Supplementary Online Content

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. County Adult Obesity Rates for Assigned Installations of M-TEENS Sample

County name, State	County Adult Obesity Rate (%)
Anne Arundel, MD	28
Bell, TX	29
Bexar, TX	29
Burlington, NJ	28
Chattahoochee, GA	32
Christian, KY	32
Clark, NV	26
Cochise, AZ	25
Comanche, OK	35
Cumberland, NC	34
Dale, AL	36
El Paso, CO	21
El Paso, TX	24
Fairfax, VA	24
Frederick, MD	27
Geary, KS	30
Greene, OH	30
Hardin, KY	31
Honolulu, HI	22
Jefferson, NY	32
Leavenworth, KS	32
Liberty, GA	33
Madison, AL	30
Maricopa, AZ	23
Newport News City, VA	34
Orange, NY	26
Pierce, WA	31
Prince George, VA	36
Pulaski, MS	34
Richland, SC	31
Richmond, GA	33
Rock Island, IL	27
Santa Rosa, FL	28
Vernon, LA	38
Yuma, AZ	31
Notes: Range: 21%-38%; Mean=30%; Median=30%. For installations that straddled multiple counties, the obesity rate in the county with the largest population share was used. Also, for installation counties where respondents participated in both 2013 and 2014, obesity rates from the year with the larger sample are reported above.	

The 2013 RWJ County Health Rankings data were merged to those MTEENS families who responded in 2013 and the 2014 RWJ County Health Rankings data for those who responded in 2014. The county obesity rate estimates in the RWJ County Health Rankings were computed by CDC using data from CDC's Behavioral Risk Factor Surveillance System (BRFSS) and from the US Census Bureau's Population Estimates Program. Three years of data were used to improve the precision of the year-specific county-level estimates of obesity. The obesity estimates are lagged in the RWJ data: the 2013 (2014) county obesity estimates are based on 2008-2010 (2009-2011) BRFSS and Census data. The table below shows the distribution of obesity rates for the installation counties where our sample was assigned.

The BRFSS is an ongoing, monthly, state-based telephone survey of the adult population aged 18 years or older that provides state-specific information on behavioral risk factors and preventive health practices.[6] Respondents were considered to be obese if their body mass index was 30 or greater. Body mass index (weight [kg]/height $[m]^2$) was derived from self-report of height and weight. Estimates were restricted to adults aged 20 years or older to be consistent with the population estimates from the US Census Bureau.[6]

eTable 2. Comparison of Observed Characteristics of Measured and Unmeasured Sample

Variables	Not Measured (1)	Measured (2)	p-value of difference (1)-(2)
Child is Female	0.497	0.453	
Child's zBMI (self-report)	0.221	0.214	
Child overweight or obese (self-report)	0.262	0.240	
Child obese (self-report)	0.0880	0.0900	
Child's zBMI (parent-report)	0.218	0.198	
Child overweight or obese (parent -report)	0.256	0.247	
Child obese (parent -report)	0.0940	0.0970	
Responding parent's BMI (self-report)	27.76	27.88	
Responding parent overweight or obese (self-report)	0.763	0.723	
Responding parent obese (self-report)	0.258	0.283	
Child's Race-Ethnicity			
White	0.381	0.429	
Black	0.223	0.209	
Hispanic	0.249	0.238	
Other	0.146	0.124	
Military Parent's Rank			
E4 or less	0.101	0.138	
E5	0.185	0.183	
E6	0.309	0.310	
E7	0.282	0.269	
E8 or higher	0.123	0.101	
Highest Education Level of Parents			
HS Diploma/GED or less	0.0620	0.0710	
Trade school or some college	0.391	0.323	
2-year degree	0.272	0.285	
4-year degree or higher	0.275	0.321	
Annual Household Income			
$40,000 or less	0.209	0.211	P<0.05
$40,001 to $50,000	0.177	0.247	
$50,001 - $85,000	0.492	0.445	
$85,001 or more	0.122	0.0970	
Family lives on-installation	0.397	0.535	P<0.01

Notes: Blank cells in last column indicate no statistically significant differences between columns (1) and (2).

eTable 3. Comparison of Family Characteristics across High versus Low Obesity Counties

Variables	County Adult Obesity Rate<=30% (N=475) (1)	County Adult Obesity Rate>30% (N=839) (2)	(1)-(2)
Child is girl	0.50	0.46	
Child's age (months)	161.90	162.00	
Child's Race-Ethnicity			
White	0.39	0.41	
Black	0.18	0.24	P<0.05
Hispanic	0.31	0.20	P<0.01
Other	0.12	0.15	
Responding parent is mother	0.41	0.45	
Responding parent's age (years)	36.78	36.40	
Responding parent is in military	0.75	0.73	
Parent married	0.90	0.89	
Military Parent's Rank			
E4 or less	0.12	0.11	
E5	0.20	0.17	
E6	0.31	0.32	
E7	0.26	0.29	
E8 or higher	0.12	0.12	
Highest Education Level of Parents			
HS Diploma/GED or less	0.06	0.06	
Trade school or some college	0.36	0.36	
2-year degree	0.29	0.28	
4-year degree or higher	0.29	0.30	
Annual Household Income			
$40,000 or less	0.22	0.20	
$40,001 to $50,000	0.22	0.19	
$50,001 - $85,000	0.49	0.48	
$85,001 or more	0.07	0.13	P<0.01
Family's Time as Installation			
<=12 months	0.11	0.11	
13-24 months	0.23	0.29	P<0.05
25-48 months	0.46	0.38	P<0.01
>48 months	0.21	0.22	
Number of Children in Household			
1 child	0.14	0.12	
2 children	0.32	0.35	
3 or more children	0.54	0.53	
Family lives on-installation	0.39	0.47	P<0.01

