

Level-1 Visual Perspective Taking Performance in People with High Narcissistic Traits

Sima Ebrahimian

Zanjan University of Medical Sciences

Bradley Mattan

Bold Insight, Downers Grove, IL

Mazaher Rezaei (✉ mazrez@zums.ac.ir)

Zanjan University of Medical Sciences

Research article

Keywords: Narcissism, Visual perspective-taking, Empathy, Mentalization

Posted Date: November 10th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-882601/v1>

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Abstract

Background: Lack of empathy is one of the main characteristics of narcissists. However, it is not clear whether there is a similar deficit in other facets of mentalizing, such as perspective-taking.

Method: In this study, we measured the taking visual perspectives ascribed to different targets (e.g., first-person self, third-person self-avatar, and third-person stranger avatar). Our study focused on separate groups of individuals with high and low self-reported narcissistic traits.

Results: Participants reporting high Narcissism scores showed higher accuracy in a third-person perspective-taking task than did their low-Narcissism counterparts. However, when the first-person perspective was incongruent with the third-person (first person vs. self- tagged avatar), the accuracy of their responses decreased.

Conclusions: The discrepancy between the two types of perspective taking of people with high narcissism can probably mean that the narcissistic people perfectly identify / empathize with one object (person, avatar, character, etc.) and therefore their perspective-taking is disrupted when they need to identify with more than one object that represent their self-attributed perspectives.

Background

At first glance, narcissists seem attractive, likable, and influential in a non-competitive situation. However, this positive effect is not lasting, and over time, they can develop reputations as individuals low in agreeability, warmth, and empathy (1). For example, entrepreneurs high in Narcissism present themselves as exceptionally creative and confident, but, in reality, they possess many dark personality traits (e.g., entitlement, lack of concern for or trust in others) (2). These traits ultimately make it so that entrepreneurs high in Narcissism are less likely to succeed in crowdfunding (3). People with narcissistic personality disorder (NPD) have a self-centered attitude, which includes entitled beliefs about their uniqueness, intelligence, attractiveness, and creativity compared to others. They use a variety of strategies, such as bragging and showing off in order to maintain a public image of their greatness (3).

Theoretical perspectives from the psychoanalytic object relations approach have long focused on empathy deficits in the etiology of Narcissistic Personality Disorder (4–7). According to the DSM-5 Section III, significant impairments in self (identity and self-direction) and interpersonal functioning (empathy and intimacy), are the essential features of narcissistic personality disorder (8). The DSM-5 highlights the role of empathetic functioning for narcissistic personality disorder as follows: “Inability to recognize or identify the feelings or needs of others; extreme alignment with the reaction of others only if it is related to themselves; and overestimation or underestimation of their impact on others” (8). Nonetheless, few empirical studies have examined the relations between empathy and Narcissism (9).

Several authors agree on the existence of at least two different and separate types of empathy: cognitive and emotional empathy (10, 11). Cognitive empathy is the ability to identify mental states, particularly

when there may be a difference in mental states or perspectives (12). In this sense, cognitive empathy relates to the concept of the theory of mind (13). Emotional empathy is an appropriate emotional response to the feelings or situation of others (12, 14). Emotional and cognitive empathy are independent of each other; this means that a person who readily identifies different affective states is not necessarily good at understanding differing perspectives of others (15, 16).

Evidence suggests that individuals with narcissistic personality disorder have significant deficits in emotional empathy (17–20), but less impaired cognitive empathy (Marissen et al., 2012; Ritter et al., 2011; Wai & Tiliopoulos, 2012). However, there are some controversies in the findings. For example, Ritter et al (19) found that NPD vs. control group showed self-reported difficulty in adopting others' perspectives as measured by the perspective-taking subscale of the Interpersonal Reactivity Index (IRI) but no deficits in behavioral measures of cognitive empathy such as the Multifaceted Empathy Test (MET). Ritter et al. (2011) found a similar contradiction: the NPD vs. control group showed significant impairments in emotional empathy on the MET but not on other measures of emotional empathy such as the IRI empathic concern subscale (19). These mixed results are consistent with more recent findings from Lee and Kang (21) in a non-clinical sample.

