SUPPLEMENTARY MATERIAL: "Social network fragmentation and community health"

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Materials and methods

Network prompts

Networks were generated at the household level because community medicine distributors (CMDs) were trained to and have been shown to move from door to door to deliver medicines during MDA(1).

Close friendship: "Please tell me the clan name first then the second name of up to 10 people that are very close friends to you. You should feel comfortable to turn to this person to borrow tools for fishing or farming without paying. A close friend is also someone that you see frequently. Do not name anyone in your household. Provide the names in the order of who is your closest friend first. Only name people in your village."

Health advice: "Please tell me the clan name first then the second name of up to 10 people that you trust for advice about taking drugs or any health problems. These people do not have to be health workers. Provide the names in the order of whose opinion you value most and who you would go to first. Only name people in your village."

Fragmentation algorithms

1. Random node removal
2. Acquaintance strategy
    a. Random neighbor
    b. Random neighbor with degree ≥2
3. Acquaintance-degree strategy
    a. Highest degree neighbor
    b. Higher degree neighbor
4. Formal position strategy
    a. Random neighbor
    b. Random neighbor with degree ≥2
    c. Higher degree neighbor
    d. Highest degree neighbor

For the random node removal, all nodes had a uniform probability of selection. The acquaintance and acquaintance-degree strategies began with the selection of a random node then a neighbor (direct connection) of the initially selected node was removed. Two acquaintance algorithms were employed. Algorithm 2A randomly removed a neighbor of the initially selected node(2). In 2B, a restriction was added to 2A where the randomly removed neighbor must have a degree of at least two. This criterion is similar to setting a local threshold for the neighbor's degree(3) and guided the removal of neighbors who had a connection to at least one additional node that was not the initially selected random node. In the event that a neighbor was selected from an isolated dyad then, in 2B, this neighbor was removed. The acquaintance-degree strategy introduced a trivial improvement(3, 4) in the acquaintance strategy(2). Acquaintance-degree algorithm 3A removed the highest degree neighbor of the initially selected node(4). If there was a tie, i.e. if two neighbors had the highest degree value then one of these neighbors was randomly selected and removed. Algorithm 3B randomly removed a neighbor with higher degree than the initially selected node.

The formal position strategy purposely targeted individuals with community roles. In this strategy, we first directly removed individuals in order of village positions then, when no individuals with formal positions remained, an acquaintance or acquaintance-degree strategy was employed. Formal positions included households with at least one individual in at least one of the following categories at the time of the network survey: government health workers, CMDs who were village-elected health workers, local council members (village government), and schoolteachers. These categories reflect actual field practices in community-based MDA in Uganda(1, 5). Health personnel from outside of a village will work with influential, local stakeholders to respond to problems arising in a village during treatment campaigns. These individuals are influential because they are the implementers of community-based MDA (health workers), have high social status (local council), or are the implementers of MDA in primary schools (teachers). There was a fixed number of two CMDs per village and a maximum of nine village government members. No fixed or maximum number of government health workers or schoolteachers existed. The local council positions were as follows: chairman, vice chairman, secretary, defense, gender secretary, disabled secretary, youth council, elderly secretary, or information secretary. The ranking (hierarchy) of formal positions and order of node removal was health workers (both government and CMDs) then local council members and finally schoolteachers. Within each category of formal positions, if there were multiple individuals then one of these individuals was randomly chosen and removed. If an individual in a household held multiple formal positions or multiple individuals in a household had formal positions across different categories then the household was assigned the category with the highest ranking.

Targeted attack algorithms

1. Targeted attacks
    a. Highest degree
    b. Highest betweenness
    c. Recalculated highest degree
    d. Recalculated highest betweenness

Targeted attacks were strategies that removed nodes based on centrality(6) and required global network information. Algorithms 1A and 1B removed nodes in descending order of degree(7) and betweenness(8), respectively. The recalculated measures(9) recounted degree or updated betweenness after each node removal. For ties, i.e. the same value assigned to different nodes, a node was randomly chosen amongst nodes with the same value of degree or betweenness. Only 10 iterations were run for betweenness due to the infrequency of ties.

Fragmentation outcomes

The main outcome was the total number of fragments with adjustments for component size using the Borgatti F(10) indicator as described in Chen *et al*(11) where F=0 was an undamaged network and F=1 equaled maximum fragmentation. F asymptotically approached zero when isolates remained, so complete destruction of network connectivity was defined here as F=0.9945. A connected component was defined as a group of at least two connected nodes. To check the robustness of the acquaintance and acquaintance-degree results as well as to enable comparisons with published studies, the standard percolation outcome(3, 9, 11-13) also was calculated. The percolation outcome measured the percentage of nodes remaining in the largest component.

Health outcome
MDA is the distribution of preventive chemotherapies to an entire population within a defined geographical area and predominantly at risk of infection with one of six parasitic worms(5, 14). Over 1.9 billion individuals worldwide require treatment through MDA(14). In our study area, community-based MDA(1, 5) was used to distribute praziquantel, albendazole, and ivermectin for the treatment of intestinal schistosomiasis, soil-transmitted helminths, and lymphatic filariasis. MDA is the main, and most often only available method of controlling morbidity attributable to these infections. Yet, an adverse drug reaction experienced by a few individuals within a village can cause widespread refusal to ingest pills (noncompliance) and, in turn, destabilize or halt MDA, even at times stopping treatment for several years (15-17). Widespread noncompliance ensues ultimately from the spread of information, which can include rumours, about the adverse event(15). Considering that information travels along connections in friendship and health advice networks(18-20) and the starting points (seeds) for this diffusion are the individuals/households experiencing the adverse event then there is a need to quell the ability of these seeds to spread information to the rest of the network.

All households in the networks were interviewed to record who was offered medicine by CMDs (implementers of community-based MDA(1)) and, amongst those offered, who refused to ingest pills. Here, noncompliance included only individuals who refused to swallow medicines because of a previous experience of adverse drug side effects. A node (household) was classified as a noncompliant seed if at least one individual, who was eligible for treatment in the household, refused all pills during the MDA conducted at the time of the network survey.

We measured the percentage of nodes in the network that were at risk of receiving information from a noncompliant seed. We assume all nodes in a component with a noncompliant seed were reachable by that seed. Accordingly, we divided the total number of nodes in a connected component with a noncompliant seed by the total number of nodes in the original network.

Comparison of formal position targeting to uniform random node removal
When examining the same number of nodes removed as there were formal positions, we also compared the efficiency of formal position targeting to a simple approach that is not an acquaintance/network strategy, i.e. the uniform random sampling of households (Figures S1-S2). Targeting formal positions outperformed uniform random selection in 58.82% (10/17) of friendship and 88.24% (15/17) of health advice networks. In the friendship networks, the average fragmentation achieved with the formal position strategy (F 0.185, std. dev. 0.067) was only slightly larger than the fragmentation (F 0.180, std. dev. 0.066) observed after randomly removing households (Obs. 17, paired t-statistic 2.640, p-value=0.018). For health advice networks, targeting formal positions induced more fragmentation (avg. F 0.30, std. dev. 0.136) than that achieved with random selection (avg. F 0.196, std. dev. 0.070, Obs. 17, paired t-statistic 4.962, p-value<0.001).

