A Scalable Online Tool for Quantitative Social Network Assessment Reveals Potentially Modifiable Social Environmental Risks

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Supplementary Methods 1: Social Network Questionnaire

GEMS Social Network Survey

Welcome to the GEMS Social Network Survey!	
This survey is about your social network and its potential health	effects.
Please carefully follow the instructions, particularly in the begining	ng of this survey as it impacts all future questions.
We estimate that the survey will take about 10-20 minutes.	
To ensure confidentiality, individual names, nicknames, and initi publications and will not be shared publicly.	als listed by the participant will not be used in
Please tell us a little bit about yourself first.	
Date of birth	(YYYY-MM-DD)
Age	(Please do not proceed with this survey if you are younger than 18 years old. This study can only enroll participants 18 years and older.)
Gender	○ Female○ Male
What is your current address?	(e.g. 123 Main Street Boston MA)
What is your zip code?	

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What is your employment status?	 Employed for wages Self-employed Out of work and looking for work Out of work but not currently looking for work A homemaker A student Military Retired Unable to work Prefer not to answer
Education level	 1-8 years Some high school High school grad Some college Associate degree Bachelor's degree Graduate degree Prefer not to answer
Marital status	○ Not married○ Married
Do you live alone?	○ Yes○ No
Have you been diagnosed with Multiple Sclerosis?	○ Yes○ No
How old were you when you first noticed neurological symptoms related to Multiple Sclerosis?	(Symptoms may be difficulty with seeing, speaking using arms or legs, walking, numbness or tingling. Please only refer to symptoms that lasted at least 24 hours.)
How old were you when you were diagnosed?	



Your Functional Status

Below is a scale that attempts to rate the severity of MS symptoms, please rate your current functioning:

_					
	0 No symptoms: "I have no symptoms or disability in this specific area"	1 Some symptoms, no disability: "I am aware of symptoms but no limits on my activities"	2 Mild disability: "I have mild limits on my activities, but I do not need help from others or to use other aides"	3 Moderate disability: "I have moderate limits on my activities and I sometimes need help from others or use other aides"	4 Severe disability: "I have severe limits on my activities and I usually need help from others or use other aides"
	_	_	_	_	_
Walking	\circ	\circ	\circ	\circ	\circ
Using your arms and hands	\circ	\circ	\circ	\circ	\circ
Vision	\bigcirc	\circ	\circ	\circ	\circ
Speech	\circ	\bigcirc	\circ	\circ	\circ
Swallowing	\circ	\circ	\circ	\circ	\circ
Thinking, memory or cognition	\circ	\circ	\bigcirc	\circ	\circ
Numbness, tingling, burning sensation or pain	\circ	0	0	\circ	0
Controlling your bladder and/or bowel	0	0	0	0	0
We are now going to ask you nicknames, or initials of ad add a last initial. Please list Don't worry about duplicate. From time to time, most per Looking back over the last important personal matter.	lults (older that up to 5 name es OR blanks. Veople discuss in 3 months, who	in 18). If two es in the boxe We will deal we mportant per o are the adul	people have to s, and more no with them late sonal matters Its with whom	ne same first in the banes in t	name, then ig box after. ople.
Name 1		_		-	
Name 2		_			
Name 3		_		 	
Name 4		_			
Name 5		_	 	 	
More names, separated by comm	as (if needed):				
		_			



From time to time, people socialize with other people together on a trip or to a dinner. In the last 3 months usually do these things? Please list their first names. blanks. Name 1	, who are the adults with wh	om you
Name 2		
Name 3		
Name 4		
Name 5		
More names, separated by commas (if needed):		
-		
Think about people who support you to stay healthy. support for your health needs? Please list their first rblanks.	· •	
Name 1		
Name 2		
Name 3		
Name 4		
Name 5		
More names, separated by commas (if needed):		



Now, we are going to create a unique list of names by removing all duplicate names and blanks.

Please review the full list of names you provided. Only the first 5 names for each section are shown.

If any person appears more than once or there is a blank line, click the REMOVE button next to the name to remove duplicate names or blanks. Otherwise click the KEEP button. Each person should appear only once on the list below.

You must provide a choice ("Keep" or "Remove") for every line before moving on. When you have made a choice for every line, then move to the next question.

	Remove	Keep
[name1]	\circ	\circ
[name2]	\circ	\circ
[name3]	\circ	\circ
[name4]	\circ	\circ
[name5]	\circ	\circ
[name6]	\circ	0
[name7]	\circ	0
[name8]	\circ	0
[name9]	\circ	\circ
[name10]	\circ	\circ
[name11]	\circ	0
[name12]	\circ	\circ
[name13]	\circ	\circ
[name14]	\circ	\circ
[name15]	0	0
Number Filled in First 10 Slots	(Numb	er you kept in first 10 slots)
Total number of social contacts	(Total r	number of names you kept.)

We are now going to focus on the relationships in your social network. If you notice some names missing, that is okay.

Below should be a unique list of names without blanks. If that is not the case, please stop and go back.

We are interested in how close you feel to each person below. Compared to the others you mentioned, how close do you feel to each person?

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[name1]	especially closenot especially close
[name2]	especially closenot especially close
[name3]	especially closenot especially close
[name4]	○ especially close○ not especially close
[name5]	○ especially close○ not especially close
[name6]	○ especially close○ not especially close
[name7]	especially closenot especially close
[name8]	○ especially close○ not especially close
[name9]	○ especially close○ not especially close
[name10]	especially closenot especially close
[name11]	○ especially close○ not especially close
[name12]	especially closenot especially close
[name13]	especially closenot especially close
[name14]	especially closenot especially close
[name15]	especially closenot especially close

We will now focus on the relationship between each pair of people you mentioned. For example, we will ask about [name1] and [name2]. For each pair, we will ask whether they are total strangers, in-between, or especially close. Here is what we mean by each term:

Total strangers: The two people wouldn't recognize one another if they met on the street.

In-between: Relationships in the middle of total strangers and especially close. Typically, these people are casual acquaintances.

Especially close: As close or closer to each other than they are to you.

Take your time. This can be difficult.



Is [name1] a total stranger, especially close, or in-between with [name2]?	strangerin-betweenespecially close
Is [name1] a total stranger, especially close, or in-between with [name3]?	strangerin-betweenespecially close
Is [name1] a total stranger, especially close, or in-between with [name4]?	strangerin-betweenespecially close
Is [name1] a total stranger, especially close, or in-between with [name5]?	strangerin-betweenespecially close
Is [name1] a total stranger, especially close, or in-between with [name6]?	strangerin-betweenespecially close
Is [name1] a total stranger, especially close, or in-between with [name7]?	○ stranger○ in-between○ especially close
Is [name1] a total stranger, especially close, or in-between with [name8]?	○ stranger○ in-between○ especially close
Is [name1] a total stranger, especially close, or in-between with [name9]?	○ stranger○ in-between○ especially close
Is [name1] a total stranger, especially close, or in-between with [name10]?	○ stranger○ in-between○ especially close
Is [name1] a total stranger, especially close, or in-between with [name11]?	strangerin-betweenespecially close
Is [name1] a total stranger, especially close, or in-between with [name12]?	○ stranger○ in-between○ especially close
Is [name1] a total stranger, especially close, or in-between with [name13]?	○ stranger○ in-between○ especially close
Is [name1] a total stranger, especially close, or in-between with [name14]?	○ stranger○ in-between○ especially close
Is [name1] a total stranger, especially close, or in-between with [name15]?	○ stranger○ in-between○ especially close
Is [name2] a total stranger, especially close, or in-between with [name3]?	○ stranger○ in-between○ especially close
Is [name2] a total stranger, especially close, or in-between with [name4]?	○ stranger○ in-between○ especially close