Decety (22) confirmed that empathy is initiated by a variety of situations (in real situations such as seeing another person in distress or discomfort or when imagining a person in a fiction or movie which is in distress or discomfort). Therefore, empathy requires as a first step adopting consciously the subjective point of view of the other (Decety, 2005; see also Asada et al., 2004). Davis (1983) argues that adopting a perspective is a cognitive component of empathy and Asada et al. (2004) emphasized that the perspective-taking is an essential step in the empathy process (23). Perspective-taking is the ability to view a situation or understand a concept from an alternate point of view (24).

Some researchers have recently developed computer tools for measuring *visuospatial perspective-taking* (VPT) for both cognitive and emotional types (25). Such computerized measures have overcome some of the limitations of questionnaires. These tools are designed based on Flavell's theory of cognitive development (26), which states that perceptual development occurs at two levels: In the first level, the child knows that what he sees is observable by another. At earlier developing Level 1, the child can infer, given adequate cues, what object another person does and does not see. At later developing Level 2, the child further knows that an object simultaneously visible to both the self and the other person may nonetheless give rise to different visual impressions or experiences in the two if their viewing circumstances differ (26). According to Mattan et al. (27), trait empathy is associated with improved level-1 visual perspective-taking performance. In particular, individual performance on the perspective-taking subscale of IRI was positively associated with better performance in level-1 VPT (Mattan et al., 2016).

In the current study, we test the performance of people high in self-reported trait Narcissism on a level-1 visual perspective-taking (VPT) task. We intend to examine the cognitive empathy of narcissists using the paradigm of third-person perspective-taking. Through VPT task, we can assess the impacts of

Narcissism separately for first-person perspective-taking and third-person perspective-taking. Bukowski & Samson (28) test The VPT task as a moderating variable in the relationship between Narcissism and automatic imitation. However, there have been no controlled studies, which compare differences in visuospatial perspective-taking between people high in trait Narcissism and low in trait Narcissism.

Methods

Participants and procedures

We selected participants in two steps. We, initially, administrated the Millon-III inventory to 122 individuals who were recruited through advertisements posted online. We selected Eligible individuals for the high Narcissism group based on having Narcissism T scores greater than 75 (Mean= 68, SD= 15; T Scores ranges: 39 to 98). For inclusion in the control group, participants needed to have T scores below 60 in Millon-III (Mean= 34, SD= 14; T Scores ranges: 0 to 57). Two groups significantly differed in their T scores ($P < 0.05$). Other inclusion criteria were: age 18 to 40 years and having a high school diploma and some post-secondary education. We, in the second step, conducted a diagnostic interview based on the Structured Clinical Interview for DSM-5 for Personality Disorders (SCID-5) by a clinical psychologist who did not know the purpose of the research. Exclusion criteria for all patients were history of psychotic disorders, autism spectrum disorders, a current mood disorder, substance-induced disorder, high T-scores ($T > 75$) for following clinical personality patterns: schizoid, depressive, dependent and masochistic, and high T-scores ($T > 75$) on paranoid and schizotypal scales in severe personality pathology. The final sample was 26 non-clinical adults in each of the Narcissism and control groups with a mean age of 26 years (SD = 5). Table 1 shows demographic characteristics of the sample.

Table 1
Demographic characteristics of the sample

	High Narcissism group	Low Narcissism group
Gender		
Male	11	11
Female	15	15
Total	26	26
Age		
18-24	7	10
25-30	17	7
31-35	2	5
36-40	0	4

We used the narcissistic personality questionnaire (NPI-16) to assess the severity of narcissistic personality traits. Finally, the participants performed the visual perspective-taking task as follows.

Measures

Millon Clinical Multiaxial Inventory (MCMII-III)

We assessed the Personality traits by the Iranian Version of Millon-III. This questionnaire consists of 175 short descriptive sentences with dichotomous answers (true/false), which is used for adults 18 years and older. It includes 11 clinical personality patterns, three traits of severe personality pathology, seven syndromes of moderate severity, three severe syndromes, a validity scale, and three modifying indices (29). Scores greater than or equal to 75 indicate a personality disorder trait on the MCMII-III. Millon reported the reliability of this questionnaire by test-retest method between 0.82 to 0.90 and its alpha coefficient between 0.66 to 0.90 (30). Based on previous research (31) in Iranian samples, we know that these measures have good internal reliability. Chronbach's alpha was from 0.64 to 0.89.

Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5-PD)

This tool is a semi-structured diagnostic interview for therapists and researchers designed to assess the DSM-5 personality disorders in categories A, B, C, and other identified personality disorders. The test also includes a self-report personality screening questionnaire for patients or subjects that reduces SCID-5 clinical interview time to 20 minutes (32).

Narcissistic Personality Inventory-16 (NPI-16)

The 16-item Narcissistic Personality Inventory (NPI-16) is an abbreviated version of the NPI-40 (33). The Persian Version of NPI-16 (34) consists of sixteen pairs of statements to measure the characteristics of the narcissistic personality. For each pair, subjects should select one response. Each pair is scored zero or one. The total score ranges from zero to 16. A higher score indicates a high trait of Narcissism. In the current sample, the Cronbach's alpha was .73.

Visual perspective-taking (VPT) Task

The operational definition of the ability of visual attitude in our study relies on the work of Samson et al. (2010), which individuals must judge their own or an avatar's visual perspective and when these perspectives may be the same or different (35). We examine the self's priority in perspective-taking using an adaptation of this classic visual perspective-taking paradigm.

We used two visual perspective-taking tasks in this study (36). In the 3PP-3PP Task, participants report the visual perspective of one of two avatars each time (depending on the pre-trial prompt). One avatar is identified as the "self" and the other as "stranger." In the 1PP-3PP Task, participants respond based on their first-person visual perspective or from one of the avatars. (Only one avatar as self or stranger is present per trial). We describe each task in detail below.

The 3PP-3PP VPT: The task was adapted from an existing tasks (36). Each trial begins as follows: a notification would appear in the middle of the page indicating the target perspective (self-avatar or stranger avatar), and participants would have to press the pre-designated buttons to determine one or two dots visible (which appeared with equal frequency) in the virtual room from the target's perspective. In each trial, a virtual room containing two avatars was visible. The two avatars saw the same number of dots (i.e., congruent trials) or a different number of dots (i.e., incongruent trials). For the congruent trials, the target (and distractor) avatar always gazed into the central area of the virtual room, whereas for incongruent trials, the target and distractor gazed into different areas. The main block of trials for this task was 64 trials. For some participants, the blue avatar was the self-avatar, and the stranger's avatar was green. We counterbalanced color assignment for the self and stranger avatars across participants. Before starting the main test, participants had to gain up to 90% accuracy during the practice phase. The training phase consisted of five blocks of 12 trials.

The 1PP-3PP VPT Task: Participants viewed scenes similar to the 3PP-3PP Task with only one avatar (i.e., self or stranger) appearing in any given scene. For each trial, the participants had to respond based on one of three target perspectives: self (first-person view), self-avatar, or the stranger's avatar. The main block of trials for this task was 128 trials. The first-person perspective was congruent with the third-person perspective on half the trials and incongruent on the other half.

Statistical analyses

We entered Target Perspective (self, other), Perspective Congruence (congruent, incongruent), and Group (narcissistic, control) as parameters into a linear mixed-effects regression separately for response time (RT) and accuracy data. Because this was a non-clinical sample where groupings into low and high

Narcissism may have constrained meaningful variance in the sample, We also conducted exploratory analyses where Narcissism scores were modeled as a continuous predictor rather than as two distinct groups.

Results

The 3PP-3PP Task Analysis

Response times

Effects independent of Narcissism

There were no significant main effects or interactions between target perspective and perspective congruence on response times in the 3PP-3PP Task, $p > .10$.

Effects of Narcissism

There were no significant effects of Narcissism when considered a dichotomous grouping variable on response times in the 3PP-3PP Task, all $p > .20$. However, exploratory analyses revealed a marginal interaction between Narcissism (as a continuous predictor) and perspective congruence, $b = -0.017$, $se = 0.009$, $t(50) = -1.910$, $p = .062$, irrespective of the target perspective. People with higher Narcissism scores showed larger congruence effects in response times (see Figure 1).

Response Accuracy

Effects independent of Narcissism

There were no significant main effects or interaction between target perspective and perspective congruence interaction on response accuracy, $p > .08$.

Effects of Narcissism

When Narcissism was considered as a categorical predictor, we found that people who were in the narcissistic group showed greater overall accuracy than people in the control group when judging between two third-person perspectives, as confirmed by a significant main effect of the Narcissism group, $b = -0.80$, $se = 0.395$, $z = -2.027$, $p = .043$.