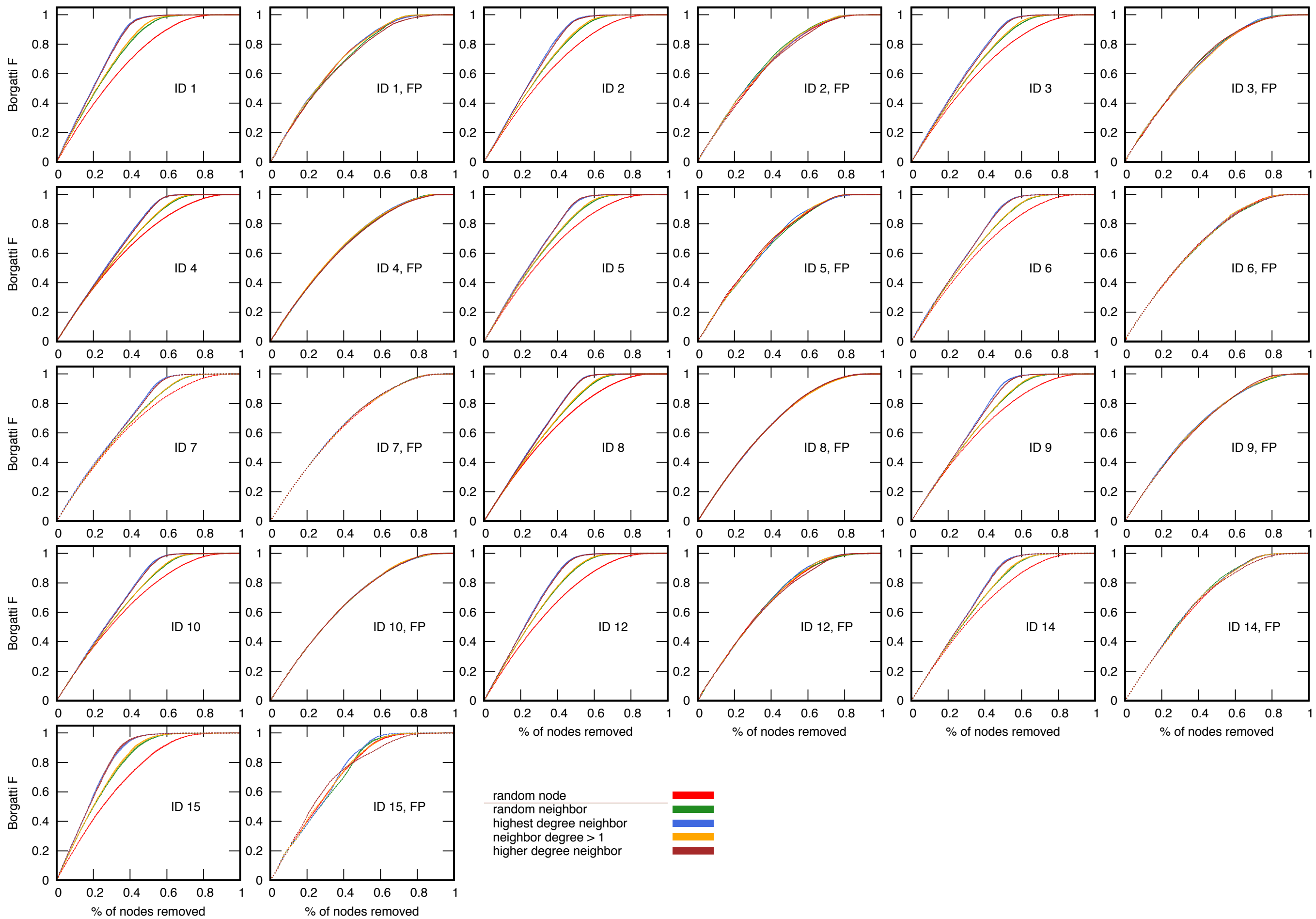

Figure S1: Fragmentation outcomes for 13 friendship networks. Thirteen villages are shown that were not presented in the main text. IDs correspond to project-assigned village IDs. N is the total number of nodes in the original network. If FP is noted then the formal position strategy was employed; otherwise, acquaintance and acquaintance-degree strategies were used. Line widths represent 95% confidence intervals.

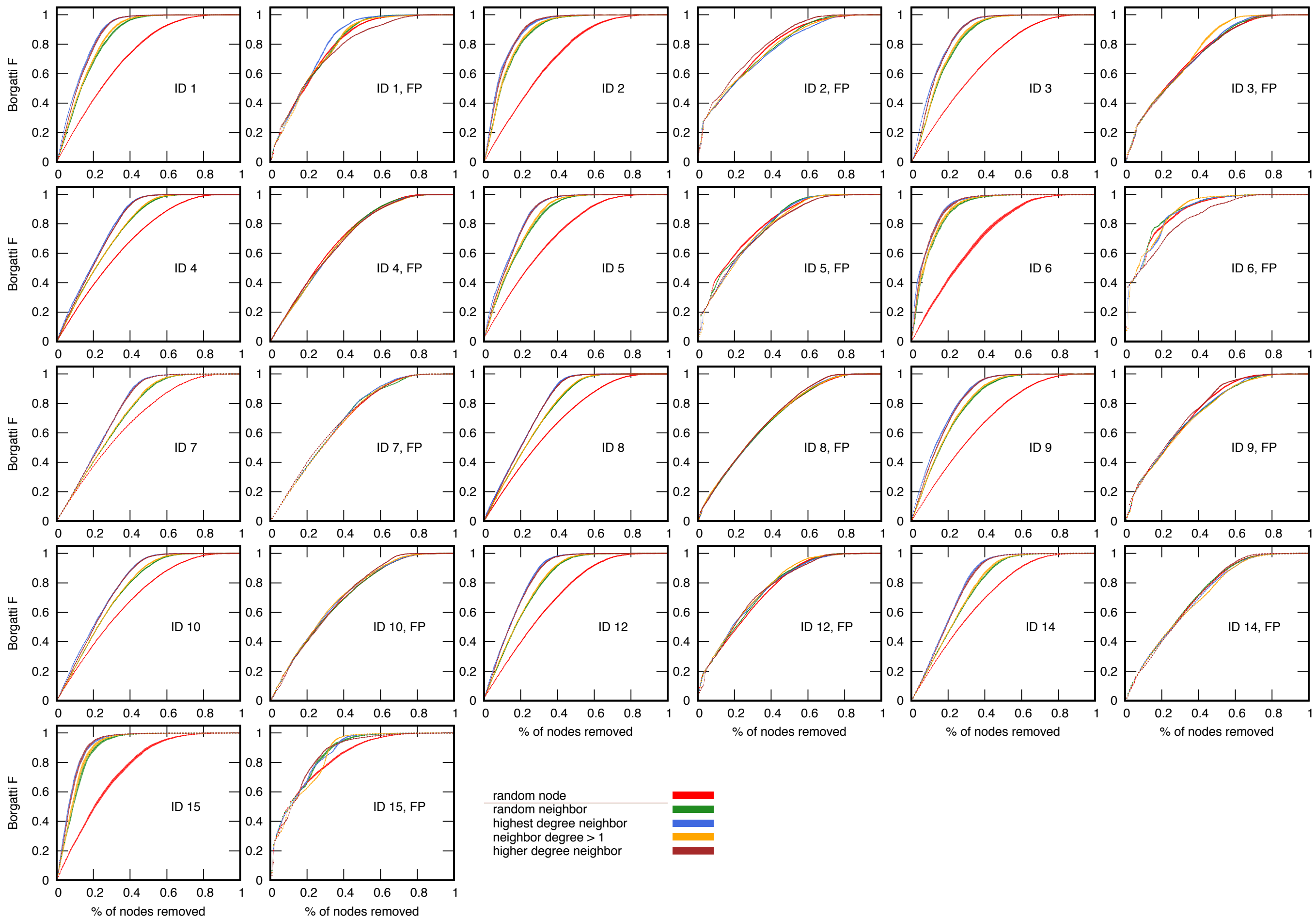

Figure S2: Fragmentation outcomes for 13 health advice networks. Thirteen villages are shown that were not presented in the main text. IDs correspond to project-assigned village IDs. N is the total number of nodes in the original network. If FP is noted then the formal position strategy was employed; otherwise, acquaintance and acquaintance-degree strategies were used. Line widths represent 95% confidence intervals.

