

## LETTER TO THE EDITOR

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**Factors affecting sensitivity and specificity of head-turning sign in the studies**

We read with interest the comment by Williamson and Larner on our recent study titled “Attended With and Head-Turning Sign can be clinical markers of cognitive impairment in older adults” (Soysal *et al.*, 2017). After the authors read the study, they re-examined their data according to the presence of Attended With (AW) and Head-Turning Sign (HTS), and compared their results with ours (Larner, 2014). Then, they found that while the sensitivity, specificity, positive predictive value, and negative predictive value of AW in detecting cognitive impairment were similar to ours, HTS had lower sensitivity (80.95% vs. 65.0%) and higher specificity (64.7% vs. 95.0%) than our results (Larner, 2014; Soysal *et al.*, 2017). We think that some methodological and cultural differences may explain these discrepancies between the two.

First, Williamson and Larner evaluated 16–92 years old patients, but we included just the patients who were over 60 years and had memory complaints. That may lead to decline in specificity, and rise in sensitivity of HTS. Because, previous studies showed that HTS was more prevalent in both benign senescent forgetfulness and memory-related cognitive impairment, such as Alzheimer’s disease and amnesic mild cognitive impairment, which are quite common among older people (Isik *et al.*, 2018). On the other hand, the authors reported that 26.7% of the patients were referred by psychiatry services and neurologists, and 68.9% of them were referred by primary care physicians. It means that approximately all these patients had been already eliminated at least once for their memory problems when they were included in the study (Larner, 2014). However, the most of our patients were first admitted to our clinic. Owing to this methodological difference, their specificity of HTS might be higher than ours.

Second reason may be that female patients are more prevalent in our study (64.8% vs. 47.2%). In general, women may become more dependent on

others when facing difficulties, while men tend to feel obligated to overcome adversities without help (Fukui *et al.*, 2011). Furthermore, it was shown that “help seeking” and depression were more prevalent in women with dementia, while aggressive behaviors were more frequent in men (Lövheim *et al.*, 2009). When it is considered that HTS is essentially a behavior of help seeking, it can be said that female patients tend to turn their heads even if they have not any cognitive impairment. Last, older adults have lower educational level in our country, and thus they usually need to be approved even if they know the answer of the questions very well. Therefore, the gender and educational differences can explain why the sensitivity and specificity of HTS are different from Larner’s study.

Both AW and HTS are fast, simple, and effective methods in screening cognitive impairment. However, some methodological and cultural differences should be kept in mind while evaluating the studies’ results.

**Conflict of interest**

None.

**Description of authors’ roles**

P. Soysal evaluated the comment, examined the data, and wrote the article. A.T. Isik evaluated the comment and wrote the article.

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