Is [name2] a total stranger, especially close, or in-between with [name5]?	strangerin-betweenespecially close
Is [name2] a total stranger, especially close, or in-between with [name6]?	○ stranger○ in-between○ especially close
Is [name2] a total stranger, especially close, or in-between with [name7]?	○ stranger○ in-between○ especially close
Is [name2] a total stranger, especially close, or in-between with [name8]?	○ stranger○ in-between○ especially close
Is [name2] a total stranger, especially close, or in-between with [name9]?	○ stranger○ in-between○ especially close
Is [name2] a total stranger, especially close, or in-between with [name10]?	○ stranger○ in-between○ especially close
Is [name2] a total stranger, especially close, or in-between with [name11]?	○ stranger○ in-between○ especially close
Is [name2] a total stranger, especially close, or in-between with [name12]?	○ stranger○ in-between○ especially close
Is [name2] a total stranger, especially close, or in-between with [name13]?	○ stranger○ in-between○ especially close
Is [name2] a total stranger, especially close, or in-between with [name14]?	○ stranger○ in-between○ especially close
Is [name2] a total stranger, especially close, or in-between with [name15]?	○ stranger○ in-between○ especially close
Is [name3] a total stranger, especially close, or in-between with [name4]?	○ stranger○ in-between○ especially close
Is [name3] a total stranger, especially close, or in-between with [name5]?	○ stranger○ in-between○ especially close
Is [name3] a total stranger, especially close, or in-between with [name6]?	○ stranger○ in-between○ especially close
Is [name3] a total stranger, especially close, or in-between with [name7]?	○ stranger○ in-between○ especially close
Is [name3] a total stranger, especially close, or in-between with [name8]?	○ stranger○ in-between○ especially close



in-between with [name9]?	in-between especially close
Is [name3] a total stranger, especially close, or in-between with [name10]?	○ stranger○ in-between○ especially close
Is [name3] a total stranger, especially close, or in-between with [name11]?	strangerin-betweenespecially close
Is [name3] a total stranger, especially close, or in-between with [name12]?	○ stranger○ in-between○ especially close
Is [name3] a total stranger, especially close, or in-between with [name13]?	strangerin-betweenespecially close
Is [name3] a total stranger, especially close, or in-between with [name14]?	strangerin-betweenespecially close
Is [name3] a total stranger, especially close, or in-between with [name15]?	strangerin-betweenespecially close
Is [name4] a total stranger, especially close, or in-between with [name5]?	strangerin-betweenespecially close
Is [name4] a total stranger, especially close, or in-between with [name6]?	strangerin-betweenespecially close
Is [name4] a total stranger, especially close, or in-between with [name7]?	○ stranger○ in-between○ especially close
Is [name4] a total stranger, especially close, or in-between with [name8]?	○ stranger○ in-between○ especially close
Is [name4] a total stranger, especially close, or in-between with [name9]?	○ stranger○ in-between○ especially close
Is [name4] a total stranger, especially close, or in-between with [name10]?	○ stranger○ in-between○ especially close
Is [name4] a total stranger, especially close, or in-between with [name11]?	○ stranger○ in-between○ especially close
Is [name4] a total stranger, especially close, or in-between with [name12]?	○ stranger○ in-between○ especially close
Is [name4] a total stranger, especially close, or in-between with [name13]?	○ stranger○ in-between○ especially close



in-between with [name14]?	in-between especially close
Is [name4] a total stranger, especially close, or in-between with [name15]?	○ stranger○ in-between○ especially close
Is [name5] a total stranger, especially close, or in-between with [name6]?	○ stranger○ in-between○ especially close
Is [name5] a total stranger, especially close, or in-between with [name7]?	strangerin-betweenespecially close
Is [name5] a total stranger, especially close, or in-between with [name8]?	strangerin-betweenespecially close
Is [name5] a total stranger, especially close, or in-between with [name9]?	strangerin-betweenespecially close
Is [name5] a total stranger, especially close, or in-between with [name10]?	strangerin-betweenespecially close
Is [name5] a total stranger, especially close, or in-between with [name11]?	strangerin-betweenespecially close
Is [name5] a total stranger, especially close, or in-between with [name12]?	strangerin-betweenespecially close
Is [name5] a total stranger, especially close, or in-between with [name13]?	strangerin-betweenespecially close
Is [name5] a total stranger, especially close, or in-between with [name14]?	strangerin-betweenespecially close
Is [name5] a total stranger, especially close, or in-between with [name15]?	strangerin-betweenespecially close
Is [name6] a total stranger, especially close, or in-between with [name7]?	strangerin-betweenespecially close
Is [name6] a total stranger, especially close, or in-between with [name8]?	strangerin-betweenespecially close
Is [name6] a total stranger, especially close, or in-between with [name9]?	○ stranger○ in-between○ especially close
Is [name6] a total stranger, especially close, or in-between with [name10]?	○ stranger○ in-between○ especially close



Is [name6] a total stranger, especially close, or in-between with [name11]?	strangerin-betweenespecially close
Is [name6] a total stranger, especially close, or in-between with [name12]?	strangerin-betweenespecially close
Is [name6] a total stranger, especially close, or in-between with [name13]?	strangerin-betweenespecially close
Is [name6] a total stranger, especially close, or in-between with [name14]?	○ stranger○ in-between○ especially close
Is [name6] a total stranger, especially close, or in-between with [name15]?	○ stranger○ in-between○ especially close
Is [name7] a total stranger, especially close, or in-between with [name8]?	○ stranger○ in-between○ especially close
Is [name7] a total stranger, especially close, or in-between with [name9]?	○ stranger○ in-between○ especially close
Is [name7] a total stranger, especially close, or in-between with [name10]?	○ stranger○ in-between○ especially close
Is [name7] a total stranger, especially close, or in-between with [name11]?	○ stranger○ in-between○ especially close
Is [name7] a total stranger, especially close, or in-between with [name12]?	○ stranger○ in-between○ especially close
Is [name7] a total stranger, especially close, or in-between with [name13]?	○ stranger○ in-between○ especially close
Is [name7] a total stranger, especially close, or in-between with [name14]?	○ stranger○ in-between○ especially close
Is [name7] a total stranger, especially close, or in-between with [name15]?	○ stranger○ in-between○ especially close
Is [name8] a total stranger, especially close, or in-between with [name9]?	○ stranger○ in-between○ especially close
Is [name8] a total stranger, especially close, or in-between with [name10]?	○ stranger○ in-between○ especially close
Is [name8] a total stranger, especially close, or in-between with [name11]?	○ stranger○ in-between○ especially close



in-between with [name12]?	in-between especially close
Is [name8] a total stranger, especially close, or in-between with [name13]?	○ stranger○ in-between○ especially close
Is [name8] a total stranger, especially close, or in-between with [name14]?	○ stranger○ in-between○ especially close
Is [name8] a total stranger, especially close, or in-between with [name15]?	strangerin-betweenespecially close
Is [name9] a total stranger, especially close, or in-between with [name10]?	strangerin-betweenespecially close
Is [name9] a total stranger, especially close, or in-between with [name11]?	strangerin-betweenespecially close
Is [name9] a total stranger, especially close, or in-between with [name12]?	strangerin-betweenespecially close
Is [name9] a total stranger, especially close, or in-between with [name13]?	○ stranger○ in-between○ especially close
Is [name9] a total stranger, especially close, or in-between with [name14]?	○ stranger○ in-between○ especially close
Is [name9] a total stranger, especially close, or in-between with [name15]?	○ stranger○ in-between○ especially close
Is [name10] a total stranger, especially close, or in-between with [name11]?	○ stranger○ in-between○ especially close
Is [name10] a total stranger, especially close, or in-between with [name12]?	○ stranger○ in-between○ especially close
Is [name10] a total stranger, especially close, or in-between with [name13]?	○ stranger○ in-between○ especially close
Is [name10] a total stranger, especially close, or in-between with [name14]?	○ stranger○ in-between○ especially close
Is [name10] a total stranger, especially close, or in-between with [name15]?	○ stranger○ in-between○ especially close
Is [name11] a total stranger, especially close, or in-between with [name12]?	○ stranger○ in-between○ especially close