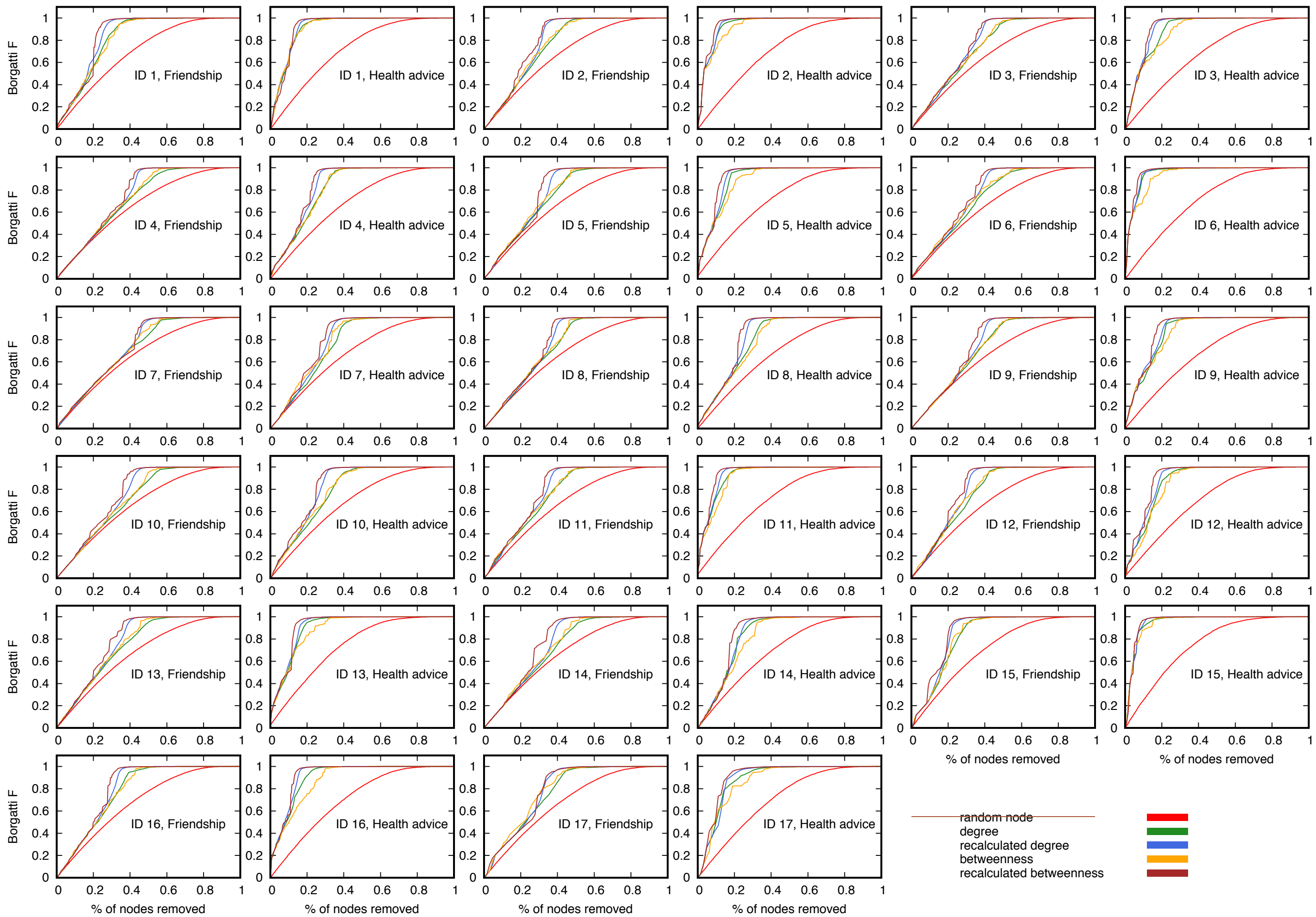

Figure S3: Targeted attacks by degree and betweenness. Fragmentation algorithms that utilized full network information are shown for all villages and networks. IDs correspond to project-assigned village IDs. Line widths are greater than the 95% confidence intervals.

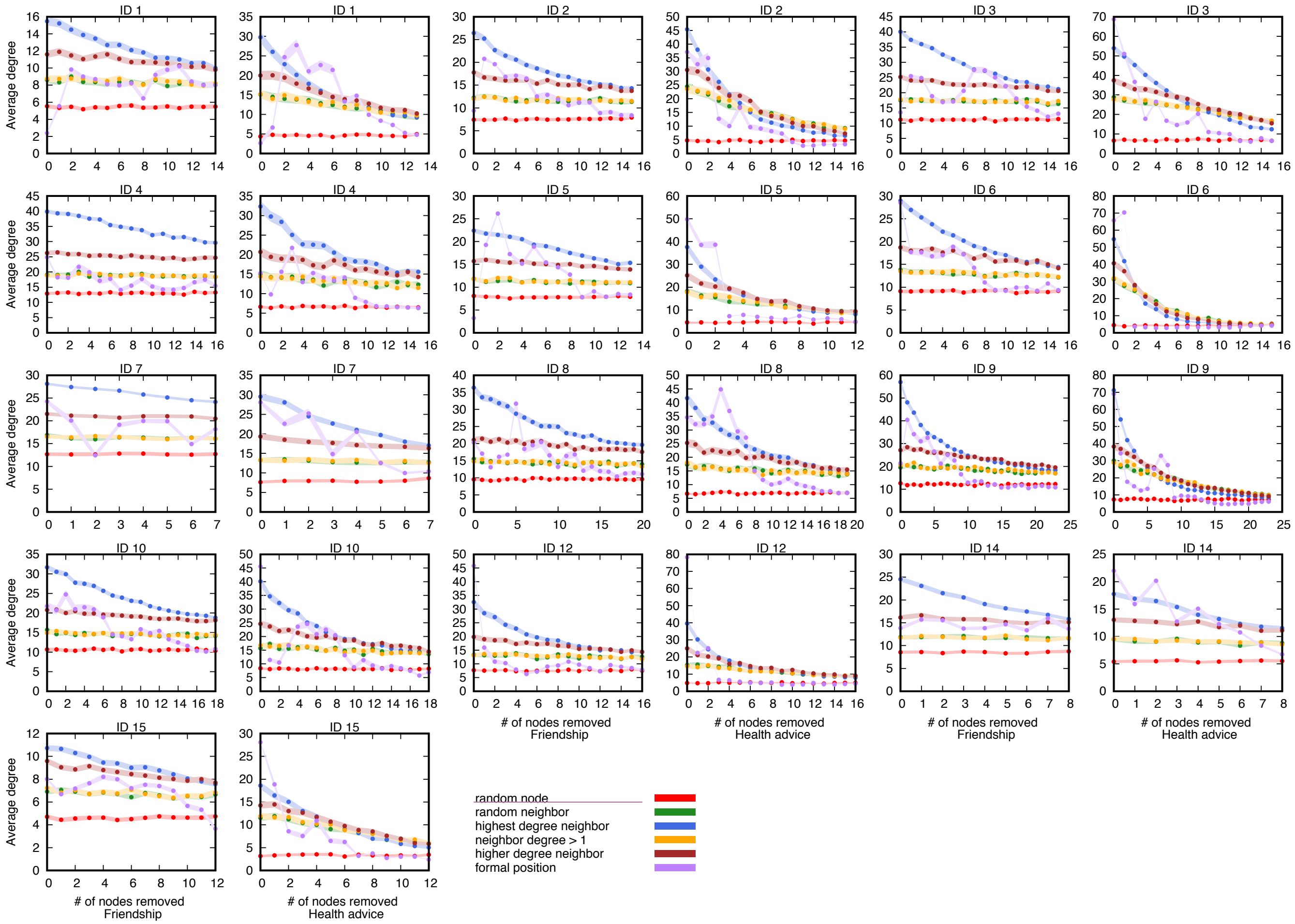

Figure S4: Avg. degree of node removed for 13 friendship and health advice networks. Thirteen villages are shown that were not presented in the main text. The average degree for each node removed is shown up to the number of formal positions. IDs correspond to project-assigned village IDs. The type of network is labeled accordingly. One thousand iterations were run and line widths represent 95% confidence intervals.

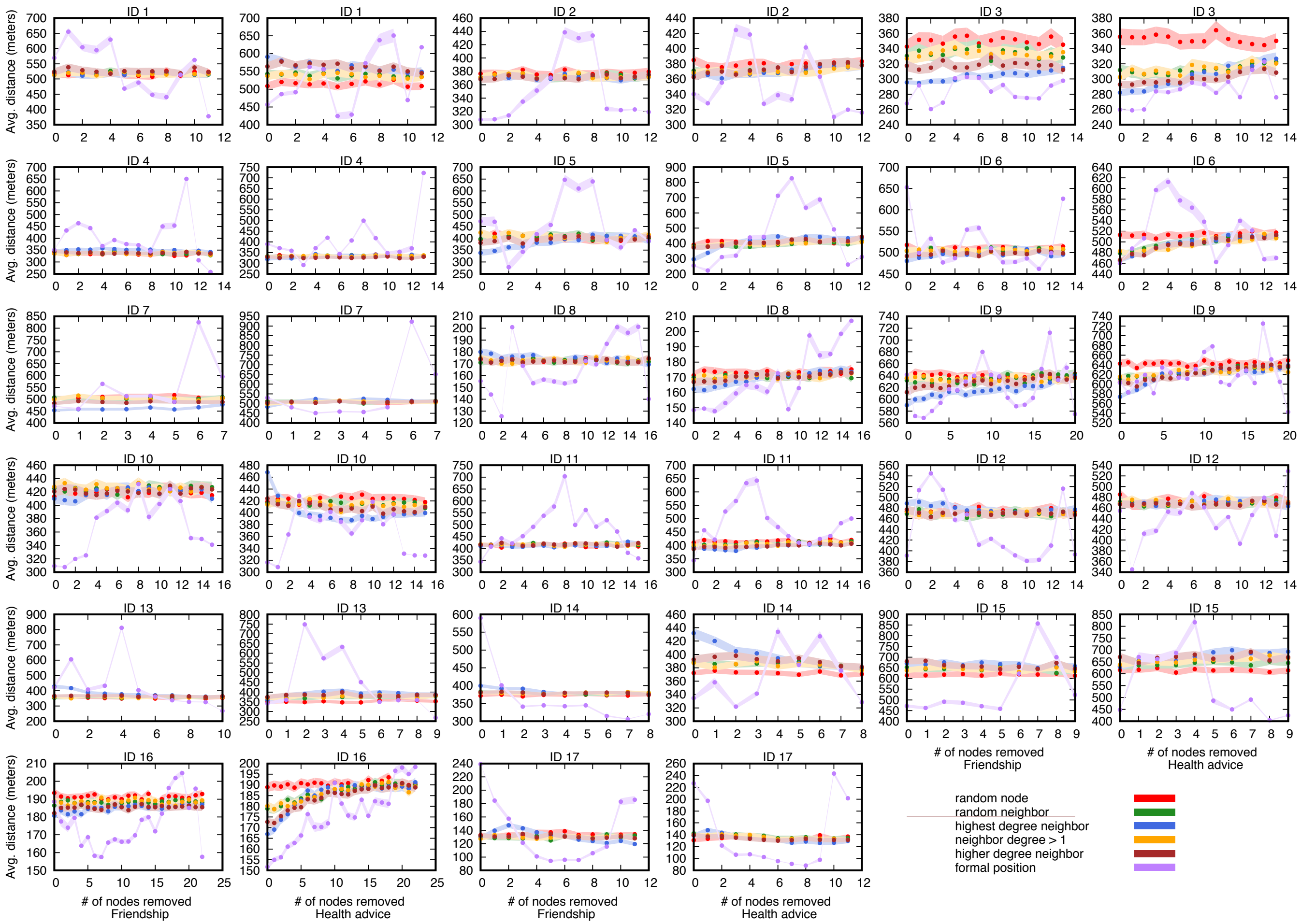

Figure S5: Physical proximity of node selected by each fragmentation strategy. The average haversine distance in meters is shown for each node selected by each fragmentation strategy. One thousand iterations were run and line widths represent 95% confidence intervals. If a neighbour was selected that did not have available GPS waypoint data then the initially selected node was removed. If both the neighbour and the initially selected node did not have available GPS waypoint data then a new initial node was selected. Only the number of nodes as there were formal positions with GPS waypoint data was removed.

