

# Annex Tables and Figures

Chrosam CHANGE study analysis

# Annex Table 1: baseline demographics of those lost to follow up

	Survivors to 7 years post-discharge (n=320)	Loss to Follow Up (190)
<b>Basic Demographics</b>		
Median age /would be age (at 7 years post discharge) (years)	9.3 (range 7.4 – 20.1 )	8 (range 7 - 19)
Males (gender)	174 (55%)	108 (57%)
Median Birth Order	2 (IQR 1-4)	2 (IQR 1-3)
<b>Clinical History</b>		
<b>HIV</b>		
Seropositive	90/320 (28%)	44/190(23%)
Seronegative	208/320(65%)	121/190(64%)
Unknown	22/320 (7%)	25/190 (13%)
History of TB	18/317 (5.7%)	4/173 (2%)
Weight for age z-score (mean (SD)) (minimum on ward)	-3.66 (1.39)	-3.66 (1.44)
Height for age z-score (mean (SD)) (minimum on ward)	-3.14 (1.43)	-3.13 (1.50)
<b>Family</b>		
Mother died	51/303 (17%)	8/159 (5%)
Mother HIV positive	83/222 (37%)	23/81 (28%)
<b>Socioeconomic status</b>		
Mother with no education	56/309 (18%)	13/155 (8%)
Father with no education	39/270 (14%)	5/122 (4%)

## Annex Table 2: sample size for LCA-derived PMGr classes

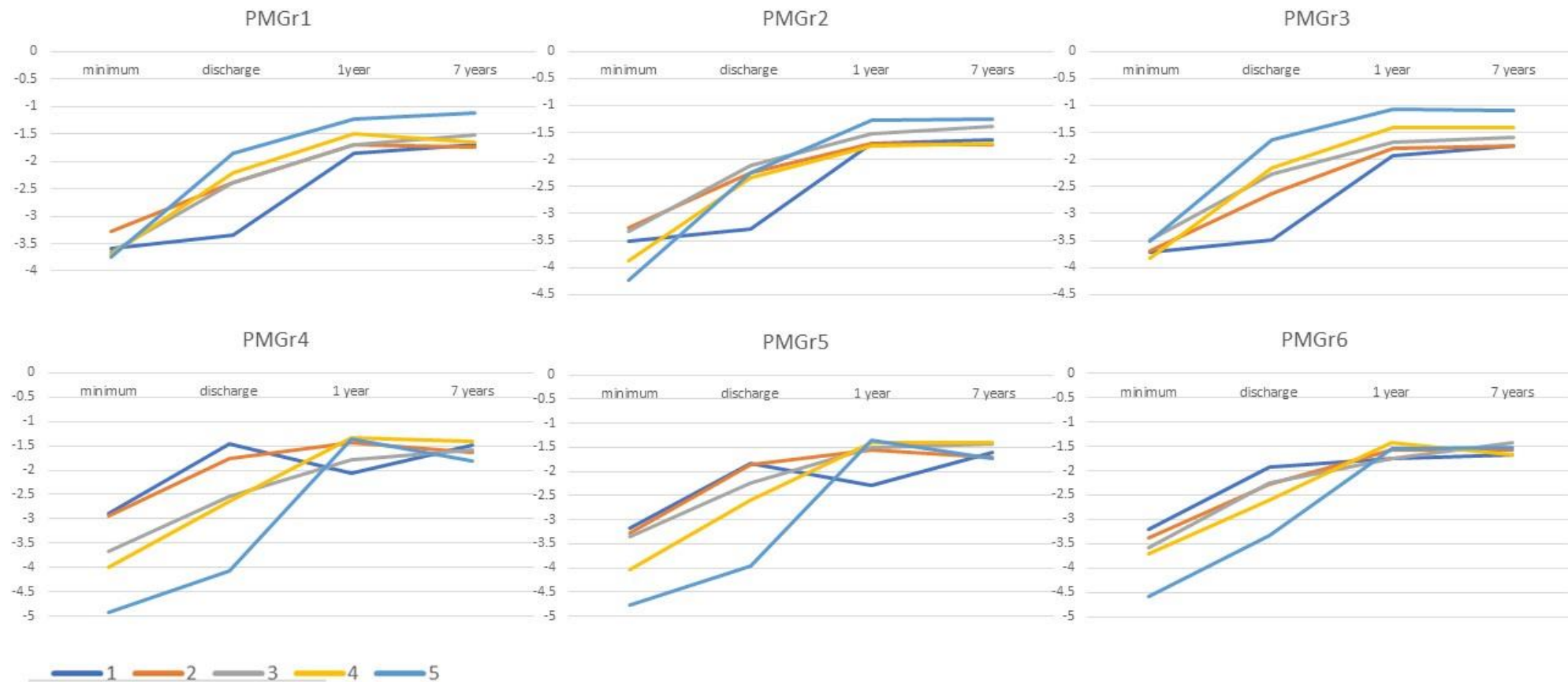


LCA classes	WAZ LCA N (%)	Weight LCA N (%)	HAZ LCA N (%)
Class 1	21 (6.7)	60 (18.8)	17 (5.4)
Class 2	54 (17.1)	111 (34.8)	96 (30.2)
Class 3	78 (24.7)	97 (30.4)	121 (38.1)
Class 4	53 (16.8)	38 (11.9)	75 (23.6)
Class 5	16 (5.1)	13 (4.1)	8 (2.5)
Class 6	94 (29.8)	N/A	N/A

# Annex Figure 1: mean WAZ, weight, and HAZ over time



# Annex Figure 2: Mean quintile weight-for-age z-scores (WAZ) according to five post-malnutrition growth rate definition (PMGr) at four (non-uniformly spaced) time point



\*1 (dark blue)= slowest quintile, 5(light blue)=fastest quintile

## Annex Table 3: Association between PMGr definition quintiles and NCD outcomes

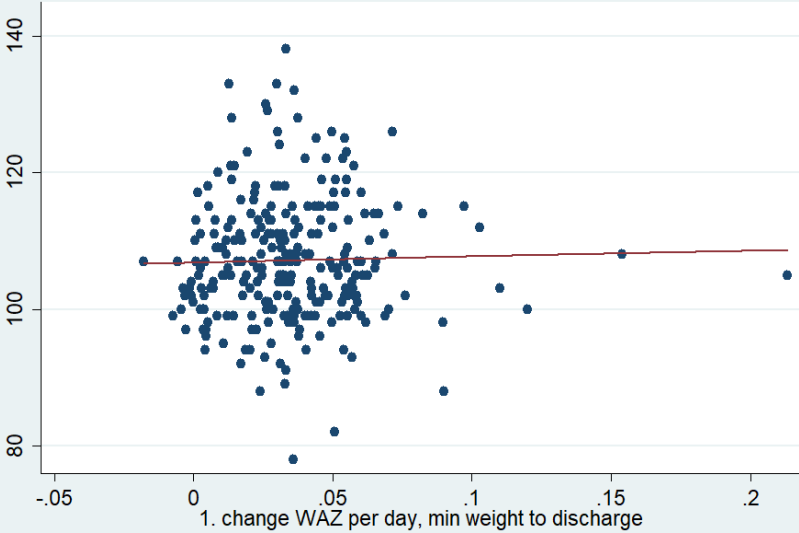
NCD indicator	PMGr definition	Unadjusted coefficient	P-value	95% CI	Adjusted coefficient	P-value	95% CI
Systolic BP	1	0.368	0.349	(-0.40, 1.14)	-0.061	0.877	(-0.84, 0.72)
	2	0.010	0.979	(-0.77, 0.79)	-0.072	0.847	(-0.80, 0.66)
	3	0.629	0.115	(-0.15, 1.41)	-0.158	0.682	(-0.92, 0.60)
	4	<b>-1.081</b>	<b>0.012</b>	<b>(-1.92, -0.24)</b>	-0.703	0.113	(-1.57, 0.17)
	5	<b>-0.919</b>	<b>0.030</b>	<b>(-1.75, -0.09)</b>	-0.373	0.400	(-1.25, 0.49)
	6	-0.164	0.703	(-1.01, 0.68)	-0.360	0.390	(-1.18, 0.46)
Diastolic BP	1	-0.247	0.506	(-0.98, 0.48)	-0.349	0.373	(-1.12, 0.42)
	2	-0.272	0.446	(-0.97, 0.43)	-0.281	0.440	(-0.99, 0.43)
	3	0.026	0.943	(-0.67, 0.73)	-0.234	0.535	(-0.97, 0.51)
	4	<b>-0.936</b>	<b>0.023</b>	<b>(-1.74, -0.13)</b>	-0.864	0.053	(-1.74, 0.01)
	5	-0.685	0.073	(-1.44, 0.07)	-0.689	0.117	(-1.55, 0.17)
	6	0.242	0.558	(-0.57, 1.05)	-0.024	0.954	(-0.86, 0.81)
Hand grip	1	0.106	0.488	(-0.19, 0.41)	0.037	0.797	(-0.25, 0.32)
	2	-0.100	0.543	(-0.43, 0.22)	0.000	0.999	(-0.28, 0.28)
	3	<b>0.365</b>	<b>0.027</b>	<b>(0.04, 0.69)</b>	0.098	0.508	(-0.19, 0.39)
	4	-0.155	0.329	(-0.47, 0.16)	0.093	0.562	(-0.22, 0.41)
	5	<b>-0.459</b>	<b>0.010</b>	<b>(-0.81, -0.11)</b>	0.079	0.643	(-0.26, 0.42)
	6	0.295	0.064	(-0.12, 0.61)	0.278	0.069	(-0.02, 0.58)
Waist circumference	1	<b>0.332</b>	<b>0.042</b>	<b>(0.01, 0.65)</b>	<b>0.316</b>	<b>0.047</b>	<b>(0.00, 0.63)</b>
	2	0.109	0.534	(-0.24, 0.45)	0.253	0.099	(-0.05, 0.55)
	3	<b>0.604</b>	<b>0.001</b>	<b>(0.27, 0.94)</b>	<b>0.369</b>	<b>0.018</b>	<b>(0.06, 0.68)</b>
	4	<b>-0.375</b>	<b>0.022</b>	<b>(-0.69, -0.06)</b>	-0.249	0.137	(-0.58, 0.08)
	5	<b>-0.474</b>	<b>0.008</b>	<b>(-0.82, -0.12)</b>	0.059	0.733	(-0.28, 0.39)
	6	-0.214	0.189	(-0.54, 0.11)	-0.299	0.059	(-0.61, 0.01)

NCD indicator	PMGr definition	Unadjusted coefficient	P-value	95% CI	Adjusted coefficient	P-value	95% CI
Waist:Hip ratio	1	-0.000	0.923	(-0.01, 0.01)	0.001	0.796	(-0.00, 0.01)
	2	0.002	0.441	(-0.00, 0.01)	0.002	0.382	(-0.00, 0.01)
	3	-0.002	0.409	(-0.01, 0.00)	0.000	0.993	(-0.01, 0.01)
	4	0.004	0.155	(-0.00, 0.01)	-0.000	0.989	(-0.01, 0.01)
	5	0.005	0.061	(-0.00, 0.01)	0.001	0.672	(-0.00, 0.01)
	6	-0.004	0.182	(-0.01, 0.00)	-0.004	0.147	(-0.01, 0.00)
Lean mass index (BIA)	1	0.138	0.056	(-0.00, 0.28)	0.109	0.143	(-0.04, 0.26)
	2	0.039	0.577	(-0.10, 0.18)	0.041	0.559	(-0.09, 0.18)
	3	0.136	0.057	(-0.00, 0.28)	0.067	0.356	(-0.08, 0.21)
	4	-0.111	0.168	(-0.27, 0.05)	-0.071	0.423	(-0.24, 0.10)
	5	-0.141	0.067	(-0.29, 0.01)	-0.015	0.860	(-0.18, 0.15)
	6	-0.049	0.543	(-0.21, 0.11)	-0.026	0.755	(-0.19, 0.14)
Fat mass index (BIA)	1	-0.012	0.800	(-0.11, 0.08)	0.005	0.923	(-0.09, 0.11)
	2	-0.024	0.623	(-0.12, 0.07)	0.006	0.901	(-0.09, 0.09)
	3	0.082	0.094	(-0.01, 0.18)	0.065	0.186	(-0.03, 0.16)
	4	-0.019	0.711	(-0.12, 0.08)	-0.033	0.568	(-0.15, 0.08)
	5	-0.061	0.227	(-0.16, 0.04)	-0.018	0.746	(-0.13, 0.09)
	6	0.051	0.337	(-0.05, 0.16)	0.006	0.910	(-0.10, 0.11)
HAZ	1	<b>0.115</b>	<b>0.019</b>	<b>(0.02, 0.21)</b>	0.091	0.066	(-0.01, 0.19)
	2	0.083	0.090	(-0.01, 0.18)	0.051	0.281	(-0.04, 0.14)
	3	0.049	0.310	(-0.05, 0.15)	0.097	0.05	(0.00, 0.19)
	4	-0.023	0.663	(-0.12, 0.08)	-0.013	0.819	(-0.12, 0.09)
	5	<b>0.141</b>	<b>0.007</b>	<b>(0.04, 0.24)</b>	0.089	0.114	(-0.02, 0.20)
	6	-0.027	0.599	(-0.13, 0.07)	0.016	0.757	(-0.09, 0.12)

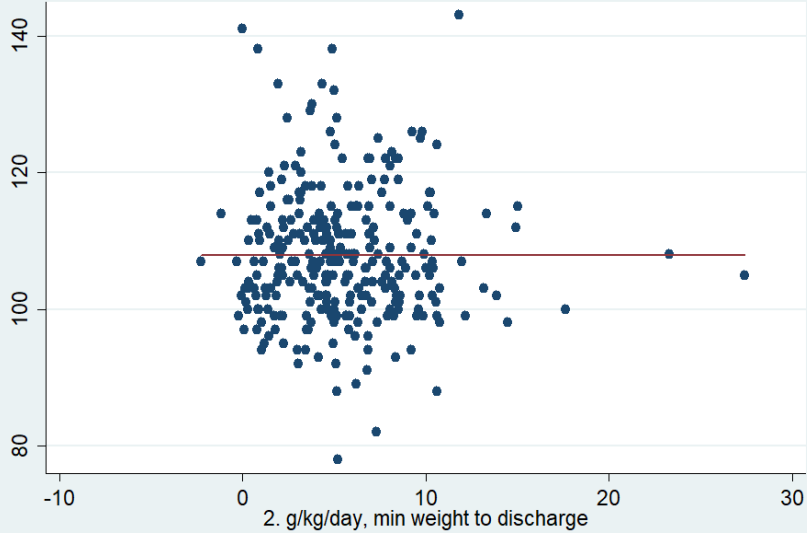
# Annex Figures 3a-1h

Scatterplots showing associations between 'no categorised' PMGr indicators and NCD risk outcomes

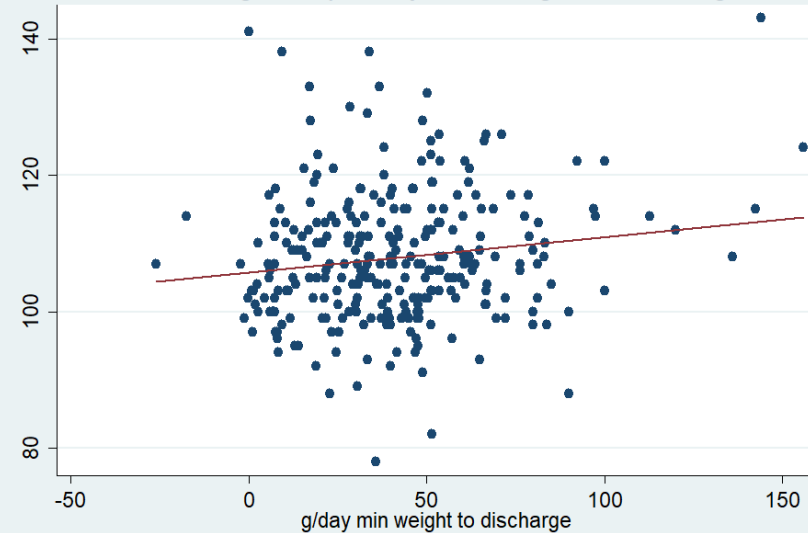
PMGr 1. Change WAZ per day, min weight to discharge



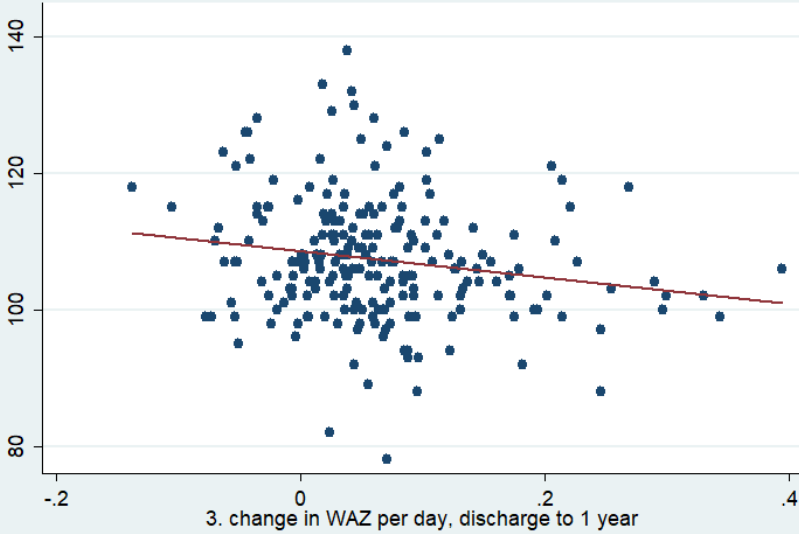
PMGr 2. Weight gain (g/kg/day), min weight to discharge



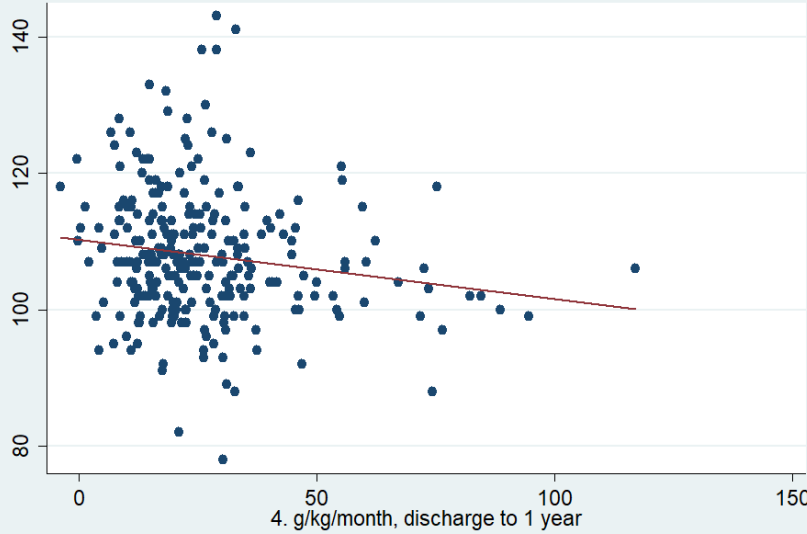
PMGr3: grams per day, min weight to discharge



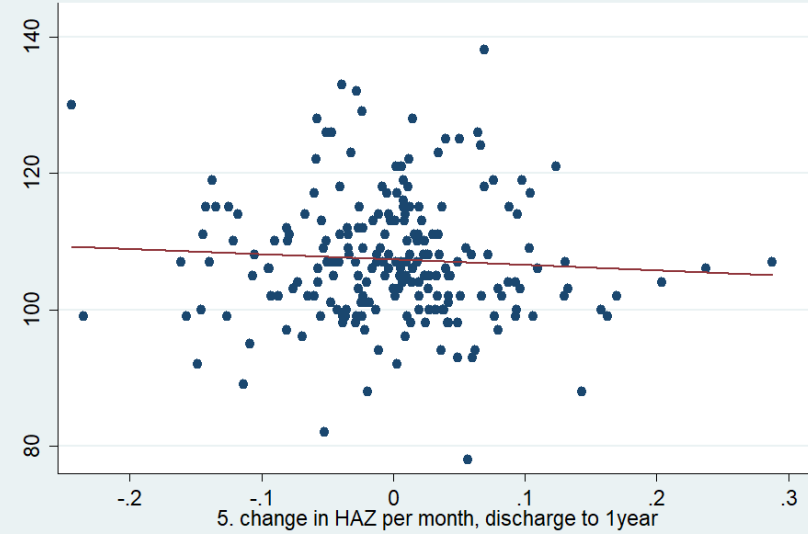
PMGr 4. Change WAZ per day, discharge to 1 year



PMGr 5. Weight gain (g/kg/month), discharge to 1 year



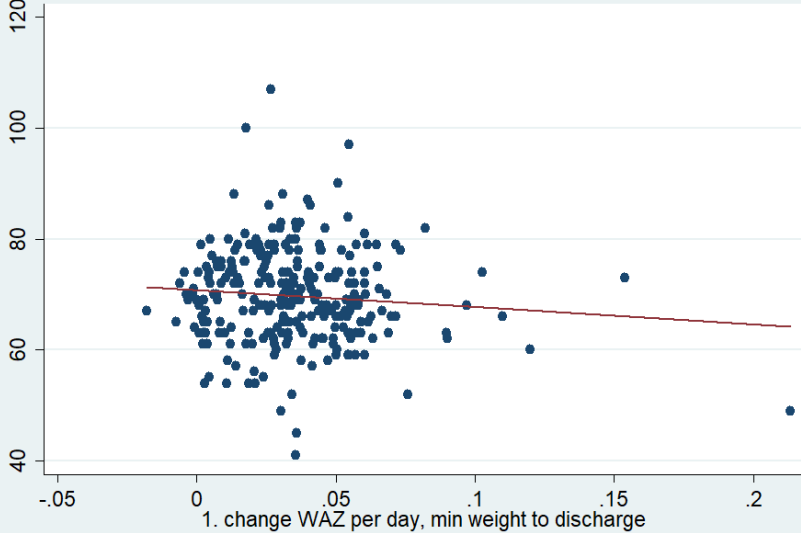
PMGr 6. Change HAZ per month, discharge to 1 year



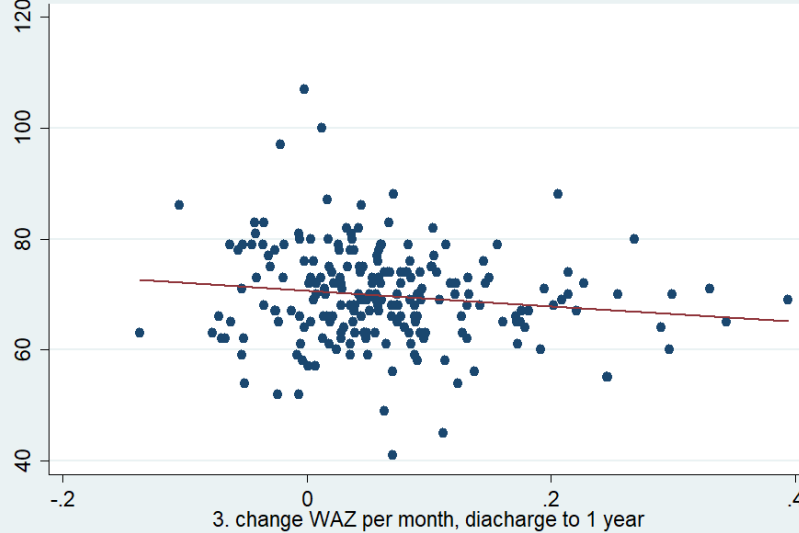
Systolic Blood Pressure



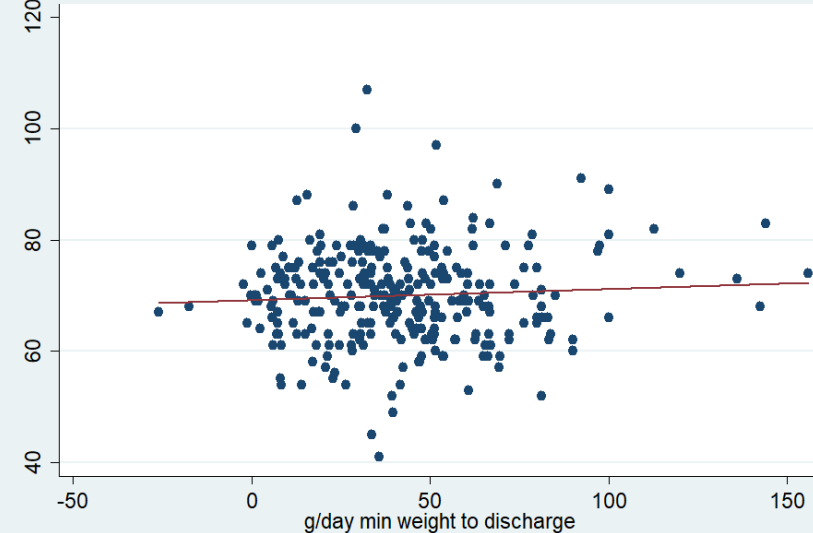
PMGr1: Change WAZ per day, min weight to discharge



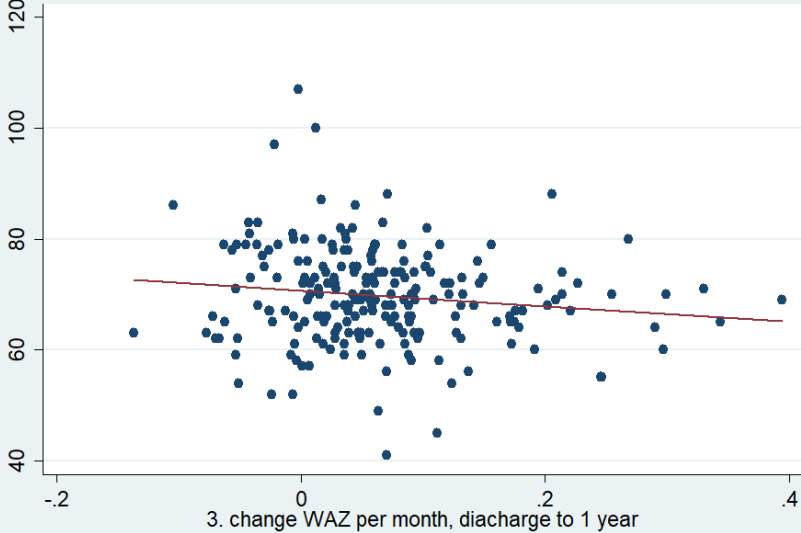
PMGr2: Change WAZ per month, discharge to 1 year



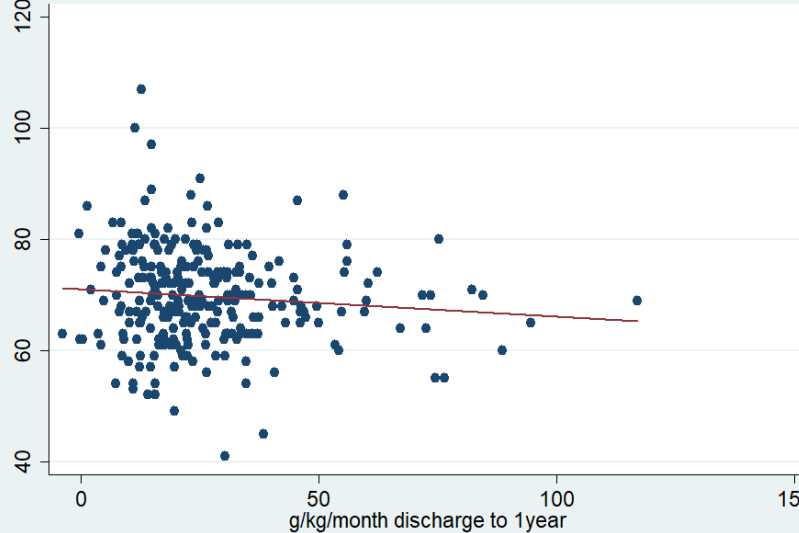
PMGr3: grams per day, min weight to discharge



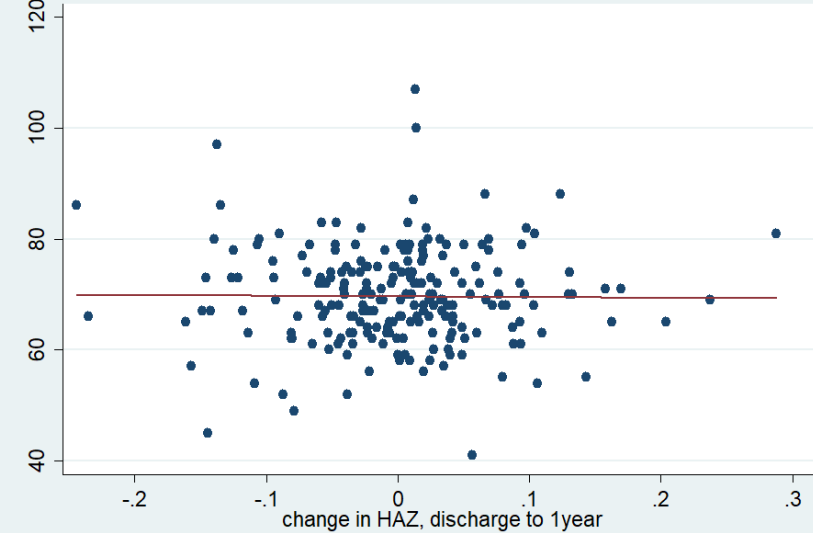
PMGr4: Change WAZ per month, discharge to 1 year



