Topic: Association between carbohydrate quality index and general and abdominal obesity in women: a cross-sectional study from Ghana

Appendix I: Consent Form

Subject Information and Consent Form

Questionnaire Number/ID: __:__

Principal Investigator: Gity Sotoudeh (PhD) prof.

Address: Department of Community Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences, Hojatdost street, Naderi street, Keshavarz Blvd., Tehran, Iran.

Introduction: This form is based on information on the research titled above. To be sure that you are well informed about this research, we ask you to read (or have read to you) this Consent Form. You will also be asked to sign it (or thumbprint it in the presence of a witness). This form and the following consent form have been prepared in duplicates. After signing/thumb printing, a copy will be given to you and the other copy will be kept by the project manager. Please ask us to explain any unfamiliar terms or phrases that may seem unclear to you.

Research Purpose/General Information about the Research: This study aims at exploring the relationship between carbohydrate quality and anthropometric measures in women in Northern Ghana. The study shall provide information on quality of carbohydrate consumed by Ghanaian adult healthy women and this may be used as a guide to promote good quality dietary intake in the country.

Inclusion criteria

✓ Healthy adult women within reproductive age group (18-59 years)
✓ Participants must have lived in northern Ghana for at least a year.

Exclusion criteria

✓ Participants who are willing to participate but have previous history of any major illness such as myocardial infarction, renal disease etc.
✓ Women who experience persistent severe nausea with vomiting and those who are pregnant or lactating
✓ Subjects with known diseases (HIV, renal disease, cardiovascular disease, confirmed malaria and other chronic disease such as major kidney and liver disorders) at the time of recruitment
✓ Potential participants on a specialized diet which aims to limit dietary intake
Measurements: Anthropometric (body measurements including height, weight, and waist circumference) measurements and dietary information would be taken for nutritional status analysis.

Possible risks and discomforts: Anthropometric measurements may cause slight discomfort. Well trained professionals would be deployed to take all measurements under stringent observation of standard protocols in order to minimize this discomfort.

Possible benefits: There is no monetary compensation for taking part in this study. However results of measurements and analyzed information would be used for the purpose of this study as stated above.

Confidentiality: Your confidentiality would be highly respected at all times in this research. Your name will not in any way be associated with the data generated or any publications from this study.

Compensation: No monetary compensation is offered for participation in this study.

Voluntary Participation and Right to Leave the Research: Participation in this research is absolutely voluntary and you shall not suffer any injury or harm or discrimination for your refusal to participate in this research. More so, even after agreeing to participate in this research, you can withdraw your participation at any time without any penalty.

Compensation for Potential Risk: All costs, expenses and compensations associated with potential risk as a result of protocol negligence associated with this study shall be borne by the manager of this project.

Contacts for Additional Information: If you have a problem or any reservation, you can please call Sufyan Bakuri Suara on +233542744675 or +989389883963 or on email suara.ghana@yahoo.com.

Your rights as a participant
If you have any questions about your rights as a research participant you can contact TUMS Research Ethical committee office located at room 605, 6th floor, TUMS Head quarters, at the corner of Qods Street and Keshavarz Boulevard, Tehran from Saturday to Wednesday between the hours of 8am-3pm or through the landline +9891 81633626. Or the ethics office of Tamale Teaching Hospital, Ghana from Monday to Friday between the hours of 8am-5pm. You can as well contact the Northern Regional Health Administration, Tamale, within the hours of 8am to 5pm from Monday to Friday along Regional Coordinating Road for more enquiries on your rights as a participant.

Volunteer/Participant Agreement
The above document describing the benefits, risks and procedures for the research titled “Association between carbohydrate quality index and general and abdominal obesity in women: a cross-sectional study from Ghana” has been read and explained to me. I have been given the opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

Date

Name and signature or mark of volunteer/participant

Suara SB, et al. BMJ Open 2019; 9:e033038. doi: 10.1136/bmjopen-2019-033038
If volunteers/participant cannot read the form themselves, a witness must sign here:
I was present while the benefits, risks and procedures were read to the volunteer/participant. All questions were answered and the volunteer has agreed to take part in the research.

____________________________________________________________________________
Date Name and signature of witness

I certify that the nature and purpose, the potential benefits and possible risks associated with participating in this research have been explained to the above individual.

____________________________________________________________________________
Date Name and signature of Person who obtained consent

Appendix II: Questionnaire to be completed by Interviewer

Interviewer's name: …………………………………………………………………… Date: ……/……/……………
Locality name/Community: ……………………………………………………………..
Name of woman: ………………………………………………………………………. Questionnaire Number:………………..

SECTION 1 - DEMOGRAPHICS (Tick the best option)

| 1.1 Age (years) | 1 Female |
|-----------------|----------|
| Gender          |          |

| 1.2 Highest level of education attained by woman |
|-------------------------------------------------|
| 1 No education | 4 SSS/SHS/Tec/Voc |
| 2 Primary      | 5 Tertiary |
| 3 Middle/JSS/JHS |

| 1.3 Highest level of education attained by husband |
|---------------------------------------------------|
| 1 No education | 4 SSS/SHS/Tec/Voc |
| 2 Primary      | 5 Tertiary |
| 3 Middle/JSS/JHS |

| 1.4 Occupation |
|----------------|
| 1 Trader       | 4 Farmer |
| 2 Food Processor | 5 Salaried/service sector |
| 3 Skilled labourer | 6 Other (Specify)__________ |

| 1.5 Occupation of husband (applied to married women only) |
|----------------------------------------------------------|
| 1 Trader       | 4 Farmer |
| 2 Food Processor | 5 Salaried/service sector |
| 3 Skilled labourer | 6 Other (Specify)__________ |

| 1.6 What ethnic grouping does your household belong to? (circle one) if more than one indicate the HH head's ethnic group. |
|------------------------------------------------------------------------------------------------------------------|
| 1 Akan (twi) | 6 Dagomba |
| 2 Ga-adangme | 7 Mamprusi |
| 3 Ewe        | 8 Konkomba (Likpakpa) |
| 4 Gonja      | 9 Other, specify, |
### Marital status
- 1. Single
- 2. Married

