Article

JOURNAL OF
HUMANITY
& SOCIAL JUSTICE

Rationality And Emotion In Neurotypical Risk-Reward Decision Making: Social Justice Implications

Journal of Humanity and Social Justice.
Volume 7 Issue 1, 2025. 1-24
Journal Homepage:
http://ojs.isjn.or.id/index.php/journalhsj
e-ISSN: 2657-148X

Damian Mellifont[1], Jennifer Smith- Merry[2]

ARTICLE INFO

Keywords:
neurodiversity; rational decision-making; legal injustice; cognitive diversity; social exclusion

How to cite:
Mellifont, D., &. Smith-Merry, J. (2025). Rationality And Emotion In Neurotypical Risk-Reward Decision Making: Social Justice Implications. Journal of Humanity and Social Justice, 7(1), 1-24.

DOI:
https://doi.org/10.38026/jhsj.v7i1.56

Copyright: © 2025 Damian Mellifont, Jennifer Smith-Merry.
This work is licensed under a CC BY 4.0 Creative Commons Attribution 4.0 International License.

ABSTRACT

This research explored how neurotypical adults' decision-making processes, when influenced by emotions of joy and fear, reveal underlying biases that have social justice implications for neurodivergent individuals. Neurodivergent adults are often stereotyped as irrational and unpredictable which means that 'neurotypical' adults are positioned as rational in response. This research examined rationality in relation to the risk-reward decision making of neurotypical adults and critically considered the social justice implications of these findings for neurodivergent people. Specifically, our mixed method study based in experimental philosophical methodology has investigated: a) whether attempts at evoking the emotions of joy and fear respectively across two decision scenarios, each with identical risks of death and monetary rewards, can influence the decision-making scores of neurotypical adults; b) the ways in which study participants explained their decisions; and c) the social justice implications of study findings for neurodivergent people. Results showed that the evocation of fear significantly impacted the rational decision-making abilities of neurotypical individuals, revealing a susceptibility to emotional manipulation. Themes and sub-themes explaining study participants' decision making included: beliefs (low risk, high reward, simplicity, equal risks); emotions (enjoyment, fear); prior experiences; and constraints (information deficit, reward deficit; psychological cost; ethical). We conclude by discussing the social justice implications of the results in relation to the assumed rationality of neurotypical people, or irrationality of neurodivergent people.

[1] Corresponding author: Lived Experience Postdoctoral Fellow, Centre for Disability Research and Policy (CDRP) at The University of Sydney, Australia. Email: damian.mellifont@sydney.edu.au
[2] Director, Centre for Disability Research and Policy (CDRP), Head of Discipline, Behavioural and Social Sciences in Health. The University of Sydney, Australia. Email: jennifer.smith-merry@sydney.edu.au

1. INTRODUCTION

Decision making is defined as, "the process of making choices among possible alternatives" (Commendador, 2003, p.28; Scott, 2002). Risk-reward decision making then involves considering information and estimating rewards as they relate to different options (Jenni et al., 2022) . Philosophers and psychologists are among those who have created the most broadly examined decision making models (Commendador, 2003). Philosophers have been reflecting upon the rationality of decision making since the time of Aristotle (Attfield, 1991; Hardy-Vallée, 2007). Markič (2009) commented that from Plato onwards, decision making has been viewed in terms of a rational practice, but that the impact of emotions has not been entirely discarded. The greats of philosophy including Aristotle, Plato, Locke, Descartes, Spinoza, Hume and Hobbes have each recognised emotions to include feelings that are known as primitives (Scarantino et al., 2018). Emotion primitives can be thought of as 'evolutionary building blocks' that depict key emotional states (Anderson et al., 2014, p.190). Circling back to rationality, Nietzsche proposed that emotions have their own element of reason (LeBon et al., 2004; Nietzsche, 1967) and in the mid-twentieth century, authors including Bedford (1956) and Broad (1954) stressed that emotions come with intentionality. According to Markič (2009, p.57), in recent times, many philosophers and psychologists have indicated that emotions play a major part in decisions with the philosopher de Sousa's claiming that, "emotions are active participants in decision making." Damasio's somatic marker hypothesis is a renowned theory among philosophers that sees rational decision making being assisted by emotional adjustments that follow the recalling of particular events and objects (Guala et al., 2010). Decision making philosophy gained prominence in the mid-70s, becoming an alternate to cognitive-based philosophy (Dalis et al., 1977; Welle et al., 1995). Differentiating between cognitive science and philosophy, Thagard (2009) argues that the former needs the latter in the pursuit of responses to normative and general enquiries.

There is a paucity of literature available on pragmatic, normal (i.e., neurotypical) decision making (Battersby, 2020; Nutt, 2003). Walker (2014) defined neurotypical as, "having a style of neurocognitive functioning that falls within the dominant societal standards of 'normal'." Neurodivergent people in contrast are those individuals who have brains that are in some way different to the norm (Wong et al., 2023). From a social justice perspective, neurodivergent people have historically been popularly depicted as irrational (Murphy, 2018; Yannoulidis, 2003). This presumed irrationality leads to the questioning of agency and the discrediting and disregarding of neurodivergent people in society (Cutler, 2019; Houlders et al., 2021). Neurodivergent people are thus frequently thought to be unpredictable and necessitating control (McLaren, 2014; Zisk, 2019). Rational choice theory positions decision making as a rational and calculated process (Boudon, 2009; Scott, 2000). Research challenges ableist assumptions about rational decision making deficiencies among the neurodivergent population (Farmer et al., 2017; Tezcan). Recognising that neurodivergent people can experience challenges in making choices, emotional information is suggested to play a smaller role in decision-making process for the autistic neurotype (Shah et al., 2016; van der Plas et al., 2023). Forbes et al. (2024, p.2) too reported of neurodivergent

research participants demonstrating 'enhanced rationality' in decision-making and less influenced by biasing information than neurotypical participants. With research purporting a lessor tendency among neurodivergent people to make irrational (i.e., biased) decisions than neurotypicals (Jefferson et al., 2022), contemporary ableist societies nevertheless continue to discriminate against neurodivergent individuals through their portrayal as irrational others (Pulrang, 2022). Hence, neurotypical people are the focus of this exploratory study as it is important from an ethical and social justice perspective that any possible presumption concerning the predominance of rationality in decision-making among the neurotypical cohort over neurodivergent persons be critically investigated.

