

RATIONALE/ OBJECTIVE

- Bangladesh has a high rate of undernutrition and overnutrition.
- Bangladesh is experiencing the double burden of malnutrition (DBM) and undernutrition coexists with overweight and obesity in the same group of population.
- Bangladesh has 171.19 million population and over half of the population falls in the age group of 20-59 years.
- Little is known about the factors linked to the DBM in adults aged 20 to 59 years, the age group between adolescence and senescence.
- In this study, we assessed the DBM and the associated factors with DBM in 20-59 years adults of Bangladesh.

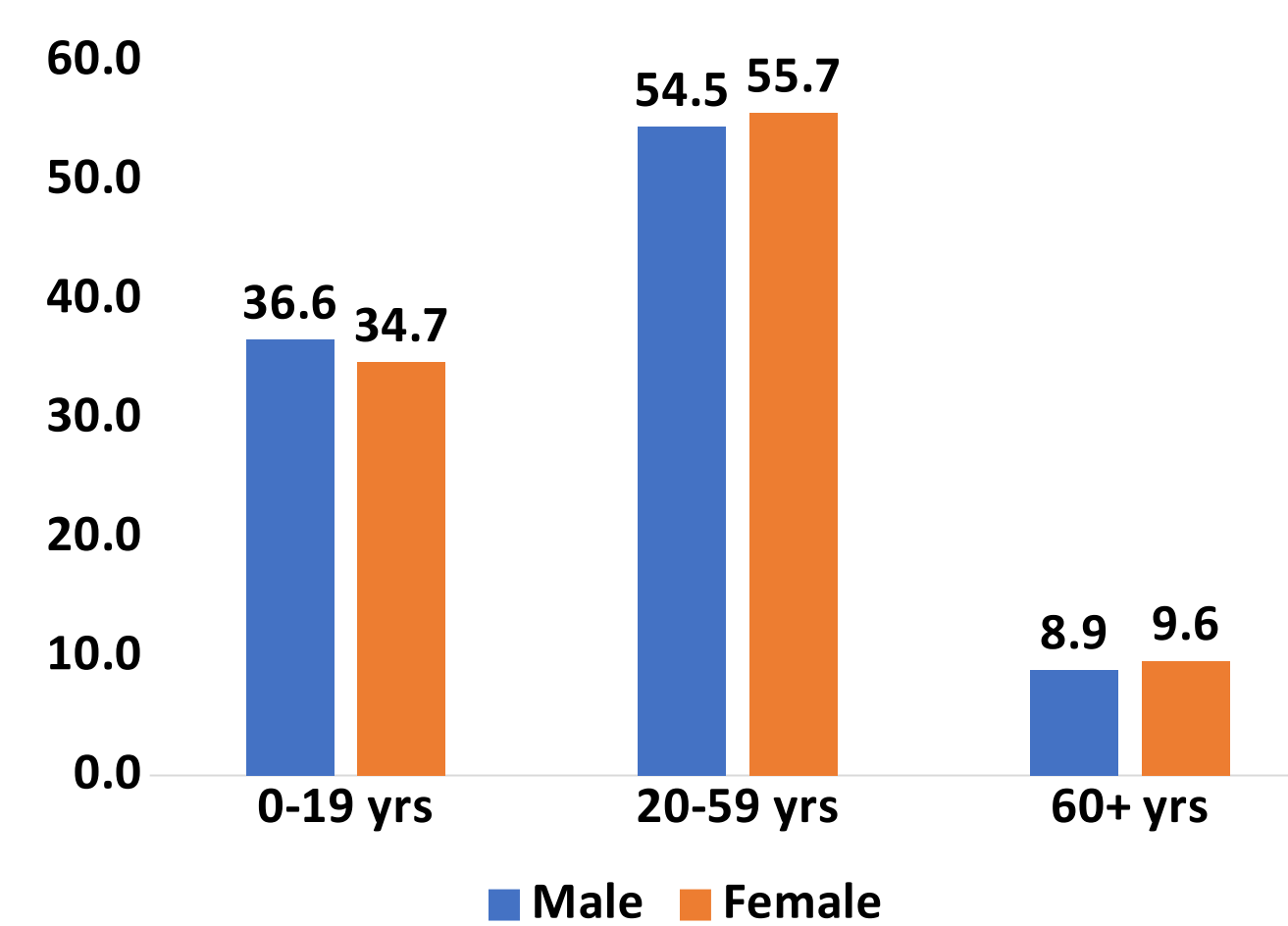


Figure1: Population distribution of Bangladesh

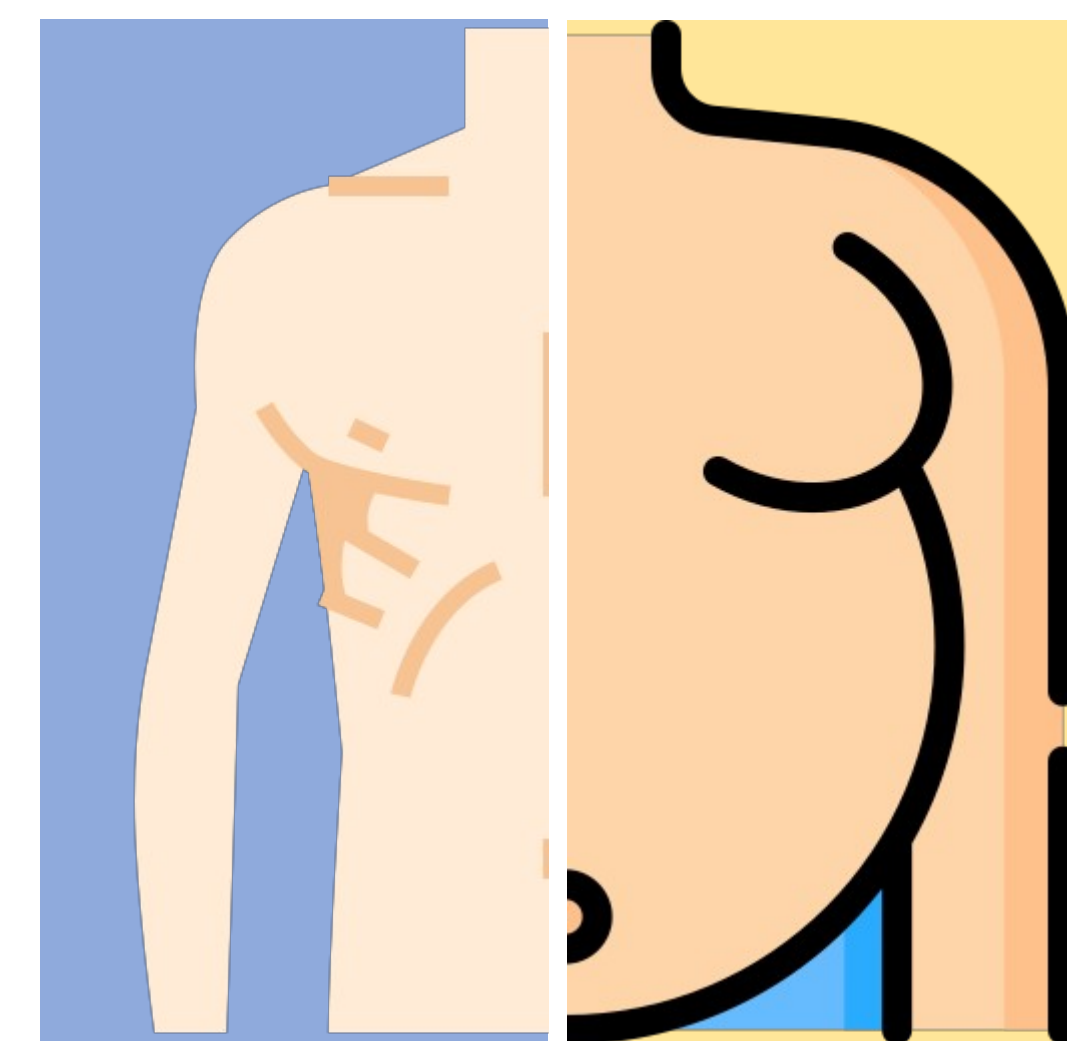