Notes: last column reports p-values for tests of difference in proportions (or means) between columns 1 and 2. Blanks indicate no statistically significant differences.

eTable 4. Falsification Test: Association between County Obesity Rate and Parent's and Child's Height

Height	Coeff	95% CI	N
Parent height (inches)	-0.012	(-0.061 - 0.037)	1,322
Child height (inches, self-reported)	0.005	(-0.048 - 0.059)	1,125
Child height (inches, parent-reported)	-0.011	(-0.050 - 0.029)	1,300
Child height (measured)	0.004	(-0.064 - 0.071)	462
Notes: Estimates are from linear regression models that control for installation county obesity rate; respondent's age, gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Other); parent's marital status, highest education level among child's parents (High school or less; trade, technical or some college; Associate degree or equivalent; 4 year college or higher), military parent's rank (Corporal/Specialist or lower; Sergeant; Staff Sergeant; Sergeant First Class; Master Sergeant/First Sergeant or higher); household income (<=$40,000; $40,001-$50,000; $50,001-$85,000; $85,001 or higher), number of children in the household (1, 2 and 3 or more), on-installation residence, and months at current installation (<=12, 13-24, 25-48 and >=49). Reference Categories: Male, White non-Hispanic, living off-installation, non-military parent respondent, unmarried, rank Corporal/Specialist or less, less than high school degree, household income<=40,000, one child in household, and at current installation <=12 months.			

eTable 5. Comparison of Family Characteristics by On-Installation and Off-Installation Residence Status

Variables	Off-Installation (1)	On-Installation (2)	p-value of difference (1)-(2)
Child is female	0.476	0.493	
Child's Race-Ethnicity			
White	0.388	0.410	
Black	0.215	0.215	
Hispanic	0.254	0.236	
Other	0.142	0.139	
Child's zBMI (self-report)	0.287	0.245	
Child overweight or obese (self-report)	0.271	0.239	
Child obese (self-report)	0.100	0.0780	
Child's zBMI (parent-report)	0.201	0.266	
Child overweight or obese (parent -report)	0.244	0.262	
Child obese (parent -report)	0.0940	0.0980	
Responding parent's BMI (self-report)	27.80	27.82	
Responding parent overweight or obese (self-report)	0.760	0.736	
Responding parent obese (self-report)	0.264	0.273	
Responding parent is mother	0.439	0.460	
Responding parent's age (years)	37.03	36.06	p<0.01
Responding parent is in military	0.748	0.682	p<0.01
Responding parent is married	0.878	0.920	p<0.01
Military Parent's Rank			p<0.01
E4 or less	0.0750	0.161	
E5	0.132	0.246	
E6	0.316	0.303	
E7	0.331	0.212	
E8 or higher	0.146	0.0790	
Highest Education Level of Parents			p<0.01
HS Diploma/GED or less	0.0520	0.0810	
Trade school or some college	0.338	0.398	
2-year degree	0.288	0.267	
4-year degree or higher	0.322	0.254	
Annual Household Income			p<0.01
$40,000 or less	0.141	0.295	
$40,001 to $50,000	0.172	0.239	
$50,001 to $85,000	0.530	0.407	
$85,001 or more	0.157	0.0590	
Family's Time at Installation			p<0.01
<=12 months	0.110	0.0980	
13-24 months	0.227	0.331	
25-48 months	0.404	0.395	
>48 months	0.259	0.176	
Number of Children in Household			p<0.01
1 child	0.157	0.100	
2 children	0.351	0.312	
3 or more children	0.492	0.588	

Notes: Blank cells in last column indicate no statistically significant differences between columns (1) and (2).

eTable 6. Estimated Association Between County Obesity Rate and Parent and Child Outcomes Using Multiple Imputation for Missing Covariates

Dependent Variable		Estimate	95% CI
Parent Outcomes (self-reports) n=1429			
BMI	*beta coeff*	0.07**	(0.01 - 0.13)
Overweight or obese	*AOR*	1.00	(0.98 - 1.03)
Obese	*AOR*	1.04***	(1.02 - 1.06)
Child Outcomes (self-reports) n=1227			
BMI z-score	*beta coeff*	0.01***	(0.01 - 0.02)
Overweight or obese	*AOR*	1.02*	(1.00 - 1.05)
Obese	*AOR*	1.00	(0.97 - 1.02)

Notes: beta coeff: linear regression coefficient; AOR: Adjusted Odds Ratio from logistic regression. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.
All regressions control for installation county obesity rate; respondent's age, gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Other); parent's marital status, highest education level among child's parents (High school or less; trade, technical or some college; Associate degree or equivalent; 4 year college or higher), military parent's rank (Corporal/Specialist or lower; Sergeant; Staff Sergeant; Sergeant First Class; Master Sergeant/First Sergeant or higher); household income (<=$40,000; $40,001-$50,000; $50,001-$85,000; $85,001 or higher), number of children in the household (1, 2 and 3 or more), on-installation residence, and months at current installation (<=12, 13-24, 25-48 and >=49).
Reference Categories: Male, White non-Hispanic, living off-installation, non-military parent respondent, unmarried, rank Corporal/Specialist or less, less than high school degree, household income<=40,000, one child in household, and at current installation <=12 months.

