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# Theory of Mind and its Relation to Psychopathy

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## Theory of Mind and its Relation to Psychopathy

#### A Thesis

Presented to the Department of Psychology

College of Liberal Arts and Sciences

and

The Honors Program

of

**Butler University** 

In Partial Fulfillment of the Requirements for Graduation Honors

Ariana Rose Hays

April 29th, 2017

#### **Abstract**

Psychopathy is a personality dysfunction wherein an individual is unemotional and has a deficit in empathy (Dolan & Fullam, 2004). Theory of mind is the ability to perceive other's thoughts, beliefs, emotions, etc. (Vonk, Hill, Mercer & Noser, 2015). This is similar to empathy, and as such is likely to have a relationship with psychopathy, although no such research has been undertaken to date. In this study, I correlated measures of psychopathy with theory of mind, sampling from Butler's undergraduate population. Due to my combined major in Psychology and Criminology, I then researched and discuss the similarities theory of mind has with the sociological term, role taking, which is the process of viewing oneself from another perspective (Crawford & Novak, 2014). Rather than being an aptitude that varies per person, as is theory of mind, role taking is seen as an innate ability and rather is looked at in terms of the propensity in which one engages in it. While there were no significant relationships between theory of mind and psychopathy detected, the results suggested that a study with more statistical power may be able to find such a relationship. If a relationship does not exist between theory of mind and psychopathy, this can be explained by role taking theory.

#### Theory of Mind and its Relation to Psychopathy

Psychopathy, along with the closely-related antisocial personality disorder (ASPD; American Psychiatric Association, 2013), is a dysfunction of personality marked by a callous, unemotional style and a notable lack of empathy (Dolan & Fullam, 2004). Research has identified two subtypes of psychopathy: primary and secondary (Karpman, 1941). Primary psychopathy describes individuals who exhibit the typical lack of affect seen in psychopathy, such as decreased anxiety, fear and empathy. Secondary psychopathy is more closely related to antisocial behavior, such as impulsivity and aggression (Falkenbach, Reinhard & Larson, 2017).

Additionally, psychopathy can be further broken down as past research has described two distinct types of empathy: affective and cognitive empathy (Vonk et al., 2015). Affective empathy, defined as the ability a person possesses to understand and relate to another individual's emotions, is the type of empathy most people mean when they use the word colloquially. Cognitive empathy differs slightly, as it is simply the ability to recognize someone's emotional state (e.g., Czarna, Wróbel, Dufner, & Zeigler-Hill, 2015; Jonason, Lyons, Bethell, & Ross, 2013; Vonk et al., 2015).

Cognitive empathy is conceptually similar to theory of mind (ToM) as it defines the capacity to comprehend and reason about the mental states of others (Vonk et al., 2015). Due to the similarities of these concepts, it would seem likely that the lack of empathy, as seen in those with psychopathy, would also encompass a deficit in theory of mind. Specifically, it would seem that due to primary psychopathy's focus on psychopathic features such as limited empathy, it would be related to ToM. This is a topic that has been explored through various means, such as in a study by Richell et al. (2003) who compared clinical (i.e., psychopathic) to non-clinical samples and found no discernible difference in performance on the Reading the Mind in the Eyes

4

Task (RMET), a commonly used measure of ToM. Dolan & Fullam (2004) confirmed these results when they too found no significant link between impaired ToM and psychopathy, despite studying both psychopathic and non-psychopathic groups. From this, they concluded that empathy deficits are a result of lack of caring, rather than the inability to acknowledge emotional states of others, suggesting that psychopathic individuals are more impaired in affective empathy than cognitive empathy. However, more recently, Vonk et al. (2015) found that "dark personality features," including psychopathy, had "reasonably consistent negative associations" with ToM. However, in finding these results, Vonk et al. used a non-standard way of scoring one of the main measures of ToM – the Hinting Task (Corcoran & Firth, 1995) – and did not include other ToM measures that would seem to be relevant to the traits being evaluated (e.g., a measure of ironic communication such as the Story Comprehension Task [Langdon & Coltheart, 2004]). Considering these recent conflicting studies, further research is needed to clarify this issue.

