### eSupplementary Table 5. Case-control studies excluding those using polysomnography

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Author</th>
<th>Year</th>
<th>Cohort</th>
<th>Assessment</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parkinsonism</td>
<td>Factor et al.1</td>
<td>1990</td>
<td>PD (78); HC (43): elderly</td>
<td>Questionnaire regarding sleep initiation, sleep maintenance parasomnias and daytime somnolence, and the effect of sleep on motor symptoms</td>
<td>67% of PD patients experienced difficulty with sleep initiation compared to 54% of elderly controls. Those with PD had increased awakenings than controls.</td>
</tr>
<tr>
<td>Parkinsonism</td>
<td>Smith et al.2</td>
<td>1997</td>
<td>PD-spouse pairs (153); HC (103)</td>
<td>Self-ratings of sleep disturbance</td>
<td>Mean ratings of ‘poor sleep’ were higher in PD-spouse than controls</td>
</tr>
<tr>
<td>Parkinsonism</td>
<td>Tandberg et al.3</td>
<td>1999</td>
<td>PD (245); Patients with diabetes mellitus (100); HC (100): elderly</td>
<td>Interviewed, questionnaire to assess daytime somnolence, use of sleep medication and nocturnal sleep problems</td>
<td>16% of PD patients had EDS which was significantly higher than patients with diabetes and HC</td>
</tr>
<tr>
<td>Parkinsonism</td>
<td>Pal et al.4</td>
<td>2004</td>
<td>PD (40); Care givers (30)</td>
<td>PSQI, GQS (self-designed), ZDRS, ZARS</td>
<td>Only 9% of care givers complained of sleep disturbances. PSQI showed 84% of PD patients were poor sleepers, predominant complaints were sleep disturbances and sleep quality and efficiency. 100% of patients complained of sleep disturbances.</td>
</tr>
<tr>
<td>Parkinsonism</td>
<td>Calzetti et al.5</td>
<td>2009</td>
<td>PD (118); HC (110); age- and gender-matched</td>
<td>IRLSSG criteria</td>
<td>13% of PD patients compared to 6% of controls reported previously suffering RLS, however, this reach statistical significance</td>
</tr>
<tr>
<td>Parkinsonism</td>
<td>Krishnan et al.6</td>
<td>2003</td>
<td>PD (126); HC (128); age- and gender-matched controls</td>
<td>Predesigned questionnaire, interviewed for RLS using IRLSSG criteria, ESS, JHRLS criteria</td>
<td>RLS present in 8% of PD cases vs 0.8% of controls. Those with RLS had higher prevalence of depression. Only 2/10 patients had abnormal ESS. 90% of patients with RLS showed delayed sleep onset</td>
</tr>
<tr>
<td>Parkinsonism</td>
<td>Hagell et al.7</td>
<td>2016</td>
<td>PD (149); HC (53); age-matched</td>
<td>SCOPA-SLEEP</td>
<td>Daytime sleepiness is less severe and common in HC compared to PD</td>
</tr>
<tr>
<td>Parkinsonism</td>
<td>Author et al.</td>
<td>Year</td>
<td>PD (participants)</td>
<td>HC (participants)</td>
<td>Age matching</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>------</td>
<td>-------------------</td>
<td>------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Högl et al.</td>
<td>2003</td>
<td>PD (99)</td>
<td>HC (44)</td>
<td>age-matched</td>
<td>ESS</td>
</tr>
<tr>
<td>Brodsky et al.</td>
<td>2003</td>
<td>PD (101)</td>
<td>HC (100)</td>
<td>age-matched</td>
<td>ESS</td>
</tr>
<tr>
<td>Rana et al.</td>
<td>2018</td>
<td>PD (100)</td>
<td>HC (100)</td>
<td>age-and gender-matched</td>
<td>PSQI, IRLSSG criteria</td>
</tr>
<tr>
<td>van Hilten et al.</td>
<td>1993</td>
<td>PD (90)</td>
<td>HC (71)</td>
<td>age-matched</td>
<td>ESS</td>
</tr>
<tr>
<td>Suzuki et al.</td>
<td>2012</td>
<td>PD (93)</td>
<td>HC (93)</td>
<td>age-and gender-matched</td>
<td>PDSS-2, BDI-2, PSQI, ESS, PFS, PDQ-39</td>
</tr>
<tr>
<td>Abe et al.</td>
<td>2005</td>
<td>PD (64)</td>
<td>HC (60)</td>
<td>age-and sex-matched</td>
<td>PDSS</td>
</tr>
<tr>
<td>Kumar et al.</td>
<td>2002</td>
<td>PD (149)</td>
<td>HC (115)</td>
<td>age-matched</td>
<td>Questionnaire on experiences of night-time sleep and items taken from: ESS, the Case Western Reserve Health Sleep Study Questionnaire</td>
</tr>
<tr>
<td>Kay et al.</td>
<td>2018</td>
<td>PD (50)</td>
<td>HC (48)</td>
<td>age-, race-, gender- and education-matched</td>
<td>PSQI, TSI, BDI-2</td>
</tr>
<tr>
<td>Telarovic et al.</td>
<td>2015</td>
<td>PD (110)</td>
<td>HC (110)</td>
<td>age-matched</td>
<td>PSQI, ESS, PDSS, PDQ-8/39</td>
</tr>
</tbody>
</table>
De novo PD (25) Treated PD (50) HC (25); age- and gender-matched