Of the 1519 families who participated in the M-TEENS, 205 parents and 401 children had missing data on at least one of the variables used in the estimation. In addition, there were 7 children for whom either the parent-reported or self-reported zBMI was an outlier (beyond +/- 6)[16] so these cases were also dropped from the analysis sample. The missing data among parents was due to item non-response whereas missing data among children was due to a combination of survey non-response and item non-response. We also estimated our models on the sample where missing data for covariates was imputed using multiple imputation methods. These results were very similar to those presented in the paper and those from the main model are shown above.

We also compared the observed characteristics between responding families (N=1519) and non-responding families (N=17,469). We had very limited information on non-responding families from the Army personnel data extract, which included the service-member's gender, race/ethnicity, paygrade, and occupation. Compared to non-responding families, families that participated were more likely to have a female service-member. However, there were no substantive differences by race/ethnicity, paygrade, or occupation.

eTable 7. Relationship Between Residential County Obesity Rate and Parent's and Child's BMI, Overweight and Obesity

Dependent Variable		Full Sample				Sample that lives in installation county		
		Estimate	95% CI	N		Estimate	95% CI	N
Parent Outcomes (from self-reported hgt/wgt)								
BMI	*beta*	0.06**	(0.01 - 0.12)	1,313		0.07**	(0.01 - 0.13)	1,083
Overweight or obese	*AOR*	0.99	(0.97 - 1.02)	1,313		1.01	(0.98 - 1.04)	1,083
Obese	*AOR*	1.05***	(1.03 - 1.08)	1,313		1.04***	(1.01 - 1.08)	1,083
Child Outcomes (from self-reported hgt/wgt)								
BMI z-score	*beta*	0.01	(-0.00 - 0.01)	1,110		0.01**	(0.00 - 0.02)	919
Overweight or obese	*AOR*	1.03***	(1.01 - 1.05)	1,110		1.03***	(1.01 – 1.05)	919
Obese	*AOR*	1.01	(0.98 - 1.05)	1,110		1.00	(0.96 - 1.03)	919

Notes: beta coeff: linear regression coefficient; AOR: Adjusted Odds Ratio. * $p<0.10$, ** $p<0.05$, *** $p<0.01$

All regressions control for installation county obesity rate; respondent's age, gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Other); parent's marital status, highest education level among child's parents (High school or less; trade, technical or some college; Associate degree or equivalent; 4 year college or higher), military parent's rank (Corporal/Specialist or lower; Sergeant; Staff Sergeant; Sergeant First Class; Master Sergeant/First Sergeant or higher); household income (<=$40,000; $40,001-$50,000; $50,001-$85,000; $85,001 or higher), number of children in the household (1, 2 and 3 or more), on-installation residence, and months at current installation (<=12, 13-24, 25-48 and >=49).

Reference Categories: Male, White non-Hispanic, living off-installation, non-military parent respondent, unmarried, rank Corporal/Specialist or less, less than high school degree, household income<=40,000, one child in household, and at current installation <=12 months.

eTable 8. Associations Between County Obesity Rate and Child's BMI, Overweight and Obesity Based on Parent Reports

Dependent Variable		Adjusted			Unadjusted	
		Estimate	95% CI		Estimate	95% CI
Child Outcomes (parent-reports) (n=1,288)						
BMI z-score	*beta coeff*	0.01	(-0.00 - 0.02)		0.01*	(-0.00 - 0.02)
Overweight or obese	*OR*	1.04***	(1.01 - 1.07)		1.04***	(1.01 - 1.06)
Obese	*OR*	1.00	(0.97 - 1.03)		1.00	(0.97 - 1.03)
Notes: beta coeff: linear regression coefficient; AOR: Adjusted Odds Ratio. * $p<0.10$, ** $p<0.05$, *** $p<0.01$ All regressions control for installation county obesity rate; respondent's age, gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Other); parent's marital status, highest education level among child's parents (High school or less; trade, technical or some college; Associate degree or equivalent; 4 year college or higher), military parent's rank (Corporal/Specialist or lower; Sergeant; Staff Sergeant; Sergeant First Class; Master Sergeant/First Sergeant or higher); household income (<=$40,000; $40,001-$50,000; $50,001-$85,000; $85,001 or higher), number of children in the household (1, 2 and 3 or more), on-installation residence, and months at current installation (<=12, 13-24, 25-48 and >=49). Reference Categories: Male, White non-Hispanic, living off-installation, non-military parent respondent, unmarried, rank Corporal/Specialist or less, less than high school degree, household income<=40,000, one child in household, and at current installation <=12 months.						

eTable 9. Association Between County Obesity Rate and Child's BMI, Overweight and Obesity, by Time-at-installation and On- Versus Off-Installation Residence

PANEL A: *By Length of Stay at Installation*								
		<=24 months				**>24 months**		
Dependent Variable		**Estimate**	**95% CI**	**N**		**Estimate**	**95% CI**	**N**
Child Outcomes (parent-reports)								
BMI z-score	beta coeff	-0.01	(-0.03 - 0.01)	488		0.02***	(0.01 - 0.03)	800
Overweight or obese	AOR	1.01	(0.95 - 1.08)	488		1.06***	(1.02 - 1.10)	800
Obese	AOR	0.94*	(0.88 - 1.00)	488		1.05	(0.99 - 1.12)	800
PANEL B: *By On- Versus Off-Installation Residence*								
		Off-Installation				**On-Installation**		
Dependent Variable		**Estimate**	**95% CI**	**N**		**Estimate**	**95% CI**	**N**
Child Outcomes (parent-reports)								
BMI z-score	beta coeff	0.01	(-0.01 - 0.02)	718		0.00	(-0.01 - 0.01)	570
Overweight or obese	AOR	1.05***	(1.02 - 1.08)	718		1.03	(0.996 - 1.07)	570
Obese	AOR	1.04*	(1.00 - 1.10)	718		0.95	(0.90 - 1.002)	570