Is [name11] a total stranger, especially close, or in-between with [name13]?	strangerin-betweenespecially close
Is [name11] a total stranger, especially close, or in-between with [name14]?	strangerin-betweenespecially close
Is [name11] a total stranger, especially close, or in-between with [name15]?	strangerin-betweenespecially close
Is [name12] a total stranger, especially close, or in-between with [name13]?	strangerin-betweenespecially close
Is [name12] a total stranger, especially close, or in-between with [name14]?	strangerin-betweenespecially close
Is [name12] a total stranger, especially close, or in-between with [name15]?	strangerin-betweenespecially close
Is [name13] a total stranger, especially close, or in-between with [name14]?	strangerin-betweenespecially close
Is [name13] a total stranger, especially close, or in-between with [name15]?	strangerin-betweenespecially close
Is [name14] a total stranger, especially close, or in-between with [name15]?	strangerin-betweenespecially close
We're now going to ask about how much support you needed it, how often is someone available to do the	
To help you if you were confined to bed?	 None of the time A little of the time Some of the time Most of the time All of the time
To take you to the doctor if you need it?	 None of the time A little of the time Some of the time Most of the time All of the time
To prepare your meals if you are unable to do it yourself?	 None of the time A little of the time Some of the time Most of the time All of the time

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To help with daily chores if you were sick?	 None of the time A little of the time Some of the time Most of the time All of the time
To have a good time with?	 ○ None of the time ○ A little of the time ○ Some of the time ○ Most of the time ○ All of the time
To turn for suggestions about how to deal with a personal problem?	 None of the time A little of the time Some of the time Most of the time All of the time
Who understands your problems?	 None of the time A little of the time Some of the time Most of the time All of the time
To love and make you feel wanted?	 ○ None of the time ○ A little of the time ○ Some of the time ○ Most of the time ○ All of the time
Out of the people listed below, which person or per	sons do these supportive actions most
Out of the people listed below, which person or per often? You can chose more than one person.	sons do these supportive actions most
often? You can chose more than one person.	Supports me most often
often? You can chose more than one person. [name1]	
often? You can chose more than one person. [name1] [name2]	
often? You can chose more than one person. [name1] [name2] [name3]	
often? You can chose more than one person. [name1] [name2] [name3] [name4]	
often? You can chose more than one person. [name1] [name2] [name3] [name4] [name5]	
<pre>[name1] [name2] [name3] [name4] [name5]</pre>	
<pre>[name1] [name2] [name3] [name4] [name5] [name6]</pre>	
<pre>[name1] [name2] [name3] [name4] [name5] [name6]</pre> [name7]	
<pre>[name1] [name2] [name3] [name4] [name5] [name6] [name7]</pre> [name8] [name9]	
[name1] [name2] [name3] [name4] [name6] [name6] [name7] [name8] [name9] [name10]	
<pre>[name1] [name2] [name3] [name4] [name5] [name6] [name7] [name8] [name9]</pre>	
[name1] [name2] [name3] [name4] [name5] [name6] [name7] [name8] [name9] [name10]	
<pre>[name1] [name2] [name3] [name4] [name5] [name6] [name7] [name8] [name9]</pre>	

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What gender is each person in your social network?					
	Male	Female	Other		
[name1]	0	0	0		
[name2]	\circ	\circ	\circ		
[name3]	\circ	\circ	\bigcirc		
[name4]	\circ	\circ	\circ		
[name5]	\circ	\bigcirc	\circ		
[name6]	\circ	\bigcirc	\bigcirc		
[name7]	\circ	\circ	\bigcirc		
[name8]	\circ	\circ	\bigcirc		
[name9]	\circ	\circ	\bigcirc		
[name10]	\circ	\circ	\bigcirc		
[name11]	\circ	0	0		
[name12]	0	0	0		
[name13]	\circ	\circ	\circ		
[name14]	\circ	\circ	0		
[name15]	\circ	\circ	\circ		
Do any noonlo bayo a nogati	vo influence on vour	hoolth? For overnie de	nos a norson nassivolv		
Do any people have a negativor actively encourage you to			bes a person passivery		
or actively encourage you to	Silloke, flot eat well,	, or not exercise:			
[name1]		○ Yes			
		○ No			
[name2]		○ Yes			
		○ No			
[name3]		○ Yes			
		○ No			
[name4]		○ Yes ○ No			
[name5]					
		_			
[name6]		○ Yes ○ No			
[
[name7]		○ Yes ○ No			
[name8]		○ Yes			
[name8]		○ No			
[name9]		○ Yes			
[○ No			
[name10]		○ Yes			
-		○ No			

[name11]			0,				
[name12]			0,				
[name13]			0,				
[name14]			0,				
[name15]			0)				
What is the race of each pe	rson in y	our social	network?				
	White	Black	Asian	American Indian	Native Hawaiian	Other	Don't know
[name1]	\bigcirc	\circ	\bigcirc	\circ	\bigcirc	\bigcirc	\bigcirc
[name2]	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name3]	\circ	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\circ	\bigcirc
[name4]	\bigcirc	\bigcirc	\bigcirc	\circ	\circ	\bigcirc	\bigcirc
[name5]	\circ	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name6]	\bigcirc	\circ	\bigcirc	\bigcirc	\circ	\bigcirc	\bigcirc
[name7]	\bigcirc	\circ	\circ	\circ	\circ	\bigcirc	\bigcirc
[name8]	\bigcirc	\circ	\circ	\circ	\circ	\bigcirc	\bigcirc
[name9]	\bigcirc	\circ	\bigcirc	\bigcirc	\circ	\bigcirc	\bigcirc
[name10]	\bigcirc	\circ	\bigcirc	\bigcirc	\circ	\bigcirc	\bigcirc
[name11]	\bigcirc	\circ	\circ	\circ	\circ	\bigcirc	\bigcirc
[name12]	\bigcirc	\circ	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name13]	\circ	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\circ
[name14]	\circ	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\circ	\circ
[name15]	\circ	0	\circ	\circ	\circ	\circ	0