A concept similar to ToM, but on the sociological world as opposed to the psychological world is role taking. Role taking, or perspective taking is a concept developed by Sociologist George Herbert Mead as the ability to view oneself from other's perspective, and thus adjust your behavior accordingly (Crawford & Novak, 2014). It is the process of entering into another's world to understand their communicative, affective and cognitive activities. (Love & Davis, 2014). This is comparable to ToM in that it that it defines the ability to perceive another's thinking; however, role taking relates this back to the concept of the self. Likewise, perspective taking is conceptually similar to empathy as it implies the ability to place yourself in another's position. Role taking is seen as a fundamental ability that is developed through socialization as young children (Henning & Rossol, 2003). As such, it is not seen as an ability that one possesses or has a deficit in, as is ToM, but rather is a matter of how frequently one engages in this

behavior. The frequency with which one engages in role taking does vary considerably per individual and it has been seen to vary more generally by gender and status (Love Davis, 2014). With role taking's conceptual similarity to ToM and empathy, it is likely it can aid in, and should be considered when explaining any results of this study.

In order to resolve the conflicting results of the past studies on ToM and psychopathy, this study measured ToM in a multitude of ways by utilizing the Hinting Task, the RMET, and the Story Comprehension Task, while measuring psychopathy using the Levenson Self-Report Psychopathy Scale (Levenson, Kiehl, & Fitzpatrick 1995). Based on the conceptual similarities between cognitive empathy and ToM, along with Vonk's study – the most recent research in the field – it was expected that psychopathy would show a correlation with deficits of ToM.

#### Method

#### **Participants**

Twenty-seven Butler University undergraduate students were participants in this study, ranging from first-year students to seniors, with a mean age of 20 (s.d. = 0.98). The sample had 16 females and 11 males, and four different majors represented, although the majority of the participants (18) listed psychology as a major. The participants' reported GPA ranged from 2.7-4.00, with a mean of 3.55 (s.d. = 0.35). Finally, while other religions and minority races were represented, 66% of the population identified as some sort of Christian, and 77% identified as white. The participants volunteered for the study by using an online participant management software, and were compensated with extra credit per their psychology classes' guidelines.

#### Materials

Theory of Mind

The Hinting Task, first developed by Corcoran, Mercer & Frith (1995), and then adapted by Greig, Bryson & Bell, (2004), is a widely-used measure of ToM used to assess the participant's ability to infer the meaning of the speaker in 10 brief vignettes. Each story is read to the participant, ending in a character saying something, from which the participant is asked what the character "really means." Each story is scored on a scale of 0-2 with 2 being the correct answer on the first try. If the participant fails to infer the correct meaning, they are given a further prompt. If the correct answer is then obtained the item is scored as 1, if still incorrect, 0.

The Reading the Mind in the Eyes Test (RMET; Baron-Cohen et al., 2001) is a common measure of ToM. It assesses participant's ability to comprehend the emotions of others from limited physical cues. The RMET consists of 36 photographs of the eye region of adults displaying varying emotions. Participants are given 4 emotion words to choose from for each photo and answers are scored as correct (1) or incorrect (0). The range is 0-36.

The Story Comprehension Task (SCT; Langdon & Coltheart, 2004) measures a participant's ability to perceive irony and sarcasm. It consists of 96 brief vignettes, each one ending with one character making a statement. The participant is asked to judge whether this statement is something the person would "reasonably" say in the situation. "Reasonable" answers either literal, ironic or a figure of speech, whereas unreasonable answers are irrelevant or illogical. Correct answers are scored as 1 and incorrect as 0, resulting in a range of 0-96. *Psychopathy* 

The Levenson Self-Report Psychopathy Scale (LSRPS; Levenson, Kiehl, & Fitzpatrick 1995; see appendix) is a well-established psychopathy scale due to its basis of Hare's revised Psychopathy Checklist (Hare, 1991). It contains 26 items measured on a scale of 1 (disagree strongly) to 4 (agree strongly) meant for the general population. The LSRPS is composed of

subscales of primary psychopathy (antisocial characteristics) and secondary psychopathy (antisocial behavior).

