פוסטרים 2020-2021

המחלקה לפסיכולוגיה

Department of Psychology

אוניברסיטת בן-גוריון בנגב

Ben-Gurion University of the Negev

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Non-symbolic comparison tasks review: Different lenses=Different methods

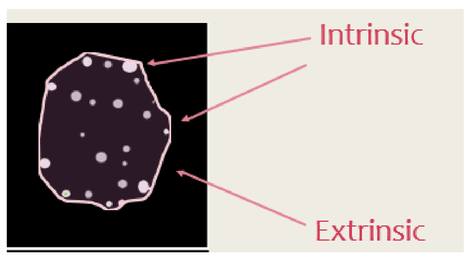
Adi Gabzu, Avishai Henik, Moti Salti and Yoel Shilat

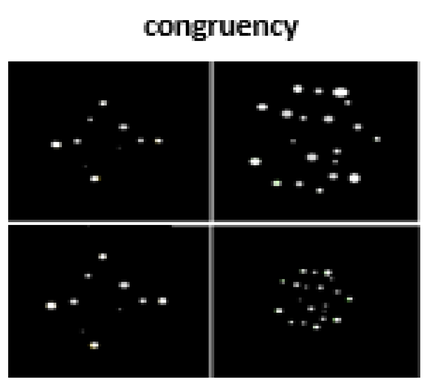
ABSTRACT

Research is not carried out in a vacuum but is influenced by the researcher's point of view. On the relationship between the researcher's point of view and the method he uses to research, Heidegger, an influential German philosopher, wrote that the question asked to investigate the phenomena is outlining the method and influencing the results and conclusions. According to this claim, in the current study, we examined what question is asked by each of two main approaches in the field of numerical cognition- Number sense and Magnitude sense. We reviewed the field and focused on experimental methods for numerical comparison tasks and the creation of their stimulus. We examined whether the researchers' theoretical approach would outline the way they produce their method, and therefore lead to different results.

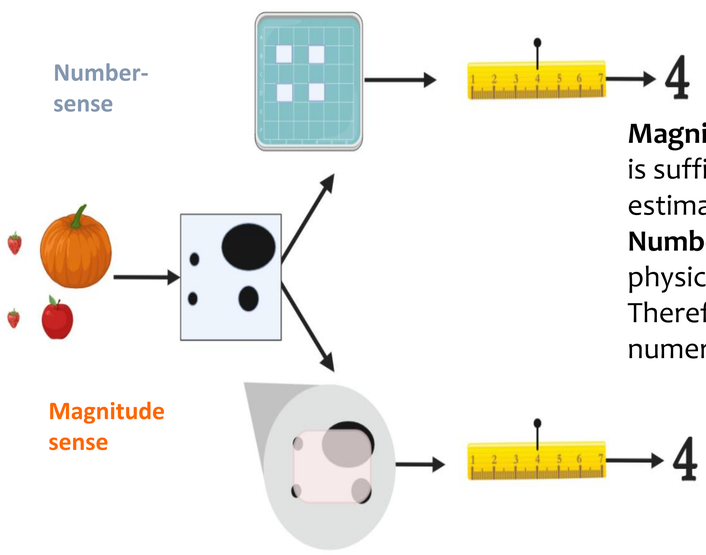
INTRODUTION

Classification of non-symbolic comparison task and its stimuli





Two main approaches in the field of numerical cognition



Magnitude Sense-numerosity alone is sufficient to give a numerical estimation

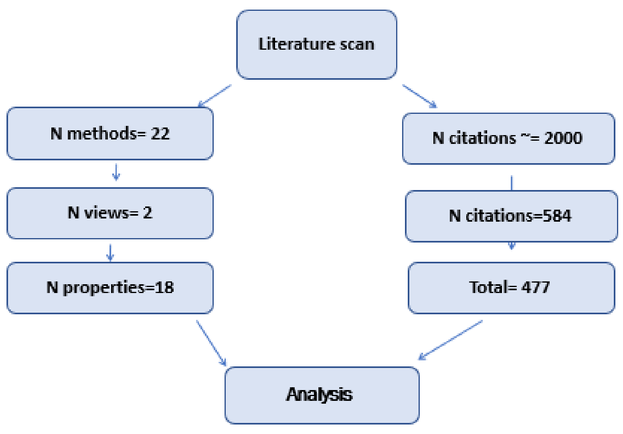
Number Sense-The numerosity and physical properties are inseparable. Therefore, they are used together for numerical

METHODS

We reviewed the literature and then continued our examination on two paths: a theoretic path and a database path:

Theoretical - we identified 22 methods for creating non-symbolic comparison tasks. Within these 22 methods, we identified 2 different approaches: Number sense and magnitude sense. further, we identified a total of 18 physical properties that were used (such as dot size, density etc.)

Database- we identified additional studies that used these specific methods. We did this with the help of Semantic Scholar - an artificial intelligence system that analyzes the semantic similarity between articles and locates all the citations of a given study. We found more than 2000 articles. further, we filtered articles that did not cite the given article in their method and reached 584 articles. Finally, after removing duplicates, we got 477 articles that made up our sample. Finally, we analyzed the data



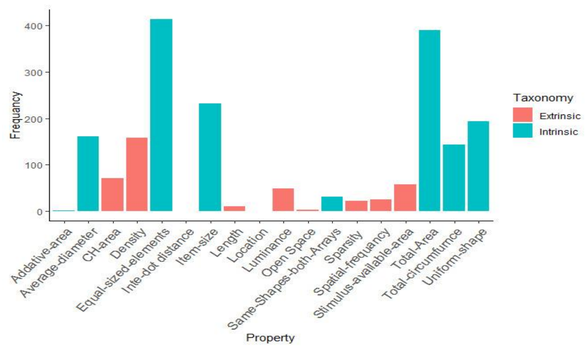
taxonomy - we created a table that sorts out the physical properties that each method controlled for. We then Indicate for each method whether the property is controlled whether intrinsic or extrinsic, and whether it was controlled indirectly - that is, whether there was a reference to a change in physical property that was affected by control of other physical properties. We also identified the congruency method that some of the methods performed.

PREDICTIONS

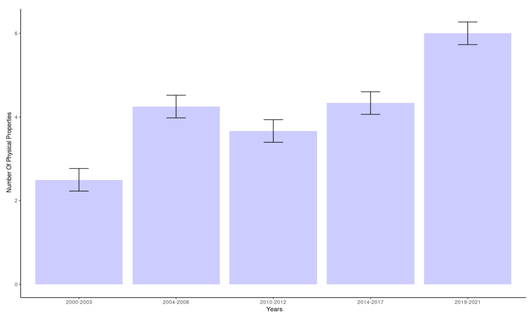
1. The Number Sense approach would use less congruency method than the Magnitude approach.
2. Over the years, the Magnitude approach will control more physical properties than the number sense approach.
3. The Magnitude approach will control more extrinsic physical properties than the Number sense approach.
4. The Magnitude sense approach will indirectly control more physical properties than the Number Sense approach

RESULTS

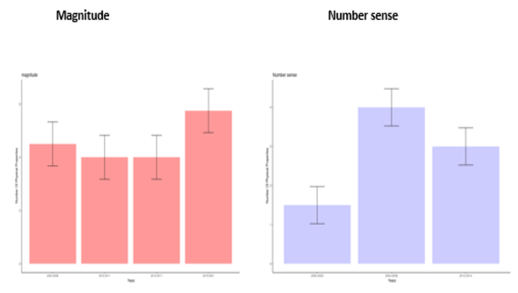
The distribution of articles that controlled different properties, with a division of property type (according to the type of information it represents - intrinsic/extrinsic).



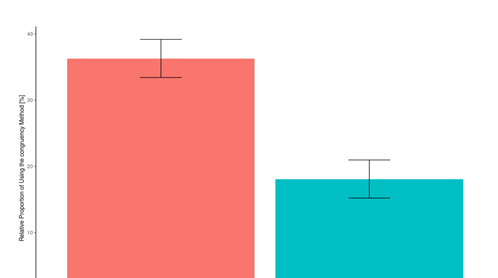
The number of physical properties that have been controlled (through all approaches) over the years



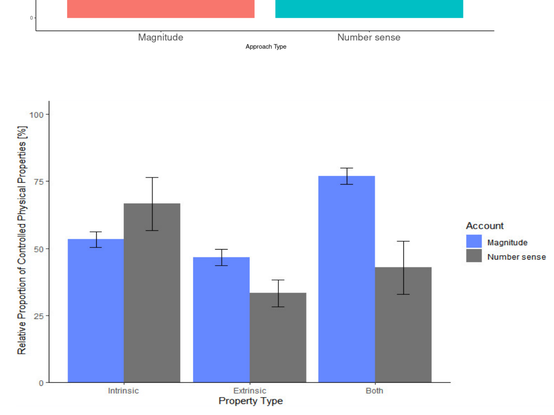
The number of physical properties that have been controlled over the years, by division into the Numɜer Sense and Magnitude Sense approaches.



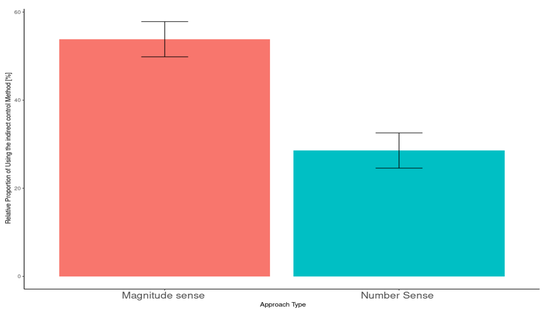
The relative proportion of using the congruency method, with the division to approach type- Number Sense and Magnitude Sense



The relative use of intrinsic and extrinsic physical properties, between the Number Sense and Magnitude Sense approaches



The relative proportion of using the indirect-control method, with the division to approach type- Number Sense and Magnitude Sense



DISCUSSION

- 1. We found that the Magnitude Sense approach uses more of the congruent method, than the Number sense approach.
- 2. A. We found that there was a trend of increase over the years in the number of physical properties controlled, in the magnitude sense approach.
- B. We did not find a steady trend in the number of physical properties controlled in the Number Sense approach.
- 3. We found that the Magnitude sense approach controlled more extrinsic properties than the Number Sense approach.
- 4. We found that the Magnitude Sense approach controlled more than twice indirect physical properties than the Number Sense approach

Conclusions: In the present study, from the results we found, it can be concluded that the researchers' approach outlined the method they used .

The relationship between child's emotional empathy and later behavior problems as moderated by parent's emotion talk during COVID-19

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Introduction

- The COVID-19 pandemic led to prolonged lockdowns, which in turn increased the importance of parent-child interactions. [1] It also had several adverse impacts on mental health. The closure of schools, resulting in the decrease of in-person contact with classmates, friends, and teachers, caused behavior problems such as stress and anxiety in children. [2]
- **Behavior problems** can be divided into two sorts: internalizing problems (emotional reactivity difficulties, anxiety, depression, and social withdrawal), and externalizing problems (conflicts with others such as attention problems and aggressive behavior). [3]
- Child behavior problems are associated with empathy[4], which is a complex other-focused ability that consists of two components - cognitive and emotional. **Emotional empathy (EE)** is the ability to share the emotions of another, while maintaining a self-other distinction. [5]
- Child behavior problems have a stronger association with emotional empathy than with cognitive empathy. Specifically, higher emotional empathy functions as a "risky strength" and is related to greater behavior problems. This may be due to increased personal distress, greater avoidance of other's negative emotions, or excessive caring for others. [4]
- An important factor in parent-child interaction that is related to both empathy and behavior problems is **Parental emotion talk**, which occurs when the parent refers to emotions while interacting with the child. [6]
- Parental emotion talk has a major role in the child's emotional understanding and regulation of negative emotional arousal. [7]
- In addition, higher rates of parental emotion talk predicts less child behavior problems. [8]
- The role of emotion talk as a moderator of the link between child empathy and child behavior problems has not been studied.
- Therefore, the current longitudinal study examined the relationship between child empathy and later internalizing and externalizing problems during COVID-19, and how these relationships were moderated by parental emotion talk.

Research Hypotheses

- The relationship between child EE and later internalizing and externalizing problems during COVID-19 period will be moderated by parental emotion talk. When there is less use of emotion talk, there will be a more positive relationship between EE and child behavior problems.

Methods

- The participants included children aged 2-5 along with one of their parents (N=53, Mage=3.5 at Time1 ;N=40, Mage=4.8 at Time2). Time1 was conducted in the lab before COVID-19, while Time2 was conducted online using Qualtrics during the second wave of the COVID-19 pandemic in Israel throughout the months of June and July 2020.
- Child emotional empathy was examined by an empathic concern measure through a simulation of another's distress at Time1.
- Internalizing and externalizing problems were measured by parental report through the CBCL questionnaire at Time2.
- Emotion talk was examined by a parent's story telling task at Time1 and was defined as the ratio of the number of emotional words used out of the total number of words used.

Results

Model Summary: R = .5380, P = .0047

	Coeff (b)	P-value
Empathic concern	-.1799	.9207
Emotion talk	-24.3296	.1913
Interaction	-70.8998	.0150
Internalizing problems in time 1	.7052	.0175

Table 1: The relationship between empathic concern and internalizing problems, moderated by parental emotion talk. The model and the interaction are significant, but no main effects were found.

Model Summary: R = .5975, P = .0007

	Coeff (b)	P-value
Empathic concern	.4309	.7744
Emotion talk	-17.1510	.2653
Interaction	-43.6982	.0651
Externalizing problems in time 1	.7542	<.001

Table 2: The relationship between empathic concern and externalizing problems, moderated by parental emotion talk. Neither the interaction nor the main effects are significant.

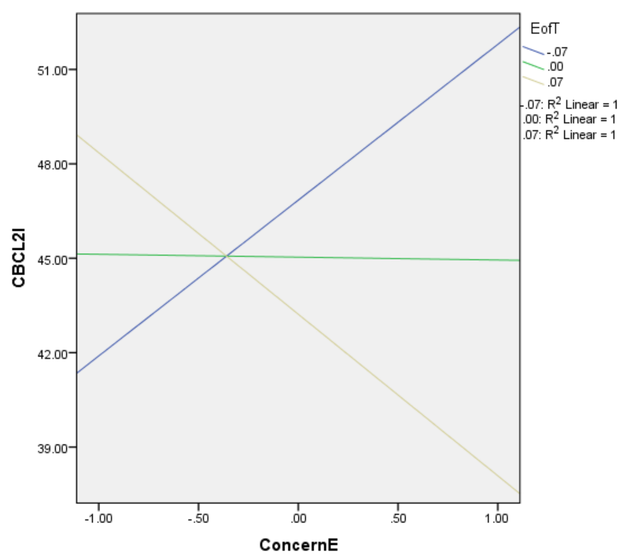

Figure 1: In the low rates of parental emotion talk group, (-1 SD) the correlation between empathic concern and internalizing problems is significantly positive. In high rates of parental emotion talk group , (+1 SD) the correlation between empathic concern and internalizing problems is significantly negative.

Conditional effect of the predictor (Empathic concern) at values of the moderator (emotion language):

Emotion talk	Effect	p-value
-0.1312	9.3437	0.0381
-0.1172	8.3371	0.0436
-0.1055	7.4951	0.05
-0.1032	7.3305	0.0515
-0.0892	6.3239	0.0636
-0.0752	5.3173	0.083
-0.0612	4.3107	0.1164
-0.0472	3.3042	0.1775
-0.0332	2.2976	0.2948
-0.0192	1.291	0.5162
-0.0052	0.2844	0.8781
0.0088	-0.7222	0.6892
0.0228	-1.7288	0.3501
0.0368	-2.7354	0.1674
0.0508	-3.7419	0.0865
0.0648	-4.7485	0.0515
0.0657	-4.8156	0.05
0.0788	-5.7551	0.0352
0.0928	-6.7617	0.0268
0.1068	-7.7683	0.0221
0.1208	-8.7749	0.0192
0.1348	-9.7815	0.0174
0.1488	-10.788	0.0162

Table 3: Johnson Neyman test shows that in the low rates of parental emotion talk, the correlation between empathic concern and internalizing problems is significantly positive, and in the high rates of parental emotion talk, the correlation is significantly negative.

Discussion and conclusions

- A significant interaction was found between parental emotion talk and child empathic concern for internalizing problems. This relationship was not found for externalizing problems.
- As the findings suggest, empathic concern can be a strength and acts as a protective factor in the context of favorable family environment. It may be that children who have parents that use emotion talk more frequently, are able to maintain a better self-other distinction and hence are more protected from developing internalizing problems; however, in the context of adverse family environment, empathic concern might become a "risky strength". Empathic children to parents that use less emotional words might have impaired emotional regulation and experience "empathic personal distress" which in turn leads to greater internalizing symptoms such as stress and anxiety. [9]
- The non-significant interaction of empathic concern and externalizing problems might be explained by methodological reasons such as the small sample size, and therefore it is recommended to replicate this study with a larger sample size. Another possible theoretical explanation can be understood by a recent study showing that although a positive relationship exists between empathy and externalizing problems, over time, empathy can also act as a protective factor against greater externalizing problems. [10] Thus, this may explain the lack of moderation effect of parental emotion talk to the interaction since empathy is already a protective factor.

References

1. Uzun, H., Karaca, Nezahat H., & Metin, Ş. (2021). Assesment of parent-child relationship in Covid-19 pandemic. *Children and Youth Services Review*, *120*, 105748.
2. Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., McIntyre, Roger S., Choo, Faith N., Tran, B., Ho, R., Sharma, Vijay K., & Ho, C. (2020). A longitudinal study on the mental health of general population during the COVID-19 epidemic in China. *Brain, Behavior, and Immunity*, *87*, 40–48.
3. Kristensen, S., Henriksen, Tine B., & Bilenberg, N. (2010). The Child Behavior Checklist for Ages 1.5-5 (CBCL/1½-5): Assessment and analysis of parent- and caregiver-reported problems in a population-based sample of Danish preschool children. *Nordic Journal of Psychiatry*, *64*(3), 203–209.
4. Gambin, M., & Sharp, C. (2016). The Differential Relations Between Empathy and Internalizing and Externalizing Symptoms in Inpatient Adolescents. *Child Psychiatry Hum Dev 47*, 966–974.
5. Uzefovsky, F., & Knafo-Noam, A. (2016). Empathy development throughout the life span. *Social Cognition*, 89–115. Routledge.
6. Eisenberg, N., Losoya, S., Fabes, R. A., Guthrie, I. K., Reiser, M., Murphy, B., Shepard, S. A., Poulin, R., & Padgett, S. J. (2001). Parental Socialization of Children's Dysregulated Expression of Emotion and Externalizing Problems. *Journal of Family Psychology*, *15*(2), 183–205.
7. Eisenberg, N., Cumberland, A., & Spinrad, T. L. (1998). Parental socialization of emotion. *Psychological inquiry, 9*(4), 241–273.
8. Eisenberg, N., Cumberland, A., Spinrad, T. L., Fabes, R. A., Shepard, S. A., Reiser, M., ... & Guthrie, I. K. (2001). The relations of regulation and emotionality to children's externalizing and internalizing problem behavior. *Child development, 72*(4), 1112–1134.
9. Tone, Erin B., & Tully, Erin C. (2014). Empathy as a "risky strength": A multilevel examination of empathy and risk for internalizing disorders. *Development and Psychopathology*, *26*(4pt2), 1547–1565.
10. Paz, Y., Orlitsky, T., Roth-Hanania, R., Zahn-Waxler, C., & Davidov, M. (2021). Predicting externalizing behavior in toddlerhood from early individual differences in empathy. *Journal of Child Psychology and Psychiatry*, *62*(1), 66–74.

Acknowledgments

Interdisciplinary research foundation, Ben Gurion University

Zlotowski center for neuroscience, Ben Gurion University

Manifestation of empathic disequilibrium in autism, depression and schizophrenia:

Two studies in clinical and non-clinical populations

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Introduction

Empathy is the ability to understand another's emotions and be affected by them appropriately, while maintaining a self-other distinction[1]. It includes two different components - cognitive empathy and emotional empathy[2]. Emotional empathy (EE) is the ability to respond to another's mental states with an appropriate emotion, while cognitive empathy (CE) is the ability to recognize what another person is feeling. CE and EE depend on distinct neural and developmental trajectories[3], and can influence, balance, and regulate each other[4]. Different studies aimed to explore the connection between empathy and various psychopathologies. The results showed mixed effects and correlations of opposite directions between Autism Spectrum Conditions (ASC), schizophrenia (SCZ) and depression with EE and CE, leaving open questions regarding the influence of each component[5,6,7]. In an attempt to resolve this inconsistency, a previous study suggested a novel approach of studying empathy by looking at the imbalance between EE and CE, called empathic disequilibrium (ED)[8]. ED was created as an attempt to focus on the disparity between EE and CE rather than each component separately and test its relation to psychopathology. Our research aimed to further test this approach, and investigate whether ED correlates with autistic traits, depression, and SCZ beyond total empathy measures. We conducted two studies, one regarding ASC and depression using a non- clinical population (Study 1), and second regarding SCZ using a clinical population (Study 2).

Methods

Study 1

- 433 neurotypical adults (72.5% females; mean age 29.3 ± 10.9) participated in the experiment.
- Empathy and its two separate components (EE and CE) were measured using the Interpersonal Reactivity Index (IRI)[9], autistic traits using the Autism-Spectrum Quotient (AQ)[10], and depression using a subscale of the Brief Symptoms Inventory (BSI)[11]. See descriptives in **Table 1**.
- ED was calculated by subtracting subject's standardized CE score from their standardized EE score, representing individuals' relative differences between CE and EE.
- We examined whether ED uniquely contributes to the prediction of autistic traits and depression controlling for total empathy. Age and sex were used as covariates.
- We then divided the subjects to three groups based on ± 0.5 S.D. from the mean, creating an EE-dominance (higher EE than CE), CE-dominance (higher CE than EE) and balanced groups.

Table 1. Descriptive statistics - measures of empathy components, autism-related traits and depressive symptoms.

Measure	MEAN (SD)
Interpersonal Reactivity Index (IRI)	68.15 (11.49)
EE	32.8 (6.15)
CE	35.7 (6.91)
ED	0 (1.06)
Autism-Spectrum Quotient (AQ)	60.98 (18.8)
Depression (BSI)	1.58 (1.06)

Study 2

To test whether ED is related to schizophrenia, we reanalyzed a sample previously published by Smith et al. (2014)[12].

- 40 neurotypical adults and 65 patients suffering from SCZ took part in the experiment.
- Empathy, EE, and CE were measured using the IRI[9], positive symptoms using the Scale for the Assessment of Positive Symptoms (SAPS)[13] and negative symptoms using the Scale for the Assessment of Negative Symptoms (SANS)[14]. See descriptives in **Table 2**.
- ED was measured using the same method described in study 1.
- We examined whether ED uniquely contributes to the prediction of SCZ symptoms controlling for total empathy. Age and sex were used as covariates.

Table 2. Descriptive statistics - measures of empathy components and SCZ traits.

