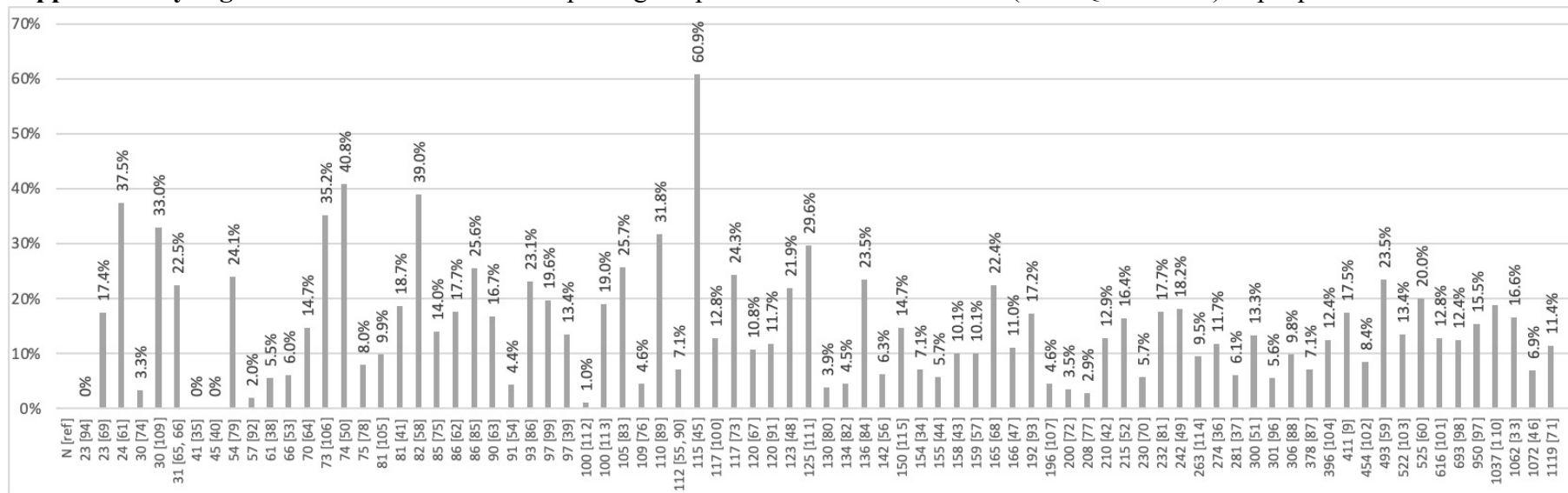


Supplementary Material

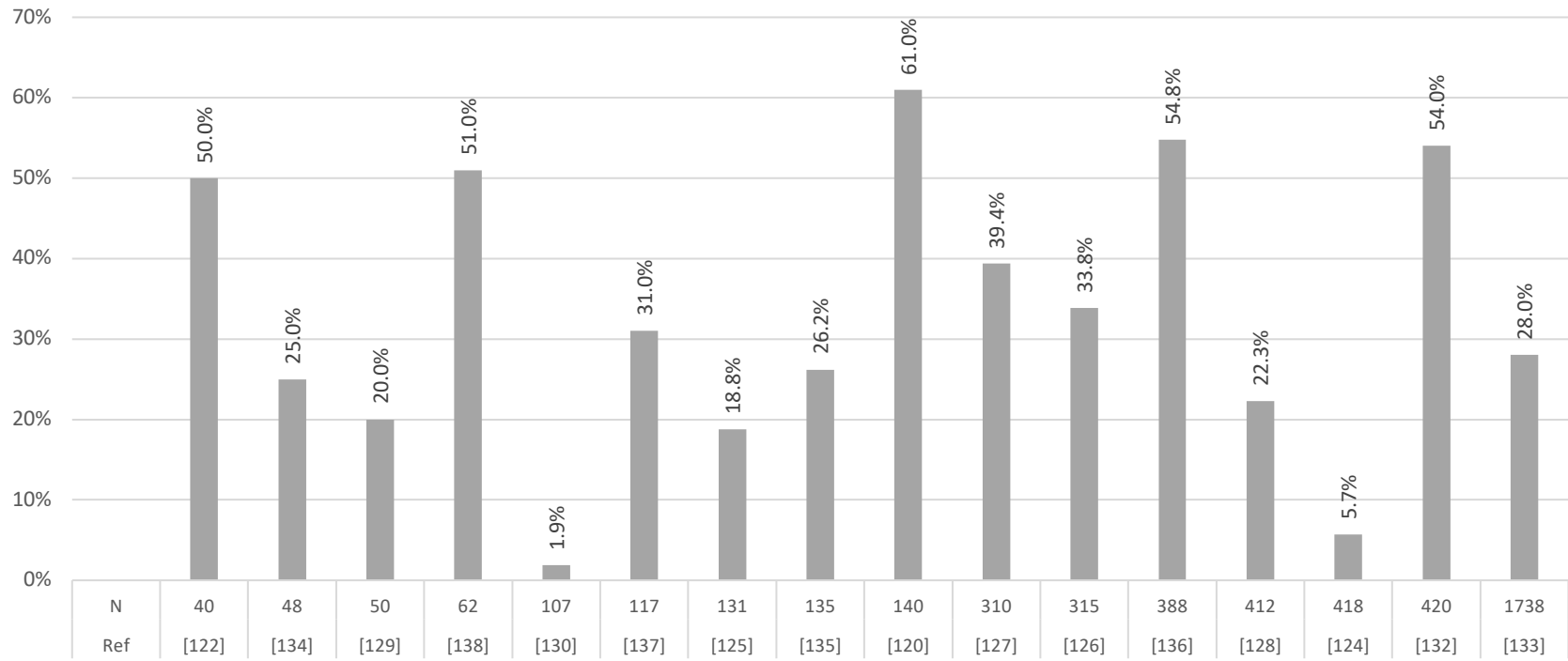
Self-Reported Visual Complaints in People with Parkinson’s Disease: A Systematic Review

Supplementary Figure 1. Results of all studies reporting the prevalence of double vision (NMSQ or NMSS) in people with PD.



Prevalence of self-reported double vision on the NMSQ and NMSS in people with PD.

Supplementary Figure 2. Results of all studies reporting the prevalence of oversensitivity to light (SCOPA-AUT, pupillomotor subscale) in people with PD



Prevalence of self-reported oversensitivity to light on the SCOPA-AUT in people with PD.

Supplementary Table 1. Overview of investigated relationships of objectified visual function disorders and non-motor symptoms with visual complaints (continuation of Table 3)

	Visual complaint	Significant positive relationship	Significant negative relationship	No significant relationship
Objectified visual function disorders				
17. Ophthalmological comorbidities	Studies (<i>N</i>)	0	0	1
	Double vision	0	0	1 [111]