PMGr5: g/kg/month, discharge to 1 year

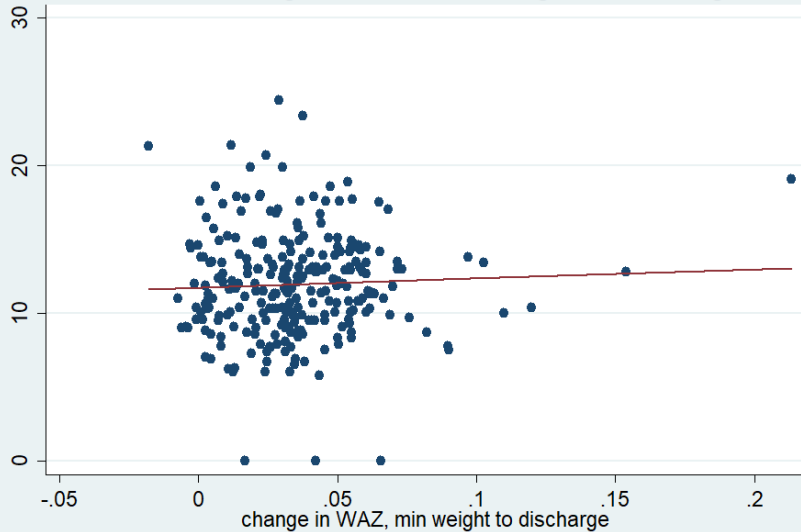


PMGr6: change in HAZ, discharge to 1 year

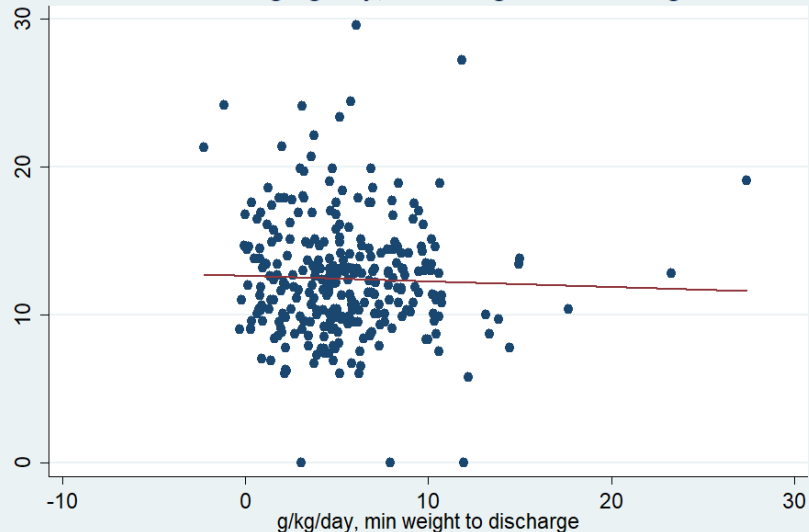


Diastolic Blood Pressure

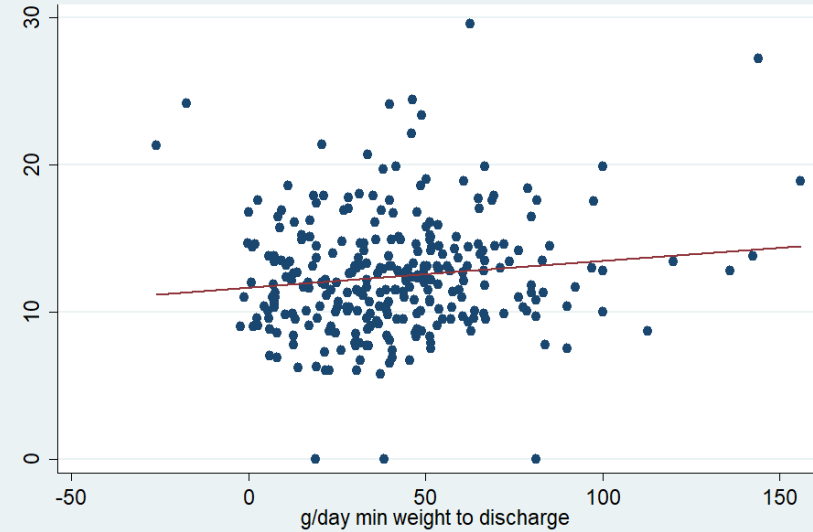
PMGr1: change in WAZ, min weight to discharge



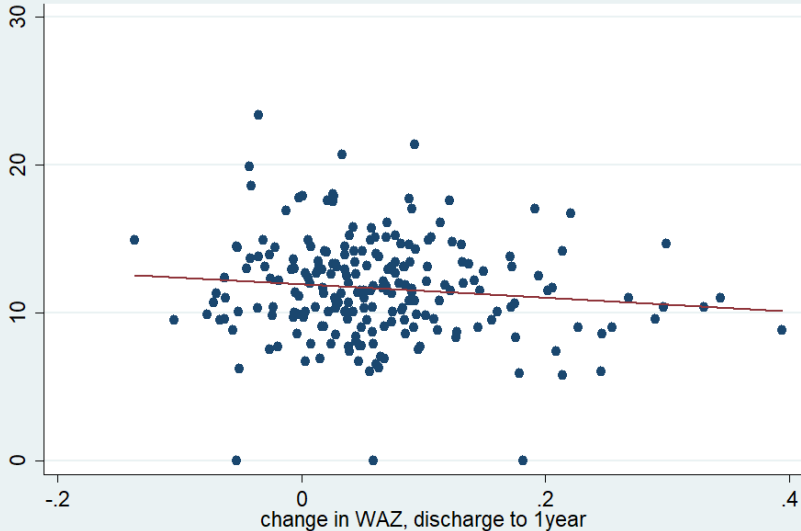
PMGr2: g/kg/day, min weight to discharge



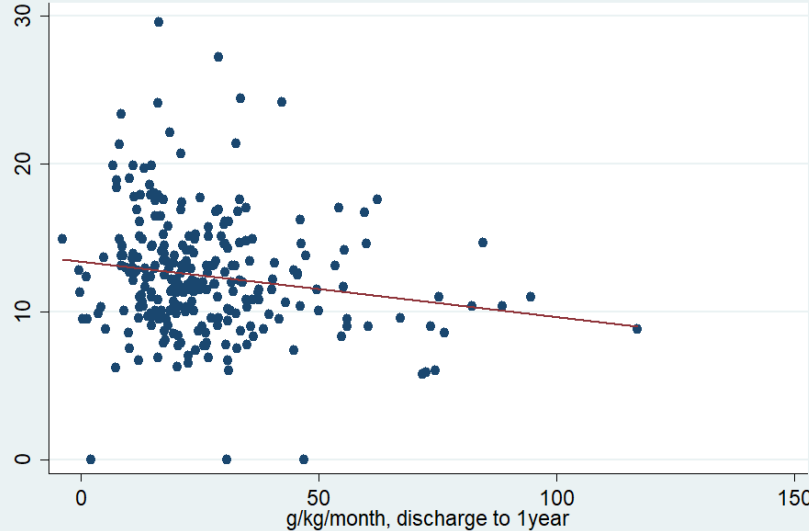
PMGr3: grams per day, min weight to discharge



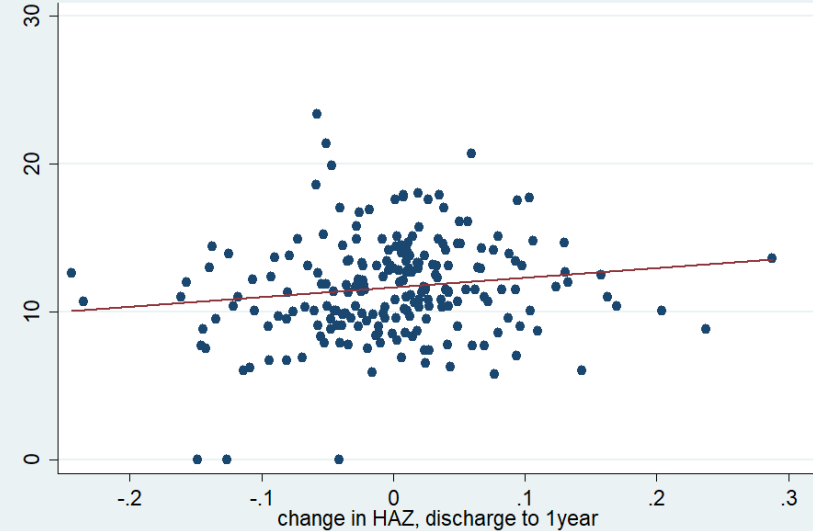
PMGr4: change in WAZ, discharge to 1 year



PMGr5: g/kg/month, discharge to 1 year

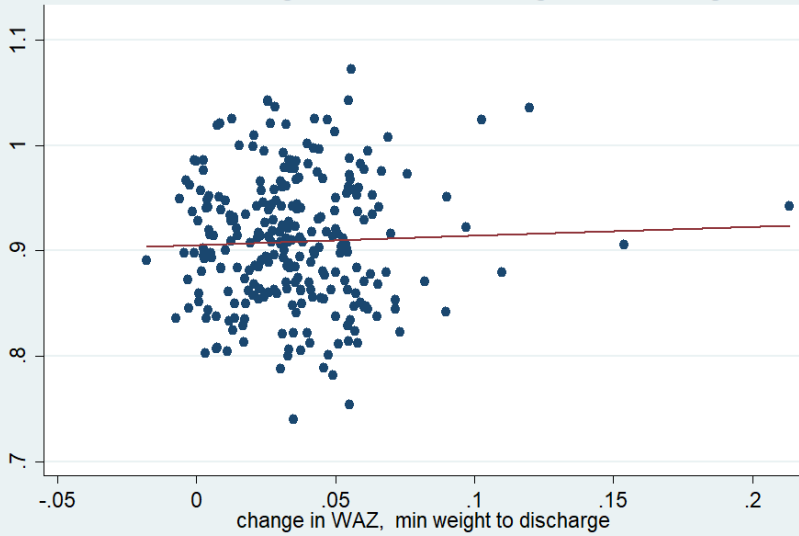


PMGr6: change in HAZ, discharge to 1 year

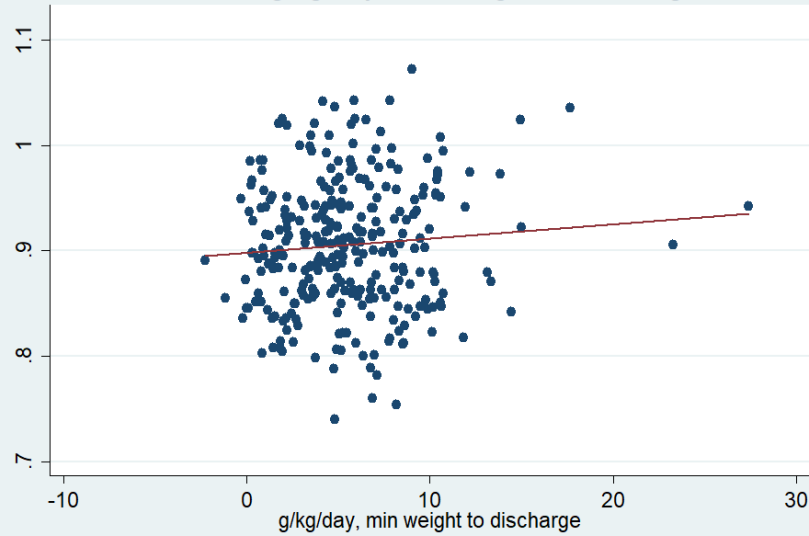


Hand grip strength

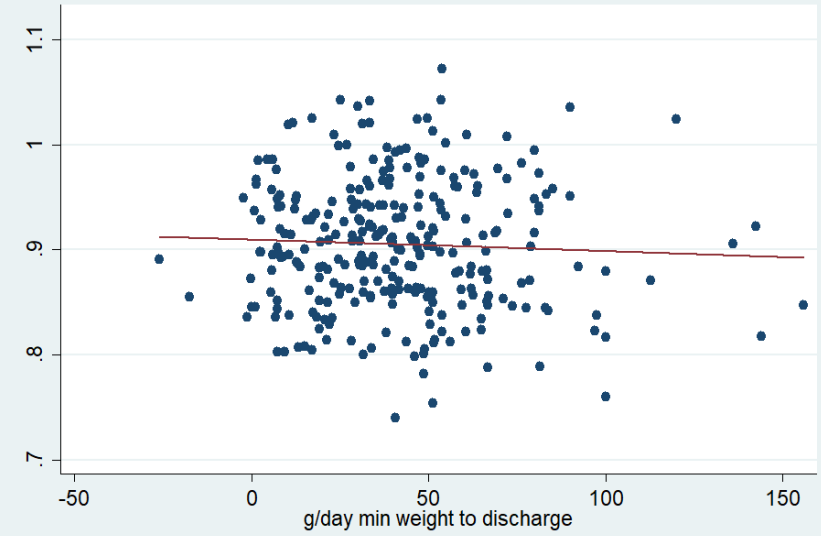
PMGr1: change in WAZ, min weight to discharge



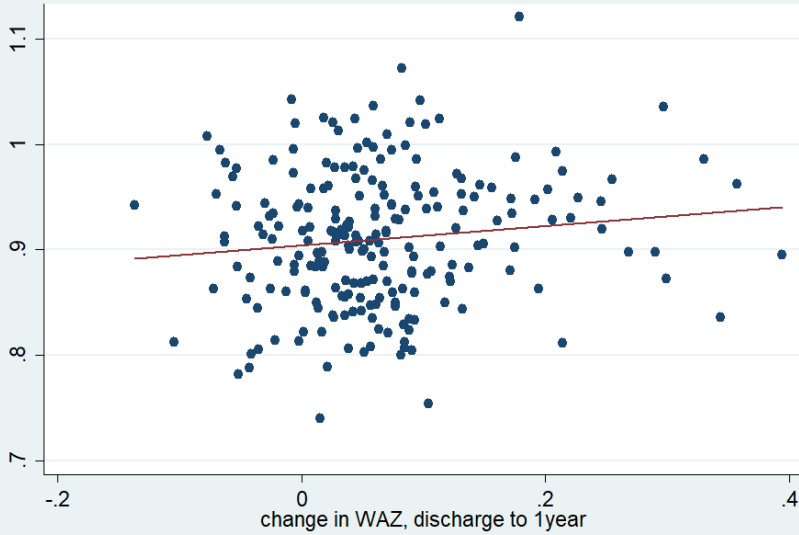
PMGr2: g/kg/day, min weight to discharge



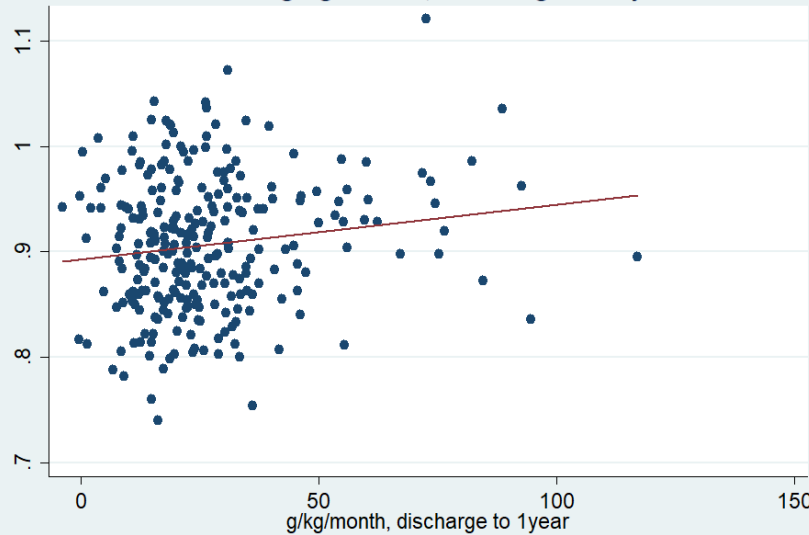
PMGr3: grams per day, min weight to discharge



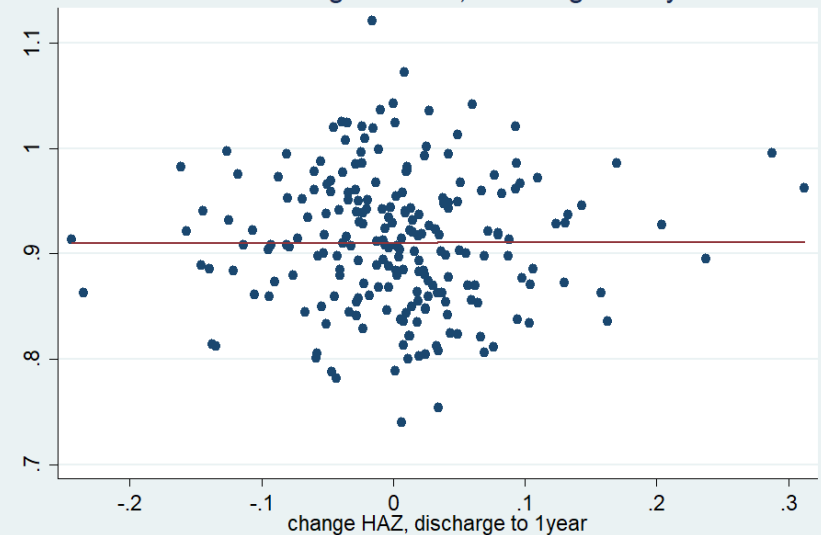
PMGr4: change in WAZ, discharge to 1 year



PMGr5: g/kg/month, discharge to 1 year

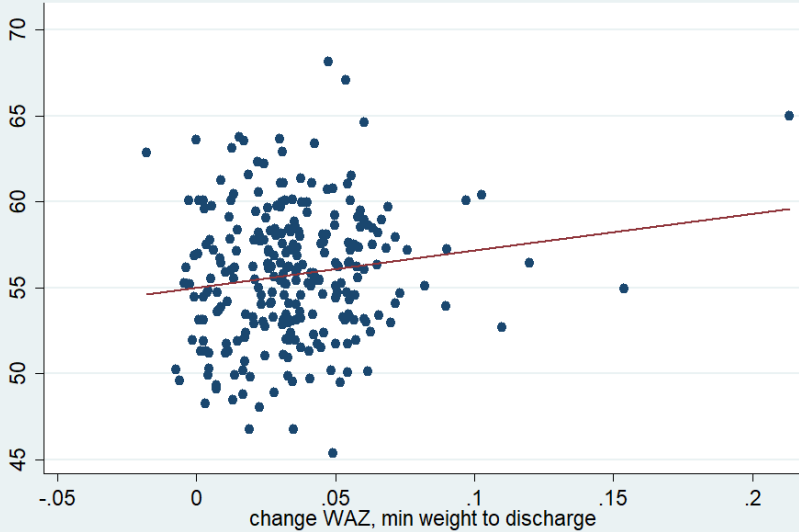


PMGr6: change in HAZ, discharge to 1 year

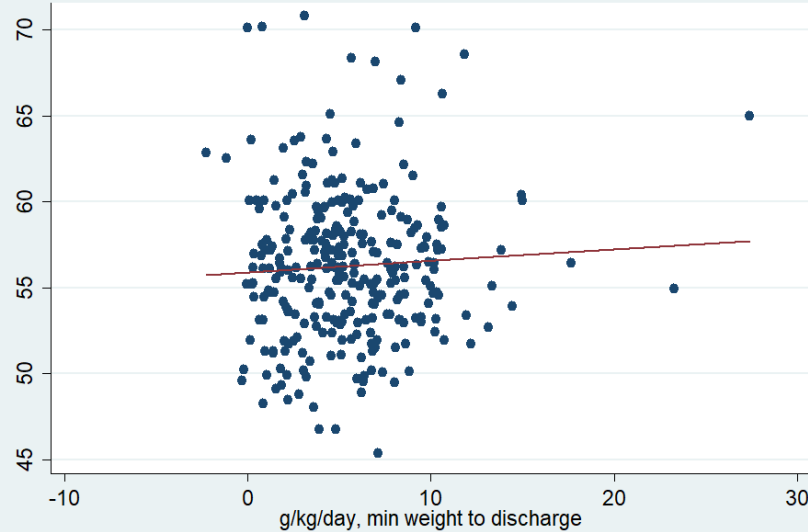


Waist/Hip ratio

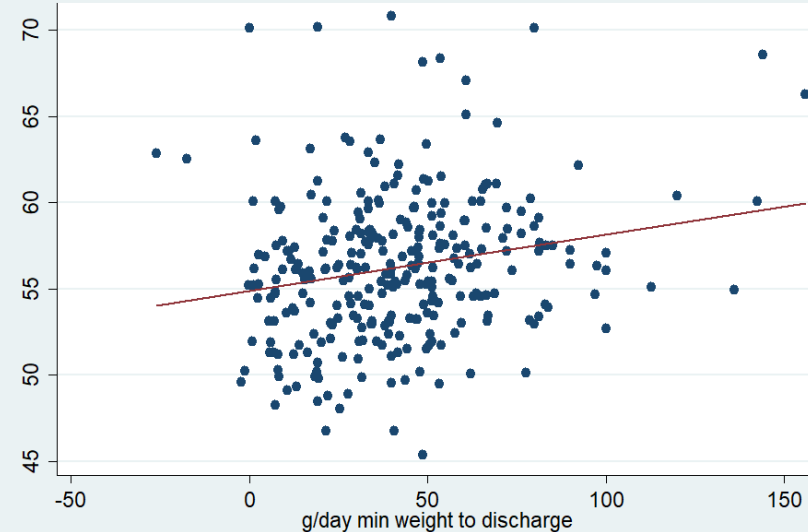
PMGr1: change in WAZ, min weight to discharge



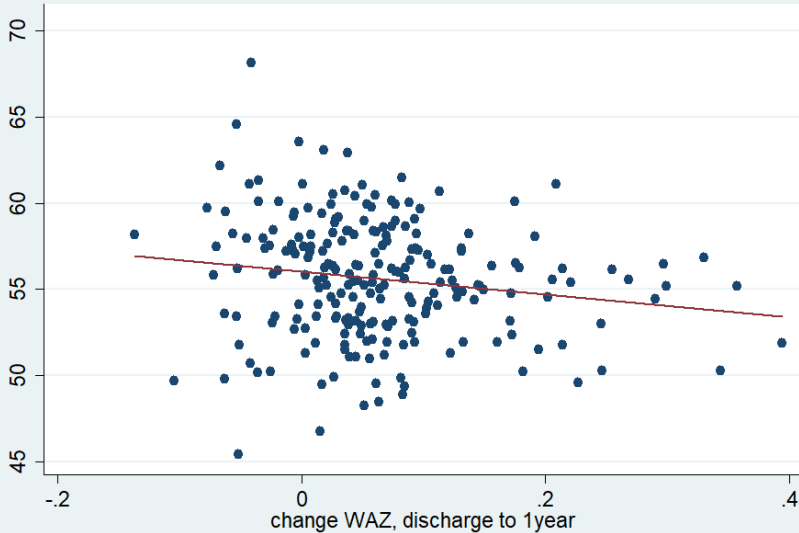
PMGr2: g/kg/day, min weight to discharge



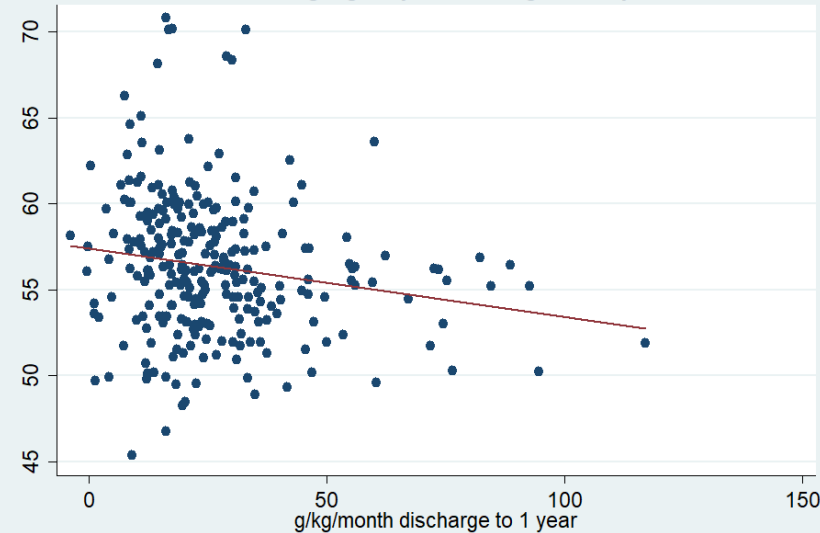
PMGr3: grams per day, min weight to discharge



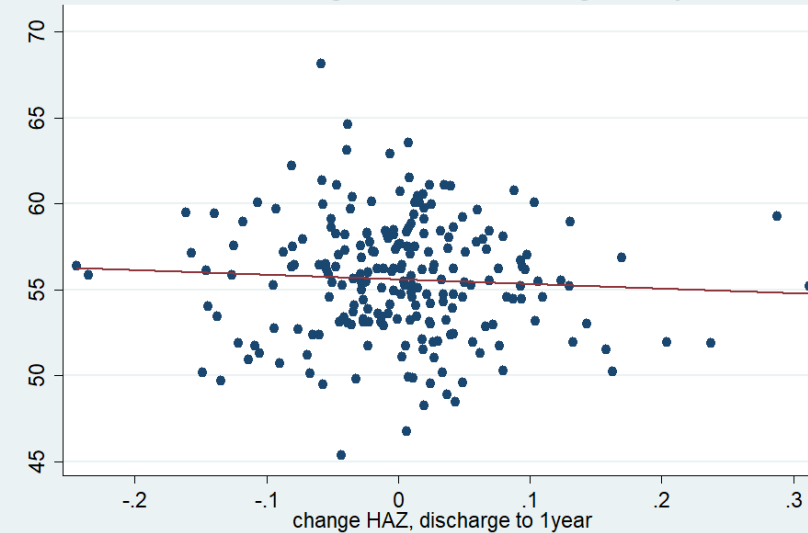
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PMGr5: g/kg/day, discharge to 1 year

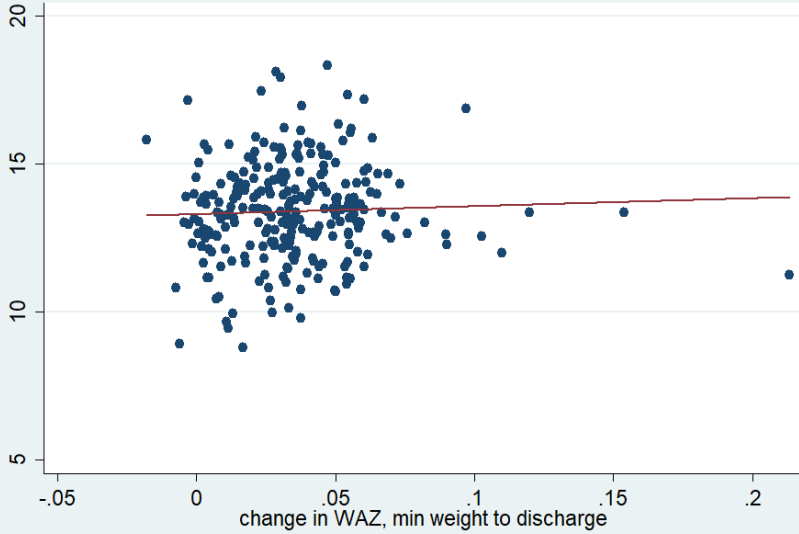


PMGr6: change in HAZ, discharge to 1 year

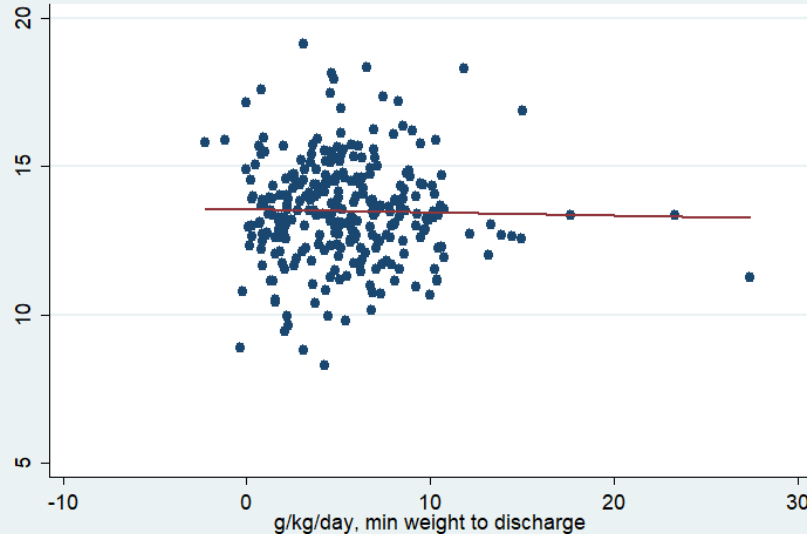


Waist circumference

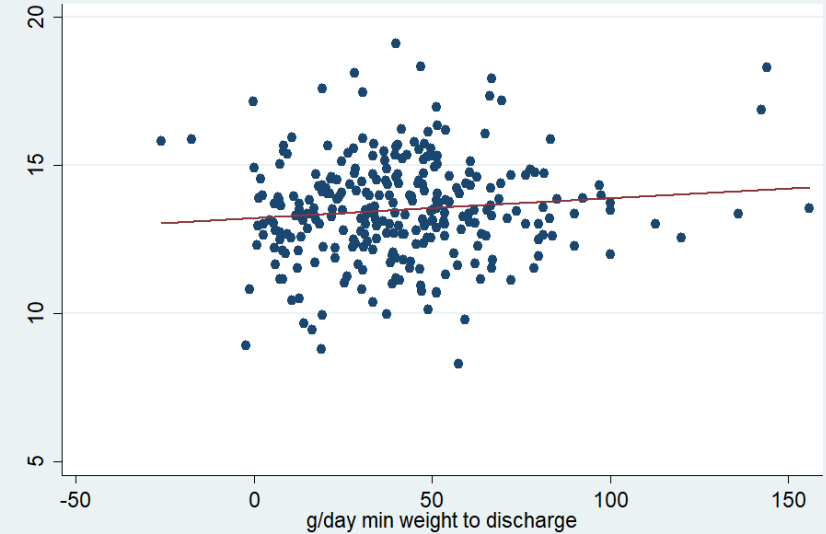
PMGr1: change in WAZ, min weight to discharge



