

Health conditions and social determinants associated with higher dementia risk among LGBTQIA+ people with Parkinson’s disease

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Background

- Many people with Parkinson’s disease (PwP) progress to Parkinson’s disease dementia (PDD), a type of Lewy body dementia (LBD).
- Studies find a higher risk of cognitive decline and dementia in LGBTQIA+ community, while research in LBD is lacking.
- Physical and mental health conditions and adverse social determinants may be more prevalent among LGBTQIA+ community.
- We aimed to assess whether health conditions and social determinants contributed to PDD risk among LGBTQIA+ PwP.

Methods

- We included PwP with normal cognition at baseline, available health history and Penn Parkinson’s Daily Activities Questionnaire-15 (PDAQ-15) data from Fox Insight, an online, longitudinal study.
- Dementia risk, based on PDAQ-15, was compared between PwP identifying as LGBTQIA+ (n=51) and non-LGBTQIA+ (n=649) using Cox survival models.
- Mediation models with individual health conditions and social determinants explored factors associated with higher PDD risk.
- All models were adjusted for age of PD onset. False discovery rate-adjusted *p*-values were computed for all analyses.

Table. Group comparisons for medical history and social factors

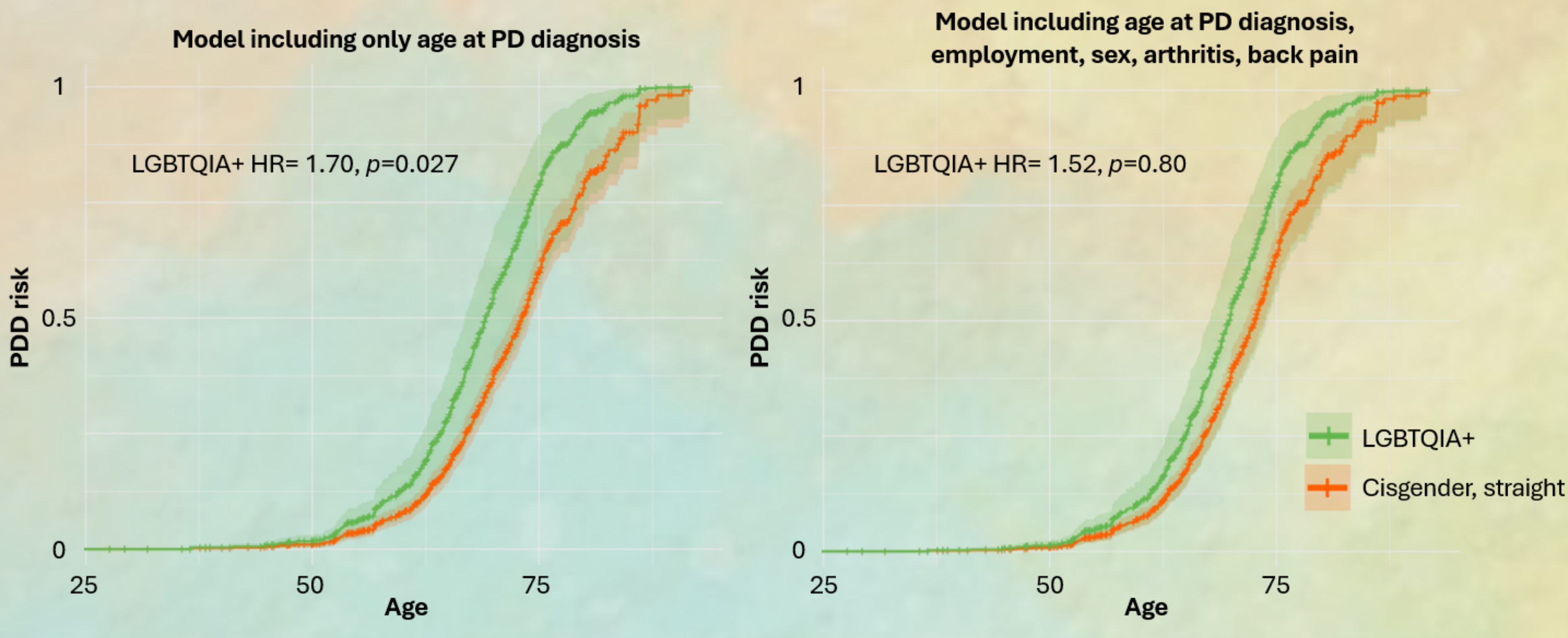
	LGBTQIA+ (n=51)	Cisgender, straight (n=649)	p value
Sex, female	24 (47.1%)	298 (45.9%)	0.99
Education level, median (range)	5 (1-8)	5 (1-8)	0.26
Employment			0.009*
-Retired	25 (49%)	482 (74.7%)	
-Full-time employed	11 (21.6%)	66 (10.2%)	
-Part-time employed	5 (9.8%)	29 (4.5%)	
-Unemployed	10 (19.6%)	68 (10.5%)	
Income level, median (range)	4 (1-6)	4 (1-6)	0.11
Discrimination in healthcare	13.63 (5.73)	11.71 (5.02)	0.099
Age at PD diagnosis	53.95 (13.45)	59.82 (10.64)	0.022*
Follow-up duration	2.83 (2.18)	2.45 (2.24)	0.41
PDD during follow-up	19 (37.3%)	291 (44.8%)	0.55
Age at first visit with PDD	61.01 (12.23)	68.25 (9.58)	0.005*
PD duration at first visit with PDD	6.78 (3.91)	7.01 (5.58)	0.91
Presence of comorbidities	51 (100%)	643 (99.1%)	0.99
Total number of comorbidities	4.49 (1.65)	4.56 (2.21)	0.91
-Heart disease	8 (15.7%)	143 (22.1%)	0.56
-Heart attack	0 (0%)	42 (6.5%)	0.20
-High blood pressure	7 (20%)	106 (23.7%)	0.91
-Lung disease	9 (17.6%)	121 (18.6%)	0.99
-Diabetes	5 (9.8%)	99 (15.3%)	0.56
-Gastric disease	29 (56.9%)	315 (48.5%)	0.51
-Kidney disease	8 (15.7%)	76 (11.7%)	0.66
-Liver disease	3 (5.9%)	49 (7.6%)	0.99
-Blood disease	9 (17.6%)	62 (9.6%)	0.23
-Cancer	5 (10%)	148 (22.9%)	0.18
-Arthritis	23 (45.1%)	363 (56%)	0.30
-Back pain	29 (56.9%)	413 (63.7%)	0.56
-Depression	45 (88.2%)	444 (69.1%)	0.033*
-Anxiety	42 (82.4%)	423 (65.5%)	0.097
-Stroke	2 (4%)	57 (8.8%)	0.56
-Traumatic brain injury	5 (9.8%)	96 (14.8%)	0.56

