Quality of life in adults with low-grade gliomas: a systematic review

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2021 MASCC/ISOO Annual Meeting
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Conflict of Disclosure

- The authors declare that there is no conflict of interest.

Background

Low-grade gliomas (LGG) are rarely cured, but have an average survival of 5-15 years, distinguishing them from high-grade tumours. [1,2]

- LGG patients experience a range of symptoms that could impact quality of life
  - General cancer symptoms (e.g. fatigue and pain)
  - Tumour specific symptoms (e.g. seizures, cognitive and communication impairments)

- It is often difficult to distinguish which problems are due to the LGG diagnosis:
  - Sample heterogeneity is common, combining LGG with high-grade tumours [3-5]
  - Treatment and its side effects [5-7]

Aim

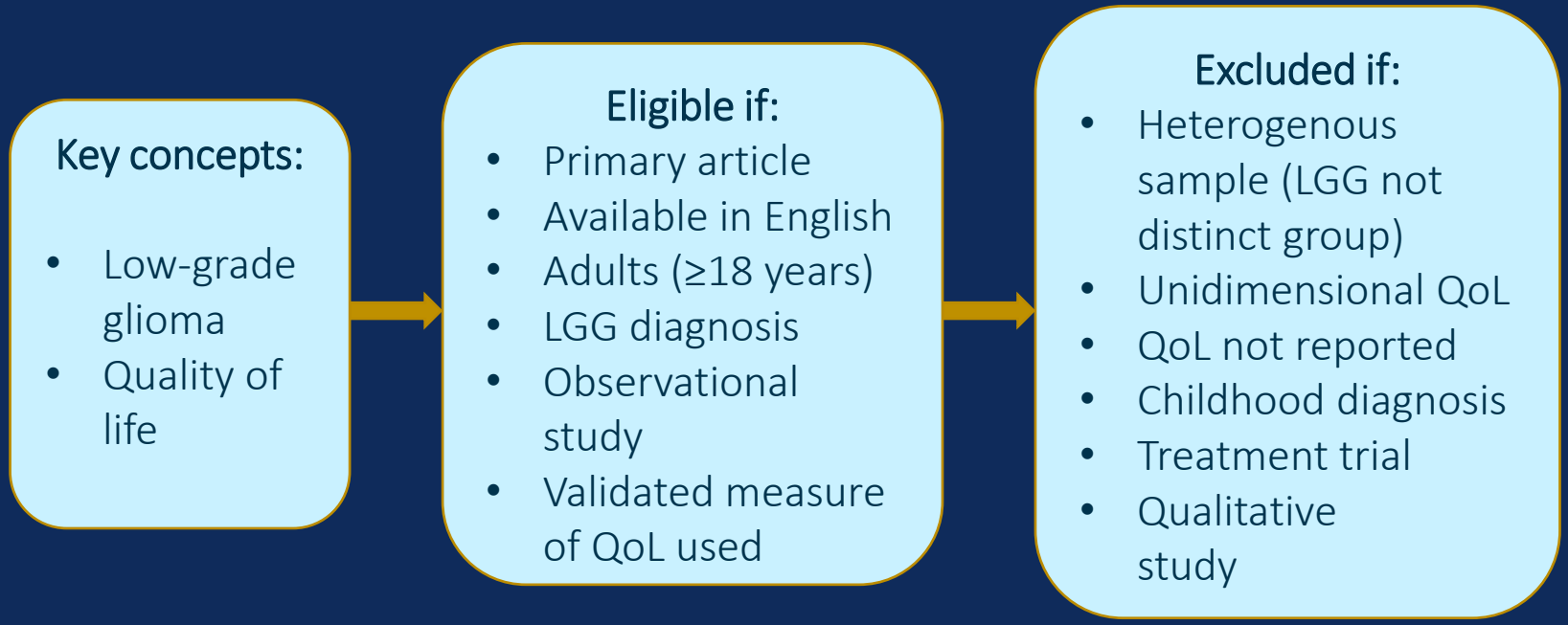
To understand how quality of life (QoL) is impacted in adults living with a low-grade glioma.

We aimed to establish:

1. What aspects of QoL are affected in adult LGG patients.
2. Comparisons in QoL between LGG and HGG comparators or healthy controls.
3. What factors are associated with QoL in LGG patients.
4. Temporal trends of QoL in LGG patients.

Search strategy

Searched: MEDLINE, Embase, PsycINFO, CINAHL, PubMed and forward/ backward citations of relevant articles – inception to December 2020



Study characteristics

26 papers reporting 18 studies were identified.