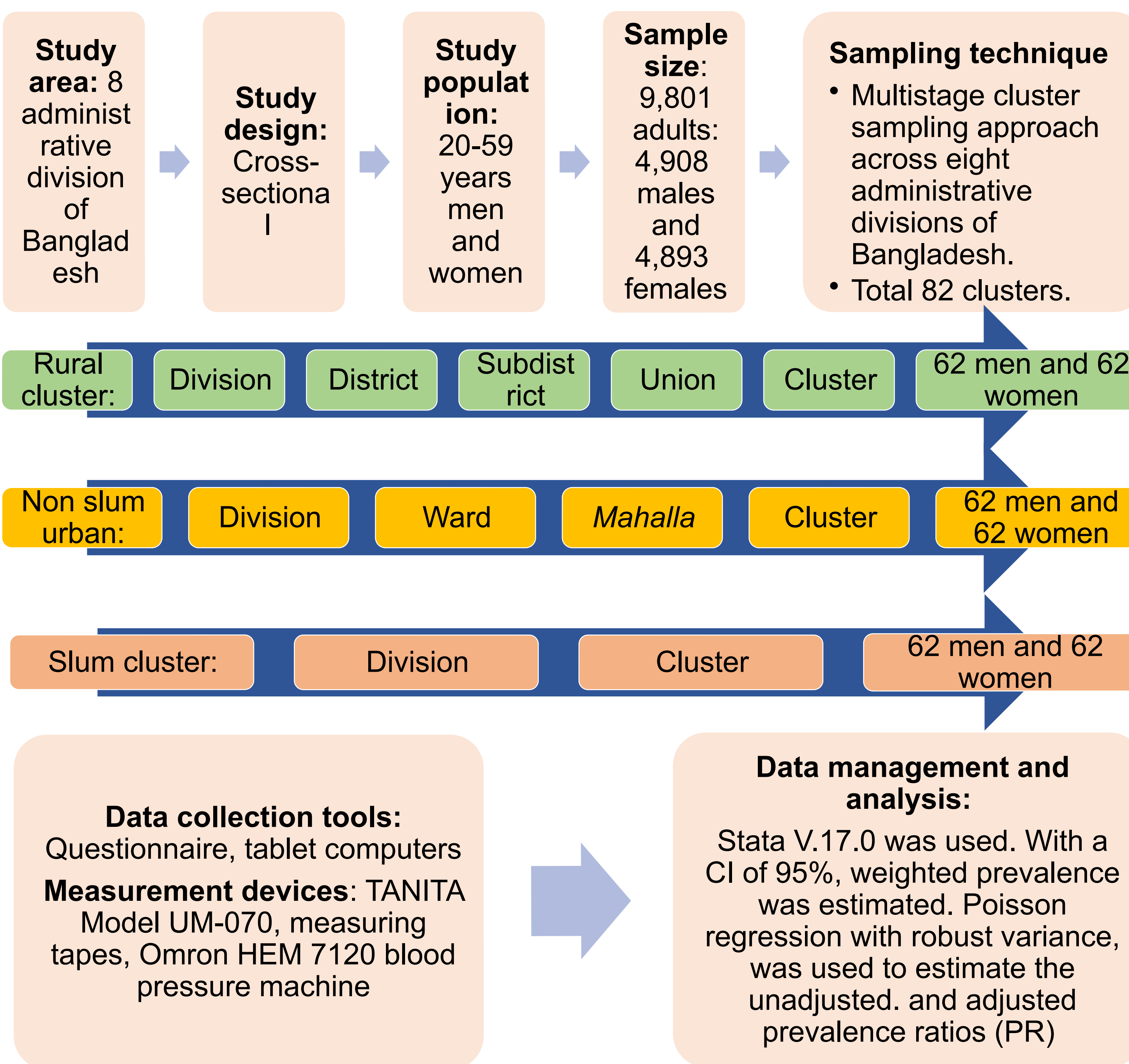


Figure 2: Double burden of malnutrition

METHODS



RESULTS

Prevalence

- Men: 15.11% underweight, while the prevalence of overweight and obesity was 25.43% and 8.43%, respectively.
- Women: 11.32% underweight but a staggering 31.79% and 16.66% prevalence for overweight and obesity, respectively.