What is the ethnicity of each	ch person	in your	social ne	twork?					
	Not Hisp	oanic or Lat	ino	Hispanic	or Latino		Don't know		
[name1]	·	\bigcirc		(\supset		\bigcirc		
[name2]		\bigcirc		(\supset		\bigcirc		
[name3]		\bigcirc		(\supset		\bigcirc		
[name4]		\bigcirc		(\supset		\bigcirc		
[name5]		\bigcirc		(\supset		\bigcirc		
[name6]		\bigcirc		(\supset		\bigcirc		
[name7]		\bigcirc		(\supset		\bigcirc		
[name8]		\bigcirc		(\supset		\bigcirc		
[name9]		\bigcirc		(\supset		\bigcirc		
[name10]		\bigcirc		(\supset		\bigcirc		
[name11]		\bigcirc		(\supset		\bigcirc		
[name12]		\bigcirc		(\supset		\bigcirc		
[name13]		\bigcirc		(\supset	\circ			
[name14]		\bigcirc		(\supset	\circ			
[name15]		\bigcirc		()		\circ		
As far as you know, what is	the high	est level	of educ	ation of	each pers	son?			
	1-8 years	Some high	High school	Some college	Associate degree	Bachelors degree	Graduate degree	Don't know	
[name1]	\circ	school	grad	O	O	O	O	C	
[name2]	0	0	0	0	0	0	0	0	
[name3]	0	0	0	0	0	0	0	\circ	
[name4]	0	\circ	0	0	0	0	0	\circ	
[name5]	0	0	0	0	0		0	\circ	
[name6]	\circ	\circ	\circ	\circ	\circ	\bigcirc	\circ	\bigcirc	
[name7]	\circ	\circ	\circ	\circ	\circ	\bigcirc	\bigcirc	\bigcirc	
[name8]	\circ	\bigcirc	\bigcirc	\circ	\circ	\bigcirc	\bigcirc	\bigcirc	
[name9]	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	
[name10]	\bigcirc	\circ	\circ	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	
[name11]	\bigcirc	\circ	\bigcirc	\circ	\bigcirc	\bigcirc	\bigcirc	\bigcirc	
[name12]	\circ	\bigcirc	\circ	\circ	\circ	\bigcirc	\circ	\bigcirc	
[name13]	\circ	\bigcirc	\bigcirc	\circ	\circ	\bigcirc	\circ	\bigcirc	
[name14]	\circ	\circ	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	

On average, how often do yo	ou speak with e	ach person in	your net	work?	
	Daily	Weekly	Monthly	Less often	Don't know
[name1]	\bigcirc	\bigcirc	\bigcirc	\circ	\circ
[name2]	\bigcirc	\bigcirc	\bigcirc	\circ	\bigcirc
[name3]	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name4]	\circ	\bigcirc	\bigcirc	\bigcirc	\circ
[name5]	\circ	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name6]	\circ	\bigcirc	\bigcirc	\bigcirc	\circ
[name7]	\circ	\bigcirc	\bigcirc	\bigcirc	\circ
[name8]	\circ	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name9]	\circ	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name10]	\circ	\bigcirc	\bigcirc	\bigcirc	\circ
[name11]	\circ	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name12]	\bigcirc	\bigcirc	\bigcirc	\circ	\bigcirc
[name13]	\bigcirc	\bigcirc	\bigcirc	\circ	\bigcirc
[name14]	\bigcirc	\bigcirc	\bigcirc	\circ	\bigcirc
[name15]	\bigcirc	\bigcirc	\bigcirc	\circ	\bigcirc
How long have you known th	ne following pe	ople (in years)	?		
[Less than three	Three to six	(I	More than six	Don't know
[name1]		0		0	0
[name2]	O			0	0
[name3]				0	0
[name4]				0	
[name5]				0	
[name6]	0	0		0	0
[name7]	0			0	0
[name8]	0	0		\circ	0
[name9]	0	0		0	0
[name10]	\circ	0		0	0
[name11]	0	0		0	0
[name12]	\circ	\circ		\circ	\circ

[name13]
[name14]
[name15]

We're now going to ask all the ways each person is connected to you. Some people can be connected to you in more than one way. For example, a man could be your brother and he could belong to your church and be your lawyer. For each person below, please tell us all the ways that person is connected to you.** Co-member in organization: Someone who is a member of the same organization as you. For example, a person who attends the same church

	Spouse	Parent	Sibling	Child	Other family	Co- worker	Comem - ber in org**	Neigh- bor	Friend	Advisor	
[name1]											
[name2]											
[name3]											
[name4]											
[name5]											
[name6]											
[name7]											
[name8]											
[name9]											
[name10]											
[name11]											
[name12]											
[name13]											
[name14]											
[name15]											
Has anyone been diagnosed	d with N	45?									
[name1]		Yes			No ○				know		
[name2]		0			0)		
[name3]	0			0				0			
[name4]	0			0				0			
[name5]		0			0)		
[name6]	\circ			0			\circ				
[name7]	O			\circ				O			
[name8]	\circ			\circ			\circ				
[name9]		\bigcirc			\circ			(\supset		
[name10]		\circ			0			(\supset		
[name11]	0				\circ			(\supset		