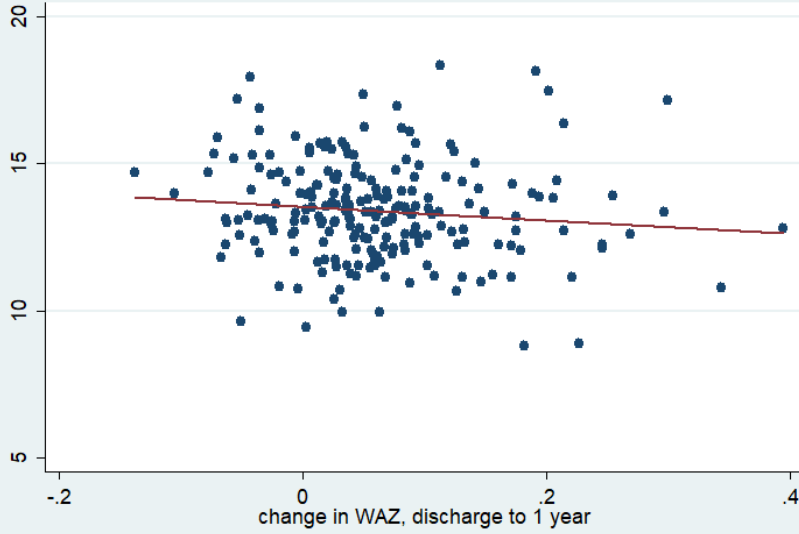
PMGr2: g/kg/day, min weight to discharge



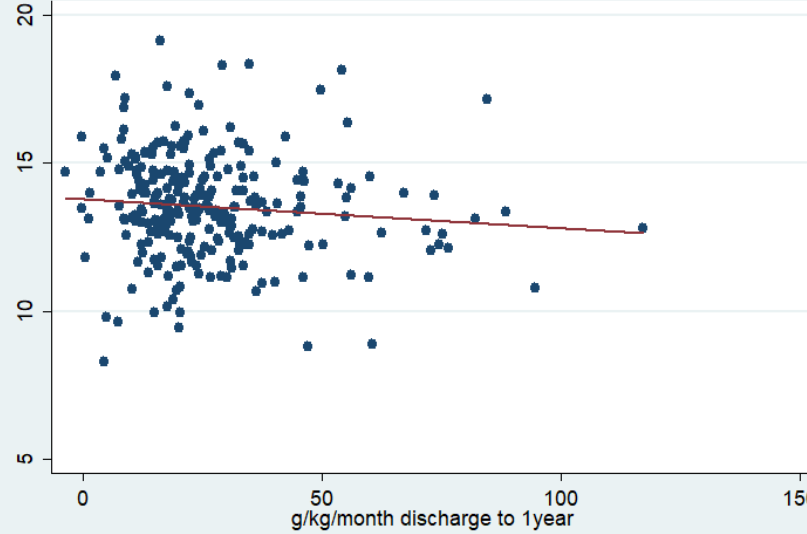
PMGr3: grams per day, min weight to discharge



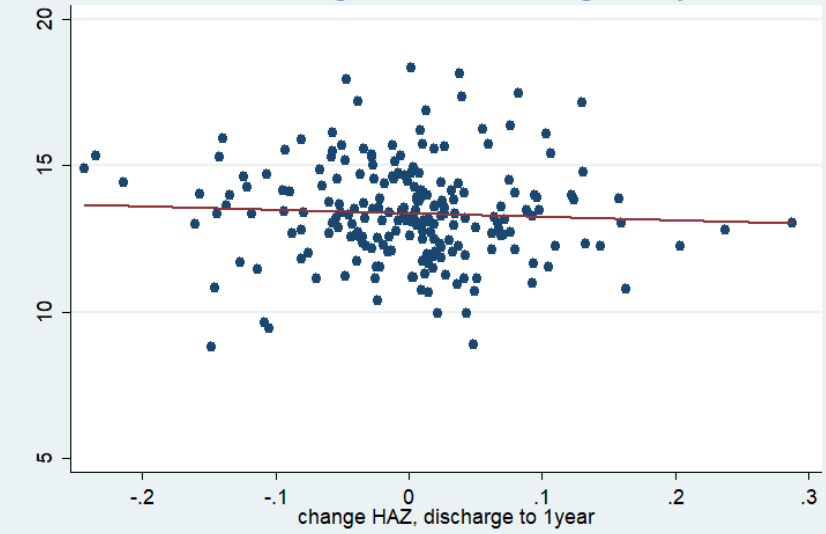
PMGr4: change in WAZ, discharge to 1 year



PMGr5: g/kg/month, discharge to 1 year

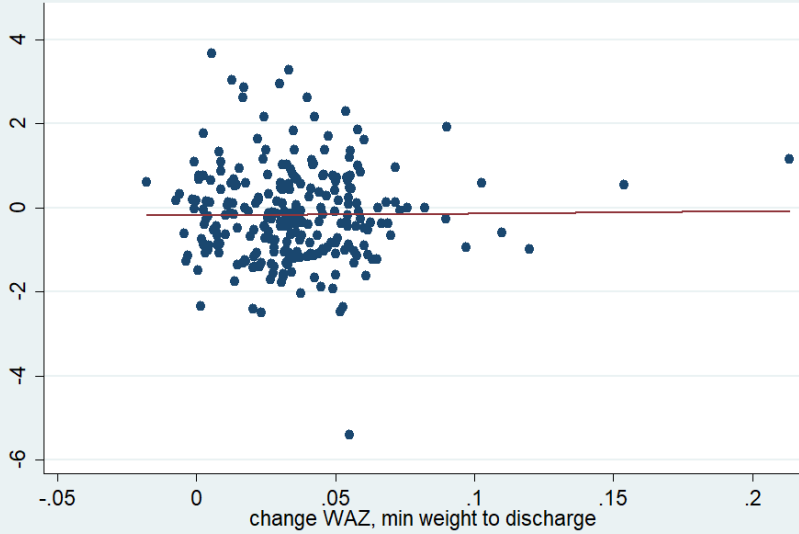


PMGr6: change in HAZ, discharge to 1 year

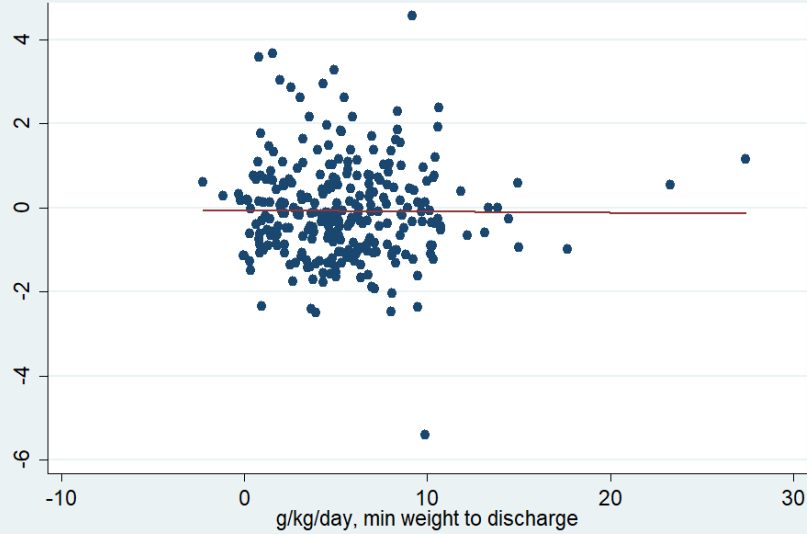


Lean Mass Index

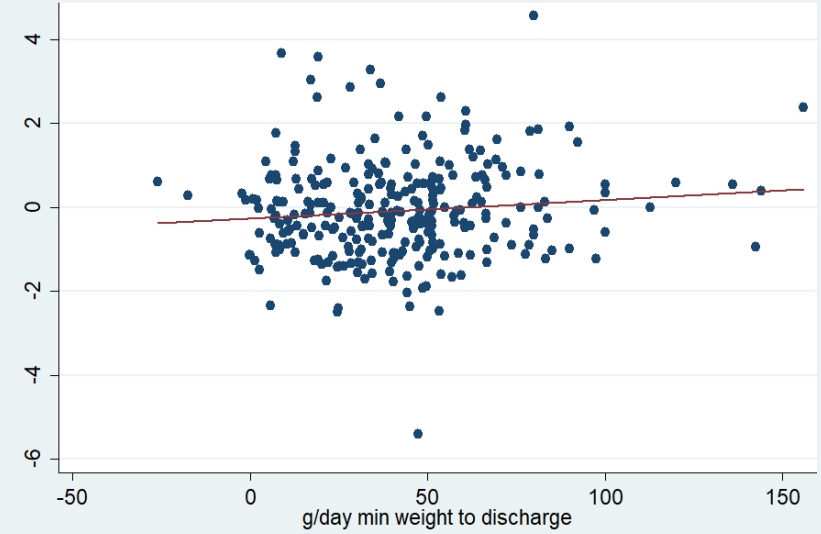
PMGr1: change in WAZ, min weight to discharge



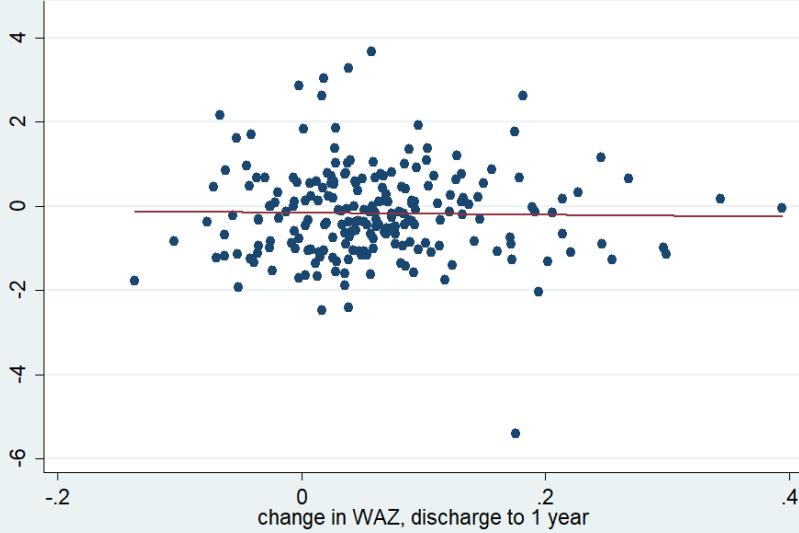
PMGr2: g/kg/day, min weight to discharge



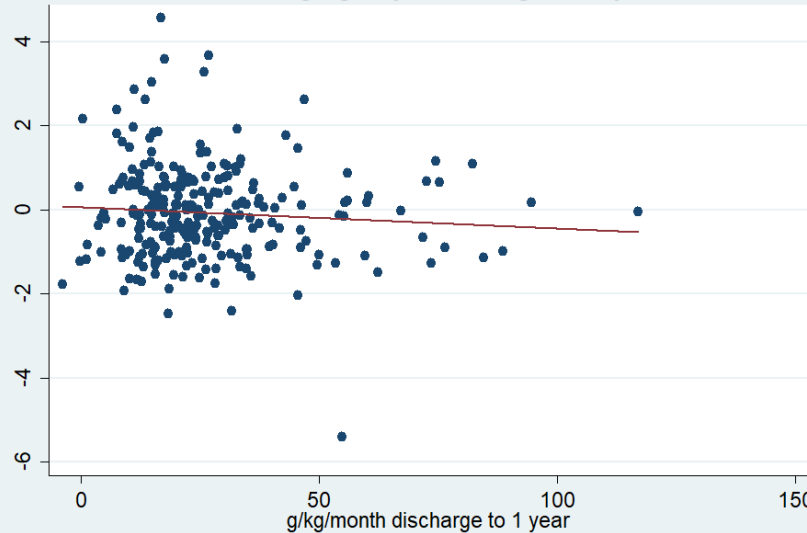
PMGr3: grams per day, min weight to discharge



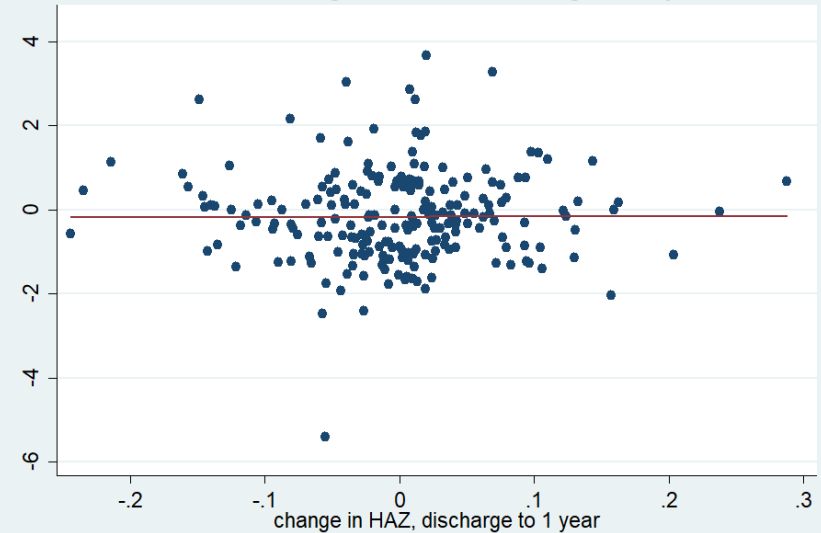
PMGr4: change in WAZ, discharge to 1 year



PMGr5: g/kg/day, discharge to 1 year

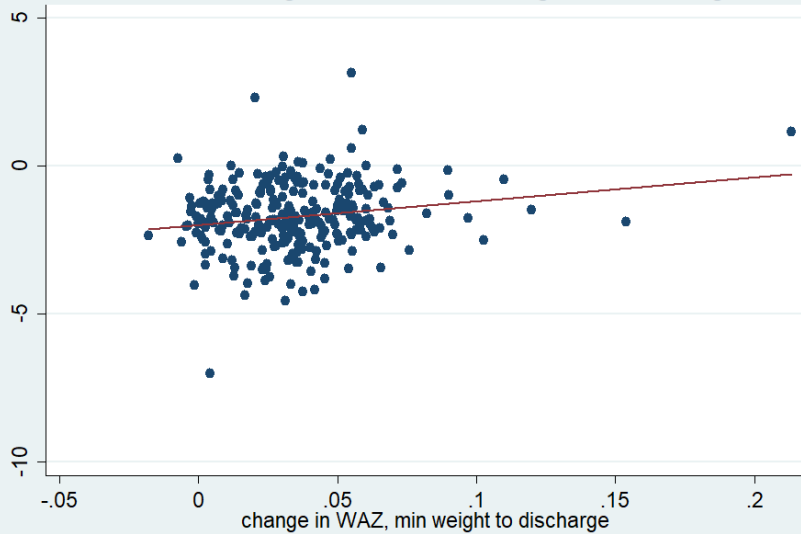


PMGr6: change in HAZ, discharge to 1 year

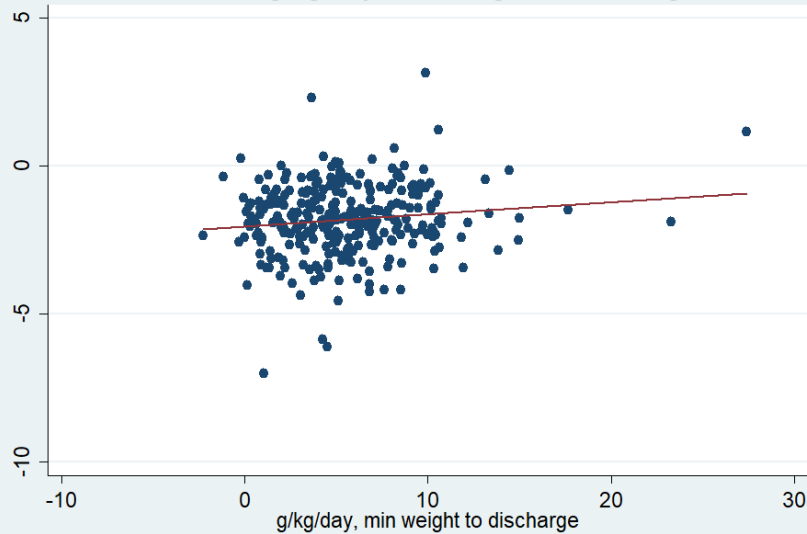


Fat Mass Index

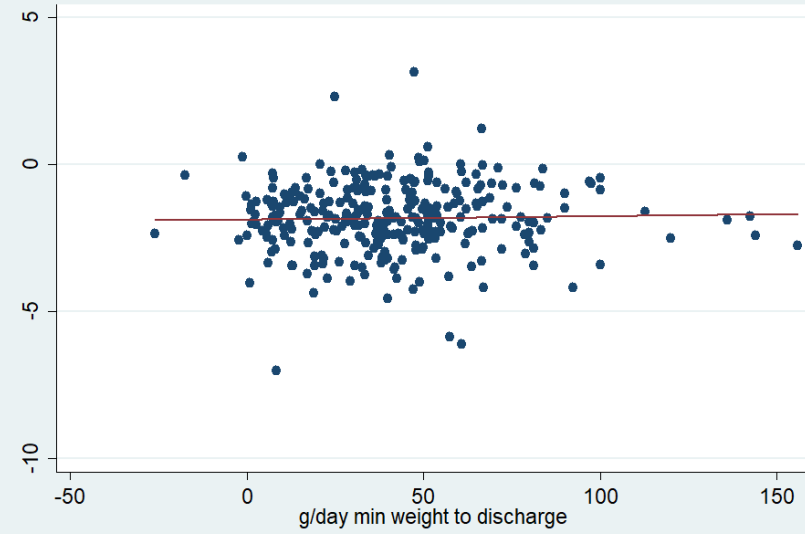
PMGr1: change in WAZ, min weight to discharge



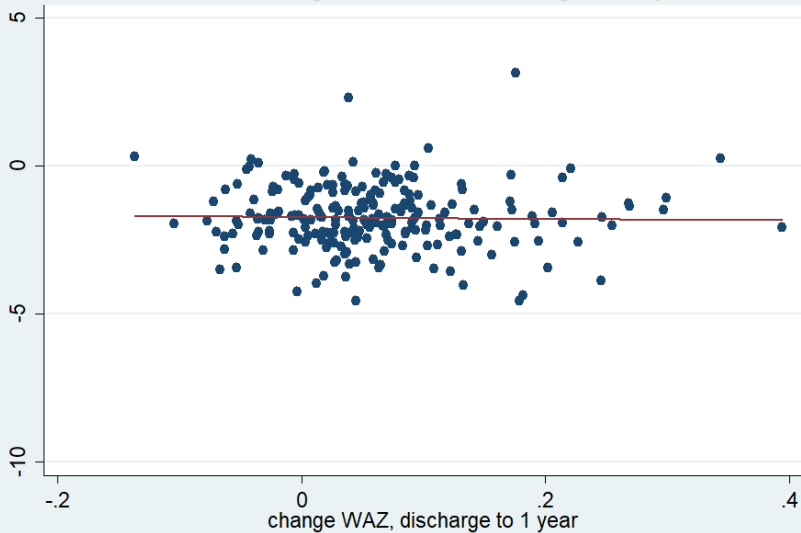
PMGr2: g/kg/day, min weight to discharge



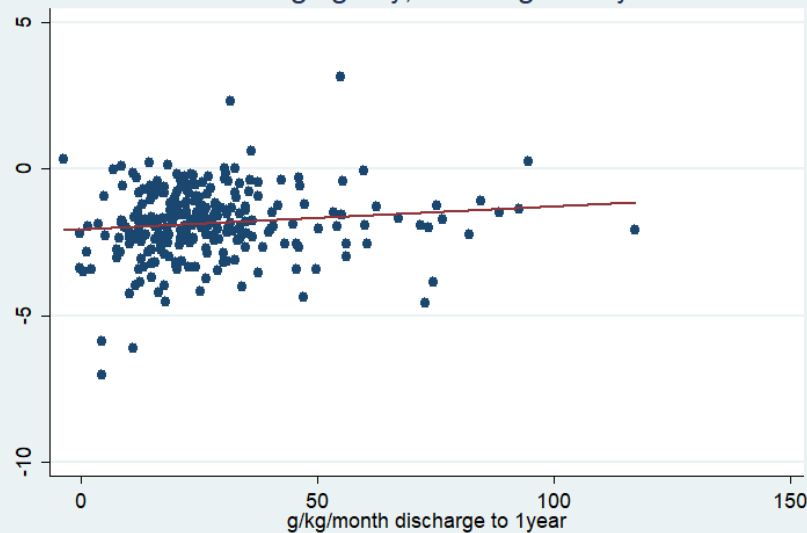
PMGr3: grams per day, min weight to discharge



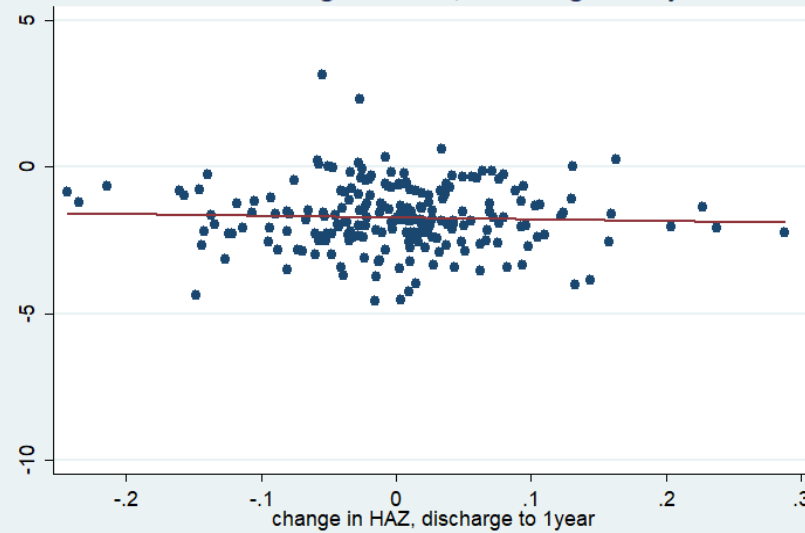
PMGr4: change in WAZ, discharge to 1 year



PMGr5: g/kg/day, discharge to 1 year



PMGr6: change in HAZ, discharge to 1 year

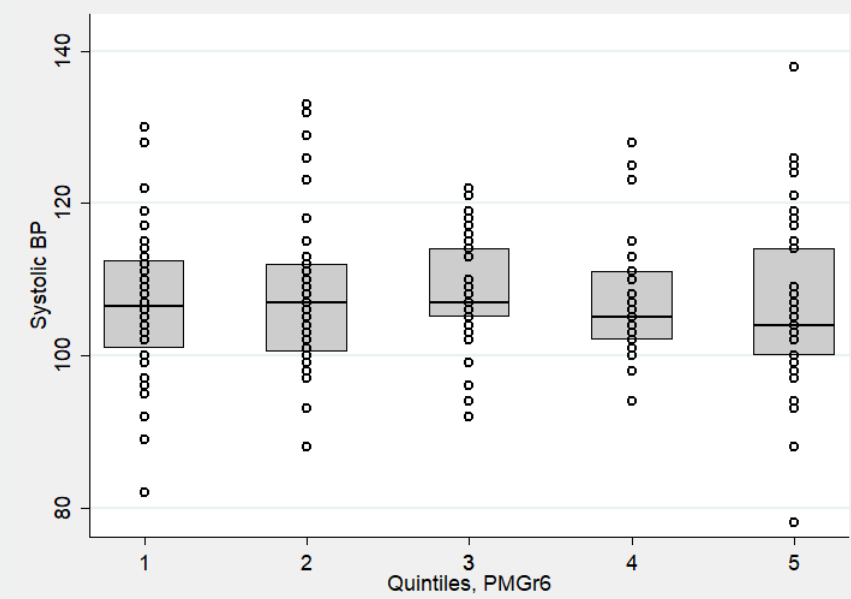
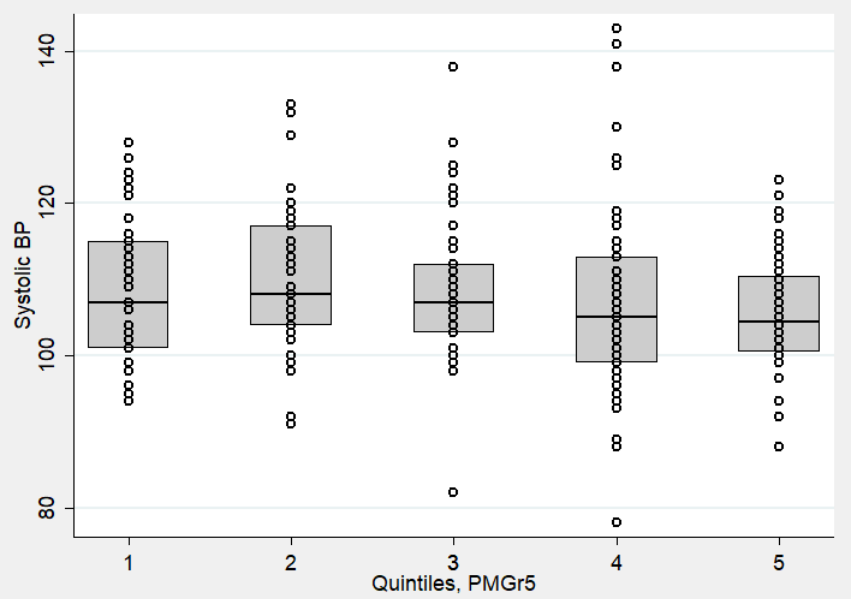
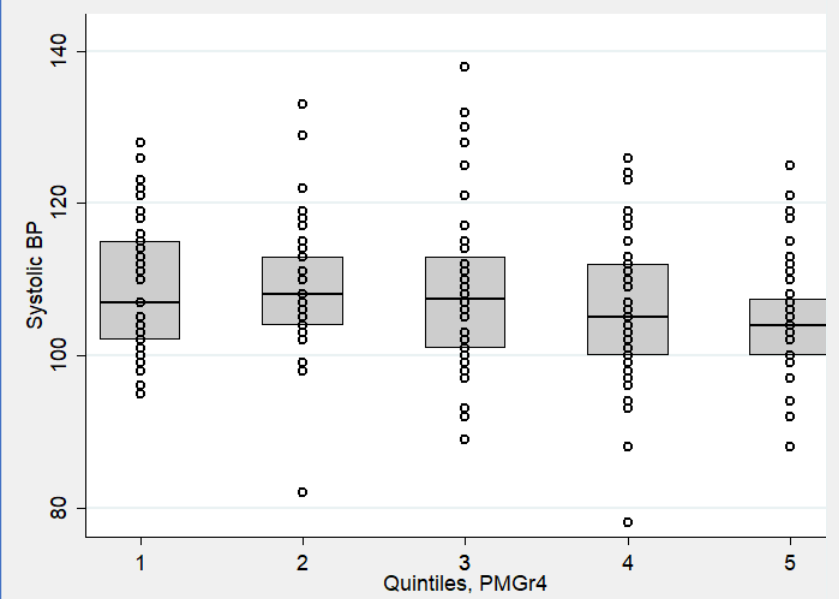
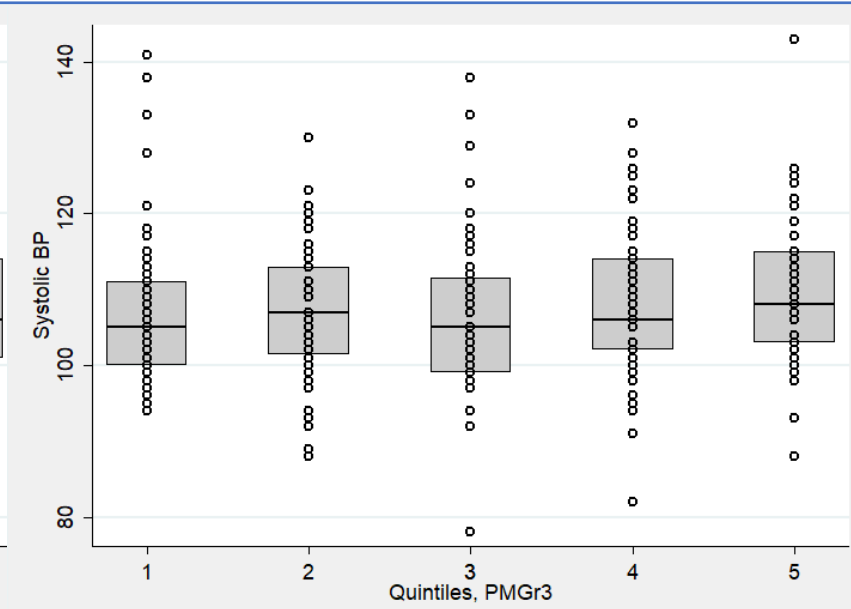
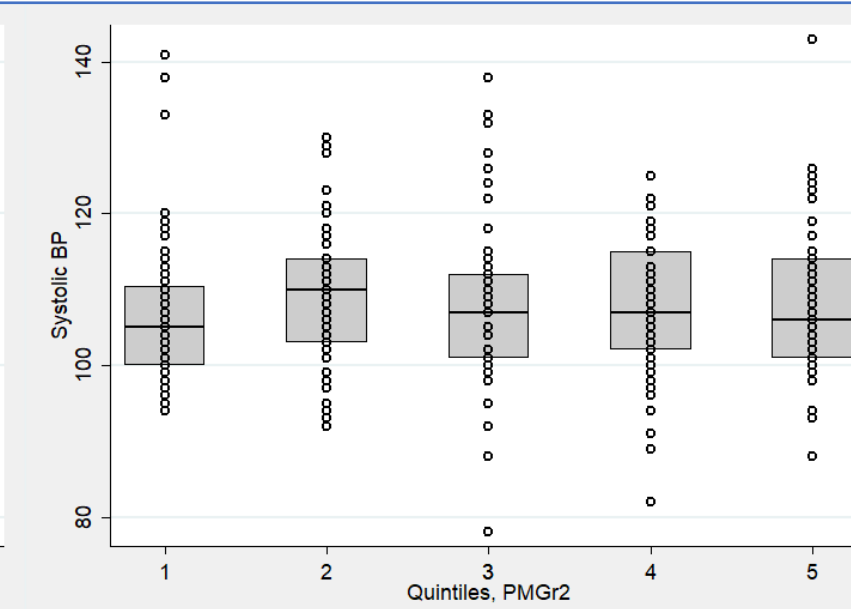
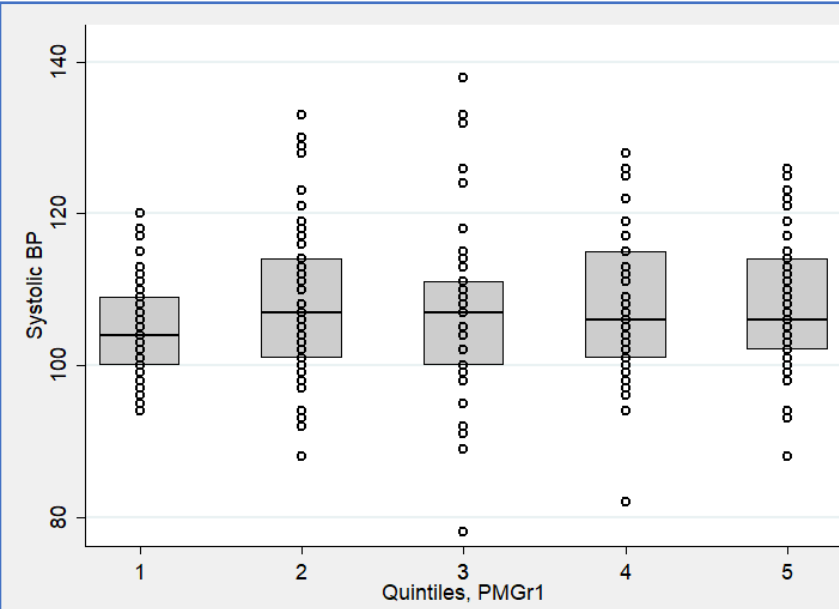