This investigation is guided by experimental philosophy, which brings empirical investigation to subjects that are fundamental to traditional philosophical interests (Knobe et al., 2012). Experimental philosophers utilise statistical tools, ask respondents to consider scenarios, and frequently seek explanations as to the reasoning behind their answers (Nadelhoffer et al., 2007). This explanatory approach reflects the fundamental responsibility of philosophy which is to illuminate matters (Brandom, 1994, 2009; Hardy-Vallée, 2011), but does this by bringing in experimental techniques used in broader social science research. Gendler (2007) has reported on the potential of thought experiments to succeed in persuading the responses of study participants. To our knowledge research to date has yet to conduct a rational decision-making experiment with neurotypical study participants from the perspective of potentially informing social justice implications for neurodivergent people. Recognising this potential, and in the traditions of experimental philosophy, we aim to investigate: a) whether attempts at evoking the emotions of joy and fear respectively across two decision scenarios, each with identical risks of death and monetary rewards, can influence the decision-making scores of neurotypical adults; b) the ways in which these study participants have explained their decisions; and c) the social justice implications of study findings for neurodivergent people. In the sections to follow, we will describe the mixed methods applied to inform our research aims, provide the qualitative and qualitative results, and critically discuss our exploratory research findings in terms of their social justice implications for neurodivergent people.

2. RESEARCH METHOD

Ethical approval to conduct this study was obtained from The University of Sydney's Human Research Ethics Committee. Purposefully applying a mixed method approach allowed us to provide context around our statistical findings by including qualitative data. A neurotypical risk-reward decision making survey containing questions eliciting closed and open-ended responses was then made available on the University's research promotion webpage. This scholarly website promotes a list of studies that are currently seeking to recruit research volunteers. Participants were included in the study who met the following criteria: a) at least eighteen years of age; b) have never been diagnosed with a mental illness; and c) have read and understood the participant information statement. All data provided by study participants were

securely stored on the University of Sydney REDCap survey platform. Study participants were advised in the Participant Information Statement that they would not be identified in the research.

Following prompts to obtain demographic information, study participants were asked to consider two scenario offers with identical risks and monetary rewards. Each of the two decision scenarios as depicted in the survey are provided in Box 1. The scenarios agreed upon by the Authors and posed to research participants were thus purposefully designed to induce contrasting emotions among participants. The first scenario was worded in a way that was designed to evoke the emotion of joy, whereas the second attempted to evoke fear. Participants were then asked to explain why they accepted, considered, or declined each of the hypothetical offers. A sign test is suited to the testing of study participants under two different conditions or scenarios (Laerd-Statistics, 2018). So, in order to determine whether a median difference existed between the decision scores as recorded for the two related groups, data was firstly entered into SPSS and assessed against the three typical assumptions for conducting a sign test (Laerd-Statistics, 2018). The first assumption that the single dependent variable (i.e., the decision score) be measured on an ordinal level was met. Values for this variable were set to: 1 = reject offer; 2 = consider offer and 3 = accept offer. The second assumption was that the one independent variable be comprised of two related groups (i.e., the same persons within each group). Groups one and two contained decision responses to scenarios one and two respectively (with the same persons in each group). The third and final assumption was that the responses of one study participant do not influence the responses of another. With these assumptions in place, Author A proceeded to ascertain the appropriateness of the sign test by visually inspecting the distribution of difference scores before running this test in SPSS.

Author A then applied thematic analysis to generate themes and sub-themes summarising participants' responses to the two scenario offers. Following the Braun et al. (2006) approach, this qualitative analysis involved: a) obtaining an understanding of the data; b) detecting themes (sub-themes), their coding rules as well as supporting quotes; c) reviewing themes (sub-themes) through several iterations; and d) conveying the findings. To foster data transparency and research rigor, the thematic analysis results were captured in several reporting tables.

Box 1. Risk-reward decision scenarios.

Scenario one.

Imagine that you are offered $10,000 in cash if you agree to take a short joy flight. This offer involves taking off in a commercial jet plane at your nearest domestic airport, flying around the airport for ten minutes and enjoying the sights before returning. Please note that the estimated odds the plane of crashing and instant death is the same as for any other commercial flight (i.e. highly unlikely - 1 in 7 million).

Scenario two.

Imagine that you are offered $10,000 in cash if you agree to sit in a commercial jet plane at your nearest domestic airport. The plane will not take off. Instead, after ten minutes of sitting in the plane, you will hear the click of a trigger coming from a gun that is aimed at the back of your head. Please note that the odds of a bullet being fired and instant death is highly unlikely - 1 in 7 million (exactly the same odds of the plane crashing and instant death that was given in scenario #1).

3. RESULTS AND DISCUSSION

Quantitative Findings

A total of 37 study participants without a diagnosis of mental illness (which we classed as 'neurotypical') were recruited to examine whether the rational decision making of these persons might be altered on the basis of how identical risks and monetary rewards are presented to them. In order to confirm the suitability (or otherwise) of the sign test to analyse our data, a histogram was generated in SPSS to determine whether the distribution of difference scores was symmetrical or not. A visual inspection of the histogram (see Figure 1) suggested that the distribution is not symmetrical. As such, the sign test, rather than the Wilcoxon signed-rank test, was utilised to compare the variances in decision scores between the two scenarios. Scenario one in this exploratory study prompted a statistically significant median increase in the decision score compared to the second scenario (i.e., decision score 2 - decision score 1 = -1.0), $p = .000$. With the p value less than .05, a statistically significant outcome was recorded. This p value size is indicative of a notable difference between the scoring among the neurotypical study participants for the two decision scenarios (see Figure 2). Informing the first of our study aims, the null hypothesis of attempts at evoking emotions of joy and fear respectively across two scenarios that have identical risks (being extremely low) and monetary rewards (being high) does *not* influence the decision-making scores of neurotypical persons is therefore rejected.

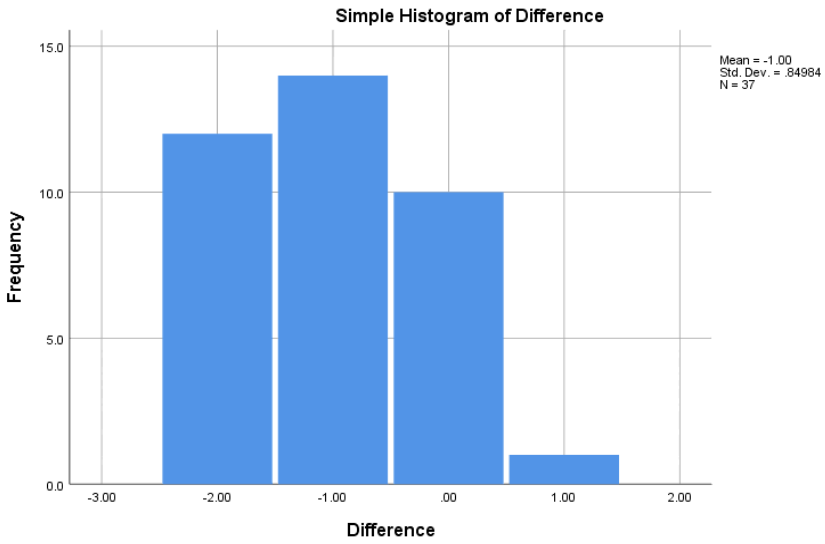

Figure 1. Distribution of difference scores.

