Supplementary Materials

Household Fuel Use for Heating and Cooking and Respiratory Health in a Low-Income, South African Coastal Community

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Figure S1. Household and health survey questionnaire.

HOUSEHOLD AND HEALTH SURVEY QUESTIONNAIRE

PLEASE COMPLETE THE FOLLOWING CONTACT DETAILS:

SURNAME: _______________________________________________________

NAME: ___________________________________________________________

NODE/ZONE: (Mark the applicable one)

Glebe Node/Zone 1 Ezimbuzini Node/Zone 2 Mangosuthu KwaMnyandu Node/Zone 3

OTHER (SPECIFY) ________________________________________________

DATE ON WHICH THIS QUESTIONNAIRE IS COMPLETED:

YEAR: ________ MONTH: ________ DAY: ________
YOUR PERSONAL (RESPONDENT) INFORMATION (Demographic)

1. What is your gender?
   a) Male 1
   b) Female 2

2. What is your date of birth?
   YEAR:        MONTH:        DAY:

3. What is your home language?
   a) Afrikaans 1 e) Zulu 5
   b) English 2 f) Swazi 6
   c) Sotho 3 g) Other 7
   d) Xhosa 4

4. How long have you been living in this town (where you now reside most of the time)?
   a) Since birth 1 d) 4 – 5 years 4
   b) Less than 2 years 2 e) 5 – 10 years 5
   c) 2 – 4 years 3 f) More than 10 years 6

5. Where did you live before living in this town?

   __________________________________________________

6. How long were you living there?
   a) Since birth 1 d) 4 – 5 years 4
   b) Less than 2 years 2 e) 5 – 10 years 5
   c) 2 – 4 years 3 f) More than 10 years 6

THE FOLLOWING QUESTIONS PERTAIN TO YOUR CURRENT RESIDENCE

7. Which of the following best describes your home?
   a) A single family house, not attached to other houses 1
   b) A single family house, attached to other houses 2
   c) A flat 3
   d) Pre-fabricated home (asbestos/wood) 4
   e) A shack 5
   f) Other (define) 6

8. a) How many rooms are there in the home? (Don't count bathroom and toilet) ____________
   b) How many of these are bedrooms? ____________
9. Do you use any of the following heating systems? (Mark Yes or No for each one)

a) Wood / coal stove  
   | Yes | No |
---|-----|----|

b) Fireplace  
   | Yes | No |
---|-----|----|

c) Gas heater  
   | Yes | No |
---|-----|----|

d) Asbestos heater  
   | Yes | No |
---|-----|----|

e) Portable electric heater  
   | Yes | No |
---|-----|----|

f) Other (Specify) ____________________________

10. If you do have a portable gas heater in your home, how often do you use it during the winter?

a) About every day  
   | 1 |
---|----|

b) 2 to 3 times a week  
   | 2 |
---|----|

c) 2 to 3 times a month  
   | 3 |
---|----|

d) Seldom  
   | 4 |
---|----|

e) Never  
   | 5 |
---|----|

11. If you do have a coal stove in your home, how often do you use it during the winter?

a) About every day  
   | 1 |
---|----|

b) 2 to 3 times a week  
   | 2 |
---|----|

c) 2 to 3 times a month  
   | 3 |
---|----|

d) Seldom  
   | 4 |
---|----|

e) Never  
   | 5 |
---|----|

12. If you do have a fireplace in your home, how often do you use it during the winter?

a) About every day  
   | 1 |
---|----|

b) 2 to 3 times a week  
   | 2 |
---|----|

c) 2 to 3 times a month  
   | 3 |
---|----|

d) Seldom  
   | 4 |
---|----|

e) Never  
   | 5 |
---|----|

13. What fuel do you mostly use for cooking? (Mark only one)

a) Electricity  
   | 1 |
---|----|

b) Wood  
   | 2 |
---|----|

c) Gas  
   | 3 |
---|----|

d) Electricity and gas  
   | 4 |
---|----|

e) Other (Specify) ____________________________

14. Do you use any of the following equipment in your home? (Mark Yes or No for each one)

a) Humidifier  
   | Yes | No |
---|-----|----|

b) Air scrubber/cleaner  
   | Yes | No |
---|-----|----|

c) Air conditioner  
   | Yes | No |
---|-----|----|
15. If yes (question 14), how often did you use this equipment the past summer?
   a) About every day  
   b) 2 to 3 times a week  
   c) 2 to 3 times a month  
   d) Seldom  
   e) Never  