This same main effect also trended in the same direction when considering Narcissism as a continuous predictor, but it was ultimately non-significant, $b = 0.324$, $se = 0.197$, $z = 1.643$, $p = .10$.

Summary of 3PP-3PP Task results

It seems that people who are high in Narcissism may show more pronounced spontaneous tracking of third-person perspectives (see response times) and higher accuracy when their task is to report different third-person perspectives.

The 1PP-3PP VPT Analysis

Response times

Effects independent of Narcissism

Consistent with previous research (35, 36), we found that participants responded faster when targeting the first-person perspective (vs. third-person perspective), as confirmed by a significant main effect of target perspective, $b = -0.046$, $se = 0.008$, $t(50) = -5.586$, $p < .001$. Moreover, participants were also faster for congruent compared to incongruent trials, as confirmed by a significant main effect of perspective congruence, $b = -0.082$, $se = 0.009$, $t(49) = -9.050$, $p < .001$. Both of these main effects were modulated by a significant target perspective \times perspective congruence interaction, $b = 0.059$, $se = 0.012$, $t(632) = 4.736$, $p < .001$. As can be seen in Figure 2, participants showed significant congruence effects when targeting both the third-person and first-person perspectives, but the congruence effect when targeting the third-person perspective was larger, suggesting greater egocentric interference (see Samson et al., 2010). All other interaction effects were non-significant, $p > .11$.

Effects of Narcissism

There were no significant effects of Narcissism when considered as a dichotomous grouping variable or as a continuous predictor on response times in the 1PP-3PP Task, all $p > .44$.

Response Accuracy

Effects independent of Narcissism

In contrast with previous work in healthy British samples (see Mattan et al., 2015), we found that participants were more accurate when targeting the third-person perspective (vs. first-person perspective), as confirmed by a significant main effect of target perspective, $b = -0.416$, $se = 0.184$, $z = -2.259$, $p = .024$. However, consistent with previous work, participants were also more accurate for congruent compared to incongruent trials, as confirmed by a significant main effect of perspective congruence, $b = 0.924$, $se = 0.228$, $z = 4.059$, $p < .001$. There were no significant interactions between target perspective, perspective congruence, or avatar identity on response accuracy in the 1PP-3PP Task, all $p > .20$.

Effects of Narcissism

There were no significant effects of Narcissism when considered a categorical variable on response accuracy in the 1PP-3PP Task, all $p > .15$. Considering Narcissism as a continuous predictor, there was a significant Narcissism \times Avatar Presence interaction $b = -0.429$, $se = 0.209$, $z = -2.053$, $p = .040$. Inspection of the interaction (see Figure 3) suggested that people higher in Narcissism performed more poorly (i.e.,

were less accurate) when the self-avatar was present compared to when the stranger avatar was present. People low in Narcissism did not show such sensitivity to the identity of the presented avatar.

Summary of 1PP-3PP Task results

In general, people have more speed and accuracy in congruent and first-person perspectives trials, but they are more accurate when targeting the third-person perspective (vs. first-person). Narcissism did not have a significant effect on the accuracy or speed of 1PP-3PP tasks compared to the control group in our main analyses. However, exploratory analyses treating Narcissism scores as a continuous predictor showed that avatar identity might affect visual perspective-taking accuracy, especially those with higher Narcissism scores.

Discussion

In summary, results from the 3PP-3PP Task suggest that people high in Narcissism show greater perspective-taking accuracy when the task involves two competing third-person perspectives than do their low Narcissism counterparts. Results from the 1PP-3PP Task suggest that people high in Narcissism had fewer correct responses when their first-person perspective contrasted with their self-tagged avatar. In other words, people high in Narcissism may be more distracted by the presence of a self-tagged avatar compared to a stranger's avatar (leading to lower response accuracy). Response accuracy for people low in Narcissism did not show this kind of sensitivity to avatar identity.

The higher accuracy of our high-Narcissism sample in taking the other's perspectives on the one hand and the characteristic of empathy deficiency in people with narcissistic personality disorder in DSM-5 on the other hand, highlight the importance of the difference between the abilities to adopt perspectives and empathize. Empathy with added cognitive processing can turn into sympathy (a form of mentalizing), personal distress, or a combination of the two (37). It seems that the lack of empathy of narcissists that have been reported in the literature (18, 20, 21, 38) is not due to narcissists' inability to adopt others' perspectives. Indeed, people high in Narcissism have a motivation-based impairment in their cognitive empathic functioning, like what is seen in psychopathy (11, 39). In other words, empathy deficits in Narcissism are not due to a lack of ability, but rather to a lack of willingness to engage in empathic responses (9, 40–42).