- **Countries:** USA (n=3), Netherlands (n=3), China (n=2), Norway (n=2), Japan (n=2), India (n=2), Other (n=4; n=1 each)
- **Sample size:** ranged from 15 to 260 patients
- **Time since diagnosis/treatment:** ranged from 0 (at diagnosis) to 20 years
- **Study design:** Cross-sectional (n=12), Longitudinal (n=6)
- **QoL instrument used:** EORTC BN-20 (n=8), EORTC QLQ-C30 (n=7), SF-36 (n=5), FACT-Br (n=3), EQ-5D (n=2), Other (n=8; n=1 each)
- **Comparators:** Yes (n=9); high-grade glioma (n=5), healthy adults (n=4), suspected-LGG (n=1), benign tumours (n=1)
- **Factors examined:** Age (n=6), Treatment (n=6), Tumour location (n=5), Seizures (n=4), Time since diagnosis (n=4), Sex (n=3), KPS (n=3), Tumour type (n=3), Education (n=2), Depression (n=2), SES (n=2), PTSD (n=2), Other (n=13; n=1 each)

Quality of life in adult low-grade gliomas

Areas impacted:

- *SF-36* – Role limitations due to poor physical health, low general health perception and high levels of fatigue
- *QLQ-C30* – Fatigue, pain and appetite loss
- *BN20* – Future uncertainty, headaches and seizures
- *FACT-Br* – Emotional and functional well-being

Quality of life over time

- Few studies report that a low-grade glioma is a stable long-term disease with no significant long-term changes
- Improved overall quality of life, markedly emotional and functional well-being at one year, compared to one month since treatment
- Improved future uncertainty, communication deficit and lower headache, drowsiness and hair loss from before treatment to three years since treatment

These findings do not account for changes in quality of life due to tumour progression

Quality of life in comparators and controls

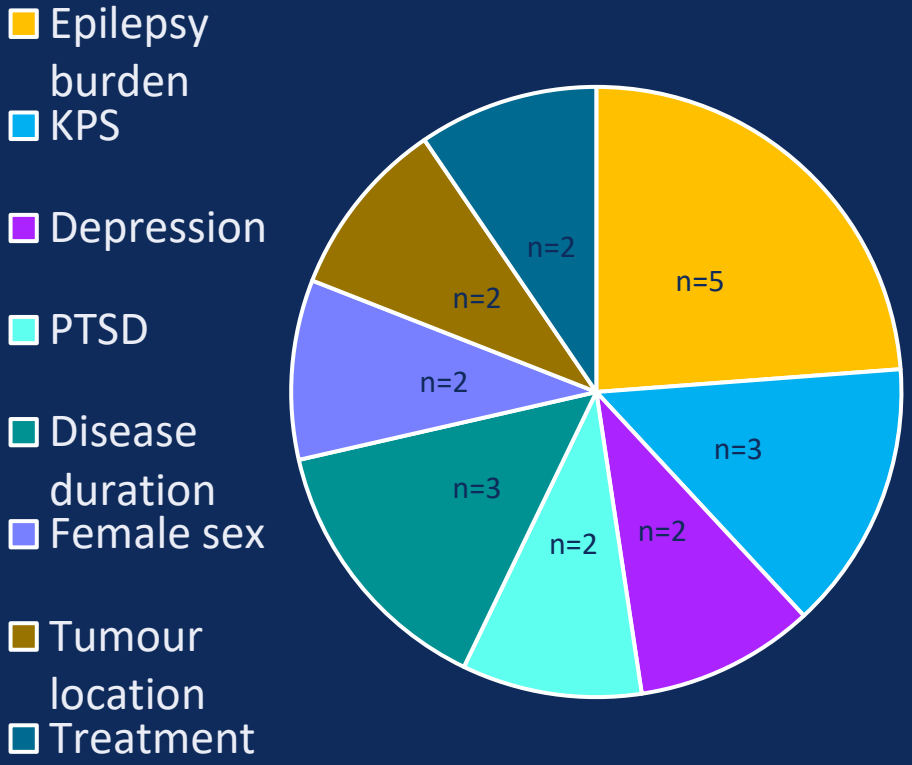
Compared to high-grade gliomas:

- Better global QoL, physical, and emotional functioning
- Lower levels of symptoms:
  - Fatigue
  - Nausea/vomiting
  - Pain
  - Communication deficit
  - Headache
  - Seizures
  - Constipation
  - Hair loss
  - Itchy skin

Compared to healthy controls:

- Worse physical functioning
  - Pain
  - General health perception
  - Vitality
- Worse role functioning
  - Emotional
  - Social
  - Mental health

Factors associated with quality of life



Other (n=1 each):

+ Literacy
+ Insurance
+ Socio-economic status
+ Post-traumatic growth
+ Tumour grade
- Avoidant coping
- History of recurrence
- Divided attention

Gaps and limitations

- Studies capturing the ‘well’ low-grade glioma population?
  - LGG patients with low KPS and/or cognitive and communication impairments were often excluded.
  - LGGs not returning for follow-up had lower initial QoL scores
- Substantial heterogeneity in the aspects of QoL measured by the numerous instruments used.
- Lack of comparison between LGG sub-types and with other neurological impairments (e.g. stroke)

Findings from this review will improve understanding of QoL in LGGs, inform future intervention development, and help clinicians recognise what, and when, support is necessary.

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