16. Where did you use the equipment specified in question 14?
   a) All the rooms  
   b) Living room  
   c) Bedroom(s)  
   d) Other (Specify) ________________________

17. Do you open windows or doors to circulate fresh air into your home during the winter months?
   a) Yes  
   b) No  

18. How often did you open windows and doors during the previous winter?
   a) About every day  
   b) 2 to 3 times a week  
   c) 2 to 3 times a month  
   d) Seldom  

19. Have you ever had problems with leakages, flooding or water damage in your home?
   a) Yes  
   b) No  

20. Have you ever had mold or mildew growing on any surface inside your present home? (e.g. on walls, wallpaper, carpets, ceilings, shower, curtains, etc.)
   a) In the shower area (curtain, around bath)  
   b) In other areas in the home  
   c) Unknown  

21. Which of the following pets do you have?  (Mark more than one if necessary)
   a) None  
   b) Dog(s)  
   c) Rabbit(s)  
   d) Cat(s)  
   e) Mice  
   f) Bird(s)/Doves  
   g) Guinea pig(2)  
   h) Other (Specify) ________________________
22. Are any of these animals allowed in the home?
   a) Yes 1
   b) No 2

22. Is the home in which you live used on a regular basis by anyone in your household for the following hobbies or crafts? (By regular we mean at least once a week or at least 50 hours per year). **(Mark more than one if necessary)**
   a) Pottery and ceramics
   b) Painting (Oil)/spray painting
   c) Dyes and fibers /fabrics
   d) Jewelry and enameling
   e) Metal work
   f) Automotive (mechanical/electrical)
   g) Stained glass soldering
   h) Photography (Darkroom use only)
   i) Print making
   j) Furniture stripping
   k) Wood working
   l) Silk screening
   m) Other, (Specify) ______________________________________________

INFORMATION ON SMOKING HABITS

23. Have you ever smoked more than one cigarette per day?
   a) Yes (two or more cigarettes/day) 1
   b) No (one or less cigarette/day) 2

24. If yes,
   a) Do you currently smoke? a) Yes 1 b) No 2
   b) How old were you when you started smoking? ________________________
   c) How many cigarettes do you smoke per day? ________________________
   d) If you have quit smoking, how old were you when you quit? ________________________

25. Is there currently anyone who smokes cigarettes, cigars or pipe on a regular basis (daily) in the home where you live?
   a) No 1
   b) Yes, mother/female guardian 2
   c) Yes, father/male guardian 3
   d) Yes, both parents/guardians 4
   e) Yes, husband/wife 5
   f) Yes, other (specify) _______________________
26. How many cigarettes in total are smoked in the home each day?
   a) None 1  d) 21 – 40 4
   b) 1 – 10 2  e) 41 – 60 5
   c) 11 – 20 3  f) More than 60 6

27. How many cigars in total are smoked in the home each day?
   a) None 1  c) 6 – 10 3
   b) 1 – 5 2  d) More than 10 4

28. How many times in total is a pipe smoked in the home each day?
   a) None 1  c) 6 – 10 3
   b) 1 – 5 2  d) More than 10 4
   e) Other substances (specify)

GENERAL ACTIVITIES AND LIFESTYLE
29. Do you participate in any of the following activities twice or more per week (Mark Yes or No for each one?)
   a) One or more of the following: soccer, rugby, hockey, netball Yes No
   b) Aerobics Yes No
   c) Exercise with weights Yes No
   d) Jogging Yes No
   e) Walking Yes No
   f) Swimming Yes No
   h) Other (Specify) ___________________________________________