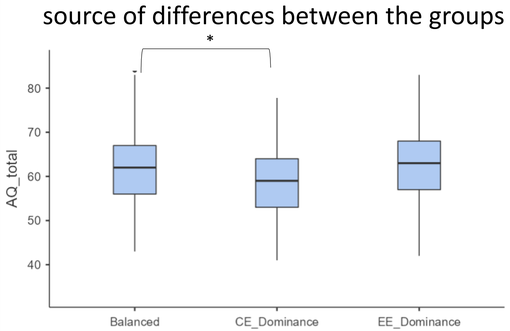
Measure	SCZ	Neurotypicals
EE	32.36 (7.38)	30.2 (5.81)
CE	31.5 (7.82)	37.2 (9.13)
ED	-0.906 (1.09)	0 (1.17)
Age	35.35 (9.06)	33.07 (8.86)
Gender (female %)	53.33%	63.33%
SANS	8.09 (7.61)	
SAPS	5.54 (6.46)	

Results

Study 1

Autism

- **ED** was correlated with AQ score (β = -0.259, p < .001). Total IRI score failed to predict AQ (β = -0.045, p = 0.406).
- ANCOVA analysis of the groups found that at least one of the groups was significantly different (F = 10.277, p < .001).
- Further analysis were conducted aiming to investigate the source of differences between the groups (See **Figure 1**).



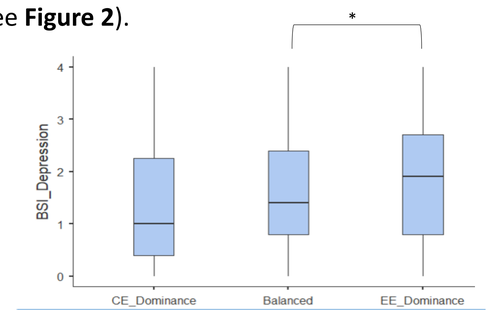
Comparison	Estimate	SE	t	p
CE_Dominance -Balanced	- 1.121	0.510	- 2.198	0.029
EE_Dominance -Balanced	- 0.221	0.516	- 0.428	0.669

Figure 1. Group analysis of ED - AQ

- In further analysis of the AQ scale **Imagination** (p = 0.03, b = 0.84), the contrast comparing EE and Balanced was significant.

Depression

- **ED** was correlated with BSI score (β = -0.121, p = 0.008). Total IRI also was correlated to BSI (β = 0.304, p < .001).
- ANCOVA analysis of the groups found that at least one of the groups was significantly different (F = 3.59, p = 0.028).
- Further analysis of contrasts were conducted aiming to investigate the source of differences between the groups (See **Figure 2**).



Comparison	Estimate	SE	t	p
CE_Dominance- Balanced	0.002	0.118	0.02	0.981
Balanced- EE_Dominance	- 0.286	0.118	- 2.43	0.015

Figure 2. Group analysis of ED - BSI

Study 2

Schizophrenia

- ANCOVA analysis revealed a significant difference between SCZ patients and neurotypicals (F = 18.47, p < .001) (See **Figure 3**)

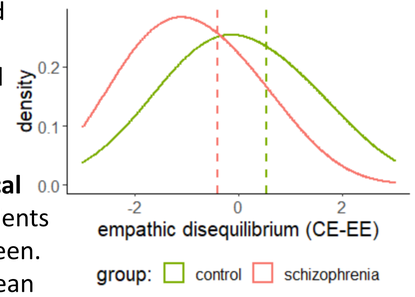


Figure 3. ED in neurotypical and SCZ subjects. SCZ patients in red, neurotypicals in green. Dashed lines represent mean of each group.

- No correlation was found between ED and SCZ negative (β = -0.064, p = 0.63) or positive (β = -0.043, p = 0.73) severity symptoms scores.
- However, ED was correlated with the Avolition/Apathy subscale of the SANS (β = 0.271, p = 0.03. See **Figure 4**).

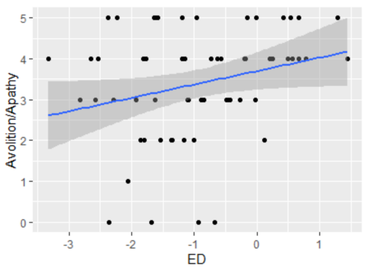


Figure 4. Linear regression of Apathy subscale

Conclusions

Our study found that ED, the imbalance between cognitive empathy and emotional empathy, serves as an indicator for different psychopathologies. It was found that ED is mostly displayed in subjects with higher EE than CE and most of the influence was expressed through social aspects of the he different psychopathologies. This way, ED can help us understand the characteristics of certain clinical conditions and can promote treatment. Future studies can investigate the relation with several other mental disorders, and study whether causation exists.

References

1. Decety, Jean. (2010). The Neurodevelopment of Empathy in Humans. *Developmental Neuroscience, 32*(4), 257–267.
2. Decety, Jean, & Yoder, Keith J. (2016). Empathy and motivation for justice: Cognitive empathy and concern, but not emotional empathy, predict sensitivity to injustice for others. *Social Neuroscience, 11*(1), 1–14
3. Uzefovsky, F., & Knafo-Noam, A. (2016). Empathy development throughout the life span. In *Social Cognition* (pp. 89-115). Routledge.
4. Preckel, K., Kanske, P., & Singer, T. (2018). On the interaction of social affect and cognition: empathy, compassion and theory of mind. *Current Opinion in Behavioral Sciences, 19*, 1-6.
5. Decety, J., & Moriguchi, Y. (2007). The empathic brain and its dysfunction in psychiatric populations: Implications for intervention across different clinical conditions. *BioPsychoSocial medicine*, *1*(1), 1-21.
6. Bennik, E. C., Jeronimus, B. F., & Aan het Rot, M. (2019). The relation between empathy and depressive symptoms in a Dutch population sample. *Journal of Affective Disorders*, 242, 48-51.
7. Schreiter, S., Pijnenborg, G. H. M., & Aan het Rot, M. (2013). Empathy in adults with clinical or subclinical depressive symptoms. *Journal of Affective Disorders, 150*(1), 1-16.
8. Shalev, I., & Uzefovsky, F. (2020). Empathic disequilibrium in two different measures of empathy predicts autism traits in neurotypical population. *Molecular autism*, *11*(1), 1-13.
9. Davis, M. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalogue of Selected Documents in Psychology, 10*.
10. Baron-Cohen, S., Wheelwright, S., Skinner, R., Martin, J., & Clubley, E. (2001). The autism-spectrum quotient (AQ): Evidence from asperger syndrome/high-functioning autism, males and females, scientists and mathematicians. *J Autism Dev Disord, 31*(1), 5-17.
11. Derogatis, L. R. (1975). Brief Symptom Inventory (Baltimore, Clinical Psychometric Research). *Psychopathology*, *27*(1-2), 14-18.
12. Smith, M. J., Horan, W. P., Cobia, D. J., Karpouzian, T. M., Fox, J. M., Reilly, J. L., & Breiter, H. C. (2014). Performance-based empathy mediates the influence of working memory on social competence in schizophrenia. *Schizophrenia bulletin, 40(4)*, 824-834.
13. Andreasen, N. C. (1984). The scale for the assessment of negative symptoms (SANS). *Rinsho Seishin Igaku*, 13, 999-1010.
14. Andreasen, N. C. (1984). *Scale for the assessment of positive symptoms (SAPS)*. Iowa City: University of Iowa.

Toddlers Empathy and Autism

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- **Empathy** is an affective response to the emotional displays of others that develops over infancy and toddlerhood along with other important aspects of social engagement and social understanding.[1]
- **Cognitive empathy** is the ability to understand and predict the behavior of others in terms of attributed mental states, particularly epistemic mental states. **Emotional empathy** is an emotional response in an individual that stems from and parallels the emotional state of another individual. [2]
- **The Q-CHAT-10** seems to be one of the most promising ASD screener, it has moved ASD assessment from a categorical approach to a dimensional one. [3]
- **Autism** is a lifelong disorder diagnosed in children who display a particular pattern of behavioral characteristics. For example, children with ASD compared to typically developing children are less socially connected to others. [1,2]
- Children with ASD shows limited social engagement and awareness of other people's feelings, and thus are less likely to respond to another person's distress with concern than typically developing children.[1]
- people with autism don't have a general empathy deficit. According to the empathy imbalance hypothesis, People with autism tend to have low CE ability but high EE sensitivity. [2]
- children who were later diagnosed with an ASD showed less empathy to their parent's distress than children with no later diagnosis. Moreover, no difference between children with and without a later ASD diagnosis in prosocial behavior. toddlers as young as 18 months can help adults instrumentally, and that the propensity to respond pro-socially grows significantly between 18 and 30 months of age. [4,5]

Hypotheses

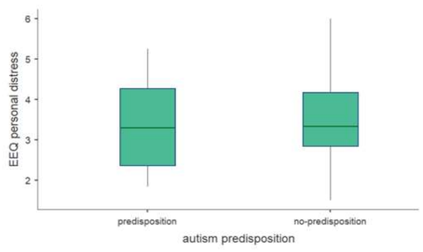
1. Negative correlation between Inquiring Empathy Behavior and Predisposition to Autism.
2. No association between Prosocial Behavior and Personal Distress with Predisposition to Autism.

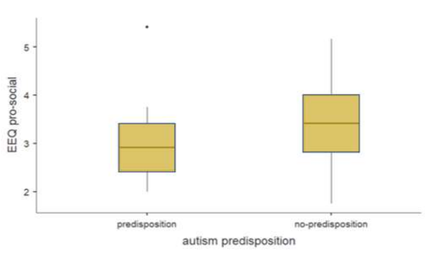
Methods

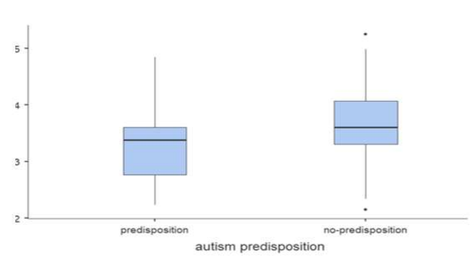
- **Participants:** 131 mothers with their 10-18-month-old toddlers. 73 boys, 58 girls.
- **Q-Chat-10** (Quantitative Checklist for Autism in Toddlers): provides **Screening of Autism** in toddlers.
- **EEQ:** examines toddlers **Empathy**. The questionnaire is divided into three parts and provides a scale results of **Inquiring Behavior**, **Prosocial Behavior** and **Personal Distress** of the toddlers.

Results

- independent samples T-tests were used to determine whether there is a significant difference between the EEQ scores of children with Autism pre-disposition to those with no pre-disposition
- A significant difference was in the EEQ – inquiry behavior scores (p=0.027, m = 3.71 , sd = 0.879, m = 4.07 , sd = 0.530).



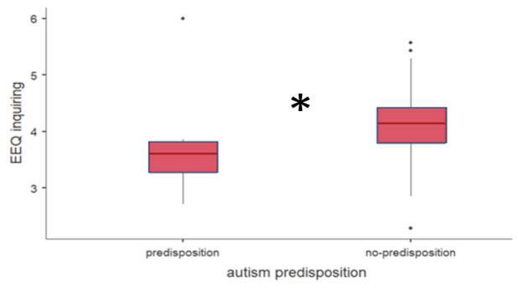


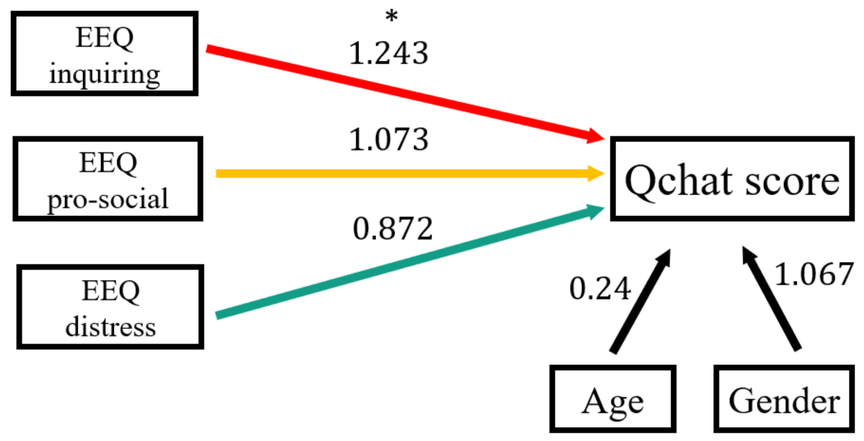


Independent Samples T-Test

		statistic	df	p
EEQ score	Student's t	−1.333	129	0.093
EEQ inquiring	Student's t	−1.943	129	0.027
EEQ pro-social	Student's t	−1.292	129	0.099
EEQ personal distress	Student's t	−0.428	128	0.335

Note. H_a predisposition < no-predisposition





- Linear regression model, shows the correlations between EEQ scores and Q-chat10 questionnaire scores as a continuous variable. Accounting for possible confounders of age and gender.

Discussion

- In this study, we examined the association between empathy using EE questionnaire and Q-chat10 questionnaire which is a reliable screening questionnaire to autism.
- We found that there is a general connection between EEQ results and Q-chat-10 questionnaire and this is corresponding to results in previous study[4].
- As we predicted, the negative association between EEQ scores and predisposition to autism is mainly expressed in the Inquiring Behavior in a significant way, which matches results suggested in a prior study that people with autism tend to have less cognitive empathy skills.[1]
- There was no association between Prosocial Behavior and Predisposition to Autism, which is compatible with previous studies that suggests that Prosocial behavior is a developmental ability, and it is not related to Autism [3].
- No connection found between Personal Distress and Predisposition to Autism may be explained by the fact that an emotional response to distress is an ability that develops throughout infancy.[1]
- **Limitations:** We used EEQ without checking the reliability of the questionnaire. The correlation between EEQ scores at T1 of and T2 stands on 0.48.
- **Suggestion for further research:** It may be interesting to examine in an additional stage whether toddler's empathy as a developmental variable is associated with ASD.

References

1. Campbell, S. B., Moore, E. L., Northrup, J., & Brownell, C. A. (2017). Developmental changes in empathic concern and self-understanding in toddlers at genetic risk for autism spectrum disorder. Journal of autism and developmental disorders, 47(9), 2690-2702
2. Smith, A. (2009). The empathy imbalance hypothesis of autism: a theoretical approach to cognitive and emotional empathy in autistic development. the Psychological record, 59(3), 489-510.
3. Stevanović, D. (2021). Quantitative Checklist for Autism in Toddlers (Q-CHAT): A psychometric study with Serbian Toddlers. Research in Autism Spectrum Disorders, 83, 101760.
4. Svetlova, M., Nichols, S. R., & Brownell, C. A. (2010). Toddlers' prosocial behavior: From instrumental to empathic to altruistic helping. Child development, 81(6), 1814-1827.
5. McDonald, N. M., & Messinger, D. S. (2012). Empathic responding in toddlers at risk for an autism spectrum disorder. Journal of autism and developmental disorders, 42(8), 1566-1573.

Acknowledgments

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Maternal Emotion Regulation Affect on Toddlers Emotion Regulation: The Moderating Role of Concern During Covid-19

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Introduction

- **Emotion Regulation (ER):** The ability to modulate, inhibit, and enhance emotional experiences and expressions to achieve personal goals. [1] ER contains two strategies:
  (1) **Cognitive Reappraisal (CR)**: a form of cognitive change that involves construing a potentially emotion-eliciting situation in a way that changes its emotional impact. [2] and (2) **Expressive Suppression (RS)**: a form of response modulation that involves inhibiting ongoing emotion-expressive behavior. [3]
- **Effortful Control (EC):** The ability to inhibit a dominant response in order to perform a subdominant response.[4]
- Parents can shape their toddler's EC through direct and indirect methods. e.g, discussing emotion-related topics and modeling emotional behavior. [5]
- ER strategies are significant during the experience of stressful events [6]. in these times, Suppressors feel more negative emotion and cope less effectively than individual using other types of responses [7] . because of the known affect of stressful times on parent-child interactions[8], we suggest it may harm toddler's EC.
- The current study examined: **Does concern during covid-19 moderate the association between maternal strategies and toddler's EC?**

Research Hypothesis

1. In high concern, maternal use of ES will be negatively correlated with toddler's EC as opposed to low concern.
2. The association between maternal use of CR and toddler's EC will not be moderated by the mother's concern levels.

Measures

- **Parental Emotion Regulation** is measured by Emotion Regulation Questionnaire **(ERQ),** which measure the mothers' tendency to regulate their emotions using CR and ES [9].
- **Effortful Control** is the self-regulation aspect from the **Infant Behavior Questionnaire** [10].
- **Concern in the light of the COVID-19** is a 3-question questionnaire, which includes reference to three components: (1) concern about COVID-19 outburst (2) concern about uncertainty and (3) concern about financial status.

Participants:

219 Mothers and their 10–18-month-old toddlers.

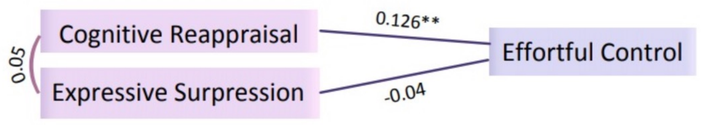
$Mothers\ Range_{Age}$= 22-41. $Mothers\ Mean_{Age}$= 32.3.

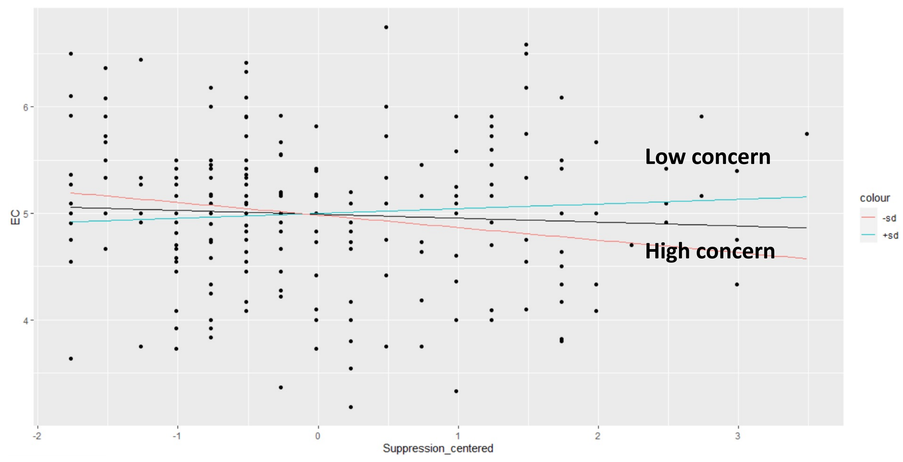
Results

- Exploratory Factor Analysis revealed that only 2 questions merge one factor.

	Factor 1	Uniqueness
corona1	0.504	0.746
corona2	0.994	0.013
corona3		0.893

- A multiple linear regression showed CR significantly predicted EC while ES didn't.





- Moderation model in which CR operates as a moderator reveals unsignificant results. (*p-value*=0.054)

Discussion

- In accordance with our hypothesis, CR significantly predicted EC but this association wasn't affected by concern about COVID-19. nevertheless, we expected to find an association between ES and EC but the findings showed an insignificant association. A simple interaction analysis was performed, and a significant correlation was found in a state of low concern between RS and EC (*p-value*=.04).
- we propose that these findings can be explained through the adaptivity of ES - when the concern is high, ES is more adaptive and affects the child's EC, when the concern is low it's maladaptive and isn't effective.
- EC has a genetic component [11] (temperamental) which wasn't Differentiated by the environmental influence of mother's ER strategies. We suggest the use of more compatible measure of emotion regulation.
- Measure's Reliability - It is difficult to determine whether the infant behaviors are a result of effortful control or of reactive tendencies.
- An additional probable cause for the insignificant results is that the corona's questionnaire hasn't been validated.

References
1. Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. Monographs of the society for research in child development, 59(2-3), 25-52.
2. Lazarus, R. S., & Alfert, E. (1964). Short-circuiting of threat by experimentally altering cognitive appraisal. *The Journal of Abnormal and Social Psychology, 69*(2), 195–205.
3. Gross, J. J. (1998). Antecedent- and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. Journal of Personality and Social Psychology, 74, 224–237.
4. Rothbart, M. K. (2007). Temperament, development, and personality. Current directions in psychological science, 16(4), 207-212.
5. Saarni C. The Development of Emotional Competence. New York: Guilford Press; 1999.
6. Garnefski, N., & Kraaij, V. (2016). Specificity of relations between adolescents' cognitive emotion regulation strategies and symptoms of depression and anxiety. Cognition and Emotion, 32(7), 1401–1408.
7. Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The 1989 Loma Prieta earthquake. *Journal of Personality and Social Psychology*, *61*(1), 115–121. https://doi.org/10.1037/0022-3514.61.1.115
8. Conger, R. D., & Donnellan, M. B. (2007). An Interactionist Perspective on the Socioeconomic Context of Human Development. Annual Review of Psychology, 58, 175–199.
9. Gross, J.J., & John, O.P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. Journal of Personality and Social Psychology, 85, 348-362.
10. Rothbart, M. K. (1981). Measurement of temperament in infancy. Child Development, 52, 569–578.
11. Vohs, K. D., & Baumeister, R. F. (Eds.). (2016). Handbook of self-regulation: Research, theory, and applications. Guilford Publications

Acknowledgments
Israel Science Foundation

The Association Between Parental Self-Efficacy at Two Points of Time During the Coronavirus is Moderated by the Infant's Temperament.

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Introduction

- The Bio-ceed Online research was conducted at two different time points during the COVID-19 period.
- Corona can be a factor of chronic stress[1].
- Chronic stress predicting increased fatigue[2].
- Fatigue impact on parenting behavior via parental self-efficacy (PSE)[3] , whereby high fatigue undermines PSE .
- Nonsufficient PSE is often associated with suboptimal parenting behavior.
- Fatigue and parental self-efficacy are components within the "parental burnout" variable[4].
- Previous studies have found negative correlation between difficult temperament and parental self-efficacy[5].
- Negative affectivity (NA) is a component within the difficult temperament variable[6].

We hypothesize that there will be a decrease in personal accomplishment (PA) of mothers between the first and second quarantine during COVID-19 period. In addition, NA will moderate the connection between PA at the first time point (PA1) and PA the second time point (PA2) in such way that the higher the child's NA levels will be, there will be a greater decrease in PA2.

Methods

- participants: 154 mothers (M.age=32.1 years, SD=3.67), and infants aged 14-22 months old (M.age=18.6 months, SD=2.70).
- The participants were recruited through social media and word of mouth.
- Negative affectivity (NA) is measured by Infant Behavior Questionnaire (IBQ)- Assessing infant's temperament[7].
- Personal accomplishment (PA) of the mother is measured by Parenting Burnout Inventory (PBI)- Measuring parental burnout feelings[8]. Which measure parental burnout.

Results

- Paired samples T-test found a significant small decrease (p< 0.047) between the mean of PA1 (M=20.2) and mean of PA2 (M=19.8).
- PA1 was positive correlated with PA2 (p< .001, b=0.532) and negative correlated with NA (p< 0.035, b=-0.170). There was no correlation between PA2 and NA (p< 0.230, b=-0.097). (See **Figure 1**)
- Linear regression model found a significant main effect for PA1 (p < .001, b= 0.56). No effect was found for NA (p< 0.981, b=0.005), and no interaction was found between PA1 and NA in their effect on PA2 (p <0.191, b= 0.12)

(See **Table 2**).

- Age and gender of child was controlled for the analyses.
- NA did not moderate the association between the PA in the two time points.