Notes: beta coeff: linear regression coefficient; AOR: Adjusted Odds Ratio. * $p<0.10$, ** $p<0.05$, *** $p<0.01$

All regressions control for installation county obesity rate; respondent's age, gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Other); parent's marital status, highest education level among child's parents (High school or less; trade, technical or some college; Associate degree or equivalent; 4 year college or higher), military parent's rank (Corporal/Specialist or lower; Sergeant; Staff Sergeant; Sergeant First Class; Master Sergeant/First Sergeant or higher); household income (<=$40,000; $40,001-$50,000; $50,001-$85,000; $85,001 or higher), number of children in the household (1, 2 and 3 or more), on-installation residence, and months at current installation (<=12, 13-24, 25-48 and >=49).

Reference Categories: Male, White non-Hispanic, living off-installation, non-military parent respondent, unmarried, rank Corporal/Specialist or less, less than high school degree, household income<=40,000, one child in household, and at current installation <=12 months.

eTable 10. Association Between County Obesity Rate and Child's BMI, Overweight and Obesity, Controlling for Shared Built Environment in the County and in the Neighborhood

Dependent Variable		Controlling for County FPA Environment[a]				Controlling for Neighborhood FPA Environment[b]		
		Estimate	95% CI	N		Estimate	95% CI	N
Child Outcomes (parent-reports)								
BMI z-score	beta coeff	0.01	(-0.00 - 0.02)	1,288		0.01*	(-0.00 - 0.02)	1,271
Overweight or obese	AOR	1.03**	(1.01 - 1.06)	1,288		1.04**	(1.01 - 1.07)	1,271
Obese	AOR	0.99	(0.95 - 1.03)	1,288		1.00	(0.97 - 1.03)	1,271

Notes: beta coeff: linear regression coefficient; AOR: Adjusted Odds Ratio. FPA: Food and Physical Activity. * $p<0.10$, ** $p<0.05$, *** $p<0.01$

All regressions control for installation county obesity rate; respondent's age, gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Other); parent's marital status, highest education level among child's parents (High school or less; trade, technical or some college; Associate degree or equivalent; 4 year college or higher), military parent's rank (Corporal/Specialist or lower; Sergeant; Staff Sergeant; Sergeant First Class; Master Sergeant/First Sergeant or higher); household income (<=$40,000; $40,001-$50,000; $50,001-$85,000; $85,001 or higher), number of children in the household (1, 2 and 3 or more), on-installation residence, and months at current installation (<=12, 13-24, 25-48 and >=49).

Reference Categories: Male, White non-Hispanic, living off-Installation, non-military parent respondent, unmarried, rank Corporal/Specialist or less, less than high school degree, household income<=40,000, one child in household, and at current installation <=12 months.

[a]County FPA measures included % of county population that lives close to a park or recreational facility and % of county population that is low-income and does not live close to a grocery store). [b]Neighborhood FPA measures included GIS-based measures of number of grocery stores, sports and recreational facilities, and intersections within a 2 miles buffer of residence, as well as the subjective NEWS-Y score.

eTable 11. Relationship Between County Obesity Rate and Parent's and Child's BMI, Overweight and Obesity with Controls for Military Occupation

Dependent Variable		Estimate	95% CI	N	
Parent Outcomes (from self-reported hgt/wgt)					
BMI	*beta*	0.08***	(0.02 - 0.13)	1,258	
Overweight or obese	*AOR*	1.00	(0.98 - 1.03)	1,253	
Obese	*AOR*	1.05***	(1.03 - 1.08)	1,250	
Child Outcomes (from self-reported hgt/wgt)					
BMI z-score	*beta*	0.01***	(0.00 - 0.02)	1,057	
Overweight or obese	*AOR*	1.03***	(1.01 - 1.05)	1,040	
Obese	*AOR*	1.02	(0.99 - 1.04)	1,042	

Notes: beta coeff: linear regression coefficient; AOR: Adjusted Odds Ratio. * $p<0.10$, ** $p<0.05$, *** $p<0.01$
All regressions control for installation county obesity rate; respondent's age, gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Other); parent's marital status, highest education level among child's parents (High school or less; trade, technical or some college; Associate degree or equivalent; 4 year college or higher), military parent's rank (Corporal/Specialist or lower; Sergeant; Staff Sergeant; Sergeant First Class; Master Sergeant/First Sergeant or higher); household income (<=$40,000; $40,001-$50,000; $50,001-$85,000; $85,001 or higher), number of children in the household (1, 2 and 3 or more), on-installation residence, and months at current installation (<=12, 13-24, 25-48 and >=49).
Reference Categories: Male, White non-Hispanic, living off-Installation, non-military parent respondent, unmarried, rank Corporal/Specialist or less, less than high school degree, household income<=40,000, one child in household, and at current installation <=12 months.

