

Knowledge, Attitudes, and Behavior of Individuals with Multiple Cardiometabolic Risk Factors: Data from the Study to Help Improve Early Evaluation and Management of Risk Factors Leading to Diabetes (SHIELD)

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Abstract

Background: Metabolic syndrome (MetSyn) is associated with long-term risk for CVD and type 2 diabetes mellitus. In addition to clinical factors, health-related knowledge, attitudes, and behavior (KAB) may impact outcomes.

Aim: To identify self-reported KAB patterns of US adults with at least three cardiometabolic risk factors (CRF).

Patients and Methods: As part of the 5-year, longitudinal SHIELD study, a detailed survey was mailed in 2004 to a stratified sample (n=22,001) of US adults with diabetes or varying levels of metabolic risk, who had been identified through an earlier screening questionnaire. Respondents with 3–5 CRFs were mapped into 3 groups derived from American Dietetic Association–defined behavior levels (ADA, *Nutrition and You: Trends 2002*): “Already Doing It” (Doing); “I Know I Should, But...” (Should); and “Don’t Bother Me” (Don’t).

Results: Completed questionnaires were returned by 17,640 individuals (80% response rate). Of these respondents, slightly less than 15% had heard about MetSyn and approximately 10% said they understand what MetSyn is. Of respondents with 3–5 CRFs, the majority of each group said they have tried to lose weight (Doing, 74%; Should 69%; Don’t, 63%). A greater percentage of the Doing subgroup reported exercising regularly (Doing, 35%; Should, 17%; Don’t, 18%) and making healthy eating choices (Doing, 83%; Should, 56%; Don’t, 48%). The Don’t subgroup was most likely to prefer medications to lifestyle changes to prevent chronic disease (Doing, 11%; Should, 22%; Don’t, 41%).

Conclusions: There are gaps in knowledge regarding MetSyn and evidence of poor exercise and diet habits, particularly among those in the “Don’t Bother Me” subgroup.

Note: Minor changes in Results reflect re-classification of a small number of respondents after abstract submission.

Methods

SHIELD

- SHIELD is a 5-year, national, longitudinal study of diabetes, CVD, and metabolic disease risk factors in US adults.
- In the first phase of SHIELD, a screener questionnaire developed by a panel of healthcare experts (the SHIELD Study Group) was mailed in 2004 to a stratified random sample of 200,000 US households (part of the TNS NFO household panel).
 - TNS NFO maintains a survey panel of more than 600,000 households throughout the US, constructed to represent the US population in terms of geographic residence, age of head of household, and household size and income.
- Respondents were asked if they had ever been diagnosed as having each of several conditions, including diabetes, high blood pressure, or cholesterol problems.
- A baseline survey was then sent to samples of the screener respondents (N=22,001) who had diabetes or who had varying numbers of CRFs, to collect responses to 64 detailed questions, including items on comorbid conditions, health beliefs, exercise, and weight loss. A total of 17,640 baseline questionnaires were returned (80% response rate).
- Five CRFs related to MetSyn were included: abdominal obesity (waist circumference >97 cm in men, >89 cm in women), high BMI (?28 kg/m²), dyslipidemia, hypertension, and history of CV event(s).
- SHIELD baseline survey data were analyzed to determine the characteristics of respondents who reported 3–5 of these CRFs (n=5433), and to compare subsets of those respondents who reported different attitudes about maintaining their health.
 - Respondents with 3–5 CRFs were classified into 3 groups derived from American Dietetic Association–defined behavior levels³:
 - “*Already Doing It*” (“Doing”): Concerned about diet, overall nutrition, and fitness, and has taken significant actions to change eating patterns and lifestyle in accordance with these concerns.
 - “*I Know I Should, but*” (“Should”): Concerned about diet, overall nutrition, and fitness, but have not taken significant actions to address these concerns.
 - “*Don’t Bother Me*” (“Don’t”): Unconcerned with diet, overall nutrition, and fitness.
- SHIELD respondents with 3–5 CRFs were mapped into these American Dietetic Association categories using respondents’ agreement with the statement “I don’t even bother to try and stay healthy,” on a 5-point scale ranging from “Strongly Agree” to “Strongly Disagree.” Those who:
 - agreed strongly or somewhat were assigned to the “Don’t” group;
 - disagreed strongly or somewhat were assigned to the “Doing” group;
 - neither agreed nor disagreed were assigned to the “Should” group.
- We then examined differences among these 3 groups in terms of levels of knowledge, attitudes about health, and health-related behaviors, including diet, exercise, and medication adherence.