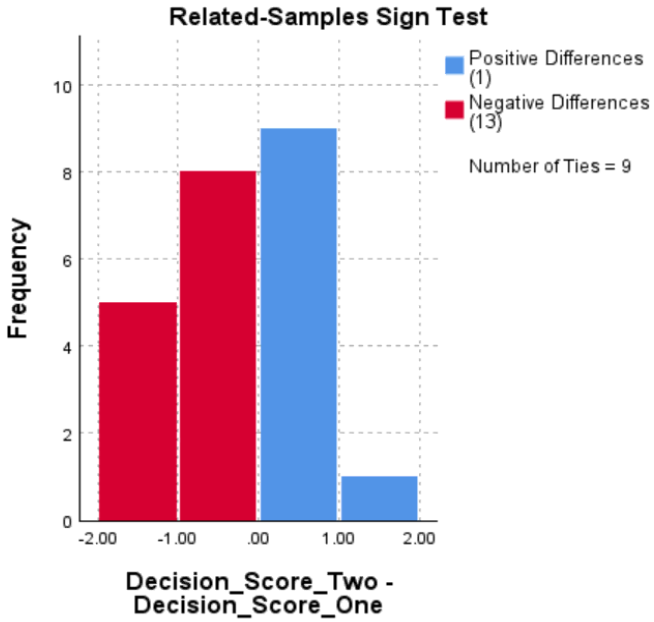

Figure 2. Decision scores – histogram.

Qualitative Findings

Tables 1 to 6 capture the reported responses of the 37 study participants in relation to the two decision-making scenarios that were placed before them. The tables depict the themes and sub-themes associated with accepting, considering and rejecting scenarios one and two respectively. These themes/sub-themes assist to provide a holistic understanding of study participants' decisions. Included within each table is the theme (sub-theme) name, the coding rule applied, and supportive quotes. Collectively, the themes (subthemes) consisted of: beliefs (low risk, high

reward, simplicity, equal risks); emotions (enjoyment, fear); prior experiences; and constraints (information deficit, reward deficit; psychological cost; ethical). Each of these themes and sub-themes are explained below.

Table 1. Accepting scenario #1

Theme (sub-theme): beliefs (low risk)
Coding rule: study participant believes that accepting scenario #1 will offer low risk.
Supporting quotes:
"Believe it to be low risk" [participant #1]; "Low risk" [participant #2];
"Risk is low" [participant #3]; "safe to do" [participant #4];
"I see the risk as negligible" [participant #5]; "I see no risk in that" [participant #6]
"The risk of death/crashing is no different than to any other flight" [participant #8]
"low risk" [participant #11]; "The odds of dying, or even something going wrong, is extremely low" [participant #14]
"The risk of crashing is unlikely and it is a short amount of time" [participant #15]
"Low risk of injury' [participant #16]; "Risk of crashing really low" [participant #17]
"Reward outweigh risk" [participant #18]; "There is almost no risk" [participant #19]
"Risk of injury is extremely low" [participant #20]' "little risk involved in the scenario" [participant #21]
"The scenario is highly beneficial, with very little risk. Despite the risk being mentioned, I understand that the odds are very much in favour of me not dying" [participant #22]
"the likelihood of crashing is very very slim" [participant #23]
"Very low risk of death" [participant #24]; "the risks associated are very low" [participant #27]
"Risk no more than a commercial flight with a reward at the end" [participant #28]
"Considering the risk is the same as a usual flight, and aviation is one of the safest industries globally, I would treat the 'risk' as acceptable" [participant #29]; "Low risk" [participant #30]
"is very safe" [participant #32]; "I know the chances of anything happening are quite low and I am more likely to have an accident driving my car than flying in a plane" [participant #34]
"There are no risks related to it" [participant #35]; "Risk is low, sounds fun" [participant #36]

Theme (sub-theme): beliefs (high reward)

Coding rule: study participant believes that accepting scenario #1 will offer high reward.

Supporting quotes:

"high reward" [participant #2]; "reward is high" [participant #3]

"Also getting $10,000 is great for 10 minutes [participant #7]

"Money" [participant #11]

"I don't have any fear of planes so getting $10,000 in cash for 10 minutes on a plane sounds amazing" [participant #14]

"high reward" [participant #16]

"but reward of $10000 really high for 10 minutes on a plane" [participant #17]

"Reward outweigh risk" [participant #18]; "The scenario is highly beneficial" [participant #22]

"high reward" [participant #24]; "The $10,000 is well worth my time" [participant #27]

"high reward, 10,000 in cash is well worth a free jet flight" [participant #30]

"would be happy to get the 10000$!" [participant #31]; "I get paid for it" [participant #33]

Theme (sub-theme): beliefs (simplicity)

Coding rule: study participant believes that accepting scenario #1 will be simple and straightforward.

Supporting quotes:

"it sounds like easy money" [participant #4]

"easy to complete task" [participant #16]

"no criminal activity would be conducted" [participant #20]

"There seems to be no catch" [participant #21

"Seems like easy money" [participant #25]

"Doesn't take up too much time or effort" [participant #32]

Theme: experience

Coding rule: study participant expresses positive previous flying experiences.