#### **Procedure**

After providing informed consent, participants completed the Hinting Task as delivered by the experimenter. Next, participants individually completed the remaining ToM tasks (RMET and SCT) and the psychopathy measure (LSRPS). Finally, participants completed a demographics form (to gather descriptive information about the sample), were thanked for their time, and were given the opportunity to have their questions answered.

#### Results

#### **Preliminary Analyses**

A series of correlations and ANOVAs were employed to determine whether the demographic variables had an influence on any of the ToM or Psychopathy variables. Since no significant relationships emerged, the main analysis will be conducted without considering covariates.

#### **Main Analysis**

Because both variables of interest – Psychopathy and Theory of Mind – are continuous, a series of correlation analyses were conducted. The results are summarized in Table 1. While no correlation was significantly different from zero, all three ToM measures had an inverse relationship with primary psychopathy. This was as expected, as those with higher levels of primary psychopathy (those with limited emotional expression and recognition) had greater impairment with ToM. With secondary psychopathy, however, the results are mixed. Both the RMET and the SCT had a positive relationship with secondary psychopathy, thus showing higher levels of psychopathy correlated with greater ToM ability. The strongest relationship

detected was the opposite of this, where the Hinting Task had a negative relationship with secondary psychopathy. This makes sense as the Hinting task specifically measures the ability to infer what someone actually means, and is thus more about reasoning and social skills and would therefore relate to the antisocial behavior displayed in secondary psychopathy.

As is apparent from Table 1, the three measures of ToM all had stronger relationships with secondary psychopathy than they did with primary psychopathy. This finding is contrary to what was expected, as primary psychopathy deals more with empathy and was thus expected to have a stronger relationship with ToM.

**Table 1,** Correlation Coefficients Between Psychopathy and Theory of Mind Measures

	LSRP Primary Psychopathy	LSRP Secondary Psychopathy
The Hinting Task	- 0.032	- 0.239
The Reading the Mind in the	-0.042	0.226
Eyes Test		
The Story Comprehension	-0.080	0.092
Task		

*Note.* All correlations not significantly different from zero (all p's  $\geq$  0.229).

#### **Discussion**

Psychopathy, the personality dysfunction characterized by an unemotional style and lack of empathy, has had increasing research in recent years; however, many aspects of the disorder are still unknown. One such topic that has demonstrated ambiguous results is psychopathy's relationship with Theory of Mind – the ability to understand and infer others' emotional states. This study sought to add to the literature by comparing measures of ToM with psychopathy. While no correlations were found with significant magnitude to draw a conclusive relationship between the variables, the correlations were large enough to warrant discussion and further research. If a relationship does exist between psychopathy and ToM, perhaps it is small enough

that a markedly larger sample size is required in order to have the statistical power to detect it. A larger sample would also help account for the fact that the prevalence of psychopathy is low in the general population at 0.05%-1% (Rolf, 2012), and thus a larger sample might be necessary to detect the full range of the phenomenon. The addition of a sample known to have higher rates of psychopathy, such as a clinical or prison population, might contribute to stronger results.

A larger sample might also be beneficial in light of the gender discrepancy in psychopathy, such that men have higher rates of the disorder than women, although the exact numbers vary (Rolf, 2012). Thus, a larger number of participants, specifically males, could increase the levels of psychopathy detected, giving the sample enough power to detect a relationship if one truly exists. This being said, the sample used was well balanced in terms of gender for the population, and gender was tested against the variables and no significant relationships emerged.