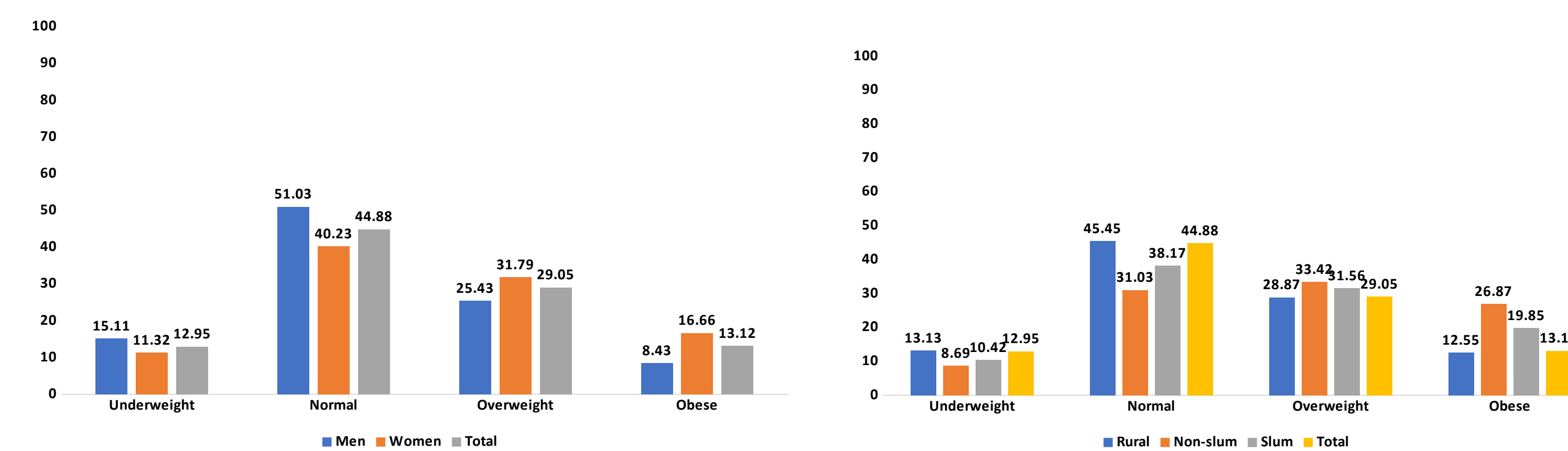


Figure 2: Weighted prevalence of the nutritional status of 20-59 years old adults in Bangladesh

Figure 3: Weighted prevalence of nutritional status of 20-59 years old adults in Bangladesh according to the place of residence