Supporting quotes:

"I have flown on a plane multiple times, understand the nature of flying on a plane, and have concluded that the risk is low" [participant #2]

"I have flown many times before" [participant #5]

"It is safe and just as unlikely as getting into difficulty as any other plane journey" [participant #7]
"Cause I've personally never been involved in a plane crash before nor do I know anyone who ever has" [participant #9]
"I have flown in a plane before and feel relatively safe in that situation" [participant #15
"I accepted the scenario because being in a plane is something I feel familiar with and receiving a prize for doing something I am already comfortable with makes sense [participant #26]
"Because I am not afraid to flight. I travel a lot and I am not paranoid" [participant #31]
"I don't have a fear of flying and have been on planes many times in my life" [participant #34]
Theme (sub-theme): emotions (enjoyment)
Coding rule: study participant expresses the emotion of joy
Supporting quotes:
"it would be an enjoyable experience" [participant #21]
"The benefits of the flight far outweigh the costs. I am being paid to have fun" [participant #23]
"I like taking flights" [participant #33]
"I am being offered a cash incentive to participate in a fun activity" [participant #37]

Table 2. Considering scenario #1

Theme (sub-theme): beliefs (low risk)
Coding rule: study participant believes that low risk influenced their decision to consider scenario #1.
Supporting quotes:
"...I do not find any risk in considering the offer" [participant #10]
Theme (sub-theme): beliefs (high reward)
Coding rule: study participant believes that high reward influenced their decision to consider scenario #1.
Supporting quotes:
"I can have a short vacation for free" [participant #10]

Theme (sub-theme): emotions (enjoyment) Coding rule: study participant expresses the emotion of joy. Supporting quotes: "...I was offered $10,000 in cash to have fun" [participant #10]
Theme (sub-theme): emotions (fear) Coding rule: study participant expresses the emotion of fear. Supporting quotes: "It is scary and somewhat adventurous..." [participant #13]

Table 3. Rejecting scenario #1

Theme (sub-theme): emotions (fear) Coding rule: study participant expresses the emotion of fear. Supporting quotes: "I have no pilot training" [participant #12] "…do not enjoy flying" [participant #12]

Table 4. Accepting scenario #2

Theme (sub-theme): beliefs (low risk) Coding rule: study participant believes that low risk influenced their decision to accept scenario #2. Supporting quotes: "risk is low" [participant #3] "sounds like fun and safe" [participant #4] "Low risk of injury - 1 in 7 million" [participant #16] "If the odds of death are so unlikely, I would say that $10k would be worth sitting in suspense for 10 minutes" [participant #37]
Theme (sub-theme): beliefs (high reward) Coding rule: study participant believes that high reward influenced their decision to accept scenario #2. Supporting quotes: "reward is high" [participant #3]

"...although I would be more hesitant I feel the $10,000 reward would be worth the risk" [participant #5]
Theme (sub-theme): beliefs (equal risk) Coding rule: study participant believes that the same risk between the two scenarios influenced their decision to accept scenario #2. Supporting quotes: "The logic of the risk being the same as option one holds up" [participant #5] "The odds of the bullet being fired/instant death is the same as for taking any normal commercial flight" [participant #8] "It's the same odds of the plane crash - it's scarier but knowing that the odds are the same would put me at ease" [participant #14] "the risk provided is exactly the same as scenario #1" [participant #16] "The risk is the same as before (though it would be a more uncomfortable experience)" [participant #19] "Same odds as the first experience which are very low" [participant #21]
Theme (sub-theme): emotion (enjoyment). Coding rule: study participant expresses the emotion of joy. Supporting quotes: "sounds like fun..." [participant #4] "This scenario is new for me. That is why I want to feel such feelings closely" [participant #13]

Table 5. Considering scenario #2

Theme (sub-theme): constraints (information deficit) Coding rule: study participant expresses a desire for more details to inform their decision. Supporting quotes: "I would want further information whether the gun is loaded or not and who would be firing it" [participant #7] "Is the gun pointed at my head or do I just hear the sound?" [participant #17]

Theme (sub-theme): emotion (fear).

Coding rule: study participant expresses the emotion of fear.

Supporting quotes:

"I'd consider it because of the highly unlikely death rating but I would be a bit nervous" [participant #7]

"The idea of a gun is scarier than flying" [participant #15]

"however the introduction of a gun feared me" [participant #20]

"But the idea/notion of guns shocked me a bit, hence I was a bit more hesitant to completely accept the offer" [participant #22]

"I suppose I'm more scared of guns than I am aeroplanes" [participant #25]

"the click of a gun can be unsettling and would make me question taking the offer" [participant #30]

"I am really afraid of gun and I think I would totally freak out and I would be very afraid" [participant #31]

Theme (sub-theme): beliefs (high reward)

Coding rule: study participant believes that high reward influenced their decision to consider scenario #2.

Supporting quotes:

"money" [participant #11]

Theme (sub-theme): beliefs (low risk)

Coding rule: study participant believes that low risk influenced their decision to accept scenario #2.

Supporting quotes:

"low risk" [participant #11]

"however there's a significant chance that nothing will happen so it is something I would consider" [participant #15]

"The risk is low, but the situation is stressful" [participant #36]

Theme (sub-theme): beliefs (equal risks)

Coding rule: beliefs that the same risks between the two scenarios influenced decisions to consider scenario #2.

Supporting quotes:

"I would hesitate to accept this, as literally playing Russian roulette has different implications to taking a simple flight. However, given (forced) time to make a

decision, I would probably be more likely to accept as the shock of being asked to potentially take a bullet would give way to reason" [participant #29] "...it is the same risk as the above scenario" [participant #30] "Even though the odds of death are the same..." [participant #32]
Theme (sub-theme): constraints (psychological cost) Coding rule: study participant assesses the psychological costs of scenario #2. Supporting quotes: "Although death is highly unlikely, I feel that this would be a traumatic experience so I'm not sure if I would subject myself to a lifetime of trauma for $10,000." [participant #23] In the event that I do become traumatised, the costs of going to therapy and not being able to function normally are long-term costs that outweigh the short-term benefit of $10,000" [participant #23] "the sound of a gun cocking near my head may cause trauma" [participant #32]
Theme (sub-theme): constraints (ethical) Coding rule: study participant expresses ethical concerns related to the reward. Supporting quotes: "It depends on how much you value life vs money" [participant #23]

Table 6. Rejecting scenario #2

Theme (sub-theme): emotions (fear) Coding rule: study participant expresses the emotion of fear. Supporting quotes: "Scenario #1 & #2 have the same amount of risk, the probability of cause of death is 1 in 7mn. But the way the Scenario #2 is narrated seems more practical and fearful as the gun is pointed right behind my head (to imagine this would consider half dead already)" [participant #10] "The scenario sounds terrifying" [participant #12] "Fear" [participant #18] "Although not instant, you can still be hurt" [participant #24] "It is a much more emotionally draining and stressful scenario. Regardless of the odds of death, this scenario would cause far more anxiety and stress, and that would have an impact" [participant #27] "I don't want to die" [participant #33]

"The feeling during the experience would be negative even though it is said that the possibilities are low" [participant #35]

Theme (sub-theme): beliefs (high risk)

Coding rule: study participant believes that accepting scenario #2 will offer higher risk.