EATING HABITS
30. Which of the following do you eat on a regular (at least weekly) basis?
   a) Chicken/Fish Yes No
   b) Red meat Yes No
   c) Processed food (e.g. polony, meat pies) Yes No
   d) Vegetables Yes No
   e) Fruit Yes No

31. How often do you eat food fried in oil or fat?
   a) Daily 1  b) Weekly 3
   c) Seldom 2  d) Never 4
   Specify type of oil

32. Do you currently consume any form of alcohol?
   a) Yes 1
   b) No 2
33. If yes, how many drinks on average do you consume per week? (One glass of wine, one beer or one tot of spirits is considered as one drink)
   a) Less than 7  
   b) 8 – 14  
   c) 15 – 21  
   d) More than 21

THE FOLLOWING QUESTIONS CONCERN YOUR HEALTH

34. How would you describe your health compared to that of others of the same age group?
   a) Excellent  
   b) Good  
   c) Poor

35. Do you have any allergies?
   a) No - go to question 42  
   b) Yes, self-diagnosed  
   c) Yes, diagnosed by a doctor  
   d) Other

36. How often do you take medication for the allergy?
   a) Never  
   b) Daily  
   c) 2 x a week  
   d) 3 x a week  
   e) Do not know  
   f) Other (Specify) _____________________________

37. What are you allergic to? (Mark each applicable one)
   a) Things I eat
      Specify:  
   b) Things I inhale
      Specify:  
   c) Skin contact
      Specify:  
   d) Medication, e.g. Aspirin
      Specify:  
   e) Other
      Specify:  

38. How many days over the last 2 weeks have you been absent from work/studies because of illness?
39. During the **past 12 months**, how many **days** have you been absent from work/study due to illness?

   a) None 1  d) 11 – 15 4
   b) 1 – 5 2  e) 16 – 20 5
   c) 6 – 10 3  f) More than 20 6

40. Due mostly to which illness?
   Specify ________________________________________

41. Have you ever had any of the following illnesses? (Mark No or Yes for every illness)
   a) Bronchitis Yes No
   b) Pneumonia Yes No
   c) Earache Yes No
   d) Hay fever Yes No
   e) Chronic bronchitis Yes No
   f) Sinus trouble Yes No
   g) Rhinitis Yes No
   h) Running nose Yes No

42. How do you predominantly breathe?
   a) Through the mouth 1  b) Through the nose 2
   Explain ____________________________________________________ ___________

43. When you have a cold, does it normally go to your chest?
   a) Yes 1  b) No 2

ASTHMA

44. Has your doctor ever said that you have asthma?
   a) Yes 1  b) No 2

   **If NO, go to question 54.**

45. At what age did your asthma start?
   a) 0 – 1 years 1  e) 8 – 9 years 5
   b) 2 – 3 years 2  f) 10 years and older 6
   c) 4 – 5 years 3  g) Unknown 7
   d) 6 – 7 years 4
46. a) Do you still have asthma?
   a) Yes 1
   b) No 2
   c) Not sure 3

   b) If yes, how frequent
   Weekly 1
   Monthly 2
   Occasionally 3

47. Do you currently take medicine or get treatment for asthma?
   a) Yes 1
   b) No 2

48. If you no longer have asthma, at what age did you last have asthma?
   a) 0 - 1 years 1
   b) 2 - 3 years 2
   c) 4 - 5 years 3
   d) 6 - 7 years 4
   e) 8 - 9 years 5
   f) 10 years and older 6
   g) Unknown 7

49. Which months of the year do you have asthma? (Mark each applicable one)
   a) January Yes 1
   b) February Yes 2
   c) March Yes 3
   d) April Yes 4
   e) May Yes 5
   f) June Yes 6
   g) July Yes 7
   h) August Yes 8
   i) September Yes 9
   j) October Yes 10
   k) November Yes 11
   l) December Yes 12

