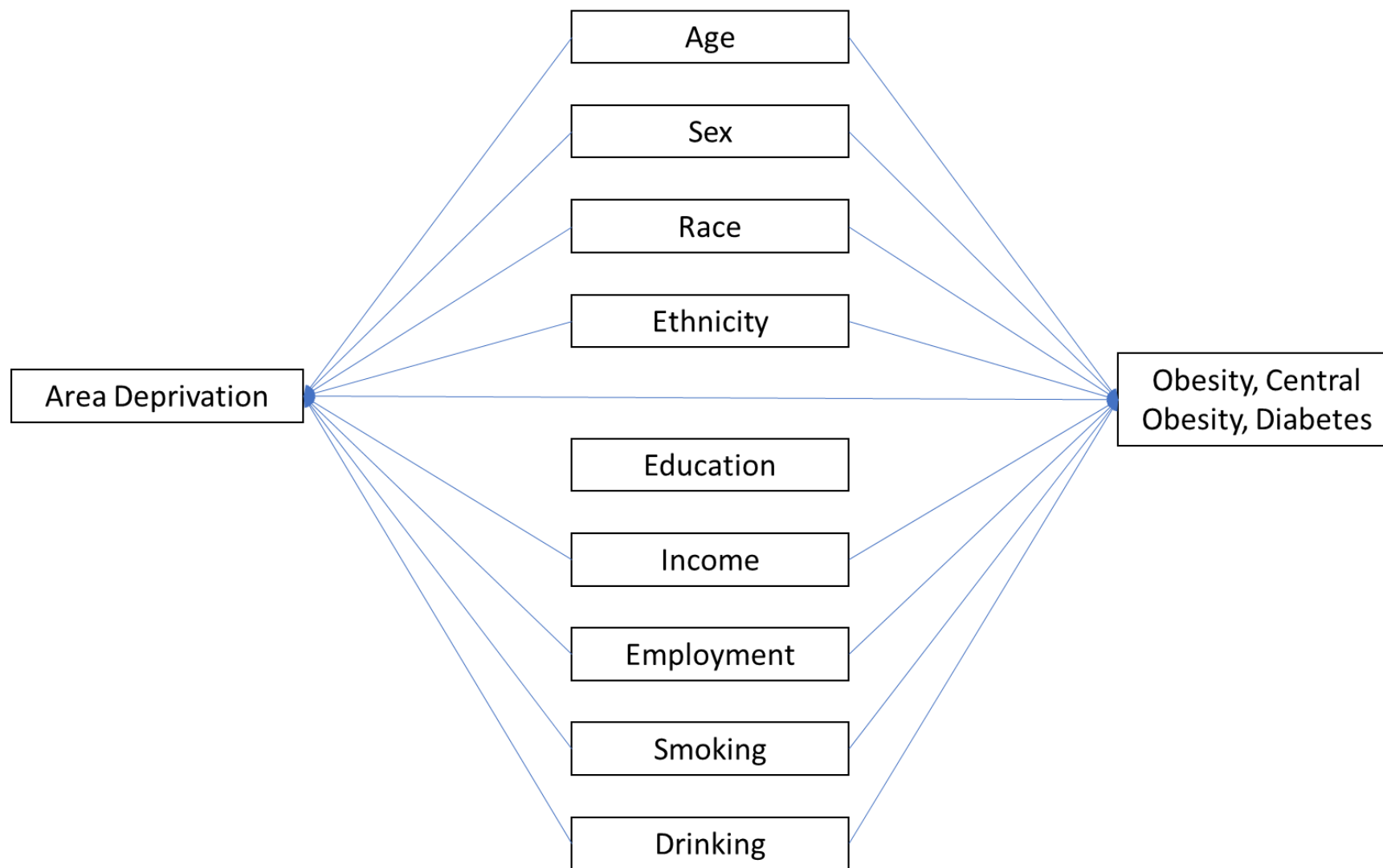


Neighborhood Deprivation, Obesity and Diabetes in Gulf Residents

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Web Figure 1: Directed Acyclic Graph, GuLF Study



Web Table 1: Sociodemographic characteristics of the home visit and clinic exam analytic samples, GuLF Study