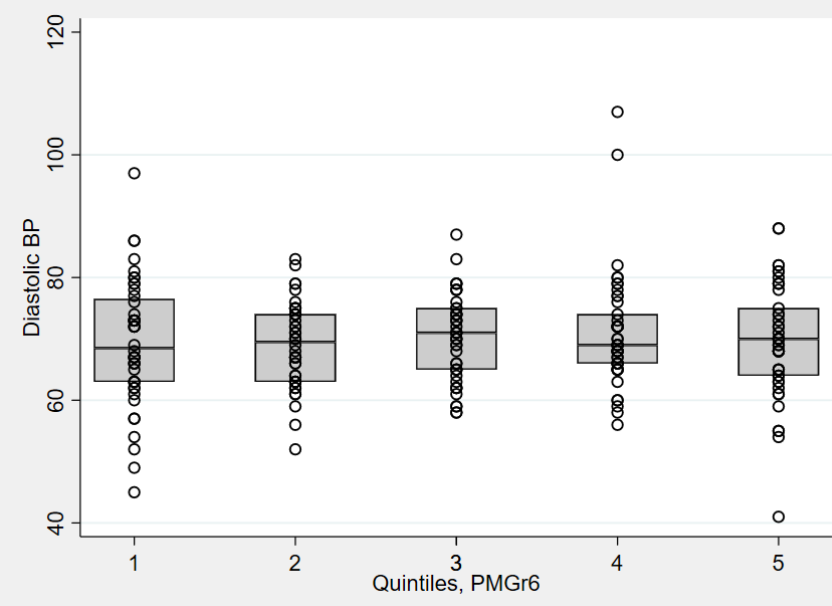
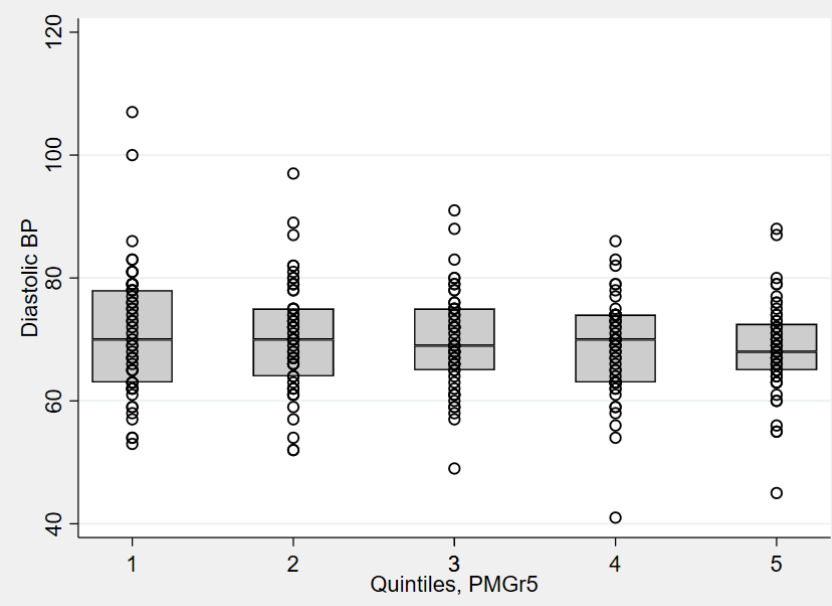
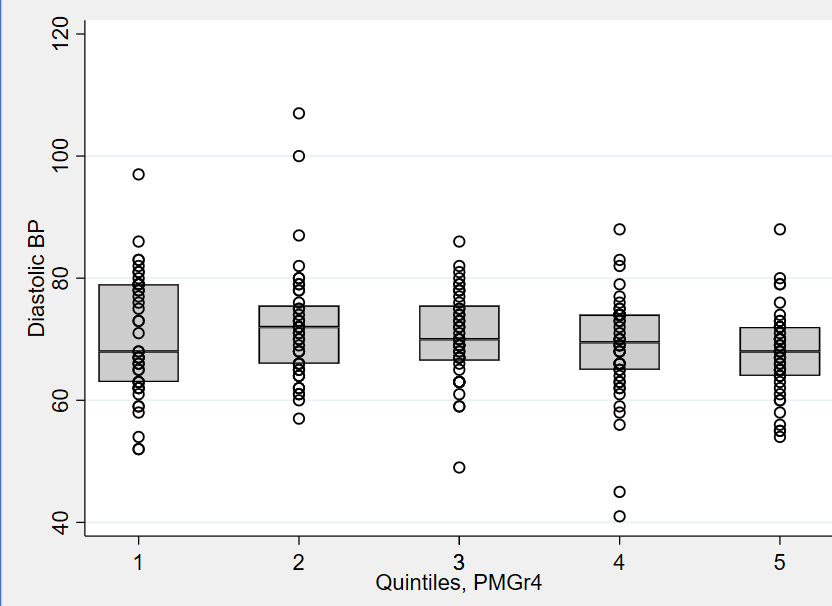
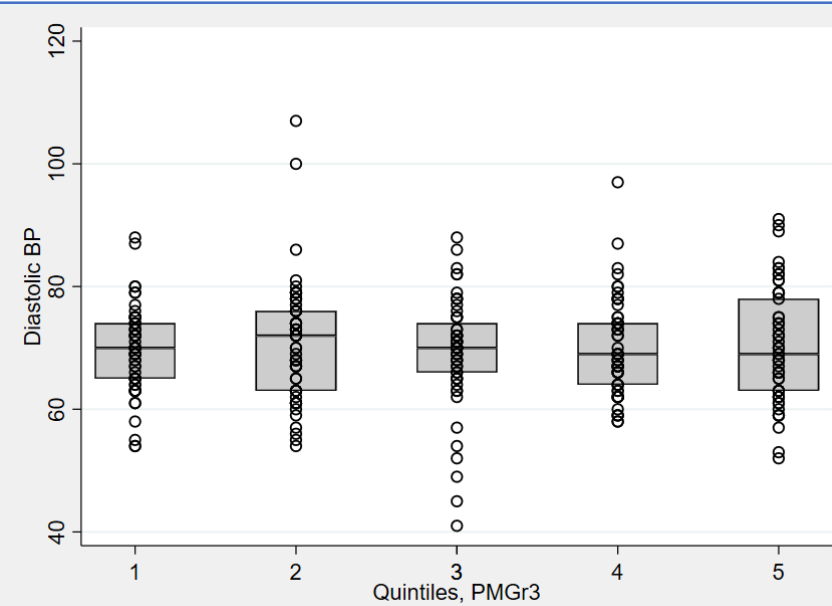
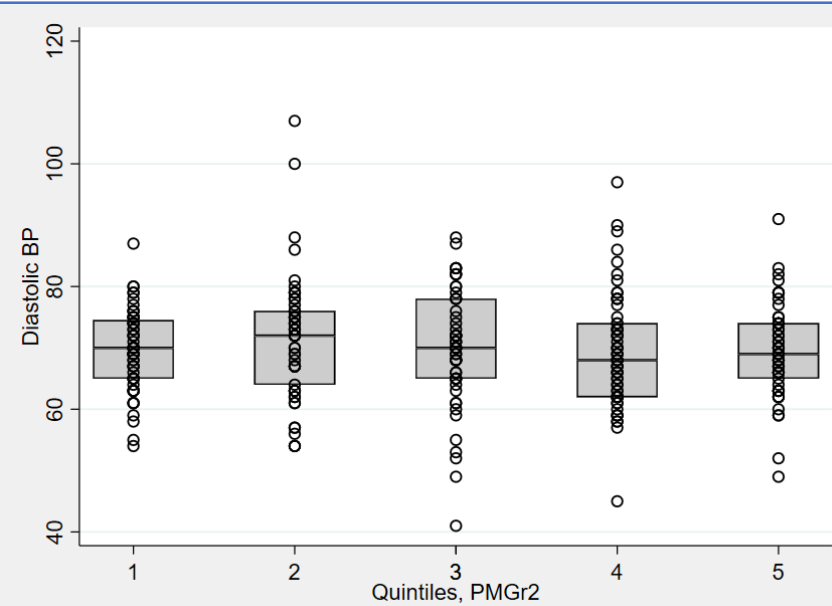
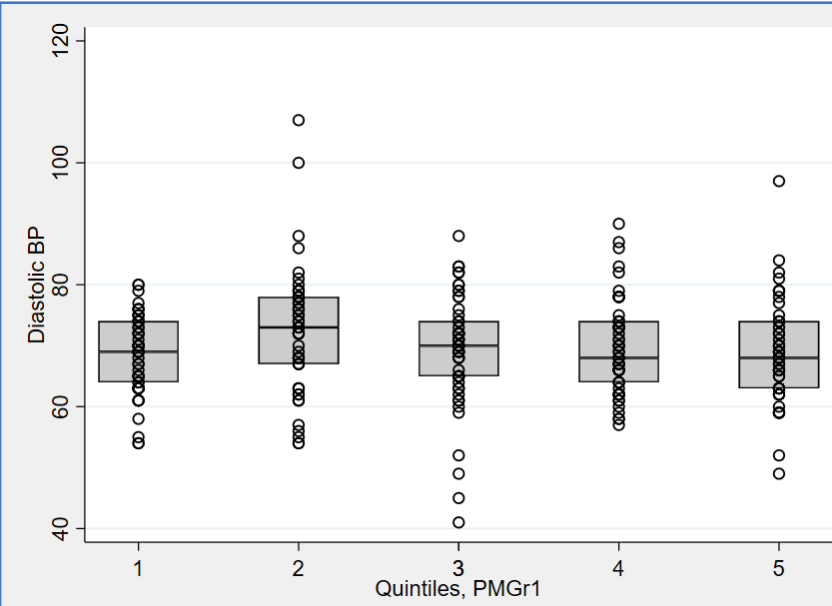
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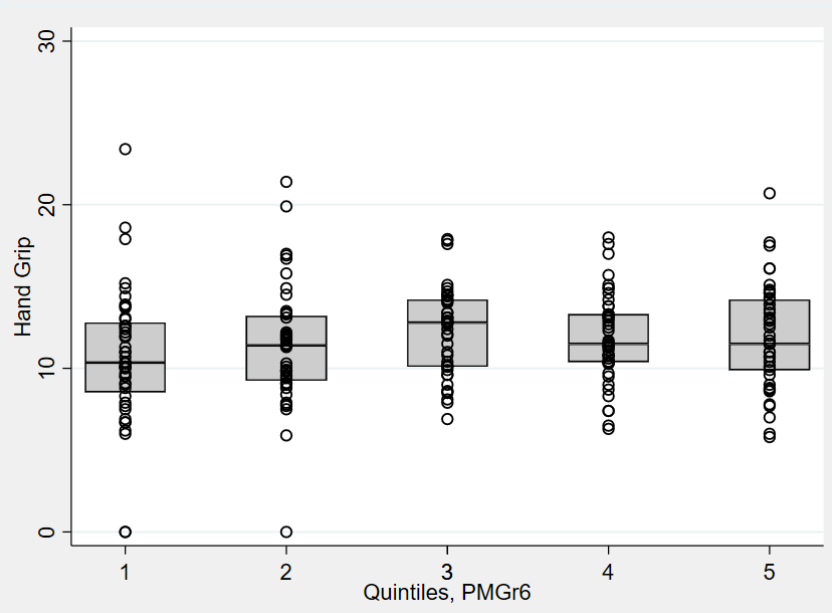
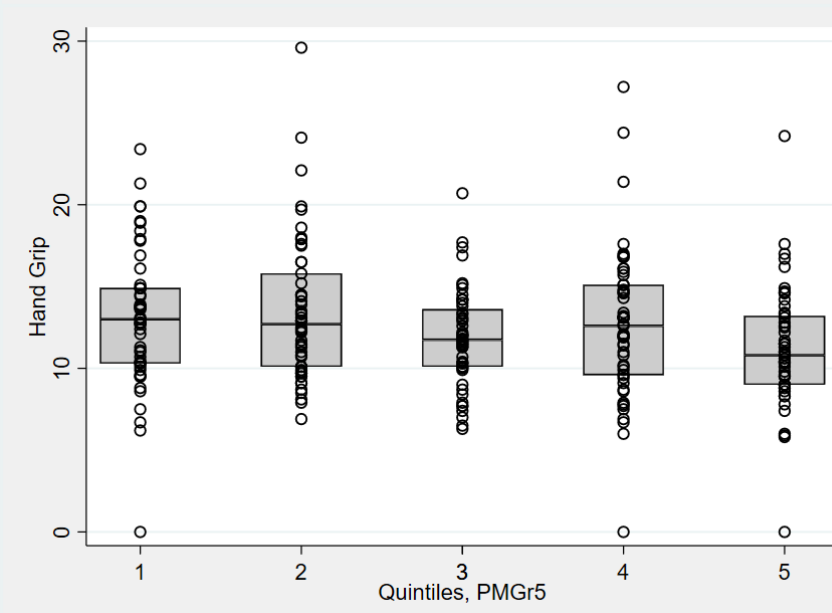
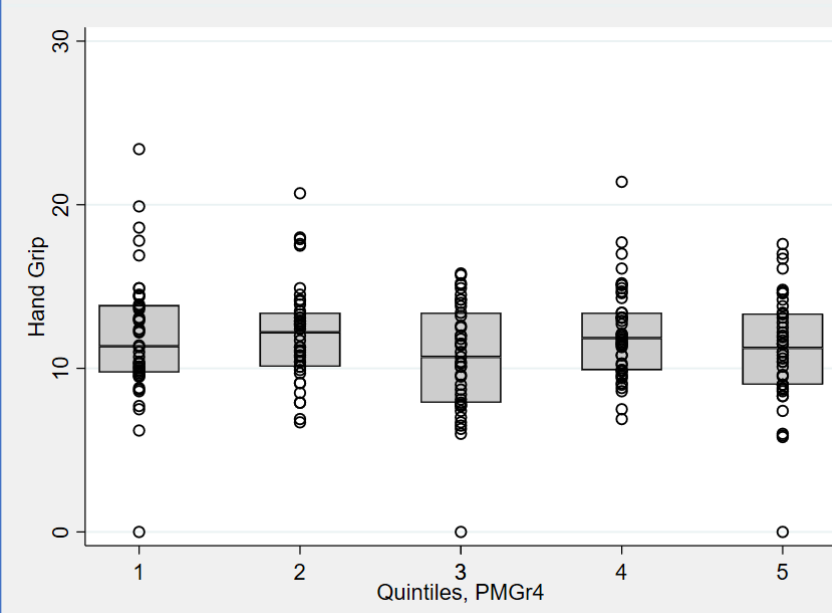
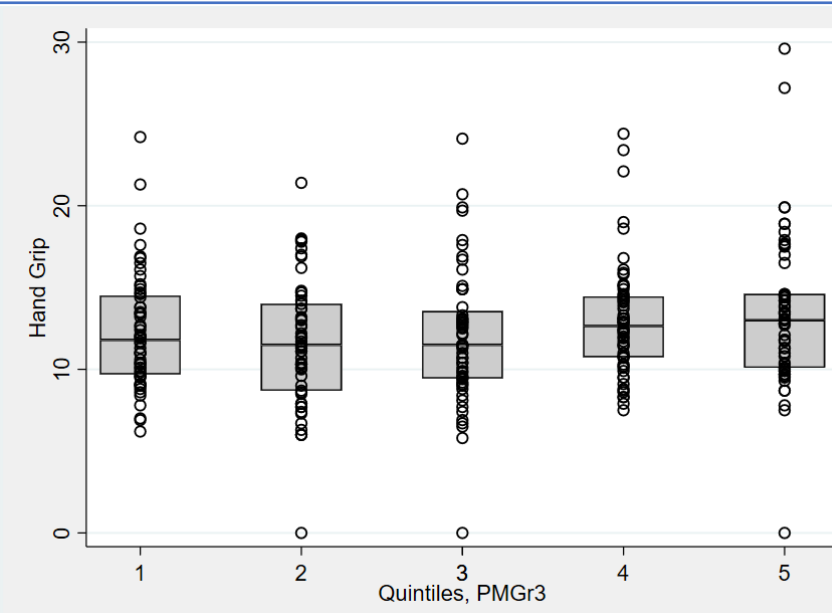
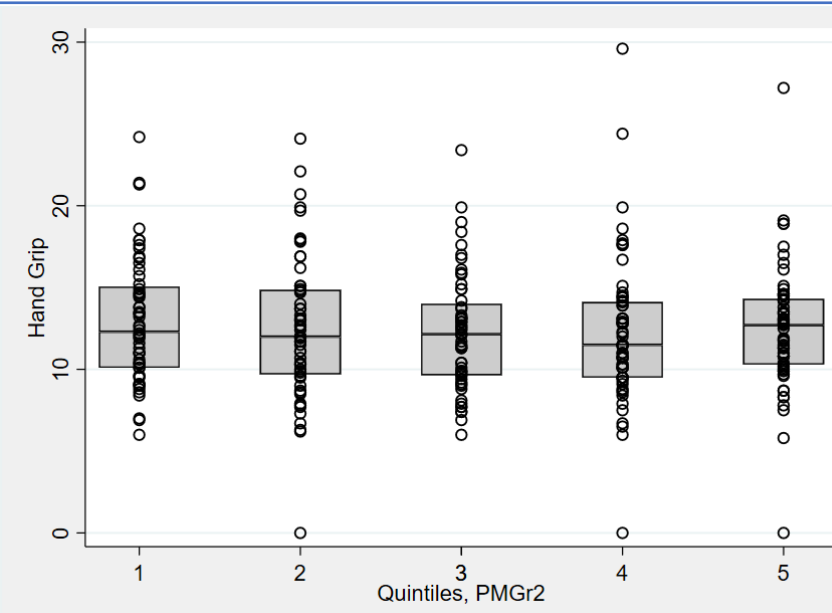
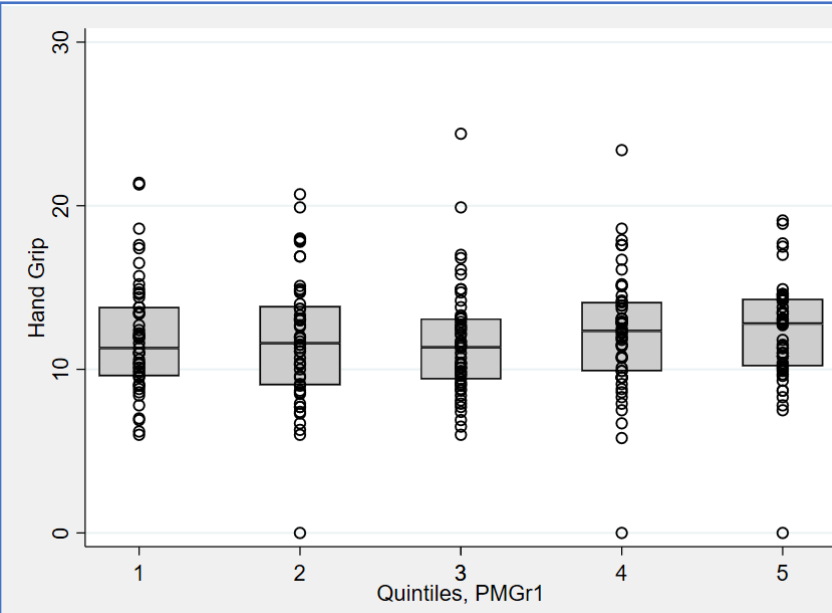
# Annex Figures 4a-2h

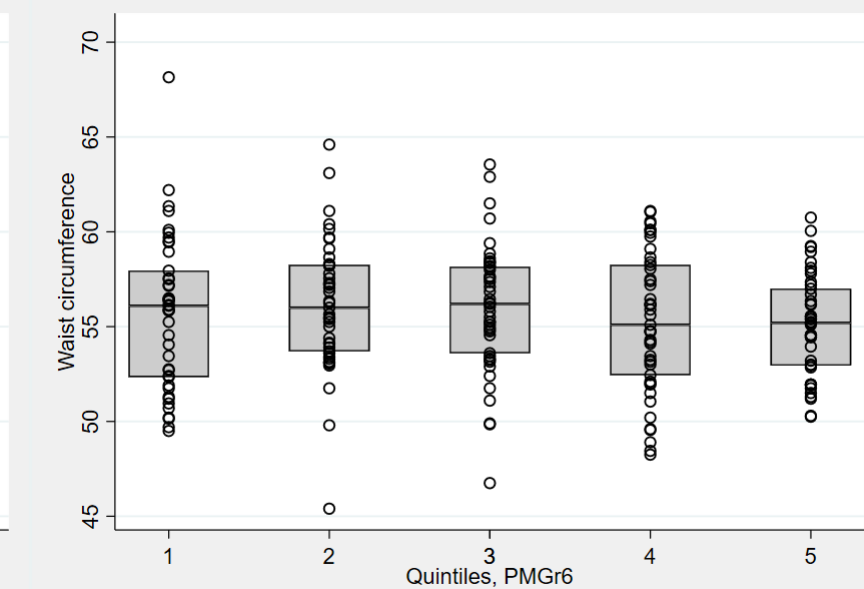
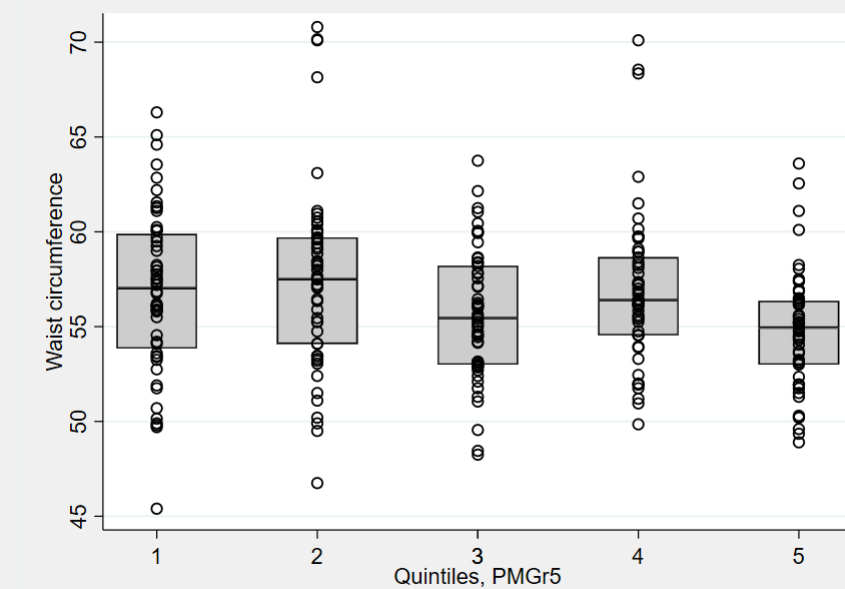
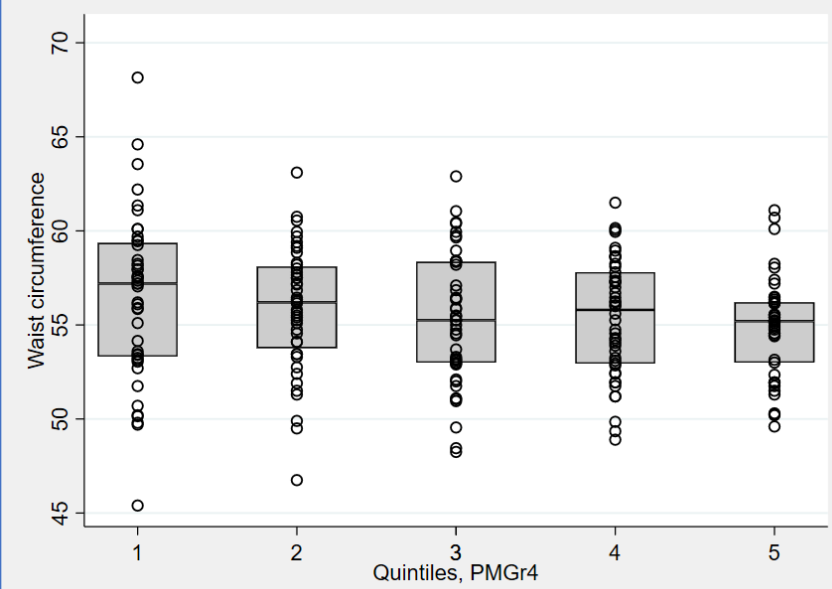
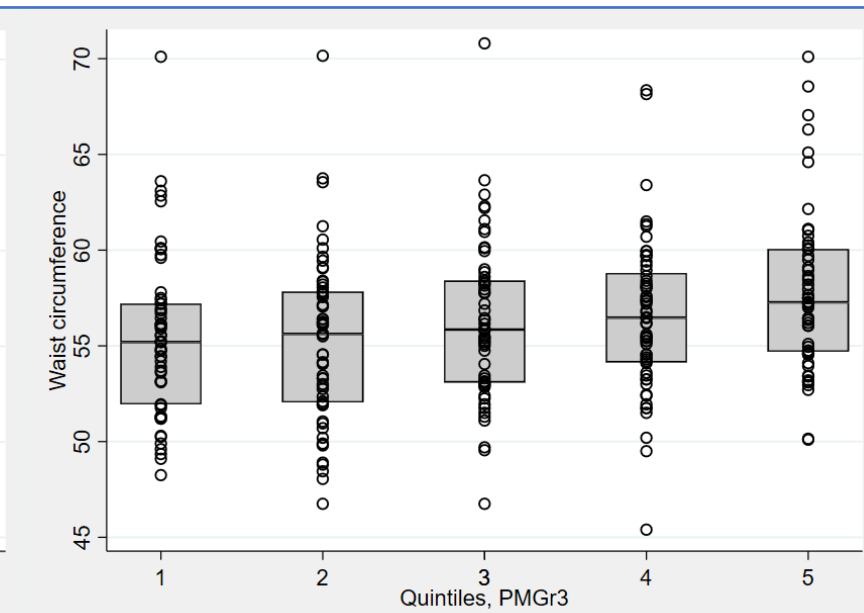
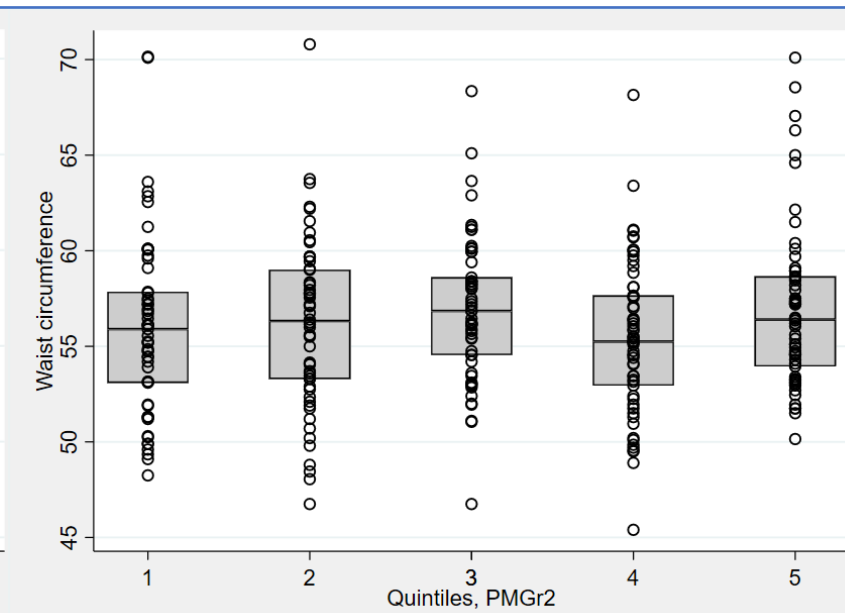
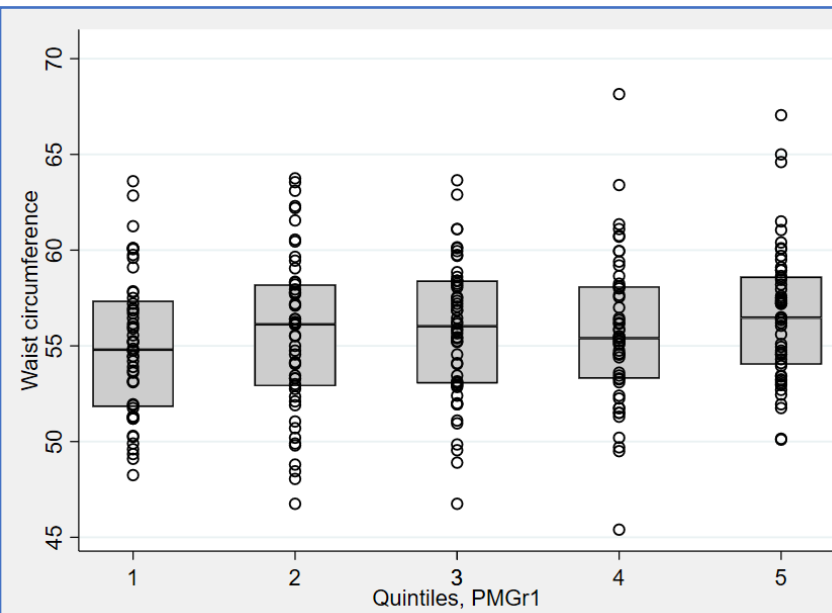
Boxplots showing associations between PMGr quintiles and NCD risk outcomes

