Table 1: Study sample characteristics

	Male	Female	MZ	DZ	Total sample
N (%)	975 (45.3%)	1175 (54.7 %)	704(32.7%)	1446(67.2%)	2150(100%)
Age mean (SD)	53.76 (7.20)	53.62 (7.49)	52.12 (6.96)	54.45 (7.43)	53.69 (7.36)
Mean Global PSQI (SD)	4.37 (3.57)	5.74 (4.15)	5.22 (3.93)	5.09 (3.98)	5.14 (3.96)
N (%) Poor Sleep Quality (PSQI≥5)	254 (30.1%)	481 (44.6%)	255 (39.1%)	480 (37.8%)	735 (38.2%)
Subjective sleep quality (SD)*	0.92 (0.69)	1.15 (0.75)	1.06 (0.74)	1.04 (0.73)	1.04 (0.73)
Sleep latency (SD)*	0.75 (1.11)	1.10 (1.19)	0.90 (1.13)	0.96 (1.18)	0.94 (1.17)
Sleep duration (SD)*	0.93 (1.01)	0.89 (1.01)	0.89 (0.98)	0.92 (1.03)	0.91 (1.01)
Habitual sleep efficiency (SD)*	0.61 (0.97)	0.73 (1.07)	0.66 (1.01)	0.68 (1.03)	0.68 (1.03)
Sleep disturbances (SD)*	0.75 (0.55)	0.97 (0.59)	0.89 (0.60)	0.86 (0.58)	0.87 (0.58)
Use of sleeping medication (SD)*	0.26 (0.81)	0.68 (1.22)	0.50 (1.09)	0.48 (1.07)	0.49 (1.08)
Daytime dysfunction (SD)*	0.27 (0.72)	0.31 (0.73)	0.32 (0.74)	0.28 (0.72)	0.29 (0.73)
Mean Sleep Hours (SD)	6.42 (1.37)	6.43 (1,41)	6.44 (1.36)	6.42 (1.40)	6.43 (1.39)

DZ= dizygotic twins; MZ= Monozygotic twins SD= standard deviation; PSQI= Pittsburgh sleep quality index.
* Subscales range from 0 to 3

Table 2: Proportion of variance explained by genetic and environmental influences with 95% CI, extracted from univariate analyses.