Characteristic	Home Visit (n=9,626)	Clinic Exam (n=3,016)
	No. (%)	
Age, Years	44 (13) ^a	49 (13) ^a
Area Deprivation Index (Scale: 0 to 100)	64 (22) ^a	65 (21) ^a
Sex		
Male	7502 (78)	2300 (76)
Female	2124 (22)	716 (24)
Race		
White	5296 (55)	1559 (52)
Black	3337 (35)	1196 (40)
Other	993 (10)	261 (9)
Ethnicity		
Hispanic	577 (6)	71 (2)
Non-Hispanic	9049 (94)	2945 (98)
Smoking Status		
Heavy current smoker	1212 (13)	327 (11)
Light current smoker	2305 (24)	657 (22)
Former smoker	2023 (21)	693 (23)
Never smoker	4086 (42)	1339 (44)
Drinking Status		
Current drinker	6878 (71)	2148 (71)
Former drinker	2058 (21)	652 (22)
Never drinker	690 (7)	216 (7)
Education		
<High School/Equivalent	1990 (21)	629 (21)
High school diploma/GED	3270 (34)	1050 (35)
Some college/2-year degree	2922 (30)	902 (30)
≥4 year college graduate	1444 (15)	435 (14)
Employment		
Working now	5205 (54)	1583 (52)
Looking for work/unemployed	2614 (27)	822 (27)
Other	1807 (19)	611 (20)
Household Income		
< \$20,000	3823 (40)	1185 (39)
\$20,000-\$49,000	3205 (33)	1004 (33)

≥ \$50,000	2598 (27)	827 (27)
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GED: General Education Development test

^aValues are expressed as mean (standard deviation)

Web Table 2. Associations of Neighborhood Deprivation with Obesity and Diabetes at the Clinic Exam, GuLF Study (2014-2016) (N=3,016)^a

	Level 1/2 (1-49, N=811)		Level 3 (50-74, N=1,034)		Level 4 (75-100, N=1,171)	
	aPR	95% CI	aPR	95% CI	aPR	95% CI
Diabetes vs. normal ^b	1.00	Reference	1.46	1.12, 1.88	1.37	1.03, 1.82

aPR: adjusted Prevalence Ratio, CI: Confidence Interval

^aModels adjusted for age at clinic exam, sex, race, ethnicity, smoking status, drinking, education, income and employment.

^bHome visit definition of diabetes: previous provider diagnoses or reported use of medications for diabetes

Web Table 3. Associations of Neighborhood Deprivation with Obesity and Diabetes at the Home Visit, Within-Sample Quartiles, GuLF Study (2011-2013) (N=9,626)^a

	Quartile 1 (N=2,344)		Quartile 2 (N=2,418)		Quartile 3 (N=2,519)		Quartile 4 (N=2,345)	
	aPR	95% CI	aPR	95% CI	aPR	95% CI	aPR	95% CI
Body Mass Index Status								
Overweight/Obese vs. Normal	1.00	Reference	1.03	1.00, 1.06	1.03	1.00, 1.07	1.00	0.97, 1.04
Obese vs. Normal	1.00	Reference	1.07	1.02, 1.13	1.08	1.02, 1.14	1.04	0.98, 1.11
Central Obesity								
Waist-to-hip ratio of > 0.85 for women, > 0.90 for men vs. normal	1.00	Reference	1.04	1.00, 1.07	1.04	1.00, 1.07	1.03	0.99, 1.07
Self-Reported Diabetes Diagnosis								
Yes vs. No	1.00	Reference	1.13	0.95, 1.36	1.20	1.00, 1.43	1.17	0.96, 1.42

aPR: adjusted Prevalence Ratio, CI: Confidence Interval

^aModels adjusted for age at home visit, sex, race, ethnicity, smoking status, drinking, education, income and employment. Quartiles were determined by the distribution of participants in our analytic sample.