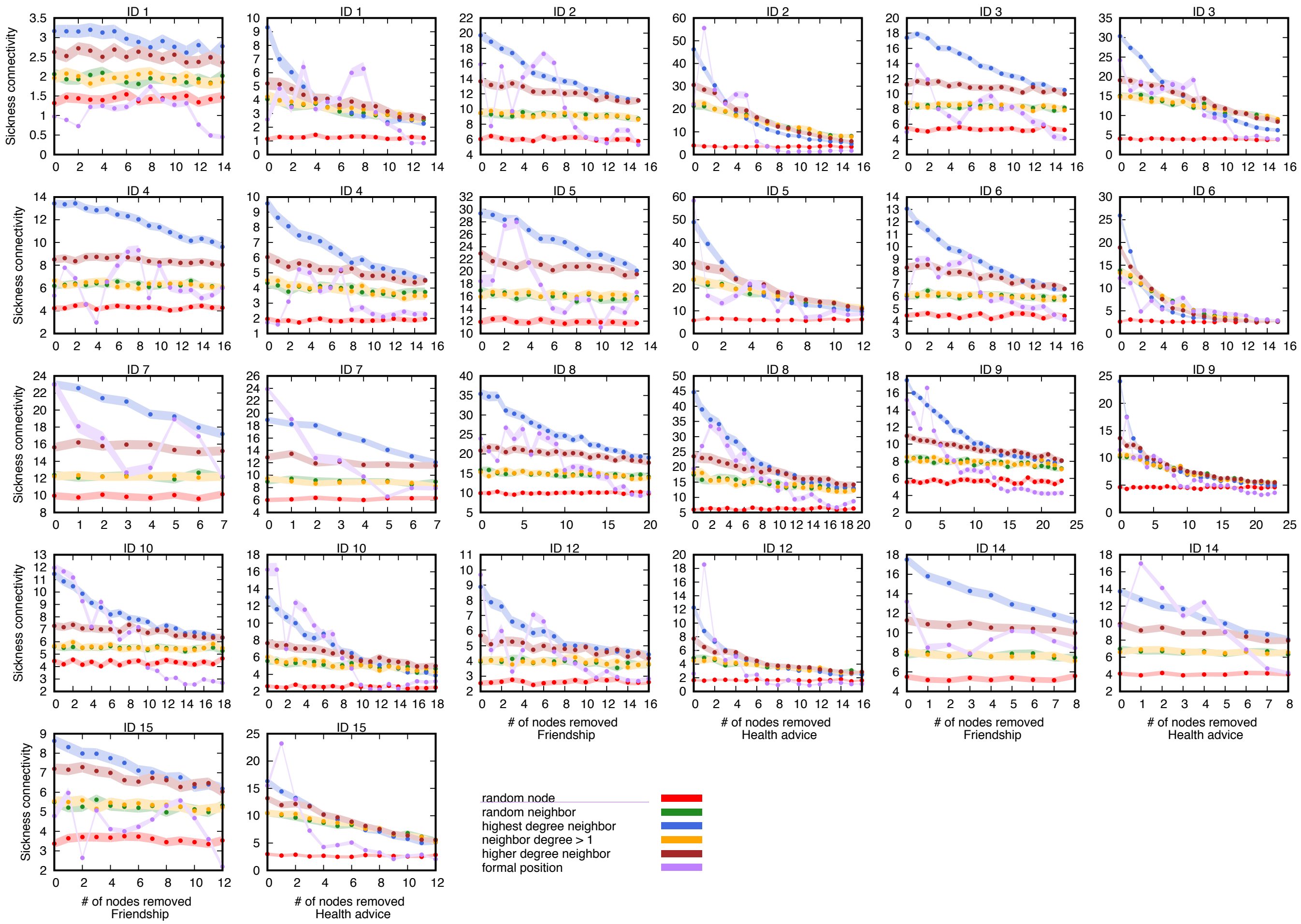

Figure S6: Avg. connectivity to sick people for 13 friendship and health advice networks. Thirteen villages are shown that were not presented in the main text. IDs correspond to project-assigned village IDs. The type of network is labeled accordingly. Sickness connectivity was defined as follows. The number of people in the neighbourhood of a node who reported diarrhea within the three months preceding the sociometric survey was divided by the degree of the node of interest. The average sickness connectivity for each node removed is shown up to the number of formal positions. One thousand iterations were run and line widths represent 95% confidence intervals.

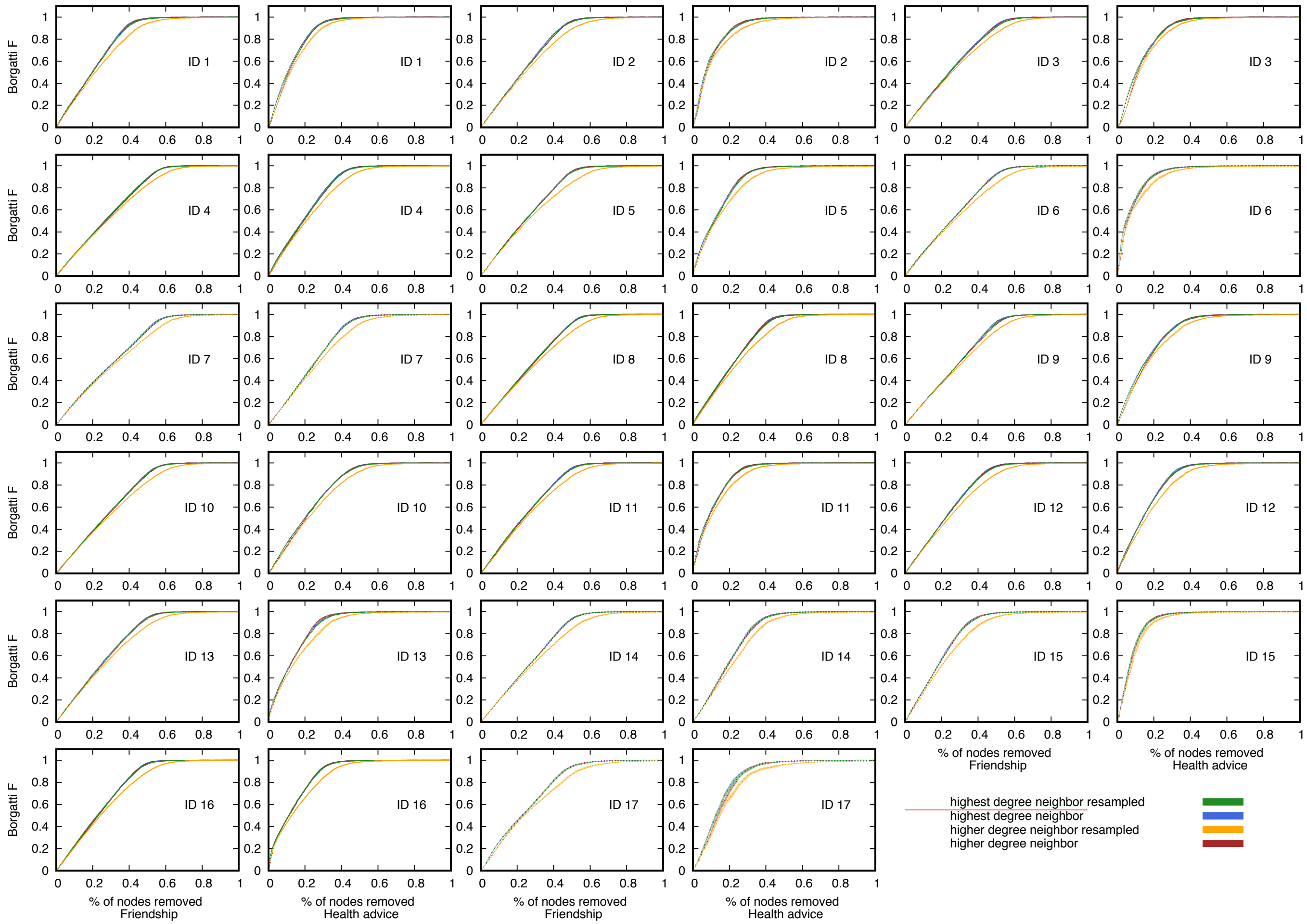

Figure S7: Acquaintance-degree strategy with node replacement. IDs correspond to project-assigned village IDs. The type of network is labeled accordingly. Line widths are greater than the 95% confidence intervals. The acquaintance-degree strategies from main text Figures 2-3 are shown here. In addition, these strategies (green and yellow) were run with one change. If a neighbour was not found, i.e. the node was an isolate, then the node was not removed from the network for the resampled highest degree neighbour strategy. This change made no difference in fragmentation efficiency since Borgatti F accounts for network fragment size. However, degree cutoffs were relaxed for the resampled higher degree neighbour strategy. If a neighbour of higher degree than the initially randomly selected node was not found then the initial node remained in the network and another node was selected until the criteria of having higher degree was met. In this case, the resampled higher degree neighbour strategy performed worse, requiring a greater percentage of nodes to induce fragmentation, than the original higher degree neighbour algorithm.

