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Background:

- People with SMI die on average 10-20 years earlier than the general population. [1]
- Obesity is directly linked to comorbidities which contribute to this mortality [1]
- People with SMI in low- and middle-income countries (LMICs) may be particularly at risk of obesity [2]

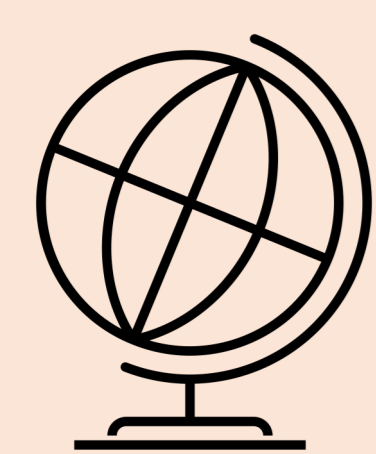
Aims:

1. To determine the prevalence of obesity and overweight in adults with SMI in Bangladesh, India and Pakistan
2. To investigate the association of obesity and overweight with sociodemographic variables, physical comorbidities and health risk behaviours

Methods:

- Multi-country survey recruiting 3,989 participants from three national mental health institutes in Bangladesh, India and Pakistan.
- Collected data on non-communicable diseases, physical measurements and blood tests (HbA1c, lipid profile)
- The prevalence of overweight and obesity was stratified by key sociodemographic variables
- Multinomial regression was used to test association between overweight/obesity with sociodemographic variables, physical comorbidities (hypertension, diabetes, high cholesterol) and health risk behaviours (physical inactivity, poor diet, smoking)

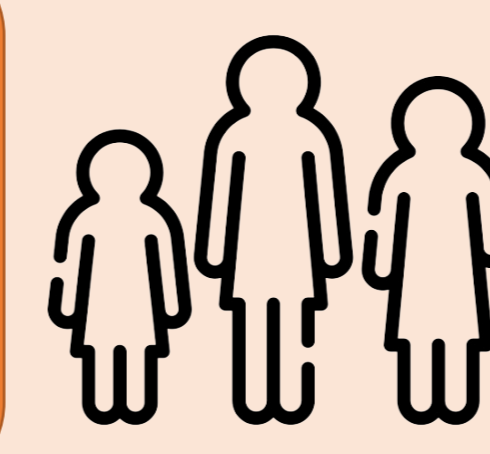
Key Findings:



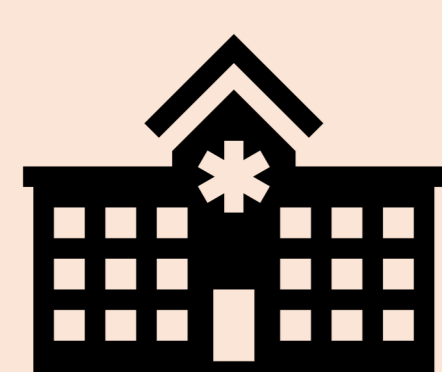
30.2% of participants were overweight and 16% were obese according to WHO international cut-offs



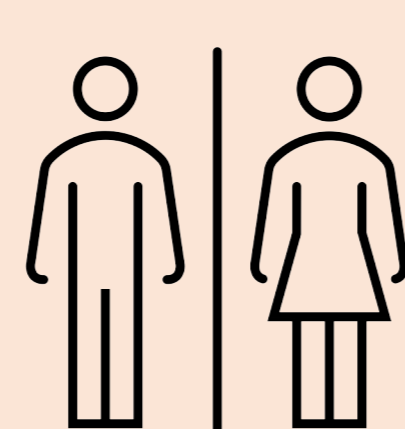
17.3% of participants were overweight and 46.2% were obese according to Asian cut-offs



Obesity was most prevalent in the 40-54 year age group (56.1%) and least prevalent amongst 18-24 year olds (26.5%)



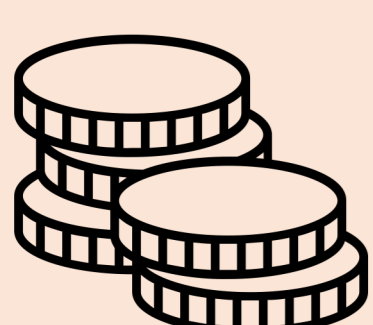
A greater proportion of outpatients were obese compared to the inpatient population (48% and 37.5%, respectively)



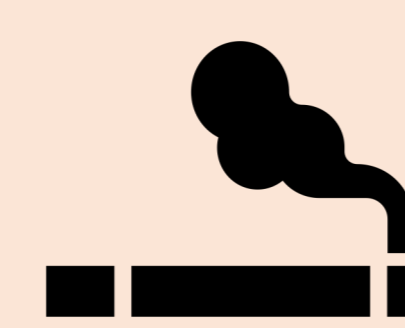
The relative risk of being obese compared to normal weight in females is double the relative risk in males (RRR=2.04; 95% CI: 1.56 to 2.67)



The relative risk of being obese compared to normal weight in people with psychotic disorder is 0.69 (95% CI: 0.56 to 0.85) times the risk in people with bipolar disorder



People in the highest income tertile have 1.37 (95% CI: 1.10 to 1.71) times greater risk of being obese, compared to normal weight, in relation to those in the lowest income tertile.



The relative risk of being obese compared to normal weight in current smokers is 0.80 times (95% CI: 0.65 to 0.97) the relative risk in non-smokers



Hypertensive participants have 1.71 (95% CI: 1.31 to 2.22) times greater risk of being obese, compared to normal weight, in relation to participants with normal blood pressure

Discussion:

- 40-54 year olds are most at risk of obesity, which is expected given the physical inactivity and metabolic changes occurring with age [3]
- The greater relative risk in females may be driven by urbanisation and a shift in work roles in LMICs where physical activity has been more negatively impacted in this gender [4]
- Contrary to high income countries where the poorest usually cannot afford to maintain a healthy lifestyle, the more affluent have an increased risk of obesity, but this burden is expected to shift to lower-income groups as national economic output increases [5]
- As in the general population, smoking may provide a protective factor in obesity due to decrease in appetite [6]
- Hypertension is associated with obesity and so this should be regularly screened in the SMI population

Conclusions:

The obesity epidemic is severely affecting the SMI population in LMICs which will contribute significantly to the widening mortality gap and it's likely the real burden of obesity is hugely underestimated. Identifying those at most risk will help in the development of context-appropriate interventions and health strategies to prevent obesity and its sequelae.

References:

- [1] Holt R, Afzal M, Ahmad B, et al. Prevalence of overweight and obesity in people with severe mental illness: systematic review and meta-analysis. *Front Endocrinol* 2021; : 44.
- [2] Ford ND, Patel SA, Narayan KMV. Obesity in Low- and Middle-Income Countries: Burden, Drivers, and Emerging Challenges. *Annu Rev Public Health* 2017; **38**: 145–64.
- [3] Jura M, Kozak LP. Obesity and related consequences to ageing. *Age* 2016; **38**: 23.
- [4] Kanter R, Caballero B. Global gender disparities in obesity: a review. *Adv Nutr* 2012; **3**: 491–8
- [5] Templin T, Cravo Oliveira Hashiguchi T, Thomson B, Dieleman J, Bendavid E. The overweight and obesity transition from the wealthy to the poor in low- and middle-income countries: A survey of household data from 103 countries. *PLoS Med* 2019; **16**: e1002968.
- [6] Dare S, Mackay DF, Pell JP. Relationship between smoking and obesity: a cross-sectional study of 499,504 middle-aged adults in the UK general population. *PLoS One* 2015; **10**: e0123579.