Model Coefficients - PBQ Personal Accomplishment 2

Predictor	Estimate	SE	t	p
Intercept	20.45823	1.4346	14.2601	< .001
Cen_PBQ1	0.56383	0.0744	7.5780	< .001
Cen_NA	0.00521	0.2200	0.0237	0.981
NA*PBQ1	0.11936	0.0909	1.3129	0.191
child age T2	−0.03466	0.0763	−0.4543	0.650
child gender:				
2 – 1	0.24002	0.4032	0.5953	0.553

Table 2- linear regression model

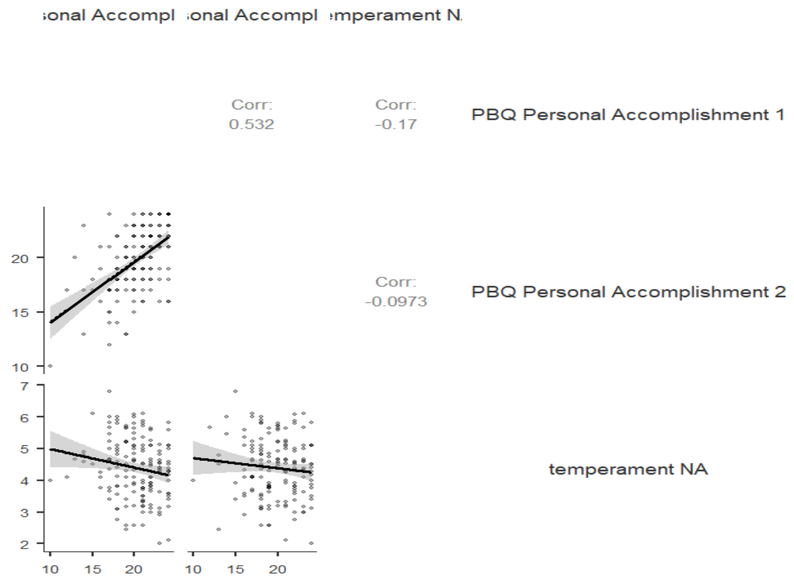

Figure 1- correlation matrix

Conclusions

- As we expected, we found a decrease in the means of PA between the two time points during COVID-19. Against our hypothesis, there was no significant interaction effect of PA1 and NA on PA2.
- One of the things that could explain these findings is that we did not control the stress levels of the mother, which is a variable that could have affected the results. Further research can examine that.
- In addition, we did not measure PA before the first COVID-19 quarantine, so we don't know the mother's baseline level of PA.
- Another probable cause for the insignificant results is that we focused on only one aspect of difficult temperament - negative reactivity. Examination of additional components will shed more light on the subject.

References

1. Boyraz, G., & Legros, D. N. (2020). Coronavirus disease (COVID-19) and traumatic stress: probable risk factors and correlates of posttraumatic stress disorder. Journal of Loss and Trauma, 25(6-7), 503-522.
2. Starr, L. R., Dienes, K., Li, Y. I., & Shaw, Z. A. (2019). Chronic stress exposure, diurnal cortisol slope, and implications for mood and fatigue: Moderation by multilocus HPA-Axis genetic variation. Psychoneuroendocrinology, 100, 156-163.2.
3. Chau, V., & Giallo, R. (2015). The relationship between parental fatigue, parenting self-efficacy and behaviour: implications for supporting parents in the early parenting period. Child: care, health and development, 41(4), 626-633. 3.
4. Roskam, I., Raes, M. E., & Mikolajczak, M. (2017). Exhausted parents: Development and preliminary validation of the parental burnout inventory. Frontiers in psychology, 8, 163.4.
5. Giallo, R., Treyvaud, K., Cooklin, A., & Wade, C. (2013). Mothers' and fathers' involvement in home activities with their children: Psychosocial factors and the role of parental self-efficacy. Early Child Development and Care, 183(3-4), 343-359.5.
6. Gouge, N., Dixon Jr, W. E., Driggers-Jones, L. P., & Price, J. S. (2020). Cumulative sociodemographic risk indicators for difficult child temperament. The Journal of genetic psychology, 181(1), 32-37.
7. Rothbart, M. K. (1981). Measurement of temperament in infancy. Child development, 569-578.
8. Roskam, I., Raes, M. E., & Mikolajczak, M. (2017). Exhausted parents: Development and preliminary validation of the parental burnout inventory. Frontiers in psychology, 8, 163.

Acknowledgments

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Effects Of Paired Associative Stimulation On Frontal Asymmetry

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Introduction

Pas is a bi-focal, non-invasive, paired magnetic stimulation based on Hebbian principle, which influence the connectivity strength between the two stimulation areas [1]. Previous study, conducted in our lab [2], found that a 8 ms lagged PAS directed to the left and right frontal hemispheres, influences emotional attention, enhances the inter-hemispheric connectivity and additionally shifts the activity balance between the two hemispheres. The current study aims to extend those results and to investigate how the exact time lags between the paired magnetic pulses influence the efficiency of the PAS to affect various mood and brain activity measures.

Research aim

To test if different time lags and directions of PAS influence:

1. Mood
2. Frontal asymmetry in the alpha, beta and gamma bands

Methods

17 healthy, right-handed subjects, participated in nine TMS-EEG sessions. Effects of PAS on Mood and frontal asymmetry were measured in 4 different time lags (4, 8, 16,32 ms), and directions (LR-PAS or RL-PAS) in a randomized order. A Sham stimulation was additionally applied (not shown). Resting motor threshold was measured at the beginning of each session. Six hundred paired pulses were delivered using two H-D1 deep-TMS coils, with 120% or 40% (Sham stimulation) intensity of the motor threshold.

- Mood was evaluated using a visual analogue scale (VAS) ranging between positive and negative affect and calculated in Mixed Effects repeated measures model.
- Brain activity was recorded in Electroencephalography (EEG) in resting state, before and after PAS. The signals were cleaned from noises and broked into spectral graphs, which indicates power over frequency. The graph were divided into three different power bands (Alpha (8-13Hz) , Beta (13-30Hz) , and Gamma (30-40Hz)).
  Array of the permutation and two tails t tests were detected effect's significance for each condition.

Results

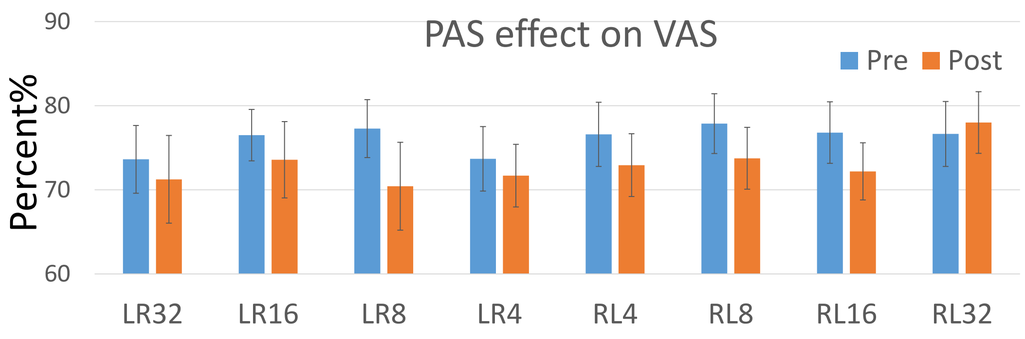

Figure 3: Mean of Vas scores for each time lag. Mixed Effects repeated measures model indicated no significant effect time-lag (p= 0.8937), time (p=0.2541) and lag X time interaction(p=0.5747)

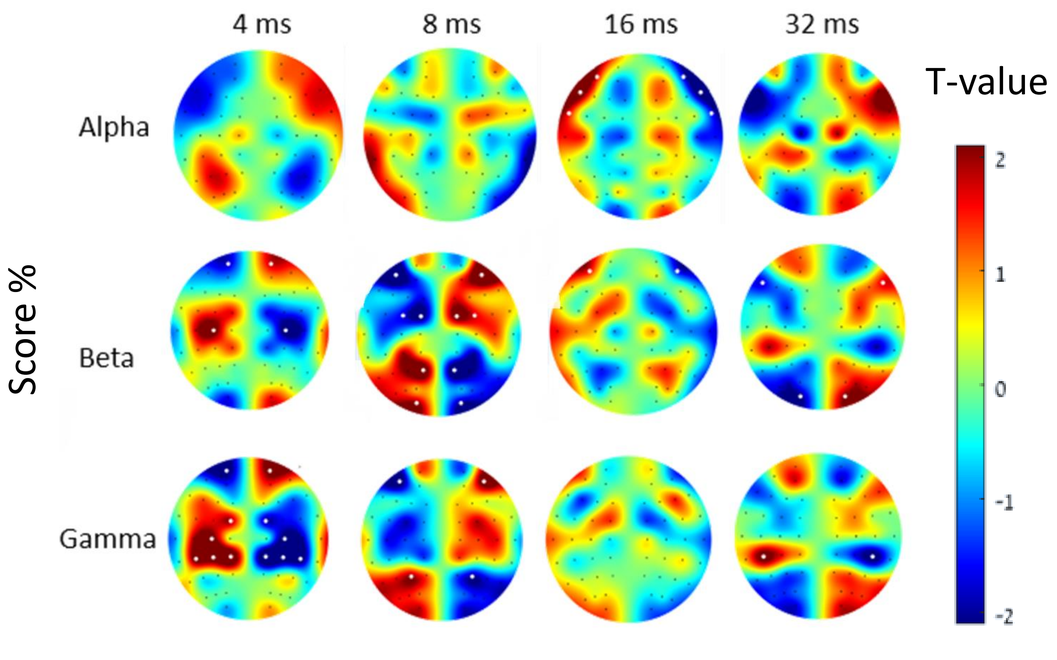

Figure 1: Topographical maps of PAS induced asymmetry in alpha, beta and gamma bands, according to PAS-direction and time lag. Significant electrodes are marked white (p< 0.05)

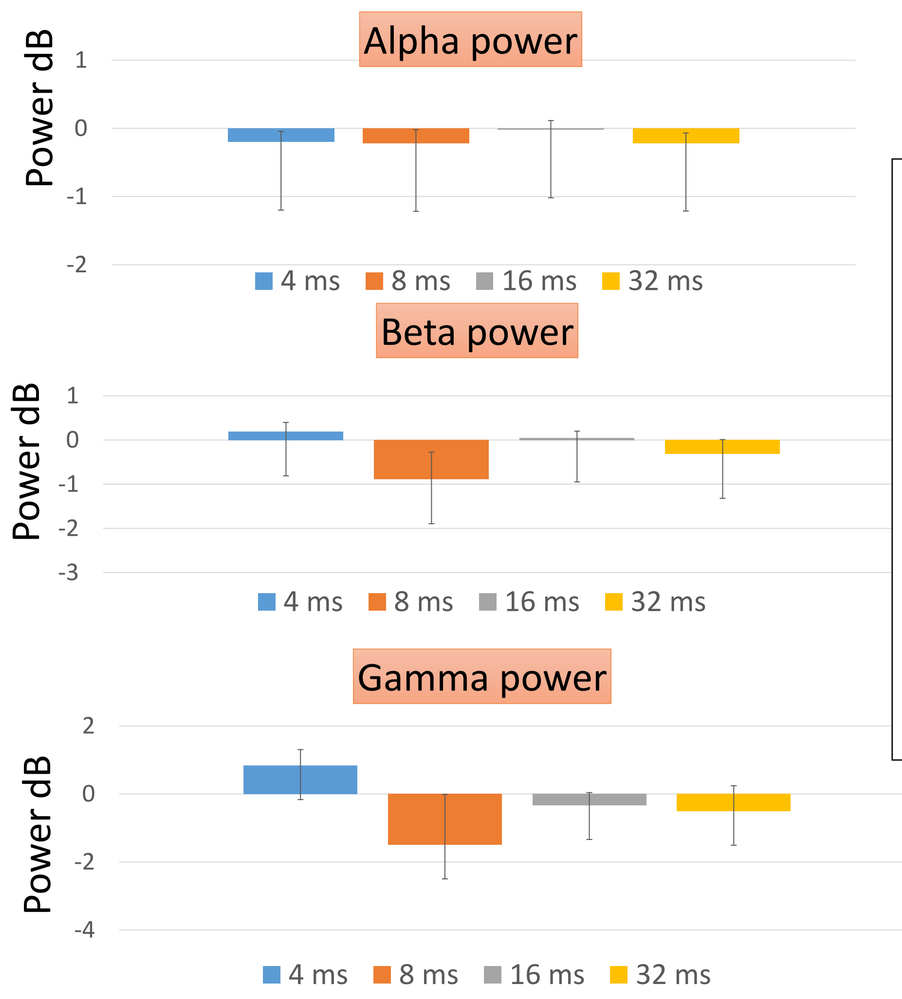

Figure 2: Mean (±SEM) of left alpha, beta, and gamma band asymmetry averaged over 4 frontal electrodes (F3, FC3, F5, FC5)

Conclusions

Our aims is to extend previous study about modulate frontal asymmetry by interhemispheric PAS and find effect on emotion.
The MMRM model did not a find prediction of PAS on emotion score. On the contrast we saw a resemble symmetry results in 4 and 32 time lags and significant change in power at the lateral areas in 16 ms. However we can not see a significant change in the left frontal asymmetry at different time lags. This outcomes and due to our preliminary results [2] we can imply that a major explanation for this results can be the low number of participants. Therefore we are still recruiting subjects for more data in order to succeed to modulate frontal asymmetry by PAS.

1. Song, S., Miller, K. D., & Abbott, L. F. (2000). Competitive Hebbian learning through spike-timing-dependent synaptic plasticity. *Nature Neuroscience*, *3*(9), 919-926.
2.Zibman, S., Daniel, E., Alyagon, U., Etkin, A., & Zangen, A. (2019). Interhemispheric cortico-cortical paired associative stimulation of the prefrontal cortex jointly modulates frontal asymmetry and emotional reactivity. *Brain Stimulation*, *12*(1), 139-147.

Quantification of Stereotypical Movements in Children with Autism Across ADOS Assesments

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Abstract

Stereotypical movements are part of the Restricted and Repetitive Behaviors (RRB), which form one of the two core symptoms of Autism Spectrum Disorder (ASD)[1] . They are defined as involuntary, patterned and rhythmical movements[2,3]. The existence of stereotypical movements is associated with more severe ASD and cognitive impairments, and is more common at younger ages[3,4,5] . While the existence of stereotypical movements is often noted in a binary yes/no manner, the severity and specific manifestations of this symptom are rarely characterized or quantified. In the following study we quantified stereotypical movements in video recordings of children who completed two Autism Diagnostic Observation Schedule, 2nd edition (ADOS-2) assessments that were separated by approximately one year.

Method

- Stereotypical movements were manually coded from video recordings of 44 children (11 Females), mean age = 3.3 years old (range = 1.6-5) who completed two ADOS-2 assessments on average 1.7 years apart.
- The stereotypical movements were coded and classified into 13 categories (figure 1).
- The number of movement episodes and their durations were quantified.
- Statistical comparisons of continuous variables across groups were performed with paired, two-tailed, t-tests. Statistical significance was set to a p-value of 0.05 for all tests. Statistical analyses were performed using R-studio & JASP.

Results

- The most common type of repetitive movement was "Other" representing unique/idiosyncratic movements (34% and 61% of the movements in the first and second ADOS-2) followed by hand flapping, tapping, playing with object, and jumping in place (Figure 1).
- A chi-square test demonstrated that the proportion of "Other" movements was significantly larger than all other movement types (χ^2=4.54, CI = [-0.47,-0.03], p=0.032).

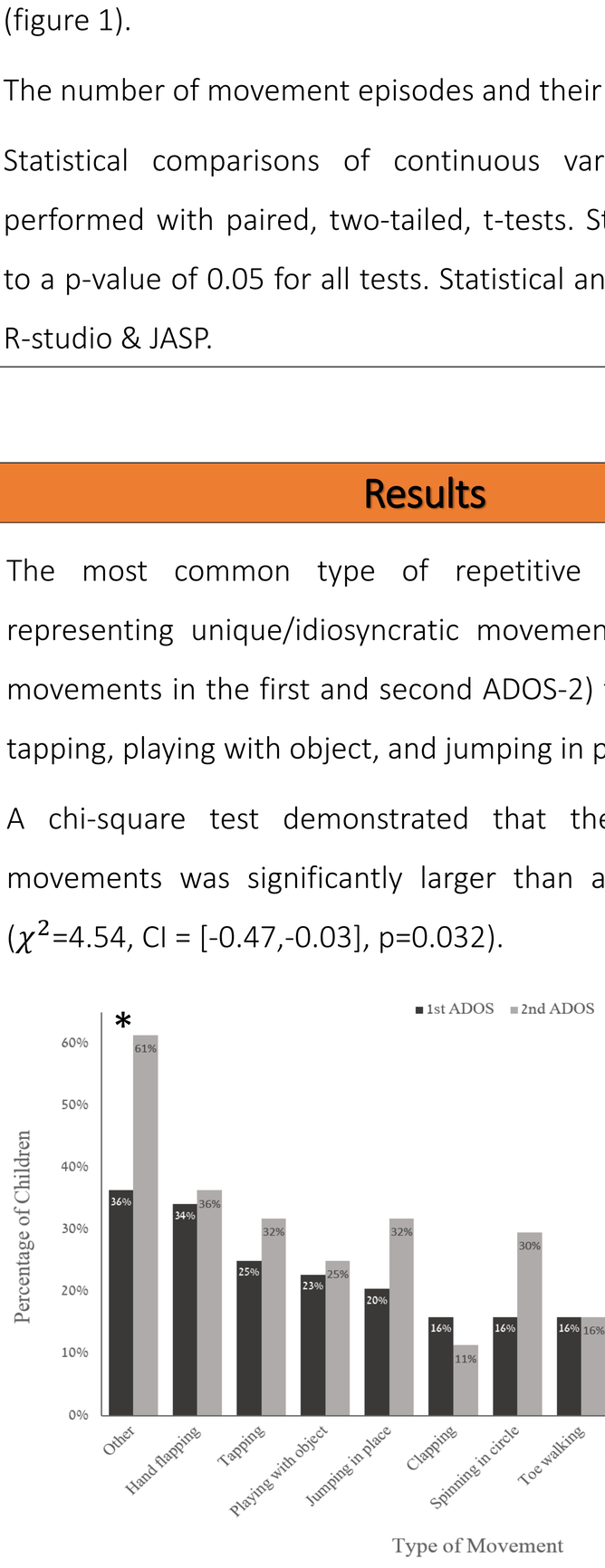

Figure 1: *Proportion of each of the 13 movement categories among the 44 participants, at the first and second ADOS-2 assessments. *Stands for significant results (p<0.05)*

- There was no significant difference between the number of movements (t(43)=-1.3, CI = [-3.21, 0.57], p=0.145), or the total movement duration (t(43)=-1.79, p=0.08) across the two ADOS-2 assessments.
- There was a significant increase in the number of different movement types (i.e., repertoire of movements) from the first to the second ADOS-2 assessment (t(43)=-2.2, CI = [-1.2, -0.05] ,p=0.033).

Results

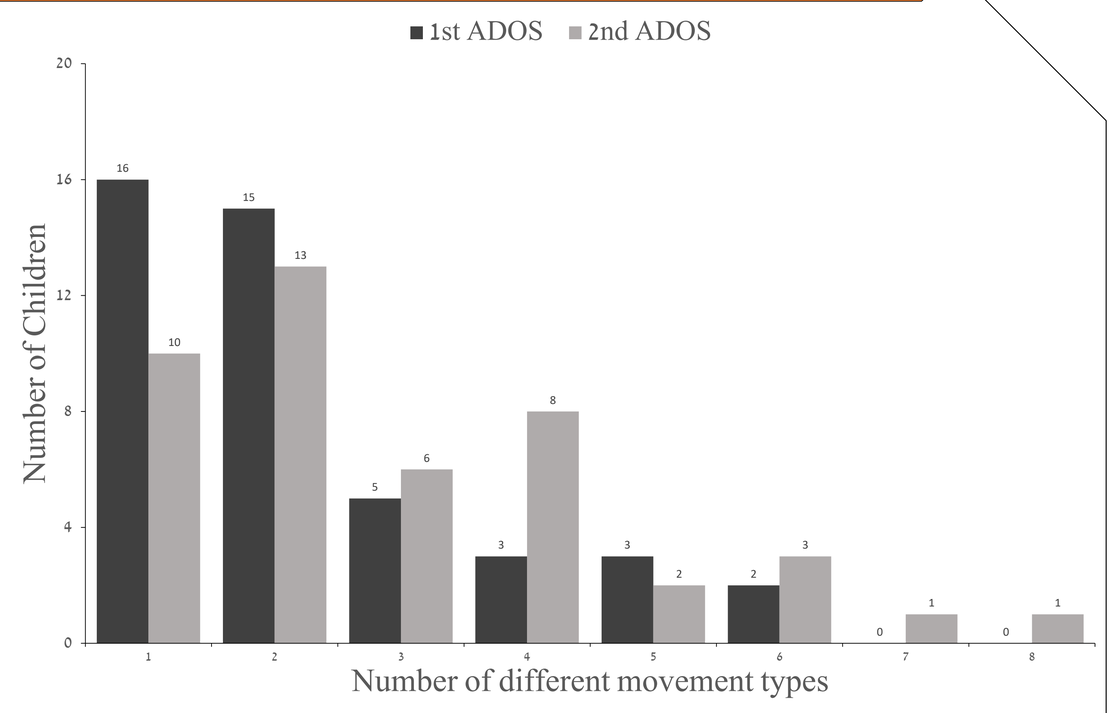

Figure 2: *Number of children performing different number of distinct movement types., at the first and second ADOS-2 assessments.*

- Trend for a decrease in the relative movement duration across ADOS-2 tests (t(43)=-1.8, CI = [-0.1, 0.001], p=0.08).

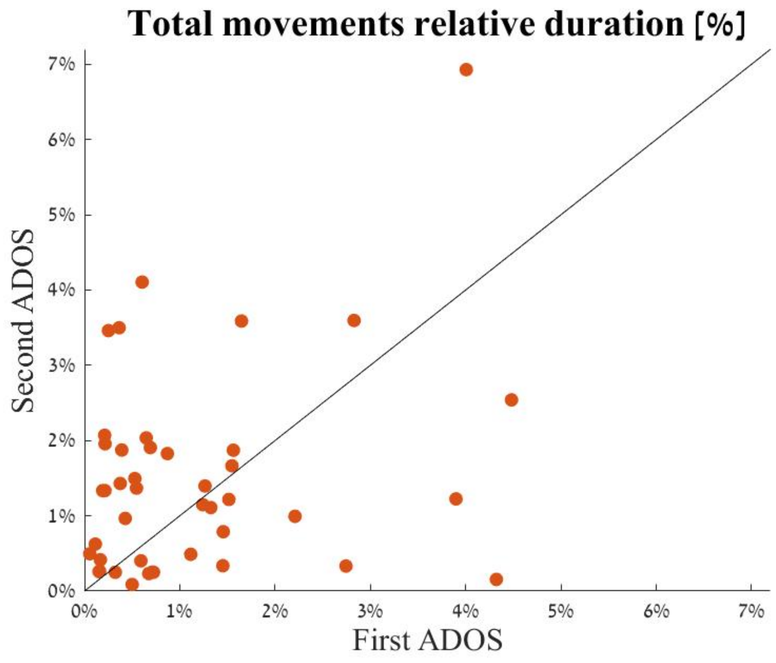

Figure 3: *Percentage of time engaged in stereotypical movement during the ADOS-2 assessments. Each point corresponds to a single child.*

Discussion

The findings demonstrate large heterogeneity in the number, types and durations of movements performed.