Due to the low levels of psychopathy present in a healthy population, additional measures of psychopathy may be able to help detect its significance, and could thus find a stronger relationship with it to ToM. This is especially relevant with Brinkley, Schmitt, Smith & Newman's (2001) finding that the LSRPS, while a good measure, may not be sensitive enough on its own and might be best used in conjunction with another measure. Additionally, as a self-report measure, issues of dishonesty are heightened. The differing relationship that primary and secondary psychopathy had with ToM in the present study support this claim, since the subsets of primary and secondary psychopathy had such different correlations with individual ToM measures. Furthermore, primary and secondary psychopathy did not correlate significantly with each other (r=0.231), lending further credibility to the interpretation that the LSRPS may not be the optimal measure for detecting the subtle relationship between ToM and psychopathy. Then

again, it is also possible that a larger, more diverse sample may result in the expected correlation between the two components of psychopathy.

Since primary psychopathy was expected to have a stronger relationship with ToM, it is curious that secondary psychopathy was related to ToM, and in the opposite direction than expected, except for in the Hinting Task. One such reason for this finding could be due to the population used: undergraduate college students. It is likely that such traits as impulsivity and risky behavior are at a higher rate due to the young age of participants (Douglas, Collins, Kann, Gold, Clayton & Kolbe, 1970), yet it is interesting that these traits are related to greater ToM ability. Since secondary psychopathy measures antisocial behavior, it would make sense for there to be a negative relationship, as it was with the Hinting Task. The conflicting results show that more research is needed to better understand this relationship.

#### **Role Taking Theory**

As role taking is conceptually related to both ToM and empathy, with the key difference being that it is not a skill to have a deficit in, but rather varies with the frequency with which one engages in it, it can aid in explaining this study's results (Henning & Rossol, 2003). Specifically, role taking can explain the lack of a significant relationship between ToM and Psychopathy, as it isn't a lack of ability or empathy seen in psychopathy, rather it is a lack of engaging in the behavior of role taking. As such, a measure gauging one's ability to in ToM or role taking would show no deficit, but a measuring assessing the frequency with which on engages in role taking might show a relationship with psychopathy, where less frequency would be related to higher levels of psychopathy.

Further backing up that the link may be between psychopathy and role taking, not psychopathy and ToM, the literature suggests that there is a strong gender difference in role

taking and in psychopathy. The gender discrepency in role taking shows that women have a much higher propensity to engage in it (Davis 1980; O'Brien, Konrath, Grühn, & Hagen, 2013). Thus men still have the ability to role take, they just do so to a lesser extent than women. This is significant to psychopathy and ToM in light of the gender discrepancy showing that psychopathy is significantly more prevalent in men than women (Rolf, 2012). Thus, men have higher levels of psychopathy, and are less likely to engage in role taking. While this gender discrepancy was not found in this study, future research could look at this further by examining the relationship between role taking, psychopathy and gender. Another avenue for future research could be to look at the subtypes of psychopathy – primary and secondary – and their relationship to role taking or gender. This was done in a study by Falkenbach et al. (2017) where they compared the subtypes of psychopathy to gender, but had inconclusive findings.

#### **Conclusion**

While this study did not find a significant relationship between ToM and psychopathy, the correlations detected suggest that a study resulting in more statistical power may be able to find such a relationship. However, if such a relationship does not exist, it may be able to be explained by role taking theory. The gender difference in role taking theory could also account for the variability in rates of psychopathy in men and women, supporting a relationship between the two variables. Additional research is necessary to determine such a relationship, whether it be between psychopathy and ToM or role taking and ToM.

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# Appendix

# **Demographics**

		ID #
Gender: Male	Female	
Age:		
Marital Status: Single	Married Divorced	Separated Widowed
Race/Ethnic Background:	White	African American or Black
	Asian	Hispanic or Latino
	American Indian	Multiracial
	Other	Prefer not to answer
	(please specify)	
Religion:		
Are you a full time student?	Yes No	
If no, what is your o	ccupation?	
Year in college: First year _	Sophomore Junio	r Senior Other
Major:		
What is your approximate c	umulative GPA?	
Have you ever been diagnos	sed with a psychological or lea	rning disorder? Yes No
If yes, please list dia	gnoses:	
Are you currently taking an	y medication for the treatment	of any psychological disorder?
Yes No		

#### **The Hinting Task**

#### *Instructions:*

I am going to read you a set of stories involving two people. Each story ends with one of the characters saying something. After I've read each story, I'm going to ask you some questions about what the character meant. Listen carefully to each story.

