| **First Author, Year** | **Were withdrawals from the study explained (post-enrollment)?** | **Were methods for calculating accuracy clearly reported and valid?** | **Did the study have high attrition raising concern for bias?** | **Was an appropriate method used to handle missing data?** | **Quality** | **Comments** |
| --- | --- | --- | --- | --- | --- | --- |
| Alvarez, 2009126 | NA | Yes | No | NR | Good | Information on blinding of scoring was not presented. There were no withdrawn patients but authors did not describe whether all data were collected or if there were technical issues resulting in missing data. Cross-validation was performed for the ROC analyses. |
| Alvarez, 2012118 | NA | Yes | No | NA | Fair | Selection criteria were not clearly described. Authors report that subjects were included who were suspected of having OSA based on clinical features. Clinical features were not described. |
| Barak-Shinar, 2013115 | NA | Yes | No | NR | Fair | The PSG and PM were not independent. Datasets were obtained for all participants, but authors did not describe missing data points or channel failures during the PSG/PM test. |
| Bohning, 2011121 | Partially | Yes | No | No | Fair | Patients were screened using cardiorespiratory polygraphy and referred to the sleep lab for further testing. Patients underwent PSG and PM simultaneously and results were independently evaluated. It appears only one person was missing PM data and dropped from analysis. Reported results for Groups 0 and 1 versus 2 and 3 don’t appear to be valid given text and counts in Table 1. |
| Bruyneel, 2011110 | Yes | Yes | No | No | Fair | PM at home was within 2 weeks of PSG. Authors described 2 patients who did not complete both tests. Authors described the failure rate and reasons of both the PSG and PM. In total, 6% of enrolled participants did not provide complete data. Authors only performed a complete case analysis. Moderate sample size. |
| Campbell, 2011111 | Yes | Yes | No | Partially | Fair | PM at home was within 2 weeks of PSG. Authors evaluated PSG on two nights rather than one and confirmed reliability; laboratory night 1 was later described as an adaptation night; it was not immediately clear that laboratory night 2 provided the results for comparison with PM. Only 2 patients had failed PM recordings; technical problems were described well. Patients with failed recordings were dropped from analysis; all others with technical issues were deemed clinically acceptable. Sample size is small. Scorer was not blind to PSG vs. PM due to how sound was recorded. |
| Choi, 2010125 | No | Yes | No | No | Fair | It is unclear whether the PM and PSG results were interpreted independently. However, the tests were completed in different settings at different times and the PM scoring was automatic (versus manual for the PSG). The overall sample is small (26); two subjects did not successfully undergo portable monitoring (one due to battery failure, one cause unknown) and were excluded from the analysis. This is a narrow spectrum of patients- primarily Korean men presenting with symptoms suggesting OSA- that may prevent generalizability to the US population. |
| Ferre, 2012109 | NA | Yes | No | NA | Good | Authors only reported on the 68 patients who completed the protocol. |
| Garg, 2014127 | Yes | Yes | No | NR | Good | One participant did not complete the in-lab PSG and PM session and two participants did not complete the at-home PM session. It is unclear what the overlap is among those participants. Authors did not report how missing participant data were handled; it is assumed they were dropped from the analysis. |
| Guerrero,2014113 | Yes | Yes | No | NR | Good | Authors provided detailed description of inclusion and exclusion criteria. PSG and PM evaluated within same week; PM used over 3 nights and assessed for consistency. PSG and PM scored manually, separately, and blinded by independent techs. Authors don’t describe method of dealing with missing data, but only 1 patient did not have valid PM results. |
| Gurubhagavatula, 2013104 | Partially | Yes | Yes | Yes | Fair | Patients underwent in-home PM first and then in-lab PSG; days between events was not reported. Though a large subset of enrolled patients underwent PM and PSG, it is not clear what the overlap is. Authors do not report reasons for patients not undergoing PSG and/or PM, but do explain failure rate of studies applied. Missing data, including PSG and PM AHI were imputed, but only a reference was provided for the method. 21% of enrolled participants declined PSG and 17% of enrolled participants declined PM so there is a concern for selection bias. |
| Masa, 2011119 | Yes | Yes | No | No | Good | Although authors did not use any methods for handling missing data, overall attrition was very low (5%) and unlikely to bias results. |
| Morillo, 2013116 | NA | Yes | No | NR | Fair | A convenience sample of 115 consecutively referred patients comprised the participant population; none were excluded post-enrollment. A sleep specialist analyzed the complete set of recordings from the PSG; output from the pulse oximeter (which was part of the PSG) appear to have been downloaded and automatically scored/analyzed according to the multivariate features extraction methods described by the authors but it remains unclear if analyst interpreted results independently. Authors did not describe missing data from the PSG or pulse oximeter. |
| Nigro, 2010124 | Yes | Yes | Partially | No | Fair | Ten of 76 (13%) patients were dropped from the analysis, 1 out of choice and 9 because of technical problems with the PSG or PM. Technical difficulties may be related to disease severity, leaving some concern for bias. |
| Nigro, 2013117 | Yes | Yes | No | NR | Good | Authors did not report on any technical issues during PSG/PM in the sleep lab or if there was missing data. However, all other aspects of the study are clearly described and valid. |
| Pereira, 2013114 | NA | Yes | No | Yes | Good | Authors describe inclusion and exclusion criteria but do not elaborate on the reason(s) for referral to the sleep disorders clinic. PM nights were completed before the PSG night. The PM was scored manually by an experienced scorer who was blind to the PSG results; the PSG was manually scored by registered PSG techs who were blind to the PM results. The PM was worn on the second night as a backup for the first night; authors reported the first night failure rate. |
| Poupard, 2012120 | NA | Yes | No | NA | Fair | Spectrum of patients was unclear; authors report that patients are a referral population for sleep apnea syndrome but do not provide additional details. It is unclear whether the pulse oximetry was independent of the gold standard (versus part of the full PSG monitoring). The authors did not describe whether the oxygen saturation data were blindly scored. |
| Rofail, 2010122 | No | Yes | No | Partially | Fair | There was a possibility of up to 8 weeks between PSG and PM evaluations. No explanation was provided for 7 (7%) withdrawn patients. Patients without sufficient data from PSG and/or PMs were dropped from analysis, but authors did average data over 3 nights for the PMs, allowing for more participants to be included. |
| Yadollahi, 2010123 | NR | Yes | NR | Yes | Fair | No additional information on the patients already undergoing PSG were provided. Blinding of technicians was not reported. There was a small amount of data missing from the PMs but the authors describe averaging and other adequate approaches to handle the missing data. Authors do not report on withdrawals/attrition. |

**Abbreviations:** AHI=apnea-hypopnea index; NA=not applicable; NR=not reported; OSA=obstructive sleep apnea; PM=portable monitor; PSG=polysomnography; ROC=receiver operating characteristic.