Supporting quotes:

"Feels like higher risk due to proximity of the gun" [participant #1]

"Because I do not believe the odds to be the same as flying on a plane for 10 minutes, no matter the reassurances. The threat is too close to me, and empirically speaking, a click of a trigger from a gun is likely to be fired, and therefore, a risk, compared to that of a plane that has taken off many times. I understand for the sake of the hypothetical case that the odds are the same, but I do not view it as the same." [participant #2]

"I see a big risk" [participant #6]

"Risk of disability (brain damage higher) even if death is not the final outcome" [participant #28]

"While the odds of a bullet being fired and instant death are the same as with scenario one, it does not take into account that in this particular scenario the gun is being pointed directly at my head, making it statistically less likely for the bullet to miss, should indeed the gun be fired" [participant #34]

Theme (sub-theme): constraints (reward deficit)

Coding rule: study participant expresses disinterest in the reward on offer.

Supporting quotes:

"I do not need the money desperately" [participant #12]

Theme: experience

Coding rule: study participant expresses positive familiarities around planes and/or unfamiliarity around guns.

Supporting quotes:

"Living in Australia and the great gun laws we have in place, I'm not ever exposed to guns so I would automatically freeze and freak out and not take the risk" [participant #9]

"I'm not completely sure. I think it may have to do with the fact that I am unfamiliar around guns, or that the idea of having a weapon designed for killing that may or may not take your life is more intimidating that having a machine that was designed to help people get places take your life. Because planes are seen as helpful, useful and undoubtedly praised as a major scientific development the idea of safety may have been almost subconsciously embedded in my mind, especially when you see the processes that happen after a crash occurs, as opposed to guns which are demonised through the

> media and film and are more consciously seen as tools that serve for no other purpose but to create death" [participant #26]

Beliefs

Beliefs form a part of our interpretations as rational actors (Hardy-Vallée, 2011; Sorensen, 2004). Positive intentions to accept the joy flight offer were complemented by rational convictions about risk and reward. Study participants popularly expressed their beliefs in the risk of a plane crash being low. The belief of a high financial reward for the undertaking of a short flight was also prominent among the justifications for accepting the first scenario offer. A period of contemplation can assist in the eventual attainment of rational decisions. One study participant, in considering the second scenario, believed that given time, the initial shock of being asked to play Russian roulette would eventually pass and they would likely succumb to reason and accept the offer.

Aristotle considered each person to be accompanied by rational and irrational dimensions (Boshoff et al., 2011). Rationality in neurotypical risk-reward decision making is therefore in no way assured. This study has revealed that even where the risk of death and monetary reward are identically stated, an acceptance of one imaginary decision scenario does not automatically translate into the approval of a second. Respondents tended to emphasise their beliefs about the simplicity of the first decision scenario (e.g., easy to do, no catches, easy money). However, several participants expressed false beliefs of a higher risk with the second scenario than that which was stated. Egoism philosophers have argued that to behave in ways that are counter to self-interest is to conflict with reason (Hansen, 1992; Reidenbach et al., 1990). As expressed in our exploratory findings, irrational decisions are self-penalising in the sense that they signify lost opportunities to gain a high financial reward at an extremely low risk.

Emotions

It is argued that our 'ways of knowing' extend beyond that of reason so as to incorporate emotions (Benatar et al., 2016; Somerville, 1998). A number of study participants who accepted the joy flight offer expressed their eager anticipation of enjoyment. Representing an anomaly, one participant who was considering the joy flight offer described it as 'scary'. This respondent, however, had possibly based their decision on an incorrect assumption (and associated fear). Expressing concerns about not having any pilot training, it would appear this person had mistakenly presumed that they would be required to fly the plane. Exposing the false premise upon which this fearful response was based, it would be reasonable to suggest that the odds of dying would have been much higher than the stated 'one in seven million' should the study participants actually be expected to take on the responsibilities of the pilot.

A fear of guns was prominent among the explanations for rejecting the scenario two offer. Forming part of Plato's psychology, it is imagination that can sway the rational and irrational components of the psyche via its image-generating ability

(Harper, 2019). Our study has revealed the capacity of some neurotypical persons to imagine risks that extended well beyond those stated in the decision scenario. For one study respondent, to imagine a gun pointed at the back of their head would leave them feeling, 'half dead already'. Other respondents also provided highly emotional responses of, 'the scenario sounds terrifying' and 'I don't want to die'. We thus recognise that fearful images, evoked through the narrative of a decision scenario, can infiltrate, influence and corrupt the rational psyche, and through such infiltration, lessen the rational decision-making capacity of some neurotypical persons.

Constraints and experience

Reason can be influenced by worldly understandings (Chow, 2017; Hooker, 1994; Hooker, 1995). Based on our findings, we posit that personal understandings about risk-reward decisions can incorporate considerations of one's psychological welfare. Aligning with anti-gun cultural sentiments, one study participant was constrained by the psychological costs of actually undertaking the second scenario offer. For this individual, the possible trauma and long-term psychological impacts from playing Russian roulette (even where the odds of death are highly improbable) would have exceeded any short-term monetary gain. In line with Kant's categorial imperative rule, decision makers are compelled to consider their obligation to act in responsible ways (Boshoff et al., 2011; Rossouw et al., 2006). Personal responsibility on this occasion was represented by an overriding consideration to safeguard mental wellbeing.

Existentialism is supportive of individuality, freedom and ethical behaviour (Agarwal et al., 2000). Exercising their freedom of choice, one study participant rejected the second scenario offer on the basis of a reward deficit (i.e., the monetary incentive held no particular appeal to them). Inferred in another critical assessment of this scenario was a moral objection concerning the placement of a monetary value on human life. This example has highlighted the potential for neurotypical decision makers to struggle with offers of easy financial gain on ethical grounds.

As decision-makers, individuals have their own requirements, interests and desires (Baumann, 2018). Our study has suggested that one such need is to be well informed about the risk-reward decision in question. Two study participants felt that their decision-making capacity was constrained by a deficit of information concerning the second scenario. Specifically, these individuals who were both considering this offer, expressed a need for more details in relation to the gun's positioning and its firing status (i.e., loaded or unloaded). However, both of these particulars were explicitly stated within the scenario narrative as follows, "a gun that is aimed at the *back of your head*", and "the odds of a *bullet* being fired". Hence, based on the scenario wording, these were instances of perceived informational constraints rather than actual ones.

