perception (Symington et at., 2010, Bridgman et al 2014), and difficulty with cognitively processing emotions within the context of social interactions (Anderson et al., 2017). This constellation of deficits is likely to also impact moral reasoning. While previous research has demonstrated differences in moral reasoning among other neuropsychological populations such as those with ventromedial prefrontal damage (Moretto et al., 2010) and frontotemporal dementia (Gleichgerrcht et al., 2011), there is no research reported regarding moral judgements in AgCC. This study employed the Moral Dilemmas Scale (Greene, 2001) to compare the moral judgements of persons with AgCC to neurotypical controls. It was predicted that individuals with AgCC would be less contextually nuanced than neurotypical controls in responding to moral dilemmas.

Participants and Methods: Results consist of data derived from 57 neurotypical control participants (ages 23 to 64 years) recruited from MTurk Cloud and 19 AgCC participants (ages 23 to 77 years) with normal-range FSIQ (>80) drawn from the individuals with AgCC involved with the Human Brain and Cognition Lab at the Travis Research Institute. All participants completed an online version of the Moral Dilemmas Scale (Greene, 2001). The scale consists of 25 dilemmas, of which 11 are considered high-conflict, 7 low-conflict and 7 impersonal. Participants were instructed to read each dilemma and rate whether they found the action to be "appropriate" or not. The high-conflict dilemmas share a similar structure in which responses reflect either a utilitarian or deontological judgement.

Results: "Approve" responses to each of the 3 categories of dilemma were separately tallied for each individual and subjected to a 2group ANOVA. Results revealed the control group produced a significantly higher rate of "appropriate" responses to high-conflict dilemmas than did the individuals with AgCC (F=8.17, p = .006, η2 =.113). However, no significant differences were found among the two groups for results on low (η2 = .013) and impersonal (η2 = .003) dilemmas alone. Furthermore, a X2 analysis of responses to each high conflict dilemma revealed a significant difference in 5 out of the 11 such that more persons with AgCC gave a deontological judgement.

Conclusions: Results suggested that adults with AgCC respond similarly to neurotypical controls with respect to the low conflict or impersonal dilemmas. However, with respect to high conflict dilemmas, compared to controls they tend to respond in a more deontological than utilitarian basis – that is, based on general principles without contextual nuance. These findings are consistent with the conclusion of Renteria-Vasquez et al. (2021) that persons with AgCC have difficulty imagining the wider implications of present information.

Categories: Behavioral Neurology/Cerebral Lateralization/Callosal Studies
Keyword 1: corpus callosum
Keyword 2: social cognition
Keyword 3: decision-making

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2 The Contribution of Brain Metastases to Neurocognitive Functioning in Patients with Advanced Metastatic Cancer

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Objective: Neurocognitive decline is prevalent in patients with metastatic cancers, attributed to various disease, treatment, and individual factors. Whether the presence of brain metastases (BrMets) contributes to neurocognitive decline is unclear. Aims of this study are to examine neurocognitive performance in BrMets patients and compare findings to patients with advanced metastatic cancer without BrMets. Here, we present baseline findings from an ongoing, prospective longitudinal study.

Participants and Methods: English-speaking adults with advanced metastatic cancers were

recruited from the brain metastases and lung clinics at the Princess Margaret Cancer Centre. Participants completed standardized tests (WTAR, HVLT-R, BVMT-R, COWAT, Trailmaking test, WAIS-IV Digit Span) and questionnaires (FACT-Cog v3, EORTC-QLQ C30 and BN20, PROMIS Depression(8a) and Anxiety(6a)) prior to cranial radiotherapy for those who required it. Test scores were converted to z-scores based on published normative data and averaged to create a composite neurocognitive performance score and domain scores for memory, attention/working memory, processing speed and executive function. Neurocognitive impairment was defined according to International Cancer and Cognition Task Force criteria. Univariate and multivariate regressions were used to identify individual, disease and treatment variables that predict cognitive performance.

Results: 76 patients (mean (SD) age: 63.2 (11.7) years; 53% male) with BrMets were included. 61% experienced neurocognitive impairment overall; impairment rates varied across domains (38% memory, 39% executive functioning, 13% attention/working memory, 8% processing speed). BrMets quantity, volume, and location were not associated with neurocognitive performance. Better performance status (ECOG; β[95%CI];-0.38[-0.70,-0.05], p=0.021), higher premorbid IQ (0.34[0.10,0.58], p=0.005) and greater cognitive concerns (0.02[-3.9e-04,0.04], p=0.051) were associated with better neurocognitive performance in univariate analyses. Only premorbid IQ (0.37[0.14,0.60], p=0.003) and cognitive concerns (0.02[0.0004, 0.03], p=0.05) remained significant in multivariate analysis. We also recruited 31 patients with metastatic non-small cell lung cancer (mNSCLC) with no known BrMets (age: 67.5 (8.3); 32% male) and compared them to the subgroup of BrMets patients in our sample with mNSCLC (N=32; age: 67.8 (11.7); 53% male). We found no differences in impairment rates (BrMets/non-BrMets: Cognitive Composite, 59%/55%; Memory, 31%/32%; Executive Functioning, 35%/29%; Attention/working memory, 16%/13%; Processing speed, 7%/6%; Wilcoxon rank-sum test, all p-value's > 0.5). The presence or absence of BrMets did not predict neurocognitive performance. Among patients with mNSCLC, higher education (0.11[0.03,0.18], p=0.004) and premorbid IQ (0.36[0.12,0.61], p=0.003), fewer days since primary diagnosis (0.00290[-0.0052,-0.0005],

p=0.015) fewer pack-years smoking history (0.01[0.02,-0.001], p=0.027) and greater cognitive concerns (0.02[7e-5,0.04], p=0.045) were associated with better neurocognitive performance in univariate analyses; only premorbid IQ (0.26[0.02,0.51], p=0.04) and cognitive concerns (0.02[0.01,0.04], p=0.02) remained significant in multivariate analysis.

Conclusions: Cognitive impairment is prevalent in patients with advanced metastatic cancers, particularly affecting memory and executive functioning. However, 39% of patients in our sample were not impaired in any domain. We found no associations between the presence of BrMets and neurocognitive function in patients with advanced cancers prior to cranial radiation. Premorbid IQ, a proxy for cognitive reserve, was associated with cognitive outcomes in our sample. Our longitudinal study will allow us to identify risk and resilience factors associated with neurocognitive changes in patients with metastatic cancers to better inform therapeutic interventions in this population.

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3 The Relationship Between Apolipoprotein-E4 Genotype, Memory, and the Medial Temporal Lobe and How These Relationships Vary by Race in Middle-Aged Persons with HIV

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