#### **Scoring Criteria:**

**Score 2-**-If correct interpretation is given on first try. If incorrect response is give first, read the additional prompt.

**Score 1**--If correct on second trial.

Score 0-- if response is a paraphrase of what the character said. (Total possible score is 84)

1. George arrives in Angela's office after a long and hot journey down the highway. Angela immediately begins to talk about some business ideas. George interrupts Angela saying: My, My! It was a long, hot journey down the highway.

**Question:** What does George really mean when he says this?

**Prompt:** George goes on to say, "I'm parched!" **Question:** What does George want Angela to do?

<u>Answer Key</u>: 1. Long Journey: (George is tired and doesn't want to talk business immediately; --OR-- He'd like a little rest and something to drink).

2. Melissa goes to the bathroom to take a shower. Anne has just had a bath. Melissa notices that the bathtub is dirty so she calls upstairs to Anne, "Couldn't you find the Ajax, Anne?" Question: What does Melissa really mean when she says this?

**Prompt:** Melissa goes on to say, "You're very lazy sometimes Anne." **Question:** What does Melissa want Anne to do?

<u>Answer Key:</u> **2. Dirty Bath:** (Why didn't you clean the bathtub? --OR-- Please clean the bathtub).

<b>SCORE:</b>	Response 1	<b>:</b>	Response 2:	

3.	Gordon goes to the supermarket with his mother. They arrive at the cookie aisle. Gordon says, "Wow! Those Oreos look delicious." <b>Question:</b> What does Gordon really mean when he says this?
want h	<b>Prompt:</b> Gordon goes on to say, "I'm hungry Mom." <b>Question:</b> What does Gordon nis mother to do?
	<u>Answer Key</u> : 3. Oreos: (Can you buy me some Oreos, Mom?OR I want Oreos).
	SCORE: Response 1: Response 2:
4.	Paul has to go to an interview and he's running late. While he is cleaning his shoes, he says to his wife, "Jane, I want to wear that blue shirt but it's very wrinkled." <b>Question:</b> What does Paul really mean when he says this?
want J	<b>Prompt:</b> Paul goes on to say, "It's in the ironing basket." <b>Question:</b> What does Paul ane to do?
	Answer Key: 4. Wrinkled Shirt (Would you iron my shirt for me?)
	SCORE: Response 1: Response 2:
5.	Lucy is broke but she wants to go out in the evening. She knows that David has just been paid. She says to him, "I'm flat broke!" "Things are so expensive these days."  Question: What does Lucy really mean when she says this?
	<b>Prompt:</b> Lucy goes on to say, "Oh well, I suppose I'll have to miss my night out." <b>Question:</b> What does Lucy want David to do?
	<u>Answer Key:</u> <b>5. Flat Broke</b> (Could you lend me some money?OR Would you take me out tonight)
	SCORE: Response 1: Response 2:
6.	Donald wants to run a project at work but Richard, his boss, has asked someone else to run it. Donald says, "What a pity, I'm not too busy at the moment." <b>Question</b> : What does Donald really mean when he says this?
	<b>Prompt</b> : Donald goes on to say, "That project is right up my alley." <b>Question:</b> What does Donald want Richard to do?
	Answer Key: 6. Work Project (Will you change your mind and give the project to me?OR I'd like to do that project).
	SCORE: Response 1: Response 2:

#### **Story Comprehension Task**

In this section you will be reading short stories and deciding whether what a story character says is something that a person might reasonably say in that situation. Here are some examples of the sorts of stories that you will see. Read each story at your own pace and circle Yes or No. For the practice stories, you'll receive some feedback.

Sometimes the correct answer is YES because the story character means exactly what he or she says:

P1) Michael is very disappointed. His girlfriend has just broken off their engagement. He tells his friend Jim what has happened. Jim sympathizes with poor Michael and says, "I'm sorry to hear that."

