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## Background

Cardiovascular (CV) diseases are the leading cause of death worldwide. Current CV risk estimation primarily relies on conventional factors integrated into risk algorithms such as SCORE2/2-OP, which, however, have several limitations, as they do not account for anthropometric parameters. Nevertheless, abdominal obesity is a well-established CV risk factor. In this context, our study aimed to explore the association between anthropometric parameters, taking into account the distribution of adipose tissue, and subclinical atherosclerosis (presence of carotid plaque) in addition to standard CV risk factors.

## Methods

We analysed a subgroup of 1,068 asymptomatic, non-diabetic, and non-chronic kidney disease participants (median age 55.8 [51.0–60.0], 596 females, 56%) from the CV-PREVITAL (Primary Cardiovascular Prevention in the Italian Population) study, all of whom underwent carotid ultrasonography. We performed a logistic regression between anthropometric measures (BMI  $\geq 30$  kg/m<sup>2</sup>, waist circumference  $\geq 102$  cm in men and  $\geq 88$  cm in women, and waist-to-height ratio (WtHR)  $\geq 0.5$ ) and carotid plaque presence, adjusting for conventional cardiovascular risk factors, expressed through SCORE2/2-OP.

## Results

The prevalence of carotid plaque was similar across SCORE2 risk categories—20%, 18%, and 18% in the low–moderate, high, and very-high-risk groups, respectively ( $p=0.760$ , Figure). Neither BMI  $\geq 30$  kg/m<sup>2</sup> (OR 0.808 [0.513–1.234],  $p=0.339$ ) nor waist circumference  $\geq 102$  cm in men and  $\geq 88$  cm in women (OR 1.125 [0.815–1.545],  $p=0.469$ ) were associated with carotid plaque. However, a WtHR  $\geq 0.5$  emerged as the only parameter significantly associated with carotid plaque, even after adjustment for SCORE2/2-OP (OR 1.570 [1.109–2.256],  $p=0.0126$ ).

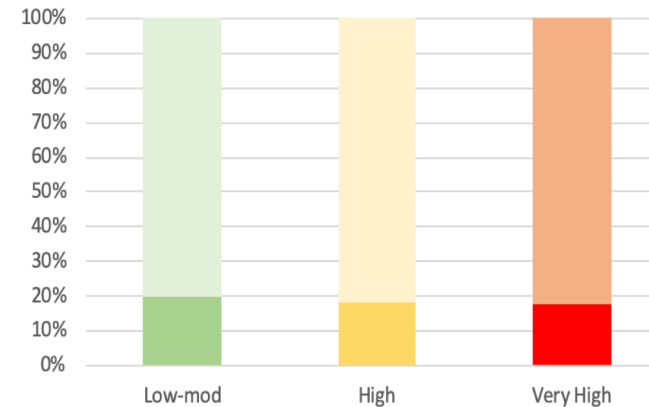


Figure: Graphical representation of the percentage of patients with carotid plaque across the different 2/2OP score categories. In each bar, the darker portion represents the percentage of patients with plaque, and the lighter portion represents those without. In the three risk classes, the percentage of subjects with carotid plaque is 20%, 18%, and 18%, respectively.

	Adjusted OR	IC 95%	p-value
WtHR $\geq 0.5$	1.570	1.109–2.256	<b>0.0126</b>
Waist ( $\geq 102$ cm in men and $\geq 88$ cm in women)	1.123	0.815–1.545	0.469
BMI $\geq 30$	0.808	0.513–1.234	0.339

## Conclusion

Among anthropometric parameters, in a cohort of middle-aged and older adults (45–80 years) in primary prevention, only WtHR  $\geq 0.5$ , that defines abdominal obesity, was associated with asymptomatic carotid plaque, independently of SCORE2/2-OP. Therefore, WtHR could be used in clinical practice both to easily identify individuals at increased CV risk and as a target for lifestyle and therapeutic recommendations.