Occupation categories include: Administration, Infantry, Law Enforcement, Legal Services, Medical, Psychological, Operations, Public Affairs, Recruiting and Retention, Religious Services, Signals (Communications), Air Defense, Special Forces, Supply and Logistics, Transportation, Armor, Aviation, Chemical Warfare, Civil Affairs, Electronic Maintenance, Explosives and Ammunition, Field Artillery, Other.

eTable 12. Relationship Between County Obesity Rate and Parent's and Child's BMI, Overweight and Obesity with Controls for Seniority

Dependent Variable		Estimate	95% CI	N	
Parent Outcomes (from self-reported hgt/wgt)					
BMI	*beta*	0.08***	(0.03 - 0.13)	1,314	
Overweight or obese	*AOR*	1.00	(0.98 - 1.03)	1,314	
Obese	*AOR*	1.05***	(1.02 - 1.08)	1,314	
Child Outcomes (from self-reported hgt/wgt)					
BMI z-score	*beta*	0.01***	(0.00 - 0.02)	1,111	
Overweight or obese	*AOR*	1.04***	(1.01 - 1.06)	1,111	
Obese	*AOR*	1.01	(0.99 - 1.04)	1,111	
Notes: beta coeff: linear regression coefficient; AOR: Adjusted Odds Ratio. * p<0.10, ** p<0.05, *** p<0.01 All regressions control for installation county obesity rate; respondent's age, gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Other); parent's marital status, highest education level among child's parents (High school or less; trade, technical or some college; Associate degree or equivalent; 4 year college or higher), military parent's rank (Corporal/Specialist or lower; Sergeant; Staff Sergeant; Sergeant First Class; Master Sergeant/First Sergeant or higher); household income (<=$40,000; $40,001-$50,000; $50,001-$85,000; $85,001 or higher), number of children in the household (1, 2 and 3 or more), on-installation residence, and months at current installation (<=12, 13-24, 25-48 and >=49), and seniority (years of service). Reference Categories: Male, White non-Hispanic, living off-Installation, non-military parent respondent, unmarried, rank Corporal/Specialist or less, less than high school degree, household income<=40,000, one child in household, and at current installation <=12 months.					

eTable 13. Relationship Between County Obesity Rate and Parent's and Child's BMI, Overweight and Obesity, by Length of Stay at Installation (Using 12 Month Cutoff)

		Length of Stay at Current Installation						
		<=12 months				>12 months		
Dependent Variable		**Est.**	**95% CI**	**N**		**Est.**	**95% CI**	**N**
Parent Outcomes (from self-reported hgt/wgt)								
BMI	*beta*	-0.01	(-0.17 - 0.14)	140		0.08**	(0.02 - 0.15)	1,174
Overweight or obese	*AOR*	0.97	(0.90 - 1.05)	140		1.00	(0.98 - 1.03)	1,174
Obese	*AOR*	0.99	(0.84 - 1.16)	140		1.05***	(1.02 - 1.08)	1,174
Child Outcomes (from self-reported hgt/wgt)								
BMI z-score	*beta*	0.02	(-0.04 - 0.07)	120		0.01***	(0.00 - 0.02)	991
Overweight or obese	*AOR*	1.00	(0.86 - 1.17)	107		1.04***	(1.02 - 1.06)	991
Obese	*AOR*	1.08	(0.91 - 1.28)	90		1.02	(0.98 - 1.05)	991

Notes: beta coeff: linear regression coefficient; AOR: Adjusted Odds Ratio. * $p<0.10$, ** $p<0.05$, *** $p<0.01$
All regressions control for installation county obesity rate; respondent's age, gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Other); parent's marital status, highest education level among child's parents (High school or less; trade, technical or some college; Associate degree or equivalent; 4 year college or higher), military parent's rank (Corporal/Specialist or lower; Sergeant; Staff Sergeant; Sergeant First Class; Master Sergeant/First Sergeant or higher); household income (<=$40,000; $40,001-$50,000; $50,001-$85,000; $85,001 or higher), number of children in the household (1, 2 and 3 or more), on-installation residence, and months at current installation (<=12, 13-24, 25-48 and >=49).
Reference Categories: Male, White non-Hispanic, living off-Installation, non-military parent respondent, unmarried, rank Corporal/Specialist or less, less than high school degree, household income<=40,000, one child in household.

eTable 14. Relationship Between County Obesity Rate and Parent's and Child's BMI, Overweight and Obesity, by Length of Stay at Installation (Using 18 Month Cutoff)

		Length of Stay at Current Installation						
		<=18 months				>18 months		
Dependent Variable		Est.	95% CI	N		Est.	95% CI	N
Parent Outcomes (from self-reported hgt/wgt)								
BMI	beta	0.02	(-0.08 - 0.13)	204		0.08**	(0.02 - 0.15)	1,110
Overweight or obese	AOR	0.98	(0.92 - 1.04)	204		1.00	(0.98 - 1.03)	1,110
Obese	AOR	1.05	(0.96 - 1.14)	204		1.05***	(1.02 - 1.08)	1,110
Child Outcomes (from self-reported hgt/wgt)								
BMI z-score	beta	0.01	(-0.03 - 0.06)	174		0.01**	(0.00 - 0.02)	937
Overweight or obese	AOR	1.03	(0.90 - 1.18)	174		1.04***	(1.02 - 1.06)	937
Obese	AOR	1.07	(0.94 - 1.22)	134		1.01	(0.97 - 1.05)	937
Notes: beta coeff: linear regression coefficient; AOR: Adjusted Odds Ratio. * p<0.10, ** p<0.05, *** p<0.01 All regressions control for installation county obesity rate; respondent's age, gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Other); parent's marital status, highest education level among child's parents (High school or less; trade, technical or some college; Associate degree or equivalent; 4 year college or higher), military parent's rank (Corporal/Specialist or lower; Sergeant; Staff Sergeant; Sergeant First Class; Master Sergeant/First Sergeant or higher); household income (<=$40,000; $40,001-$50,000; $50,001-$85,000; $85,001 or higher), number of children in the household (1, 2 and 3 or more), on-installation residence, and months at current installation (<=12, 13-24, 25-48 and >=49). Reference Categories: Male, White non-Hispanic, living off-Installation, non-military parent respondent, unmarried, rank Corporal/Specialist or less, less than high school degree, household income<=40,000, one child in household.								