50. Do you cough when you wake up in the morning? (Mark one)
   a) No - go to question 56 1
   b) Yes, the previous 3 months 2
   c) Yes, longer than the previous 3 months 3
   d) Yes, the previous year 4
   e) Yes, longer than the previous year 5

51. When do you cough mostly? (Mark one)
   a) During the day 1
   b) During the night 2
   c) During the day and the night 3
   d) Only when I wake up/go to bed 4
PHLEGM

52. Do you usually have phlegm on the chest? (Mark one)
   a) No - go to question 58
   b) Yes, with colds
   c) Yes, without colds
   d) Yes, with and without colds
   f) Other, Specify ____________________________

53. If "Yes", has this phlegm been present for longer than 3 months of the year?
   a) No
   b) Yes, previous year
   c) Yes, previous and other years

WHEEZE OF THE CHEST

54. Does your chest sound wheezy or whistling when you inhale?
   a) Yes
   b) No
   If NO, go to question 66.

55. Does this wheeze of the chest occur with colds?
   a) No
   b) Yes, previous year
   c) Yes, previous and other years

56. Does this occasionally happen other than with colds?
   a) No
   b) Yes, previous year
   c) Yes, previous and other years

57. When does your chest wheeze mostly, when you don't have a cold?
   a) During the day
   b) During the night
   c) During the day and the night
58. During which month(s) of the year do you usually have an episode of wheezing? (Mark each applicable one)

- a) January Yes
- b) February Yes
- c) March Yes
- d) April Yes
- e) May Yes
- f) June Yes
- g) July Yes
- h) August Yes
- i) September Yes
- j) October Yes
- k) November Yes
- l) December Yes
- m) Unknown Yes

59. Have you had attacks of shortness of breath when your chest wheezes?

- a) No
- b) Yes, previous year
- c) Yes, previous and other years

60. Do you ever get attacks of wheezing during or after you have been exercising?

- a) Yes
- b) No

61. Have you ever taken any medication for these attacks?

- a) Yes
- b) No

62. Have you ever been hospitalized for respiratory ailments?

- a) Yes
- b) No

If yes, please provide the following information:

c) How many times? _______

d) If possible, specify month and year of each admittance:

i) _______________________
ii) _______________________
iii) _______________________
iv) _______________________
v) _______________________
vi) _______________________

e) List reasons for admittance:

________________________________________________________

OTHER ILLNESSES AND CONDITIONS

63. Are you currently using any medication prescribed by a doctor?

- a) Yes
- b) No

If yes, please specify ___________________
64. Within the past year, have you had any of the following? (Mark Yes or No for each one)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Bronchitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Pneumonia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Running nose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Earache</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Hay fever</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Sinusitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g) Asthma</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

65. Have you had any other major illnesses or accidents that kept you home or prevented you from participating in any activities during the past year?

a) Yes 1
b) No 2

If yes, please specify ___________________

66. Have you ever had any of the following? (Mark Yes or No for each one)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Learning disability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Hyperactivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Hepatitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Cancer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Gastro-intestinal diseases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Heart disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g) High blood pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h) Stroke</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) High cholesterol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j) Diabetes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k) Painful joints (arthritis/gout)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

67. During the past 12 months how often have you been bothered by any of the following?

<table>
<thead>
<tr>
<th>Condition</th>
<th>Times</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Eye problems</td>
<td></td>
</tr>
<tr>
<td>b) Nose problems</td>
<td></td>
</tr>
<tr>
<td>c) Ear problems</td>
<td></td>
</tr>
<tr>
<td>d) Throat problems</td>
<td></td>
</tr>
<tr>
<td>e) Chest/lung problems</td>
<td></td>
</tr>
<tr>
<td>f) Skin problems</td>
<td></td>
</tr>
<tr>
<td>g) Stomach/abdomen problems</td>
<td></td>
</tr>
</tbody>
</table>

68. Has anyone in your immediate family ever had any of the following? (Mark Yes or No for each one)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) High blood pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Stroke</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Heart attack/angina/chest pain while exercising</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
d) If yes in c above, was it before age 50?