Statistical Analyses

- SHIELD results were weighted to correct for over- or under-sampling of certain demographic groups and to match 2003 US Census distributions.⁴
- Differences among the 3 American Dietetic Association groups were assessed using cross-tabulation, with Chi-square tests. All analyses were performed using SPSS ver. 13.0.1.
- All cited comparisons were statistically significant at p <0.05.

Results

Knowledge

- Awareness of MetSyn** – Among SHIELD baseline survey respondents, regardless of number of CRFs, only 13.6% of respondents indicated they have heard about metabolic syndrome and only 9.6% reported that they understand what metabolic syndrome is.
- Among respondents with 3–5 CRFs, lack of knowledge about MetSyn was consistent across the 3 American Dietetic Association groups (Doing, Should, and Don’t) (**Figure 1**).

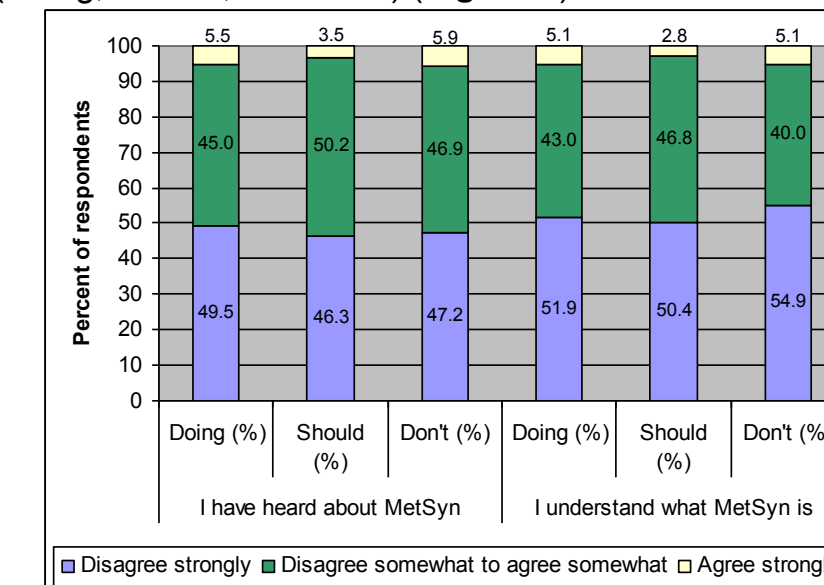


Figure 1. Awareness and understanding of MetSyn among respondents with 3–5 CRFs by American Dietetic Association behavior groups

- Impact of Obesity** – Fewer of the Should respondents (39.0%) agreed strongly that obesity could aggravate or contribute to the onset of chronic disease than in the Doing (56.0%) and Don’t (51.9%) groups.
- Weight Loss and Metabolism** – Of those reporting an inability to keep weight off for at least 6 months, a high percentage of respondents in all groups were either not sure or agreed that a hormone or metabolism problem was responsible for the inability to lose weight. However, respondents in the Doing group were more likely to disagree strongly with this statement (18.9%) than were Should respondents (7.6%) and Don’t respondents (10.3%).

Attitudes

- Health Status** – More of the Doing respondents rated their current health as very good or excellent (34.6%) than either Should (18.3%) or Don’t (15.8%) respondents (**Figure 2**). More of the Don’t respondents (18.0%) strongly agreed that their health would get worse in the next year than either Should (5.9%) or Doing (5.4%) respondents, and more were very concerned that their existing health problems will worsen over time (35.8% vs. 27.0% Doing; 26.3% Should).