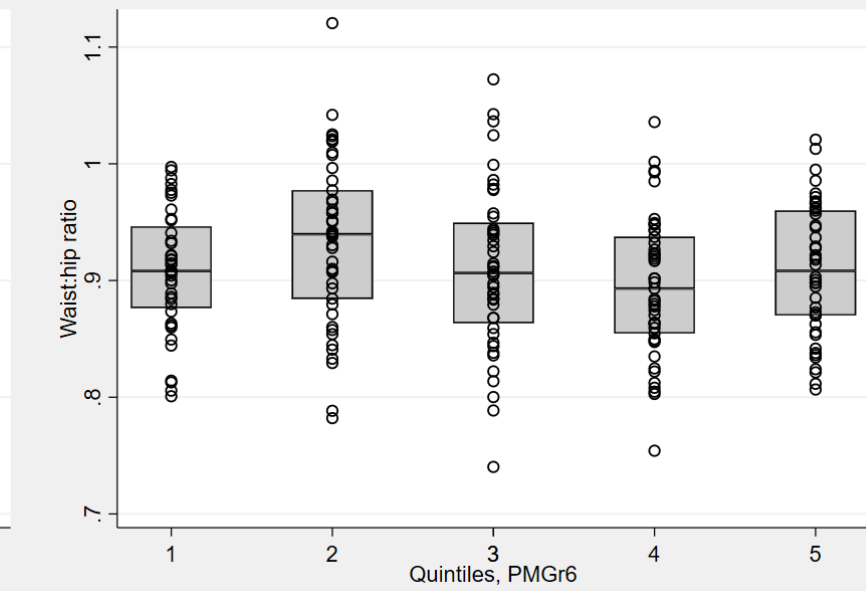
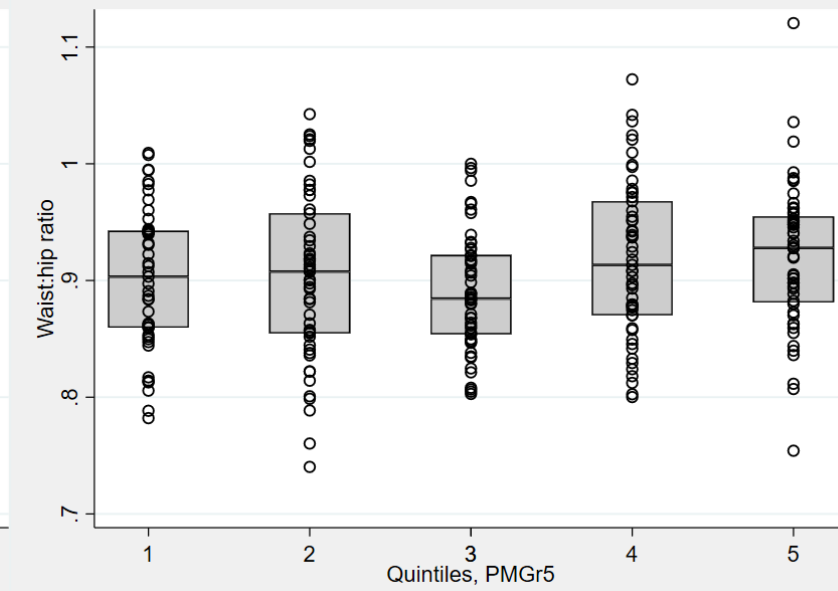
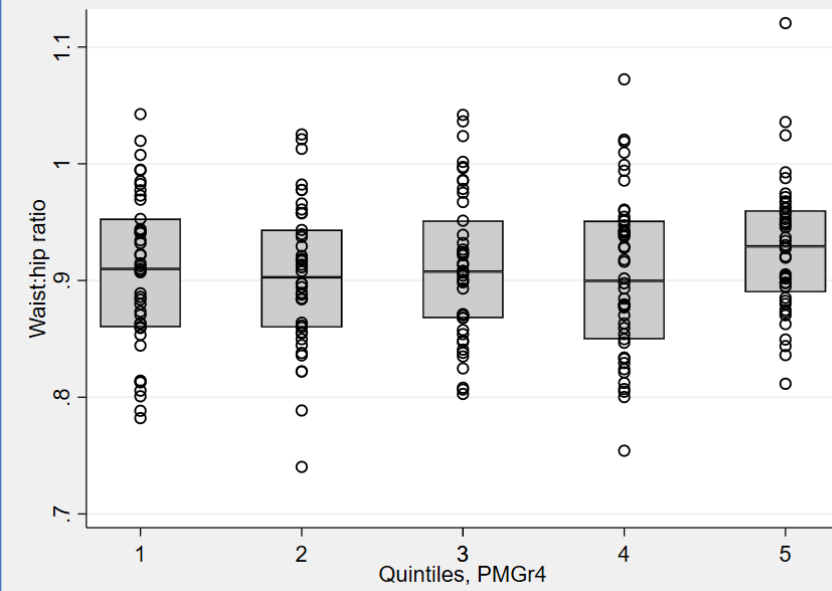
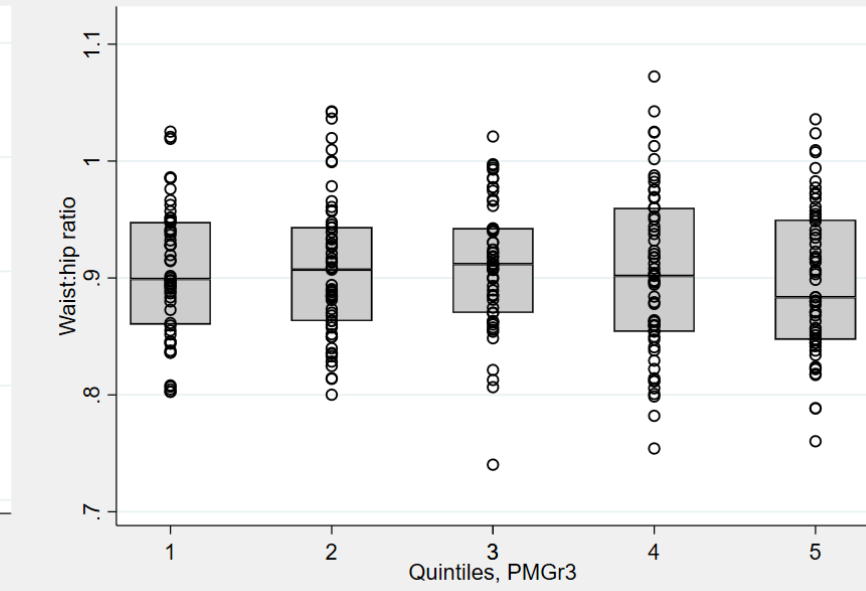
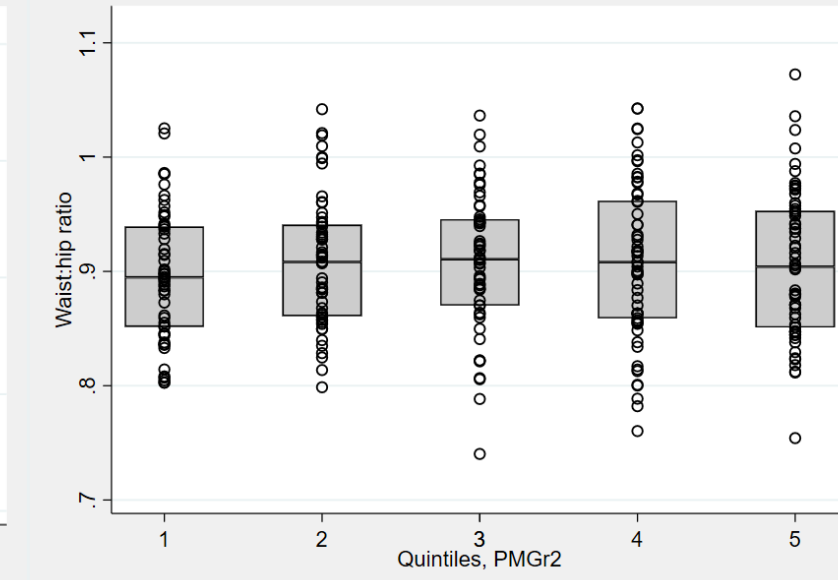
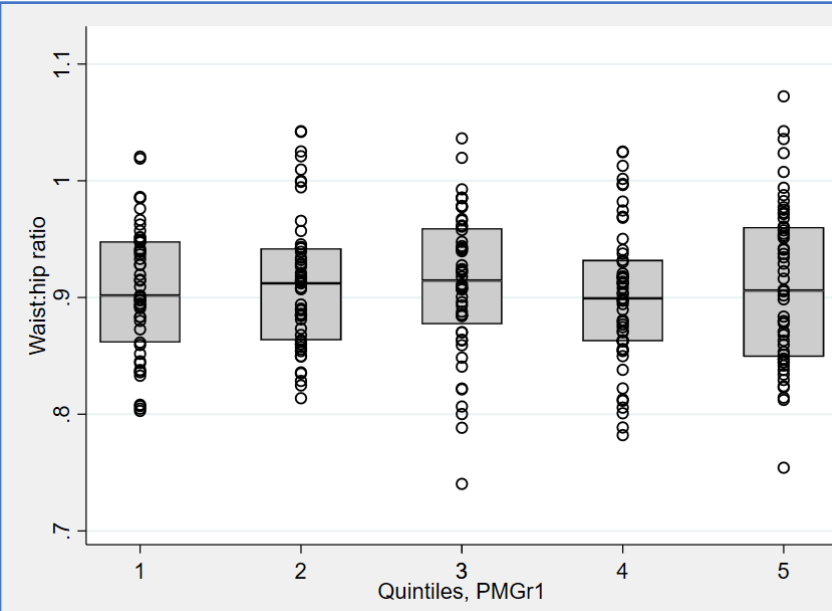


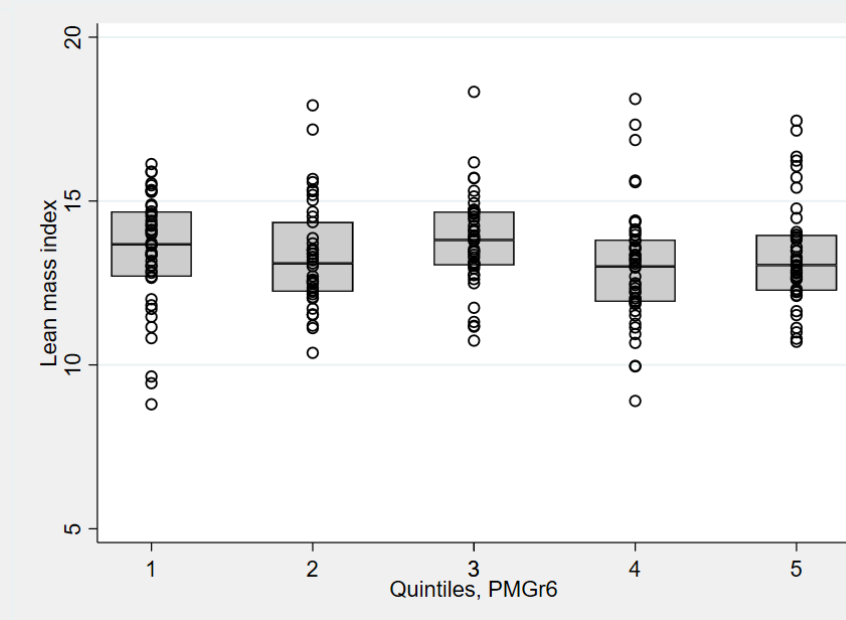
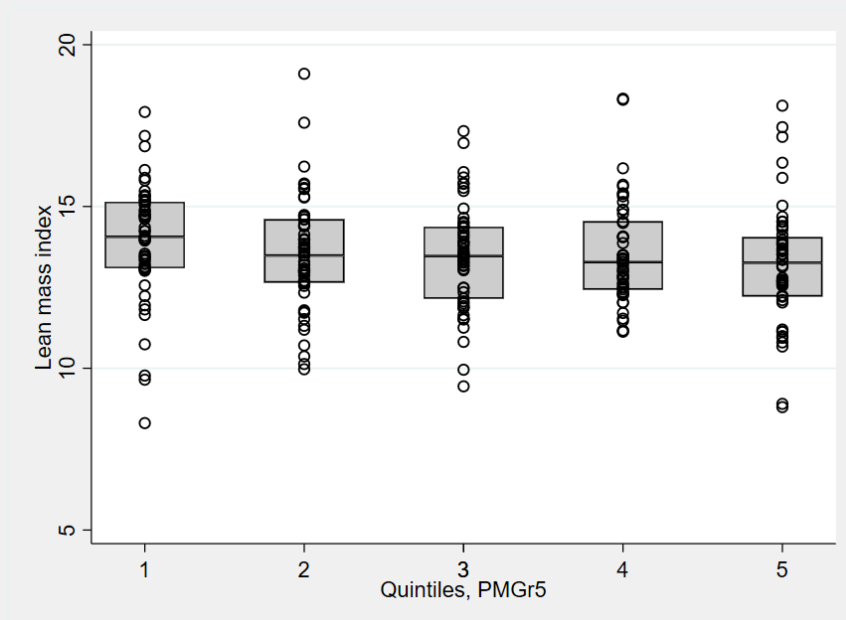
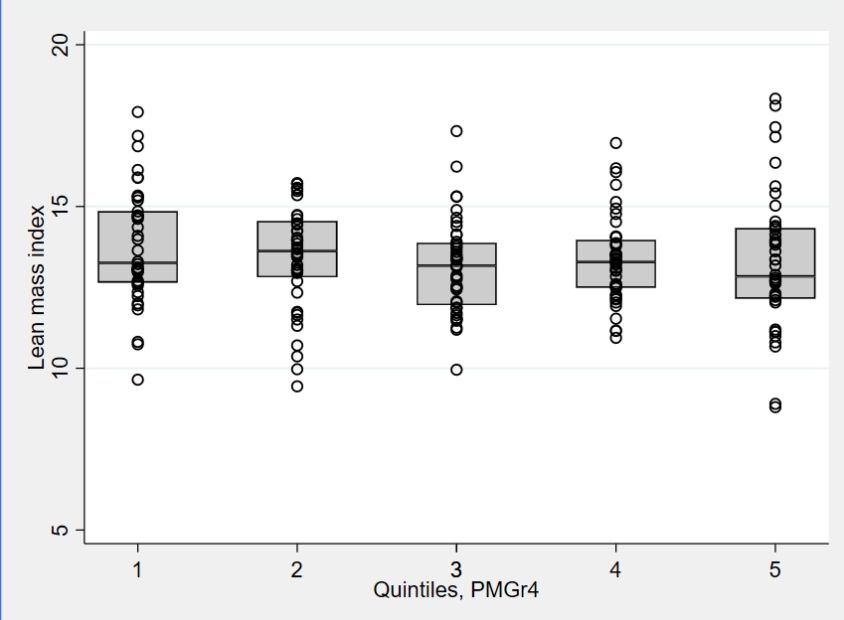
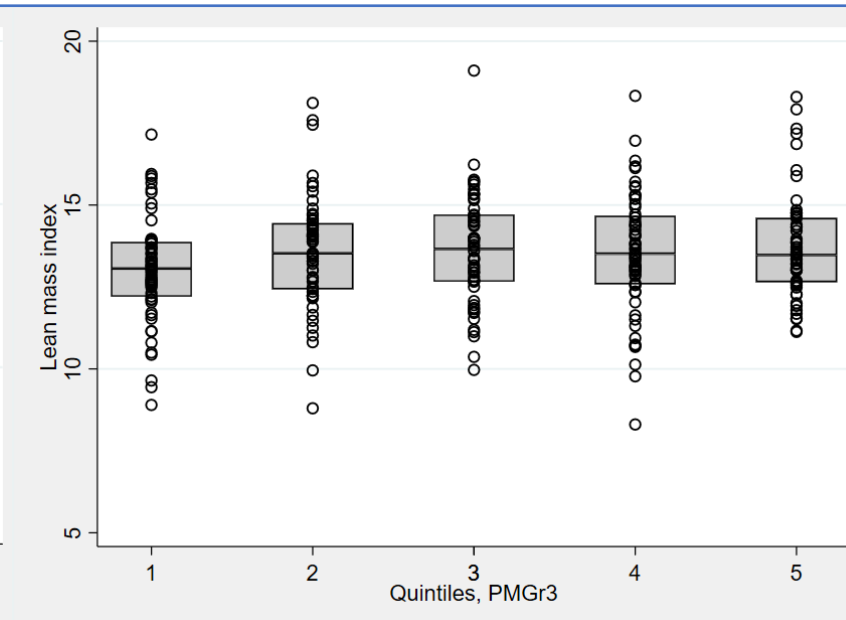
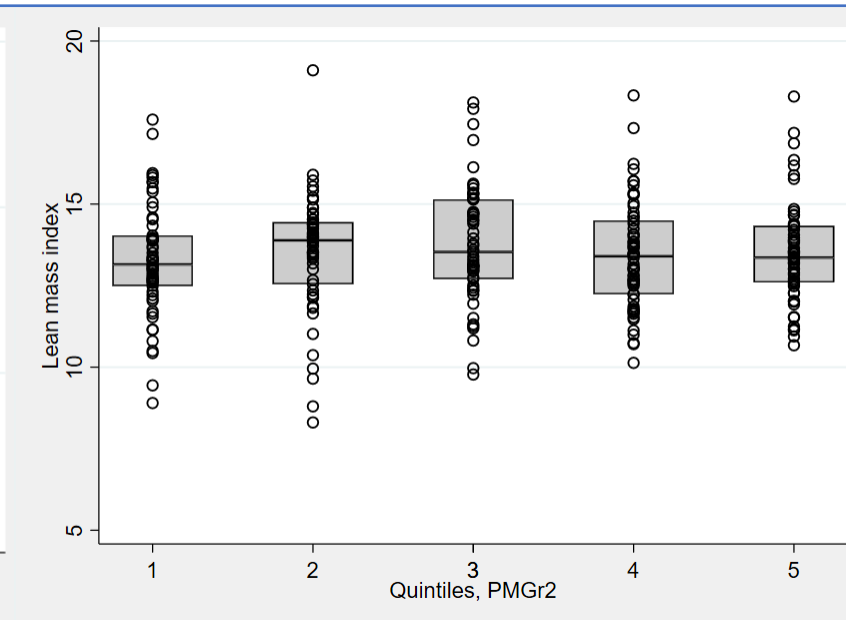
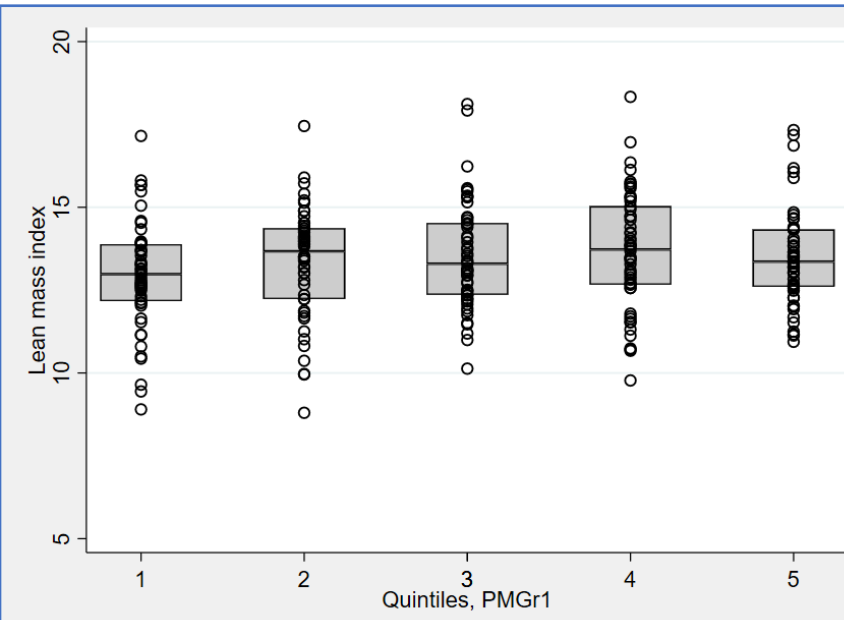


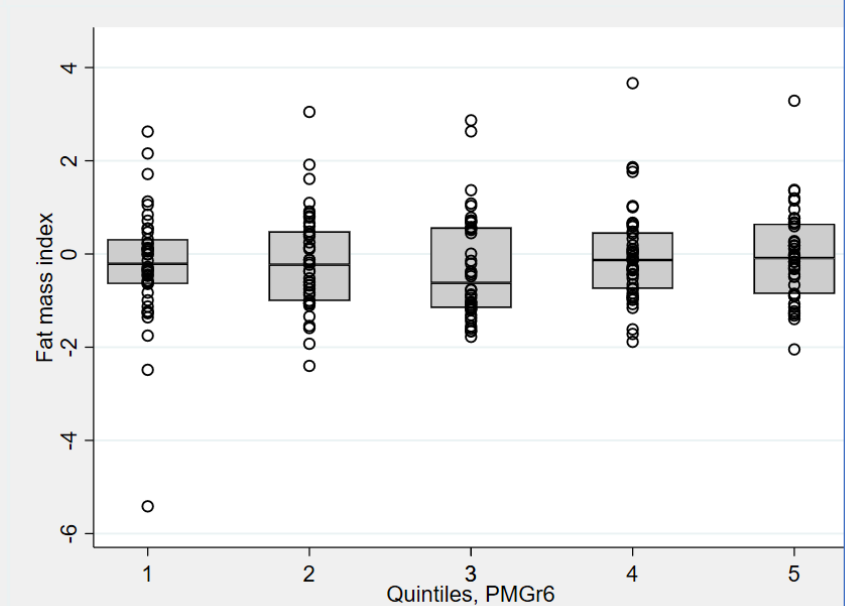
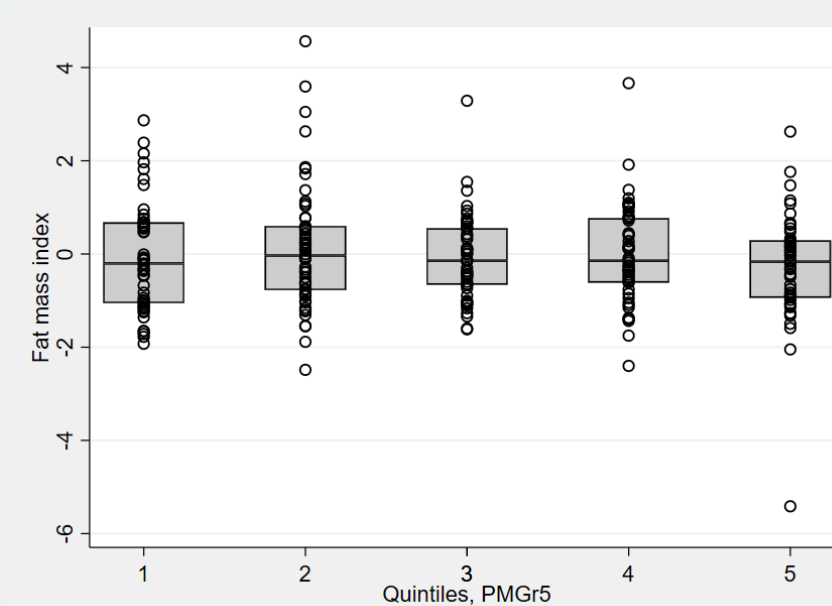
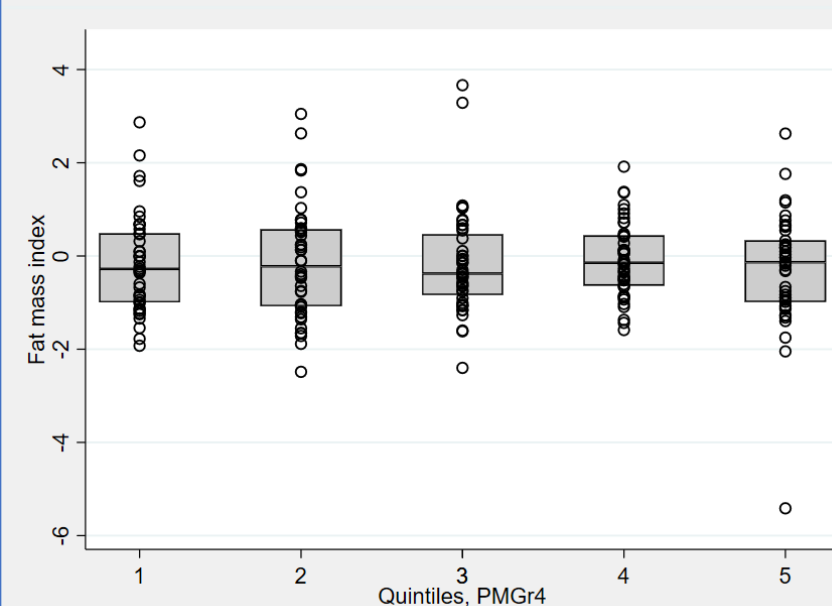
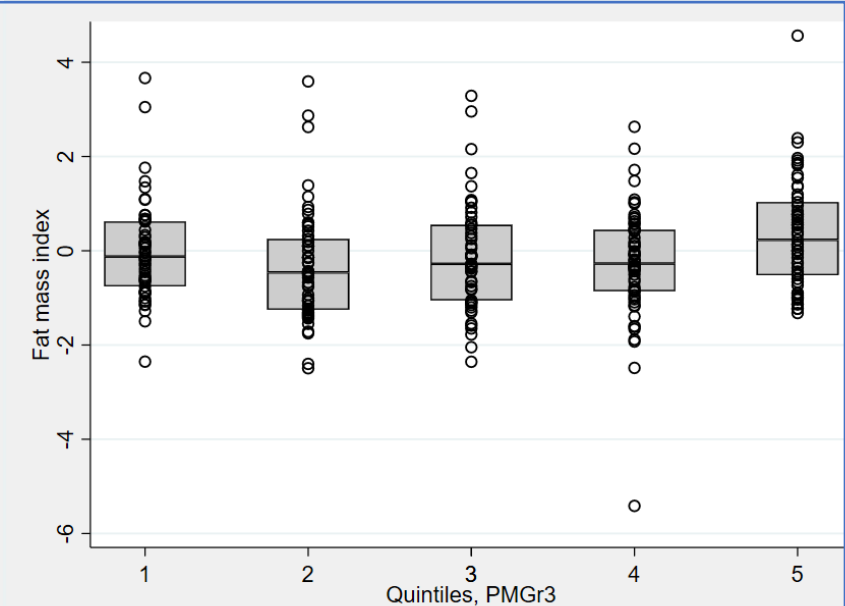
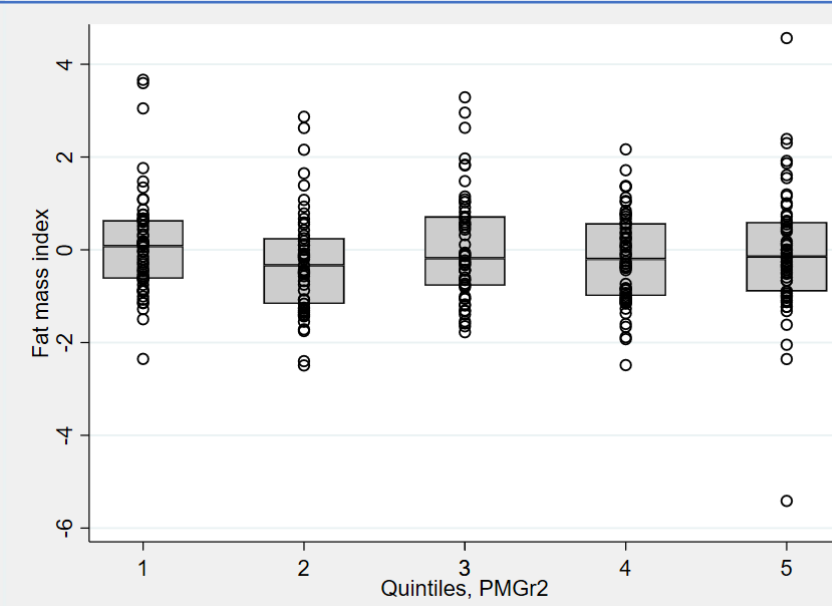
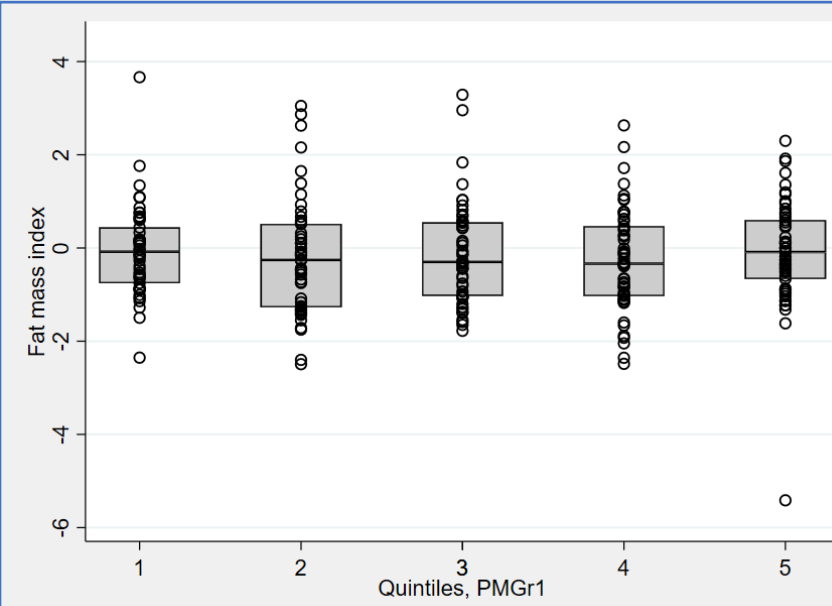