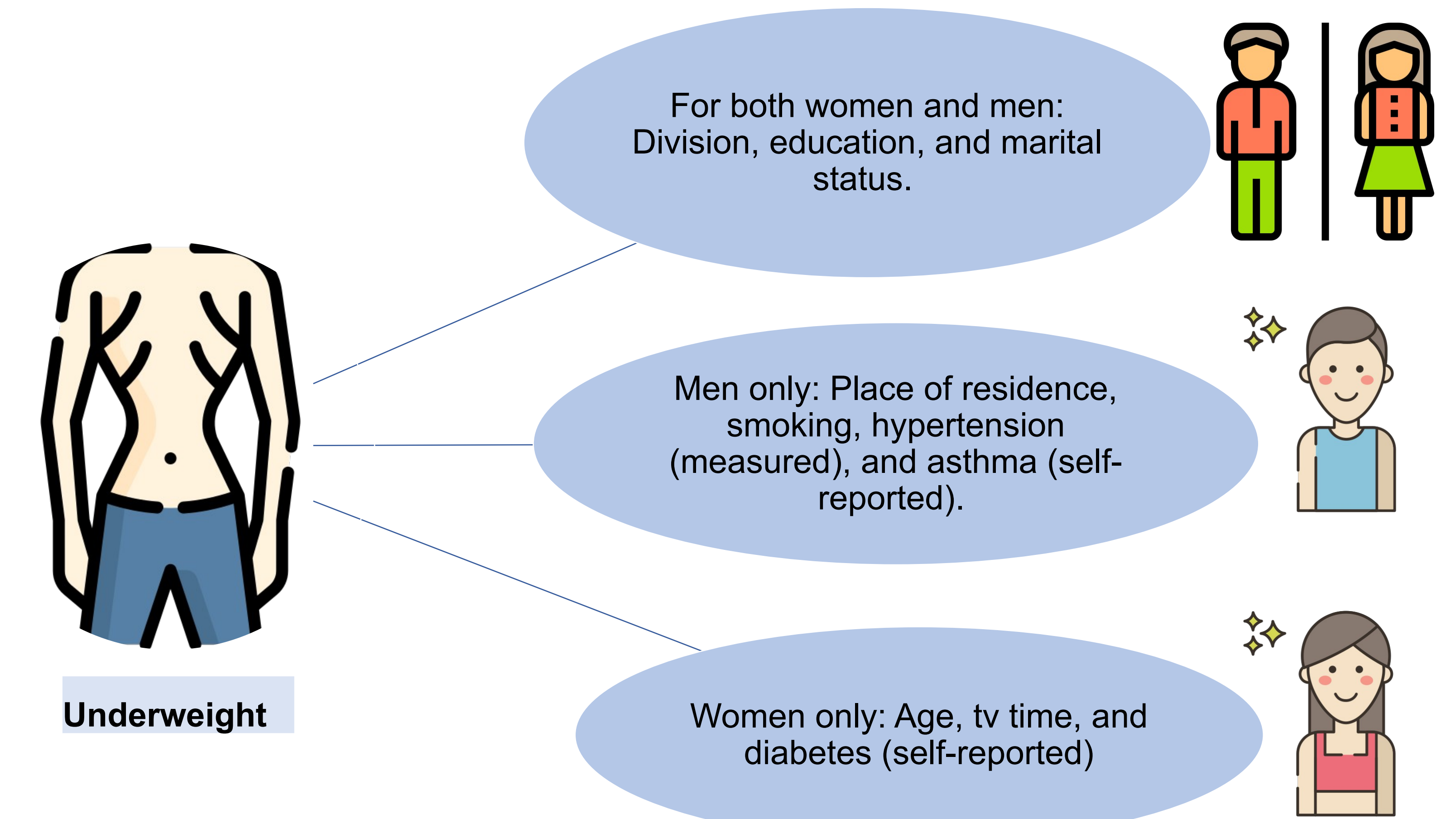
Table 1: Adjusted Prevalence ratio (APR) of the factors of underweight, overweight and, obesity among adults aged 20-59 years