ESS, PSQI scores were not different between de novo PD and controls, but higher in treated PD. ESS scores may be explained by treatment effect.

PSQI was the same in both groups (n.s.). ESS scores were higher in PD group than controls.

ESS scores were significantly lower in the control group compared to four groups of PD based on medication.

PD patients had significantly more EDS 43 vs 10% and excessive night-time sleep problems 27 vs 9% or used sleep medication 17 vs 12%.

Fatigue was reported by 70% of patients compared to 22% of controls, with 20 of the 35 PD patients having fatigue and depression. ESS scores did not differ between groups.

PD patients had more severe sleep disorders than controls according to PDSS scores. Differences in PDSS scores were observed between disease stages.

27% of PD patients reported sleep attacks compared to 32% of controls. They occurred more frequently and required more attention in PD patients. More patients had abnormal ESS and poor sleep quality.

49% of PD patients were at high risk for a SRBD compared to 35% of controls.

PSQI scores did not differ. 2.3% of controls met the diagnosis criteria for RLS compared to 12.1% of PD patients. Those with RLS showed significantly higher PSQI scores than PD patients without RLS.

Sleep efficiency, wake after sleep onset and sleep fragmentation was significantly lower in patients in late stage PD compared to controls. Total sleep time and sleep onset latency were significantly shorter in patients with late- and early-stage PD compared to controls.
<table>
<thead>
<tr>
<th>Parkinsonism</th>
<th>Study Authors</th>
<th>Year</th>
<th>PD Group</th>
<th>HC Group</th>
<th>Measures</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parkinsonism</td>
<td>Stavitsky et al.</td>
<td>2010</td>
<td>PD (30)</td>
<td>HC (14)</td>
<td>Actigraphy, ESS, PDSS, sleep diary</td>
<td>Actigraphy data showed sleep efficiency and total sleep time was reduced, and increased sleep fragmentation in PD compared to HC. PD group had higher ESS scores than HC. Some subjective measures correlated to actigraphy data. PD patients had higher sleepiness than controls at awakening and in the early afternoon.</td>
</tr>
<tr>
<td>Parkinsonism</td>
<td>Giganti et al.</td>
<td>2013</td>
<td>De novo PD (18)</td>
<td>HC (18); age-matched</td>
<td>Actigraphy for three consecutive days, MEQ</td>
<td>Sleep questionnaire scores were the same between participants. Based on diaries PD patients had more daytime naps. PLMS were increased in PD. Otherwise, subjective and objective sleep disturbances were minimal between groups.</td>
</tr>
<tr>
<td>Parkinsonism</td>
<td>Prudon et al.</td>
<td>2014</td>
<td>PD (106); early stages of disease</td>
<td>HC (99); age-matched</td>
<td>ESS, PSQI, MSQ, NMSQuest, home monitoring sleep respiration (Embletta), three nights of Actigraphy, sleep diaries</td>
<td>Sleep ques questionnaire scores were the same between participants. Based on diaries PD patients had more daytime naps. PLMS were increased in PD. Otherwise, subjective and objective sleep disturbances were minimal between groups.</td>
</tr>
<tr>
<td>Parkinsonism</td>
<td>Cagnin et al.</td>
<td>2017</td>
<td>DLB (30)</td>
<td>AD (32); age-, gender- and disease severity-matched</td>
<td>PSQI, RBD1Q, ESS, 12 days sleep diary</td>
<td>DLB patients showed more daytime somnolence, and a higher proportion of RBD-like symptoms compared to AD patients and controls, regardless of drug treatment. DLB patients had a greater number of daytime naps and longer night sleep associated with clonazepam use.</td>
</tr>
<tr>
<td>Parkinsonism</td>
<td>De Bruin et al.</td>
<td>1996</td>
<td>PSP (11); HC (8); age- and gender-matched</td>
<td></td>
<td>Structured sleep questionnaire and interview, spirometry and inspiratory and expiratory pressures were assessed, BDI</td>