Is this something a person might say in this situation? Yes No

Sometimes the correct answer is YES because the story character is using a figure of speech:

P2) Jason is helping his mother set the table. She asks him to carry the dinner plates over to the table. He trips and drops all the plates. Jason's mother is annoyed and says, "You've got two left feet."

Is this something a person might say in this situation? Yes No

Sometimes the correct answer is YES because the story character doesn't really mean what is said:

P3) Helen has gone to watch a football game with her boyfriend Jim. Helen does not like football very much. The crowd behind Helen and Jim are noisy and someone spills a drink all over Helen. Jim has not seen what has happened. He asks Helen if she is having a good time. Helen replies, "Can't you see I'm having a great time."

Is this something a person might say in this situation? Yes No

Sometimes the correct answer is NO because no one would say what the story character says:

P4) During a fierce army battle, a group of soldiers have become trapped. Luckily, their sergeant has thought of a plan of escape. After explaining his plan to his men, one of the soldiers replies, "What bad manners!"

Is this something a person might say in this situation? Yes No

#### Try 2 more:

P5) Jim goes over to Clare's house. He wants to see Clare's new dog. When he arrives, the dog jumps up to greet him and licks him all over the face. Jim laughs loudly and says, "Wow, what a ferocious animal."

Is this something a person might say in this situation? Yes No

P6) Mr. Smith has just arrived home. He's had a bad day at work. He slams the front door and then yells at his children. His wife says, "I've lost the thread."

Is this something a person might say in this situation? Yes No

Now you know how to do them. You won't receive feedback on the stories that follow, but do them the same way: decide whether what a character says is something that a person might reasonably say in that situation and circle yes or no.

1. It is the first day of school vacation. Luke has been up since the crack of dawn and has already been out skateboarding. His mother is in the kitchen making breakfast when he arrives home again. He is singing loudly as he comes in the door. Luke's mother says, "Dear me, you're adding fuel to the fire."

Is this something a person might say in this situation? Yes No

2. Jill and her friend Gail are listening to music in Jill's bedroom. The music is quite loud and Jill's brother is trying to study. Jill's brother knocks on Jill's bedroom door and asks her politely to turn the music down. Jill screams at him to go away and throws a pillow at him. Gail is shocked by Jill's behavior and says, "This is a picture."

Is this something a person might say in this situation? Yes No

# The Reading the Mind in the Eyes Test

## **Practice**

jealous panicked



arrogant hateful

playful comforting



irritated bored

## Levenson Self-Report Psychopathy Scale

#### Items

#### **Primary Psychopathy**

- 1. Success is based on survival of the fittest; I am not concerned about the losers.
- 2. For me, what's right is whatever I can get away with.
- 3. In today's world, I feel justified in doing anything I can get away with to succeed.
- 4. My main purpose in life is getting as many goodies as I can.
- 5. Making a lot of money is my most important goal.
- 6. I let others worry about higher values; my main concern is with the bottom line.
- 7. People who are stupid enough to get ripped off usually deserve it.
- 8. Looking out for myself is my top priority.
- 9. I tell other people what they want to hear so that they will do what I want them to do.
- 10. I would be upset if my success came at someone else's expense.
- 11. I often admire a really clever scam.
- 12. I make a point of trying not to hurt others in pursuit of my goals.
- 13. I enjoy manipulating other people's feelings.
- 14. I feel bad if my words or actions cause someone else to feel emotional pain.
- 15. Even if I were trying very hard to sell something, I wouldn't lie about it.
- 16. Cheating is not justified because it is unfair to others.

#### **Secondary Psychopathy**

- 1. I find myself in the same kinds of trouble, time after time.
- 2. I am often bored.
- 3. I find that I am able to pursue one goal for a long time.
- 4. I don't plan anything very far in advance.

#### PSYCHOPATHY AND THEORY OF MIND

- 5. I quickly lose interest in tasks I start.
- 6. Most of my problems are due to the fact that other people just don't understand me.
- 7. Before I do anything, I carefully consider the possible consequences.
- 8. I have been in a lot of shouting matches with other people.
- 9. When I get frustrated, I often "let off steam" by blowing my top.
- 10. Love is overrated.