Web Table 4. Associations of Neighborhood Deprivation with Obesity and Diabetes at the Clinic Exam, Within-Sample Quartiles, GuLF Study (2014-2016) (N=3,016)^a

	Quartile 1 (N=757)		Quartile 2 (N=736)		Quartile 3 (N=800)		Quartile 4 (N=723)	
	aPR	95% CI	aPR	95% CI	aPR	95% CI	aPR	95% CI
Obesity								
Overweight/Obese vs. Normal	1.00	Reference	1.00	0.95, 1.05	0.99	0.94, 1.04	0.98	0.92, 1.04
Obese vs. Normal	1.00	Reference	1.00	0.93, 1.09	1.01	0.94, 1.09	0.98	0.90, 1.07
Central Obesity								
Waist-to-hip ratio of > 0.85 for women, > 0.90 for men vs. normal	1.00	Reference	1.04	0.99, 1.10	1.01	0.96, 1.07	1.02	0.95, 1.09
Diabetes								
Prediabetes/Diabetes vs. normal	1.00	Reference	1.17	1.01, 1.36	1.30	1.12, 1.50	1.17	1.00, 1.36
Diabetes vs. normal	1.00	Reference	1.47	1.11, 1.94	1.64	1.27, 2.11	1.47	1.11, 1.94

aPR: adjusted Prevalence Ratio, CI: Confidence Interval

^aModels adjusted for age at clinic exam, sex, race, ethnicity, smoking status, drinking, education, income and employment. Quartiles were determined by the distribution of participants in our analytic sample.

Web Table 5. Associations of Neighborhood Deprivation with Obesity and Diabetes at the Home Visit, Race-Stratified, GuLF Study (2011-2013)^a

White (N=5,296)	Level 1 (1-24, N=378)		Level 2 (25-49, N=1,608)		Level 3 (50-74, N=2,061)		Level 4 (75-100, N=1,249)	
	aPR	95% CI	aPR	95% CI	aPR	95% CI	aPR	95% CI
Body Mass Index Status								
Overweight/Obese vs. Normal	1.00	Reference	1.06	0.99, 1.13	1.08	1.02, 1.16	1.07	1.00, 1.15
Obese vs. Normal	1.00	Reference	1.11	0.99, 1.25	1.17	1.04, 1.31	1.17	1.04, 1.33
Central Obesity								
Waist-to-hip ratio of > 0.85 for women, > 0.90 for men vs. normal	1.00	Reference	1.04	0.98, 1.11	1.07	1.01, 1.15	1.11	1.03, 1.18
Self-Reported Diabetes Diagnosis								
Yes vs. No	1.00	Reference	1.34	0.90, 2.00	1.58	1.06, 2.35	1.60	1.06, 2.41
Black (N=3,337)	Level 1 (1-24, N=28)		Level 2 (25-49, N=344)		Level 3 (50-74, N=932)		Level 4 (75-100, N=2,033)	
	aPR	95% CI	aPR	95% CI	aPR	95% CI	aPR	95% CI
Body Mass Index Status								
Overweight/Obese vs. Normal	1.00	Reference	1.57	1.14, 2.17	1.55	1.12, 2.14	1.48	1.07, 2.04
Obese vs. Normal	1.00	Reference	1.69	1.09, 2.62	1.68	1.09, 2.59	1.59	1.03, 2.44
Central Obesity								
Waist-to-hip ratio of > 0.85 for women, > 0.90 for men vs. normal	1.00	Reference	1.34	0.94, 1.92	1.34	0.94, 1.90	1.33	0.94, 1.89
Self-Reported Diabetes Diagnosis								
Yes vs. No	1.00	Reference	0.76	0.30, 1.93	0.68	0.27, 1.68	0.65	0.26, 1.60

aPR: adjusted Prevalence Ratio, CI: Confidence Interval

^aModels adjusted for age at home visit, sex, ethnicity, smoking status, drinking, education, income and employment.

Web Table 6. Associations of Neighborhood Deprivation with Obesity and Diabetes at the Home Visit^a, Race-Stratified, Within-Sample Quartiles, GuLF Study (2011-2013)^b