### Sex of household head
- 1. Male
- 2. Female

### Household size
- 1.8

### Parity
- 1.10

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### SECTION 2 – Socio-Economic Status

#### 2.1
**Do not read answers. Circle one.**
**What kind of toilet do members of your household usually use?**
- 1. Flush/Pour Toilet
- 2. Ventilated Improved Pit Latrine (VIP)
- 3. Pit latrine with slap
- 4. Pit latrine without slap/open pit
- 5. Bucket/Pan
- 6. Composting toilet
- 7. No facilities (bush, beach, etc)
- 8. Other (Specify)………..

#### 2.2
**Do not read answers. Circle one.**
**What is the main source of energy for cooking?**
- 1. Electricity
- 2. Straw/Shrubs/Grass/wood
- 3. Liquefied Petroleum Gas (LPG)
- 4. Animal dung
- 5. Kerosene
- 6. charcoal
- 7. solar
- 8. Other (specify)………..

#### 2.3
**What is the main source of lighting for this house? Circle one.**
- 1. Oil, kerosene or gas lantern
- 2. Battery flashlights light
- 3. Electric generator/Invertor
- 4. Candles/firewood
- 5. Electric company
- 6. No lighting
- 7. Solar
- 8. Other (specify)………..

#### 2.4
**What is the main source of drinking water for members of your household? Circle one.**
- 1. Piped water in/out side
- 2. Tube well/borehole
- 3. Unprotected dug well
- 4. Protected dug well
- 5. Surface water (river,dam,lake etc)
- 6. Protected spring
- 7. Unprotected spring
- 8. Rain water
- 9. Tanker truck
- 10. Other (specify)………………

#### 2.5
**Record observation**
**Main material of the floor in the dwelling.**
- 1. Natural floor earth/sand
- 2. Ceramic tiles/terrazo
- 3. Cement
- 4. Woolen carpet/synthetic carpet
- 5. Linoleum/rubber carpet
- 6. Other (Specify)………………

#### 2.6
**Record observation**
**Main material of the roof in the dwelling.**
- 1. Thatch/palm leaf/sod
- 2. Finished roofing metal
- 3. Asbestos/slate roofing sheets
- 4. Cement
Section 3: INSTRUCTIONS

- Please mention all foods and beverages consumed for the past 24-hour time period. The reference period starts at 12:00 am and ending at 11:59 pm.
- Also mention all vitamin, mineral, and herbal supplements you took within the same 24-hour period.
- Specify **Details/Ingredients/Preparation** of each food or beverage consumed.
- State the **Amount** of each food item or beverage consumed.

| Food/Beverage Item | Details/Ingredients/Preparation | Amount |
|--------------------|---------------------------------|--------|
| Breakfast          |                                 |        |
|                    |                                 |        |
|                    |                                 |        |
| Snack              |                                 |        |
|                    |                                 |        |
| Lunch              |                                 |        |
|                    |                                 |        |
|                    |                                 |        |
Please list all vitamin, mineral, and herbal supplements you took for the past 24-hour period

| Type/Brand of Supplement | Reason for Taking | Amount Taken (dosage) |
|--------------------------|-------------------|-----------------------|
|                          |                   |                       |
|                          |                   |                       |
|                          |                   |                       |

SECTION 4 – Physical Activity (IPAQ short form)

We are interested in finding out about the kinds of physical activities (PA) that you do as part of your everyday lives. The questions will ask you about the time you spent being physically active in the last 7 days. Please answer each question even if you do not consider yourself to be an active person. Please think about the activities you do at work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport.

Think about all the vigorous activities that you did in the last 7 days. Vigorous physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

5.1 During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling?

|          |          |          |
|----------|----------|----------|
|          |          |          |

5.2 How much time did you usually spend doing vigorous physical activities on one of those days?

|          |          |          |
|----------|----------|----------|
|          |          |          |

Think about all the moderate activities that you did in the last 7 days. Moderate activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

5.3 During the last 7 days, on how many days did you do |          |          |

|          |          |          |
|----------|----------|----------|
|          |          |          |
moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

5.4 How much time did you usually spend doing moderate physical activities on one of those days?

1  _ _ hours/day
2  _ _ minutes/day

Think about the time you spent walking in the last 7 days. This includes at work and at home, walking to travel from place to place, and any other walking that you have done solely for recreation, sport, exercise, or leisure.

5.5 During the last 7 days, on how many days did you walk for at least 10 minutes at a time?

1  _ _ days/week
2  No vigorous PA

5.6 How much time did you usually spend walking on one of those days?

1  _ _ hours/day
2  _ _ minutes/day

The next question is about the time you spent sitting on weekdays during the last 7 days. Include time spent at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

5.7 During the last 7 days, how much time did you spend sitting on a week day?

1  _ _ hours/day
2  _ _ minutes/day

Section 5 – Anthropometric Measurements

| Measurement         | Measurement taken (Yes/No)/ID |
|---------------------|------------------------------|
| 6.1 Weight          | _ _ _ (kg) _ _ _ (kg)        |
| 6.2 Height          | _ _ __(cm) _ _ __(cm)         |
| 6.3 Waist Circumference | _ _ __(cm) _ _ __(cm)       |