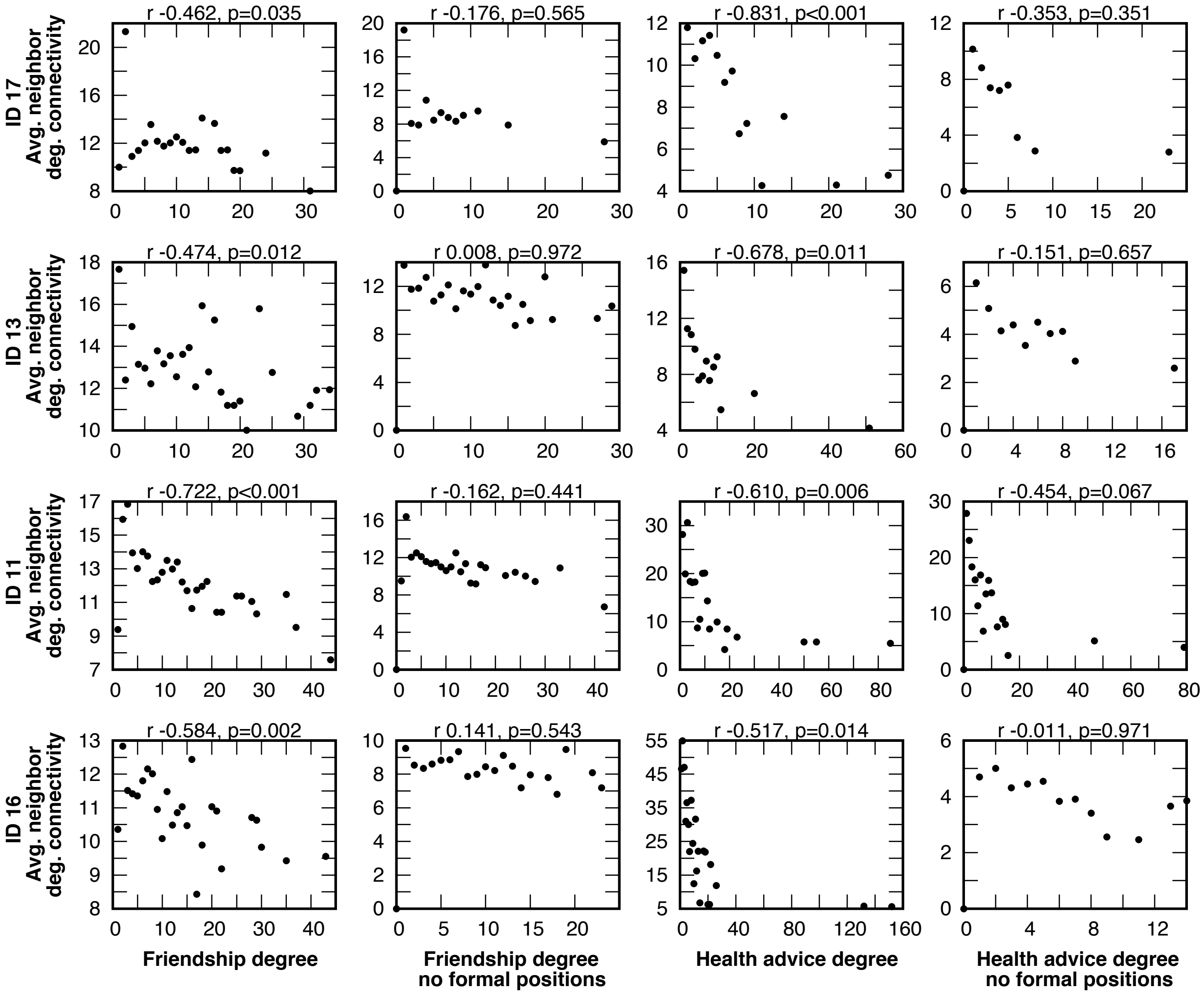

Figure S8: Degree and average neighbour connectivity correlations for 4 main text villages. Four villages are shown that had the fewest, median, 75th percentile, and greatest number of nodes. The remaining villages are shown in Figure S9. IDs correspond to project-assigned village IDs. The type of network is labeled accordingly. The Pearson correlation coefficient r of average neighbor connectivity with degree level is provided above each plot. Two plots per village are shown; one plot presents all nodes in a village and the adjacent plot shows excludes nodes with formal positions.

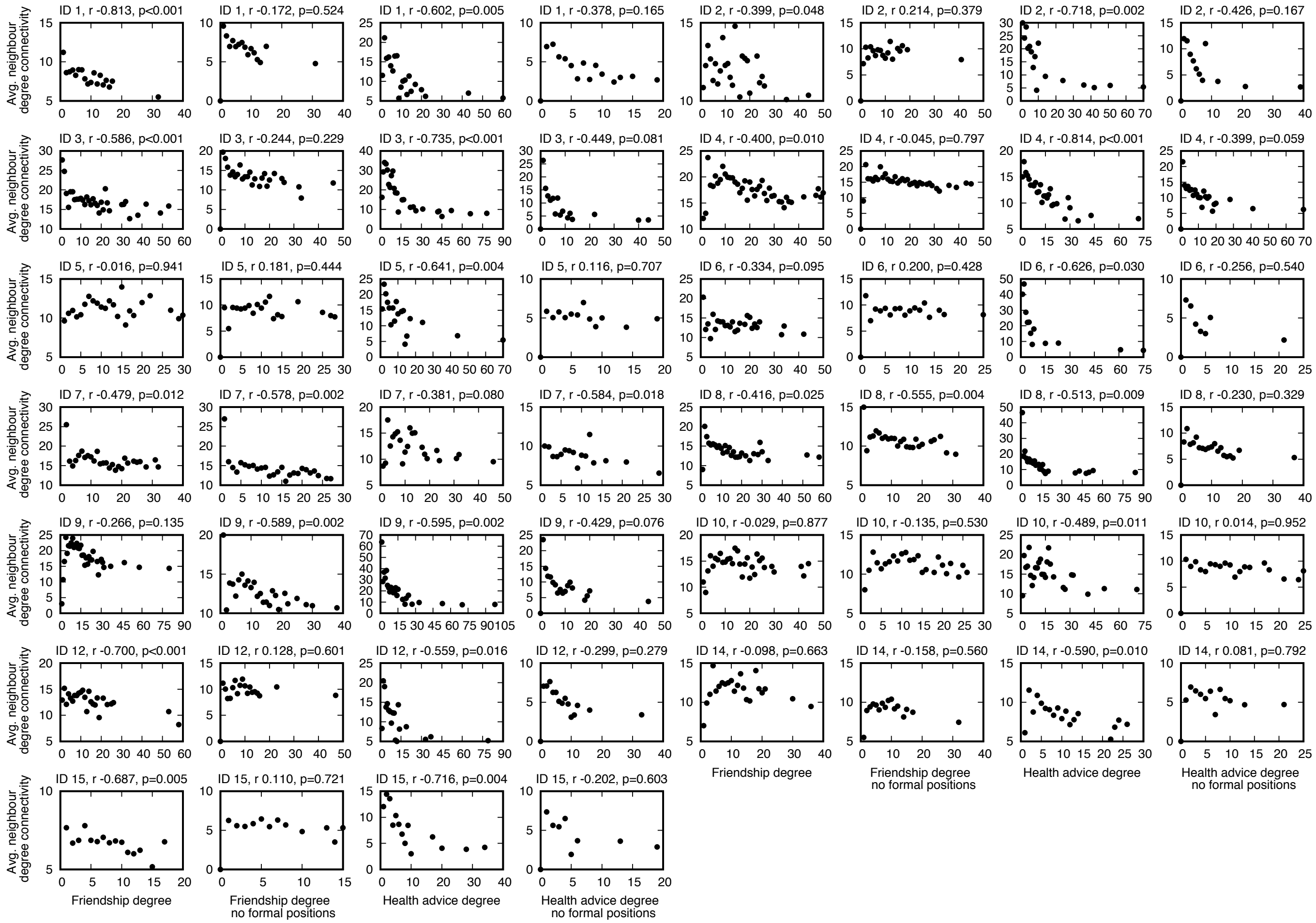

Figure S9: Degree and average neighbour connectivity correlations. Thirteen villages are shown that were not presented in the main text. IDs correspond to project-assigned village IDs. The type of network is labeled accordingly. The Pearson correlation coefficient r of average neighbour connectivity with degree level is provided above each plot. Two plots per village are shown; one plot presents all nodes in a village and the adjacent plot excludes nodes with formal positions.