No

<table>
<thead>
<tr>
<th>Weight Status</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight</td>
<td>1</td>
</tr>
<tr>
<td>Underweight</td>
<td>2</td>
</tr>
<tr>
<td>Normal weight</td>
<td>3</td>
</tr>
<tr>
<td>Unknown</td>
<td>4</td>
</tr>
</tbody>
</table>

**INFORMATION ON OCCUPATION**

70. How many years of schooling or other education have you completed?

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not complete std. 8 (Grade 10)</td>
<td>1</td>
</tr>
<tr>
<td>Completed std. 8 (Grade 10)</td>
<td>2</td>
</tr>
<tr>
<td>Completed std. 10 (Grade 12)</td>
<td>3</td>
</tr>
<tr>
<td>Completed Degree Diploma</td>
<td>4</td>
</tr>
<tr>
<td>Completed Post-graduate qualifications</td>
<td>5</td>
</tr>
</tbody>
</table>

71. What is your current employment status?

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed full time</td>
<td>1</td>
</tr>
<tr>
<td>Employed part time</td>
<td>2</td>
</tr>
<tr>
<td>Self-employed</td>
<td>3</td>
</tr>
<tr>
<td>Student</td>
<td>4</td>
</tr>
<tr>
<td>Unemployed</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
</tr>
</tbody>
</table>

72. What is your current occupation or job?

a) Job or occupation (please be specific)

b) Type of business or industry

c) Number of years worked at this job

73. Have you ever worked in a dusty environment for more than a year?

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
</tr>
</tbody>
</table>

74. Have you ever been exposed to gases and/or chemicals in the work place?

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
</tr>
</tbody>
</table>
PERSONAL VIEWS

75. In your opinion, what factor(s) has the biggest influence on your respiratory health status?

______________________________________________________________

______________________________________________________________

76. Do you perceive the air pollution in the KZN as serious?
   a) Yes 1  c) Not critical 3
   b) No 2  d) Unknown 4

77. If you do not live in.......................... any more, do you perceive air pollution levels in the area where you currently live as serious?
   a) Yes 1  c) Not critical 3
   b) No 2  d) Unknown 4

78. What do you consider the most important source of air pollution in your area? (Mark one)
   a) Motor vehicles 1
   b) Industries and mines 2
   c) Cigarette smoke 3
   d) Open fires (from areas without electricity) 4
   e) Other (Specify) ______________________

79. Have you noticed unusual odours in your neighbourhood?
   a) Yes 1
   b) No 2

80. If "Yes" for how long have you noticed these odours? (Complete only one)
   a) Years
   b) Months
   c) Days

81. Do you feel that these odours are affecting your health?
   a) Yes 1
   b) No 2
   c) Unknown 3

82. If "Yes" how severely do you feel these odours are affecting your health?
   a) A great deal 1  c) Very little 3
   b) Fairly 2  d) Unknown 4

1 This questionnaire was based on several other questionnaires used in epidemiological studies on respiratory diseases. These are the ATS-DLD-78-A questionnaire, used for respondents of 13 or more years of age (Ferris, B.G. Epidemiology Standardization Project. Contract No 1-HR-5-3028. Report HR-53028-F. Division of Lung Diseases, National Heart, Lung and Blood Institute: city, state abbrev, USA, 1978), the Canadian Air Quality and Health Study questionnaire (NHW/HPB-190-03040), the Harvard School of Public Health’s
Children’s Health Study Questionnaire (NHW/HPB-190-03210) and the Vaal Triangle Air Pollution and Health Study (VAPS) questionnaire. All of these questionnaires have been extensively tested and reviewed by a large body of experts.