Pointing to the role of experience, decision making incorporates lifelong learning, problem resolution and practical knowledge (Elias et al., 1995; Welle et al., 1995). This study has recognised the important part that is played by experience in neurotypical risk-reward decision-making. Decisions are influenced not only by the experiences *as* decision makers, but also by the personal experiences *of* decision

makers. Study participants juxta-positioned flying alongside their prior experiences of safety and comfort. An argument can thus be made that the reasoned decision making of several study participants who accepted the scenario one offer was at least partially supported by their positive flying experiences. Exposure to flying was popularly mentioned among study participants. However, the same cannot be said in relation to having direct contact with firearms. Our exploratory study has raised the prospect that the risk-reward decisions as made by persons who are neurotypical and which are based on *inexperience* with the subject matter can be dismissive of opportunities for reward. For example, one respondent spoke about the gun restriction laws in Australia and how their nil exposure to firearms meant that they, "would automatically freeze and freak out and not take the risk".

Discussion

Contrasting against rational choice theory and assumed applications of rational decision-making processes, statistical analysis of our exploratory research results revealed that invoking fear can negatively impact upon the rational decision making of some neurotypical people. Addressing the third and final study aim, we will now critically discuss these findings and specifically in terms of their social justice implications for neurodivergent people. These implications are notable and span across issue-areas of legal injustice, loss of agency and control, cognitive injustice, and social exclusion.

Legal injustice

McCullough (2023) has cautioned that irrationality among people with mental distress can encourage them to be seen as unlawful and dangerous. Legal injustice follows when neurodivergent defendants have their voices silenced or their testimonies overlooked as a consequence of prejudices that position them as irrational or unreliable (Spencer et al., 2021). Defendants who are deemed irrational are then at higher risk of receiving greater blame and harsher penalties than those perceived as rational (Jeppsson, 2023). Mellifont (2023) introduced the term 'neurodivergism' to describe such experiences of discrimination against neurodivergent defendants in a contemporary legal system. As endorsed by our findings, presumptions about the greater decision-making rationality of neurotypical defendants over neurodivergent defendants in ableist legal proceedings need to be acknowledged and addressed in policy revisions and reforms.

Loss of agency and control

Assumptions that people who have unusual experiences or beliefs are irrational are frequently mistaken (Bortolotti et al., 2012; Houlders et al., 2021). Such assumed irrationality in relation to people with mental disorders serves to highlight the paternalistic side of the medical model (Hefferon, 2020). Mills et al. (2018) too has cautioned about a loss of agency and control that accompanies adults being classified as irrational, childlike, underdeveloped, or wrongly developed. In the interests of maintaining agency and control, care is therefore needed to avoid making the ableist presumption that neurodivergent people are less capable than neurotypical people of making rational decisions.

Cognitive injustice

Cognitive injustice can be experienced by people with symptoms of confusion or distress as they are perceived to be irrational, incompetent, or simply mad (Beaupert et al., 2021). 'Mad people' in turn can be feared and labelled as unpredictable and dangerous (Abelman, 2020; Beresford, 2021). Cognitive injustice therefore acts to dismiss alternative experiences of reality as mad, irrational and dysfunctional (Mills et al., 2018). We note that the construct of ideal neurotypical rationality might be popularly assumed (Rosqvist et al., 2020). Our exploratory study, however, revealed that by introducing the emotional trigger of fear into neurotypical decision making (i.e., scenario 2), a superior neurotypical rationality construct is brought into question. This contrasts against rational interpretations in decision making processes (Hardy-Vallée, 2011; Sorensen, 2004) with neurotypical participants' beliefs in the low risk of a plane crash and the high financial reward supporting their acceptance of the first scenario offer.

Social exclusion

Neurodivergent people who are unfairly deemed as irrational can be socially excluded in various ways. For example, seen as incoherent and unreasonable, they can be disqualified as knowledge makers (Rose, 2017). Within academia neurotypical colleagues can also question the academic capacity of people with mental health issues, particularly in relation to the perception of scholars as 'hyper-rational' (Merchant et al., 2020; O'Donovan, 2010, p.172). They can be excluded from certain positions, such as the UK Parliament, which barred Members with mental illness until 2013 (Poulter et al., 2019). Neurodivergent people can also have their democratic rights threatened and are often excluded from voting (European Union Agency for Fundamental Rights, 2010; Ramadhan, 2021). They tend to be seen as too irrational, unreliable or difficult to participate in political and policy activities, including the development of mental health policy (Maylea, 2023; Simmons et al., 2021). More broadly, stigma directed against people who are perceived to be deeply irrational can result in social alienation, hostility, and distrust (Flores, 2021; Grimm, 2018). Hence, serious and widespread social injustices follow commonly misplaced assumptions about neurodivergent people as 'irrational others'.

Limitations

There are four key limitations inherent within this investigative study that the authors explicitly acknowledge. First, our quantitative finding is limited to the use of the sign test and the three previously stated assumptions. In relation to the third assumption of responses of one study participant not influencing the responses of another, we note the possibility of research participants discussing the study and their responses with prospective participants. Second, it is possible that some study participants who participated in the study might be neurodivergent but have not been diagnosed as such. Third, this study is limited to perceived rather than actual behavioural responses to the two decision scenarios. Finally, constraining the generalisability of our findings, as the invitation to participate in our exploratory study was advertised on the University of Sydney webpage, it is possible that responses might be more academic in nature than what might be expected to be

received from surveys with a greater visibility to the general public. The generalisations of our study are further constrained with some sub-themes represented by only a small number of quotes (while noting that qualitative research is about what is rather than how many, with themes represented by a small number of quotes thus remaining relevant as the value of a theme remains in its capacity to explain something of importance to the research rather than the number of times it is counted) (Morgan, 2021; Morse, 2007).

4. CONCLUSION

On the basis of our experimental research, we argue that fearful images, evoked through the wording of a decision scenario, can infiltrate the rational decision-making capacity of neurotypical persons. In an attempt to explain these decisions, we contend that the risk-reward decisions of these individuals might be complicated by a broad range of issues. In addition to imagined risks that greatly exceed the actual risks as stated in a decision scenario, such matters included those of perceived information deficits, moral convictions, inexperience on the subject matter such as a lack of experience with guns, invalid assumptions, and personal responsibility for mental wellbeing. Hence, our scholarly contribution to knowledge about neurotypical decision-making highlights a need to consider emotional factors in assessments of risks and rewards. Further, our findings add depth to understanding surrounding the complex interplay between rationality and emotion in the shaping of neurotypical decisions. Acknowledging the limitations of our experimental study, further research is needed to investigate the impacts of emotions upon the risk-reward decision-making of neurotypical study subjects. We conclude with a cautionary message that the social injustice which follows any possible assumed rationality of neurotypical people, or irrationality of neurodivergent people, can be multifarious and far-reaching.

REFERENCES

Abelman, H. (2020). Cripping mad cow disease. In Disability and Animality (pp. 212-220): Routledge.