The repertoire of movements seems to increase, but overall time engaging in stereotypical movements does not seem to change with age.

References

1. Diagnostic and Statistical Manual of mental disorders fifth edition (DSM–5; American Psychiatric Association, 2013)
2. Goldman, S., Wang, C., Salgado, M. W., Greene, P. E., Kim, M., & Rapin, I. (2009). Motor stereotypies in children with autism and other developmental disorders. Developmental Medicine and Child Neurology, 51(1), 30–38.
3. Melo, C., Ruano, L., Jorge, J., Pinto Ribeiro, T., Oliveira, G., Azevedo, L., & Temudo, T. (2020). Prevalence and determinants of motor stereotypies in autism spectrum disorder: A systematic review and meta-analysis. Autism, 24(3), 569-590.
4. Ghanizadeh, A. (2010). Clinical approach to motor stereotypies in autistic children. Iranian Journal of Pediatrics, 20(2), 149–159.
5. Militerni, R., Bravaccio, C., Falco, C., Fico, C., & Palermo, M. T. (2002). Repetitive behaviors in autistic disorder. European Child & Adolescent Psychiatry, 11(5), 210-218.

The links between maternal stress, sleep and perceived mother-infant relationships in married and solo-mother families

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Introduction

The importance of a healthy mother – infant relationship is well established in the literature (Field, 2010). For that reason, vast research has been conducted about the variables that influence this relationship, with most research focusing on maternal depression.

Other factors which may influence the mother-infant relationship and received so far only limited attention, are maternal stress and sleep disturbances. Findings from one study demonstrated that maternal lower sleep quality was associated with a more negative maternal perception of her relationship with the infant. (Tikotzky, 2016). Furthermore, Previous studies also show that stress has a negative effect on the mother – child relationship. One study suggests that stress "undermine the quality of dyadic engagement" (Azhari, et. al., 2019). In addition, a link was also found between sleep quality and stress (Camicasa, et. al., 2020).

Each of these links has been investigated separately, but the triadic links between maternal stress, sleep, and the mother-infant relationship assuming mediation has not been examined.

Additionally, a previous study demonstrated that family structure (solo mothers vs married mothers) moderates the link between maternal emotional distress and the sleep quality of both mother and the infant; that is, only for solo mothers this link was found significant (Ben-Zion, et.al., 2020). Moreover, higher levels of perceived chronic stress have been shown among single mothers compared to married mothers (Cairney, et. al., 2003). Although, as far as we know there are no studies that examined differences in stress levels between married mothers and singles mothers by choice (solo mothers).

Thus, the aims of the current study were to examine: (a) the triadic associations between stress, sleep and the mother-infant relationship in married mothers compared to solo mothers (b) Whether sleep quality mediates the links between stress and the mother-infant relationship in each group.

First, we assumed that there would be significant correlations between all variables; stress, sleep quality and the mother – infant relationship. Second, we assumed that the correlation between stress and the mother – infant relationship would be mediated by sleep quality. Hence, higher level of stress will predict poorer sleep quality, and that, in turn will be associated with a higher negative maternal perception of the relationship with their infant.

Method

Participant and procedure

The sample included 58 married mothers (MM) and 82 solo mothers (SM) that were recruited mainly from prenatal classes and through Facebook Posts. The MM were 23-37 years of age (M = 31.58, SD = 2.99). The SM were 27-46 years of age (M = 39.69, SD = 3.15) .Mothers were contacted when the infant reached the age of 8 months . Maternal sleep was assessed with actigraphy for one week. In addition, the mothers were asked to complete questionnaires aimed to assess their sleep quality, stress level and the perceived mother - infant relationship.

Measures

Sleep quality was assessed by using the actigraph measure of sleep efficiency (A_seff) - the percent of true sleep time out of the total sleep period, from falling asleep to morning awakening (Tikotzky & Sadeh, 2001). We also used the Insomnia Severity Index (ISI) to assess maternal subjective perception of her sleep disturbances and severity of insomnia (Bastien, Vallières & Morin, 2001).

The Mother–infant relationship was assessed using the Maternal Postnatal Attachment Questionnaire (MPAQ). It assesses self-rated maternal feelings toward her infant and perceptions of the mother–infant relationship (Condon & Corkindale, 1998).

Stress was assessed by the Perceived Stress Scale (PSS). The PSS measure the degree to which situations in one's life, are estimated as stressful and specifically as unpredictable, uncontrollable, and overloaded (Cohen, Kamarck & Mermelstein, 1994).

Results

Descriptive statistics are presented in Table 1. Pearson correlations were calculated to examine the strength of the correlations between the measures and to compare them among the groups.

The correlations between the ISI and MPAQ and between ISI and PSS, were significant among solo mothers and married mothers (see Table 1). Furthermore, the strongest correlation was between PSS and ISI in the married mothers group. In addition to that, a strong correlation was also found between PSS and MPAQ.

To examine whether sleep mediates the links between stress and the mother-infant relationship, mediation tests were conducted for each group (solo and married mothers), using the ISI as the mediator variable in each test. Since significant correlations were not found between A_seff and MPAQ or PSS, mediation tests were not conducted using this measure.

Only in the married mother's group there was a significant partial mediation model. The direct effect between PSS and MPAQ was stronger compared to the indirect effect (mediation via ISI). Figure 1 shows that in line with our hypothesis, the relationship between the predictor variable (X) - PSS and the dependent variable (Y) - Mother-infant relationship (C= -.46, P<.001) is mediated by a third variable (M)- Sleep quality using ISI (C'= -.24, P< .001).

Figure 1- Mediation model married mothers

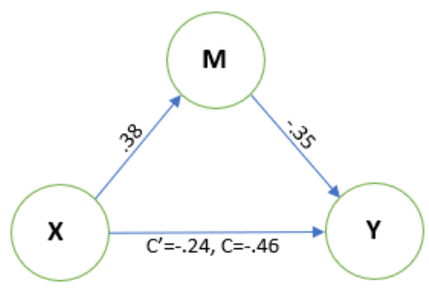

Figure 2- Mediation model solo mothers

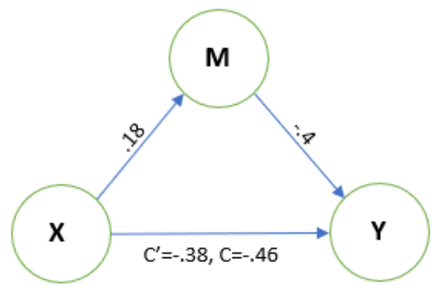

Table 1 – Descriptive statistics

Measure	Family status	Mean	Std. deviation
A_seff	Married	91.163	6.27
	Solo	88.36	6.18
ISI	Married	10.033	5.329
	Solo	9.729	5.292
MPAQ_TOTAL	Married	80.049	7.458
	Solo	81.067	7.541
ISI	Married	10.033	5.329
	Solo	9.729	5.292

A_seff = Sleep efficiency, ISI = Insomnia Severity Index,
MPAQ_TOTAL = Maternal Postnatal Attachment Questionnaire, PSS = Perceived Stress Scale.

Table 2

Married mothers - Correlations between sleep PSS and MPAQ

		1	2	3	4
1	A_seff				
2	ISI	-.14			
3	MPAQ_TOTAL	-.03	-.39**		
4	PSS	.17	.49**	-.42**	

P< .05*, P< .01**

Table 3

Solo mothers - Correlations between sleep PSS and MPAQ

		1	2	3	4
1	A_seff				
2	ISI	-.30**			
3	MPAQ_TOTAL	-0. 01	-.38**		
4	PSS	-0.08	.26*	-.44**	

P< .05*, P< .01**

Discussion

According to our hypothesis insomnia was found to be significantly correlated with both perceived mother – infant relationship, and with stress. However, objective sleep, as assessed with actigraphy was not significantly correlated with these variables.

One possible explanation for this difference is that the measures assess different aspects of sleep quality. While A_seff measures the percent of true sleep time out of the total sleep period, ISI measures the subjective perception of the mother considering the severity of her sleep disturbances. Thus, it is reasonable that it will be higher correlated (compared to the objective measure) with other subjective measures related to the mother's perception of her experience (PSS and MPAQ). Therefore, this finding indicates the importance of combining both subjective and objective measures when possible.

Furthermore, the results show that at the age of 8 month, only for married mothers, perceived insomnia is significantly mediating the relationship between the mothers' stress and the mother-infant relationship. Since the research on solo mothers is in its beginning, we suggest that future research should examine other measures that may mediate the relationship between these measures, among solo mothers.

One limitation of this study is the reliance on a limited number of sleep quality measures. Each measure produced different results, which limits the ability to infer about a pattern. Therefore, there is a need to replicate the findings while using additional sleep quality measures. Another limitation is the examination of the correlations only in one time point. A longitudinal research may enable to infer about the directionality between the measures.

Bibliography

Azhari, A., Leck, W.Q., Gabrieli, G., Bizzego, A., Rifo, P., Setoh, P., & Bronstein, M. H. (2019). Parenting stress undermines mother-child brain-to-brain synchrony: a hyperscanning study. *Scientific Report.* 11407. https://doi.org/10.1038/s41598-019-47810-4.

Ben-Zion, H., Volkovich, E., Meiri, G., & Tikotzky, L. (2020). Mother–infant sleep and maternal emotional distress in solo-mother and two-parent families. *Journal of Pediatric Psychology*. 45 (2), 181–193. https://doi.org/10.1093/jpepsy/jsz097.

Cairney, J., Boyle, M., Offord, D.R., & Racin, Y. (2003). Stress, social support and depression in single and married mothers. *Social Psychiatry and Psychiatric Epidemiology.* 38 (2) 442-229.

Camicasa, E., Blasio, P.D., Icon, O., & Miragoli, S. (2020). Postpartum depressive symptoms as a linking mechanism between maternal sleep and parenting stress: the conditional indirect effect by social support. *Children Health Care.* 50 (1), 64-82. https://doi.org/10.1080/02739615.2020.1824675.

Field, T. (2010). Postpartum depression effects on early interactions, parenting, and safety practices: A review. *Infant Behavior and Development*. 33(1), 1-6. https://doi.org/10.1016/j.infbeh.2009.10.005.

Tikotzky, L. (2016). Postpartum maternal sleep, maternal depressive symptoms and self-perceived mother–infant emotional relationship. *Behavioral Sleep Medicine*. 14(1), 5-22. https://doi.org/10.1080/15402002.2014.940111.

The study was supported by the Israel Science Foundation

PROPAGATION ANALYSIS OF PRO-SOCIAL NORMS IN VIDEO-GAMES

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Introduction

Throughout the years, several suggestions have been made regarding the core values and manners in which people are born with and act upon[1]. However, researches concerning this issue are hard to conduct, due to the vast social influences people are susceptible to during their lives[2]. Since video games are not confined by the rules and laws of society, people act freely and follow their true nature[3]. This in fact can answer the question "are people good or bad?" through analysing the propagation of pro-social behavior in the game.

In this study, we hypothesized that the players who receive positive treatment and pro-social behavior would "pass it along" and in return be more pro-social than players who receive neutral treatment and behavior.

Method

Sample: a total of 120 players from Pubg squad mode, 60 in the pro-social condition and 60 in the neutral condition. Games under 8 minutes were considered as outliers and were not included in the statistical inference.[4]

Procedure & measures: Using the PUBG.inc API service, we were able to collect real-life game data and statistics of players and their matches over time. No personal data was collected. We used a between-subject t-test to assess the effect and magnitude of pro-social behavior (i.e. revives) in the game.

Players were assigned to play in the same squad with three researchers and were randomly assigned into two groups:

· Pro-social: the researchers took an active and social engagement by reviving, cheering and protecting the participant.

· Control: the researchers took a passive engagement towards the participant and didn't contact or assist him in any way.

Results

For each subject, we calculated the means of pro-social behavior before and after the game they played with the researchers. Afterwards, the difference between the two means was calculated. We hypothesized that the difference in means of the pro-social group would be significantly higher than the control group. Furthermore, the difference between the two groups was examined in four distinct cases, in order find if an effect is to be found over different number of games.

From the four tests, only the 'minimal' yielded a significant p-value, $t(83.76) = 1.7992$, $p = 0.0377$. Unexpectedly, the three remaining tests did not yield significant results (table 1).

Effect	Statistic	Df	p-value
Ten games	-1.4231	79.721	0.9207
Minimal	**1.7992**	**83.762**	**0.0377***
All games	-1.6622	67.633	0.9494
One game	-0.7709	111	0.7788

Table 1: Results of the 4 t-tests (Type of effect, t value, Df and p-value).

It is worth mentioning that all four tests were conducted to find whether the effect, if one does exist, exists over different time periods after the game with the researchers. It seems that effect is to be found only in specific time periods after the manipulation.

Figure 1 demonstrates the differences between the two groups. Pro-social group's distribution (represented by the green dots) is located slightly to the right of the control group's distribution (represented by the red dots).

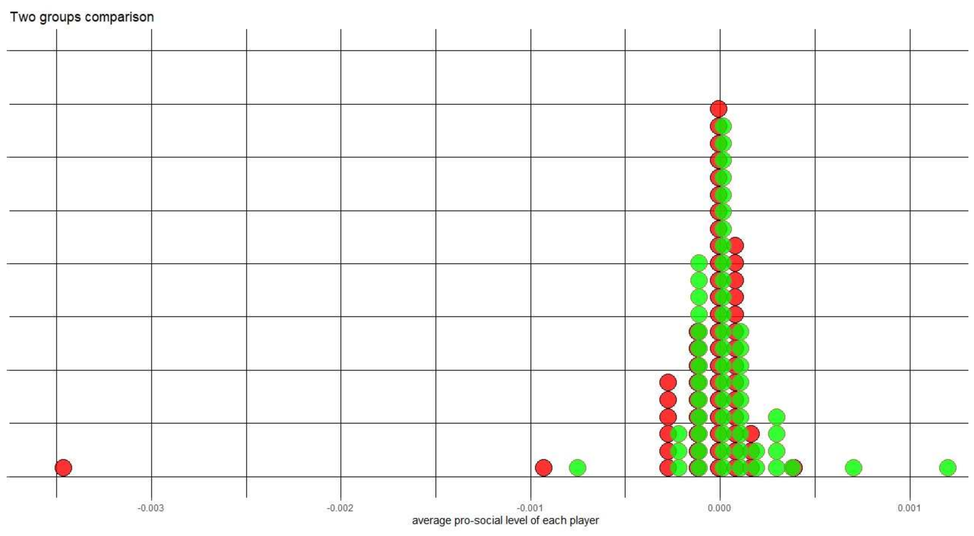

Figure 1: Difference between the pro-social behavior of the groups. The variable used is called 'fixed delta', which represents the improvement in pro-social activity after playing with the researchers. Higher scores indicate higher improvement in pro-social behavior.

Discussion

Due to the fact that only the "minimal" table turned out to be significant, followed by the anecdotal evidence for H1 in the Bayesian inference, we believe that there is a chance for a small and slow effect of propagation of pro-social behavior. In order to find a stronger effect, we recommend a long term follow up research with a bigger sample size.

References

1. Uzefovsky, F., Davidov, M., & Paz, Y. (2019). Young infants are pro-victims, but it depends on the context. British Journal of Psychology, 111(2).
2. Bandura, A., Ross, D., & Ross, S. A. (1961). Transmission of aggression through imitation of aggressive models. Journal of Abnormal and Social Psychology, 63, 575-582.
3. Dibbell, J. (1998). "A Rape in Cyberspace" (Or TINYSOCIETY, and How to Make One). In J. Dibbell, My Tiny Life: Crime and Passion in a Virtual World. The Village Voice.

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Environmental Stress Levels and Maternal Depression as predictors of Conflict and Rivalry in Sibling Relationships

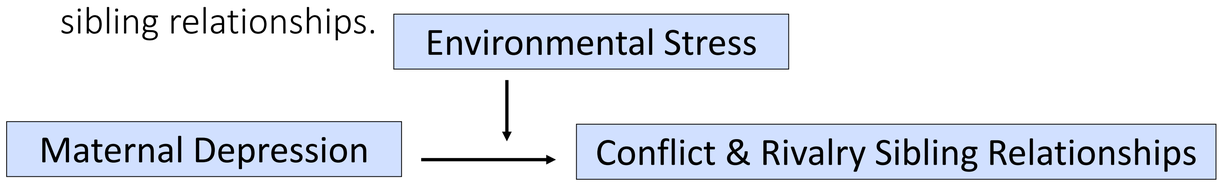
Maayan Ben Dov, Roni Yehoshua, Zohar Tarasiuk, Porat Yakov, Kinneret Levavi and Naama Atzaba-Poria

Introduction

- Living in a stressful environment, as occurs in the south of Israel, exposes Israeli civilians to thousands of bombs and rockets and may cause them chronic stress; living closer to Gaza causes more stress (Gelkopf, Berger, Bleich & Silver, 2012).
- Chronically stressful conditions promote depressive reactions and anxiety; Depression and anxiety contribute to chronically stressful conditions and situations, such as conflictual close relationships (Taylor & Francis Group, 2016).
- Some kinds of family environment factors associated with negative sibling relationships (Eriksen & Jensen, 2006). Specifically, Higher levels of maternal depression is significantly associated with conflict and aggressive behavior between siblings (Miller, Grabell, Thomas, Bermann, & Graham-Bermann ,2012).

Study Aims

- To examine the association between maternal depression and conflict and rivalry sibling relationships.
- To examine the association between environmental stress levels and conflict and rivalry sibling relationships.
- To explore the moderating role of environmental stress levels on the connection between maternal depression and conflict and rivalry in sibling relationships.



Hypothesis

- **Hypothesis 1**: Mothers experiencing higher levels of depression will report higher levels of conflict and rivalry relationships between siblings.
- **Hypothesis 2**: Families living closer to Gaza and experiencing Higher levels of environmental stress will show more conflict and rivalry relationships between siblings.
- **Hypothesis 3**: The influence of maternal depression on conflict and rivalry between siblings will be stronger for families experiencing higher levels of environmental stress, in comparison to a lower stressful environment.

Method

Sample: The sample consisted of 49 mothers (Mean=29.834 years, SD=2.457) and their firstborn children (Mean=24.30 months, SD=7.363) who were recruited to a longitudinal study that followed families during the birth of the second child from 24-34 weeks of gestation until 18 months post-partum. Participants were recruited from different residential areas situated in a high stress region (i.e., Otef Gaza, and Ashkelon) and medium stress region (i.e., Beer Sheva).

Measures

- **Maternal Depression:** Mothers reported on their prevalence of depressive symptoms when entered the study using the short Depression, Anxiety, and Stress Scale (DASS-21); (Lovibond & Lovibond, 1995). The self-reported questionnaire consists of 21 items rated on a 3-point scale. Ratings across the 7 depression-related items (e.g., I felt that I had nothing to look forward to).
- **Environmental Stress:** Mothers completed demographic questionnaire when entered the study, reporting their residence.
- **Conflict and Rivalry in Sibling Relationships:** The relationship between siblings was assessed via Sibling Relationships in Early Childhood (SREC); (Volling, 1998), an 18-items questionnaire measuring the positive involvement, conflict and rivalry and the avoidance between the siblings. The conflict and rivalry scale consists of 7 items (e.g., Fusses and argues with siblings). Mothers reported on their children 18-21 months after entering the study.

Results

- Maternal depression as a predictor of conflict and rivalry sibling relationships: A significant spearman correlation was found (r= .249, p<.05), so the more depression the mother experienced, the more conflict and rivalry sibling relationships were reported.
- Higher levels of environmental stress as a predictor of conflict and rivalry sibling relationships: A significant pearson correlation was found (r= .278, p<.05), so the further families live from Gaza, the more conflict and rivalry sibling relationships were reported.
- Environmental stress levels as a moderator: The overall model (F(3,45)=2.962, p<.05) explained 40.6% of the variance in conflict and rivalry sibling relationships (see Table 1).
- A significant main effect was found for maternal depression (b=4.634, SE=2.137, p <.05). Higher maternal depression was related to more conflict and rivalry sibling relationships (see Table 2).
- Distance from Gaza strip in KM showed no significant main effect, and no interaction effect was found between maternal depression and distance from Gaza strip (see Table 2).

Table 1. Model Summary

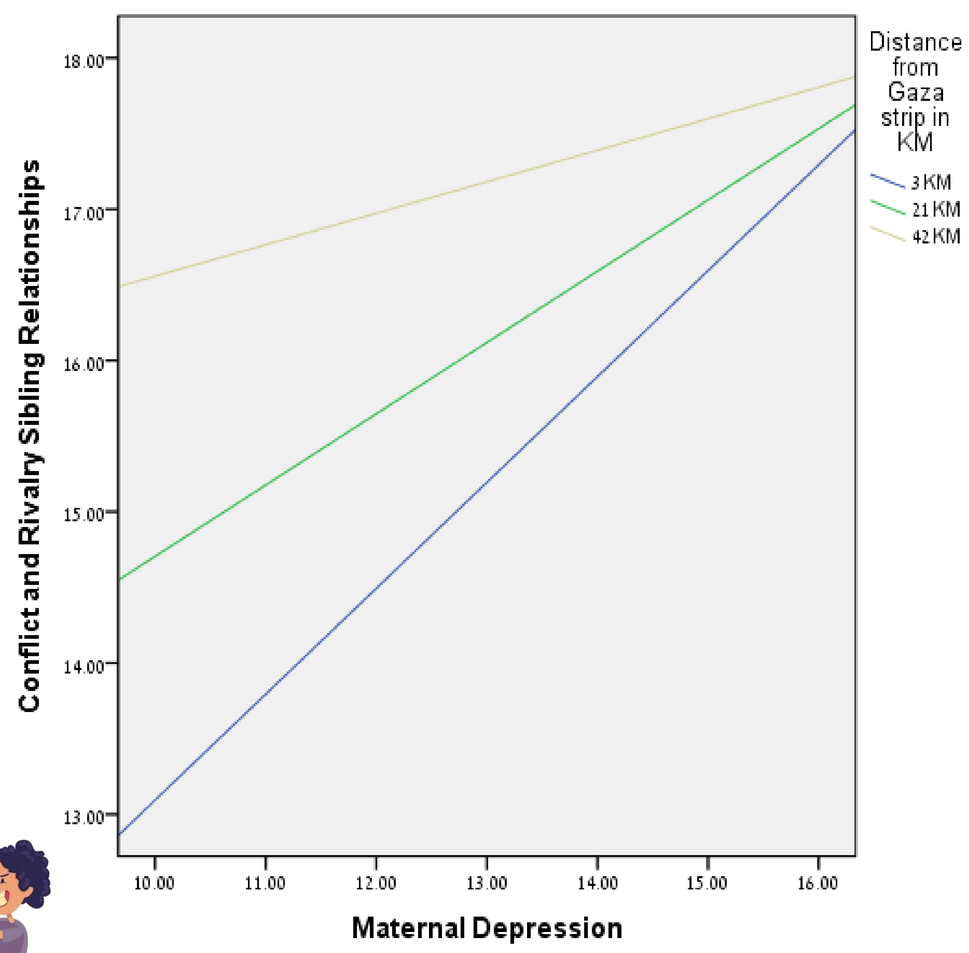
R	R-sq	MSE	F	df1	df2	P
.406	.165	13.645	2.962	3.000	45.000	.042*

Table 2. Regression analysis predicting conflict and Rivalry Sibling Relationships

Variable	coeff	se	t	P	LLCI	ULCI
Maternal Depression	4.634	2.137	2.168	.035**	.329	8.939
Distance from Gaza strip	.053	.031	1.705	.095	-.01	.115
Maternal Depression X Distance from Gaza strip	-.126	.115	-1.096	.279	-.359	.106

Figure 1.