Significant group differences are bolded and marked with * for false discovery-rated adjusted *p*<.05. Educational level ranging from 1: less than high school, 8: doctorate degree; annual household income level ranging from 1:<20k\$; 6:>100k\$; higher scores for discrimination in healthcare indicate more perceived discrimination while receiving healthcare

Results

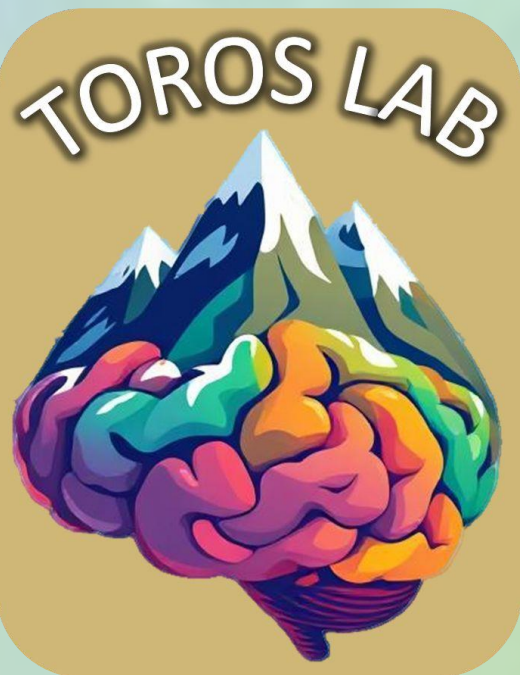
- Mean follow-up for the cohort was 2.5 (2.2) years.
- LGBTQIA+ PwP had younger age of onset for PD and PDD (Table) and higher risk of PDD (hazards ratio [HR]=1.70, 95% confidence interval [CI]=1.06–2.72).
- Employment (15%, HR=1.48, retired<full-time employed<part-time employed<unemployed), arthritis (9%, HR=0.67), and back pain (5%, HR=0.70), sex (~4%, HR=1.40, male<female) were significant mediators for PDD risk difference between LGBTQIA+ and non-LGBTQIA+ groups.
- Once accounting for these mediators, LGBTQIA+ PwP no longer had a significantly higher PDD risk than non-LGBTQIA+ PwP (Figure, HR=1.52, 95% CI=0.95–2.44).

Figure. Parkinson’s disease dementia (PDD) risk for LGBTQIA+ and cisgender, straight groups during follow-up



Conclusions

- LGBTQIA+ PwP had a higher risk of PDD, associated with greater employment disparities compared with non-LGBTQIA+ PwP.
- Employment may reflect how socioeconomic inequities contribute to PDD risk.
- Associations of arthritis and back pain with lower PDD risk may stem from greater healthcare utilization, use of anti-inflammatory medications, and/or older age at PD onset, which have previously been found to be associated with lower PDD risk.
- Despite higher PDD risk with male sex in majority of PD literature, higher PDD risk for females in our cohort highlights how social disparities are associated with worse health outcomes and can shift the direction of sex differences for PDD risk.



Acknowledgments

Data used in the preparation of this work were obtained from the Fox Insight database (<https://foxinsight-info.michaeljfox.org/insight/explore/insight.jsp>) on December 22, 2025. For up-to-date information on the study, visit <https://foxinsight-info.michaeljfox.org/insight/explore/insight.jsp>

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