The results of Video-Based Movie for assessing of social cognition, a measure of theory of mind (19), are consistent with our results. In one study, people with clinical Narcissism had no impairment in understanding the thoughts, interactions, and motivations of the film's characters (19). Overall, the present findings suggest that people with high Narcissism may be better able to adopt others' perspectives than people with low Narcissism.

Narcissism refers to the myth of Narcissus, according to which narcissistic people seek an image of themselves in the external world (whether reflective objects such as mirrors and water or any other living

thing). The water pool or the mirror can be mother's eyes, father's admiration, lover's care and therefore the core characteristic of narcissistic people is preoccupation with their self-esteem such as self-worth, a sense of entitlement and of superiority. Thus, one primitive explanation for the better performance of people with high Narcissism is that they may see VPT tasks as competition. Such seemingly competitive behavior is consistent with research showing a positive relation between Narcissism and competitiveness (43). People with high Narcissism enjoy competition and seek out a competitive social environment (44). In another study, people were presented with unsolvable problems. The narcissists were very motivated to prove their intelligence to others by solving the problem (45). The content of their daily language about achievement also shows their high motivation to convey a sense of intelligence (46). As Zajenkowski et al. (2020) stated, even interpersonal relations are perceived by people with high Narcissism as a competitive field in which they can win admiration (47).

However, there is a discrepancy between the two types of perspective taking (third-person perspective-taking and first person vs. self- tagged avatar) of people with high narcissism. We have access to theories that can make it easier for us to explain identification and narcissism. Minolli (48) stated that the nature of identity based on narcissism indicates that, anyway, what is reflected is not the other's identity but one's own image. Therefore, we may say that what constitutes identity is the narcissistic attitude to one's own image (48). In the same way we can claim that when we ask people in VPT tasks to adopt the perspective of an identity (the stranger or self-avatar), in fact, the person identify with the identity of that character. When there are two avatars, one with a stranger tag and the other with self-tag, the narcissist can automatically identify with one of them completely at any time. However, when there are two characters, one with self-tag and the other a first-person perspective - both attributed to self - the narcissistic persons are unlikely to be able to identify with one of the identities completely that both represent their self-image.

Strengths and limitations

As far as we know, our research is a novel controlled study, which compared differences in visuospatial perspective-taking between people high in trait Narcissism and low in trait Narcissism.

Finally, a number of important limitations need to be considered. First, The low number of participants and access to them due to quarantine conditions caused by the COVID-19 pandemic. Second, we studied non-clinical population, and cannot generalize the results to the clinical population. Further work needs to be done to establish these findings in a larger clinical sample. Moreover, extending these findings to understand the relationship between Narcissism and visual perspective-taking in levels 1 and 2 represents a fruitful extension of the current work.

Conclusions

Participants reporting high Narcissism scores showed higher accuracy in a third-person perspective-taking task than did their low-Narcissism counterparts. However, when the first-person perspective was

incongruent with the third-person (first person vs. self- tagged avatar), the accuracy of their responses decreased. This probably means that narcissistic people perfectly identify / empathize with one object (person, avatar, character, etc.) and therefore their perspective-taking is disrupted when they need to identify with more than one object that represent their self-attributed perspectives.

Declarations

Acknowledgements

The authors would like to acknowledge Dr. Mohammad Reza Ay. Director of National Brain Mapping Laboratory, for provide neuropsychological tests, and Ali Hemmati who conducted SCID interview.

Authors' contributions

SE recruited participants, conducted all tests, and wrote the draft of the manuscript. BDM did all the VPT-related tasks, including design and instructions, analyzed the data, and edited the manuscript. MZ designed the study, and contributed to the writing and rewriting of parts of the manuscript.

Funding

The present study was extracted from the SE master's thesis. She has not received any funding for her project. Zanjan University of Medical Sciences has paid a small grant for the writing of her thesis.

Availability of data and materials

Data access can be requested from the corresponding author.