eTable 15. Relationship Between County Obesity Rate and Parent's and Child's BMI, Overweight and Obesity, by Length of Stay at Installation (Using 30 Month Cutoff)

		Length of Stay at Current Installation						
		<=30 months				>30 months		
Dependent Variable		**Est.**	**95% CI**	**N**		**Est.**	**95% CI**	**N**
Parent Outcomes (from self-reported hgt/wgt)								
BMI	*beta*	0.07	(0.00 - 0.13)	680		0.09*	(0.01 - 0.16)	634
Overweight or obese	*AOR*	1.01	(0.98 - 1.04)	680		1.00	(0.96 - 1.03)	634
Obese	*AOR*	1.06**	(1.00 - 1.11)	680		1.04**	(1.00 - 1.08)	634
Child Outcomes (from self-reported hgt/wgt)								
BMI z-score	*beta*	-0.01	(-0.02 - 0.01)	580		0.04***	(0.02 - 0.05)	531
Overweight or obese	*AOR*	1.01	(0.95 - 1.07)	580		1.08***	(1.05 - 1.11)	531
Obese	*AOR*	0.99	(0.94 - 1.04)	580		1.06*	(1.03 - 1.10)	531

Notes: beta coeff: linear regression coefficient; AOR: Adjusted Odds Ratio. * p<0.10, ** p<0.05, *** p<0.01

All regressions control for installation county obesity rate; respondent's age, gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Other); parent's marital status, highest education level among child's parents (High school or less; trade, technical or some college; Associate degree or equivalent; 4 year college or higher), military parent's rank (Corporal/Specialist or lower; Sergeant; Staff Sergeant; Sergeant First Class; Master Sergeant/First Sergeant or higher); household income (<=$40,000; $40,001-$50,000; $50,001-$85,000; $85,001 or higher), number of children in the household (1, 2 and 3 or more), on-installation residence, and months at current installation (<=12, 13-24, 25-48 and >=49).

Reference Categories: Male, White non-Hispanic, living off-Installation, non-military parent respondent, unmarried, rank Corporal/Specialist or less, less than high school degree, household income<=40,000, one child in household.

eTable 16. Association Between County Obesity Rate and Child's BMI, Overweight, and Obesity Using Regression-Corrected Outcomes

Dependent Variable		Adjusted				Unadjusted		
		Est.	95% CI	N		Est.	95% CI	N
Child Outcomes (using "corrected" BMI)								
BMI z-score	beta	0.00	(-0.01 - 0.01)	1,316		0.00	(-0.01 - 0.01)	1,316
Overweight or obese	AOR	1.04***	(1.01 - 1.07)	1,316		1.04**	(1.01 - 1.07)	1,316
Obese	AOR	1.02	(0.99 - 1.05)	1,316		1.02	(0.99 - 1.06)	1,316

Notes: beta coeff: linear regression coefficient; AOR: Adjusted Odds Ratio. * p<0.10, ** p<0.05, *** p<0.01
All regressions control for installation county obesity rate; respondent's age, gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Other); parent's marital status, highest education level among child's parents (High school or less; trade, technical or some college; Associate degree or equivalent; 4 year college or higher), military parent's rank (Corporal/Specialist or lower; Sergeant; Staff Sergeant; Sergeant First Class; Master Sergeant/First Sergeant or higher); household income (<=$40,000; $40,001-$50,000; $50,001-$85,000; $85,001 or higher), number of children in the household (1, 2 and 3 or more), on-installation residence, and months at current installation (<=12, 13-24, 25-48 and >=49).
Reference Categories: Male, White non-Hispanic, living off-Installation, non-military parent respondent, unmarried, rank Corporal/Specialist or less, less than high school degree, household income<=40,000, one child in household, and at current installation <=12 months.

We used the subsample of 458 children with measurements as a validation sample to correct measurement error in the reported height and weight of the children with no measurement data by estimating "correction models" that are a standard approach in the literature.[17,18] Details about our correction models are reported elsewhere[19]. Using the "corrected" height and weight, we computed age- and gender-specific BMI z-score (zBMI) and an indicator for overweight or obese (BMI percentile >=85th) based on the 2000 BMI-for-age and gender growth charts issued by the Centers for Disease Control and Prevention. Results using these "corrected" outcome measures were similar to those reported in Table 2 and are shown below.

eTable 17. Association Between County Obesity Rate and Other Child Body Composition Outcomes

Dependent Variable		Est.	95% CI	N	
		Results from Adjusted Models			
Child Outcomes					
Waist Circumference	*beta*	0.26	(-0.07 - 0.59)	458	
Body Fat Percent	*beta*	0.14	(-0.12 - 0.41)	458	
Waist-to-Height Ratio>0.5	*AOR*	1.08*	(1.00 - 1.16)	458	
Waist Circumference>=90th percentile	*AOR*	1.02	(0.93 - 1.11)	458	
High Body Fat: >25% (boys), >30% (girls)	*AOR*	1.05*	(0.99 - 1.11)	458	