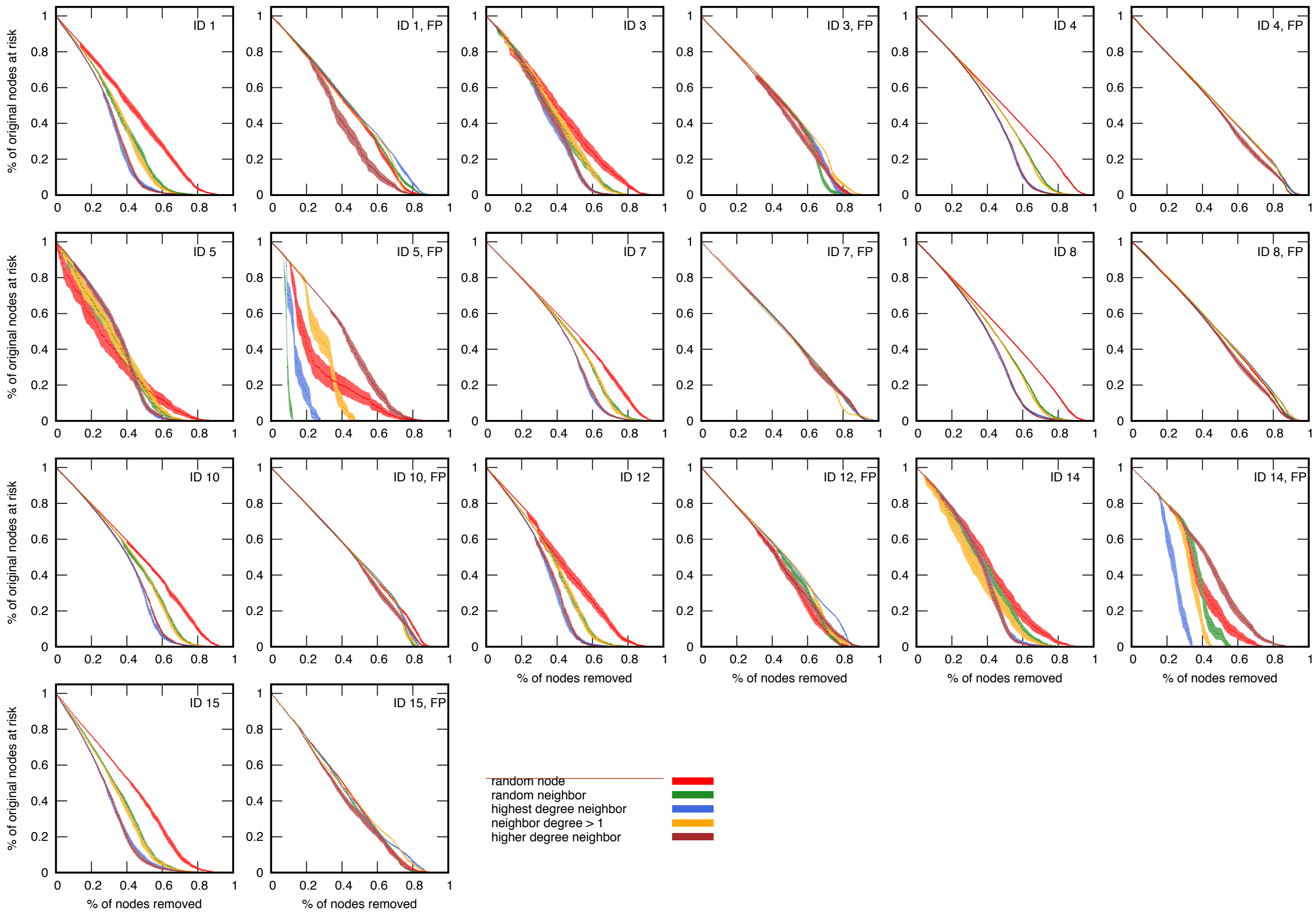

Figure S10: Health outcomes for friendship networks. Ten villages are shown that were not presented in the main text. IDs correspond to project-assigned village IDs. Three villages (IDs 2, 6 and 9) are not presented because there were zero non-complying households. If FP is noted then the formal position strategy was employed; otherwise, acquaintance and acquaintance-degree strategies were used. Line widths represent 95% confidence intervals.

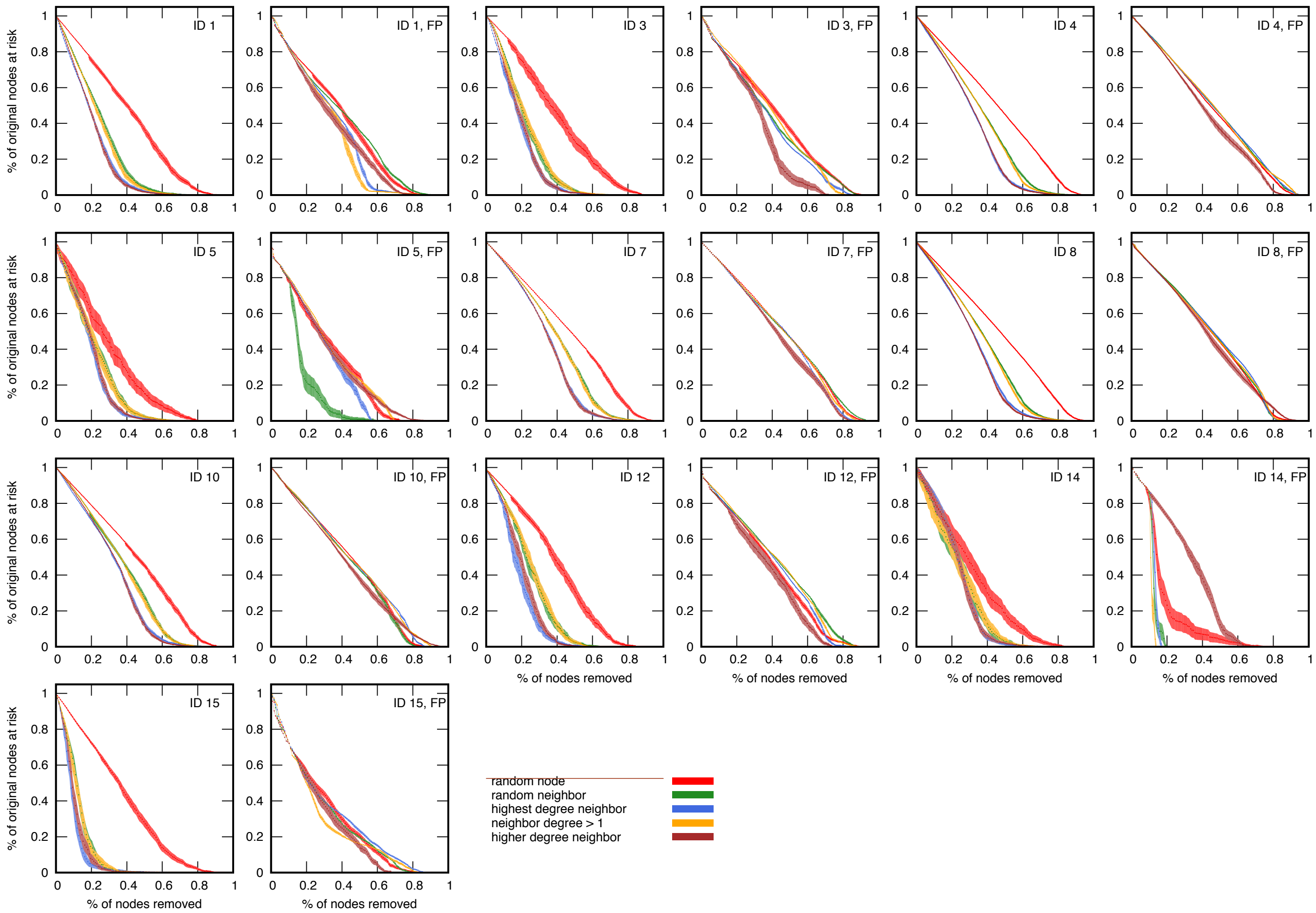

Figure S11: Health outcomes for health advice networks. Ten villages are shown that were not presented in the main text. IDs correspond to project-assigned village IDs. Three villages (IDs 2, 6 and 9) are not presented because there were zero non-complying households. If FP is noted then the formal position strategy was employed; otherwise, acquaintance and acquaintance-degree strategies were used. Line widths represent 95% confidence intervals.