	Men		Women	
	Underweight	Overweight and obese	Underweight	Overweight and obese
	APR (95% CI)	APR (95% CI)	APR (95% CI)	APR (95% CI)
1. Age in years (Ref 20-29)				
30-39	0.86(0.72,1.02)	1.28(1.14,1.44)**	0.07(0,0.5)**	1.22(1.15,1.29)**
40-49	0.85(0.7,1.04)	1.29(1.14,1.47)**	0.08(0.002,0.53)**	1.15(1.07,1.22)**
50-59	0.96(0.78,1.17)	1.19(1.03,1.37)*	0.13(0.927,0.79)	1.04(0.96,1.13)
2. Place of residence (Rural)				
Non-slum urban	1.27(1.01,1.59)*	1.21(1.1,1.32)**	0.14(0.283,0.59)	1.17(1.1,1.23)**
Slum	1.35(1.14,1.61)**	1.15(1.02,1.3)*	0.11(0.071,0.57)	1.13(1.06,1.21)**
3. Division				
Mymensingh	Ref	Ref	Ref	Ref
Barishal	0.79(0.61,1.03)	1.06(0.92,1.23)	0.11(0.008,0.45)*	1.09(1,1.19)
Chattogram	0.77(0.62,0.96)*	1.2(1.05,1.39)*	0.11(0.044,0.54)*	1.17(1.08,1.28)*
Dhaka	0.65(0.5,0.84)**	1.33(1.16,1.52)**	0.11(0.008,0.44)*	1.19(1.1,1.29)**
Khulna	0.82(0.65,1.03)	1.09(0.94,1.26)	0.12(0.225,0.64)	1.04(0.95,1.14)
Rajshahi	0.94(0.76,1.15)	1.11(0.96,1.29)	0.12(0.164,0.62)	1.1(1.01,1.2)*
Rangpur	0.71(0.56,0.91)	1.15(1,1.33)*	0.1(0.02,0.54)*	1.06(0.98,1.16)
Sylhet	0.97(0.78,1.21)	0.86(0.72,1.04)	0.15(0.057,0.99)	0.88(0.78,0.98)*
4. Educational status (No education)				
Partial primary	0.91(0.76,1.09)	1.13(0.98,1.31)	0.11(0.129,0.63)	1.12(1.03,1.21)*
Completed primary	0.78(0.67,0.91)**	1.28(1.14,1.43)**	0.08(0.055,0.67)	1.18(1.11,1.26)**
Partial secondary	0.58(0.45,0.74)**	1.55(1.37,1.77)**	0.12(0.013,0.44)*	1.28(1.19,1.37)**
Completed secondary or above	0.43(0.25,0.75)**	1.8(1.57,2.05)**	0.17(0.033,0.1)	1.52(1.4,1.65)**
5. Household wealth (Poorest)				
Poorer	1(0.84,1.19)	1.01(0.88,1.16)	0.11(0.492,0.88)	1.02(0.94,1.1)
Middle	0.98(0.82,1.17)	1.04(0.91,1.18)	0.11(0.331,0.7)	1.06(0.98,1.14)
Richer	0.92(0.76,1.12)	1.16(1.02,1.31)*	0.12(0.239,0.65)	1.2(1.12,1.29)**
Richest	0.78(0.61,1)	1.32(1.18,1.48)**	0.19(0.476,0.81)	1.31(1.22,1.4)**
7. Marital status (Others#)				
Currently Married	0.7(0.58,0.85)**	1.18(1.03,1.35)*	0.09(0.033,0.63)	1.15(1.06,1.25)**
8. Religion (Others\$)				
Islam		0.9(0.82,1)*		1.01(0.95,1.08)
9. Fruits and vegetables intake (Sufficient >=5 servings)				
Insufficient (<5 servings)				0.96(0.9,1.02)
10. Physical Activity (Minutes/week) (Sufficient)				
Insufficient (<150 minutes of moderate or <75 minutes of vigorous physical activity or equivalent/week)	0.92(0.78,1.1)	1.06(0.98,1.15)		1(0.94,1.06)
11. Consumption of savory fried snack (No)				
Yes		1.08(1,1.17)		0.93(0.88,0.99)*
12. Sweet food consumption (No)				
Yes		1.07(1,1.15)		1.02(0.98,1.07)
13. Currently smokes (No)				
Yes	1.44(1.26,1.64)	0.74(0.68,0.8)**		
14. Current smokeless tobacco consumption (No)				
Yes	0.92(0.79,1.07)	0.97(0.88,1.07)	0.1(0.333,0.92)	0.97(0.92,1.03)
15. Sedentary (time/day) (<=6 hours/day)				
>6hours/day		1.23(1.14,1.33)**		1.12(1.07,1.17)**
16. Television viewing time/day (Not At All)				
<=60 minutes		1.16(1.06,1.27)**	0.09(0.297,0.75)	1.06(1.01,1.12)*
61-120 minutes		1.24(1.11,1.37)**	0.11(0.034,0.55)*	1.14(1.07,1.21)**
>=121 minutes		1.11(0.96,1.28)	0.13(0.017,0.4)*	1.08(1,1.16)
17. Having hypertension (Measured) (No)				
Yes	0.78(0.61,0.99)*	1.28(1.19,1.39)**		1.41(1.35,1.48)*
18. Self reported diabetes (No)				
Yes	0.87(0.52,1.43)	1.05(0.91,1.2)	0.15(0.021,0.25)*	1.07(0.99,1.15)
19. Self reported asthma (No)				
Yes		1.07(0.93,1.24)		1.08(1,1.17)*
20. Self reported heart disease (No)				
Others# (Never married, separated, divorced, widowed, others)		1.06(0.93,1.22)	0.15(0.409,0.62)	1.09(1.02,1.18)*