White (N=5,296)	Quartile 1 (N=1,787)		Quartile 2 (N=1,572)		Quartile 3 (N=1,282)		Quartile 4 (N=655)	
	aPR	95% CI	aPR	95% CI	aPR	95% CI	aPR	95% CI
Body Mass Index Status								
Overweight/Obese vs. Normal	1.00	Reference	1.03	0.99, 1.07	1.04	1.00, 1.09	1.01	0.96, 1.07
Obese vs. Normal	1.00	Reference	1.06	1.00, 1.14	1.10	1.03, 1.18	1.06	0.97, 1.16
Central Obesity								
Waist-to-hip ratio of > 0.85 for women, > 0.90 for men vs. normal	1.00	Reference	1.03	1.00, 1.07	1.04	1.00, 1.08	1.06	1.01, 1.11
Self-Reported Diabetes Diagnosis								
Yes vs. No	1.00	Reference	1.16	0.94, 1.44	1.27	1.02, 1.59	1.25	0.94, 1.64
Black (N=3,337)	Quartile 1 (N=332)		Quartile 2 (N=547)		Quartile 3 (N=983)		Quartile 4 (N=1,475)	
	aPR	95% CI	aPR	95% CI	aPR	95% CI	aPR	95% CI
Body Mass Index Status								
Overweight/Obese vs. Normal	1.00	Reference	1.03	0.96, 1.11	1.00	0.91, 1.04	0.97	0.91, 1.04
Obese vs. Normal	1.00	Reference	1.07	0.96, 1.19	1.00	0.91, 1.11	0.98	0.89, 1.08
Central Obesity								
Waist-to-hip ratio of > 0.85 for women, > 0.90 for men vs. normal	1.00	Reference	1.04	0.94, 1.14	1.00	0.91, 1.09	1.00	0.92, 1.09
Self-Reported Diabetes Diagnosis								
Yes vs. No	1.00	Reference	0.91	0.63, 1.32	0.81	0.57, 1.15	0.92	0.66, 1.27

aPR: adjusted Prevalence Ratio, CI: Confidence Interval

^aModels adjusted for age at home visit, sex, ethnicity, smoking status, drinking, education, income and employment.

^bQuartiles were created per our overall sample distribution, prior to stratification by race, and the lowest (least deprived) quartile served as the referent

Web Table 7. Associations of Neighborhood Deprivation with Obesity and Diabetes at the Home Visit, Imputed Dataset, GuLF Study (2011-2013) (N=11,193)^a

	Level 1 (1-24, N=439)		Level 2 (25-49, N=2,177)		Level 3 (50-74, N=3,390)		Level 4 (75-100, N=3,620)	
	aPR	95% CI	aPR	95% CI	aPR	95% CI	aPR	95% CI
Body Mass Index Status								
Overweight/Obese vs. Normal	1.00	Reference	1.08	1.02, 1.15	1.10	1.04, 1.17	1.07	1.01, 1.14
Obese vs. Normal	1.00	Reference	1.15	1.04, 1.27	1.20	1.09, 1.33	1.16	1.05, 1.29
Central Obesity								
Waist-to-hip ratio of > 0.85 for women, > 0.90 for men vs. normal	1.00	Reference	1.09	1.02, 1.16	1.11	1.05, 1.18	1.12	1.05, 1.19
Self-Reported Diabetes Diagnosis								
Yes vs. No	1.00	Reference	1.28	0.92, 1.80	1.52	1.10, 2.11	1.40	1.00, 1.95

aPR: adjusted Prevalence Ratio, CI: Confidence Interval

^aModels adjusted for age at home visit, sex, race, ethnicity, smoking status, drinking, education, income and employment.

Web Table 8. Associations of Neighborhood Deprivation with Obesity and Diabetes at the Clinic Exam, Imputed Dataset, GuLF Study (2014-2016)(N=3,401)^a

	Level 1/2 (1-49)		Level 3 (50-74)		Level 4 (75-100)	
	aPR	95% CI	aPR	95% CI	aPR	95% CI
Body Mass Index Status						
Overweight/Obese vs. Normal	1.00	Reference	1.00	0.96, 1.04	0.98	0.93, 1.03
Obese vs. Normal	1.00	Reference	1.01	0.94, 1.08	0.98	0.91, 1.05
Central Obesity						
Waist-to-hip ratio of > 0.85 for women, > 0.90 for men vs. normal	1.00	Reference	1.02	0.97, 1.07	1.01	0.96, 1.06
Diabetes						
Prediabetes/Diabetes vs. normal	1.00	Reference	1.18	1.04, 1.34	1.15	1.01, 1.31
Diabetes vs. normal	1.00	Reference	1.44	1.16, 1.79	1.44	1.15, 1.82

aPR: adjusted Prevalence Ratio, CI: Confidence Interval

^aModels adjusted for age at clinic exam, sex, race, ethnicity, smoking status, drinking, education, income and employment.