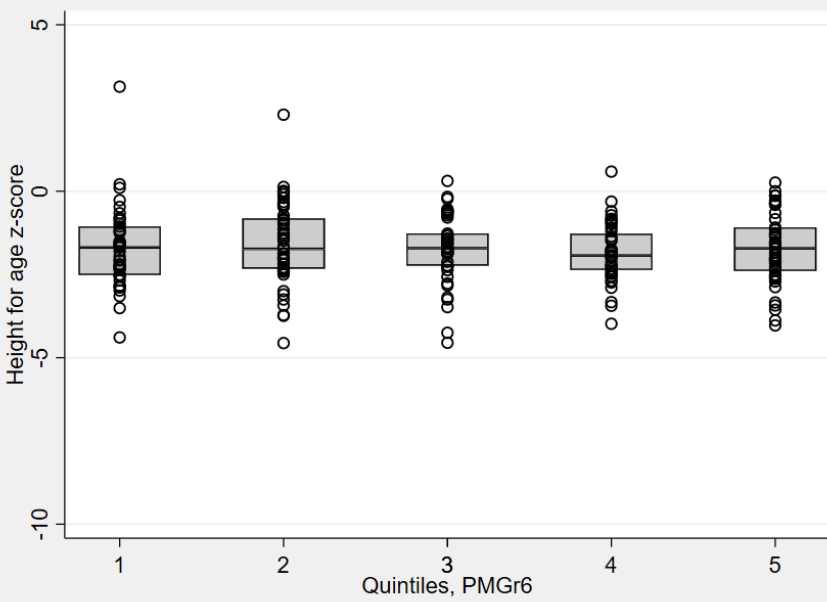
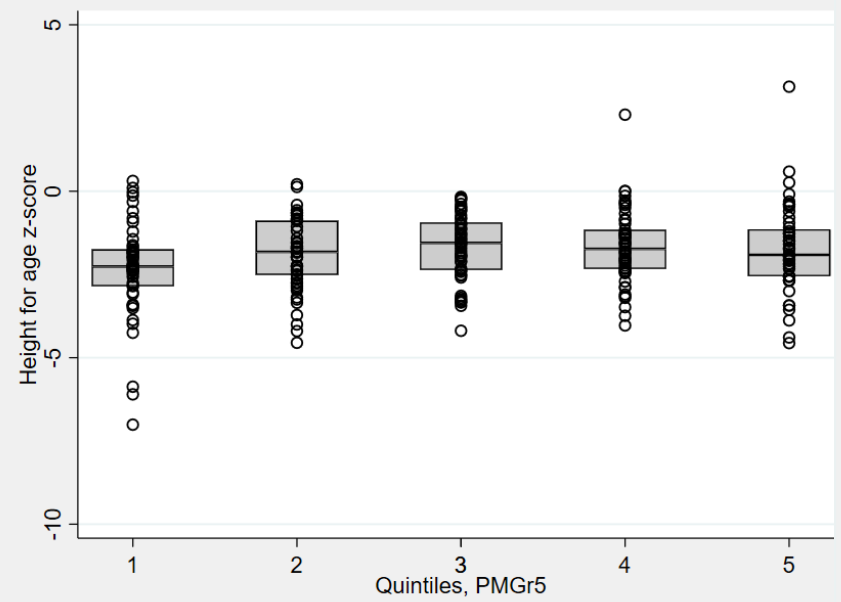
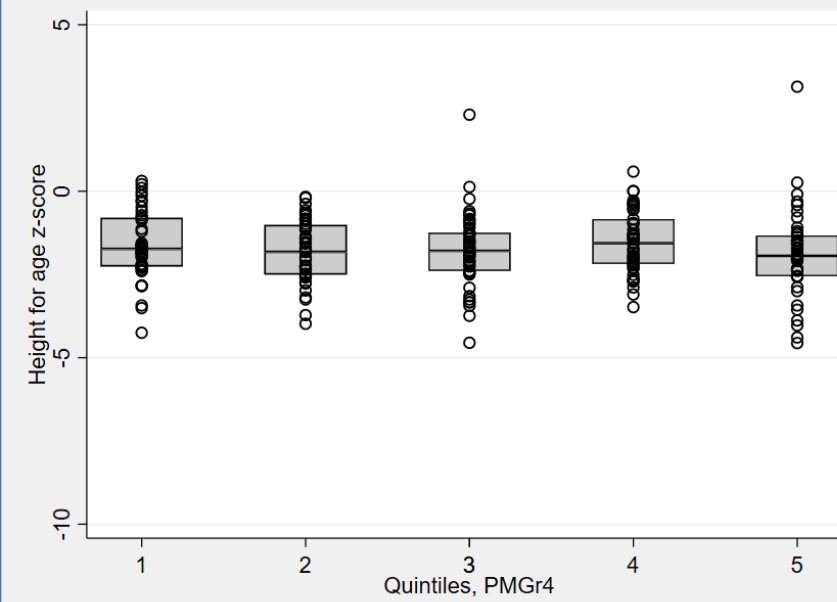
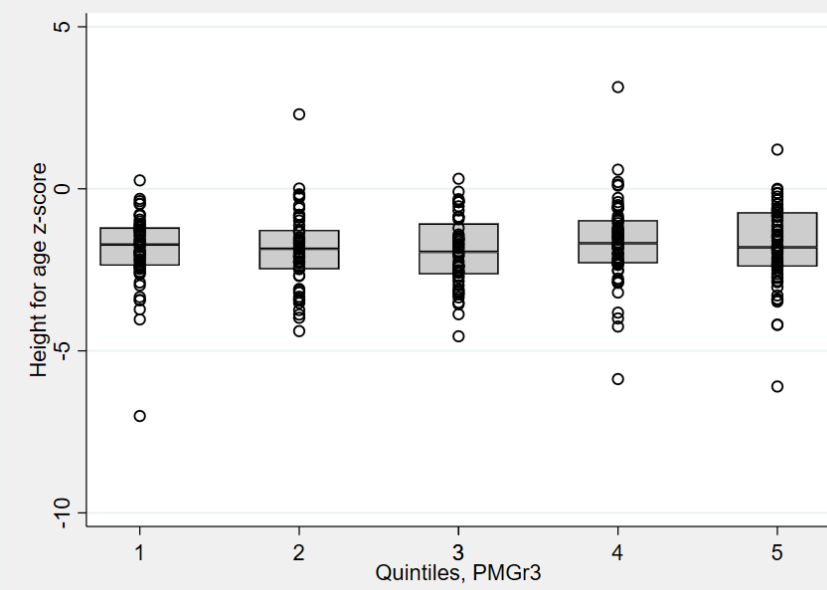
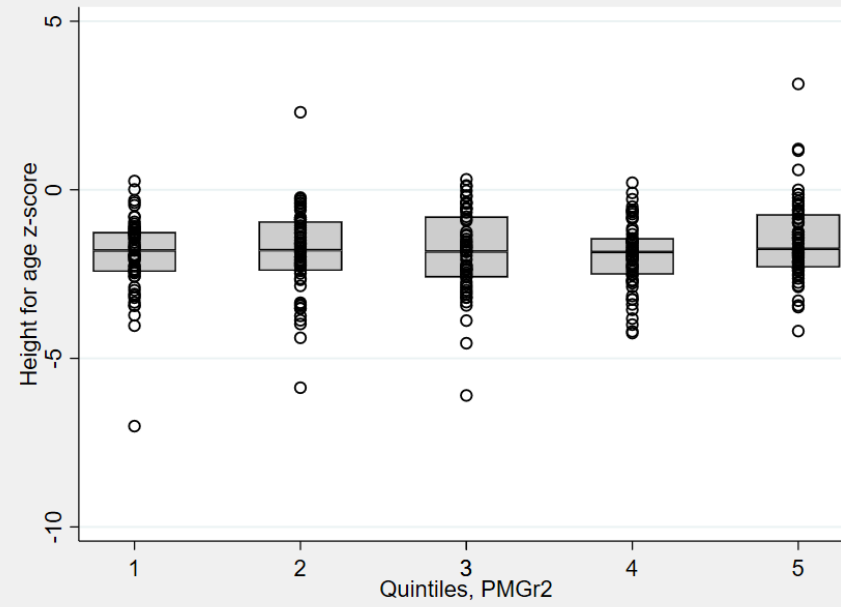
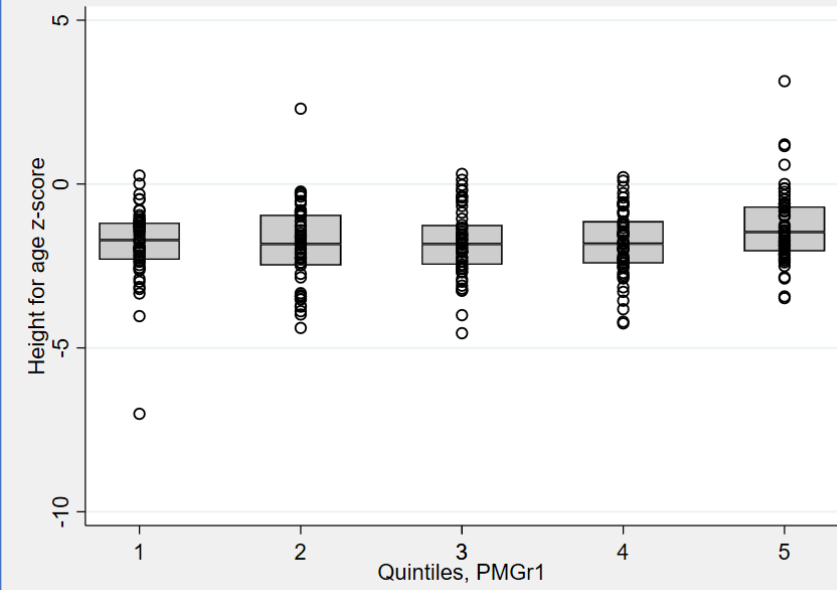












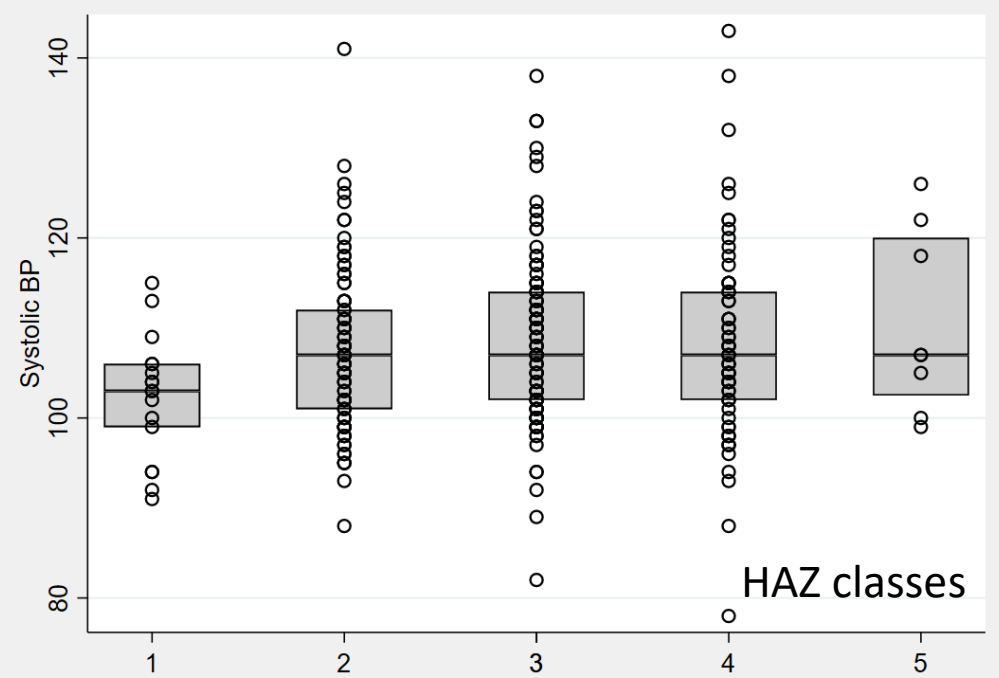
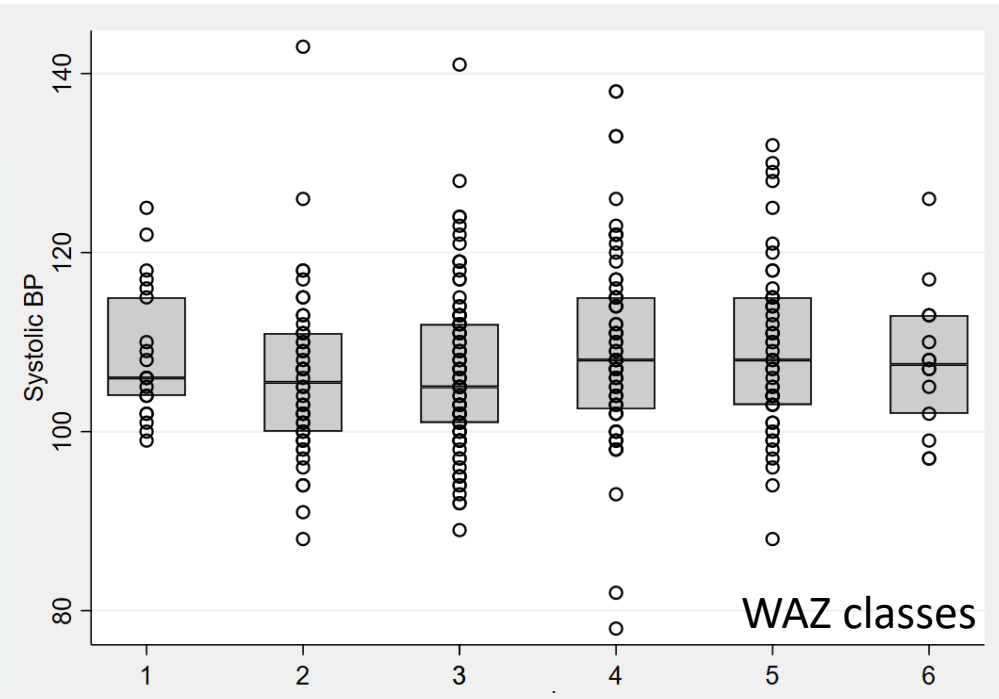
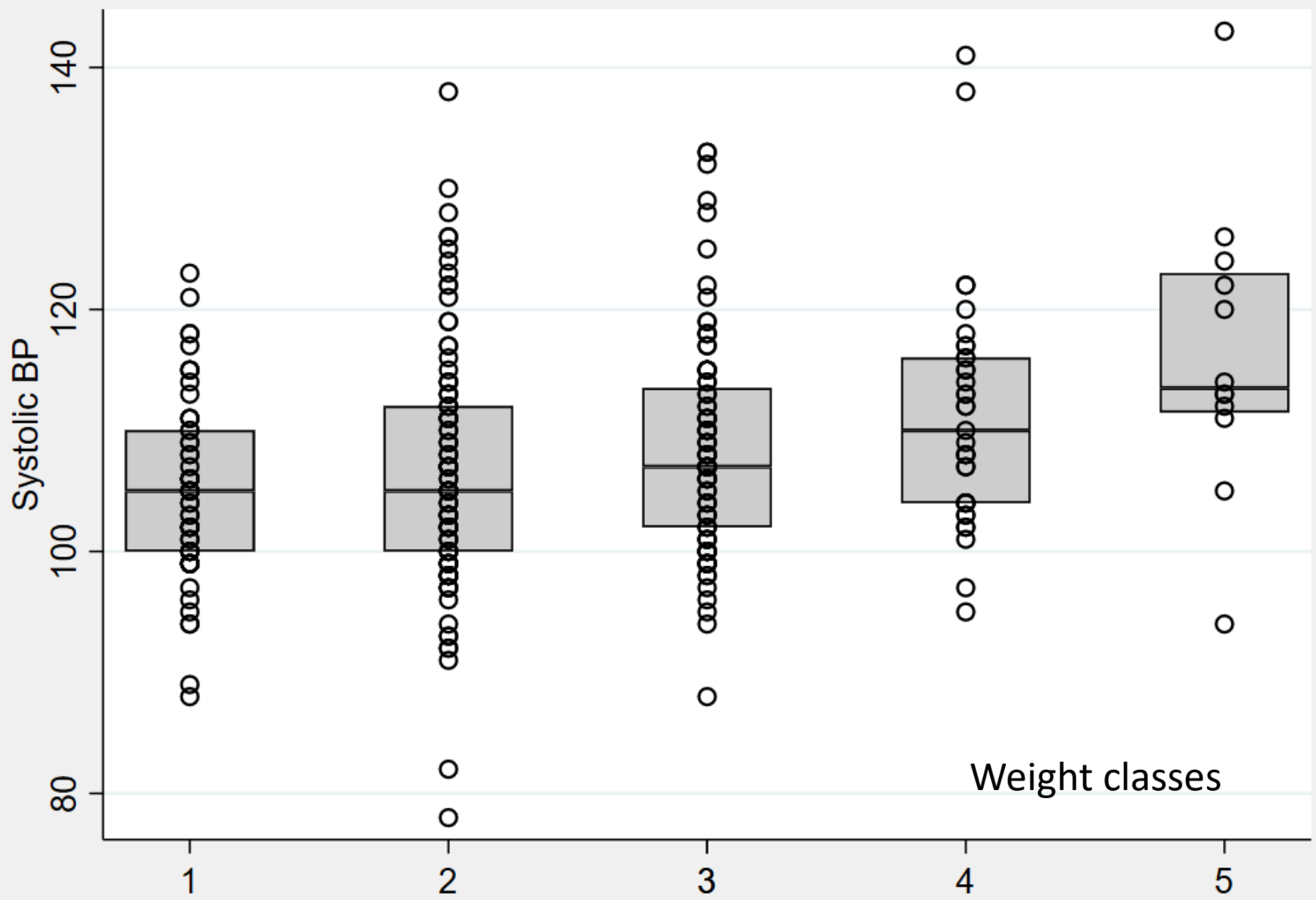


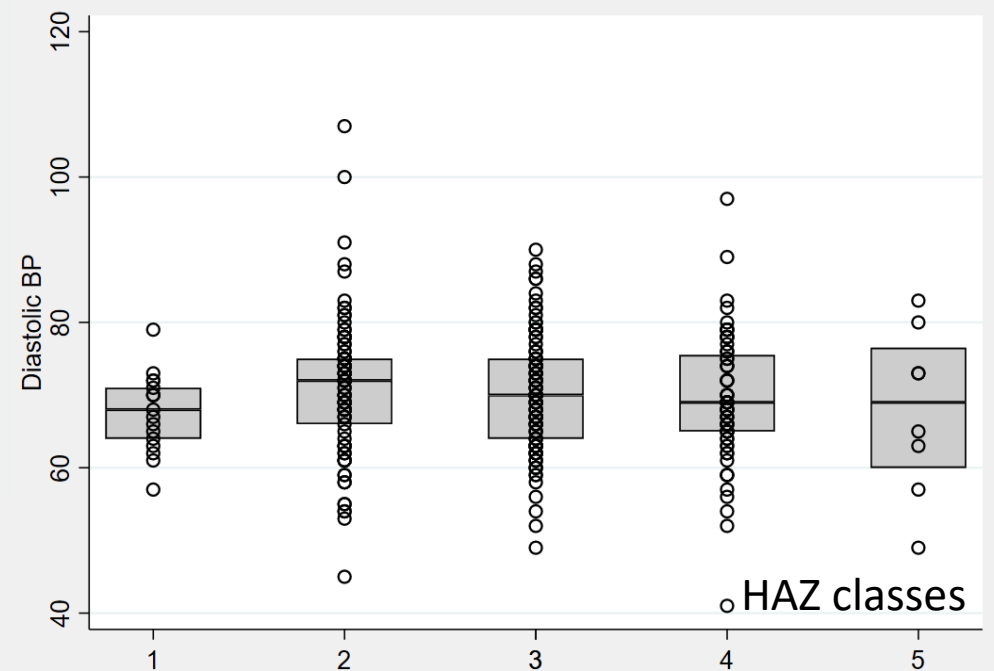
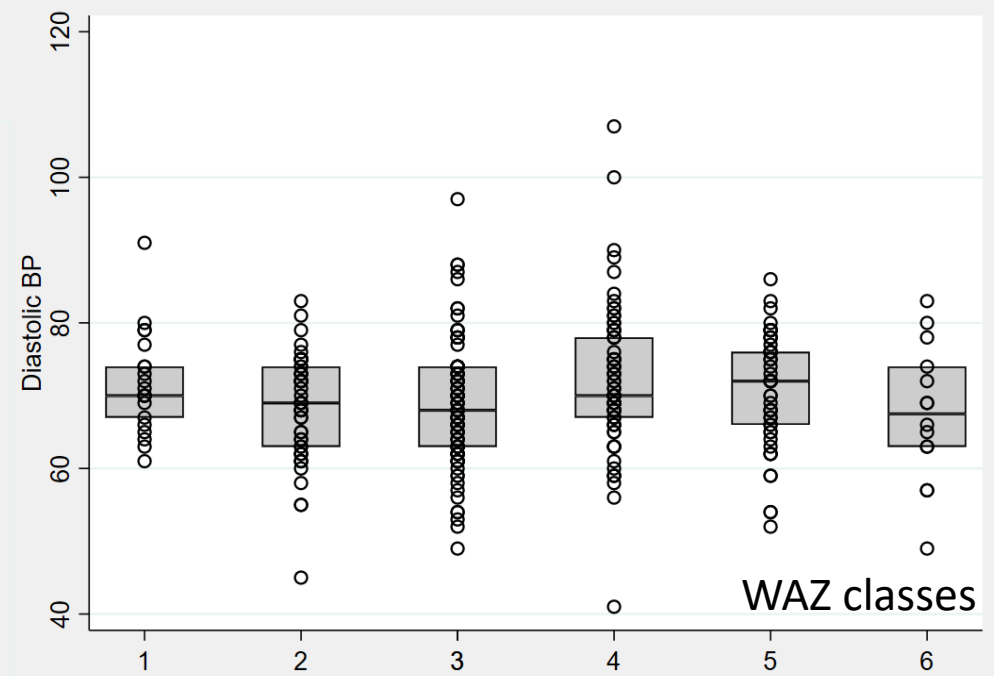
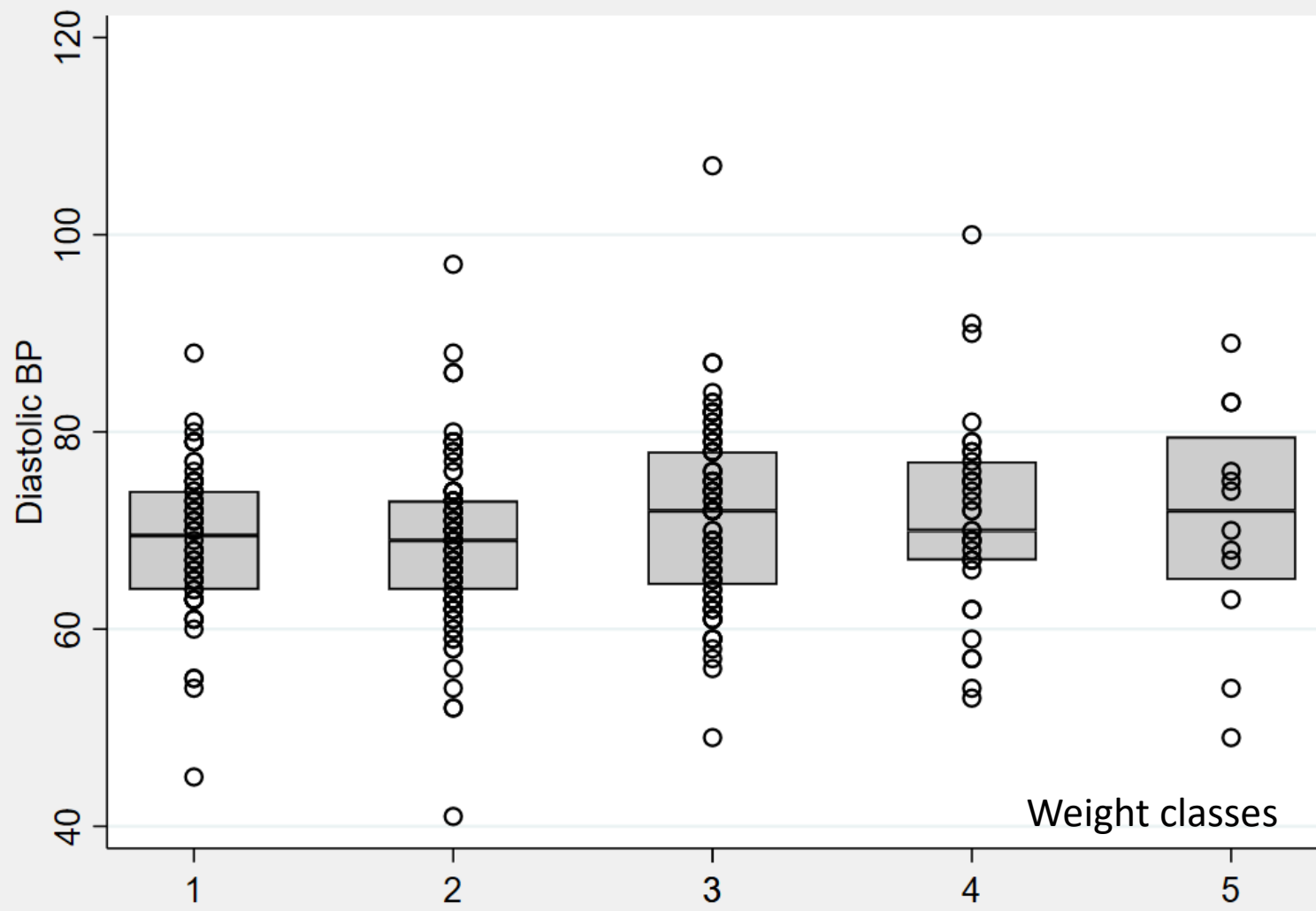
### Annex Table 4: Association between LCA classes and NCD outcomes

