

# UTILITY OF NECK CIRCUMFERENCE AS A SURROGATE OF CENTRAL OBESITY AND CORRELATE OF THE METABOLIC SYNDROME- A NORTHERN NIGERIAN POPULATION STUDY

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★ **INTRODUCTION:** The use of neck circumference as a measure of central obesity and assessment of cardio- metabolic risk has gained enormous interest in recent times. It offers a convenient and easy to use method of estimating upper body adiposity especially in northern Nigeria where cultural/religious obligations limit excessive body exposure. There are no published data on the use of neck circumference in the assessment of central adiposity among Northern Nigerians, hence the need for the study.

★ **OBJECTIVES:** To assess the utility of neck circumference as a surrogate of central obesity and a correlate of the metabolic syndrome among an adult population of a semi- urban community in Kano, North-Western Nigeria.

★ **METHODS:** This was a community-based cross-sectional study of adults living in Kumbotso local government area of Kano State. A multi-stage systematic random sampling method was used to enroll 748 participants. The NCEP ATP 111 criteria was used to define metabolic syndrome and data was analysed using SPSS version 20.

★ **RESULTS:** A total of 748 participants completed the study with 536 (71.7%) males and 212 (28.3%) females. The mean±SD age of the population was 30.8 ±11.76years. The Receiver Operator Characteristics Curve (ROC) was used to obtain the NC cutoff value for the general population as 36.75cm, while the gender specific NC cutoff values were 36.75cm and 36cm for male and females respectively.

The prevalence of central obesity using the NC cutoff obtained from the study was 26.2%. Among the 748 study participants, 195(26%) had both MetS and NC above cutoffs obtained. There was a positive correlation of NC with metabolic syndrome (r=0.309, p=0.001).

★ **DISCUSSION:** The prevalence of central obesity in this study was similar to that found in an Iranian community-based study but lower than cutoffs obtained from Southern Nigeria which involved older participant. There was a positive correlation of NC with MetS, This was also observed in a Turkish and Chinese study.

★ **CONCLUSION:** In this study, NC may be useful as a screening tool for identifying central obesity and early cardio metabolic risk in Northern Nigeria where ethno-religious practices limit body exposure or when there are limitations to use of standard tools. A Nigerian country-wide multi-center population based survey is recommended to define the normative cutoff value of NC that truly defines central adiposity as marker of cardio-metabolic risk.

★ **Key words:** Neck Circumference, Metabolic Syndrome, Insulin Resistance, cardio

## ★ REFERENCES

- Saete S, Silva DB, Mastroeni MF. Anthropometric measurements as a potential non-invasive alternative for the diagnosis of metabolic syndrome in adolescents. *Arch Endocrinol Metab.* 2019;63(5):1.
- Onyenekwe CP, Dada AO, Babatunde OT. The prevalence of metabolic syndrome and its components among overweight and obese Nigerian adolescent and young adults. *Niger J Clin Pract.* 2017;20:670–6.