Environmental stress levels as a moderator of the link between maternal depression and conflict and rivalry sibling relationships.



Conclusions and Implications

- Our findings provide evidence for the impact of maternal depression and a stressful environment as being two independent strong risk factors for the development of conflictual relationships between siblings.
- Contrary to our hypothesis, the link between maternal depression and conflict and rivalry in sibling relationships was not significantly moderated by environmental stress levels. In other words, the link between maternal depression and conflict and rivalry in sibling relationships is not contingent upon levels of environmental Stress.
- This study highlights the importance of chronically stressful conditions such as maternal depression and environmental stress on sibling conflictual relationships.

The Relationship between The Child's Negative Affect, Maternal Emotion Regulation, and Distance from Gaza Strip

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Introduction

- Temperament is defined as individual differences in self-regulation and reactivity, i.e., the awakening of the physiological systems and behavior of the individual. These aspects are considered stable over time and are influenced by various factors, as hereditary, environment and maturation (Rothbart, 1989; Rothbart, 1991).
- Negative Affect is a temperament dimension, and involves emotions such as: discomfort, fear, frustration, motor activation, sadness, perceptual sensitivity, shyness and soothability (Putnam et al., 2014).
- Emotional regulation is defined as an external or internal process in which a state of monitoring, evaluating, and changing emotional responses occurs, particularly intense or temporary features of the individual. Biologically, emotions organize and adapt different responses to significant external events (Thompson, 1991).
- The association between maternal emotion regulation strategies and infant negative affect was examined and showed a significant indirect relationship (Edwards et al., 2017).
- As found in the study of Compas, Connor-Smith and Jaser (2004), temperament and stressors are affected by each other and may moderate each other. Direct exposure to missile attacks on people living in the Gaza vicinity was found to be in a direct association to higher levels of anxiety (stressor), anger, hostility, compared to a control group (Solomon et al., 2017).

The current study

- The current study examined the influences of maternal emotion regulation on their first-born child's negative affect, and the distance of families from the Gaza strip as a moderator in that relationship.
- Hypothesis 1: Maternal emotion regulation will predict the child's negative affect, in a way that less emotion regulation will be associated to higher levels of the child's negative affect.
- Hypothesis 2: Mothers living in the Gaza vicinity will be more likely to have greater problems with emotion regulation, and to have a greater effect on the child's negative affect, as opposed to those living elsewhere.

Method

Sample

- Participants were Israeli families with first born child (N = 131; 63 girls and 68 boys; mean age = 24.66 month, SD = 7.41). Participants were recruited as part of the Secondborn Study. All families live in Ashkelon, Beer Sheva or in the Gaza vicinity.

Measures

- we examined child's negative affect using the ECBQ v short questionnaire (Putnam et al., 2014). This questionnaire combines discrete traits into three scales: Negative Affect, Surgency, and Effortful Control. To examine maternal emotion regulation difficulties, we used the DERS questionnaire (Hallion et al., 2018).

Results

- Maternal emotional regulation (*m* = 1.93, *sd* = .41) was found to be the only significant predictor for the child's negative affect (*m* = 2.74, *sd* = .66, *P* = .039)
- The interaction between the mother's emotional regulation and the family's distance from Gaza strip, was not found significant for predicting the child's negative affect (P = .16).

Table 1. Interaction model of distance from Gaza strip and maternal emotion regulation as predicting negative affect of infants.

Effect	*B*	*SE*	t value	*P*
Intercept	.26	1.25	.21	.834
Maternal emotional regulation measurement	1.31	.62	2.08	.039 *
Distance from Gaza strip variable	.91	.68	1.33	.183
Interaction	-.48	.34	-1.41	.16

Note. R^2 = .09, R^2_{adj}= .069, *F*(3, 119) = 4.043, *p* = .008.
*$p < .05$

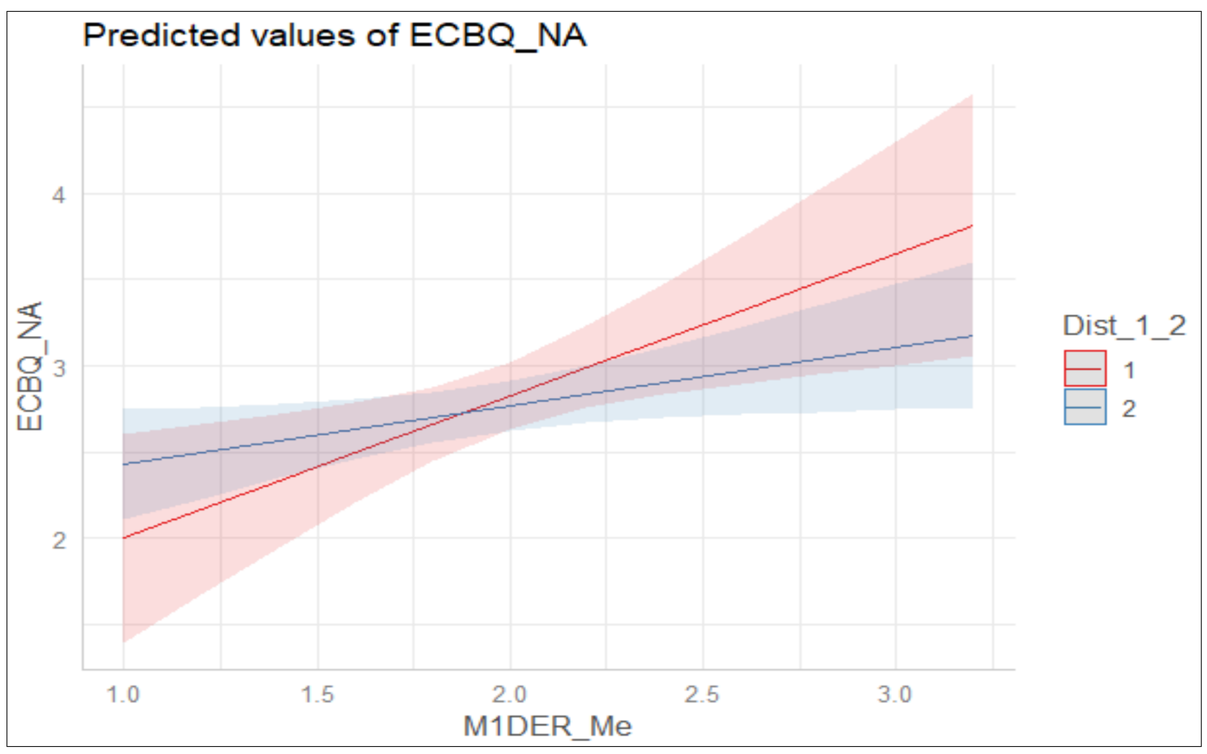

Figure 1. Distance from Gaza strip (Dist_1_2) as a moderator in the link between maternal emotion regulation (M1DER_Me) and negative affect (ECBQ_NA). Red = near the Gaza strip, Blue = all others. NS p > .05

Conclusions and Implications

- Consistent with previous studies (Edwards et al., 2017), we have found that the relationship between the mother's emotional regulation and the child's temperament is significant.
- Contrary to our hypothesis, we did not find an interaction between mother's emotional regulation and the distance from Gaza strip to be a significant predictor for the child's negative affect.
- We assume that these results may have occurred because the differences between the groups, i.e., residence near the Gaza strip versus residence in Beer Sheva and Ashkelon, are not as significant as we thought. Although residents living near the Gaza strip may experience chronic and ongoing pressure due to their proximity to Gaza, Beer Sheva and Ashkelon residents (distance 2), are also exposed to spontaneous attacks when escalation occurs (Solomon et al., 2017). These attacks may also cause an increased sense of stress.
- We speculate that constant exposure to stressful situations, i.e., missile attacks in the Gaza Strip, may develop resilience. Studies show that sometimes such a prolonged state of stress may lead to the development of mental strength and growth from the trauma (Dekel & Nuttman-Shwartz, 2009). It is possible that the association between living in the Gaza vicinity and the feeling of constant stress was not accurate.
- In further studies we propose to include and examine additional resident groups in order to have a larger diversity. Groups such as residents living in the Gaza vicinity compared to residents living in the center of Israel, who are not exposed to missile attacks on a daily base.

The Moderating Role of Emotional Regulation on the relation between Maternal Stress and Maternal Playfulness

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Introduction

- Parental playfulness conveys an assumption of a positive trait, that through humor, amusement and creativity – parents can contribute to the child's ability to see the world in a bright positive prism (Cohen et al., 2013; Levavi et al., 2020).
- Parental Playfulness was found to be correlated with Parental emotional regulation – playful parents presented better emotional regulation abilities. Thus, a playful parent may act as a socialization agent, by modelling ways to relieve negative emotions through playfulness (Cohen et al., 2010; Shorer et al., 2021).
- Playful parents also reported lower levels of perceived stress for both themselves and their children, and they have better ability to create a coherent narrative for coping stressful times (Cohen et al., 2010). Despite that, stressful environments and trauma can impair the ability of a parent to be playful (Cohen et al., 2013).
- During stressful times, emotion regulation contributes to reducing stress through emotional strategies (Shorer & Leibovich, 2020). However, parents who struggle with stressful life events, can experience difficulties in their emotional regulation abilities (Shorer & Leibovich, 2020).

The present study

The present study aims to investigate the relation between Maternal Stress, Maternal Playfulness and Maternal Emotional Regulation Difficulties (MERD).

We hypothesized that:

(1) Maternal stress would be associated with lower levels of Maternal Playfulness (Cohen et al., 2010).

(2) This connection will be moderated by the Maternal Emotional Regulation abilities, so that mothers with emotional regulation difficulties will be less playful during stressful times (Shorer & Leibovich, 2020).

Method

Samples: We used the data of 109 Israeli mothers who took part in The Secondborn study. This sample size allows us to detect a 0.2 effect size with a statistical power of 0.989.

Measures: We examined Maternal Playfulness through "The Scale of Playfulness" (Atzaba-Poria et al., 2014) (ICC=0.915). To examine Maternal stress, we used the 24 items PSI questionnaire, Cronbach's α 0.92 (Abidin, 1995). For MERD, we used the 36 items DERS questionnaire, Cronbach's α 0.94 (Gratz & Roemer, 2004).

Table 1. Model Summary

R	R-sq	MSE	F	df1	df2	P
.236	.056	.852	2.07	3.000	105.000	.109

Table 2. The Relation between Maternal Stress and Maternal Playfulness and the Moderation of Emotional Regulation Difficulties

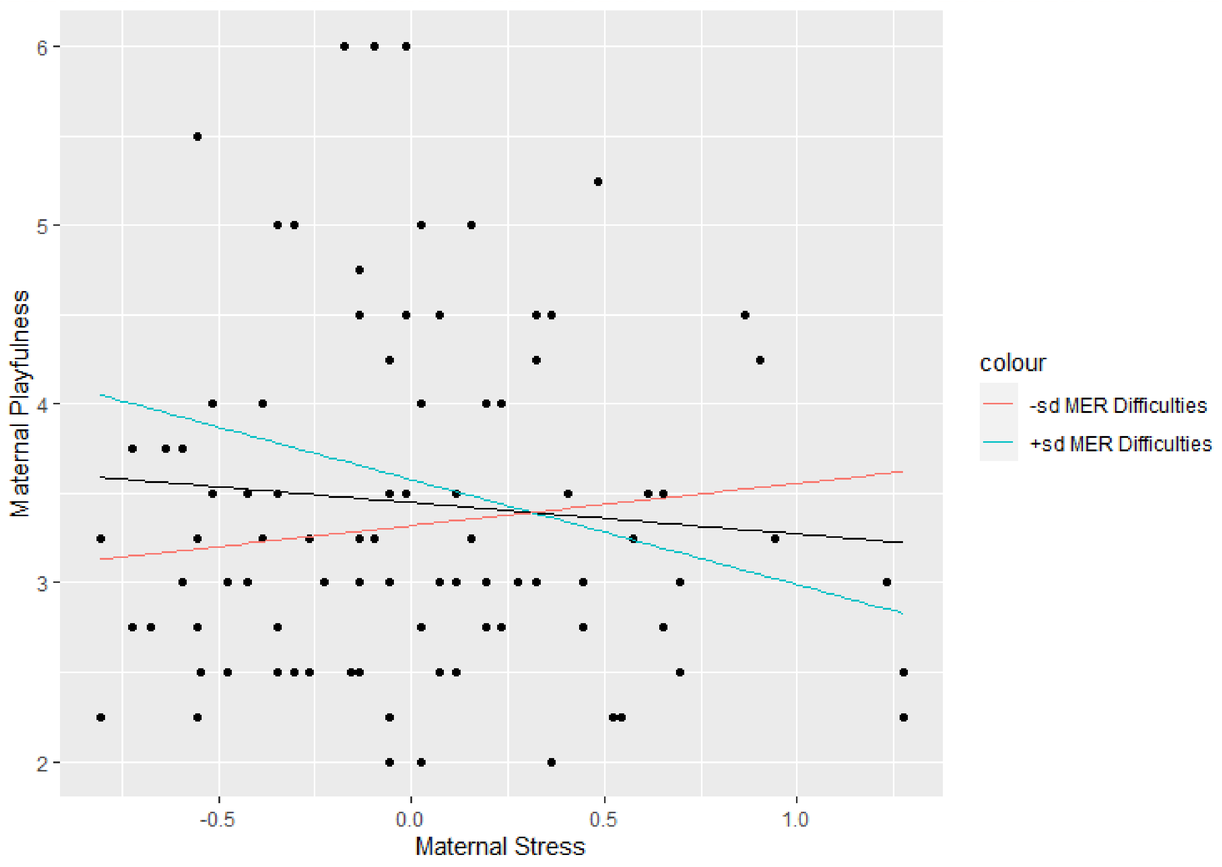
Variable	coeff	se	t	p	LLCI	ULCI
constant	3.499	.100	34.499	.000	3.251	3.648
Maternal Stress	-.176	.237	-.741	.460	-.646	.295
MERD	.313	.257	1.218	.226	-.197	.823
Maternal Stress X MERD	-1.004	.477	-2.107	.038	-1.949	-.059

Results

(1) Correlational analysis revealed no significant association between Maternal Stress and Maternal Playfulness ($r = -.033$, $p > .05$).

(2) Using a moderation model, we found that MERD significantly moderated the relation between Maternal Stress and Playfulness ($R^2 = .056$,$p < .05$). stress was negatively correlated with playfulness for mothers with greater MERD (+sd) ($B = -.587$, $p < .05$).

Graph 1



Conclusion and Implications

- The results regarding our first hypothesis indicated no association between Maternal playfulness and Maternal stress. We suggest that primary effect was not found, in contrary to the previous literature, due to our study population; which consist of mothers from two different geographical regions that are characterized with different stress environments. This could affect our baseline in stress measurements.
- Our second hypothesis of a moderation effect of MERD was significant. We assume that this moderation can be explained by differences in coping strategies, that are an important part of emotional regulation (Shorer & Leibovich, 2020).
- Mothers with higher levels of MERD showed a decrease of playfulness in higher stress levels, possibly because of the difficulty to regulate themselves and form positive stress coping strategy, such as playfulness (Shorer & Leibovich, 2020).
- Further research should be conducted regarding this subject due to the importance of parental functioning during stress, which serves as a protective system for their children and themselves (Cohen et al., 2010). In addition, as suggested above, further research should divide the population into different geographical groups and examine separately the association between Maternal Stress and Maternal Playfulness.

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People who experience more positive emotions either need more evidence or accumulate it slower, before deciding to report a pleasant emotion

Using Evidence Accumulation Models to investigate the emotional subjective experience of pleasantness .

Idan Lasry

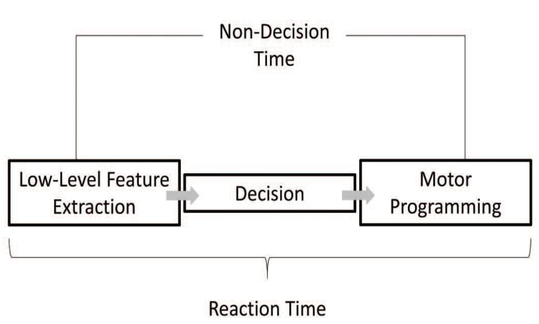
Supervised by Nachshon Meiran

INTRODUCTION

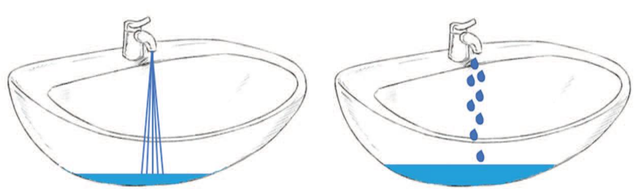
- The Linear Ballistic Accumulator Model (LBA) was used to describe reports of pleasant experience.

- The LBA has five parameter: Nondecision Time (NT), Starting-Point (SP), Threshold (b), Drift-Rate (DR) and SV (the last two determine the rate of evidence accumulation).

a



b



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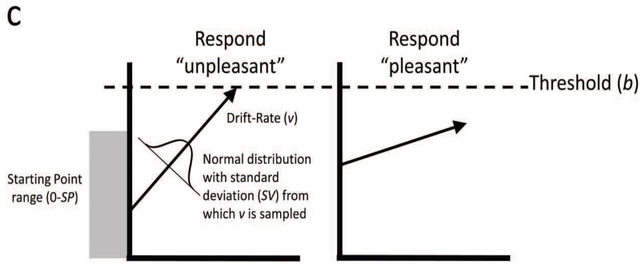
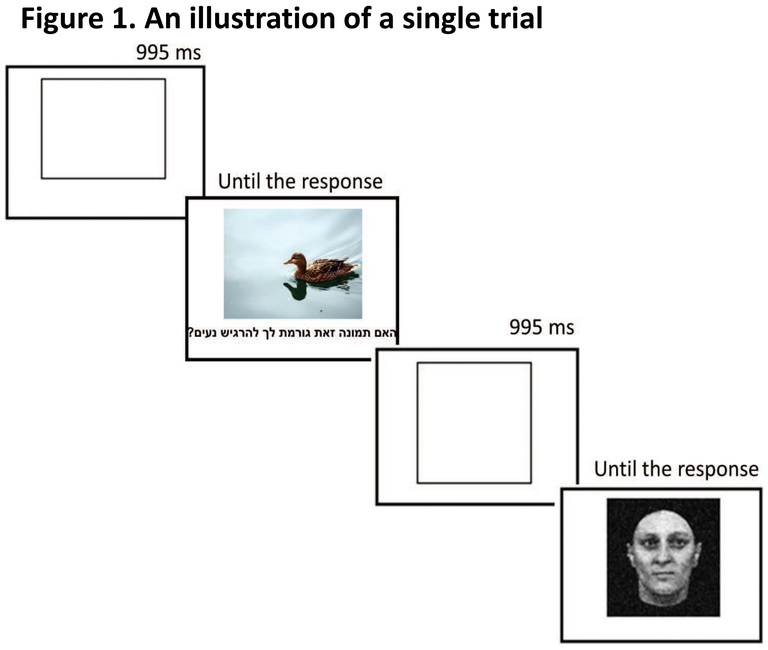


METHODS

- 60 participants chose whether a picture made them feel pleasant/unpleasant (or was supposed to in another group) followed by gender decisions about faces (see **Figure 1**). And then completed CES-D questionnaire.

Figure 1. An illustration of a single trial



- Individual differences, Reaction Time and Accuracy (normativity) of responses were modeled.
- Using 'rtdists' R package, LBA parameters have been estimated.
- Model selection was based on BIC values and was done for models which assumed differences in the LBA parameters between participants who report above or below median of positive emotion in the CES-D questionnaire (see **Table 1**).

RESULTS

- The model which assumed difference in **b** was chosen as the best fitting model (lowest BIC) (see **Table 1**).
- The model which assumed differences in DR and SV had almost the same BIC.

Table 1. models BIC and parameters values

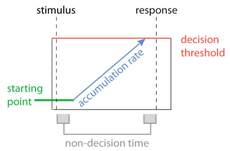
Model:	Parameter	Free Parameters	BIC	Parameter Value:	A	B	NDT	MEAN_V	SV	diff 1	diff2	diff3
1	Null	5	34626.2		1.148	0.636	0.050	0.735	0.264			
2	SP	6	34509.6		1.132	0.634	0.025	0.731	0.264	1.014		
3	b	6	34515.3		1.100	0.640	0.025	0.731	0.263	0.729		
4	NT	6	34546.7		1.121	0.652	0.025	0.734	0.264	0.075		
5	Drift-rate	6	34607.7		1.115	0.664	0.025	0.742	0.263	0.712		
6	SV	6	34592.6		1.099	0.675	0.025	0.733	0.279	0.246		
7	DR & SV	7	34515.7		1.100	0.675	0.025	0.755	0.286	0.229	0.697	
8	b & NT		34523		1.137	0.618	0.050	0.738	0.268	0.670	0.093	
9	SV, DR & b	8	34523.6		1.127	0.637	0.050	0.751	0.280	0.708	0.238	0.666

DISCUSSION

- It required more evidence to report about pleasantness for participants who report above median of positive emotion.

Intro

- Evidence accumulation models are used to describe the process of feeling generation.
- The emotional decision is made when enough emotional evidences are accumulated to cross a threshold in one of the accumulators.
- We would like to test whether positive thinking is linked to qualitative differences in the process.



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Methods

- Subjects answered the CES-D questionnaire. Those with below median score in Positive Affect (e.g., “I was happy”, “I enjoyed life”) were assigned to Group 1 and those above median were assigned to Group 2.
- The LBA (Linear Ballistic Accumulator model) was fit to (un)pleasantness report data.
- Comparison was made between a model that treats subjects as one group and a model that assumes differences between groups.

Results

- A comparison between the models and the null model revealed a priority of the models that assume differences between the groups according to the BIC index in the SP , threshold and drift-rate parameters.
- High Positive Affect was associated with higher SP, lower threshold and higher drift rate as compared with low Positive Affect.

Conclusions

- For people with positive affect, there is an acceleration in evidence accumulation and less evidence is required for experience.
- Positive affect may affect the process of feeling generation but in order to infer causality further research is needed.