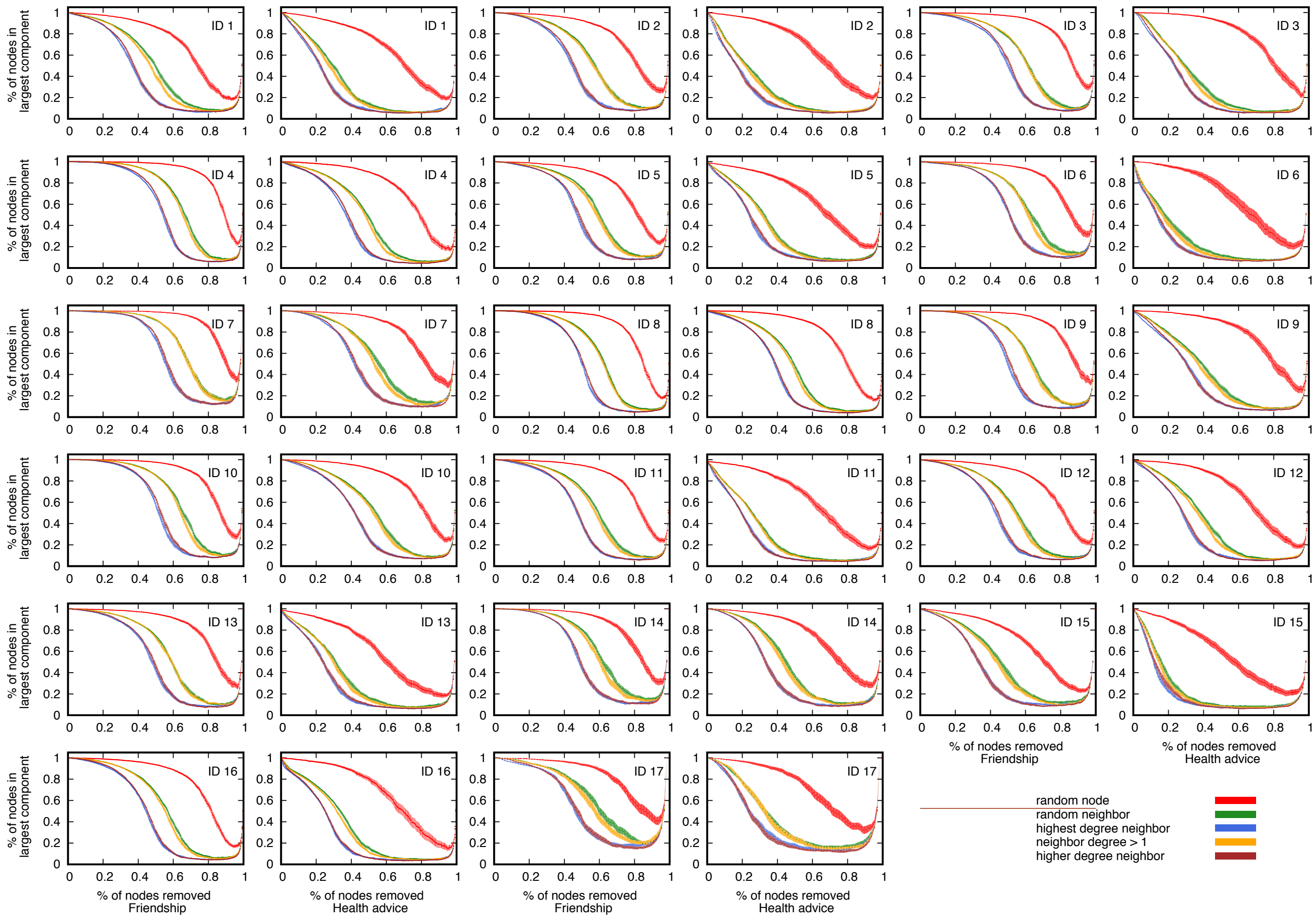

Figure S12: Percentage of nodes remaining in the largest component. IDs correspond to project-assigned village IDs. Line widths represent 95% confidence intervals.

Table S1 Households with formal positions by village and network type

	Friendship networks				*Health advice networks*			
Village ID	**All house-holds in network**	**Health workers[a]**	**Local council members[b]**	**School-teachers**	**All house-holds in network**	**Health workers[a]**	**Local council members[b]**	**School-teachers**
1	202	5	8	2	187	4	8	2
2	181	3	7	6	170	3	7	6
3	192	4	8	4	185	4	8	4
4	320	3	7	7	316	3	6	7
5	184	4	5	5	168	3	5	5
6	139	2	8	6	131	2	8	6
7	121	4	4	0	121	4	4	0
8	369	3	7	11	361	3	6	11
9	178	8	5	11	173	8	5	11
10	207	4	8	7	204	4	8	7
11	250	3	9	4	238	3	9	4
12	229	3	8	6	220	3	8	6
13	183	5	5	2	159	5	4	2
14	124	2	7	0	120	2	7	0
15	120	3	9	1	117	3	9	1
16	372	9	7	10	349	9	7	10
17	65	3	6	3	63	3	6	3

[a] Each village had two community medicine distributors, who were responsible for distributing treatment in mass drug administration. Additional households included individuals with an income-earning occupation as a health worker.
[b] Households with at least one current member of the village government.

Only households in each network (no isolates) are presented. Villages with many schoolteachers (IDs 8-9 & 16) had a private or government primary school located within the village.

Table S2 Two-sample t-tests of degree by formal position

		Friendship networks					***Health advice networks***				
Village ID	**Formal position**	**Obs.**	**Avg. degree**	**Std. err.**	**P-value**	**Min, Max degree**	**Obs.**	**Avg. degree**	**Std. err.**	**P-value**	**Min, Max degree**
1	No	187	5.128	0.266			173	3.809	0.232		
	Yes	15	9.000	1.447	<0.001	1 17	14	15.071	4.575	<0.001	1 61
2	No	165	7.030	0.390			154	3.818	0.324		
	Yes	16	13.500	2.449	<0.001	4 35	16	13.000	5.287	<0.001	1 70
3	No	176	10.256	0.532			169	5.497	0.443		
	Yes	16	19.688	3.355	<0.001	2 49	16	23.063	6.076	<0.001	3 81
4	No	303	12.386	0.436			300	6.357	0.347		
	Yes	17	23.471	3.763	<0.001	5 50	16	12.938	2.459	<0.001	2 35
5	No	170	7.288	0.369			155	3.826	0.247		
	Yes	14	14.357	2.180	<0.001	2 30	13	15.308	5.598	<0.001	3 71
6	No	123	8.244	0.430			115	3.348	0.243		
	Yes	16	15.625	2.666	<0.001	6 42	16	12.063	5.602	<0.001	1 76
7	No	113	12.195	0.569			113	7.265	0.431		
	Yes	8	20.250	3.411	0.001	4 31	8	20.625	5.305	<0.001	3 49
8	No	348	9.011	0.276			341	6.152	0.212		
	Yes	21	17.619	3.715	<0.001	3 58	20	20.300	5.079	<0.001	3 85
9	No	154	11.039	0.560			149	6.067	0.448		
	Yes	24	18.333	3.635	<0.001	5 80	24	14.917	4.816	<0.001	1 100
10	No	188	10.053	0.410			185	7.346	0.371		
	Yes	19	15.474	3.012	0.001	2 44	19	16.474	4.654	<0.001	1 74
11	No	234	8.175	0.373			222	4.104	0.456		
	Yes	16	13.313	1.932	0.001	5 37	16	9.688	3.385	0.004	1 55
12	No	212	7.189	0.369			203	4.394	0.240		
	Yes	17	12.941	3.400	<0.001	1 58	17	11.529	4.778	<0.001	1 82
13	No	171	8.567	0.426			148	3.257	0.203		
	Yes	12	12.750	2.903	0.02	1 32	11	9.091	4.318	<0.001	1 51
14	No	115	7.843	0.454			111	4.901	0.306		
	Yes	9	16.444	2.231	<0.001	6 30	9	14.444	2.858	<0.001	6 27
15	No	107	4.271	0.290			104	2.779	0.271		
	Yes	13	7.000	1.038	0.003	1 15	13	8.385	2.999	<0.001	1 35
16	No	346	6.879	0.226			323	3.895	0.136		
	Yes	26	14.000	2.168	<0.001	3 43	26	18.462	7.374	<0.001	1 154
17	No	53	7.226	0.732			51	4.020	0.584		
	Yes	12	10.917	1.751	0.039	4 20	12	7.917	1.520	0.008	2 21

Table S3 Physical proximity of formal position households compared to all other study households