	Model	A (95% CI)	C (95% CI)	D (95% CI)	E (95% CI)	df	-2LL	AIC	DiffLL	Diffdf	P
Global PSQI	ADE	0.14 (0,0.41)		0.23 (0,0.46)	0.63 (0.54,0.74)	1917	5361.20	1527.20			
	AE	**0.34 (0.24,0.43)**		**-**	**0.66 (0.57,0.76)**	**1918**	**5362.36**	**1526.36**	**1.16**	**1**	**0.28**
	E	-	-	-	1 (1,1)	1919	5404.92	1566.93	43.72	2	<0.001
Subjective sleep quality	ADE	0.09 (0.01,0.39)		0.25 (0.13,0.45)	0.66 (0.56,0.78)	2110	4488.33	268.34			
	AE	**0.31 (0.20,0.41)**	**-**	**-**	**0.69 (0.59,0.80)**	**2111**	**4489.52**	**267.52**	**1.18**	**1**	**0.28**
	E	-	-	-	1 (1-1)	2112	4519.78	295.78	31.45	2	<0.001
Sleep latency	ACE	0.27 (0,0.47)	0.08 (0,0.31)		0.65 (0.53,0.80)	2060	4772.63	652.63			
	AE	**0.37 (0.25,0.48)**	**-**		**0.63 (0.52,0.75)**	**2061**	**4773.01**	**651.01**	**0.38**	**1**	**0.54**
	CE	-	0.25(0.17,0.34)		0.75 (0.66-0.83)	2061	4774.84	652.84	2.21	1	0.14
	E	-	-	-	1(1-1)	2062	4807.80	683.80	35.17	2	<0.001
Sleep duration	ACE	0.19 (0,0.40)	0.08 (0.02,0.27)		0.73 (0.60,0.86)	2079	5140.87	982.87			
	AE	**0.30 (0.19,0.40)**	**-**		**0.70 (0.60,0.81)**	**2080**	**5141.3**	**981.33**	**0.47**	**1**	**0.49**
	CE	-	0.21 (0.13,0.28)		0.79 (0.72,0.87)	2080	5142.14	982.14	1.27	1	0.26
	E	-	-	-	1(1-1)	2081	5167.68	1005.68	26.81	2	<0.001
Habitual sleep efficiency	ACE	0 (0,0)	0.20 0,0.29)		0.80 (0.67,0.89)	2020	4173.85	133.85			
	AE	0.26 (0.13,0.38)	-		0.74 (0.62,0.87)	2021	4177.15	135.15	3.30	1	0.07
	CE	**-**	**0.20 (0.11,0.29)**		**0.80 (0.71,0.89)**	**2021**	**4173.85**	**131.85**	**0**	**1**	**1**
	E	-	-	-	1 (1,1)	2022	4192.24	148.24	18.39	2	<0.001
Sleep disturbances	ACE	0.21 (0,0.48)	0.15 (0,0.36)		0.64 (0.52,0.77)	2085	3443.20	-726.80			
	AE	**0.40 (0.29,0.50)**	**-**		**0.60 (0.50,0.71)**	**2086**	**3444.56**	**-727.44**	**1.36**	**1**	**0.24**
	CE	-	0.30 (0.29,0.38)		0.70 (0.62,0.71)	2086	3444.76	-727.24	1.57	1	0.21
	E	-	-	-	1(1-1)	2087	3488.92	-685.08	45.72	2	<0.001
Use of sleeping medication	ADE	0 (0,0)	-	0.46 (0.12,0.62)	0.54 (0.38,0.74)	2128	2323.67	-1932.33			
	AE	**0.39 (0.21,0.55)**	**-**	**-**	**0.61 (0.45,0.79)**	**2129**	**2326.05**	**-1931.95**	**2.38**	**1**	**0.12**

Daytime dysfunction	E	-	-	-	1 (1,1)	2130	2343.35	-1916.65	19.68	2	<0.001
	ADE	**0 (0,0)**	**-**	**0.45 (0.07-0.61)**	**0.55 (0.39,0.72)**	**2120**	**2658.44**	**-1581.56**			
	AE	0.37 (0.20,0.53)	-	-	0.63 (0.47,0.80)	2121	2663.19	-1578.81	4.75	1	0.03
	E				1 (1,1)	2122	2681.86	-1562.14	23.42	2	<0.001

A= additive genetic influences; AIC= akaike information criterion; C common environmental influences; CI= confidence interval; D= non-additive genetic influences df= degrees of freedom; E= unique environmental influences; P= significance value of the likelihood ration chi-square test; PSQI= Pittsburgh sleep quality index; Bold text identifies best fitting model

Table 3: Cross twin correlations for the different dimensions of the PSQI questionnaire

	rMZ (CI:95%)	rDZ (CI:95%)
Global PSQI	0.35 (0.25,0.45)	0.13 (0.04,0.23)
Subjective sleep quality	0.35 (0.22,0.46)	0.11 (0.01,0.21)
Sleep latency	0.33 (0.19,0.46)	0.22 (0.11,0.32)
Sleep duration	0.26 (0.12,0.38)	0.18 (0.09,0.28)
Habitual sleep efficiency	0.17 (0.01,0.33)	0.22 (0.11,0.33)
Sleep disturbances	0.38 (0.24,0.50)	0.26 (0.15,0.36)
Use of sleeping medication	0.47 (0.27,0.64)	0.08 (-0.09,0.25)
Daytime dysfunction	0.47 (0.30,0.62)	-0.01(-0.17,0.17)

PSQI= Pittsburgh sleep quality index; DZ= dizygotic twins; MZ= monozygotic twins