Notes: beta coeff: linear regression coefficient; AOR: Adjusted Odds Ratio. * p<0.10, ** p<0.05, *** p<0.01
All regressions control for installation county obesity rate; respondent's age, gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Other); parent's marital status, highest education level among child's parents (High school or less; trade, technical or some college; Associate degree or equivalent; 4 year college or higher), military parent's rank (Corporal/Specialist or lower; Sergeant; Staff Sergeant; Sergeant First Class; Master Sergeant/First Sergeant or higher); household income (<=$40,000; $40,001-$50,000; $50,001-$85,000; $85,001 or higher), number of children in the household (1, 2 and 3 or more), on-installation residence, and months at current installation (<=12, 13-24, 25-48 and >=49).
Reference Categories: Male, White non-Hispanic, living off-Installation, non-military parent respondent, unmarried, rank Corporal/Specialist or less, less than high school degree, household income<=40,000, one child in household, and at current installation <=12 months.

Other Body Composition Measures: Abdominal obesity was assessed as waist circumference (WC) at or above the 90th percentile for age and gender based on the NHANES III data from 1988-1994.[1,2] In addition, waist-to-height ratios (WHTR) were calculated as a second measure of abdominal obesity, and children with a WHTR > 0.5 were classified as obese.[1,3] Lastly, high body fat percentage was assessed as percent body fat > 25 for boys and percent body fat >30 fir girls.[4,5]

eTable 18. Associations Between County Obesity Rate and Child's and Parent's Diet and Activity Behaviors and Home Environment

Dependent Variable	Model, Parameter	Estimate	95% CI	N
Child-Reported Outcomes				
Total Physical Activity (Mins/week)	OLS, beta	-3.15***	(-5.38 - -0.92)	1,117
Vigorous Physical Activity (Mins/week)	OLS, beta	-2.23***	(-3.61 - -0.85)	1,121
Moderate Physical Activity (Mins/week)	OLS, beta	-0.87	(-2.24 - 0.51)	1,124
Television watching (hours/week)	OLS, beta	0.06	(-0.13 - 0.25)	1,120
Videogames (hours/week)	OLS, beta	0.02	(-0.14 - 0.18)	1,115
Times per week ate:				
Fruits and vegetables	Poisson, IRR	1.00	(0.99 - 1.01)	1112
Soda	Poisson, IRR	0.99	(0.97 - 1.01)	1,124
Sweets	Poisson, IRR	1.01*	(1.00 - 1.02)	1,091
Dependent Variable	**Model, Parameter**	**Estimate**	**95% CI**	**N**
Salty Snacks	Poisson, IRR	1.00	(0.99 - 1.02)	1,110
Fast food	Poisson, IRR	1.00	(0.99 - 1.00)	1,127
Parent-Reported Outcomes				
Parent's Total Physical Activity (Mins/week)	OLS, beta	-1.19	(-3.20 - 0.82)	1,313
Parent's Vigorous Physical Activity (Mins/week)	OLS, beta	-1.00	(-2.36 - 0.37)	1,321
Parent's Moderate Physical Activity (Mins/week)	OLS, beta	-0.10	(-1.19 - 0.99)	1,316
Times per week family eats dinner out	Poisson, IRR	1.00	(0.99 - 1.00)	1,317
Times per week family eats prepared food for dinner	Poisson, IRR	1.02***	(1.01 - 1.04)	1,315
Home Food Environment Healthiness score	OLS, beta	-0.08***	(-0.11 - -0.05)	1,318

Notes: OLS: Ordinary Least Squares; IRR: Incidence-Rate Ratio; *** p<0.01, ** p<0.05; * p<0.10
All regressions control for installation county obesity rate; respondent's age, gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, Other); parent's marital status, highest education level among child's parents (High school or less; trade, technical or some college; Associate degree or equivalent; 4 year college or higher), military parent's rank (Corporal/Specialist or lower; Sergeant; Staff Sergeant; Sergeant First Class; Master Sergeant/First Sergeant or higher); household income (<=$40,000; $40,001-$50,000; $50,001-$85,000; $85,001 or higher), number of children in the household (1, 2 and 3 or more), on-installation residence, and months at current installation (<=12, 13-24, 25-48 and >=49).
Reference Categories: Male, White non-Hispanic, living off-Installation, non-military parent respondent, unmarried, rank Corporal/Specialist or less, less than high school degree, household income<=40,000, one child in household, and at current installation <=12 months.

To examine whether the county obesity rate was also associated with parent and child dietary and activity behaviors, we estimated ordered logistic, Poisson, and linear regression models for ordered categorical, count, and linear dependent variables, respectively. Measures of obesogenic behaviors and home environment, and the estimation results, are reported above.

Measures of Obesogenic Behaviors and Home Environment

Child's physical activity was measured as minutes per week of moderate and vigorous physical activity (PA), and hours per week of watching television and playing videogames based on self-reports.

Children's dietary intake was assessed via a modified version of the Beverage and Snack Questionnaire,[21] which asks about the number of times during the past 7 days that child consumed fruits, vegetables, diet and regular sodas, and types of salty snacks and sweets, among other beverages and foods. The response categories included: never, 1-3 times, 4-6 times, once a day, twice a day, thrice a day, 4+

times per day. No assumptions or guidance about portion size was provided. These responses were converted into counts of the number of *times per week* that the child reported consuming each food and beverage category. Mid-points of the range were used for response categories 1-3 times and 4-6 times in past 7 days. The dietary outcomes were available for children who completed the child survey.