Agarwal, J., & Cruise Malloy, D. (2000). The role of existentialism in ethical business decision-making. Business ethics: a European review, 9(3), 143-154.

Anderson, D. J., & Adolphs, R. (2014). A framework for studying emotions across species. Cell, 157(1), 187-200.

Attfield, R. (1991). Making Decisions. Philosophy Now, 1, 5-8.

Battersby, M. (2020). Practical Rationality: Critical Questions for Rational Decision Making. Retrieved from https://scholar.uwindsor.ca/ossaarchive/OSSA12/Friday/16/?utm_source=scholar.uwindsor.ca%2Fossaarchive%2FOSSA12%2FFriday%2F16&utm_medium=PDF&utm_campaign=PDFCoverPages

Baumann, C. (2018). Hegel and Marx on Individuality and the Universal Good. Hegel Bulletin, 39(1), 61-81. doi:http://dx.doi.org/10.1017/hgl.2016.33

Beaupert, F., & Brosnan, L. (2021). Weaponizing absent knowledges: Countering the violence of mental health law. In The Routledge international handbook of made studies (pp. 119-131): Routledge.

Bedford, E. (1956). Emotions. Paper presented at the Proceedings of the Aristotelian Society.

Benatar, S., Daibes, I., & Tomsons, S. (2016). Inter-Philosophies Dialogue: Creating a Paradigm for Global Health Ethics. Kennedy Institute of Ethics Journal, 26(3), 323-VII.

Beresford, P. (2021). Mad Studies in a maddening world. The Routledge international handbook of mad studies, 370.

Bortolotti, L., Cox, R., Broome, M., & Mameli, M. (2012). Rationality and self-knowledge in delusions and confabulations: Implications for autonomy as self-governance. In L. Radoilska (Ed.), Autonomy and mental disorder (pp. 100-122). Oxford: Oxford Academic.

Boshoff, E., & Kotzé, M. (2011). The conceptualization and measurement of philosophical approaches that influence ethical decision making in the work context: Part 1. African Journal of Business Ethics, 5(1), 36-49.

Boudon, R. (2009). Rational choice theory. The new Blackwell companion to social theory, 179-195.

Brandom, R. (1994). Making it explicit: Reasoning, representing, and discursive commitment. Cambridge: Harvard University Press.

Brandom, R. (2009). Articulating reasons: An introduction to inferentialism. Cambridge: Harvard University Press.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative research in psychology, 3(2), 77-101.

Broad, C. D. (1954). Emotion and sentiment. The Journal of Aesthetics and Art Criticism, 13(2), 203-214.

Chow, S. J. (2017). How reason confronts experience: on naturalist accounts of reason. Mind & Society, 16(1-2), 51-80. doi:http://dx.doi.org/10.1007/s11299-016-0191-6

Commendador, K. A. (2003). Concept analysis of adolescent decision making and contraception. Paper presented at the Nursing Forum.

Cutler, E. S. (2019). Listening to those with lived experience. Critical psychiatry: Controversies and clinical implications, 179-206.

Dalis, G. T., & Strasser, B. B. (1977). Teaching Strategies for Values Awareness and Decision Making in Health Education. New Jersey: CB Slack.

Elias, J. L., & Merriam, S. B. (1995). Philosophical foundations of adult education. Malabar: Krieger publishing.

European Union Agency for Fundamental Rights. (2010). The right to political participation of persons with mental health problems and persons with intellectual disabilities. In: Wien Austria.

Farmer, G. D., Baron-Cohen, S., & Skylark, W. J. (2017). People with autism spectrum conditions make more consistent decisions. Psychological science, 28(8), 1067-1076.

Flores, C. (2021). Changing Minds With Style. Retrieved from https://static1.squarespace.com/static/5c17834dc258b4dac072be23/t/6078c016f529523d4c01f32a/1618526230360/Flores_ChangingMindsStyle.pdf

Forbes, P. A., Chaliani, I., Schilbach, L., & Kalenscher, T. (2024). Autistic adults show enhanced generosity to socially distant others. Autism, 28(4), 999-1009.

Gendler, T. S. (2007). Philosophical thought experiments, intuitions, and cognitive equilibrium. Midwest studies in philosophy, 31, 68-89.

Grimm, S. R. (2018). Understanding as an intellectual virtue. In H. Battaly (Ed.), The Routledge handbook of virtue epistemology (pp. 340-351): Routledge.

Guala, F., & Hodgson, T. (2010). The philosopher in the scanner (or: how can neuroscience contribute to social philosophy?). Journal of Economic Methodology, 17(2), 147-157.

Hansen, R. S. (1992). A multidimensional scale for measuring business ethics: A purification and refinement. Journal of Business Ethics, 11(7), 523-534.

Hardy-Vallée, B. (2011). Decision-making in robotics and psychology: A distributed account. New Ideas in Psychology, 29(3), 203-216.

Hardy-Vallée, B. (2007). Decision-Making: A Neuroeconomic Perspective. Philosophy Compass, 2(6), 939-953.

Harper, P. T. (2019). The Symbolic Imagination: Plato and Contemporary Business Ethics: JBE. Journal of Business Ethics, 1-17. doi:http://dx.doi.org/10.1007/s10551-019-04244-2

Hefferon, K. A. (2020). Recognising Autistic women: A minority within a minority. The University of Waikato, Hamilton.

Hooker, C. A. (1994). Idealisation, naturalism, and rationality: Some lessons from minimal rationality. Synthese, 99(2), 181-231.

Hooker, C. A. (1995). Reason, regulation, and realism: Towards a regulatory systems theory of reason and evolutionary epistemology. New York: Suny Press.

Houlders, J. W., Bortolotti, L., & Broome, M. R. (2021). Threats to epistemic agency in young people with unusual experiences and beliefs. Synthese, 199(3-4), 7689-7704.

Jefferson, A., & Sifferd, K. (2022). Practical wisdom and the value of cognitive diversity. Royal Institute of Philosophy Supplements, 92, 149-166.

Jenni, N. L., Rutledge, G., & Floresco, S. B. (2022). Distinct medial orbitofrontal–striatal circuits support dissociable component processes of risk/reward decision-making. Journal of Neuroscience, 42(13), 2743-2755.

Jeppsson, S. (2023). Exemption, Self-Exemption, and Compassionate Self-Excuse. International Mad Studies Journal, 1(1), e1-21.

Knobe, J., Buckwalter, W., Nichols, S., Robbins, P., Sarkissian, H., & Sommers, T. (2012). Experimental philosophy. Annual review of psychology, 63, 81-99.