Web Table 9. Associations of Neighborhood Deprivation with Obesity and Diabetes at the Home Visit, GuLF Study (2011-2013) (N=9,626)^a

	aPR	Level 1 (1-24, N=439)	Level 2 (25-49, N=2,177)	Level 3 (50-74, N=3,390)	Level 4 (75-100, N=3,620)			
		95% CI	aPR	95% CI	aPR	95% CI	aPR	95% CI
Body Mass Index Status								
Overweight/Obese vs. Normal	1.00	Reference	1.08	1.01, 1.15	1.09	1.02, 1.16	1.07	1.01, 1.14
Obese vs. Normal	1.00	Reference	1.14	1.02, 1.28	1.19	1.07, 1.33	1.19	1.07, 1.33
Central Obesity								
Waist-to-hip ratio of > 0.85 for women, > 0.90 for men vs. normal	1.00	Reference	1.08	1.01, 1.15	1.10	1.04, 1.17	1.09	1.02, 1.16
Self-Reported Diabetes Diagnosis								
Yes vs. No	1.00	Reference	1.48	1.03, 2.12	1.82	1.28, 2.58	1.85	1.30, 2.63

aPR: adjusted Prevalence Ratio, CI: Confidence Interval

^aAdjusted only for age at home visit

Web Table 10. Associations of Neighborhood Deprivation with Obesity and Diabetes at the Home Visit, GuLF Study (2011-2013) (N=9,626)^a

	Level 1 (1-24, N=439)		Level 2 (25-49, N=2,177)		Level 3 (50-74, N=3,390)		Level 4 (75-100, N=3,620)	
	aPR	95% CI	aPR	95% CI	aPR	95% CI	aPR	95% CI
Body Mass Index Status								
Overweight/Obese vs. Normal	1.00	Reference	1.10	1.03, 1.17	1.12	1.05, 1.19	1.09	1.02, 1.16
Obese vs. Normal	1.00	Reference	1.17	1.05, 1.31	1.23	1.10, 1.37	1.20	1.08, 1.34
Central Obesity								
Waist-to-hip ratio of > 0.85 for women, > 0.90 for men vs. normal	1.00	Reference	1.07	1.00, 1.14	1.09	1.03, 1.16	1.11	1.04, 1.18
Self-Reported Diabetes Diagnosis								
Yes vs. No	1.00	Reference	1.40	0.98, 2.02	1.60	1.12, 2.30	1.53	1.06, 2.20

aPR: adjusted Prevalence Ratio, CI: Confidence Interval

^aModel adjusted for age at home visit, sex, race, ethnicity, smoking status, drinking, education, income, employment, and maximum total hydrocarbon exposure

Web Table 11. Associations of Neighborhood Deprivation with Incident Obesity and Diabetes at the Clinic Exam, GuLF Study (2014-2016) (N=3,016)^a

	No. Positive	Area Deprivation Index Level					
		Level 1/2 (1-49, N=811)		Level 3 (50-74, N=1,034)		Level 4 (75-100, N=1,171)	
		OR	95% CI	OR	95% CI	OR	95% CI
Obesity							
Overweight/Obese vs. Normal	253	1.00	Reference	0.79	0.60, 1.05	0.93	0.68, 1.26
Obese vs. Normal/Overweight	218	1.00	Reference	1.02	0.75, 1.38	1.07	0.77, 1.49
Central Obesity							
Waist-to-hip ratio of > 0.85 for women, > 0.90 for men vs. normal	310	1.00	Reference	1.07	0.86, 1.34	1.03	0.80, 1.31
Diabetes							
Diabetes vs. normal ^b	69	1.00	Reference	2.05	1.03, 4.07	1.78	0.83, 3.81

aPR: adjusted Prevalence Ratio, CI: Confidence Interval

^aAdjusted for age at clinic exam, sex, race, ethnicity, smoking status, drinking, education, income and employment

^bHome Visit definition: provider diagnoses of diabetes or use of diabetes medication