<td>PSP reported fatigue, frequent nocturnal awakenings, immobility in bed more frequently than controls. All patients had regular breathing patterns.</td>
</tr>
<tr>
<td>Parkinsonism</td>
<td>Moreno-López et al.</td>
<td>2011</td>
<td>MSA (86)</td>
<td>PD (86); matched for age, gender and disease stage</td>
<td>Modified ESS, PSQI, TSS, Sudden Onset of Sleep Scale, presence of RLS, presence of stridor</td>
<td>MSA and PD scores were comparable but higher than HC. 28% of MSA and 29% of PD had EDS compared to 2% of HC. Significant differences in RLS: 27% of MSA, 14% of PD patients and 7% of HC had RLS.</td>
</tr>
<tr>
<td>Disease</td>
<td>Authors</td>
<td>Year</td>
<td>Groups</td>
<td>Questionnaires</td>
<td>Findings</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------</td>
<td>------</td>
<td>---------------------------------</td>
<td>----------------</td>
<td>---------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Parkinsonism</td>
<td>Gama et al.</td>
<td>2010</td>
<td>PD (16), MSA (13), PSP (13), HC (12)</td>
<td>ESS, PSQI, IRLSSG, BQ</td>
<td>Poor sleep quality, risk of OSA and RLS detected in all groups. MSA showed highest risk of OSA. PSP showed frequent risk (57%) of RLS and related reduced sleep duration and efficiency</td>
<td></td>
</tr>
<tr>
<td>Parkinsonism</td>
<td>Bhalsing et al.</td>
<td>2013</td>
<td>PD (134), PSP (27), MSA (21), DLB (5), HC (172)</td>
<td>IRLSSG, PSQI, ESS, PDSS</td>
<td>RLS was higher in patients than controls, and highest in PD (12%). RLS was only present in one patient with PSP and MSA and none with DLB. PSQI and ESS scores were higher in patients than controls</td>
<td></td>
</tr>
<tr>
<td>Huntington's Disease</td>
<td>Goodman et al.</td>
<td>2010</td>
<td>HD (66), Two age and gender-matched HC groups: Carers (38), Non-carers (60)</td>
<td>Questionnaire modelled on Parkinson's sleep questionnaires – 45 questions focusing on issues such as duration, quality of sleep, abnormal nocturnal behaviour and QoL, BDI</td>
<td>HD patients reported greater difficulty in falling asleep, maintaining sleep, taking more than an hour to get to sleep, needing ‘more sleep’, being awake at night and asleip during the day, and waking up early and not being able to go back to sleep compared to non-carer controls. More patients reported abnormal nocturnal behaviour and nocturnal painful muscle cramps</td>
<td></td>
</tr>
<tr>
<td>Huntington's Disease</td>
<td>Hametner et al.</td>
<td>2012</td>
<td>HD (26), HC (39), age- and gender-matched</td>
<td>PSQI</td>
<td>27% patients compared to 8% of HC complained of poor sleep quality</td>
<td></td>
</tr>
<tr>
<td>Huntington's Disease</td>
<td>Aziz et al.</td>
<td>2010</td>
<td>HD (63), Premanifest mutation carriers (21), HC (84)</td>
<td>ESS, PSQI, SCOPA-Sleep, BDI</td>
<td>Sleep impairment was more prevalent in HD compared to controls, daytime sleepiness was normal in HD. SOL was delayed in HD compared to controls. Sleep disorders were associated with depression</td>
<td></td>
</tr>
<tr>
<td>Huntington's Disease</td>
<td>Bellosta Diago et al.</td>
<td>2017</td>
<td>HD (38), HC (38), age- and gender-matched</td>
<td>PSQI, ESS</td>
<td>HD had more impaired sleep quality and more EDS than controls, these scores correlated to variability in circadian blood pressure</td>
<td></td>
</tr>
<tr>
<td>Huntington's Disease</td>
<td>Bellosta Diago et al.</td>
<td>2018</td>
<td>HD (38); early stage and premanifest carriers HC (38); age- and gender-matched</td>
<td>PSQI, ESS, HAM-D</td>
<td>HD patients had worse sleep quality compared to controls – they had increased sleep onset latency and later wake-up time. This was associated with depressive and anxiety symptoms</td>
<td></td>
</tr>
</tbody>
</table>
Huntington’s Disease
Morton et al. 2005
HD (8) HC (8)
ESS, HDSS, sleep diaries, Actiwatch-Neurologica to measure locomotor activity
HD spent longer in bed than controls. Patients had an increase in nocturnal activity vs control