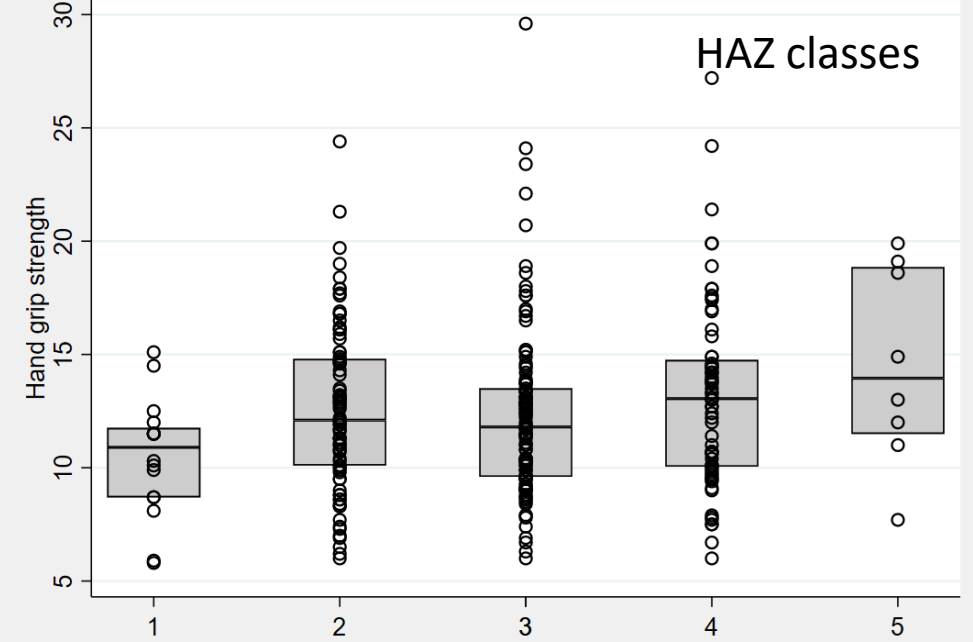
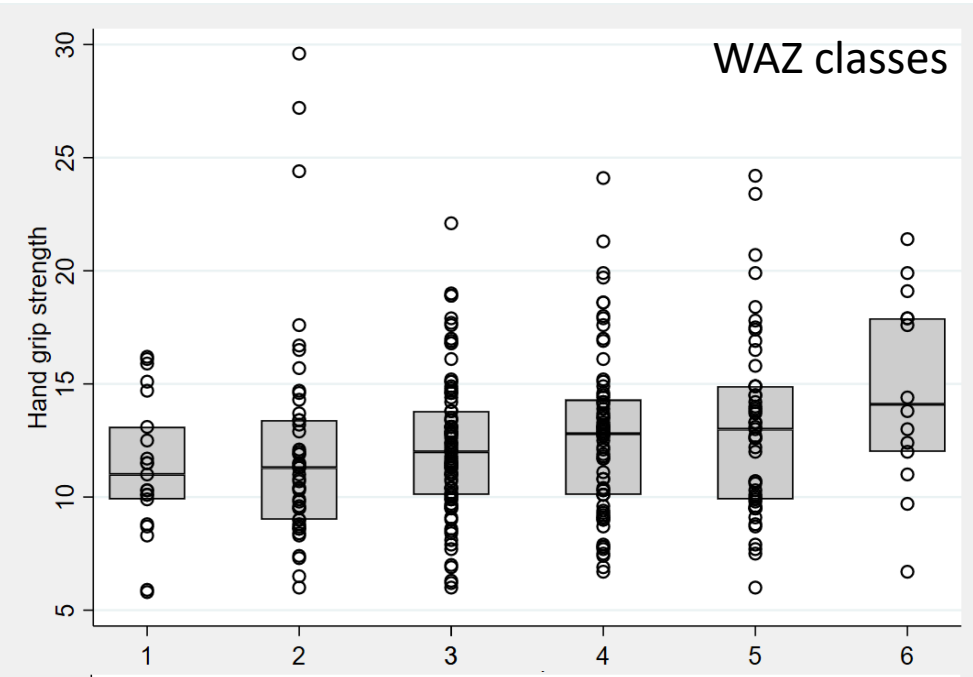
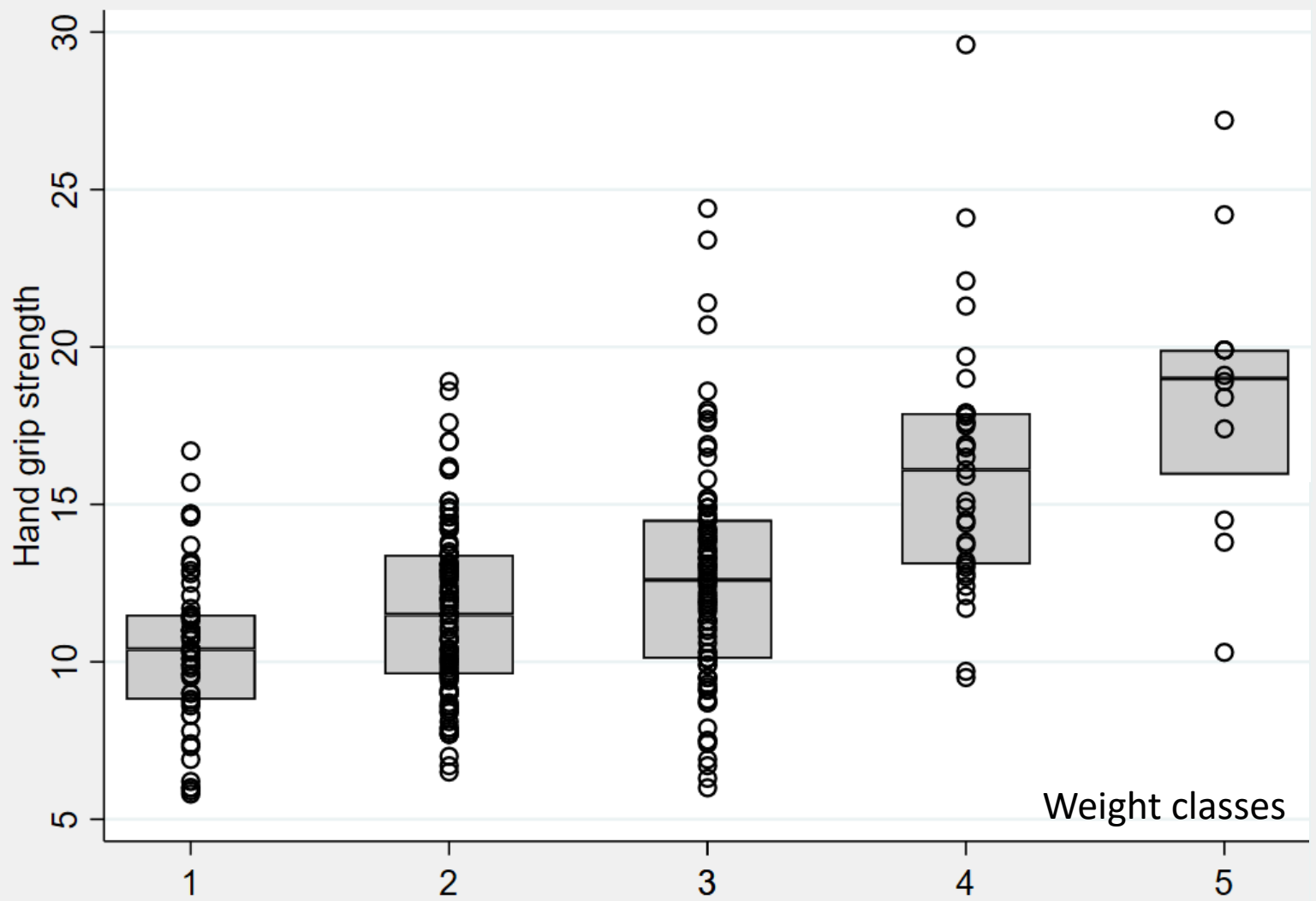
NCD indicator	PMGr definition	Unadjusted difference	P-value	95% CI	Adjusted difference	P-value	95% CI	NCD indicator	PMGr definition	Unadjusted difference	P-value	95% CI	Adjusted difference	P-value	95% CI
Systolic BP	WAZ	0.6414	0.140	(-0.21, 1.49)	-0.2037	0.645	(-1.07, 0.67)	Waist:Hip ratio	WAZ	-0.0105	<0.001	(-0.02, -0.01)	-0.0094	0.001	(-0.01, -0.00)
	Weight (kg)	2.3708	<0.001	(1.38, 3.36)	-0.3867	0.593	(-1.81, 1.04)		Weight (kg)	-0.0152	<0.001	(-0.02, -0.01)	-0.0135	0.004	(-0.02, -0.00)
	HAZ	1.1814	0.049	(0.01, 2.36)	0.0577	0.930	(-1.24, 1.36)		HAZ	-0.0136	<0.001	(-0.02, -0.01)	-0.0150	<0.001	(-0.02, -0.01)
Diastolic BP	WAZ	0.2809	0.478	(-0.49, 1.06)	0.3101	0.478	(-0.55, 1.17)	Lean mass index (BIA)	WAZ	0.2927	<0.001	(0.14, 0.44)	0.2889	<0.001	(0.13, 0.44)
	Weight (kg)	0.9327	0.049	(0.00, 1.86)	0.5185	0.469	(-0.89, 1.92)		Weight (kg)	0.4648	<0.001	(0.29, 0.64)	0.4182	0.002	(0.16, 0.68)
	HAZ	-0.3271	0.548	(-1.39, 0.74)	-0.4877	0.453	(-1.77, 0.79)		HAZ	0.1614	0.139	(-0.05, 0.38)	0.1949	0.076	(-0.02, 0.41)
Hand grip	WAZ	0.5679	0.002	(0.21, 0.82)	0.5780	<0.001	(0.27, 0.89)	Fat mass index (BIA)	WAZ	0.1300	0.014	(0.03, 0.23)	0.1667	0.002	(0.06, 0.27)
	Weight (kg)	1.9069	<0.001	(1.54, 2.28)	0.9918	<0.001	(0.17, 1.51)		Weight (kg)	0.2919	<0.001	(0.17, 0.41)	0.1933	0.032	(0.02, 0.37)
	HAZ	0.6217	0.014	(0.13, 1.12)	0.9560	<0.001	(0.53, 1.38)		HAZ	0.0369	0.621	(-0.11, 0.18)	0.1105	0.135	(-0.03, 0.26)
Waist circumference	WAZ	0.8542	<0.001	(0.49, 1.21)	0.9525	<0.001	(0.63, 1.27)	HAZ	WAZ	0.3202	<0.001	(0.22, 0.42)	0.3144	<0.001	(0.21, 0.41)
	Weight (kg)	2.0531	0.000	(1.66, 2.44)	1.1631	<0.001	(0.62, 1.71)	Weight (kg)	-0.0746	0.263	(-0.21, 0.06)	0.3719	<0.001	(0.19, 0.54)	
	HAZ	0.7906	0.003	(0.28, 1.31)	1.2171	<0.001	(0.78, 1.66)	HAZ	0.6768	<0.001	(0.55, 0.81)	0.6358	<0.001	(0.51, 0.76)	

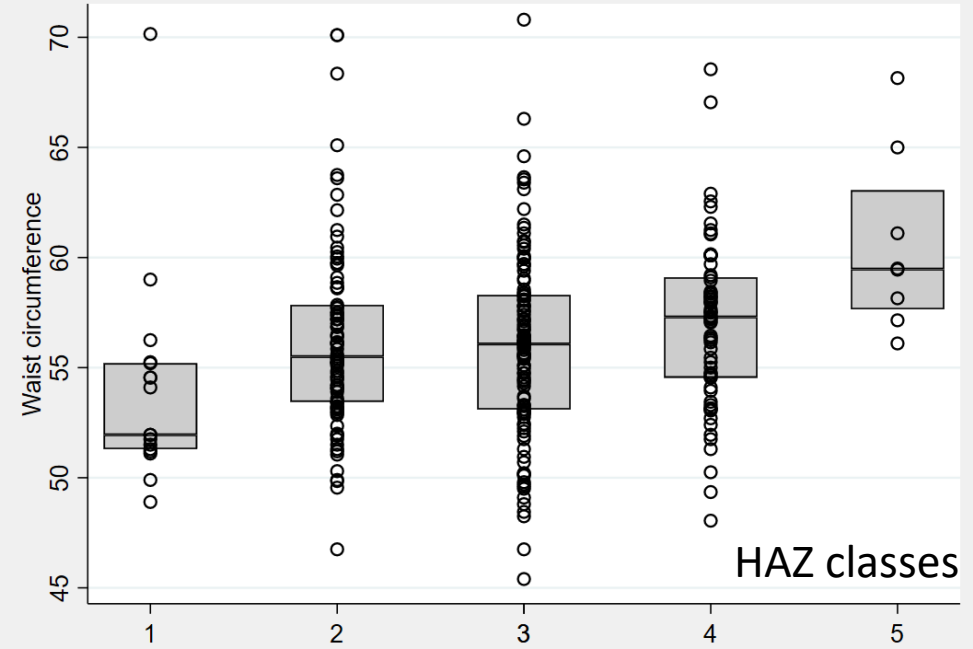
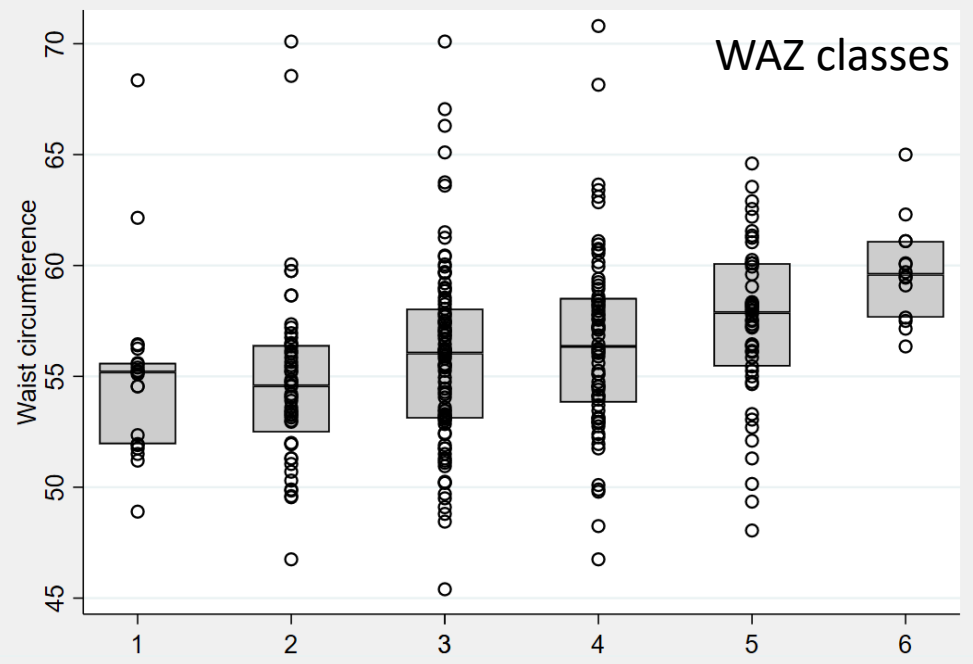
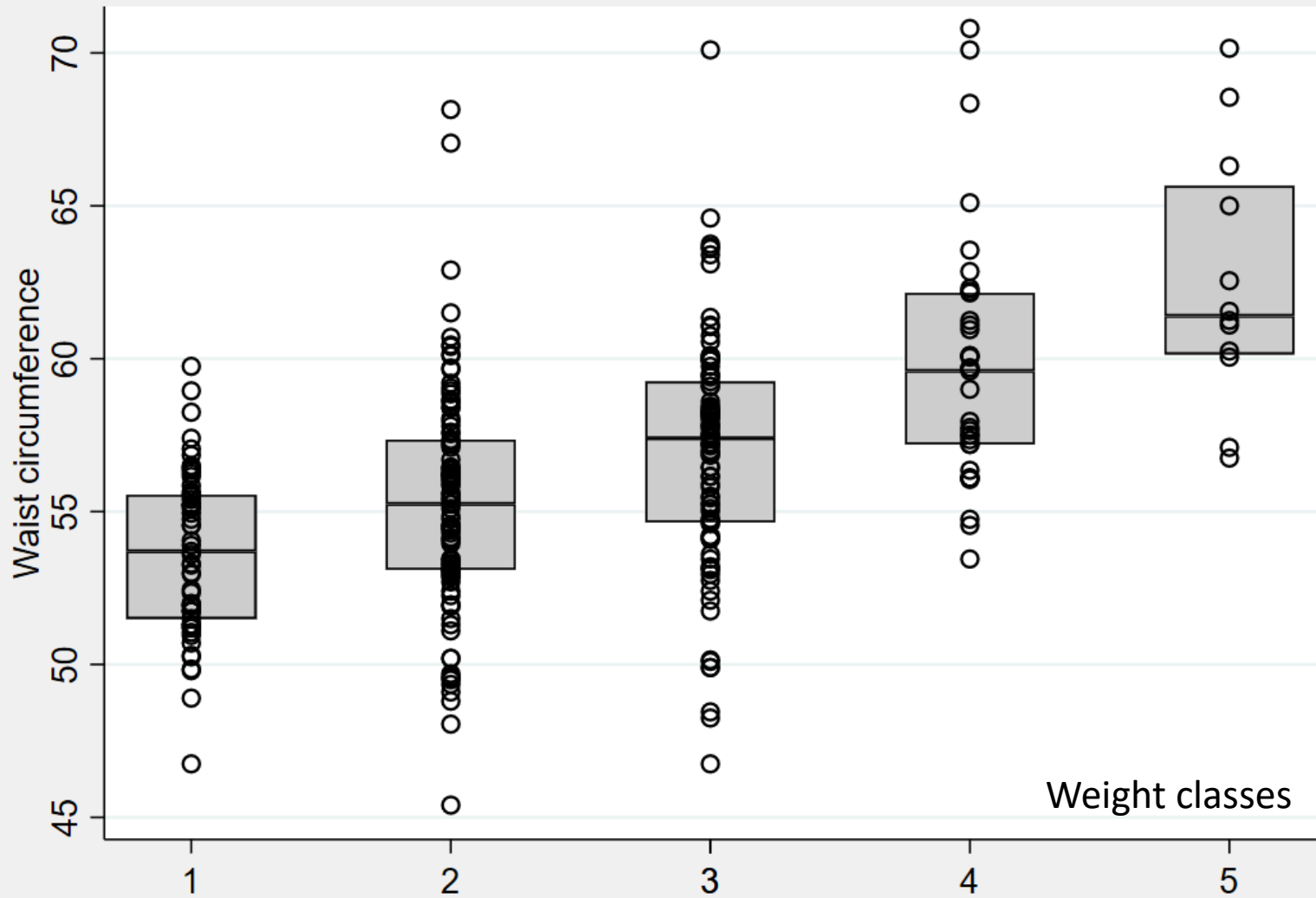
# Annex Figures 5a-2h

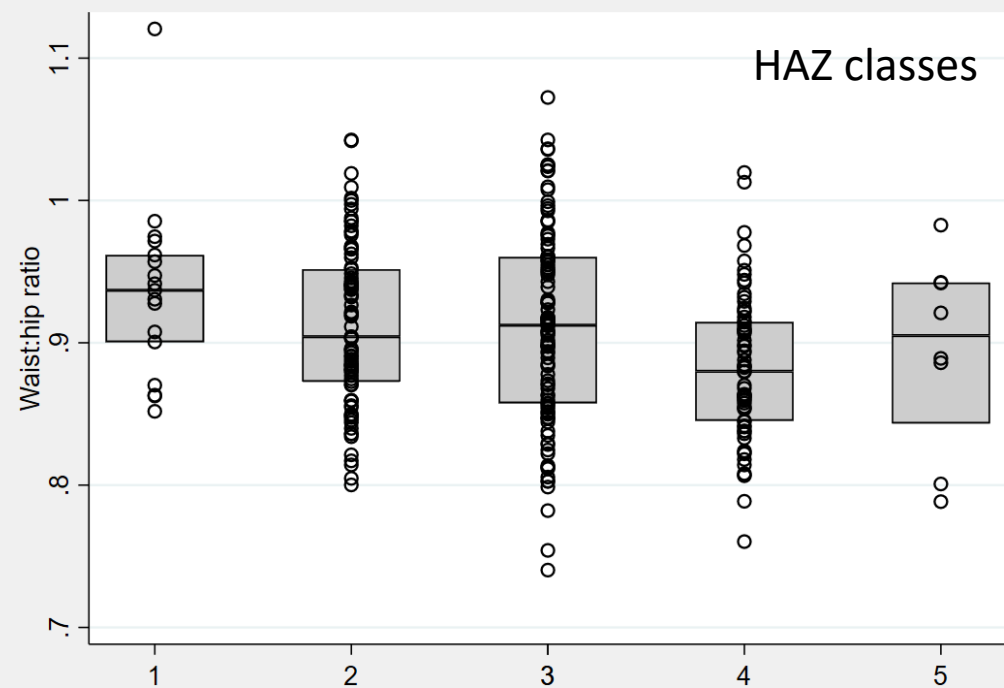
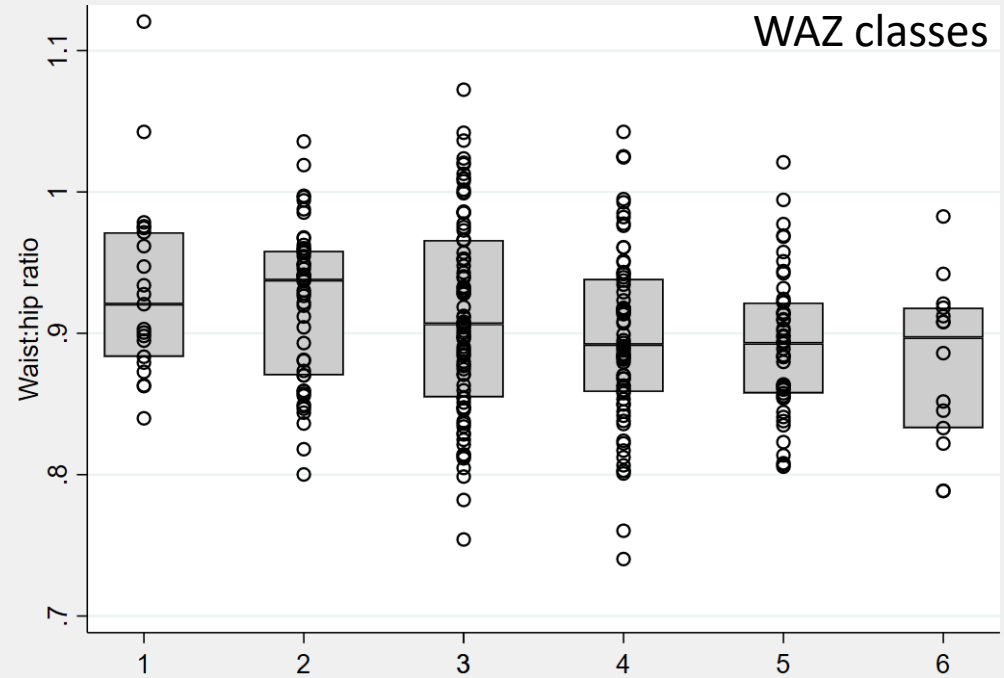
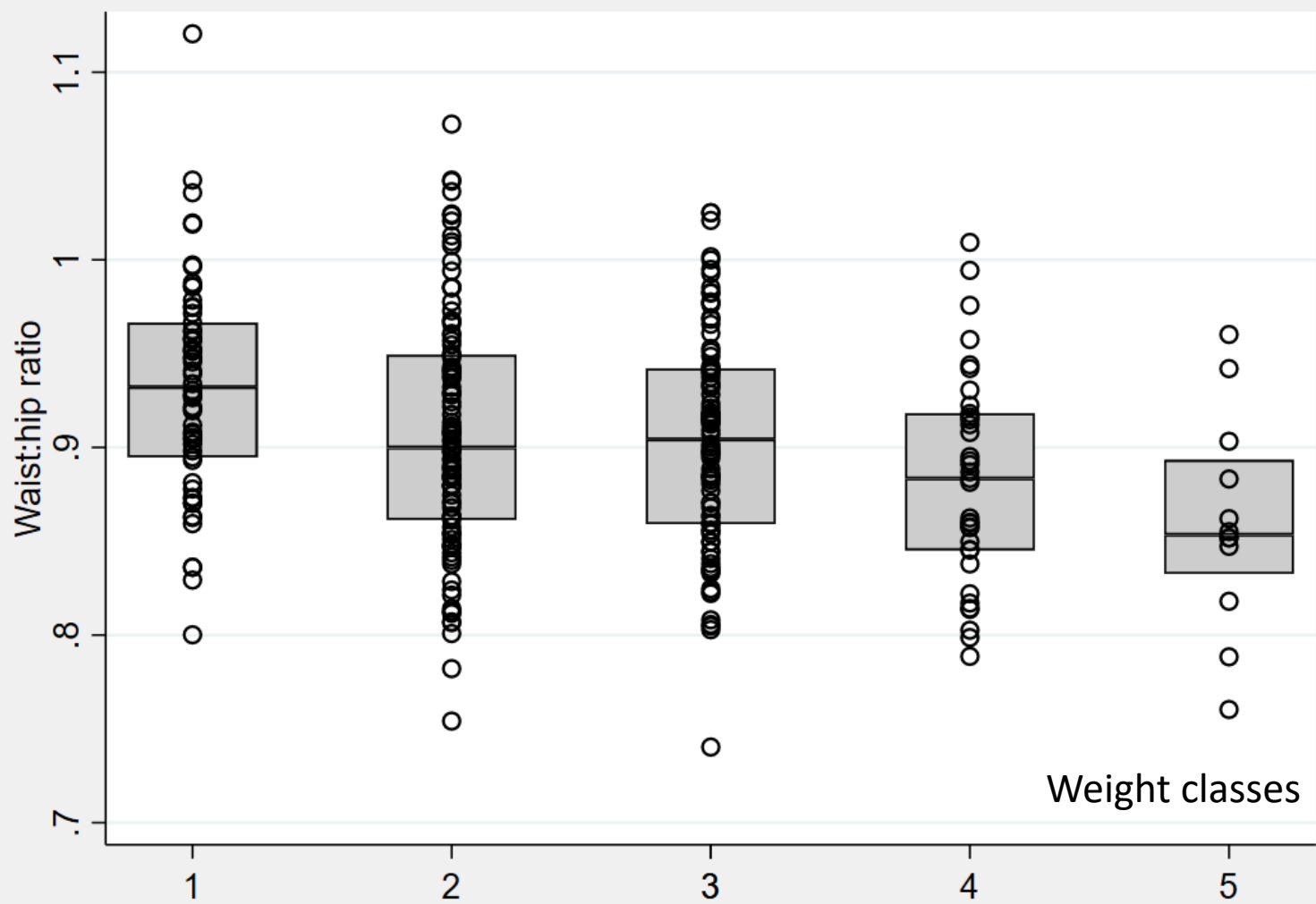
Boxplots showing associations between LCA classes for weight, WAZ and HAZ, and NCD risk outcomes

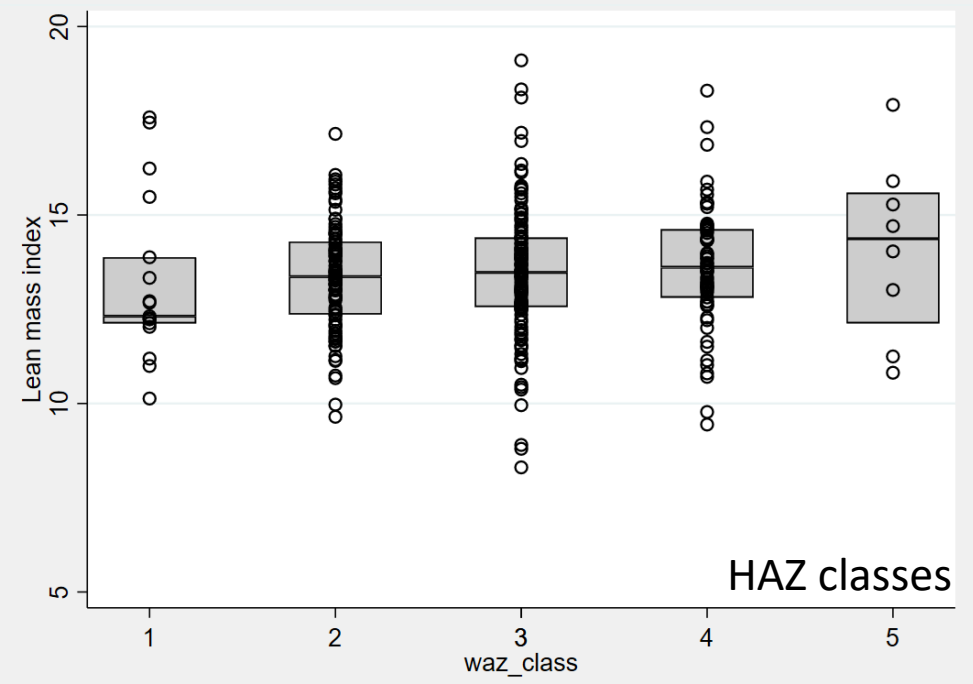
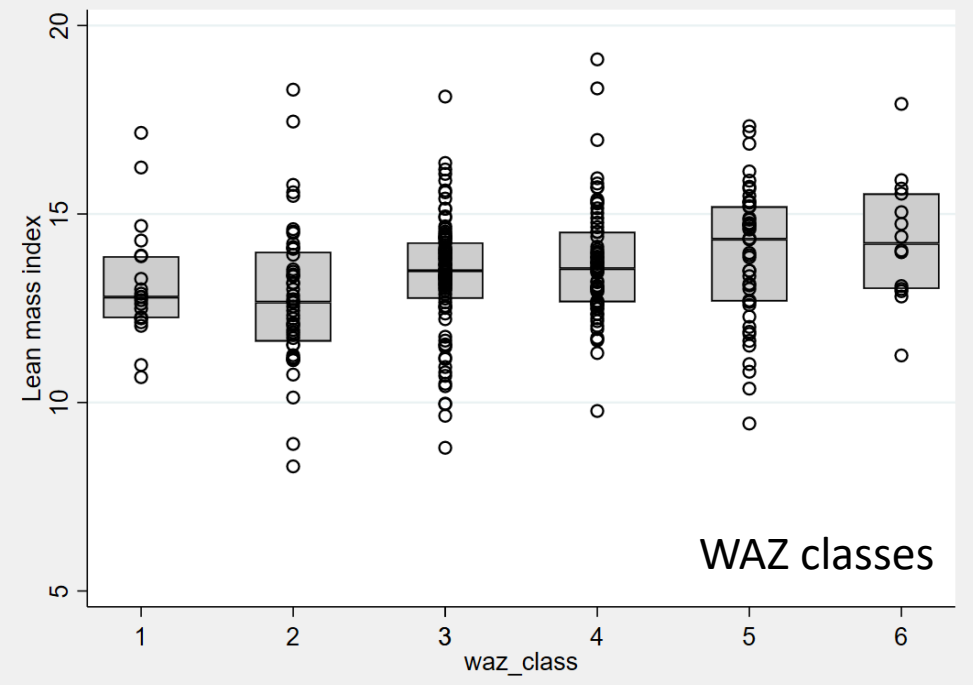
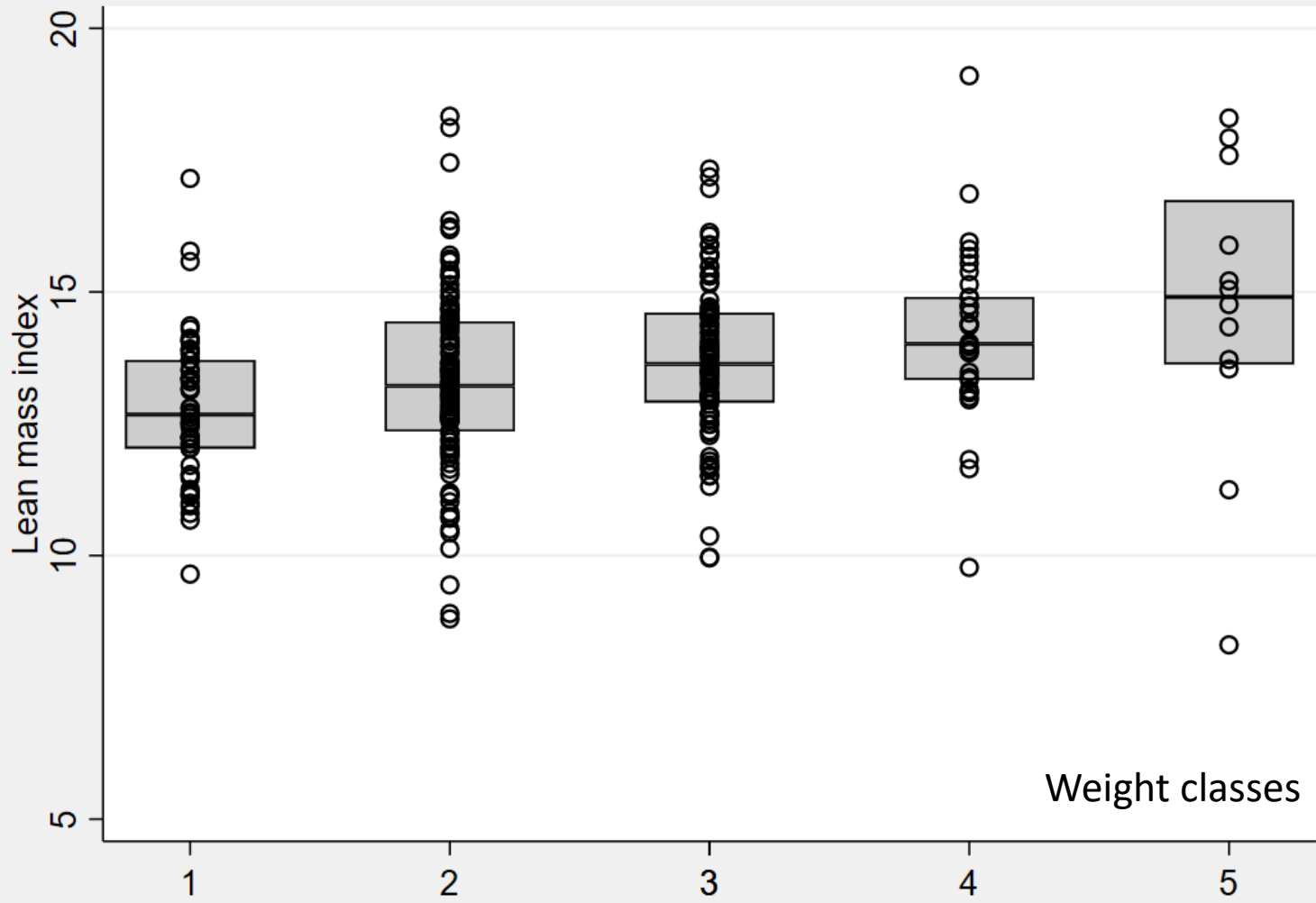