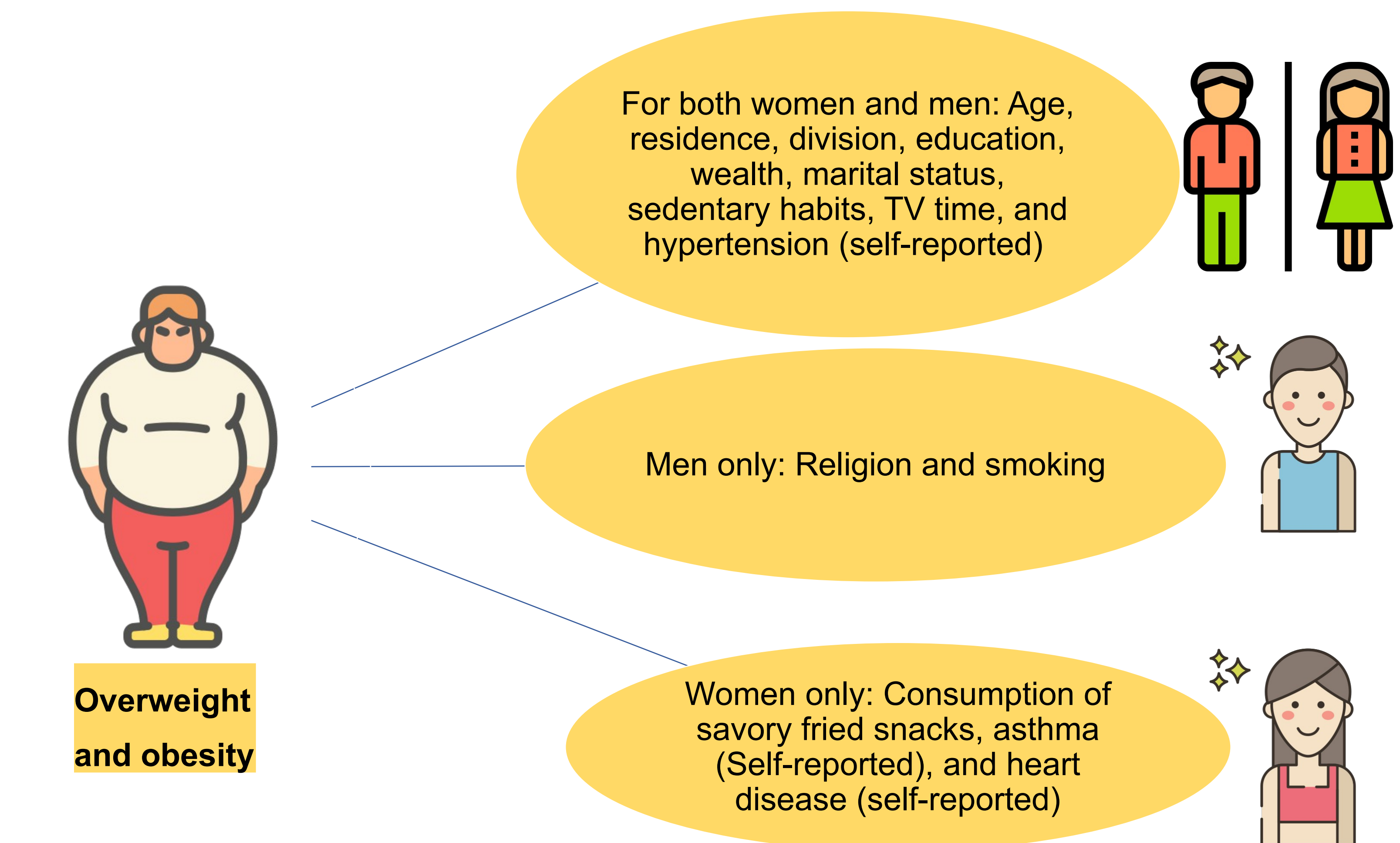
RESULTS

Associated factors

Factors associated with underweight for both men and women are given below:



Factors associated with overweight and obesity for both women and men are given below:



IMPLICATIONS

Crucial wake-up call, as Bangladesh battles the soaring undernutrition and overnutrition epidemic, known as the DBM. Interventions aimed at reducing DBM should focus on modifiable factors of DBM identified in this study.