Huntington’s Disease
Hurelbrink et al. 2005
HD (8) HC (8); age- and gender-matched controls
ESS, HDSS, sleep diary, Actiwatch-Neurologica to measure locomotor activity
HD patients showed more activity and spent more time making acceleration movements than controls. No significant difference between ESS and HDSS scores

SCA
Abele et al. 2001
SCA1 (13) SCA2 (22) SCA3 (23) HC (40); age- and gender-matched
IRLSSG
RLS present in 23% of SCA1, 27% of SCA2, 30% of SCA3 and 10% of controls. 105% vs 28% in all SCA patients

SCA
Friedman et al. 2003
SCA3 (22) At risk (12) HC (17)
ESS and two questions concerning RBD
SCA3 had higher ESS scores than AR and HC. 56% of SCA3 endorsed both RBD questions and 16% of those at risk and 18% of HC

SCA
Yang et al. 2020
SCA3 (91) HC (85); age- and gender-matched
FS-14, PSQI, ESS, BDI
SCA patients had significantly higher PSQI, BDI, ESS and FS-14 scores

SCA
Howell et al. 2006
SCA6 (25) HC (25); age- and gender-matched
ESS, PSQI
ESS and PSQI was higher in SCA6 patients than controls

SCA
Martins et al. 2015
SCA1 (12) SCA3 (12) HC (15); age- and gender-matched
ESS, MFIS, BDI
MFIS mean and sub scores were higher in SCA3 patients than controls. 100% vs 26.6% met the criteria for fatigue. Patients also had higher ESS scores, although only 3 patients presented with EDS

SCA
Moro et al. 2017
SCA10 (28) SCA3 (28) HC (28)
MFIS, ESS, RDOSQ, IRLSSG, BDI, HAM-A
RLS and RBD were uncommon in SCA10. ESS in SCA10 and SCA3 were higher than controls. Fatigue scores were higher in SCA10 and SCA3 compared to HC