	Households without formal positions			Households with formal positions			Two-sample t-test
Village ID	Obs.	Avg. haversine distance	std. dev.	Obs.	Avg. haversine distance	std. dev.	p-value
1	163	515.355	180.362	12	529.446	200.170	0.796
2	144	380.467	93.025	13	352.010	97.823	0.294
3	132	356.263	171.640	14	284.678	43.314	0.123
4	182	326.730	99.998	14	404.373	170.759	0.009
5	152	402.551	258.231	13	454.910	306.306	0.490
6	118	509.825	116.780	14	521.274	130.106	0.732
7	104	504.707	149.064	8	554.097	189.096	0.378
8	223	173.203	44.824	17	166.781	45.438	0.570
9	141	642.594	127.276	21	620.337	102.711	0.446
10	121	427.990	130.726	16	370.040	87.781	0.088
11	199	407.881	119.164	16	478.496	183.147	0.031
12	160	476.924	148.940	15	440.300	107.558	0.354
13	146	347.415	115.323	11	427.564	231.407	0.044
14	107	374.883	62.249	9	367.295	101.546	0.740
15	105	616.907	205.948	10	554.271	258.305	0.371
16	237	193.050	35.893	23	176.385	33.067	0.033
17	49	132.012	57.812	12	139.980	71.118	0.684

Amongst all households, 77.94% (2721/3491) had GPS waypoint data available that was matched to the household surveys. GPS waypoints were collected in November 2014. For households with individuals who had formal positions, 12.18% (33/271) did not have GPS waypoint data. The haversine distance in meters ('as the crow flies' distance) was measured between each household and every other household within the village, including those households not necessarily matched to the questionnaires. In Python v2.7, physical proximity was calculated as the average haversine distance of the household of interest to every other home in the village. Formal position households only had significantly closer physical proximity (p-value<0.05) when compared to all other households in one village (ID 16).

Table S4 Degree distributions of study networks compared to random networks

Village ID	Network type	Nodes	Edges	Avg. degree	Std. dev. of degree	Mean std. dev. of degree in an ER network of same size	Std. dev. of std. dev. of degree in an ER network of same size
1	health advice	190	458	4.821	6.097	2.156	0.077
2	health advice	170	419	4.929	7.836	2.175	0.088
3	health advice	185	648	7.005	9.891	2.582	0.136
4	health advice	316	1074	6.797	6.490	2.571	0.080
5	health advice	168	398	4.738	6.710	2.133	0.084
6	health advice	134	303	4.522	8.516	2.075	0.097
7	health advice	121	513	8.479	6.513	2.784	0.258
8	health advice	361	1287	7.130	7.239	2.636	0.075
9	health advice	173	645	7.457	10.425	2.655	0.158
10	health advice	205	840	8.195	7.912	2.791	0.156
11	health advice	240	566	4.717	7.504	2.141	0.060
12	health advice	221	543	4.914	6.429	2.182	0.069
13	health advice	173	345	3.988	4.449	1.962	0.064
14	health advice	120	336	5.600	4.471	2.291	0.145
15	health advice	117	201	3.436	4.666	1.810	0.073
16	health advice	350	915	5.229	10.906	2.263	0.049
17	health advice	63	151	4.794	4.412	2.070	0.196
1	friendship	203	568	5.596	4.032	2.321	0.090
2	friendship	182	707	7.769	5.931	2.712	0.160
3	friendship	192	1076	11.208	8.231	3.231	0.258
4	friendship	320	2115	13.219	8.590	3.549	0.207
5	friendship	184	728	7.913	5.481	2.737	0.163
6	friendship	139	640	9.209	6.182	2.911	0.258
7	friendship	121	788	13.025	6.576	3.379	0.462
8	friendship	369	1781	9.653	6.748	3.058	0.115
9	friendship	178	1080	12.135	9.446	3.343	0.307
10	friendship	207	1105	10.676	6.868	3.166	0.225
11	friendship	250	1075	8.600	5.983	2.870	0.139
12	friendship	229	885	7.729	6.680	2.721	0.129
13	friendship	183	814	8.896	6.013	2.893	0.194
14	friendship	124	538	8.677	5.490	2.817	0.261
15	friendship	120	279	4.650	3.291	2.096	0.111
16	friendship	372	1379	7.414	5.301	2.688	0.077
17	friendship	65	259	7.969	5.547	2.601	0.380

Exact numerical calculations were performed. The standard deviation of the degree in each real-world network is comparable in size to the average degree, and in some cases even larger than it. Such large standard deviations are indicative of heavy-tailed degree distributions in our study networks. The Erdős–Rényi random (ER) networks were calculated with the same number of nodes and edges as the real-world study networks. In the ER networks, the average degree is the same because we are fixing the number of nodes and edges, however the standard deviation is much smaller. The differences between the standard deviations of degree for the study networks and that of the ER networks is much larger than the fluctuations that one may expect from the sampling that gives rise to the ER networks.

Table S5 Average core numbers of nodes with formal positions

	Friendship networks				*Health advice networks*				
Village ID	**Obs.**	**Avg. core number for nodes with formal positions**	**Std. dev.**	**Max core number for all nodes**	**Obs.**	**Avg. core number for nodes with formal positions**	**Std. dev.**	**Max core number for all nodes**	**P-value from paired t-test of avg. core number of nodes with formal position**
1	15	3.467	1.060	4	14	3.357	1.082	4	0.752
2	16	5.125	0.806	6	16	2.688	1.138	4	<0.001
3	16	7.188	1.559	8	16	4.438	0.892	5	<0.001
4	17	8.118	1.409	9	16	4.375	0.885	5	<0.001
5	14	4.786	0.802	5	13	3.462	0.519	4	<0.001
6	16	5.688	0.479	6	16	2.750	0.577	3	<0.001
7	8	7.500	1.414	8	8	4.625	0.744	5	<0.001
8	21	5.619	0.740	6	20	4.350	0.671	5	<0.001
9	24	7.458	0.932	8	24	4.125	1.329	5	<0.001
10	19	6.158	1.385	7	19	4.789	2.149	7	0.001
11	16	5.750	0.577	6	16	2.813	0.834	4	<0.001
12	17	4.706	1.611	6	17	2.706	0.588	3	<0.001
13	12	5.000	1.758	6	11	2.636	1.027	4	<0.001
14	9	5.778	0.441	6	9	3.889	0.333	4	<0.001
15	13	3.231	0.832	4	13	2.231	0.725	3	0.004
16	26	4.731	0.604	5	26	3.192	0.939	4	<0.001
17	12	5.083	1.084	6	12	3.583	0.793	4	<0.001

Table S6 Two-sample t-tests of degree by noncomplying household

		Friendship networks				*Health advice networks*			
Village ID	**Noncomplying household**[a]	**Obs.**	**Avg. degree**	**Std. err.**	**P-value**	**Obs.**	**Avg. degree**	**Std. err.**	**P-value**
1	No	198	5.338	0.277		183	4.596	0.457	
	Yes	4	9.250	1.797	0.0484	4	7.250	2.175	0.3951
2	No	181				170			
	Yes	0				0			
3	No	190	11.011	0.594		183	7.016	0.754	
	Yes	2	14.000	2.000	0.6075	2	7.000	2.000	0.9982
4	No	302	12.772	0.489		298	6.641	0.377	
	Yes	18	16.389	2.044	0.0806	18	7.500	1.023	0.5812
5	No	183	7.842	0.403		167	4.713	0.535	
	Yes	1	5.000			1	5.000		
6	No	139				131			
	Yes	0				0			
7	No	113	12.894	0.615		113	8.274	0.638	
	Yes	8	10.375	2.652	0.299	8	6.375	1.133	0.4351
8	No	344	9.363	0.338		336	6.976	0.382	
	Yes	25	11.400	2.208	0.1421	25	6.400	1.990	0.7012
9	No	178				173			
	Yes	0				0			
10	No	201	10.587	0.482		198	8.303	0.587	
	Yes	6	9.333	2.333	0.6573	6	4.667	0.882	0.2836
11	No	243	8.564	0.384		231	4.498	0.502	
	Yes	7	6.429	1.986	0.3516	7	3.857	0.553	0.8248
12	No	226	7.650	0.437		217	4.982	0.446	
	Yes	3	5.000	1.155	0.4867	3	2.333	0.333	0.4872
13	No	172	8.843	0.454		149	3.738	0.385	
	Yes	11	8.818	2.173	0.9895	10	2.500	0.428	0.4081
14	No	122	8.525	0.496		120	5.622	0.421	
	Yes	2	5.000	4.000	0.3684	1	5.000		
15	No	114	4.561	0.301		111	3.486	0.455	
	Yes	6	4.667	1.202	0.9376	6	1.833	0.307	0.4026
16	No	345	7.339	0.289		324	5.046	0.636	
	Yes	27	7.852	0.789	0.6283	25	4.120	0.343	0.6865
17	No	57	7.596	0.718		55	4.636	0.653	
	Yes	8	10.125	2.416	0.2356	8	5.625	0.962	0.5759

[a] In total, there were 129 noncomplying households. Three villages (IDs 2, 6, & 9) did not have any noncompliance attributable to adverse drug effects. In the other 14 villages, noncompliance widely varied (Avg. 9.214, std. dev. 8.541). Village IDs 5 & 14 only had one noncomplying household.

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