REDCap

Iname13	[name12]	0	0	0
How many years ago was the diagnosis of MS? If within this year, then round up to 1. Iname1] Iname2] Iname3] Iname4] Iname6] Iname6] Iname6] Iname7] Iname8] Iname9] Iname10] Iname11] Iname11] Iname12] Iname11] Iname12] Iname13] Iname14] Iname15] Iname14] Iname15] Iname16] Iname17] Iname18] Iname19 Iname19 Iname10] Iname11] Iname11] Iname12] Iname14] Iname15] Please select the best option that applies to [name1]'s mobility. Iname18] Iname19 Iname19 Iname19 Iname19 Iname19 Iname19 Iname19 Iname19 Iname19 Iname10 Iname10 Iname10 Iname11 Iname10 Iname11 Iname10 Iname11 Iname10 Iname11 Iname15 Iname14 Iname15 Iname15 Iname16 Iname17 Iname18 Iname19 Iname19 Iname19 Iname19 Iname19 Iname19 Iname10 Iname10 Iname10 Iname10 Iname10 Iname10 Iname10 Iname11 Iname10		0	0	0
How many years ago was the diagnosis of MS? If within this year, then round up to 1. Iname1 Iname2 Iname3 Iname4 Iname6 Iname6 Iname6 Iname7 Iname8 Iname9 Iname9 Iname10 Iname10 Iname11 Iname11 Iname12 Iname15 Iname17 Iname8 Iname9 Iname10 Iname10 Iname11 Iname15 Iname10 Iname11 Iname15 Iname10 Iname11 Iname10 I		0	0	0
[name1] [name2] [name3] [name4] [name5] [name6] [name7] [name8] [name9] [name10] [name10] [name10] [name11] [name11] [name11] [name8] [name9] [name8] [name9] [name10] [name11] [name12] [name12] [name13] [name14] [name15] Please select the best option that applies to [name1]'s mobility. Normal: functionally normal with no limitations on activity or lifestyle_May have minor abnormality on examination_Course is relapsing-remitting with a return to baseline with or without treatment_Are not treated with any ongoing therapy for MS Mild disability: mild symptoms or signs. Have definite findings such as sensory abnormalities, mild bladder impairment, minor incoordination, weakness, or fatigue_No visible abnormality of walking. The pattern of disease is relapsing-remitting, but may not have a full return to baseline following attacks_May use ongoing therapy such as amantadine, baclofen, or oxybutynin Moderate disability: visibly abnormal walking but do not require walking aids_The pattern of disease is relapsing-remitting or progressive Early cane: intermittent use of cane_Other forms of unilateral support including splint, brace, or crutch_Use unilateral support the walk when walking in clinic, May use a socotoer for greater distances (e.g., malls) Pattern of disease is relapsing-remitting or progressive Bilateral support: requires bilateral support to walk 25 feet without the are unable to ambulate 25 feet, even with bilateral support in or socoter or progressive confined to whelchair: essentially confined to a wheelchair or scooter or greater distances (e.g., malls) Pattern of disease is relapsing-remitting or progressive	[name15]	O	O	O
[name1] [name2] [name3] [name4] [name5] [name6] [name7] [name8] [name9] [name10] [name10] [name10] [name11] [name11] [name11] [name8] [name9] [name8] [name9] [name10] [name11] [name12] [name12] [name13] [name14] [name15] Please select the best option that applies to [name1]'s mobility. Normal: functionally normal with no limitations on activity or lifestyle_May have minor abnormality on examination_Course is relapsing-remitting with a return to baseline with or without treatment_Are not treated with any ongoing therapy for MS Mild disability: mild symptoms or signs. Have definite findings such as sensory abnormalities, mild bladder impairment, minor incoordination, weakness, or fatigue_No visible abnormality of walking. The pattern of disease is relapsing-remitting, but may not have a full return to baseline following attacks_May use ongoing therapy such as amantadine, baclofen, or oxybutynin Moderate disability: visibly abnormal walking but do not require walking aids_The pattern of disease is relapsing-remitting or progressive Early cane: intermittent use of cane_Other forms of unilateral support including splint, brace, or crutch_Use unilateral support the walk when walking in clinic, May use a socotoer for greater distances (e.g., malls) Pattern of disease is relapsing-remitting or progressive Bilateral support: requires bilateral support to walk 25 feet without the are unable to ambulate 25 feet, even with bilateral support in or socoter or progressive confined to whelchair: essentially confined to a wheelchair or scooter or greater distances (e.g., malls) Pattern of disease is relapsing-remitting or progressive				
[name1] [name3] [name4] [name5] [name6] [name7] [name8] [name7] [name8] [name9] [name10] [name11] [name12] [name13] [name15] [name15] [name16] [name17] [name8] [name9] [name10] [name11] [name17] [name18] [name18] [name19] [name19] [name19] [name10] [name1	How many years ago was the dia	agnosis of MS?		
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[name13] [name14] [name15] Please select the best option that applies to [name1]'s mobility. Normal: functionally normal with no limitations on activity or lifestyle_ May have minor abnormality on examination _ Course is relapsing-remitting with a return to baseline with or without treatment_ Are not treated with any ongoing therapy for MS Mild disability: mild symptoms or signs_ Have definite findings such as sensory abnormalities, mild bladder impairment, minor incoordination, weakness, or fatigue_ No visible abnormality of walking_ The pattern of disease is relapsing-remitting, but may not have a full return to baseline following attacks_ May use ongoing therapy such as amantadine, baclofen, or oxybutynin Moderate disability: visibly abnormal walking but do not require walking aids_ The pattern of disease is relapsing-remitting or progressive Early cane: intermittent use of cane_ Other forms of unilateral support including splint, brace, or crutch_ Use unilateral support primarily for longer distances, but are able to walk at least 25 feet without it_ The pattern of disease is relapsing-remitting or progressive Late cane: dependent on a cane or other forms of unilateral support and cannot walk 25 feet without such support_ Patients may hang on to furniture inside their homes or touch the wall when walking in clinic_ May use a scooter for greater distances (e.g., malls)_ Pattern of disease is relapsing remitting or progressive Bilateral support: requires bilateral support to walk 25 feet_ May use two canes or two crutches or a walker_ May use a scooter for greater distances_ Pattern of disease is relapsing-remitting or progressive Confined to wheelchair: essentially confined to a wheelchair or scooter_ May be able to take a few steps but are unable to ambulate 25 feet, even with bilateral support_ May show further progression including	[name10]			-
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0	are unable to ambulate 25 feet, even with bilateral support _ May show further progression including worsening hand function or inability to transfer independently Unclassifiable: does not fit the above classifications_ Significant memory or visual impairment, overwhelming fatigue, or significant bowel or bladder impairment in an otherwise minimally impaired patient
Plε	ease select the best option that applies to [name5]'s mobility.
0	Normal: functionally normal with no limitations on activity or lifestyle_May have minor abnormality on examination _ Course is relapsing-remitting with a return to baseline with or without treatment_ Are not
0	treated with any ongoing therapy for MS Mild disability: mild symptoms or signs_ Have definite findings such as sensory abnormalities, mild bladder impairment, minor incoordination, weakness, or fatigue_ No visible abnormality of walking_ The pattern of disease is relapsing-remitting, but may not have a full return to baseline following attacks_ May use ongoing
0	therapy such as amantadine, baclofen, or oxybutynin Moderate disability: visibly abnormal walking but do not require walking aids _ The pattern of disease is relapsing-remitting or progressive
0	Early cane: intermittent use of cane_ Other forms of unilateral support including splint, brace, or crutch _ Use unilateral support primarily for longer distances, but are able to walk at least 25 feet without it_ The pattern of disease is relapsing-remitting or progressive
	Late cane: dependent on a cane or other forms of unilateral support and cannot walk 25 feet without such support _ Patients may hang on to furniture inside their homes or touch the wall when walking in clinic _ May use a scooter for greater distances (e.g., malls) _ Pattern of disease is relapsing remitting or progressive Bilateral support: requires bilateral support to walk 25 feet _ May use two canes or two crutches or a walker _ May use a scooter for greater distances _ Pattern of disease is relapsing-remitting or progressive
0	Confined to wheelchair: essentially confined to a wheelchair or scooter _ May be able to take a few steps but are unable to ambulate 25 feet, even with bilateral support _ May show further progression including worsening hand function or inability to transfer independently
0	Unclassifiable: does not fit the above classifications_ Significant memory or visual impairment, overwhelming fatigue, or significant bowel or bladder impairment in an otherwise minimally impaired patient
PΙε	ease select the best option that applies to [name6]'s mobility.
0	Normal: functionally normal with no limitations on activity or lifestyle_ May have minor abnormality on examination _ Course is relapsing-remitting with a return to baseline with or without treatment_ Are not treated with any ongoing therapy for MS
0	Mild disability: mild symptoms or signs_ Have definite findings such as sensory abnormalities, mild bladder impairment, minor incoordination, weakness, or fatigue_ No visible abnormality of walking_ The pattern of disease is relapsing-remitting, but may not have a full return to baseline following attacks_ May use ongoing therapy such as amantadine, baclofen, or oxybutynin
0	Moderate disability: visibly abnormal walking but do not require walking aids _ The pattern of disease is relapsing-remitting or progressive
0	Early cane: intermittent use of cane_ Other forms of unilateral support including splint, brace, or crutch _ Use unilateral support primarily for longer distances, but are able to walk at least 25 feet without it_ The pattern of disease is relapsing-remitting or progressive
0	Late cane: dependent on a cane or other forms of unilateral support and cannot walk 25 feet without such support _ Patients may hang on to furniture inside their homes or touch the wall when walking in clinic _ May use a scooter for greater distances (e.g., malls) Pattern of disease is relapsing remitting or progressive
_	Bilateral support: requires bilateral support to walk 25 feet_ May use two canes or two crutches or a walker_ May use a scooter for greater distances_ Pattern of disease is relapsing-remitting or progressive Confined to wheelchair: essentially confined to a wheelchair or scooter_ May be able to take a few steps but are unable to ambulate 25 feet, even with bilateral support_ May show further progression including
0	worsening hand function or inability to transfer independently Unclassifiable: does not fit the above classifications_ Significant memory or visual impairment, overwhelming fatigue, or significant bowel or bladder impairment in an otherwise minimally impaired patient