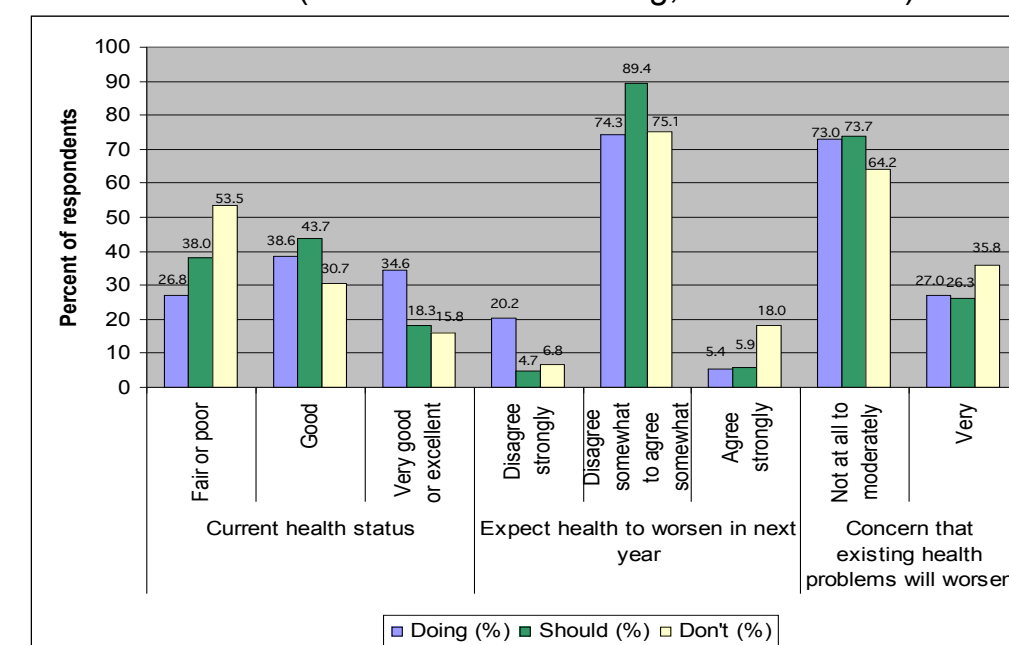


Figure 2. Self-reported health status of respondents by American Dietetic Association behavior groups

- Medication-taking Preferences** – More of the Doing (56.4%) than Don’t (47.1%) or Should (39.1%) respondents agreed strongly that they were willing to take medications prescribed by their doctor to prevent chronic disease. Yet the Don’t respondents (12.8%) were more likely to prefer taking medications for their health problems over adopting lifestyle changes than were the Doing and Should respondents (2.3% and 3.6%, respectively) (**Figure 3**).

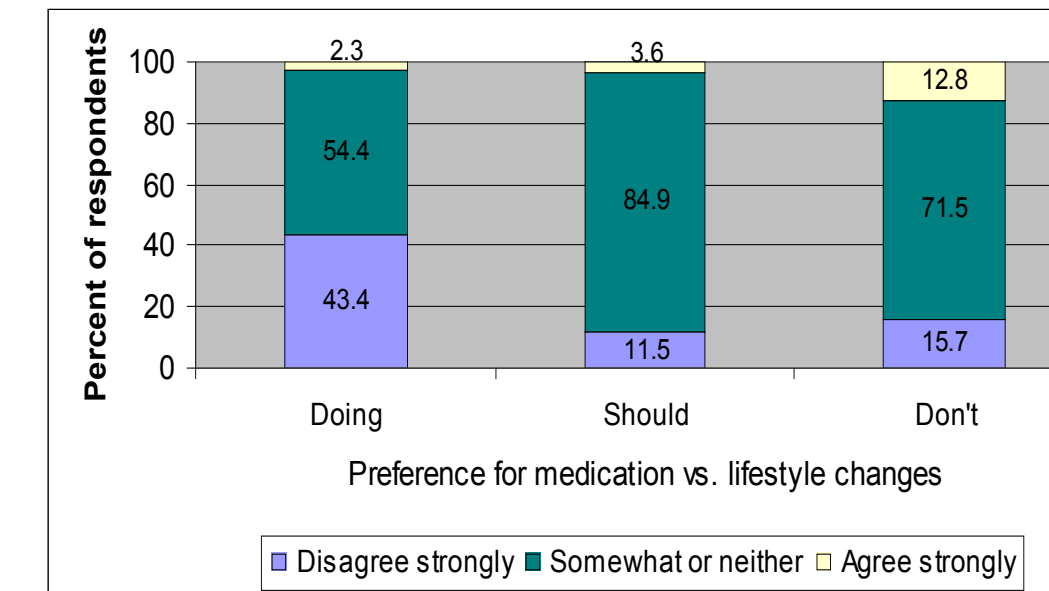


Figure 3. Preference for medication vs. lifestyle changes by American Dietetic Association behavior groups

Behaviors

- Medication Adherence** – Respondents in the Don’t and Should groups were more likely to admit that they had stopped taking a medication without their doctor’s approval during the past 12 months (13.1% and 12.8%, respectively), compared with only 9.6% of Doing respondents. Similarly, fewer Don’t and Should respondents (84.3% and 89.8%, respectively) reported that they always or almost always refill their medication prescriptions on time, compared with 92.7% of Doing respondents. Fewer of the Doing respondents (21.6%) reported always or almost always rationing their medications than the Don’t (32.9%) or Should (29.9%) respondents.
- Exercise, Diet, and Weight Loss**
 - The percentage of respondents who reported that they currently exercise regularly was much higher among the Doing respondents (35.3%) than among Don’t (18.2%) or Should (16.8%) respondents. Of respondents not currently exercising, the percentage who said they did not intend to start exercising in the next 6 months was higher among Don’t (27.4%) respondents than among Should (16.9%) and Doing (8.9%) respondents (**Figure 4**).

