

## Impacts of Online Behaviors on Empathy in Medical Students

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**Abstract :** Empathy is crucial for a patient-physician relationship and medical professionalism. Internet activity, gaming, or even addiction, have been more and more common among medical students. However, there's been no report showing whether internet behavior has a substantial impact on empathy in medical students to our best knowledge. All year-2 medical students taking the optional course 'Narrative, Comprehension, and Communication' were enrolled. Internet behaviors are divided into two groups, 'internet users without online gaming (IU)' and 'internet users with online gaming (IG)', each group was further divided into 3 groups according to their average online retention time each day (< 2, 2 - 6, > 6 hours). Empathy was evaluated by the scores of the reports and humanities reflection after watching indicated movies, and by self-measured empathy questionnaire. All students taking the year-2 optional course 'Narrative, Comprehension, and Communication' were enrolled. As compared with students in the IU group, those in the IG group had significantly lower scores for the reports ( $81.3 \pm 3.7$  vs.  $86.4 \pm 5.1$ ,  $P = 0.014$ ). If further dividing the students into 5 groups (IU < 2, IU 2-6, IG < 2, IG 2 - 6, and IG > 6 hours), the scores were significantly and negatively correlated to online gaming with longer hours ( $r = -0.556$ ,  $P = 0.006$ ). However, there was no significant difference between IU and IG groups ( $33.0 \pm 5.4$  vs.  $34.8 \pm 3.2$ ,  $P = n.s.$ ), in terms of scores in the self-measured empathy questionnaire, neither was there any significant trend of scores along with longer online hours across the 5 groups ( $r = -0.164$ ,  $P = n.s.$ ). To date, there has been no evidence showing whether different internet behaviors (with or without online gaming) have distinct impacts on empathy. Although all of the medical students had a similarly good self-perception for empathy, our data suggested that online gaming did have a negative impact on their actual expression of empathy. Our observation has brought up an important issue for pondering: May IT- or gaming-assisted medical learning actually harm students' empathy? In conclusion, this data suggests that long hours of online gaming harms expression of empathy, though all medics think themselves a person of high empathy.

**Keywords :** empathy, Internet, medical students, online gaming

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