SCA
Pedroso et al. 2011
SCA3 (40) HC (38); age- and gender-matched
RDOSQ, IRLSSG, ESS, HAM-A, BDI
RBD and RLS frequency was higher in SCA than controls. No difference in EDS. Depression and anxiety correlated with RBD
SCA
Pedroso et al. 2017
SCA2 (33) from 9 families
ESS, RBDSQ, BDI, HAM-A, structured interview
SCA2 had high frequency of RBD (48%) and EDS (42%) but ESS scores did not differ from HC. RLS was present in 18% but did not differ from HC (4%)

SCA
D’Abreu et al. 2009
SCA (53)
ESS, questionnaire including items regarding RLS, cramps, RBD, SRBD
ESS score was not different from controls. 45% of SCA3 patients had scores >10 compared to 29% in controls. Sleep complaints were higher in patients, particularly insomnia with suggestive evidence of higher OSA and RLS

SCA
Seshagiri et al. 2018
SCA1 (6), SCA2 (5), SCA3 (7)
Overnight PSG
Sleep spindle density significantly decreased in SCA

Wilson’s Disease
Grandis et al. 2017
WD (463)
North American Medical Databases
Those with WD exhibited a higher risk for OSA by 29%

Wilson’s Disease
Portala et al. 2002
WD (724,438)
Those with WD had a significant difference in the number of nocturnal awakenings, with 59% reportedly frequently being awake for more than 30 minutes during the night. Sleep paralysis and cataplexy occurred more in patients, and they complained significantly more of daytime fatigue and taking more naps

Wilson’s Disease
Netto et al. 2011
WD (25)
On the PSQI 15 patients had an abnormal PSQI score, significantly more than controls. ESS was abnormal in three patients, with two controls meeting EDS criteria. Sleep assessments detected abnormalities in 16 WD patients compared to 8 controls

Essential Tremor
Benito-León et al. 2013
ET (76)
Self-reported sleep duration
Those with ET had significantly shorter sleep duration than those without ET

Essential Tremor
Chen et al. 2018
ET (100)
Interview and revised IRLSSG
Two ET patients fulfilled the diagnosis of RLS, increased risk associated with the MAP2K5/SKOR1 gene

Essential Tremor
Peng et al. 2020
ET (199)
NMSS
ET was sub-grouped with and without head tremor, both groups showed high scores and prevalence (>50%) in difficulty falling asleep. Daytime sleepiness was significantly higher in patient subgroups than in the controls

Essential Tremor
Acar et al. 2019
ET (40)
PSQI
PSQI scores were significantly higher in patients than the control group

Essential Tremor
Chandran et al. 2012
ET (50)
ET patients had a higher prevalence and higher mean scores of sleep disturbances and fatigue

Essential Tremor
Sengul et al. 2015
ET (45)
ESS, PSQI, FSS
Poor sleep quality and fatigue were common. EDS had a negative effect on physical and mental health