Please select the best option that applies to [name7]'s mobility.
 Normal: functionally normal with no limitations on activity or lifestyle_ May have minor abnormality on examination _ Course is relapsing-remitting with a return to baseline with or without treatment_ Are not treated with any ongoing therapy for MS Mild disability: mild symptoms or signs_ Have definite findings such as sensory abnormalities, mild bladder impairment, minor incoordination, weakness, or fatigue_ No visible abnormality of walking_ The pattern of disease is relapsing-remitting, but may not have a full return to baseline following attacks_ May use ongoing therapy such as amantadine, baclofen, or oxybutynin Moderate disability: visibly abnormal walking but do not require walking aids_ The pattern of disease is relapsing-remitting or progressive Early cane: intermittent use of cane_ Other forms of unilateral support including splint, brace, or crutch_ Use unilateral support primarily for longer distances, but are able to walk at least 25 feet without it_ The pattern of disease is relapsing-remitting or progressive Late cane: dependent on a cane or other forms of unilateral support and cannot walk 25 feet without such support_ Patients may hang on to furniture inside their homes or touch the wall when walking in clinic_ May use a scooter for greater distances (e.g., malls) _ Pattern of disease is relapsing remitting or progressive Bilateral support: requires bilateral support to walk 25 feet_ May use two canes or two crutches or a walker_ May use a scooter for greater distances_ Pattern of disease is relapsing-remitting or progressive Confined to wheelchair: essentially confined to a wheelchair or scooter_ May be able to take a few steps but are unable to ambulate 25 feet, even with bilateral support_ May show further progression including worsening hand function or inability to transfer independently Unclassifiable: does not fit the above classifications_ Significant memory or visual impairment, over
Please select the best option that applies to [name8]'s mobility.
 Normal: functionally normal with no limitations on activity or lifestyle_ May have minor abnormality on examination _ Course is relapsing-remitting with a return to baseline with or without treatment_ Are not treated with any ongoing therapy for MS Mild disability: mild symptoms or signs_ Have definite findings such as sensory abnormalities, mild bladder impairment, minor incoordination, weakness, or fatigue_ No visible abnormality of walking_ The pattern of disease is relapsing-remitting, but may not have a full return to baseline following attacks_ May use ongoing therapy such as amantadine, baclofen, or oxybutynin Moderate disability: visibly abnormal walking but do not require walking aids_ The pattern of disease is relapsing-remitting or progressive Early cane: intermittent use of cane_ Other forms of unilateral support including splint, brace, or crutch_ Use unilateral support primarily for longer distances, but are able to walk at least 25 feet without it_ The pattern of disease is relapsing-remitting or progressive Late cane: dependent on a cane or other forms of unilateral support and cannot walk 25 feet without such support_ Patients may hang on to furniture inside their homes or touch the wall when walking in clinic_ May use a scooter for greater distances (e.g., malls) _ Pattern of disease is relapsing remitting or progressive Bilateral support: requires bilateral support to walk 25 feet_ May use two canes or two crutches or a walker_ May use a scooter for greater distances. Pattern of disease is relapsing-remitting or progressive Confined to wheelchair: essentially confined to a wheelchair or scooter_ May be able to take a few steps but are unable to ambulate 25 feet, even with bilateral support_ May show further progression including worsening hand function or inability to transfer independently Unclassifiable: does not fit the above classifications_ Significant memory or visual impairment, over
Please select the best option that applies to [name9]'s mobility.
 Normal: functionally normal with no limitations on activity or lifestyle_ May have minor abnormality on examination _ Course is relapsing-remitting with a return to baseline with or without treatment_ Are not treated with any ongoing therapy for MS Mild disability: mild symptoms or signs_ Have definite findings such as sensory abnormalities, mild bladder impairment, minor incoordination, weakness, or fatigue_ No visible abnormality of walking_ The pattern of disease is relapsing-remitting, but may not have a full return to baseline following attacks_ May use ongoing therapy such as amantadine, baclofen, or oxybutynin Moderate disability: visibly abnormal walking but do not require walking aids _ The pattern of disease is relapsing-remitting or progressive Early cane: intermittent use of cane_ Other forms of unilateral support including splint, brace, or crutch_ Use unilateral support primarily for longer distances, but are able to walk at least 25 feet without it_ The pattern of disease is relapsing-remitting or progressive Late cane: dependent on a cane or other forms of unilateral support and cannot walk 25 feet without such support_ Patients may hang on to furniture inside their homes or touch the wall when walking in clinic_ May use a scooter for greater distances (e.g., malls) _ Pattern of disease is relapsing remitting or progressive Bilateral support: requires bilateral support to walk 25 feet_ May use two canes or two crutches or a walker_ May use a scooter for greater distances
May use a scooler for greater distances_ Pattern of disease is relapsing-remitting or progressive প্রিপ্তিনির্দান ভিন্ত Wheelchair: essentially confined to a wheelchair or scooter _ Mayweering প্রস্তুত্তি প্রস্তুত্ত ভ্রমান কর্মান কর