Ethics approval and consent to participate

This study received ethics approval from the ethics committee of Zanjan University of Medical Sciences with the code IR.ZUMS.REC.1399.078. All participants were informed of the aims and process of the study and written informed consent was obtained from all subjects.

Consent for publication

Not applicable.

Competing interests

The authors have no competing interests to declare.

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Figures

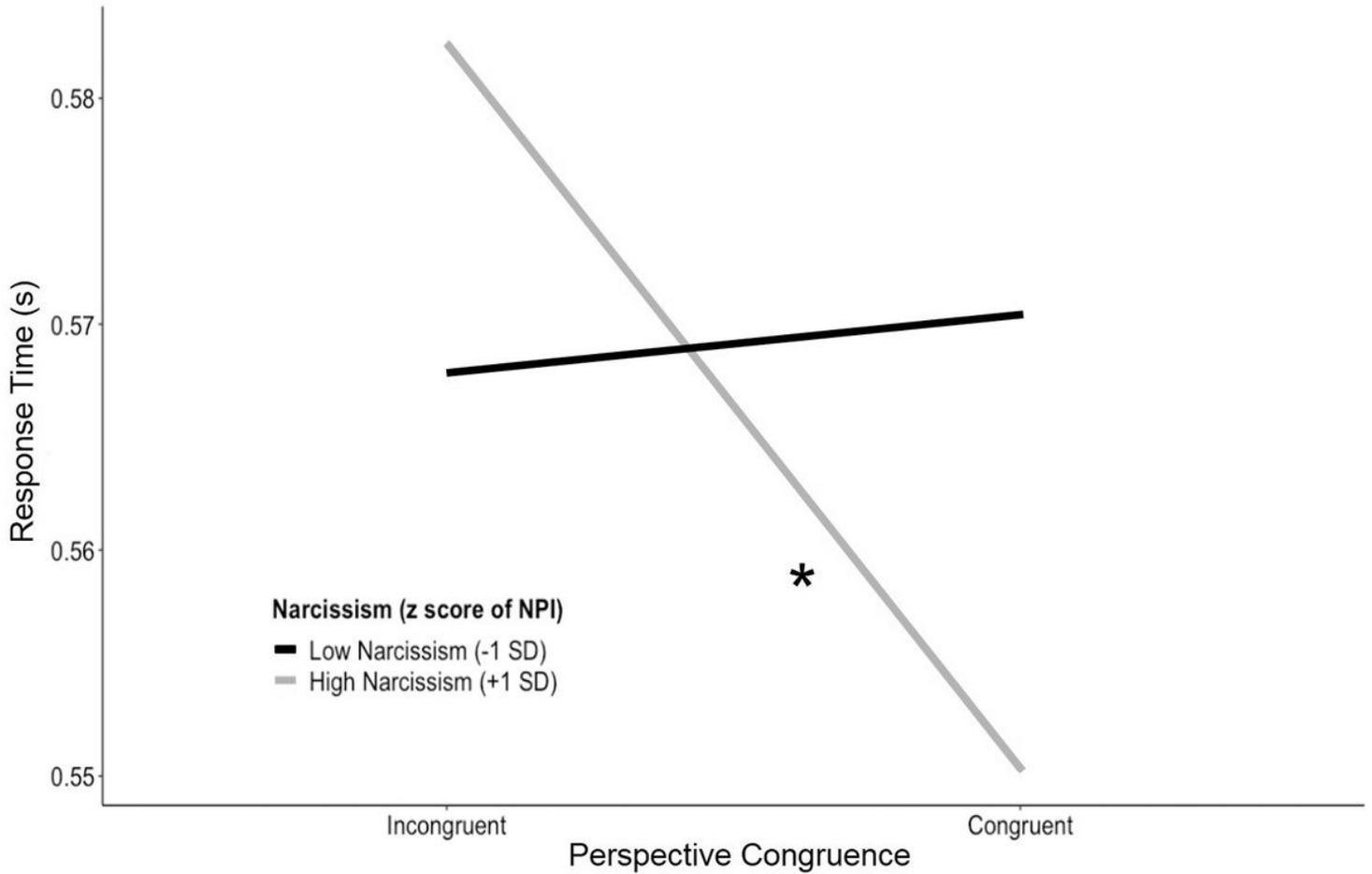


Figure 1

People with higher narcissism scores (gray line indicated by the asterisk) responded more quickly when the two avatars shared the same perspective (congruent trials) compared to when they held different perspectives (incongruent trials). People with lower narcissism scores did not show a significant effect of perspective congruence between the two third-person avatars in the 3PP-3PP task. Asterisks indicate significant simple effects, $p < .05$.