Essential Tremor
Wu et al. 2016
ET (58)
RBDSQ, NMSQuest
ET patients had a significant increase in RLS. One of 60 ET patients screened positive for RBD, when compared to controls there was no significant difference
<table>
<thead>
<tr>
<th>Movement Disorder</th>
<th>Authors</th>
<th>Year</th>
<th>Controls</th>
<th>Age- and Gender-Matched Patients</th>
<th>Measures</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential Tremor</td>
<td>Shalash et al.</td>
<td>2019</td>
<td>HC (30); age- and gender-matched</td>
<td>ET (30)</td>
<td>NMSS, PSQI</td>
<td>ET patients showed worse sleep and NMSS domains compared to controls that negatively affected quality of life. Patients scored higher on ESS than controls. Health related quality of life was associated with worse quality of sleep. Patients did not significantly report more sleeping problems than controls.</td>
</tr>
<tr>
<td>Dystonia</td>
<td>Timmers et al.</td>
<td>2017</td>
<td>DRD (28), from ten families HC (28); age- and gender-matched</td>
<td>HC (30)</td>
<td>PSQI, FSS, ESS, BDI, BAI</td>
<td>Reduced sleep quality (75% in BSP and 72% in CD); excessive daytime sleepiness. Dystonia severity and duration uncorrelated with PSQI in BSP. In CD, no correlation with PSQI when adjusted for BDI. BDI score accounted for poorer sleep quality in only CD.</td>
</tr>
<tr>
<td>Dystonia</td>
<td>Avanzino et al.</td>
<td>2010</td>
<td>BSP (52); CD (46) HC (56); age- and gender-matched</td>
<td>HC (56)</td>
<td>PSQI, ESS, BDI</td>
<td>Reduced sleep quality (CD 71%, BSP 55%) vs controls. ESS not significantly different between patient and controls (CD 20%, BSP 25%),</td>
</tr>
<tr>
<td>Dystonia</td>
<td>Yang et al.</td>
<td>2017</td>
<td>BSP (60); CD (60) HC (60); age-, gender-, and education-matched</td>
<td>HC (60)</td>
<td>PSQI, ESS, HAM-D, HAM-A</td>
<td>Reduced sleep quality (CD 71%, BSP 55%) vs controls. ESS not significantly different between patient and controls (CD 20%, BSP 25%)</td>
</tr>
<tr>
<td>Dystonia</td>
<td>Smit et al.</td>
<td>2017</td>
<td>CD (44); HC (43); age- and gender-matched</td>
<td>HC (43)</td>
<td>FSS, ESS, PSQI, BDI, BAI</td>
<td>Snoring was more prevalent in patients than controls. Patients scored worse on ESS, FSS and PSQI.</td>
</tr>
<tr>
<td>Dystonia</td>
<td>Paus et al.</td>
<td>2011</td>
<td>CD (711); BSP (110) HC (93); age-matched to CD patients</td>
<td>HC (93)</td>
<td>PSQI, ESS, examined for sleep bruxism, “Do you have problems with sleep?” RLS, BDI, ESS</td>
<td>PSQI showed disturbed sleep quality higher than controls (BSP 46% and 44% in CD and mean score higher. ESS was normal (BSP 7%, CD5%). Increased % of those with RLS (BSP 20%, CD 18%). BDI significantly lower in controls. Pain significantly more common in CD vs BL (87 vs 34%). 100% of CD patients attributed the pain to their dystonia vs 62% of BSP patients with pain.</td>
</tr>
<tr>
<td>Dystonia</td>
<td>Trotti et al.</td>
<td>2009</td>
<td>CD (43); HC (49); age- and gender-matched Other focal movement disorders (19)</td>
<td>HC (49)</td>
<td>PSQI, ESS, BDI, ESS</td>
<td>EDS were excessive in patients compared to controls.</td>
</tr>
<tr>
<td>Dystonia</td>
<td>Eichenseer et al.</td>
<td>2014</td>
<td>CD (54)</td>
<td>HC (54)</td>
<td>PSQI, ESS, BDI, HAM-A</td>
<td>Impaired sleep quality was twice as common in CD patients compared to matched controls and sleep disturbances did not improve despite improvement in CD motor symptoms.</td>
</tr>
<tr>
<td>Disorder</td>
<td>Study Details</td>
<td>Year</td>
<td>Key Findings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dystonia</td>
<td>Ferrazzano et al. 2019</td>
<td>2019</td>
<td>BSP had more sleep disorders, higher PSQI scores than controls. Patients reported worse quality of sleep. ESS was normal. All three patients had body movements during REM sleep, significantly more than controls.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dystonia</td>
<td>Novaretti et al. 2019</td>
<td>2019</td>
<td>PSQI, HAM-A, HAM-D. BSP (60) HC (40) age- gender- matched. CD (28) BSP (28) WC (24) HC (80) age- gender- education matched. PSQI, ESS, BDI, BAI.ibilidade scores than controls. Patients reported worse quality of sleep. ESS was normal. All three patients had body movements during REM sleep, significantly more than controls.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tic Disorders</td>
<td>Lee et al. 2017</td>
<td>2017</td>
<td>TS (1124) HC (372) History of TS (122) HC (254). PSQI, ESS, BDI, BAI. Increased sleep disturbances related to additional presence of ADHD. Higher anxiety symptoms associated with increased motor activity during sleep.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tic Disorders</td>
<td>Ricketts et al. 2018</td>
<td>2018</td>
<td>TS (298) History of TS (122) HC (254). PSQI, ESS, BDI, BAI. Increased sleep disturbances related to additional presence of ADHD. Higher anxiety symptoms associated with increased motor activity during sleep.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tic Disorders</td>
<td>Comings &amp; Comings 1987</td>
<td>1987</td>
<td>TS (247) ADD (17) HC (47). Questionnaire examining sleep history and sleep problems (parent/patient). Interview for sleep problems (parent and child). Sleep problems present in 27.1% TS and 16.7% CTD.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tic Disorders</td>
<td>Saccomani et al. 2005</td>
<td>2005</td>
<td>TS (48) CTD (48) HC (30); age- matched. PSQI, ESS, BDI, BAI. Increased sleep disturbances related to additional presence of ADHD. Higher anxiety symptoms associated with increased motor activity during sleep.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tic Disorders</td>
<td>Modafferi et al. 2016</td>
<td>2016</td>
<td>TS (28) CTD (8) HC (266); age- and gender- matched. SDQ-45 (parent). Sleep was significantly more disturbed in patients with tic disorders than in controls. Difficulties in initiating sleep and increased motor activity during sleep were the most frequent sleep disturbances. Higher anxiety symptoms associated with increased motor activity during sleep.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tic Disorders</td>
<td>Allen et al. 1992</td>
<td>1992</td>
<td>TS+ADHD (89) HC (146); age- matched. Modified version of MSPSQ (parent). Increased sleep difficulties related to additional presence of ADHD. The complaint of poor sleep occurred in 26% with TS-only, 48% with ADHD-only, and 41% with TS+ADHD; all were significantly different from 10% found in controls.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Tic Disorders