18. Abnormal ocular alignment	Studies (<i>N</i>)	1	0	0
	Double vision	1 [116]	0	0
19. Hypometric saccades	Studies (<i>N</i>)	1	0	0
	Double vision	1 [116]	0	0
20. Decreased tear production	Studies (<i>N</i>)	1	0	0
	Dry eyes	1 [145]	0	0
21. Abnormalities in Meibomian glands	Studies (<i>N</i>)	1	0	0
	Dry eyes	1 [145]	0	0
22. Decreased tear film break-up time	Studies (<i>N</i>)	0	0	1
	Dry eyes	0	0	1 [145]
23. Decreased tear osmolarity	Studies (<i>N</i>)	0	0	1
	Dry eyes	0	0	1 [145]
24. Ocular surface problems; dry eyes & blepharitis	Studies (<i>N</i>)	1	0	0
	Painful/dry eyes	1 [16]	0	0
25. Reduced visual acuity	Studies (<i>N</i>)	1	0	3
	Problems with visual ADLs	1 [142] ^a	0	1 [142] ^b
	Reduced visual health status	0	0	2 [18,26]
26. Changes in contrast sensitivity	Studies (<i>N</i>)	1	0	1
	Problems with visual ADLs	1 [142] ^a	0	1 [142] ^b
27. Altered color vision	Studies (<i>N</i>)	0	0	1
	Reduced visual health status	0	0	1 [26]
28. Problems with object – background discrimination	Studies (<i>N</i>)	1	0	0
	Bumping into objects	1 [17]	0	0
	Studies (<i>N</i>)	0	0	1

