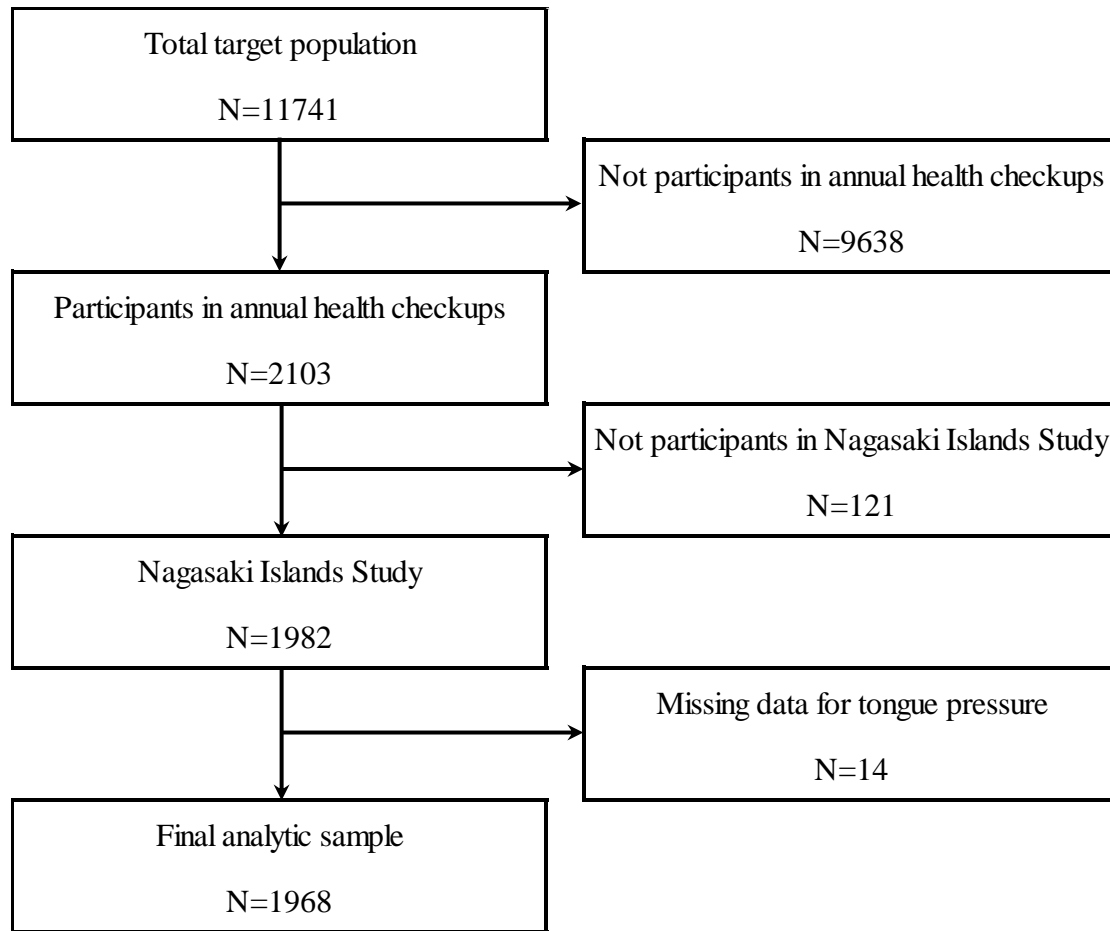


**Social Networks, Leisure Activities and Maximum Tongue Pressure: Cross-sectional Associations in The Nagasaki Islands Study**

Mako Nagayoshi, Miho Higashi, Noboru Takamura, Mami Tamai, Jun Koyamatsu, Hirotomoto Yamanashi, Koichiro Kadota, Shimpei Sato, Shin-ya Kawashiri, Zenya Koyama, Toshiyuki Saito, Takahiro Maeda



**Supplemental Figure 1.** Study sample flow chart.

**Supplemental Table 1. Association of Social Environments with Maximum Tongue Pressure among Participants without History of Stroke or Respiratory Disease: The Nagasaki Islands Study 2015-2016.**