Rickett et al. 2018

TS (39)
HC (18)

Actigraphy, children's sleep habit questionnaire (parent), sleep self-report (child)

TS had increased sleep onset-latency, reduced sleep efficiency, increased WASO, and increased number of awakenings compared to controls. There were no differences in questionnaire reports.

Tic Disorders

Moeller and Krieg 1992

TS (2); adults
HC (14)

Sleep EEG

Decreased percentage of slow wave sleep

Mixed

Adler et al. 2011

PD (49/60)
RLS (30/39)
ET (53/93)
HC (175/296)

ESS, MSQ, IRLSSG, "Have you even been told that you act out your dreams?" as a marker for RBD

Probable RBD was more frequent in PD than in RLS, ET and controls. PD patients with ESS ≥ 10 was higher in (48%), than RLS (31%), ET (13%) and controls (11%)

Mixed

Boddy et al. 2007

DLB (41)
PD (39)
PDD (42)
AD (42)
HC (41)

PSQI, ESS

Prevalence of EDS remained higher in PDD and DLB than AD. PDD, PD and DLB patients had worse sleep quality when compared with AD and controls

Mixed

Lee et al. 2015

ET (60)
PD (30)
HC (22)

PSQI, ESS

ET patients had significant excessive daytime somnolence compared to controls

Mixed

Gerbin et al. 2012

ET (120)
PD (40)
HC (120)

PSQI, ESS

ESS scores were significantly higher in ET patients compared to controls. The global PSQI was not significantly different

Mixed

Aldaz et al. 2019

HD (53)
PD (45)
HC (25);
age-matched to HD patients

NMSQuest

HD patients scored higher than PD on delusions, nightmare, and higher than controls on acting out dreams, insomnia, intense vivid dreams

References


16. Telarovic S, Mijatovic D, Telarovic I. Effects of various factors on sleep disorders and quality of


