a Time to first fixation (ms) Probability of first fixation i Healthy Control Healthy Control Surgery * Group Group 2000 F(2.51) = 4.4.F(2,51) = 1.5, Probability of first fixation Time to first fixation (ms) p = 0.02p = 0.231500 **Emotion Emotion** F(1.51) = 37.9.**Baseline** 1000 0.50 F(1,51) = 20.6,p < 0.0001p < 0.0001Interaction Interaction 0.25 F(2,51) = 1.5F(2.51) = 0.02p = 0.24p = 0.98**Emotion** Neutral Neutral Neutral Angry Neutral Angry Angry Neutral Angry Angry Angry Angry Neutral Healthy Control Radiation Surgery Healthy Control Radiation Surgery Group Group 2000 F(2,51) = 1.2,F(2.51) = 1.7. Probability of first fixation 0.50 0.50 0.50 Time to first fixation (ms) p = 0.30p = 0.19Emotion Emotion Regulate F(1,51) = 1.3,1000 F(1.51) = 0.7. p = 0.26p = 0.39500 Interaction Interaction F(2,51) = 4.4,F(2.51) = 1.1.p = 0.02p = 0.35Angry Angry Neutral Angry Neutral Neutral Neutral Angry Neutral Neutral Angry ii Healthy Control Healthy Control Radiation Radiation Surgery Surgery Group 2000 F(2,51) = 2.7F(2,51) = 0.6,Time to first fixation (ms) of first fixation 0.75 p = 0.08p = 0.581500 **Emotion** Emotion **Baseline** 1000 F(1,51) = 6.10.50 F(1,51) = 3.7,p = 0.02Probability p = 0.06Interaction Interaction 0.25 F(2,51) = 0.3,F(2,51) = 2.0,p = 0.75p = 0.14Emotion Neutral Нарру Neutral Neutral Neutral Нарру Нарру Нарру Нарру Neutral Healthy Control Healthy Control Radiation Surgery Radiation Surgery Group 2000 Group F(2,51) = 0.3,F(2.51) = 0.2first fixation Time to first fixation (ms) 0.75 p = 0.76p = 0.83Emotion Emotion Regulate Probability of fli 25.0 F(1,51) = 0.91000 F(1,51) = 1.3,p = 0.34p = 0.26Interaction Interaction F(2,51) = 9.6F(2,51) = 4.1,p = 0.0003p = 0.2 Нарру Neutral Нарру Neutral Neutral Neutral Нарру Neutral Нарру Нарру Нарру iii Healthy Control Healthy Control Radiation Surgery Radiation Surgery * Group Group 2000 F(2,51) = 3.2,F(2.51) = 2.3. y of first fixation 0.50 Time to first fixation (ms) p = 0.048p = 0.11Emotion Emotion F(1,51) = 1.3**Baseline** 1000 F(1.51) = 0.6. p = 0.26p = 0.46Prbability 500 Interaction Interaction 0.25 F(2,51) = 1.7F(2,51) = 1.4p = 0.20p = 0.25**Emotion** Sad Neutral Sad Neutral Neutral Neutral Sad Neutral Sad Neutral. Sad Neutral Healthy Control Radiation Healthy Control Group Group F(2.51) = 2.7y of first fixation 0.50 F(2,51) = 1.0,Time to first fixation (ms) p = 0.08p = 0.391500 Emotion Emotion Regulate F(1.51) = 2.21000 F(1,51) = 0.4,Probability o p = 0.14p = 0.51Interaction Interaction F(2.51) = 0.6F(2,51) = 0.0,p = 0.56p = 1.0Sad Neutral Neutral Neutral Sad Neutral Sad Neutral

b

Supplementary Figure 1. Attentional orienting to emotional faces. a-b. Boxplots showing all data points with the mean (white diamond) and median (black line) for the **(a)** time to first fixation, and **(b)** probability of first fixation to the i. angry vs. neutral face, the ii. happy vs. neutral face, and the iii. sad vs. neutral face in the baseline (top panel) and regulate (bottom panel) conditions.