Social Environments	Model 1					Model 2					Model 3					Model 4				
	$\beta$	B	95 % CI	p value	R <sup>2</sup>	$\beta$	B	95 % CI	p value	R <sup>2</sup>	$\beta$	B	95 % CI	P value	R <sup>2</sup>	$\beta$	B	95 % CI	P value	R <sup>2</sup>
<b>TOTAL</b>																				
Number of family members in the household	<b>-0.05</b>	<b>-0.62</b>	<b>(-1.18, -0.06)</b>	<b>0.03</b>		<b>-0.06</b>	<b>-0.65</b>	<b>(-1.20, -0.10)</b>	<b>0.02</b>		<b>-0.04</b>	<b>-0.50</b>	<b>(-1.00, 0.00)</b>	<b>0.05</b>		-	-	-	-	
Marital Status	0.03	0.56	(-0.50, 1.61)	0.30	0.12	0.03	0.65	(-0.40, 1.70)	0.22	0.16	-	-	-	-	0.16	0.01	0.19	(-0.76, 1.13)	0.70	0.15
Participation in leisure activities	<b>0.08</b>	<b>1.99</b>	<b>(0.84, 3.14)</b>	<b>0.001</b>		<b>0.06</b>	<b>1.67</b>	<b>(0.54, 2.81)</b>	<b>0.004</b>		<b>0.07</b>	<b>1.71</b>	<b>(0.57, 2.84)</b>	<b>0.003</b>		<b>0.07</b>	<b>1.73</b>	<b>(0.60, 2.86)</b>	<b>0.003</b>	
Social network with neighbors	<b>0.10</b>	<b>2.65</b>	<b>(1.37, 3.94)</b>	<b>&lt;.0001</b>		<b>0.09</b>	<b>2.45</b>	<b>(1.17, 3.72)</b>	<b>0.0002</b>		<b>0.09</b>	<b>2.43</b>	<b>(1.16, 3.71)</b>	<b>0.0002</b>		<b>0.09</b>	<b>2.36</b>	<b>(1.09, 3.64)</b>	<b>0.0003</b>	
Social network beyond neighbors	0.01	0.46	(-1.15, 2.08)	0.57		0.00	0.12	(-1.46, 1.71)	0.88		0.01	0.21	(-1.37, 1.79)	0.79		0.01	0.26	(-1.32, 1.84)	0.75	
<b>Women</b>																				
Number of family members in the household	-0.02	-0.25	(-0.95, 0.46)	0.49		-0.04	-0.38	(-1.08, 0.32)	0.29		-0.04	-0.45	(-1.08, 0.18)	0.16		-	-	-	-	
Marital Status	-0.02	-0.48	(-1.82, 0.86)	0.48	0.08	-0.01	-0.29	(-1.63, 1.05)	0.67	0.11	-	-	-	-	0.11	-0.03	-0.54	(-1.75, 0.66)	0.38	0.10
Participation in leisure activities	<b>0.06</b>	<b>1.63</b>	<b>(0.15, 3.10)</b>	<b>0.03</b>		0.06	1.44	(-0.04, 2.91)	0.06		0.06	1.43	(-0.05, 2.90)	0.06		0.06	1.42	(-0.05, 2.90)	0.06	
Social network with neighbors	<b>0.10</b>	<b>2.84</b>	<b>(1.13, 4.54)</b>	<b>0.001</b>		<b>0.09</b>	<b>2.69</b>	<b>(0.98, 4.40)</b>	<b>0.002</b>		<b>0.09</b>	<b>2.69</b>	<b>(0.98, 4.40)</b>	<b>0.002</b>		<b>0.09</b>	<b>2.62</b>	<b>(0.91, 4.33)</b>	<b>0.003</b>	
Social network beyond neighbors	0.04	1.27	(-0.88, 3.41)	0.25		0.04	1.37	(-0.75, 3.50)	0.21		0.04	1.34	(-0.78, 3.46)	0.22		0.04	1.45	(-0.67, 3.57)	0.18	
<b>Men</b>																				
Number of family members in the household	<b>-0.10</b>	<b>-1.22</b>	<b>(-2.14, -0.30)</b>	<b>0.01</b>		<b>-0.08</b>	<b>-1.00</b>	<b>(-1.90, -0.10)</b>	<b>0.03</b>		-0.04	-0.50	(-1.33, 0.34)	0.24		-	-	-	-	
Marital Status	<b>0.12</b>	<b>3.08</b>	<b>(1.22, 4.95)</b>	<b>0.001</b>	0.14	<b>0.10</b>	<b>2.59</b>	<b>(0.74, 4.43)</b>	<b>0.006</b>	0.19	-	-	-	-	0.18	<b>0.07</b>	<b>1.79</b>	<b>(0.10, 3.48)</b>	<b>0.04</b>	0.18
Participation in leisure activities	<b>0.09</b>	<b>2.36</b>	<b>(0.52, 4.20)</b>	<b>0.01</b>		<b>0.07</b>	<b>1.96</b>	<b>(0.16, 3.77)</b>	<b>0.03</b>		<b>0.08</b>	<b>2.16</b>	<b>(0.35, 3.97)</b>	<b>0.02</b>		<b>0.08</b>	<b>2.15</b>	<b>(0.35, 3.95)</b>	<b>0.02</b>	
Social network with neighbors	<b>0.10</b>	<b>2.55</b>	<b>(0.58, 4.52)</b>	<b>0.01</b>		<b>0.08</b>	<b>2.19</b>	<b>(0.25, 4.12)</b>	<b>0.03</b>		<b>0.08</b>	<b>2.15</b>	<b>(0.21, 4.09)</b>	<b>0.03</b>		<b>0.08</b>	<b>2.04</b>	<b>(0.11, 3.98)</b>	<b>0.04</b>	
Social network beyond neighbors	-0.02	-0.75	(-3.24, 1.74)	0.55		-0.05	-1.65	(-4.11, 0.81)	0.19		-0.04	-1.27	(-3.73, 1.18)	0.31		-0.05	-1.54	(-3.99, 0.92)	0.22	

The number of family members in the household, marital status, social networks with and beyond neighbors, and participation in leisure activities were included in Models 1–4.

<sup>a</sup> Model 1: Adjusted for age and sex.

<sup>b</sup> Model 2: Adjusted for Model 1 + lifestyle factors (physical activity, smoking status, drinking status) + physiological characteristics (body mass index) + psychological distress (K6 score) + major dysphagia risk factors (anti-hypertensive medicine use, diabetes)

<sup>c</sup> Models 3–4: Adjusted for the same variables in Model 2 other than number of family members in the household and marital status, which were separately included in Models 3 and 4 to avoid over-adjustment.

B = parameter estimate.  $\beta$  = standardized parameter estimate.  $R^2$  = adjusted R-squared.