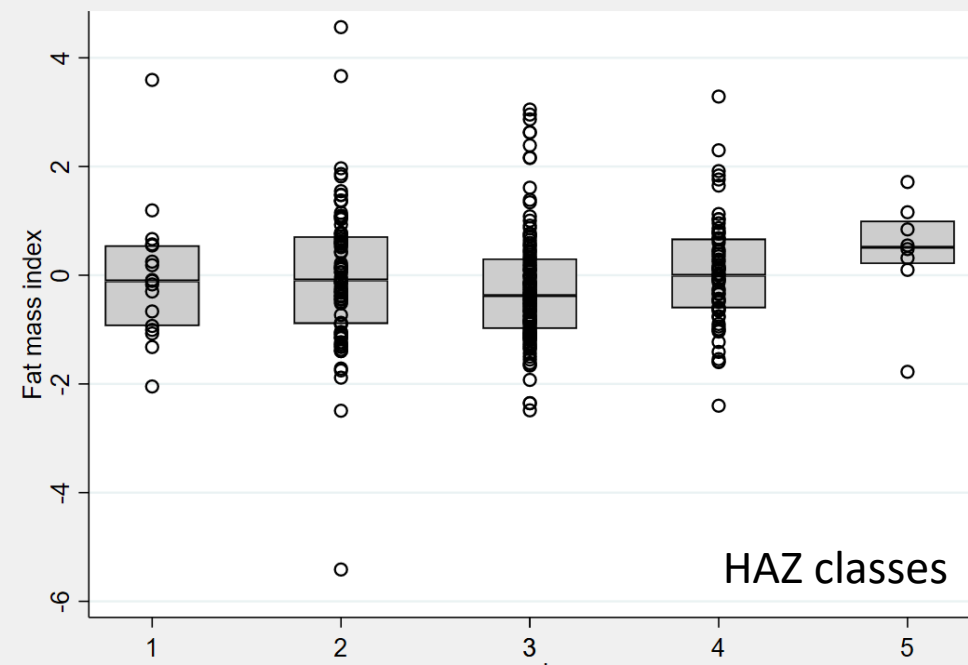
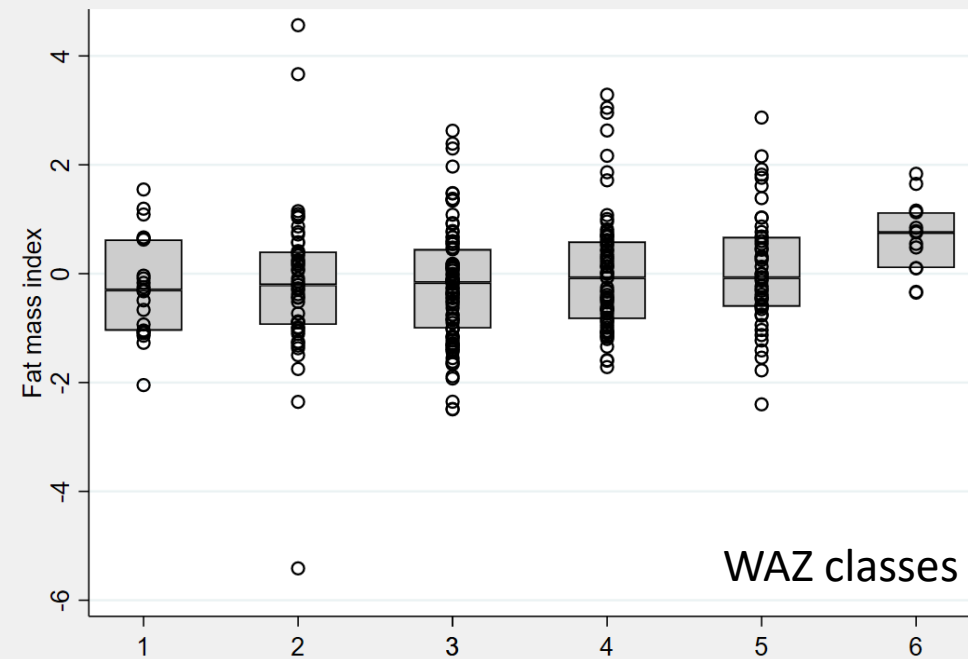
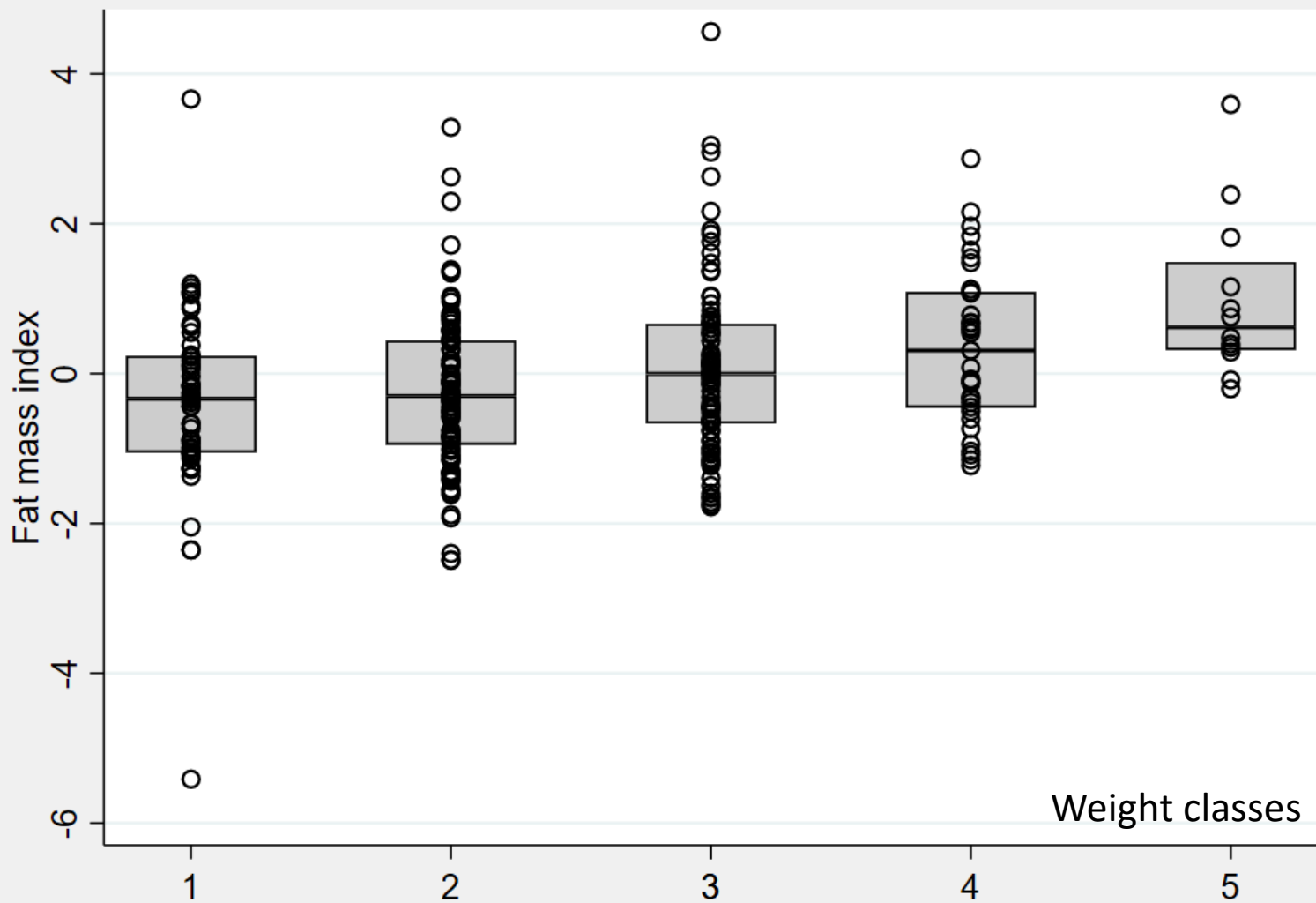


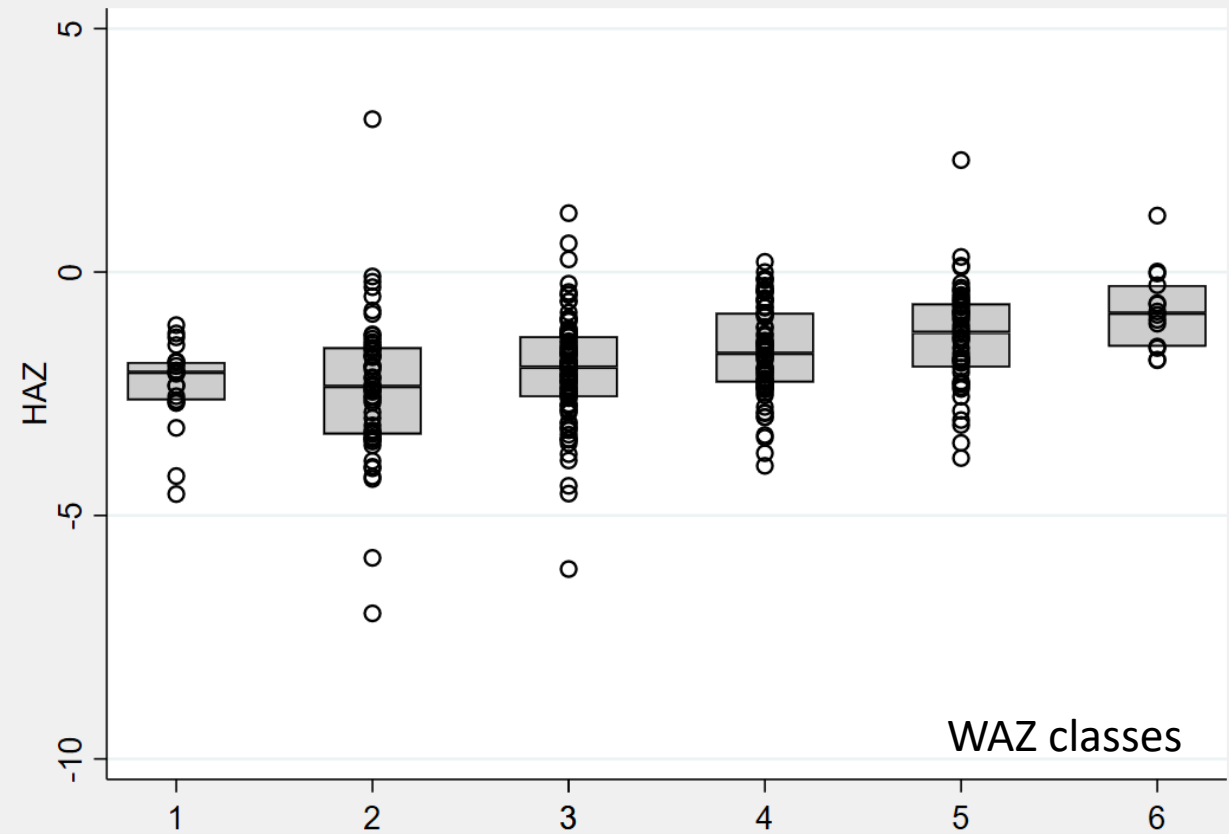
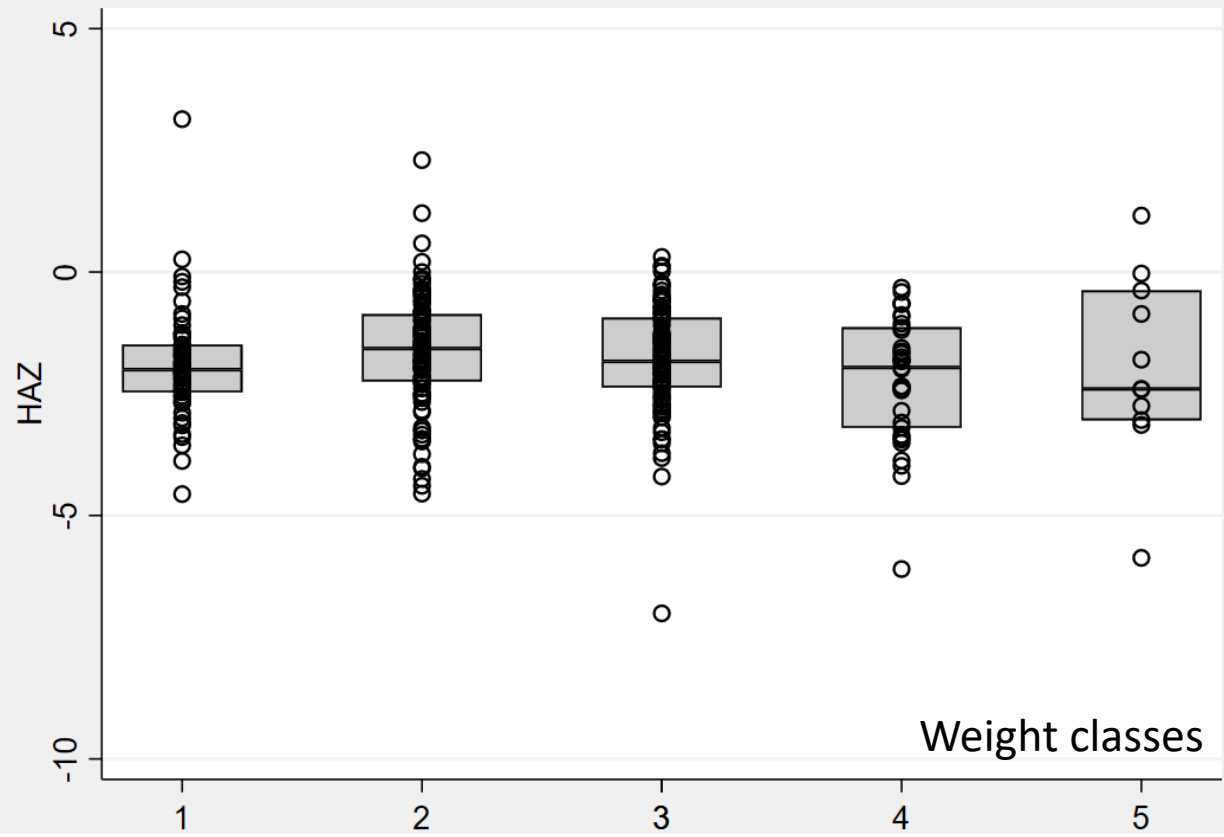










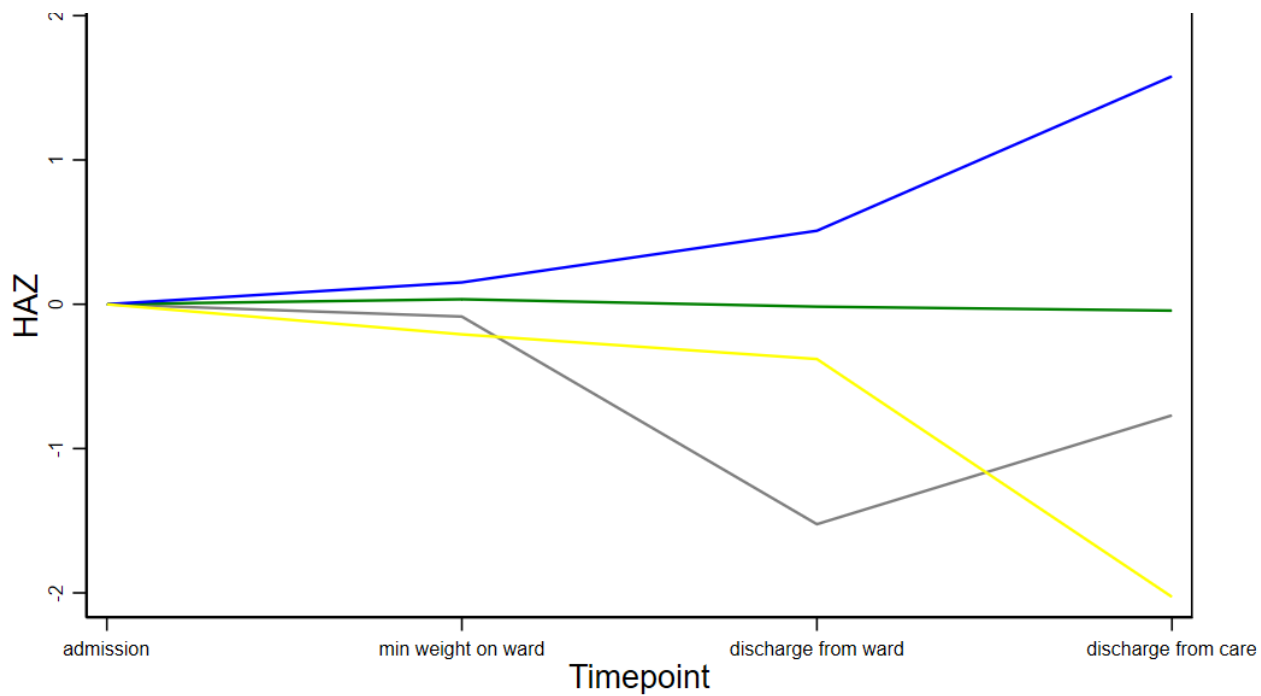
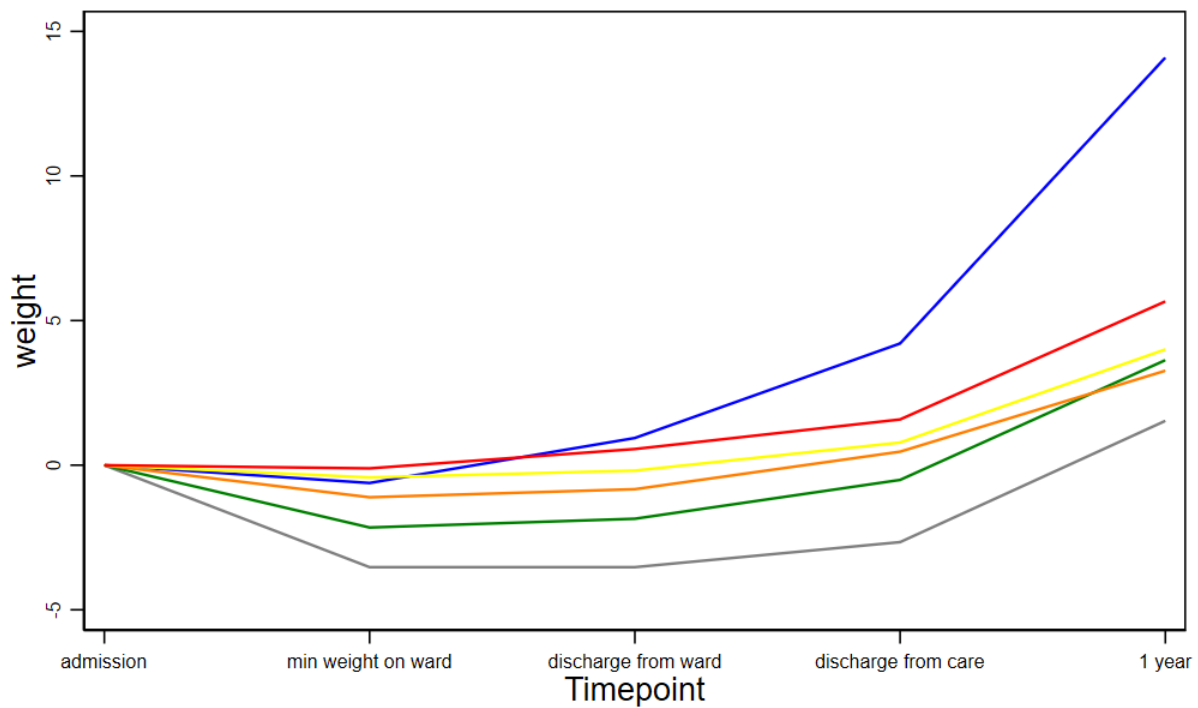
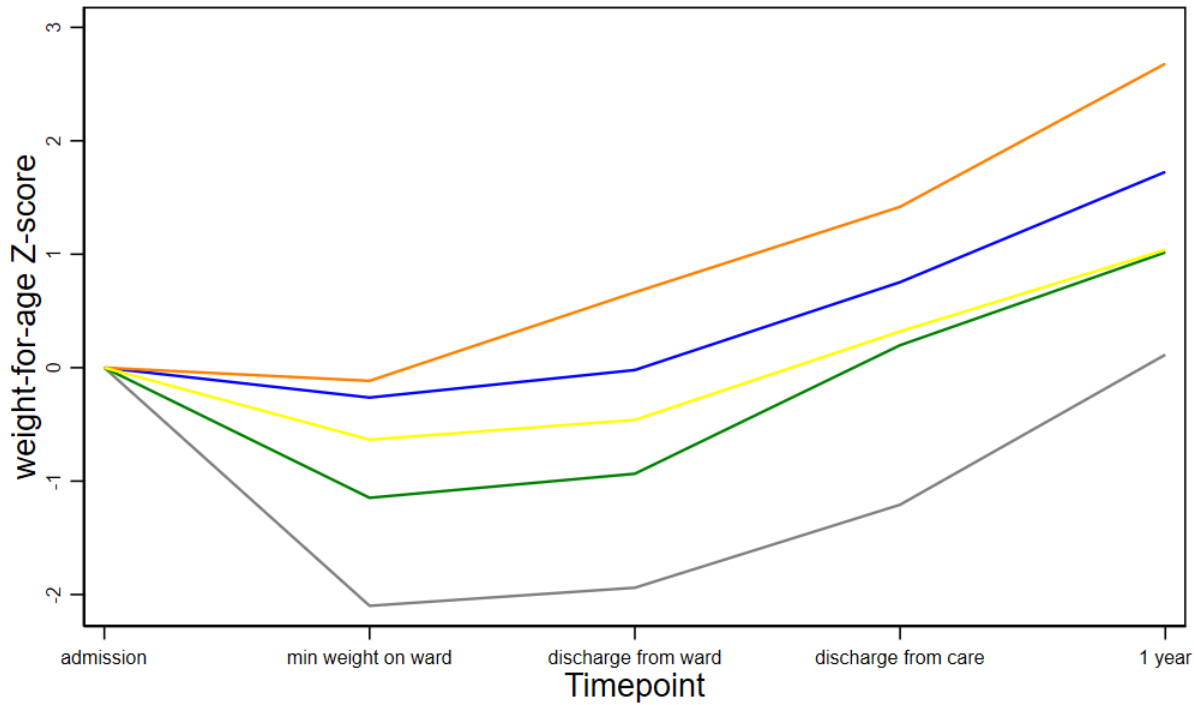


## Annex Table 5: Association between Admission anthropometry and NCD outcomes

NCD indicator	PMGr definition	Unadjusted difference	P-value	95% CI	Adjusted difference	P-value	95% CI	NCD indicator	PMGr definition	Unadjusted difference	P-value	95% CI	Adjusted difference	P-value	95% CI
Systolic BP	Admission WAZ	<b>0.82</b>	<b>0.016</b>	<b>(0.15, 1.50)</b>	0.01	0.986	(-0.73, 0.74)	Waist:Hip ratio	Admission WAZ	<b>-0.01</b>	<b>&lt;0.001</b>	<b>(-0.01, -0.00)</b>	<b>-0.01</b>	<b>0.004</b>	<b>(-0.01, -0.00)</b>
	Admission weight (kg)	<b>0.88</b>	<b>&lt;0.001</b>	<b>(0.50, 1.27)</b>	-0.14	0.624	(-0.72, 0.43)		Admission weight (kg)	-0.01	<b>&lt;0.001</b>	<b>(-0.01, -0.00)</b>	<b>-0.01</b>	<b>0.008</b>	<b>(-0.01, -0.00)</b>
	Admission HAZ	0.68	0.061	(-0.03, 1.40)	-0.19	0.657	(-1.02, 0.64)		Admission HAZ	<b>-0.01</b>	<b>0.001</b>	<b>(-0.01, -0.00)</b>	<b>-0.08</b>	<b>0.001</b>	<b>(-0.01, -0.00)</b>
Diastolic BP	Admission WAZ	0.52	0.114	(-0.13, 1.17)	0.55	0.140	(-0.18, 1.28)	Lean mass index (BIA)	Admission WAZ	<b>0.25</b>	<b>&lt;0.001</b>	<b>(0.12, 0.37)</b>	<b>0.24</b>	<b>&lt;0.001</b>	<b>(0.11, 0.38)</b>
	Admission weight (kg)	0.25	0.159	(-0.10, 0.61)	0.07	0.797	(-0.49, 0.65)		Admission weight (kg)	<b>0.18</b>	<b>&lt;0.001</b>	<b>(0.11, 0.25)</b>	<b>0.18</b>	<b>0.001</b>	<b>(0.07, 0.29)</b>
	Admission HAZ	-0.15	0.661	(-0.84, 0.54)	-0.12	0.775	(-0.95, 0.71)		Admission HAZ	0.09	0.206	(-0.05, 0.22)	0.09	0.210	(-0.05, 0.23)
Hand grip	Admission WAZ	<b>0.63</b>	<b>&lt;0.001</b>	<b>(0.37, 0.89)</b>	<b>0.49</b>	<b>&lt;0.000</b>	<b>(0.24, 0.74)</b>	Fat mass index (BIA)	Admission WAZ	<b>0.13</b>	<b>0.003</b>	<b>(0.05, 0.21)</b>	<b>0.14</b>	<b>0.002</b>	<b>(0.06, 0.24)</b>
	Admission weight (kg)	<b>0.71</b>	<b>&lt;0.001</b>	<b>(0.57, 0.85)</b>	<b>0.31</b>	<b>0.005</b>	<b>(0.09, 0.53)</b>		Admission weight (kg)	<b>0.12</b>	<b>&lt;0.001</b>	<b>(0.08, 0.17)</b>	<b>0.10</b>	<b>0.005</b>	<b>(0.03, 0.18)</b>
	Admission HAZ	<b>0.42</b>	<b>0.004</b>	<b>(0.14, 0.70)</b>	<b>0.53</b>	<b>&lt;0.001</b>	<b>(0.28, 0.79)</b>		Admission HAZ	0.08	0.097	(-0.01, 0.17)	<b>0.11</b>	<b>0.024</b>	<b>(0.01, 0.19)</b>
Waist circumference	Admission WAZ	<b>0.89</b>	<b>&lt;0.001</b>	<b>(0.62, 1.15)</b>	0.87	<b>&lt;0.001</b>	(0.60, 1.13)	HAZ	Admission WAZ	<b>0.22</b>	<b>&lt;0.001</b>	<b>(0.13, 0.29)</b>	<b>0.25</b>	<b>&lt;0.001</b>	<b>(0.16, 0.33)</b>
	Admission weight (kg)	<b>0.82</b>	<b>&lt;0.001</b>	<b>(0.68, 0.97)</b>	<b>0.52</b>	<b>&lt;0.001</b>	<b>(0.30, 0.75)</b>	Admission weight (kg)	-0.03	0.313	(-0.08, 0.03)	<b>0.15</b>	<b>&lt;0.001</b>	<b>(0.08, 0.22)</b>	
	Admission HAZ	<b>0.68</b>	<b>&lt;0.001</b>	<b>(0.39, 0.98)</b>	0.85	<b>&lt;0.001</b>	<b>(0.57, 1.12)</b>	Admission HAZ	<b>0.40</b>	<b>&lt;0.001</b>	<b>(0.32, 0.48)</b>	<b>0.39</b>	<b>&lt;0.001</b>	<b>(0.31, 0.47)</b>	

# Annex Figure 6

Growth patterns for WAZ, weight and HAZ described based on LCA classes which have been standardised by admission anthropometry



# Annex Figures 7a-5g

Boxplots showing associations between LCA classes for weight, WAZ and HAZ (standardised for admission anthropometry), and NCD risk outcomes