References

Givon, E., Itzhak-Raz, A., Karmon-Presser, A., Danieli, G., & Meiran, N. (2020). How does the emotional experience evolve? Feeling generation as evidence accumulation. *Emotion, 20*(2), 271–285. https://doi.org/10.1037/emo0000537

Positive affect is associated with **accelerated feeling generation**

Lital Hizmy
Supervised by Nachshon Meiran

BIC values for all models comparing high/low positive affect

Model	Parameter	Number of free parameters	BIC
1	Null model	5	35125.72
2	SP	6	**34999.76**
3	Threshold	6	**34883.22**
4	Nondecision time	6	36626.1
5	Drift-rate	6	**35021.89**
6	SV	6	35147.79

Parameters for each model

Model	SP	Threshold	Nondecision time	Drift rate	SV	The Comparison parameter
1	1.153	0.644	0.050	0.738	0.269	
2*	1.010	0.751	0.050	0.745	0.282	1.129
3*	1.112	0.732	0.050	0.739	0.272	0.609
4	1.673	0.383	0.150	0.849	0.339	0.376
5*	1.142	0.654	0.050	0.708	0.273	0.770
6	1.209	0.667	0.141	0.818	0.325	0.376

People With High Scores In Positive Thinking Need More Evidence For Emotions To Become Conscious

Nitzan Partok

Introduction:

- According to Evidence accumulation Models (EAM), one can recognize her/his emotion when enough evidence about the emotion has accumulated.
- The current study used the Linear Ballistic Accumulator model (LBA), which includes five parameters.
- We wanted to examine whether positive thinking is associated with difference in evidence accumulation when reporting their emotion.

Methods:

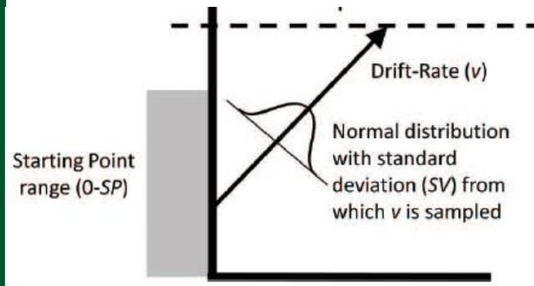
- Participants were asked to decide whether the images presented to them evoked a positive or negative emotion.
- We compared the BIC value of the null model to the BIC value of models that assume differences in one of the five LBA parameters.
- The comparison was made between people who have high scores in positive thinking to people who have a low score.

Results:

- We found priority of the model that assumes differences in the threshold over the other models.
- According to the chosen model, high scores in positive thinking are associated with an increased threshold.

Conclusion:

- People with high scores in positive thinking, need more evidence for emotions to become conscious.
- Further research is needed for examine whether there is causality between positive thinking and the process in which emotions become conscious.



Parameter	Number of Free Parameters	BIC
Null Model	5	34626.15
SP	6	34588.96
Threshold	**6**	**34515.32**
Nondecision time	6	34546.7
Drift Rate	6	34614.83
SV	6	34597.57

Threshold values:

- People with **high** scores in positive thinking – 0.7285283
- People with **low** scores in positive thinking – 0.6395699

References:

Givon, E., Itzhak-Raz, A., Karmon-Presser, A., Danieli, G., & Meiran, N. (2020). How does the emotional experience evolve? Feeling generation as evidence accumulation. Emotion, 20(2), 271–285. https://doi.org/10.1037/emo0000537

Emotional Decision-Making Parameters Do Not Change Between Depressed and Non-Depressed Participants

Kim Rubinstein
Supervised by Nachshon Meiran

Comparison Between LBA Model's Parameters According to CES-D Depression Score

INTRO

- Linear Ballistic Accumulator (LBA) is one of the Evidence Accumulation Models (EAMs) used to uncover psychological processes which underlie decision making.
- Comparison between models using Bayesian Information Criterion (BIC; Schwarz, 1978) helps understanding the feeling generation process between different groups.

METHODS

- N = 60
- CES-D scale (20 items) was used to evaluate current depressive symptom severity.
- Participants decided whether each stimuli from NAPS database (Marchewka, et al., 2014) made them feel (un)pleasant and then perform a gender decision (Blanz & Vetter, 1999; Troje & Bülthoff, 1996).
- Comparison was made between non depressed participants (score<16) and depressed participants (score≥16).

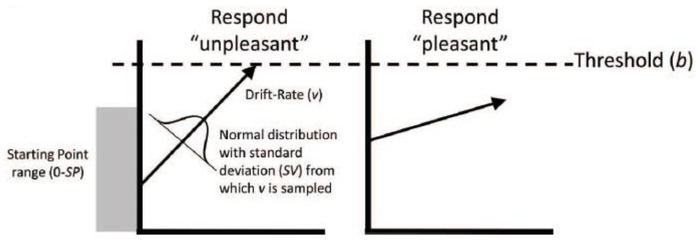
RESULTS

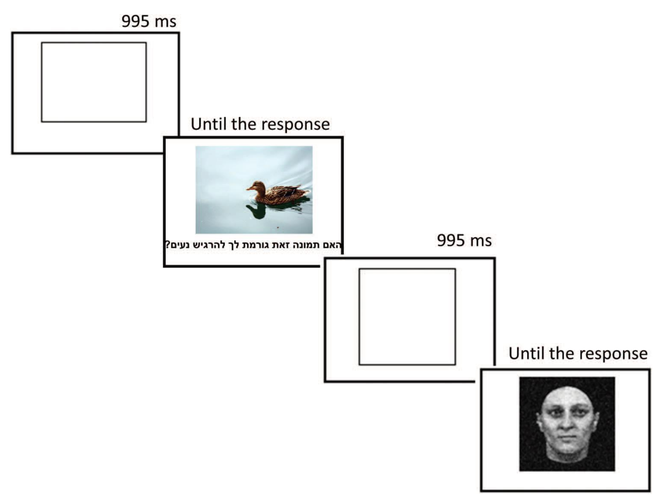
BIC Values for All Models Comparing Total Depression Score

Model	Parameter	Number of free parameters	BIC
1	**Null model**	**5**	**34626.15**
2	SP	6	34631.04
3	Threshold	6	34631.36
4	Non-decision	6	34632.74
5	Drift-Rate	6	34633.8
6	SV	6	34632.71

DISCUSSION

- Null model (Model 1), which assumes that all the parameters are equal across groups, generated the best (lowest) BIC value (34626.15).
- The results imply that there is no difference between depressed and non-depressed participants in the feeling generation process.





References:

Blanz, V., & Vetter, T. (1999). A morphable model for the synthesis of 3D faces. Proceedings of the 26th Annual Conference on Computer Graphics and Interactive Techniques (pp. 187–194). Austin, TX: ACM Press/Addison-Wesley Publishing Co.

Givon, E., Itzhak-Raz, A., Karmon-Presser, A., Danieli, G., & Meiran, N. (2020). How does the emotional experience evolve? Feeling generation as evidence accumulation. Emotion, 20(2), 271.

Marchewka, A.,Z urawski, L., Jednorog, K., & Grabowska, A. (2014). The Nencki Affective Picture System (NAPS): Introduction to a novel, standardized, wide-range, high-quality, realistic picture database. Behavior Research Methods, 46, 596–610.

Schwarz, G. (1978). Estimating the dimension of a model. Annals of Statistics, 6, 461–464.

Troje, N. F., & Bülthoff, H. H. (1996). Face recognition under varying poses: The role of texture and shape. Vision Research, 36, 1761–1771.

Could commitment to longitudinal dissociation research predict levels of dissociation?

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Theoretical Background

Dissociation is described as “an experienced loss of information or control over mental processes that, under normal circumstances, are available to conscious awareness, self-attribution, or control, in relation to the individual's age and cognitive development” (Cardeña & Carlson, 2011).

Dissociative symptoms such as absorption are known to be strongly related to obsessive-compulsive (OC) symptoms (Soffer-Dudek, 2019). Some suggest that this relation is due to lack of confidence in one’s reality, and inability to distinguish between reality and imagination (Merckelbach & Wessel, 2000).

The research question was whether to be engaged intensively on daily basis in filling dissociation related questionnaires (as used in example in longitudinal research), may undermine participant's confidence in his reality perception.

AIM & HYPOTHESIS

The aim of the current study was to examine whether the participants' level of commitment to the study (the number of questionnaires completed, out of the requested amount), can predict the levels of dissociation at the last day of the study.

Hypothesis: Commitment level would predict change of dissociation levels throughout the research period.

The more subjects fill out dissociation-related questionnaires, more likely it is that their perception of reality will be challenged, which in turn will lead to higher dissociation levels.

Methodology

PARTICIPANTS

102 Participants (78 women) were recruited independently (M_{age}=25.3, SD=3.8, $Range_{age}$=19-46).

PROCEDURE

At the beginning participants provided personal details and filled out questionnaire assessing dissociation (the Dissociative Experiences Scale, DES; Carlson & Putnam, 1993). A few days later, participants were asked to fill out 4 questionnaires each day, for a period of 7 days (28 questionnaires overall). Participants were asked to fill out the daily questionnaires 4 times throughout the day. The four times were at varying hours, but within a fixed time range.

Each questionnaire included 5 items assessing dissociation and stress: 4-item momentary dissociation measure, adapted for use in experience-sampling from the Dissociation Tension Scale (DSS) (Soffer-Dudek, 2017). Items 1,2: absorption related, items 3,4: Depersonalization-Derealization (DEP-DER) related. A single-item momentary stress measure (Hellhammer & Schubert, 2012).

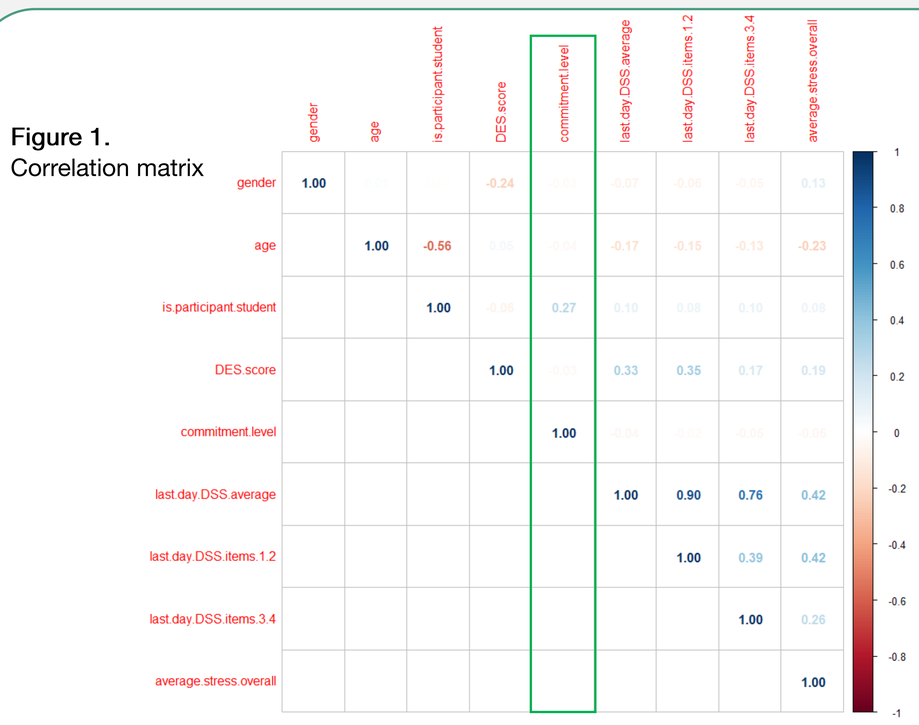
Subjects varied in the number of questionnaires they answered, out of the amount requested. This variance between the participants led to the research question. **Commitment level** was assessed as the number of questionnaires filled out, by each subject, throughout the seven days of research (M=20.7, SD=5.3, Range=5-28). For each participant, the **average** of his **last and first day**, for the various indices, was calculated.

ANALYSIS

Three multiple regression models have been made for predicting 3 measures of dissociation in the last day: average of DSS score in the last day (Table 1), average of items 1,2 score in the last day (Table 2), average of items 3,4 score in the last day (Table 3). Since the first day scores were controlled, all models predicted changes in dissociation.

Results

Figure 1.
Correlation matrix



- Correlation was found between commitment level and whether the participant is a student, although the same incentive was used for students and non-student participants. No other significant correlation was found between commitment level and other variables.
- Commitment level did not predict increase of dissociation throughout the research period, in any of the 3 models.
- However, the mean stress throughout the period was a significant predictor for the last day dissociation levels in 2 models (Table 1 – p=0.0133, β=0.286; Table 2 – p=0.00786, β=0.325).

Table 1. Multiple regression results – predicting levels of DSS on last day (avg)

Variable	b	SE	p-value
Commitment level	0.002	0.015	0.908
First day DSS (avg)	0.671	0.093	<0.001 ***
Last day stress (avg)	-0.051	0.114	0.652
Mean stress overall	0.421	0.166	0.013 *

Note: $p<0.05^{*}$, $p<0.01^{**}$, $p<0.001^{***}$

Table 2. Multiple regression results – predicting levels of items 1,2 (absorption related) on last day

Variable	b	SE	p-value
Commitment level	0.007	0.022	0.744
First day DSS (1,2)	0.540	0.088	<0.001 ***
Last day stress (avg)	-0.111	0.171	0.516
Mean stress overall	0.679	0.249	0.007 **

Note: $p<0.05^{*}$, $p<0.01^{**}$, $p<0.001^{***}$

Table 3. Multiple regression results – predicting levels of items 3,4 (DEP-DER related) on last day

Variable	b	SE	p-value
Commitment level	-0.005	0.014	0.685
First day DSS (3,4)	0.987	0.110	<0.001 ***
Last day stress (avg)	0.003	0.105	0.977
Mean stress overall	0.188	0.151	0.215

Note: $p<0.05^{*}$, $p<0.01^{**}$, $p<0.001^{***}$

Discussion

- Contrary to the research hypothesis, commitment level was not found as a significant predictor of changes in dissociation levels.
- It is possible to assume that filling out dissociation-related questionnaires would not affect dissociation levels per se. On the other hand, it is also possible that filling out 4 dissociation-related questionnaires per day is not intensive enough to challenge one’s perception of reality. In order to examine in depth the research question, further research is needed, based on a more intensive questionnaire structure.
- Nevertheless, the average stress scores throughout the seven days was found as a significant predictor for dissociation levels on the last day. It was a significant predictor for the absorption related items (Table 2), but it was not significant for the DEP-DER related items (Table 3). Although, past studies showed that most commonly DEP-DER is positively associated with stress, while absorption is not (Soffer-Dudek, 2017), in the present study the contradicting results could derive from the distribution of the predicted variable in the third regression model (Skewness=3.211;Table 3), which could impair the model’s validity.
- Interestingly, the dissociation levels reported in this study appear to have been influenced more by theoretically relevant factors (such as stress), rather than methodological factors such as the number of questionnaires a participant has answered.
- In conclusion, although the present study’s hypothesis was not accepted, this study may be helpful to other longitudinal studies. The methodology applied here may serve as a useful and easy to use tool for validity checking. Creating a variable that assesses commitment levels to the study, may assist in drawing more valid conclusions.

Bibliography

Cardeña, E., & Carlson, E. (2011). Acute Stress Disorder Revisited. *Annual Review of Clinical Psychology*, *7*(1), 245–267.
Carlson, E. B., & Putnam, F. W. (1993). An update on the Dissociative Experiences Scale. *Dissociation: Progress in the Dissociative Disorders*, *6*(1), 16–27.
Hellhammer, J., & Schubert, M. (2012). The physiological response to Trier Social Stress Test relates to subjective measures of stress during but not before or after the test. *Psychoneuroendocrinology*, *37*(1), 119–124.
Merckelbach, H., & Wessel, I. (2000). Memory for Actions and Dissociation in Obsessive-Compulsive Disorder. *The Journal of Nervous and Mental Disease*, *188*(12), 846–848.
Soffer-Dudek, N. (2017). Daily Elevations in Dissociative Absorption and Depersonalization in a Nonclinical Sample Are Related to Daily Stress and Psychopathological Symptoms. *Psychiatry*, *80*(3), 265–278.
Soffer-Dudek, N. (2019). Dissociative absorption, mind-wandering, and attention-deficit symptoms: Associations with obsessive-compulsive symptoms. *British Journal of Clinical Psychology*, *58*(1), 51–69.

Correlations Between Compulsively Valenced Intentional Lucid Dreaming Techniques and OC-Symptoms Over Time

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THEORETICAL BACKGROUND

Lucid Dream (**LD**) is a dream involving awareness of dreaming, involving Increased insight, sense of control, Access to waking memories and Logical thought (Schredl & Erlacher, 2004). A lucid dream can occur spontaneously or intentionally. Deliberate LD is achieved by many techniques based on different methodologies; Mnemonic Induction of Lucid Dreams (MILD), Wake Initiated Lucid Dreaming (WILD) ,Sleep Schedule, Sleep diary, literature reading, Thinking about lucid dreaming, Reality checks and wishing for lucid dream. Some of these techniques are based on repeated actions and mantras; MILD technique requires the dreamer to repeat a mantra before bed, WILD includes repeated thoughts throughout the day, and Sleep schedule demands strict repetitive sleep routine.
Repeated actions has been found as a cause of cognitive uncertainty (Van Den Hout & Kindt , 2003); Repetitive act interpreted as familiar and thus encode poorly to the memory. As a result, memory for such actions is not dependable and causes doubt in cognitive abilities.
Therefore, as MILD, WILD, and sleep schedule techniques has a repetitive routine, we can group these techniques into unified cluster of **Compulsive LD techniques**.
Deliberate induced lucid dreaming has been connected to psychopathology (Soffer-Dudek & Aviram, 2018), and specifically was found positively linked to Obsessive Compulsive (OC) Symptoms.
Therefore, as induced LD is achieved by LD techniques, I hypothesize that frequent use of Compulsive LD techniques will be associated with increase in OC symptoms levels. Moreover, I also hypothesized that Non-Compulsive techniques will not be linked to OC symptoms.

METHODOLOGY

Participants and Measures The study included two phases, which granted the study a longitude aspect. Participants were 187 undergraduate students [n = 133 (71%) female, age M = 23.39, SD = 1.45, range 18–28].

Participants filled the Frequency and Intensity of Lucid Dreams questionnaire (FILD) (Soffer-Dudek & Aviram, 2018). In order to evaluate the frequency of practicing the different LD techniques among participants that experienced deliberately induced LD.

Participants also filled the Maudsley Obsessive Compulsive Inventory (MOCI; Hodgson & Rachman, 1977) as a measure of OC symptoms.

Data Analysis We used existing data from previous related study (Aviram & Soffer-Dudek, 2018) and re-analyzed it according to our design.

Intentionally induced LD techniques were separated to 2 groups; Compulsive techniques group(MILD/WILD, Sleep Schedule) and Non-Compulsive group (Sleep diary, LD literature reading, Thinking about LD, Reality checks and Wishing for LD). Change over time measured as the residual from predicting OC symptoms in time 2 with OC symptoms in time 1.

Variable	1	2	3	4	5	Mean (SD)
1. Compulsive LD Techniques		0.535**	0.129	0.371**	0.248*	0.992 (0.312)
2. Non-Compulsive LD Techniques			0.165*	0.294*	0.061	1.140 (0.477)
3. MOCI Questionnaire score - phase 1				0.780**	0.000	8.677 (5.335)
4. MOCI Questionnaire score - phase 2					0.626**	8.403 (4.843)
5. MOCI Questionnaire score - change						0 (0.993)

Table 1 correlation table between group (compulsive technique, non-compulsive techniques) and OC symptoms (MOCI score) in time 1, time 2 (two month after time 1), and change over time.
** correlation is significant at the 0.01 level (2-tailed).
* correlation is significant at the 0.05 level (2-tailed).

RESULTS

During 1st phase, in contrast to Compulsive LD techniques, only Non-Compulsive LD techniques was found significantly correlated with OC-symptoms. However, during the 2nd phase, both groups was positively linked to OC symptoms. Interestingly, only compulsive LD techniques was significantly correlated with OC-symptoms change over time.
Both group was correlated with each other due to similarities in the protocols of the different techniques.

DISCUSSION

The classification of techniques to compulsive group and non-compulsive group allowed us to examine the contribution of each techniques group to the relationship between induced LD and OC symptoms.
Even though Non-Compulsive group was linked to OC-symptoms in both study phases, only Compulsive group was strongly correlated with the change in OC-symptoms over the phases. In other words, correspondingly with our hypothesis, the compulsive group have a distinct relationship with OC symptoms levels, that was not found with the Non-Compulsive group.
Checking compulsions, one of OCD most common compulsions, were found related with indecisiveness and doubt (Rachman, 2002). Furthermore, such compulsions can reduce sense of responsibility (Van Den Hout & Kindt, 2004). Both doubt and lack of responsibility raise the need for certainty and stability, which manifested in increased compulsions and obsessions (Van Den Hout & Kindt, 2004). As all Compulsive LD techniques include consistent and frequent reality, time or self checks, we can suggest that the use in those techniques may influence OC symptoms frequency and levels.

REFERENCES

1. Schredl, M., & Erlacher, D. (2004). Lucid dreaming frequency and personality. *Personality and Individual Differences*, *37*(7), 1463-1473.
2. van den Hout, M., & Kindt, M. (2003). Repeated checking causes memory distrust. *Behaviour research and therapy*, *41*(3), 301-316.
3. Aviram, L., & Soffer-Dudek, N. (2018). Lucid dreaming: intensity, but not frequency, is inversely related to psychopathology. *Frontiers in psychology*, *9*, 384.
4. Hodgson, R. J., & Rachman, S. (1977). Obsessional-compulsive complaints. *Behaviour research and therapy*, *15*(5), 389-395.
5. Rachman, S. (2002). A cognitive theory of compulsive checking. *Behaviour research and therapy*, *40*(6), 625-639.
6. van den Hout, M., & Kindt, M. (2004). Obsessive–compulsive disorder and the paradoxical effects of perseverative behaviour on experienced uncertainty. *Journal of behavior therapy and experimental psychiatry*, *35*(2), 165-181.

The Effect of Specific Memory on the Relationship Between Trauma and Dissociation

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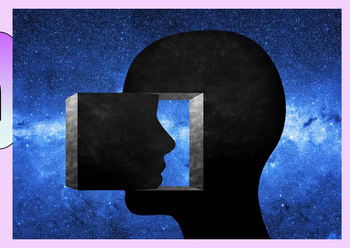
Introduction

- Autobiographical memory is a person's memory of experiences that occurred during his/her life.[1] **Memory specificity** refers to the extent to which retrieved autobiographical memories are specific.[2] Recalling specific personal experiences plays an important role in understanding who one is and creating a continuous sense of self.[3] Studies have linked the coherence of individuals' identity with adaptive psychological adjustment and active coping styles. [4,5]
- **Trauma** is an emotional response to a terrible event that results in disruptive feelings intense enough to have a long-lasting negative effect. [6]
- **Dissociation** is a psychophysiological process that alters the accessibility of memory and knowledge, integration of behavior, and sense of self.[7] Dissociation, in some cases, allows individuals to temporarily protect the mind through passive disengagement from reality and compartmentalization of thoughts, memories, and feelings related to trauma.[8]
- **The aim** is to examine the effect of Memory Specificity on the relationship between Trauma and Dissociation.
- **The hypothesis** is that specific memories reflect a stable sense of self and enable the ability to cope with trauma, which is expected to moderate the relationship between trauma and dissociation.

Trauma → Dissociation



Memory Specificity

Methods

Study population: 101 psychiatric outpatients (67 females) diagnosed with MDD, GAD, OCD, PD, or comorbid anxiety and depression. Participants were recruited independently or through their doctor (M_{age}=39.5, SD=12.5, $Range_{age}$=20-64).
Exclusion criteria: (1) post-traumatic stress, dissociative, bipolar, or psychotic disorder; (2) illegal substance abuse; and (3) major medical illnesses or neurologic disorders, or a history of severe head trauma within the past six months.