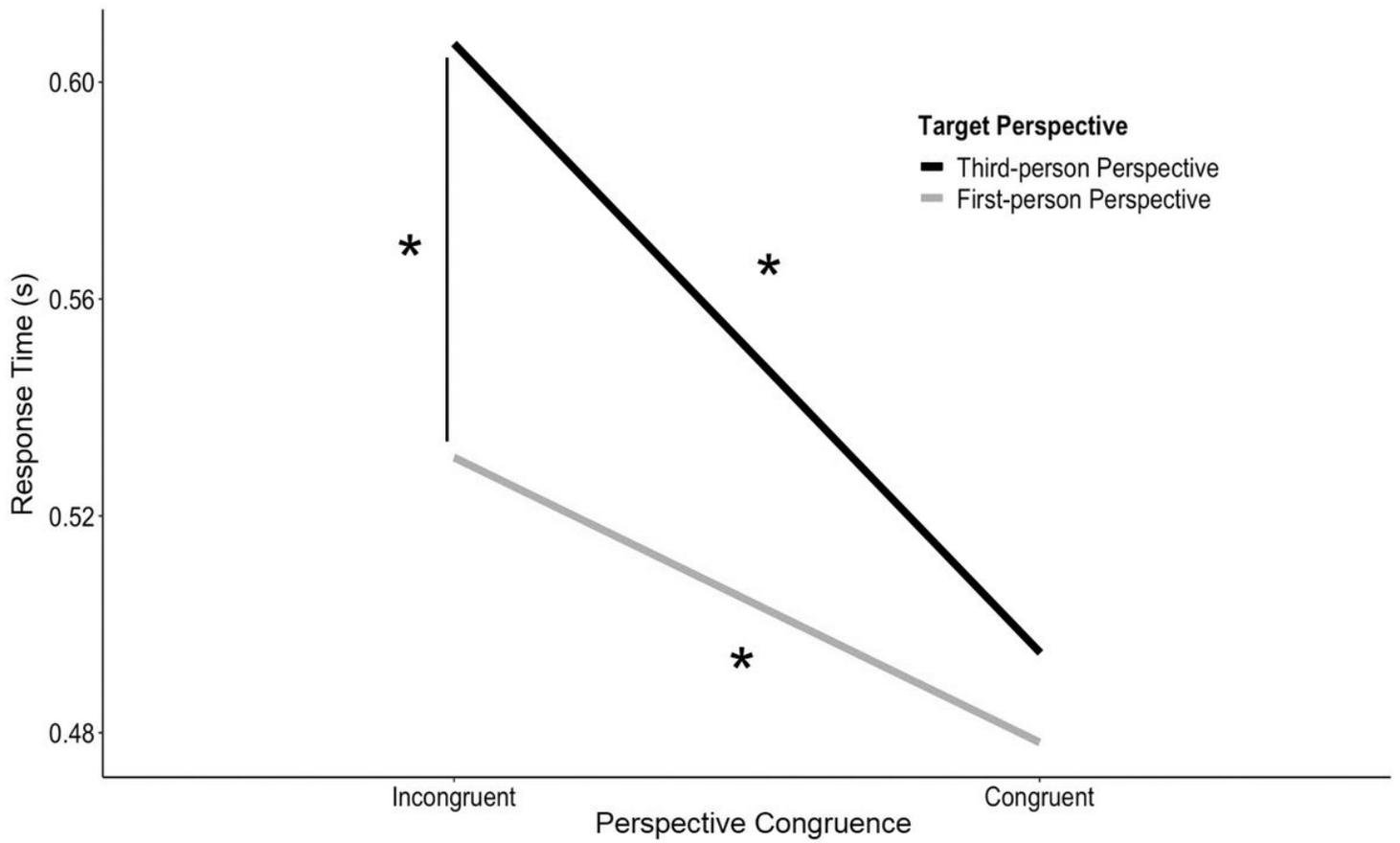


Figure 2

People were faster to respond when the first-person (gray line) and third-person perspective (black line) were both congruent with one another compared to when they were incongruent. However, the congruence effect was more pronounced when participants targeted the third-person perspective. Asterisks indicate all significant simple effects, $p < .05$.