b a **Dwell time (ms) Number of fixations** i Radiation Surgery Healthy Control Healthy Control * Group Group (\$E) 4000 F(2.51) = 11.6.F(2,51) = 2.9p = 0.0001p = 0.06Number of fixations 3000 Emotion Emotion Average dwell ti **Baseline** F(1,51) = 1.6F(1,51) = 0.7,p = 0.26p = 0..40Interaction Interaction F(2,51) = 0.90F(2,51) = 0.1.7,0 p = 0.40p = 0.19**Emotion** Angry Neutral Anary Neutral Angry Neutral Angry Neutral Angry Neutral Angry Neutral Angry Healthy Control Radiation Surgery Healthy Control Radiation Neutral Surgery * Group Group (su) 4000 F(2,51) = 8.2,F(2,51)= 2.3, p = 0.0008p = 0.12Number of fixations 3000 am time (7 **Emotion Emotion** Regulate F(1,51)= 285.9, F(1,51)= 572.6, p < 0.0001p < 0.0001Average Interaction Interaction F(2.51) = 0.5F(2,51) = 0.02,p = 0.59p = 0.99Neutra Neutral Angry Angry ii Healthy Control Radiation Surgery Healthy Control Radiation Surgery * Group * Group F(2.51) = 12.2.(B) 4000 F(2,51) = 4.4,p < 0.0001p = 0.02Number of fixations 3000 advell time (7000 **Emotion Emotion** F(1,51)= 10.8, **Baseline** F(1,51) = 17.3,p = 0.002p = 0.0001Average 1000 Interaction Interaction F(2.51) = 0.2. F(2,51) = 0.1,p = 0.78p = 0.90Emotion Нарру Neutral Нарру Neutral Нарру Neutral Нарру Neutral Нарру Neutral Нарру Neutral Нарру Healthy Control Radiation Surgery Healthy Control Surgery Neutral * Group Group (SE) 4000 F(2,51) = 3.8,F(2,51) = 0.7p = 0.03p = 0.47Number of fixations time (3000 **Emotion Emotion a** 2000 Regulate F(1,51)= 338.4, F(1,51) = 872.0.p < 0.0001p < 0.0001 Average 1000 Interaction Interaction F(2.51) = 0.6. F(2,51) = 0.4,p = 0.66p = 0.57Neutral Нарру Neutral Нарру Neutral Neutral Нарру Neutral Neutral iii Healthy Control Healthy Control Radiation Radiation Surgery Surgery Group * Group F(2,51)= 12.1, F(2,51)= 3.5, 4000 dwell time (ms) p = 0.04p = 0.0001Number of fixations 3000 Emotion Emotion **Baseline** F(1.51) = 0.03F(1,51) = 0.3,2000 p = 0.60p = 0.85Average 1000 Interaction Interaction F(2,51) = 0.04,F(2,51) = 0.01p = 0.96p = 0.99**Emotion** Neutral Sad Healthy Control Radiation Surgery Healthy Control Radiation Surgery Neutral * Group Group F(2,51) = 8.6,F(2,51) = 2.5,4000 p = 0.0006p = 0.10dwell time 3000 **Emotion Emotion** Regulate F(1,51)= 419.4, F(1,51)= 583.1, Number of Average 2000 p < 0.0001p < 0.00011000 Interaction Interaction F(2,51) = 0.8,F(2,51) = 0.2,p = 0.44p = 0.78Sad Sad Neutral Neutral Neutral Sad Neutral Sad Neutral Sad

Supplementary Figure 2. Attentional engagement of emotional faces. a-b. Boxplots showing all data points with the mean (white diamond) and median (black line) for the **(a)** number of fixations, and **(b)** dwell time to the i. angry vs. neutral face, the ii. happy vs. neutral face, and the iii. sad vs. neutral face in the baseline (top panel) and regulate (bottom panel) conditions, over the course of the full trial (5 seconds). Note: although patients in the radiation group made fewer fixations than healthy controls and patients in the surgery groups, during both the baseline and regulate conditions, they did not differ in their dwell times, indicating they spent equivalent time viewing the faces despite making fewer fixations.