Measures: *Autobiographical memory* was assessed using the Autobiographical Memory Test (AMT). Subjects were asked to retrieve a specific event in response to a positive or negative word. *Trauma* was assessed using the Childhood Trauma Questionnaire (*CTQ*), which includes 5 sub-scales: Emotional Abuse, Physical Abuse, Sexual Abuse, Emotional Neglect, Physical Neglect. *Dissociative experiences* were assessed using the Revised Dissociative Experiences Scale (*R-DES),* which includes 5 sub-scales: amnesia, depersonalization/derealization, absorption, taxon, pure absorption.

Results

Table 1. Correlation Matrix

		positive	negative	destot	amn	dep/der	abs	taxon	pure	emotional A
positive	Pearson's r	—								
	p-value	—								
negative	Pearson's r	0.663	—							
	p-value	< .001	—							
destot	Pearson's r	−0.044	−0.006	—						
	p-value	0.660	0.949	—						
amn	Pearson's r	−0.104	−0.065	0.836	—					
	p-value	0.299	0.517	< .001	—					
dep/der	Pearson's r	−0.082	−0.043	0.533	0.364	—				
	p-value	0.415	0.667	< .001	< .001	—				
abs	Pearson's r	0.029	0.037	0.900	0.616	0.399	—			
	p-value	0.773	0.714	< .001	< .001	< .001	—			
taxon	Pearson's r	−0.021	−0.011	0.764	0.630	0.843	0.629	—		
	p-value	0.835	0.914	< .001	< .001	< .001	< .001	—		
pure	Pearson's r	−0.027	0.038	0.888	0.600	0.422	0.934	0.614	—	
	p-value	0.784	0.707	< .001	< .001	< .001	< .001	< .001	—	
emotional A	Pearson's r	−0.125	−0.136	0.269	0.117	0.052	0.290	0.163	0.334	—
	p-value	0.210	0.172	0.006	0.240	0.600	0.003	0.101	< .001	—

- No correlation was found between positive/negative memory specificity and dissociation.
- Higher levels of emotional trauma were related to higher dissociation (p=0.006).
- *Memory specificity* as a moderator: After controlling for gender, no significant interaction was observed between Trauma (emotional abuse sub-scale) and Memory Specificity for predicting Dissociation (for positive memories (p=.084); for negative memories (p=.130), tables 2a&b).

Table 2a. Predicting dissociation– the interaction between trauma and *positive* memories

Model		Unstandardized	Standard Error	Standardized	t	p
0	(Intercept)	5.929	2.874		2.063	0.042
	positive_center	−0.270	1.397	−0.019	−0.193	0.847
	emotional A	0.574	0.204	0.280	2.819	0.006
	gender	−1.319	1.512	−0.086	−0.872	0.385
1	(Intercept)	6.080	2.845		2.137	0.035
	positive_center	−5.611	3.356	−0.396	−1.672	0.098
	emotional A	0.626	0.204	0.305	3.072	0.003
	gender	−1.569	1.503	−0.103	−1.044	0.299
	positive_center ✻ emotional A	0.624	0.357	0.415	1.746	0.084

Table 2b. Predicting dissociation– the interaction between trauma and *negative* memories

Model		Unstandardized	Standard Error	Standardized	t	p
0	(Intercept)	5.745	2.879		1.996	0.049
	negative_center	0.283	1.268	0.022	0.223	0.824
	emotional A	0.584	0.204	0.284	2.864	0.005
	gender	−1.255	1.513	−0.082	−0.829	0.409
1	(Intercept)	5.596	2.861		1.956	0.053
	negative_center	−3.257	2.636	−0.254	−1.235	0.220
	emotional A	0.660	0.209	0.321	3.165	0.002
	gender	−1.456	1.508	−0.095	−0.965	0.337
	negative_center ✻ emotional A	0.433	0.283	0.318	1.528	0.130

- Using the amnesia sub-scale in the regression models led to the same result as DES-total.

Discussion

- Contrary to the hypothesis, the interaction between Trauma and Memory Specificity was not statistically significant.
- A possible explanation may be found in the study population: a clinical population has limited capabilities to deal with trauma, low defense mechanisms and poor coping strategies.[9] Due to their low defense mechanisms, memory specificity might not represent a stable sense of self and thus not be an effective moderator.
- The study population was not diagnosed with PTSD, which may explain the partly significant correlation between trauma and dissociation.
- The results show that in comparison to the remaining variables, the variance of memory specificity is much lower (SD=0.5). Hence, it may have been statistically problematic to use this variable as a moderator.
- Dissociation is a basic psychological process related not only to trauma. Accordingly, future research regarding memory specificity should not only focus on dissociation, but also should include various psychopathologies related to trauma and diverse populations, including populations diagnosed with PTSD.
- In conclusion, considering the insignificant effect of memory specificity, it seems that implementing various methods of coping with trauma is recommended.

References

1. *DSM-5*; American Psychiatric Association, 2013.
2. Williams, J. M., & Broadbent, K. (1986). Autobiographical memory in suicide attempters. *Journal of abnormal psychology*, *95*(2), 144.
3. Bluck, S., & Habermas, T. (2000). The life story schema. *Motivation and emotion*, *24*(2), 121-147.
4. Bigler, M., Neimeyer, G. J., & Brown, E. (2001). The divided self revisited: Effects of self-concept clarity and self-concept differentiation on psychological adjustment. *Journal of Social and Clinical Psychology*, *20*(3), 396-415.
5. Smith, M., Wethington, E., & Zhan, G. (1996). Self-concept clarity and preferred coping styles. *Journal of Personality*, *64*(2), 407-434.
6. *DSM-5*; American Psychiatric Association, 2013.
7. Carlson, E. A., Yates, T. M., & Sroufe, L. A. (2009). *Dissociation and development of the self.* In P. F. Dell & J. A. O'Neil (Eds.), *Dissociation and the dissociative disorders: DSM-V and beyond* (p. 39–52). Routledge/Taylor & Francis Group.
8. Schimmenti, A. (2018). The trauma factor: Examining the relationships among different types of trauma, dissociation, and psychopathology. *Journal of Trauma & Dissociation*, *19*(5), 552-571.
9. Reynolds, M., & Brewin, C. R. (1998). Intrusive cognitions, coping strategies and emotional responses in depression, post-traumatic stress disorder and a non-clinical population. *Behaviour Research and Therapy*, *36*(2), 135-147.

האם נשים וגברים מושפעים אחרת מסטריאוטיפים על גיל בעת מתן הערכה רפואית למטופל

נופר גבאי, חוקר ראשי: ד"ר ניב רגב: המעבדה לחקר חברה, קוגניציה, מוטיבציה ומוח

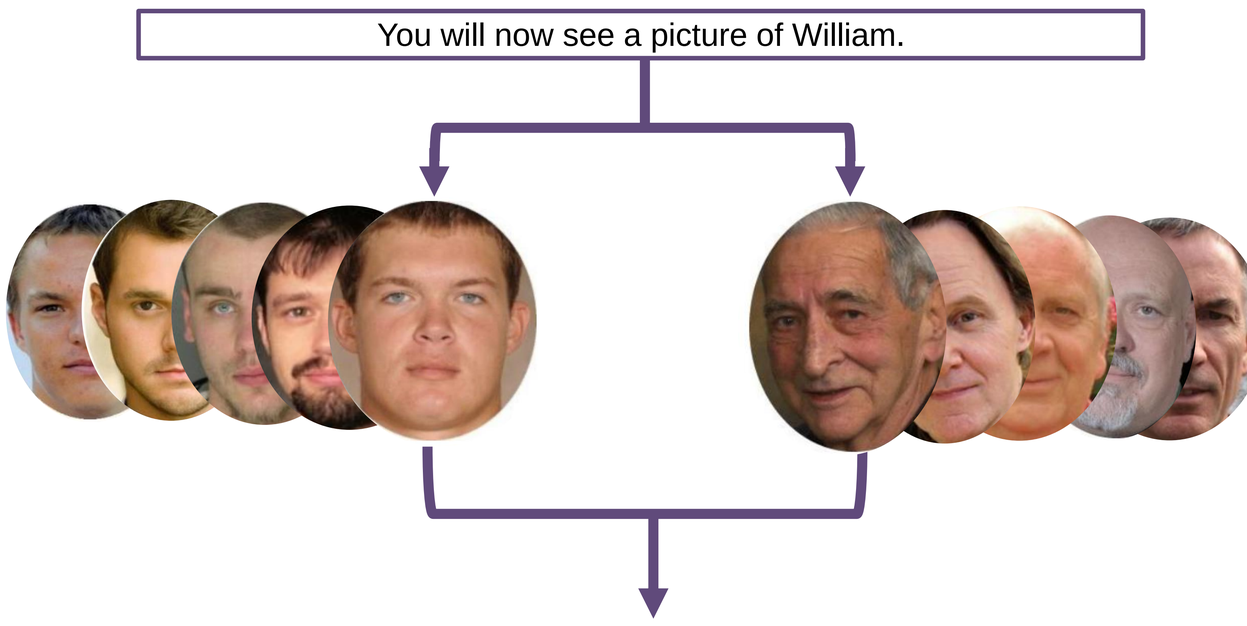
מבוא

- סטראוטיפים ודעות קדומות מסוגים שונים גורמים להטיות שונות בהערכת מצבם הרפואי של מטופלים [1].
- מאפיינים דמוגרפים כמו מגדר, מוצא אתני, מצב סוציואקונומי, הן של המטפל והן של המטופל, משפיעים על אופן מתן הטיפול הרפואי[1] .
- בניסוי של חכמוב, קון שוורץ ורגב (unpublished), נמצא כי סטראוטיפ על גיל משפיע על הערכת מצבו הרפואי של מטופל כך שככל שגיל המטופל עולה, כך הערכת מידת הכאב וחומרת אבחנתו עולות בהתאם.
- מחקרים הראו שמגדר הצד המעריך משפיע על הערכת כאב של אחר, כאשר נשים נוטות להעריך כאב גבוה יותר מגברים[3,4] .
- ניתוח הנתונים הנוכחי נעשה על הנתונים שנאספו בניסוי של חכמוב ושותפיו (unpublished), והוא בודק האם קיימת אינטראקציה בין מגדר הנבדק לגיל המטופל, בהערכת מידת כאב וחומרת אבחנה של מטופל. כלומר האם אפקט הסטריאוטיפ על גיל שנמצא, יהיה שונה בגודלו בין נשים לגברים.
- ייתכן שסטריאוטיפ הגיל ישפיע חלש יותר על נשים כתוצאה מאפקט תקרה של סולם הדירוג. מנגד ייתכן שישפיע חזק יותר ויקצין אף יותר את נטייתן הקיימת להערכת כאב באופן קיצוני מגברים.

שיטה

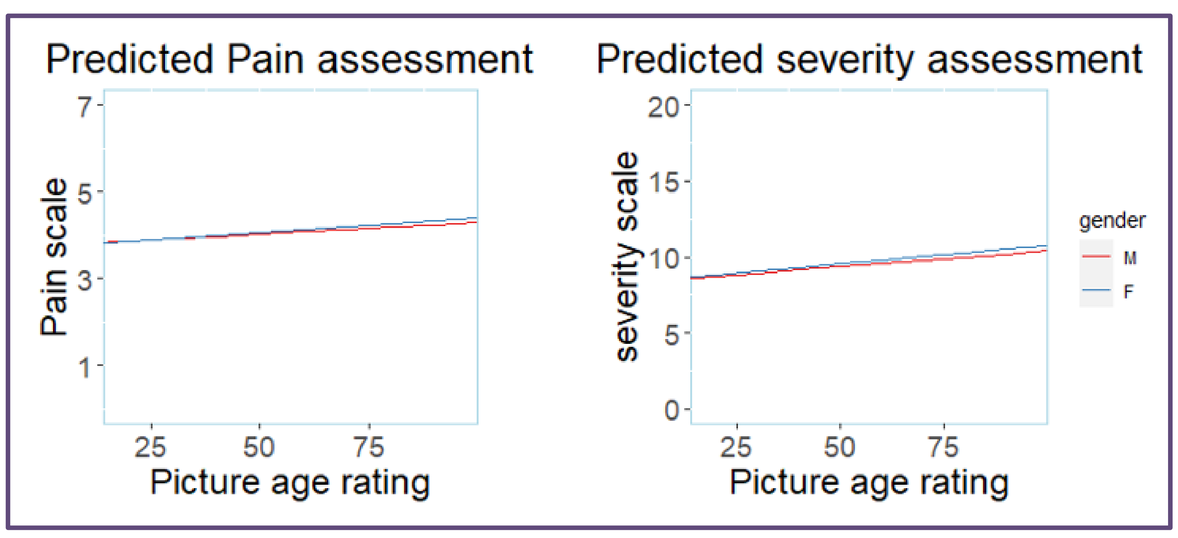
- את הניסוי השלימו 169 נבדקים אזרחי ארצות הברית דרך אתר profilic ($M_{Age} = 33.601$, $SD_{Age} = 8.675$, $Range_{Age} = 21 - 54$); מתוכם 91 גברים, ו74 נשים.

William, works as an electrical engineer in a technology company. He is visiting the doctor's office as he has been suffering from a shooting pain in his lungs for several days. When the doctor asked about his general health conditions he replied that he manages to workout 2-3 times a week and he watches what he eats. He also mentions that the pain woke him up a few times last night, but that in general, he can function as usual.



תוצאות

* F = female, M = men



b = -0.00 [-0.00, 0.00]
P = .558
$R^2_{Marginal}$ = .018
*BF*01 = 3.89

b = -0.00 [-0.02, 0.01]
P = .704
$R^2_{Marginal}$ = .017
*BF*01 = 5.13

דיון

- מניתוח ההסקה הקלאסית לא נמצא הבדל מובהק בין גברים לנשים בהשפעת סטריאוטיפ על גיל בהערכת כאב או מידת חומרת אבחנה של מטופל.
- כמו כן יש עדות חזקה לתמיכה בהשערת האפס לפיה אין אינטראקציה בין המגדרים.
- ייתכן כי גברים ונשים מושפעים באופן דומה מסטריאוטיפ על גיל וככל שגיל המטופל עולה, הערכת הכאב וחומרת האבחנה שלו עולות באותו יחס בשני המגדרים.
- לצד זאת, בניתוח ההסקה הקלאסית לא נמצא אפילו הבדל בהערכת כאב בין המגדרים מעבר לגילאים השונים של המטופלים, כלומר בניגוד לממצאים קודמים בספרות[3,4] , לא נמצא אפקט עיקרי למגדר (*P* = .835).
- מנגד, מחלוקת ה- BF שהתקבל עבור המודל שכלל את מגדר הנבדק וגיל המטופל, ב-BF שהתקבל עבור המודל שכלל רק גיל, התקבלה עדות די חזקה לטובת המודל הראשון (*BF*10 = 4.65).
- בניסויים קודמים, גודל האפקט של מגדר בהערכת כאב שנמצא בניסוי שהשתמש בגירויים של גברים בלבד[3], היה קטן מזה שנמצא במחקר שהשתמש בגירויים משני המגדרים[4].
- עוצמת המבחן הנוכחי שחושבה לפי גודל האפקט מהמחקר שכלל רק גירויי גברים[3] נמצאה יחסית חלשה (0.252).
- ייתכן כי ההבדל בתוצאות הניתוחים נובע מאי רגישות מספקת של המניפולציה במחקר הנוכחי להבדלים הקיימים בין גברים לנשים, וכי שימוש בגירויים של גברים בלבד מצריך מדגם גדול יותר על מנת להשיג עוצמת מבחן טובה.
- לפי העדויות הנוכחיות לא נראה כי סטריאוטיפ על גיל משפיע אחרת על גברים ונשים אך רצוי לערוך מחקר המשך בעל עוצמה גבוהה יותר לבירור שאלה זו בצורה תקפה יותר.

ביבליוגרפיה

- FitzGerald, C., & Hurst, S. (2017). Implicit bias in healthcare professionals: a systematic review. *BMC medical ethics*, *18*(1), 1-18.
- Hachamov, N., Cohn-Schwartz, E., & Reggev, N. (2021). Age perceptions modulate disease assesments. Unpublished manuscript
- Mathur, V. A., Richeson, J. A., Paice, J. A., Muzyka, M., & Chiao, J. Y. (2014). Racial bias in pain perception and response: Experimental examination of automatic and deliberate processes. *The journal of pain*, *15*(5), 476-484.
- Preis, M. A., & Kroener-Herwig, B. (2012). Empathy for pain: The effects of prior experience and sex. *European journal of pain*, *16*(9), 1311-1319.
- Jeffreys, H. (1961). *The theory of probability.* Oxford, UK: Oxford University Press.

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Affective Forecasting Error in Basic and Self-conscious Emotions Following the Elections Results

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Introduction

Affective forecasting is the misprediction of how much pleasure or displeasure future events will bring. People typically forecast more extreme and lasting emotional reactions to events than they actually experience (Wilson & Gilbert, 2005). One explanation for the effect is based on construal level theory (Liberman & Trope, 2014). When predicting their emotion from afar, people are likely to construe the emotional event more abstractly than when evaluating it right after it happened. In our research, we tested how the type of emotion influences affective forecasting. It has been found that the underlying appraisals of some emotions (e.g., pride, shame) involve abstract construal and a distal perspective than other emotions (e.g., joy, sadness; Bornstein et al., 2020; Karsh & Eyal, 2013). Therefore, we hypothesized that when participants are asked to indicate their experience of self-conscious emotions (pride, despair), which involve distancing and abstraction, the affective forecasting error would be less pronounced compared to the experience of basic emotions (joy, sadness) regarding the election day.

Method

Participants: One hundred and twenty-one participants completed the first questionnaire, 61 participants (34 female, M_{age} = 26.9, SD = 7.10) completed the two online questionnaires, that were published three days before (time 1), and two days after (time 2) the election day (March 23rd, 2021).
Procedure: At time 1, participants indicated the political party they planned to vote for and the number of mandates that if their party receives would be a success. Participants then rated on 9-point scales the intensity of their emotions if the number of mandates of their political party will be lower than the number they defined as success, and higher or equal to the number they defined as success. They also predicted their emotions following the results of the election day in general. Finally, participants rated their level of identification with the political party they planned to vote for.
At time 2, participants indicated the political party they voted for and the actual number of mandates it received. Next, participants rated on 9-point scales the intensity of their emotions following the number of mandates their political party received and the election day results in general.

Results

We divided the participants into two groups – those that their political party received fewer mandates than they predicted (failure) and those that their political party received the same or more mandates than they predicted (success). Participants who reported voting for a different political party than reported in time 1, were excluded from the analysis. We ran four ANOVAs to test our hypotheses.

Success.
An ANOVA with emotion (joy, pride) and time (time 1, time 2) as within-subject variables revealed a marginally significant main effect for emotion (1,23)=3.93, p=.059, η^2=.010. However, contrary to our prediction, there was no main effect for time, F(1,23)=2.43, p=.133, η^2=.021, and no interaction, F(1,23)=0.13, p=.722, η^2=.000 (Figure 1).

Failure.
An ANOVA with emotion (sadness, despair) and time (time 1, time 2) as within-subject variables revealed no main effect for emotion, F(1,24)=2.556, p=.123, η^2=.011, and time, F(1,24)=0.908, p=.350, η^2=.015, and no interaction, F(1,24)=0.54, p=.469, η^2=.002 (Figure 2).

Positive emotions for results of elections in general.
An ANOVA with positive emotion (joy, pride) and time (time 1, time 2) as a within-subject variables revealed no main effect for emotion, F(1,60)=0.340, p=.562, η^2=.001, and time, F(1,60)=0.791, p=.377, η^2=.004, and no interaction, F(1,60)=1.032, p=.314, η^2=.002 (Figure 3).

Negative emotions for results of elections in general.
An ANOVA with negative emotion (sadness, despair) and time (time 1, time 2) as a within subject revealed a significant effect for emotion. F(1,60)=24.853, p=<.001, η^2=.0038. However, there was no main effect for time, F(1,60)=1.653, p=.204, η^2=.006, and no interaction, F(1,60)=0.106, p=.746, η^2=.000 (Figure 4).

Political party identification was not related to emotion intensity.

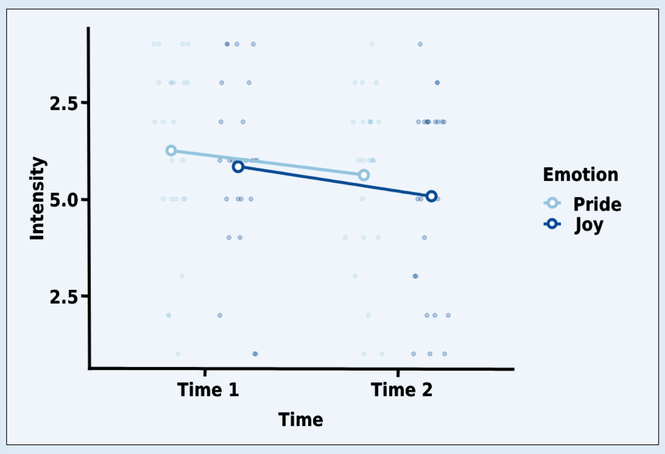

Figure 1. Intensity ratings of pride and joy at time 1 and time 2.

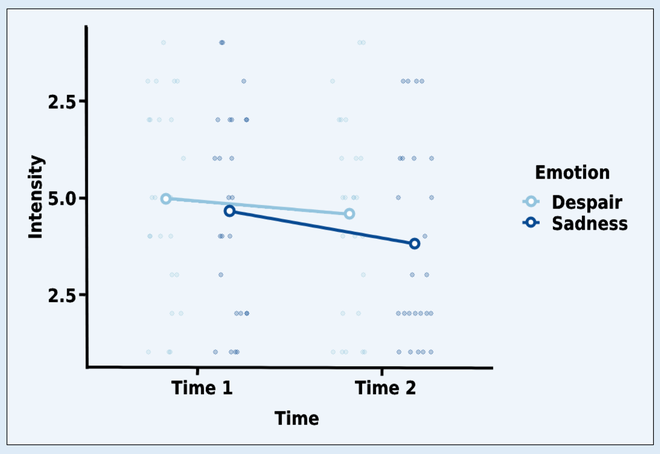

Figure 2. Intensity ratings of despair and sadness at time 1 and time 2.

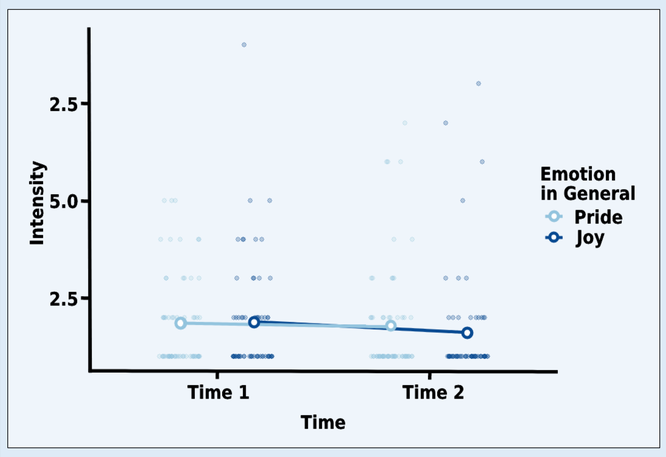

Figure 3. Intensity of pride and joy for results of elections in general at time 1 and time 2.