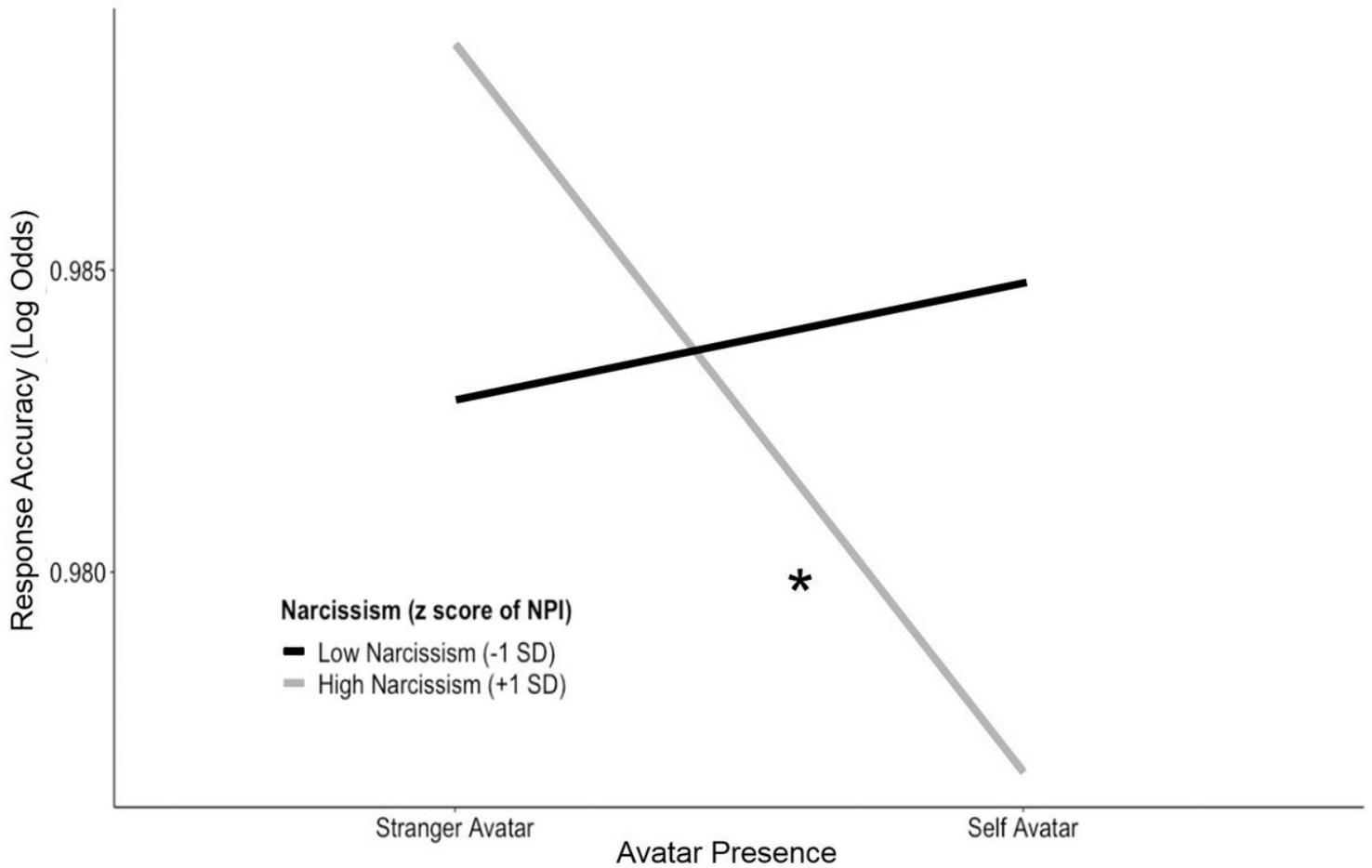


Figure 3

People with higher Narcissism scores (gray line indicated by the asterisk) were less accurate when the self (vs. stranger) avatar was present in the room, irrespective of the target perspective or congruence with the first-person perspective. People with lower Narcissism scores did not show significant sensitivity to the avatar's identity in the 1PP-3PP Task. Asterisks indicate significant simple effects, $p < .05$.