0	are unable to ambulate 25 feet, even with bilateral support _ May show further progression including worsening hand function or inability to transfer independently Unclassifiable: does not fit the above classifications_ Significant memory or visual impairment, overwhelming fatigue, or significant bowel or bladder impairment in an otherwise minimally impaired patient
Ple	ease select the best option that applies to [name10]'s mobility.
0	Normal: functionally normal with no limitations on activity or lifestyle_May have minor abnormality on examination _ Course is relapsing-remitting with a return to baseline with or without treatment_ Are not
0	treated with any ongoing therapy for MS Mild disability: mild symptoms or signs_ Have definite findings such as sensory abnormalities, mild bladder impairment, minor incoordination, weakness, or fatigue_ No visible abnormality of walking_ The pattern of disease is relapsing-remitting, but may not have a full return to baseline following attacks_ May use ongoing
0	therapy such as amantadine, baclofen, or oxybutynin Moderate disability: visibly abnormal walking but do not require walking aids _ The pattern of disease is relapsing-remitting or progressive
0	Early cane: intermittent use of cane_ Other forms of unilateral support including splint, brace, or crutch _ Use unilateral support primarily for longer distances, but are able to walk at least 25 feet without it_ The pattern of disease is relapsing-remitting or progressive
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PΙε	ease select the best option that applies to [name11]'s mobility.
0	Normal: functionally normal with no limitations on activity or lifestyle_May have minor abnormality on examination _ Course is relapsing-remitting with a return to baseline with or without treatment_ Are not treated with any ongoing therapy for MS Mild disability: mild symptoms or signs_ Have definite findings such as sensory abnormalities, mild bladder impairment, minor incoordination, weakness, or fatigue_ No visible abnormality of walking_ The pattern of disease is relapsing-remitting, but may not have a full return to baseline following attacks_ May use ongoing therapy such as amantadine, baclofen, or oxybutynin Moderate disability: visibly abnormal walking but do not require walking aids _ The pattern of disease is relapsing-remitting or progressive
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Please select the best option that applies to [name12]'s mobility.
 Normal: functionally normal with no limitations on activity or lifestyle_ May have minor abnormality on examination _ Course is relapsing-remitting with a return to baseline with or without treatment_ Are not treated with any ongoing therapy for MS Mild disability: mild symptoms or signs_ Have definite findings such as sensory abnormalities, mild bladder impairment, minor incoordination, weakness, or fatigue_ No visible abnormality of walking_ The pattern of disease is relapsing-remitting, but may not have a full return to baseline following attacks_ May use ongoing therapy such as amantadine, baclofen, or oxybutynin Moderate disability: visibly abnormal walking but do not require walking aids_ The pattern of disease is relapsing-remitting or progressive Early cane: intermittent use of cane_ Other forms of unilateral support including splint, brace, or crutch_ Use unilateral support primarily for longer distances, but are able to walk at least 25 feet without it_ The pattern of disease is relapsing-remitting or progressive Late cane: dependent on a cane or other forms of unilateral support and cannot walk 25 feet without such support_ Patients may hang on to furniture inside their homes or touch the wall when walking in clinic_ May use a scooter for greater distances (e.g., malls) _ Pattern of disease is relapsing remitting or progressive Bilateral support: requires bilateral support to walk 25 feet_ May use two canes or two crutches or a walker_ May use a scooter for greater distances_ Pattern of disease is relapsing-remitting or progressive Confined to wheelchair: essentially confined to a wheelchair or scooter_ May be able to take a few steps but are unable to ambulate 25 feet, even with bilateral support_ May show further progression including worsening hand function or inability to transfer independently Unclassifiable: does not fit the above classifications_ Significant memory or visual impairment, over
Please select the best option that applies to [name13]'s mobility.
 Normal: functionally normal with no limitations on activity or lifestyle_ May have minor abnormality on examination _ Course is relapsing-remitting with a return to baseline with or without treatment_ Are not treated with any ongoing therapy for MS Mild disability: mild symptoms or signs_ Have definite findings such as sensory abnormalities, mild bladder impairment, minor incoordination, weakness, or fatigue_ No visible abnormality of walking_ The pattern of disease is relapsing-remitting, but may not have a full return to baseline following attacks_ May use ongoing therapy such as amantadine, baclofen, or oxybutynin Moderate disability: visibly abnormal walking but do not require walking aids_ The pattern of disease is relapsing-remitting or progressive Early cane: intermittent use of cane_ Other forms of unilateral support including splint, brace, or crutch_ Use unilateral support primarily for longer distances, but are able to walk at least 25 feet without it_ The pattern of disease is relapsing-remitting or progressive Late cane: dependent on a cane or other forms of unilateral support and cannot walk 25 feet without such support_ Patients may hang on to furniture inside their homes or touch the wall when walking in clinic_ May use a scooter for greater distances (e.g., malls)_ Pattern of disease is relapsing remitting or progressive Bilateral support: requires bilateral support to walk 25 feet_ May use two canes or two crutches or a walker_ May use a scooter for greater distances_ Pattern of disease is relapsing-remitting or progressive Confined to wheelchair: essentially confined to a wheelchair or scooter_ May be able to take a few steps but are unable to ambulate 25 feet, even with bilateral support_ May show further progression including worsening hand function or inability to transfer independently Unclassifiable: does not fit the above classifications_ Significant memory or visual impairment, overw
Please select the best option that applies to [name14]'s mobility.
 Normal: functionally normal with no limitations on activity or lifestyle_May have minor abnormality on examination _ Course is relapsing-remitting with a return to baseline with or without treatment_ Are not treated with any ongoing therapy for MS Mild disability: mild symptoms or signs_ Have definite findings such as sensory abnormalities, mild bladder impairment, minor incoordination, weakness, or fatigue_No visible abnormality of walking_The pattern of disease is relapsing-remitting, but may not have a full return to baseline following attacks_May use ongoing therapy such as amantadine, baclofen, or oxybutynin Moderate disability: visibly abnormal walking but do not require walking aids_The pattern of disease is relapsing-remitting or progressive Early cane: intermittent use of cane_Other forms of unilateral support including splint, brace, or crutch_Use unilateral support primarily for longer distances, but are able to walk at least 25 feet without it_The pattern of disease is relapsing-remitting or progressive Late cane: dependent on a cane or other forms of unilateral support and cannot walk 25 feet without such support_Patients may hang on to furniture inside their homes or touch the wall when walking in clinic_May use a scooter for greater distances (e.g., malls) _ Pattern of disease is relapsing remitting or progressive Bilateral support: requires bilateral support to walk 25 feet_May use two canes or two crutches or a walker_May use two canes or two crutches or a walker_May use a scooter for greater distances (e.g., malls) _ Pattern of disease is relapsing remitting or progressive
May use a scooter for greater distances_ Pattern of disease is relapsing-remitting or progressive ලදා පිහිටි සිට සිට සිට සිට සිට සිට සිට සිට සිට

are unable to ambulate 25 feet, even with bilateral support _ worsening hand function or inability to transfer independently O Unclassifiable: does not fit the above classifications_ Significations_ fatigue, or significant bowel or bladder impairment in an other	y ant memory or visual impairment, overwhelming
Please select the best option that applies to [name15]'s mobility	<i>.</i>
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We understand you have a first-degree relative with	n MS. Please answer the following about
your relationship with this person.	
Compared to the others you mentioned, how close do you feel to this person?	○ Especially close○ Not especially close
On average, how often do you speak with this person?	Opaily
	○ Weekly○ Monthly○ Less often○ Don't know
How far do you live from this person?	MonthlyLess often
How far do you live from this person? How old is each person? If you don't know the exact	 Monthly Less often Don't know Same house 1-5 miles 5-15 miles 16-50 miles 50+ miles
	 Monthly Less often Don't know Same house 1-5 miles 5-15 miles 16-50 miles 50+ miles
How old is each person? If you don't know the exact	 Monthly Less often Don't know Same house 1-5 miles 5-15 miles 16-50 miles 50+ miles
How old is each person? If you don't know the exact minus 5 years?	 Monthly Less often Don't know Same house 1-5 miles 5-15 miles 16-50 miles 50+ miles
How old is each person? If you don't know the exact minus 5 years? [name1]	 Monthly Less often Don't know Same house 1-5 miles 5-15 miles 16-50 miles 50+ miles

[name5]	
[name6]	
[name7]	
[name8]	
[name9]	
[name10]	
[name11]	
[name12]	
[name13]	
[name14]	
[name15]	
Have you done any of the following to try and impro	ve your health in the last 3 months?
Have you done any of the following to try and impro If you do not smoke, do not take medications, or did the last 3 months, please click "Not Applicable"	
If you do not smoke, do not take medications, or did	
If you do not smoke, do not take medications, or did the last 3 months, please click "Not Applicable"	I not have any doctor's appointments in ○ Yes ○ No
If you do not smoke, do not take medications, or did the last 3 months, please click "Not Applicable" Cut back on smoking?	I not have any doctor's appointments in Yes No Not applicable Yes

Have your contacts tried to improve their health in the last 3 months? Has anyone cut back
smoking?If they do not smoke, please click "Not Applicable'.

[name1]	Yes	No (Don't know	Not applicable
	0		0	0
[name2]	0			0
[name3]	0		0	0
[name4]	0	0	0	0
[name5]	0		0	0
[name6]	0		0	0
[name7]	0		0	0
[name8]	0		0	0
[name9]			0	_
[name10]	0		_	0
[name11]	0	0	0	0
[name12]	0	0	0	0
[name13]	0	0	0	0
[name14]	0	0	0	O
[name15]	O	O	O	0
Do your social contacts ex	cercise 3 times per v	veek within the	last 3 months?	
Do your social contacts ex				Don't know
	Yes		No	Don't know
[name1]	Yes			Don't know
[name1] [name2]	Yes		No O	0
[name1] [name2] [name3]	Yes O		No O	0
[name1] [name2] [name3] [name4]	Yes O O		No O O	0 0
[name1] [name2] [name3] [name4] [name5]	Yes O O		No O O	O O O
[name1] [name2] [name3] [name4] [name5] [name6]	Yes O O O		No O O O	O O O O
[name1] [name2] [name3] [name4] [name5] [name6] [name7]	Yes O O O O		No O O O O	O O O O
[name1] [name2] [name3] [name4] [name5] [name6] [name7] [name8]	Yes		No O O O O O O	0 0 0 0 0 0
[name1] [name2] [name3] [name4] [name5] [name6] [name7]	Yes		No O O O O O	0 0 0 0 0
[name1] [name2] [name3] [name4] [name5] [name6] [name7] [name8] [name9]	Yes		No O O O O O O O	0 0 0 0 0 0 0 0
[name1] [name2] [name3] [name4] [name5] [name6] [name7] [name8] [name9] [name10] [name11]	Yes		No O O O O O O O O	0 0 0 0 0 0 0
[name1] [name2] [name3] [name4] [name5] [name6] [name6] [name7] [name8] [name9] [name10]	Yes		No O O O O O O O O O	0000000000
[name1] [name2] [name3] [name4] [name5] [name6] [name7] [name8] [name9] [name10] [name11] [name12]	Yes		No O O O O O O O O O O O O	000000000000



Do your contacts regularly take their medications, meaning missed them less than once per week in the last 3 months? If a person does not take medications, please select "Not applicable".