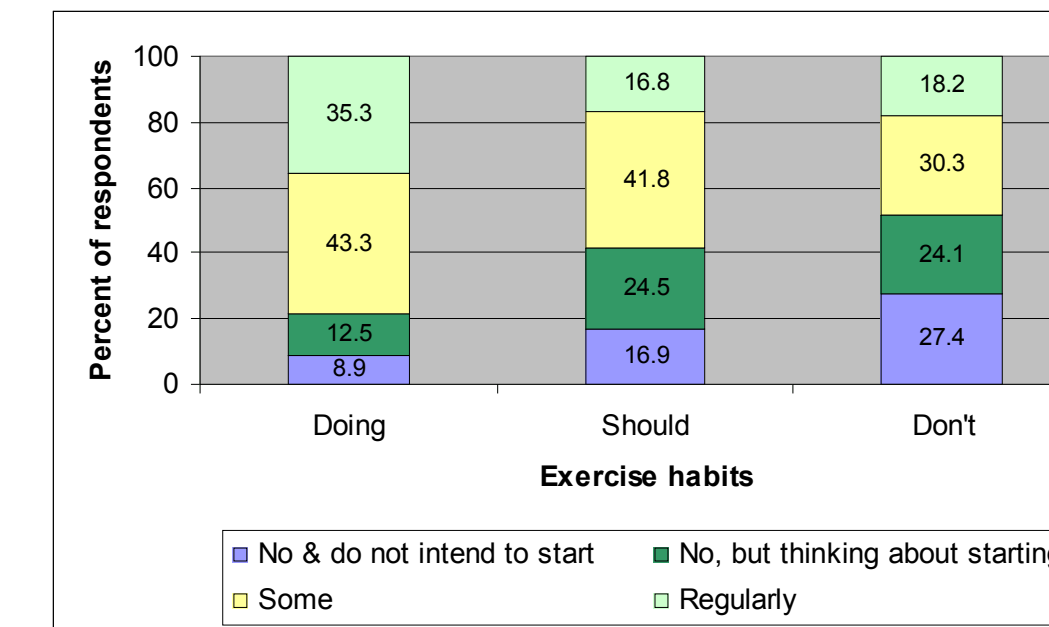


Figure 4. Self-reported exercise habits of SHIELD respondents by American Dietetic Association behavior groups

- More of the Should (62.0%) than Don’t (56.8%) or Doing (51.1%) respondents reported that they were advised by their healthcare provider during the past 12 months to increase the amount they exercised. Corresponding figures for change in diet were 51.8%, 49.0%, and 43.1%, respectively.
- Most respondents in all 3 American Dietetic Association groups said they had tried to lose weight in the past 12 months, although the percentage was somewhat higher in the Doing group (73.6%) than in the Should (69.0%) and Don’t (63.0%) groups. Similarly, 83.1% of the Doing group reported making healthy eating choices most or all of the time, compared with 56.3% of Should and 48.4% of Don’t respondents.

Conclusions

- The lack of knowledge regarding MetSyn among the SHIELD respondents suggests that the concept has had limited penetration into public awareness.
- The longitudinal SHIELD surveys provide a unique opportunity to further understand the characteristics of patients who will most likely benefit from health-improving interventions, while also identifying the characteristics of those who have already succeeded and those who will be most difficult to reach.

References

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Abbreviations

AHA/NHLBI = American Heart Association/National Heart, Lung, and Blood Institute; BMI = body mass index; CHD = coronary heart disease; CRF = cardiometabolic risk factor; CV = cardiovascular; CVD = cardiovascular disease; KAB = knowledge, attitudes, and behavior; MetSyn = metabolic syndrome; SHIELD = Study to Help Improve early Evaluation and management of risk factors Leading to Diabetes; SPSS = Statistical Product and Service Solutions; T2D = type 2 diabetes; TNS NFO = Taylor Nelson Sofres National Family Opinion

Introduction

- The metabolic syndrome (MetSyn) is associated with increased long-term risk for both atherosclerotic CVD and type 2 diabetes (T2D) and therefore requires attention in clinical practice.¹
- Although there is controversy over the usefulness of the MetSyn concept,^{1,2} there is general acknowledgment that the individual components included in the AHA/NHLBI definition of MetSyn are associated with increased risk of cardiometabolic events, such as CHD and T2D.
- In addition, factors other than these clinical criteria that define MetSyn, such as knowledge, attitudes, and behavior, may also be important in predicting health outcomes.

Objectives

- To identify patterns of self-reported knowledge, attitudes, and behaviors in US adults with at least 3 cardiometabolic risk factors (CRFs), as reported in the SHIELD baseline survey
- To compare health-related knowledge, attitudes, and behaviors across groups of respondents with 3–5 CRFs but differing attitudes about staying healthy