

# The Utility of the Elbow Sign in the diagnosis of Obstructive Sleep Apnea

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## Abstract

**Background:** Multiple questionnaires have been used to predict the diagnosis of obstructive sleep apnea (OSA). Such models typically have multiple questions requiring cumulative scoring prior to interpretation. We wanted to determine if a simple two-part questionnaire has predictive value in the pre-test clinical evaluation for obstructive sleep apnea.

**Methods:** A questionnaire consisting of two questions – 1) *Does your bed-partner ever poke or elbow you because you are snoring* and 2) *Does your bed partner ever poke or elbow you because you have stopped breathing?* – was prospectively administered to patient being evaluated in a Sleep Disorders Clinic prior to undergoing polysomnography (PSG). Age, sex, body mass index (BMI), and Epworth Sleepiness Scale (ESS) were collected.

**Results:** Among the 128 patients who went on to have a polysomnogram, answering ‘yes’ to being awakened for snoring increased the odds ratio of an apnea-hypopnea index (AHI) >5/hour 3.9 times compared to ‘no’. Answering ‘yes’ to being awakened for apneic spells was associated with a odds ratio of 5.8 for an AHI>5/hour compared to ‘no’. These associations did not differ by sex, BMI, ESS or answering ‘yes’ to the other question. Subjects over 50 years old with OSA were less likely to report a positive elbow sign and had statistically significantly lower odds ratio for being awakened by apneic spells than those less than 50. The sensitivity and specificity of being awakened for apneic spells was 65% and 76% respectively with a positive predictive value of 90%. Subgroup analysis revealed that males with a BMI over 31 and a positive elbow sign have a profile with a specificity of 96.6% for a diagnosis of OSA.

**Conclusion:** Among patients referred to a sleep disorders clinic a positive response to being elbowed/poked for apneic spells significantly improves the pre-test prediction of OSA.