	Visual complaint	Significant positive relationship	Significant negative relationship	No significant relationship
29. Structural retinal abnormalities (Optical Coherence Tomography)	Reduced visual health status	0	0	1 [26]
Non-motor symptoms				
30. Cognitive dysfunction	Studies (<i>N</i>)	1	0	3
	Double vision	0	0	2 [102,111]
	Increased sensitivity to light	0	0	1 [151]
	Misjudge objects	1 [116]	0	0
	Reading difficulties	1 [116]	0	0
	Difficulty in narrow spaces	1 [116]	0	0
31. Mood	Studies (<i>N</i>)	1	0	1
	Double vision	0	0	1 [111]
	Increased sensitivity to light	1 [151]	0	0
32. Psychotic symptoms	Studies (<i>N</i>)	3	0	0
	Double vision	1 [111] ^c	0	0
	Increased sensitivity to light	1 [151]	0	0
	Altered color vision	1 [24] ^d	0	0
	Watery eyes	1 [24] ^e	0	0
33. Psychosocial symptoms	Studies (<i>N</i>)	1	0	0
	Increased sensitivity to light	1 [151]	0	0
34. Gastrointestinal symptoms	Studies (<i>N</i>)	1	0	1
	Increased sensitivity to light	1 [151]	0	1 [121]
35. Cardiovascular symptoms	Studies (<i>N</i>)	1	0	1
	Increased sensitivity to light	1 [151]	0	1 [121]
36. Thermoregulatory symptoms	Studies (<i>N</i>)	2	0	0
	Increased sensitivity to light	2 [121,151]	0	0
37. Urinary symptoms	Studies (<i>N</i>)	1	0	2
	Double vision	0	0	1 [80]
	Increased sensitivity to light	1 [151]	0	1 [121]
38. Sexual symptoms	Studies (<i>N</i>)	1	0	1

	Visual complaint	Significant positive relationship	Significant negative relationship	No significant relationship
39. Sleep problems/fatigue	Increased sensitivity to light	1 [151]	0	1 [121]
	Studies (<i>N</i>)	3	0	0
40. Nutritional status	Increased sensitivity to light	3 [135,136,151]	0	0
	Studies (<i>N</i>)	0	0	1
41. Dopamine dysregulation symptoms	Double vision	0	0	1 [73]
	Studies (<i>N</i>)	0	0	1
42. Pain	Double vision	0	0	1 [111]
	Studies (<i>N</i>)	0	0	1
	Double vision	0	0	1 [56]

Supplementary Table 2 provides an overview of investigated relationships per complaint. >, first group reported more visual complaints than second group; N, number of studies. ^a Significant correlations were found for the tremor group, ^b No significant correlations were found for the non-tremor group, ^c PD patients with diplopia experienced more visual hallucinations than those without diplopia, ^d Altered color vision was more prevalent in PD patients with visual illusions than in patients with visual hallucinations. Altered color vision was least prevalent in PD patients without visual illusions and hallucinations, ^e Watery eyes were more prevalent in PD patients with visual illusions compared to patients without visual illusions and hallucinations.

Supplementary Table 2. Overview of investigated relationships with demographic and disease-related variables per visual complaint

Complaint	Investigated relationships (numbers corresponding to variables in Table 3 and Supplementary Table 1)
Visual complaints in general	2, 4, 5, 14, 17
Double vision	1 – 17, 19 – 21, 32 – 34, 39, 42 – 44
Increased sensitivity to light	1, 2, 4, 5, 7, 11, 13, 17, 35 – 41
Altered color vision	2, 4, 5, 7, 34
Painful eyes	26
Dry eyes	22 – 26
Changes in depth perception	7
Reduced peripheral vision	7
Difficulty estimating spatial relations	2, 4, 5
Watery eyes	34
Reduced light/dark adaptation	7
Misjudge objects	32
Asthenopia	4, 5
Reduced acuity/spatial vision	7
Reduced visual processing speed	7
Reduced visual search	7
Reading difficulties	32
Difficulty/freezing in narrow spaces	32
Problems with visual ADLs	7, 27, 28
Reduced visual health status	1, 5, 13, 27, 29, 31
Bumping into objects	5, 18, 30
Problems focusing	14
Adverse visual effects	15