Demographic Differences in Camouflaging Autistic Traits Questionnaire and the Toronto Empathy Questionnaire

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Introduction

Empathy and social masking are traits related to autism spectrum disorder (ASD). Social masking, the act of camouflaging socially to appear closer to the social norm, is often utilized to conceal autistic traits, such that individuals with ASD mask more frequently than neurotypical individuals (Hull et al., 2017). However, neurotypical adults also use masking and camouflaging behaviors in routine social interactions, including actively attempting to mirror others' moods, reflecting vocabulary and syntax, or matching facial expressions to respond appropriately (Pryke-Hobbes et al. 2023).

Additionally, empathy is related to ASD traits; although, the findings are often mixed. Originally, it was thought that people with autism lacked the level of empathy seen in neurotypical populations (Charman et al., 1997). However, this conclusion resulted from poor definitions of empathy and unreliable testing (Fletcher-Watson & Bird, 2020).

The increased interest and research on empathy and masking have led to new assessments, such as the Toronto Empathy Questionnaire (TEQ) and the Camouflaging Autistic Traits Questionnaire (CAT-Q). The current study compares the demographic characteristics (i.e., age and gender) of a subclinical college student sample on the TEQ and the CAT-Q. Social masking plateaus in early adulthood; however, scores diverge in later adulthood for those with autism symptoms, showing that those with autism traits mask at higher rates (Remnélius & Bölte, 2023). Additionally, the TEQ has shown that older adults have significantly higher empathy scores than younger adults (Gould & Gautreau, 2014). Research on gender suggest no significant differences in CAT-Q total or subscale scores between non-autistic males and females (Hull et al., 2019a). However, in autistic populations, females score significantly higher than males in both the total and subscale scores.

Hypotheses

Social Camouflaging Hypotheses
H1a: Age will not be related to social camouflaging tendencies.
H1b: When males and females low in autistic symptomology are compared in their social camouflaging scores, there will be no differences.
H1c: When females in low and high autistic symptomology are compared in their social camouflaging scores, high symptomology females will report higher social camouflaging scores than low symptomology females.

Empathy Hypotheses
H2a: Age will be related to empathy.
H2b: Females are expected to report higher empathy scores than males.
H2c: When females in low and high autistic symptomology are compared in their empathy scores, low symptomology females will report lower empathy scores than high symptomology females.

Methods

A survey was conducted through Qualtrics and distributed to Fort Hays State University psychology students ($N = 279$). Demographic data was collected for age ($N = 271$, $M = 24.14$). The counterbalanced self-report surveys were the Camouflaging Autistic Traits Questionnaire (CAT-Q; $\alpha = .91$), the Toronto Empathy Questionnaire (TEQ; $\alpha = .81$), and the Autism Spectrum Quotient - 10 (AQ-10; $\alpha = .50$). The CAT-Q (Hull et al., 2019b) assessed social camouflaging behaviors with three subscales: with three subscales: Compensation (utilization of social and communication behaviors that counteract the difficulties associated with autism: $\alpha = .87$), Masking (disguising one's autistic symptomology to appear more neurotypical: $\alpha = .77$), and Assimilation (attempt to blend in with others in social situations $\alpha = .88$). Furthermore, the TEQ (Spreng et al., 2009) measured empathy as an emotional process. The AQ-10 (Allison, Auyeng, & Baron-Cohen, 2012) screened for autism spectrum disorder symptomology.

Results

H1a: Bivariate correlation analyses examined associations between age and CAT-Q composite score, compensation score, masking score, and assimilation score. No significant correlations were found between the CAT-Q scores and age.
H1b: An independent samples t-test compared empathy scores of low autistic symptomology males ($n = 54$) and females ($n = 94$). There were no significant differences between males and females.
H1c: An independent samples t-test compared empathy scores of females with low autistic symptomology ($n = 94$) and high autistic symptomology ($n = 97$). Mean assimilation scores were higher in the low autistic symptomology group ($M = 30.95$, $SD = 10.25$) than the high autistic symptomology group ($M = 27.77$, $SD = 10.08$), $t(189) = -2.16$, $p = .02$.

H2a: Bivariate correlations examined associations between empathy and age. Results indicate a significant positive correlation between TEQ empathy scores and age, $r(257) = .20$, $p = .001$.
H2b: An independent samples t-test compared empathy scores of males ($n = 64$) and females (n = 191). Mean empathy scores were higher in women ($M = 47.49$, $SD = 6.91$) than men ($M = 42.89$, $SD = 6.81$), $t(253) = -4.62$, $p < .001$.
H2c: An independent samples t-test compared empathy scores of females with low autistic symptomology ($n = 94$) and high autistic symptomology ($n = 97$). Mean empathy scores were higher in the low autistic symptomology group ($M = 48.87$, $SD = 6.21$) than the high autistic symptomology group ($M = 46.14$, $SD = 7.82$), $t(189) = -5.83$, $p < .003$.

Discussion

Social Camouflaging Hypotheses
Findings partially supported the hypothesized associations between age and gender with social camouflaging traits. Age was not expected to be related to social camouflaging due to the limited age range of college students in the sample. Previous research concluded that social camouflaging plateaus in early adulthood (Remnélius & Bölte, 2023). The current study did not find a correlation between age and social camouflaging.

Research comparing social camouflaging and gender divided their participants into four groups: non-autistic male, non-autistic female, autistic male, and autistic female. Due to restrictions with the amount male participants, the only differences examined were between low autistic symptomology males and females and between low and high autistic symptomology in females. Current results are in accordance with previous research: low autistic symptomology males and females were not expected to show significant differences in social camouflaging tendencies (Hull et al., 2019a). Furthermore, when comparing females low in autistic symptomology and high in autistic symptomology, those high in autistic traits had a higher tendency to socially camouflage (Hull et al., 2019a). Consistent again, females high in autistic traits scored significantly higher in social assimilation than those low in autistic traits.

Empathy Hypothesis
Findings fully supported the hypothesized associations between age and gender with empathy. Age was expected to be related to empathy. Previous research showed that older adults had higher empathy scores than younger adults (Gould & Gautreau, 2014). The current study confirmed that age was positively correlated with empathy.

Previous research comparing empathy and gender found that females had higher empathy than males (Burton & Nkwo, 2022). The current study again confirmed that females scored higher than males.

Furthermore, research examining the relationship between empathy and autism spectrum disorder has found that those with autism have lower empathy compared to non-autistic individuals (Charman et al., 1997). Due to restrictions with the amount male participants received, only differences between females low in autistic symptomology and those with high autistic symptomology were examined. The current study found that females with lower autistic symptomology scored higher in empathy than females with higher autistic symptomology.

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