	Yes	No	Don't know	Not applicable
[name1]	\circ	\circ	\circ	\circ
[name2]	\circ	\circ	\circ	\circ
[name3]	\circ	\circ	\circ	\circ
[name4]	\circ	\circ	\circ	\circ
[name5]	\circ	\circ	\circ	\circ
[name6]	\circ	\circ	\bigcirc	\circ
[name7]	\bigcirc	\circ	\circ	\bigcirc
[name8]	\circ	\circ	\bigcirc	\circ
[name9]	\circ	\circ	\circ	\circ
[name10]	\circ	\circ	\circ	\circ
[name11]	\circ	\circ	\bigcirc	\circ
[name12]	\circ	\circ	\circ	\bigcirc
[name13]	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name14]	\circ	\circ	\bigcirc	\circ
[name15]	\circ	\circ	\circ	\circ
Did your contacts atter	nd all doctor's appoint	ments in the las	t 3 months?If a pe	erson did not
have doctor appointme	nts, please select "No	ot applicable".		
	Yes	No	Don't know	Not applicable
[name1]	\bigcirc	\bigcirc	\circ	

	103	110	Don't know	Not applicable
[name1]	\circ	\bigcirc	\bigcirc	\bigcirc
[name2]	\bigcirc	\bigcirc	\circ	\bigcirc
[name3]	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name4]	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name5]	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name6]	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name7]	\bigcirc	\bigcirc	\circ	\bigcirc
[name8]	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name9]	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name10]	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name11]	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name12]	\circ	\bigcirc	\circ	\bigcirc
[name13]	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name14]	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name15]	\bigcirc	\circ	\circ	\circ



How far does each person live from you?

For people less than 1 mile, click on 1-5 miles.

	Same house	1-5 miles	5-15 miles	16-50 miles	50+ miles
[name1]	\circ	\circ	\circ	\circ	\circ
[name2]	\circ	\circ	\bigcirc	\circ	\circ
[name3]	\circ	\circ	\bigcirc	\circ	\bigcirc
[name4]	\bigcirc	\bigcirc	\bigcirc	\circ	\bigcirc
[name5]	\bigcirc	\bigcirc	\bigcirc	\circ	\bigcirc
[name6]	\bigcirc	\bigcirc	\bigcirc	\circ	\bigcirc
[name7]	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name8]	\bigcirc	\bigcirc	\bigcirc	\circ	\bigcirc
[name9]	\bigcirc	\bigcirc	\bigcirc	\circ	\bigcirc
[name10]	\bigcirc	\bigcirc	\bigcirc	\circ	\circ
[name11]	\bigcirc	\bigcirc	\bigcirc	\circ	\bigcirc
[name12]	\bigcirc	\bigcirc	\bigcirc	\circ	\bigcirc
[name13]	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name14]	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
[name15]	\circ	\circ	\bigcirc	0	\circ

REDCap

Supplementary Methods 2: Equations for Social Network Metrics

$$Size = N$$

where N is the number of nodes, not including the ego.

Density =
$$\frac{2L}{N(N-1)}$$

where L is the number of ties, and N is the number of nodes, not including the ego.

Constraint of i's network =
$$(p_{ij} + \sum_{q} p_{iq} \times p_{qj})^2$$

where i is the ego, q and j are alters, p_{ij} is the proportional strength of i's relation with j, p_{iq} is the proportional strength of i's relation with q, and p_{qj} is the proportional strength of q's relation with j.

Effective size of
$$i$$
's network $=\sum_{j}\left[1-\sum_{q}p_{iq}\times m_{jq}\right]$, $q\neq i,j$

where i is the ego, q and j are alters, and $\sum_{q} p_{iq} \times m_{jq}$ measures the portion of i's relationship with j that is redundant to i's relationships with other primary contacts.

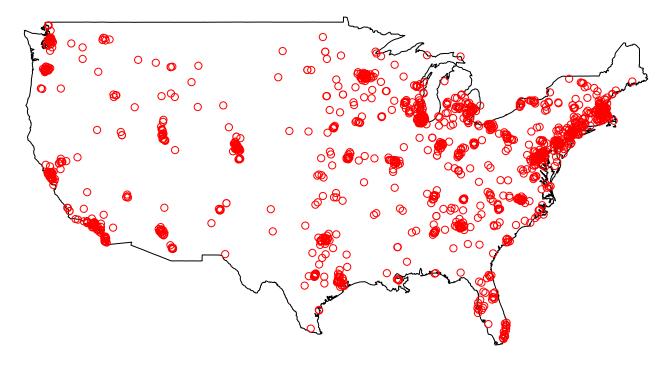
Maximum Degree =
$$L_{\text{max}}$$

where L_{max} is the highest number of ties incident on a single node, not including the ego.

Mean Degree =
$$\frac{L_1 + L_2 + \dots + L_N}{N}$$

where L is the number of ties from each node and N is the number of nodes, not including the ego.

Supplementary Figure 1: Map of Participants' Location



Social networks were examined in 1493 participants of the Genes and Environment in Multiple Sclerosis (GEMS) study across the United States.

Supplementary Table 1: Regression analysis of Genes and Environment Risk Score Components and Network Size

Variable	Beta	Standard Error	P-value ^a	n				
All Subjects								
Genes and Environment Risk Score	0.815	0.192	2.43E-05	999				
Environmental Risk Score	1.24	0.333	2.00E-04	999				
Genetic Risk Score	0.561	0.229	0.0146	999				
Mononucleosis	0.905	0.387	0.0197	1473				
Male	-1.87	0.42	8.71E-06	1491				
Smoking	-1.28	0.586	0.0291	1471				
Asymptomatic								
Genes and Environment Risk Score	0.916	0.197	3.76E-06	920				
Environmental Risk Score	1.34	0.34	9.44E-05	920				
Genetic Risk Score	0.653	0.235	0.00552	920				
Mononucleosis	1.13	0.4	0.00476	1364				
Male	-1.91	0.431	9.91E-06	1376				
Smoking	-1.53	0.601	0.0109	1363				
	MS							
Genes and Environment Risk Score	-0.291	0.856	0.734	79				
Environmental Risk Score	0.227	1.42	0.873	79				
Genetic Risk Score	-0.584	1.07	0.586	79				
Mononucleosis	-1.64	1.51	0.277	109				
Male	-1.23	1.8	0.495	115				
Smoking	2.29	2.51	0.363	108				
Women								
Genes and Environment Risk Score	0.8	0.239	8.67E-04	814				
Environmental Risk Score	1.16	0.605	0.0547	814				
Genetic Risk Score	0.717	0.259	0.00569	814				
Mononucleosis	0.941	0.439	0.0324	1190				
Male	-1.62	0.694	0.0194	1189				
	Men							
Genes and Environment Risk Score	-0.001	0.441	0.999	185				
Environmental Risk Score	-0.036	1.06	0.973	185				
Genetic Risk Score	0.006	0.471	0.99	185				
Mononucleosis	0.328	0.77	0.671	283				
Male	0.28	0.985	0.776	282				

^a Adjusted for age.