Parent's physical activity was measured as minutes per week of moderate and vigorous physical activity (PA) based on self-reports.

Home healthiness score was computed by aggregating responses on survey questions asking parents – (1) how much they agreed or disagreed with statements about the healthiness of their home environment (see below), (3) limits that parents set for their children's consumption of SSBs, salty snacks, and sweets (0-1 times per week, 2-3 times per week, and so on), and (4) times per week family eats dinner out (at a restaurant or take-out) and dinner that was ready-made (e.g. frozen dinners, microwave meals).

Please indicate how much you agree or disagree with the following statements about the food environment in your home:

  Most of the food in the house is healthy
  There are a lot of salty snacks in our house
  There are a lot if sweets in our house
  There are a lot of other high-fat foods in our house
  There are a lot of sweetened beverages in our house
  A variety of healthy foods is available to my child at each meal served at home.

Response scale: Strongly disagree, somewhat disagree, neutral, somewhat agree, strongly agree.

A higher county obesity rate was associated with fewer minutes per week of vigorous activity in children and parents, but had no association time spent watching television or playing videogames. There were no associations for child-reported dietary intake measures. However, for parent-reported outcomes, a higher county obesity rate was associated with a lower home healthiness score, higher likelihood of eating prepared foods, and higher parent-set limits on children' SSB, salty snack and sweet consumption. These findings were similar even in models that additionally controlled for neighborhood built environment (not shown).

eAppendix. Shared Built Environment Measures, Information on Family Installation Choice, and References

Shared Built Environment Measures

E.1. Two measures of the <u>county built environment</u> were obtained from the RWJ County Health Rankings Data. *(1) Access to Exercise Opportunities*
Access to exercise opportunities measures the percentage of individuals in a county who live reasonably close to a location for physical activity. Locations for physical activity are defined as parks or recreational facilities. Parks include local, state, and national parks. Recreational facilities include businesses identified by the following Standard Industry Classification (SIC) codes and include a wide variety of facilities including gyms, community centers, YMCAs, dance studios and pools: 70110306, 79990000, 79910000, 79910100, 79910101, 79910102, 79910103, 79910202, 79910300, 79910301, 79910302, 79920000, 79970100, 79970203, 79970500, 79970501, 79970503, 79979900, 79990101, 79990102, 79990300, 79990301, 79990302, 79990303, 79990601, 79990602, 79990603, 79991102, 79991103, 79970201, 79991402, 79991109, 79991110, 79991111, 79991112, 79991113, 79991118, 79991119, 79991120, 79991121, 79991122, 79991123, 79991127, 79991412, 79999910, 79970502, 79970504, 79979904, 79979906.
Individuals who:

- Reside in a census block within a half mile of a park or
- In urban census tracts: reside within one mile of a recreational facility
- In rural census tracts: reside within three miles of a recreational facility

are considered to have adequate access for opportunities for physical activity.

(2) Limited Access to Healthy Foods
Limited access to healthy foods is the percentage of the population who are low income and do not live close to a grocery store. Living close to a grocery store is defined differently in rural and non-rural areas; in rural areas, it means living less than 10 miles from a grocery store; in non-rural areas, less than 1 mile. Low income is defined as having an annual family income of less than or equal to 200 percent of the federal poverty threshold for the family size.

E.2. Three measures of the <u>neighborhood built environment</u> were computed based on geocoding of respondents' residents using ArcGIS, and data on business establishments (using NAICS codes) and street connectivity from Esri Business Analyst. The following counts were computed for a 2-mile buffer (based on Euclidean distance) around the respondent's residence. We also measured buffers using street network distance and got similar results (not shown).
- number of grocery stores
- number of sports and recreational facilities
- number of street intersections (captures walkability)

E.3. A <u>subjective measure of the overall neighborhood environment</u>, the Neighborhood Environment Walkability Scale – Youth version (NEWS-Y), was collected during our parent surveys. Parents completed the parent version of the youth-focused NEWS questionnaire developed and validated by Saelens and colleagues (Saelens et al. 2003; Rosenberg et al. 2009; Adams et al. 2009). The NEWS-Y provides succinct and empirically-derived measures of various aspects of the neighborhood environment related to youth PA. The questionnaire consists of 66 items that can be allocated into nine subscales capturing land use mix (diversity), proximity to recreation facilities, land use mix (access), street connectivity, walking/cycling facilities, aesthetics, pedestrian/automobile traffic safety, and crime safety. The full text of the NEWS-Y scale is available online at http://sallis.ucsd.edu/Documents/Measures_documents/NEWS_Y_parent.pdf.

In alternate models, we also included *both* the neighborhood built and environment measures and the overall score of neighborhood walkability computed from the parent-responses on the parent-version of the validated Neighborhood Environment Walkability Scale – Youth (NEWS-Y) that was included in the parent survey. The results were similar and are available upon request.

Information on Family Installation Choice

The duration of residence at or on a given installation is outside the control of individual military personnel and their families with rare exceptions;[7] among the few service members who qualify for the Exceptional Family Member Program, families are assigned among the pool of installations which meet their needs as long as military readiness is not affected. See reference 7.

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eFigure 1: Study Sample Flow Chart