hours later and it’s all melted...”</p> |

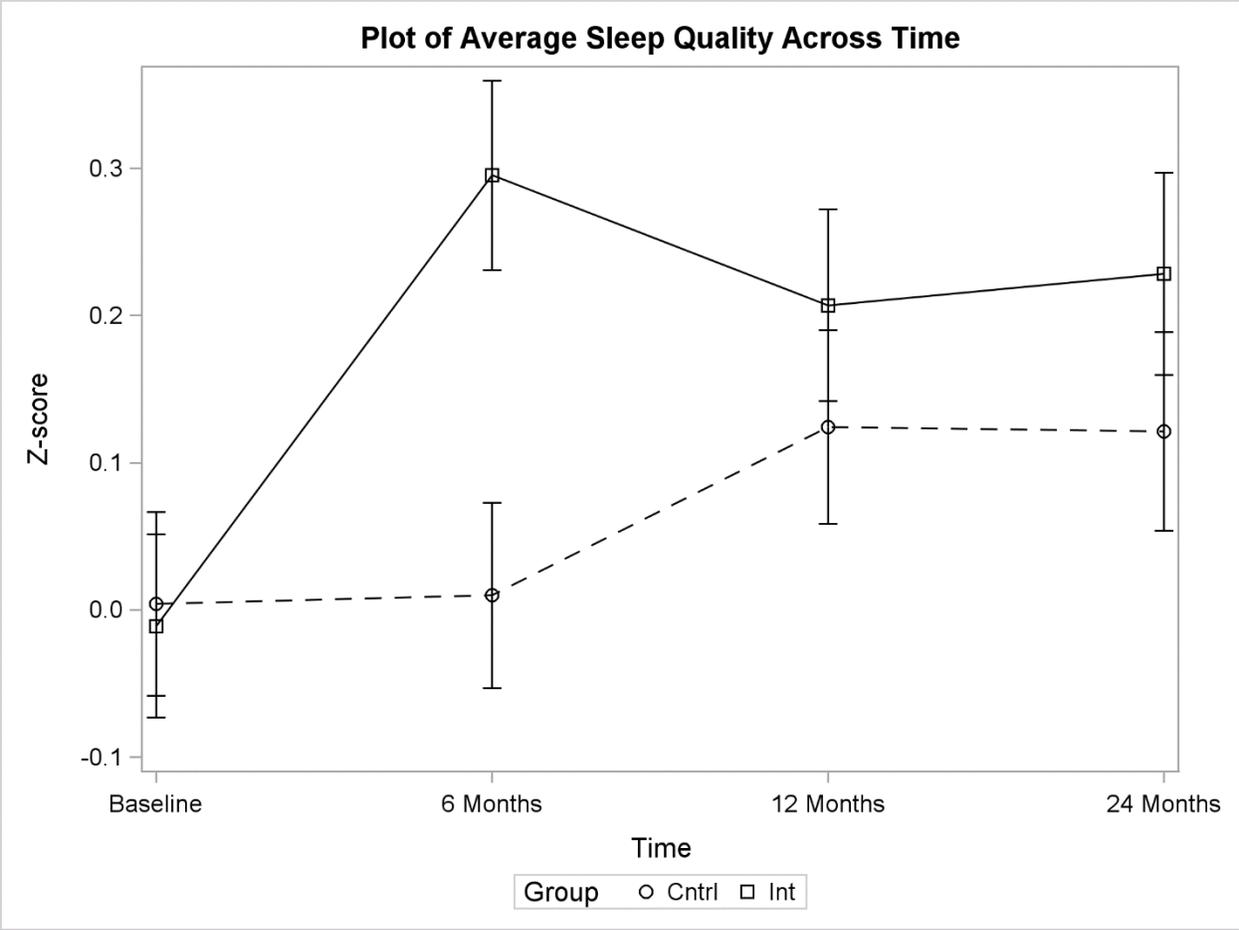


Figure 1. Average sleep quality for the intervention and control groups at each time of measurement with +/- 1 standard error bars. Higher scores indicate higher quality of sleep.