Laerd-Statistics. (2018). Sign test using SPSS statistics. Retrieved from https://statistics.laerd.com/spss-tutorials/sign-test-using-spss-statistics.php

LeBon, T., & Arnaud, D. (2004). Progress towards wise decision making. Philosophy of Management, 4(2), 53-72.

Markič, O. (2009). Rationality and emotions in decision making. Interdisciplinary Description of Complex Systems: INDECS, 7(2), 54-64.

Maylea, C. (2023). Mad hats. A reflection on mad leadership. International Mad Studies Journal, 1(1), e1-9.

McCullough, G. J. (2023). Anton Boisen Reconsidered: Psychiatric Survivor and Mad Prophet. Journal of Religion and Health, 62(1), 228-254.

McLaren, K. R. (2014). Interrogating normal: Autism social skills training at the margins of a social fiction. Retrieved from https://scholarworks.calstate.edu/downloads/2n49t244n

Mellifont, D. (2023). A Rapid Review Informing About The Discrimination As Experienced By Neurodivergent Defendants. Journal of Humanity and Social Justice, 5(1), 1-15.

Merchant, W., Read, S., D'Evelyn, S., Miles, C., & Williams, V. (2020). The insider view: Tackling disabling practices in higher education institutions. Higher Education, 80, 273-287.

Mills, C., & Lefrançois, B. A. (2018). Child as metaphor: Colonialism, psy-governance, and epistemicide. World Futures, 74(7-8), 503-524.

Morgan, D. (2021). Re: Thematic analysis: Qualitative data writing up and quotes from the interviewees. is the approach below acceptable? Retrieved from https://www.researchgate.net/post/Thematic_ analysis_Qualitative_data_ writing_up_and_quotes_from_the_interviewees_is_the_approach_below_acceptable/ 60523af9b87cdc44712b68ca/citation/download

Morse, J. M. (2007). Qualitative researchers don't count. In (Vol. 17, pp. 287-287): Sage Publications Sage CA: Thousand Oaks, CA.

Murphy, B. (2018). Neurodivergent women in'clouded judgment'unconscionability cases: An intersectional feminist perspective. The Adelaide law review, 39(1), 37-64.

Nadelhoffer, T., & Nahmias, E. (2007). The past and future of experimental philosophy. Philosophical Explorations, 10(2), 123-149.

Nietzsche, F. W. (1967). The will to power. Retrieved from https://ia803205.us.archive.org/27/items/FriedrichNietzscheTheWillToPower/Friedrich%20Nietzsche%20-%20The%20Will%20to%20Power.pdf

Nutt, P. C. (2003). Why decisions fail: Avoiding the blunders and traps that lead to debacles. In. New York: Academy of Management Briarcliff Manor.

O'Donovan, M. M. (2010). Cognitive diversity in the global academy: Why the voices of persons with cognitive disabilities are vital to intellectual diversity. Journal of Academic Ethics, 8, 171-185.

Poulter, D., Votruba, N., Bakolis, I., Debell, F., Das-Munshi, J., & Thornicroft, G. (2019). Mental health of UK Members of Parliament in the House of Commons: a cross-sectional survey. BMJ Open, 9(7), e027892.

Pulrang, A. (2022). The many flavors of disability bullying. Retrieved from https://www.forbes.com/sites/andrewpulrang/2022/03/25/the-many-flavors-of-disability-bullying/?sh=2850a0d232a2

Ramadhan, D. A. (2021). The limitation of voting rights for people with permanent mental disabilities in Indonesia: a debate between reasonable and unreasonable rights. Cogent Social Sciences, 7(1), 1932032.

Reidenbach, R. E., & Robin, D. P. (1990). Toward the development of a multidimensional scale for improving evaluations of business ethics. Journal of Business Ethics, 9(8), 639-653.

Rose, D. (2017). Service user/survivor-led research in mental health: epistemological possibilities. Disability & Society, 32(6), 773-789.

Rosqvist, H. B., Chown, N., & Stenning, A. (2020). Neurodiversity studies: A new critical paradigm: Routledge.

Rossouw, D., & Van Vuuren, L. (2006). Business Ethics Cape Town: Oxford University Press.

Scarantino, A., & De Sousa, R. (2018). Emotion.

Scott, D. (2002). Social Competence Electronic Version. Evaluating the National Outcomes, Program Outcomes, for Youth. Social Competency. Retrieved February, 10, 2012.

Scott, J. (2000). Rational choice theory. Understanding contemporary society: Theories of the present, 129, 126-138.

Shah, P., Catmur, C., & Bird, G. (2016). Emotional decision-making in autism spectrum disorder: the roles of interoception and alexithymia. Molecular autism, 7, 1-10.

Simmons, W. P., Boynton, J., & Landman, T. (2021). Facilitated communication, neurodiversity, and human rights. Human Rights Quarterly, 43(1), 138-167.

Somerville, M. A. (1998). Making health, not war--musings on global disparities in health and human rights: a critical commentary by Solomon R. Benatar. American journal of public health, 88(2), 301-303.

Sorensen, R. (2004). Charity Implies Meta-Charity. Philosophy and Phenomenological Research, 68(2), 290-315.

Spencer, L., & Carel, H. (2021). 'Isn't Everyone a Little OCD?'The Epistemic Harms of Wrongful Depathologization. Philosophy of Medicine, 2(1), 1-18.

Tezcan, I. M. Autism Beyond Defcits: Embracing Neurodiversity in Research.

Thagard, P. (2009). Why cognitive science needs philosophy and vice versa. Topics in Cognitive Science, 1(2), 237-254.

van der Plas, E., Mason, D., & Happé, F. (2023). Decision-making in autism: A narrative review. Autism, 27(6), 1532-1546.

Walker, N. (2014). Neurodiversity: Some basic terms & definitions. Retrieved from https://neurocosmopolitanism.com/neurodiversity-some-basic-terms-definitions/

Welle, H. M., Russell, R. D., & Kittleson, M. J. (1995). Philosophical trends in health education: Implications for the 21st century. Journal of Health Education, 26(6), 326-332.

Wong, A. Y., Bryck, R. L., Baker, R. S., Hutt, S., & Mills, C. (2023). Using a Webcam Based Eye-tracker to Understand Students' Thought Patterns and Reading Behaviors in Neurodivergent Classrooms. Paper presented at the LAK23: 13th International Learning Analytics and Knowledge Conference.

Yannoulidis, S. T. (2003). Mental illness, rationality, and criminal responsibility.(Tropes of insanity and related defences). Sydney Law Review, 25(2), 189-221.

Zisk, A. H. (2019). Pulling the Rug Out From Under (Neuro) Divergence in the Divergent Universe. Critical Disability Discourses, 9.