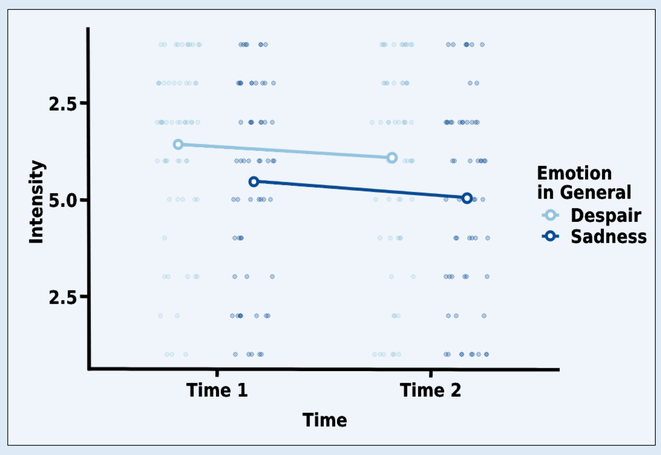

Figure 4. Intensity of sadness and despair for results of elections in general at time 1 and time 2.

Discussion

Contrary to extensive past research, we did not find evidence for an affective forecasting error. It is possible that we did not replicate the forecasting affective error because of the small sample size.
Moreover, contrary to our hypothesis affective forecasting effect was not less pronounced for self-conscious emotions (pride, despair than for basic emotions (joy, sadness).
Past research has examined affective forecasting in the context of meaningful events for people (Scheibe et al., 2011). In the last two years, four elections for prime minister took place in Israel. It is possible that the election was no longer significant for some participants making it hard to document the affective forecasting error. Therefore, more research is needed, with other emotional events, to test our hypotheses.

Bibliography

Bornstein, O., Katzir, M., Simchon, A., & Eyal, T. (2020). Differential effects of abstract and concrete processing on the reactivity of basic and self-conscious emotions. *Cognition & Emotion*, 1-14.
Scheibe, S., Mata, R., & Carstensen, L. L. (2011). Age differences in affective forecasting and experienced emotion surrounding the 2008 US presidential election. *Cognition & Emotion*, *25*(6), 1029-1044.
Wanke, M. (Ed.). (2008). *Social psychology of consumer behavior*. Psychology Press.
Wilson, T. D., & Gilbert, D. T. (2005). Affective forecasting: Knowing what to want. *Current Directions in Psychological Science*, *14*(3), 131-134.

Ben-Gurion University of the Negev

Spilling the tea: How the type and valence of emotions influence secondary social sharing

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Introduction:

Being exposed to another's emotional event may elicit emotions in the listener, who may then feel an urge to share the narrative with a third person, a phenomenon called *secondary social sharing.* Secondary social sharing is a widespread phenomenon, reaching rates of more than 70% (Cristophe & Rime, 1997).

Whereas some studies have found that negative emotions are shared more than positive ones, other studies have found no differences (Curci & Bellelli, 2004). Past studies have also found that negative self-conscious emotions (e.g., guilt) are less shared than basic emotions (e.g., sadness) and are more likely to be kept secret (Rimé, 2009), but it has not yet been tested whether the type of emotion (basic vs. self-conscious) affects secondary sharing.

We examined how valence and type of emotion influence secondary social sharing. We hypothesized that negative emotions will be shared more than positive emotions, and that negative basic emotions will be shared more than negative self-conscious emotions, because of their secretive nature. We also tested exploratorily whether different types of positive emotions are differently shared, whether the type and valence of the shared emotions influence the intensity of the emotion experienced by the listener, and the underlying motivations for secondary social sharing or lack of sharing.

Results:

Number of people with whom the experience was shared:
A repeated measures ANOVA with valence (positive, negative) and emotion type (basic, self-conscious) as within subjects factors yielded a main effect for valence, $F(1,77)=6.65$, $p= .012$, $\eta^2= .02$, indicating that positive emotions were shared more than negative emotions. No main effect was found for emotion type, $F(1,77)= .13$, $p=.72$, $\eta^2=0$. A significant interaction was found , $F(1,77)= 13.95$, $p<.001$, $\eta^2=.035$ indicating that self-conscious, but not basic positive emotions were shared more than negative emotions.

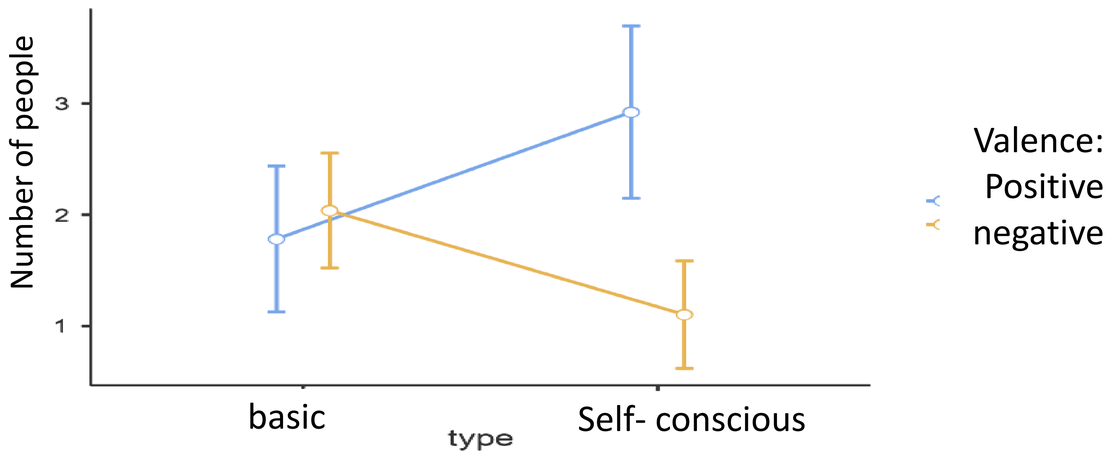

Figure 2: The number of people with whom listeners shared the emotional experience , as a function of emotion type and valence.

Method

Participants

Seventy-eight participants completed the study (54 women, M_{age} = 32.1, SD= 11.4).

Procedure

The study was conducted online. Participants described four different types of emotional events, which a close friend shared with them, in the last three months. The emotions were: joy (a positive basic emotion), sadness (a negative basic emotion), pride (a positive self-conscious emotion), and guilt (a negative self-conscious emotion). They then rated the intensity in which they experienced the emotion during sharing (1-not at all, 7-at very high intensity). Next, participants reported the number of people with whom they shared the emotion. If they shared, they then rated four different motivations for sharing (Christophe, Deleis, Antoine, & Nandrino, 2008) – 1. informative social support, 2. emotional support, 3. social comparison and 4. self-improvement. If they did not share, they rated three different motivations for not sharing – 1. apathy, 2. keeping information private, and 3. high emotional arousal (1-not affected at all, 7-affected very much).

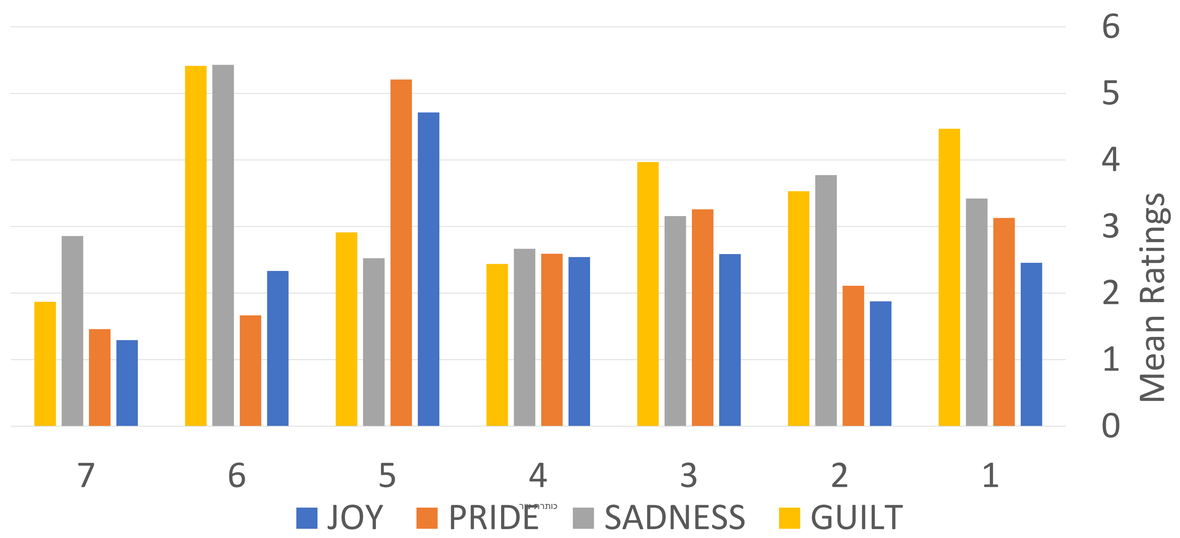

Figure 1: Means of different motivations for secondary sharing or not, for the different emotions (joy, pride, sadness, guilt). 1-informative social support 2-emotional support 3-social comparison 4- self-improvement 5- apathy 6- keeping information private 7- high emotional arousal.

Emotion intensity:
A repeated measures ANOVA with valence (positive, negative) and emotion type (basic, self-conscious) as within subjects factors yielded a main effect for emotion type, $F(1,77)=13.96$, $p= .007$, $\eta^2= .014$, indicating that basic emotions were felt more intensely by the listener than self-conscious emotions. No main effect was found for valence, $F(1,77)= .46$, $p= .5$, $\eta^2=0$. A significant interaction was found- , $F(1,77)= 36.01$, $p<.001$, $\eta^2=.037$ indicating that positive basic emotions were felt more intensely than negative emotions, but for self-conscious emotions the pattern reversed, as positive self-conscious emotions were felt less intensely than negative emotions.

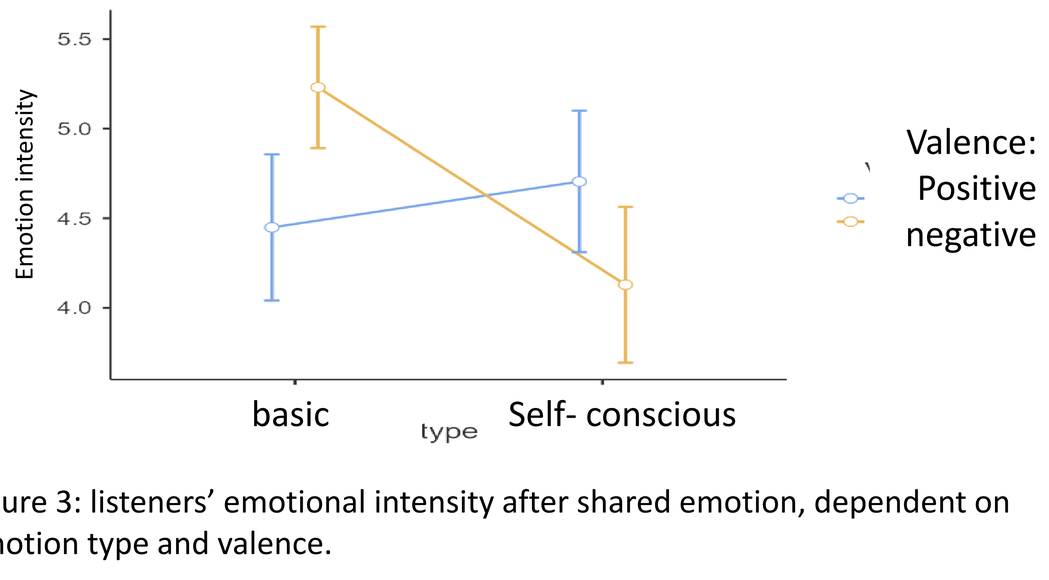

Figure 3: listeners' emotional intensity after shared emotion, dependent on emotion type and valence.

General Discussion:

As predicted, negative self-conscious emotions were shared less than basic ones. However, contrary to our prediction, positive events were shared more than negative ones. As can be seen from the motivations for not sharing, it might be because negative emotions are considered more private. Interestingly, positive self-conscious emotions were shared more than basic ones. In addition, sadness was experienced more intensely than guilt, however, pride was experienced more intensely than joy.

According to the process model of self-conscious emotions, they emerge from internal attribution (Tracy and Robins, 2004). Thus, when self-conscious emotions are shared the emotion experienced by the listener might be of different type for negative self-conscious emotions. Perhaps pride could be experienced even when it emerges from external attribution, when one is close to the experiencer. Future studies should explore how shared-self-conscious emotions are experienced by the listener.

References
* Curci, A., & Bellelli, G. (2004). Cognitive and social consequences of exposure to emotional narratives: Two studies on secondary social sharing of emotions. Cognition and Emotion, 18(7), 881–900.
* Christophe, V., Delelis, G., Antoine, P., & Nandrino, J.L. (2008). Motives for secondary social sharing of emotions. Psychological Reports, 103(1), 11–22.
* Christophe, V., & Rimé, B. (1997). Exposure to the social sharing of emotion: Emotional impact, listener responses and secondary social sharing. European Journal of Social Psychology, 27(1), 37-54.
* Rimé, B. (2009). Emotion elicits the social sharing of emotion: Theory and empirical review. Emotion Review, 1(1), 60-85.
* Tracy, J. L., & Robins, R. W. (2004). Putting the self into self-conscious emotions: A theoretical model. Psychological Inquiry, 15(2), 103-125.

The Department of Psychology – Ben-Gurion University of the Negev

FORECASTING ERROR OF PRIDE AND JOY IN THE RECENT ELECTIONS

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INTRODUCTION

Affective forecasting is people's predictions about their future feelings (Wilson & Gilbert, 2005). It has been shown that people often display an impact bias, overestimating the intensity of their expected emotional reactions to a future event (Wilson & Gilbert, 2005). A possible underlying mechanism of this bias is mental construal. Individuals represent information regarding an event in a more abstract and simplified way when the event is psychologically distant, overlooking possible contextual factors that will influence their emotional experience (Wanke, 2008). By measuring both predicted and experienced emotional responses with respect to the Israeli elections that took place on March 2021, we were able to assess the accuracy of such predictions. We wished to assess voter's emotional responses to the continuation or replacement of the current prime minister Benjamin Netanyahu. Because the experience of complex emotions (pride, despair) involves distancing and abstraction, we hypothesized that the affective forecasting error would be less pronounced for them compared to the experience of basic emotion (joy, sadness).

METHOD

104 Israeli voters voluntarily completed 2 online questionnaires (77 woman, Mage=31, SDage=13.2, RANGEage=18-75), the first questionnaire in the week prior to election day (emotional predictions) and the second after Benjamin Netanyahu failed to form a government (actual feelings). Participants rated 7 emotions (on a scale of 1-9): complex (pride, surprise, despair, shame) and basic (joy, calm, sadness, disgust, fear), in relation to their preference for Benjamin Netanyahu to remain the prime minister or not. In addition, participants rated the chance that their desired result will occur.

RESULTS

Because 95.2% of the participants reported wishing Netanyahu would not be prime minister, we assumed that they would experience positive emotions following the outcome of the elections. Therefore, we analyzed the data of positive emotions for participants who opposed Benjamin Netanyahu, N=99 (Norris, Dumville & Lacy, 2011). In order to examine the affective forecasting error, we used a 2 (emotion: complex, basic) × 2 (time: before, after) within-subjects repeated-measures ANOVA.

The ANOVA yielded a significant main effect for the positive emotions, $F(1,97)=19.72$, $p<.001$ (Figure 1).

The interaction between emotion and time was not significant, $F(1,97)=1.18$, $p=.28$. This implies that affective forecasting error did not differ between basic (joy) and complex (pride) emotions (Figure 2).

Figure 1. Intensity of joy and pride before and after the elections

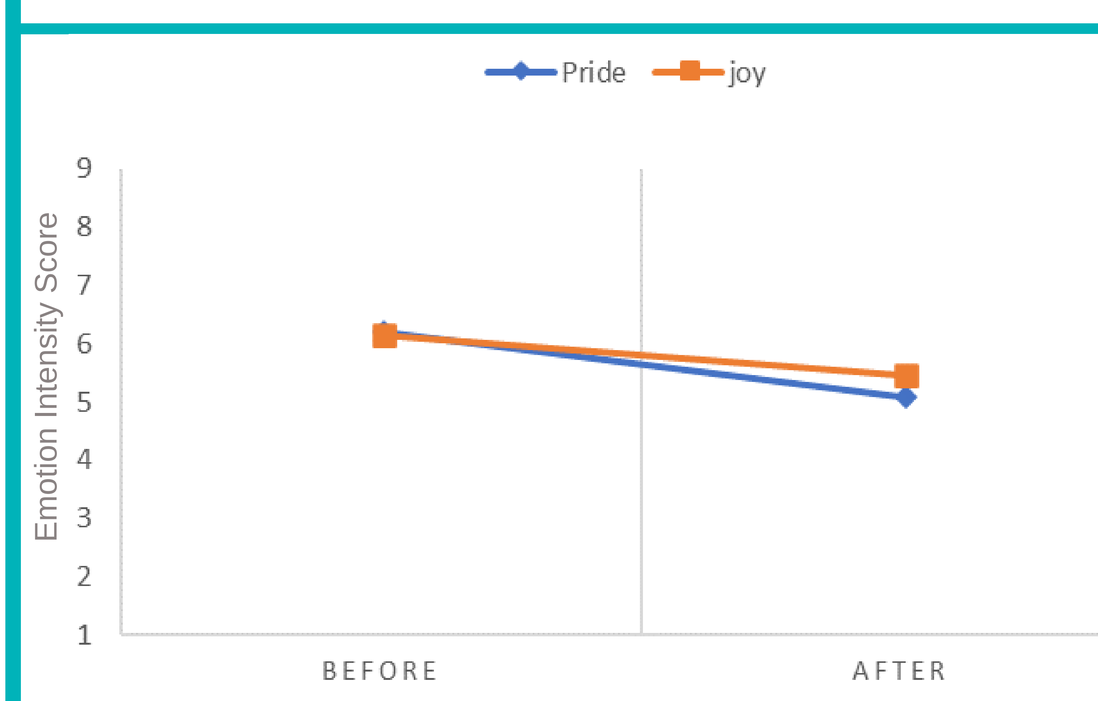

Figure 2. Differences in the change of intensity of joy and pride before and after the elections.

DISCUSSION

Participants predicted significantly higher pride and joy before the elections than they actually experienced after the elections. This confirms our first hypothesis regarding a general affective forecasting error. Our second hypothesis, regarding a stronger affective forecasting error for joy than pride, was not confirmed. It is possible that this result originated from the complexity of the political Israeli environment, not allowing a schematic and simplified construal prosses, even for basic emotions. Another possibility is that in the first measurement, the participants were skeptic regarding the possibility that this result will occur (rated 34.35% chance on average), affecting their construal prosses. This skepticism made the event seem psychologically distant, which limited the effect of affective forecasting error, especially for basic emotions.

Future research should test our predictions with a less complex event.

REFERENCES

- *Wilson, T. D., & Gilbert, D. T. (2005). Affective forecasting: Knowing what to want. Current Directions in Psychological Science, 14(3), 131-134.*
- *Norris, C. J., Dumville, A. G., & Lacy, D. P. (2011). Affective forecasting errors in the 2008 election: Underpredicting happiness. Political Psychology, 32(2), 235-249.*
- *Wanke, M. (Ed.). (2008). Social psychology of consumer behavior. Psychology Press.*

Construal Level Effects on Physical versus Moral Disgust

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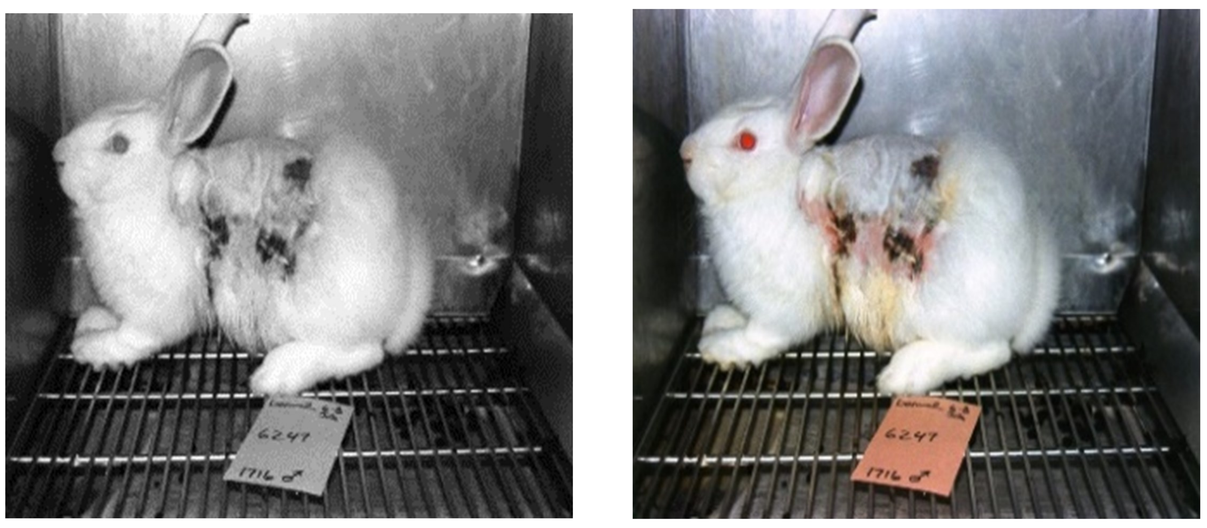
Introduction

Recently, researchers distinguished between physical and moral disgust with regard to the level of construal of their underlying appraisals (Moran, Bornstein, & Eyal, 2021). Physical disgust is a basic emotion elicited by concrete physical objects like insects, whereas moral disgust is elicited when abstract moral principles are violated. Moran et al (2021) have found that participants reported more intense disgust following pictures of physical disgust when the pictures appeared in color than in black and white(BW). However, this effect was less pronounced for moral disgust. We built on these findings and tested how the level of construal, manipulated by presenting images in color (concrete) vs. BW (abstract), and the type of emotion that is induced (moral vs moral and physical disgust) influences the intensity of disgust that is experienced while viewing images of animal cruelty (e.g., experiments, hunting). We predicted that the intensity of disgust will be higher for color compared to BW pictures and that this effect of level of construal will be weaker for pictures of moral disgust compared to pictures of moral and physical disgust. We also predicted that the disgust following color vs. BW pictures of moral compared to physical and moral disgust will predict likelihood of eating meat.

Method

Participants One hundred and sixty two participants completed the study (129 women & 33 male, M_{age} = 26.9, SD_{age} =9.76). Sample size was determined using G power analysis to obtain a medium effect size (d=0.3) with statistical power of 0.80. participants were recruited through publishing and sharing the experiment on different social media platforms.

Procedure Participants completed online questionnaires. They watched 16 pictures of harm caused to animals. Half of the participants watched pictures of moral and physical disgust and the other half watched pictures of moral (but not physical) disgust. In both conditions, 8 pictures were presented in color and the same 8 pictures were also presented in BW. Following each image, the participants rated the level of disgust they experienced (-3 = not at all disgusting, 3 = very disgusting). Finally, they answered four additional questions: the probability they will eat meat, the probability they will buy animal products (for both questions, the scale was 1=low probability, to 7 =high probability), how they define themselves (eat everything, Vegetarian), whether they have a pet (yes, no).



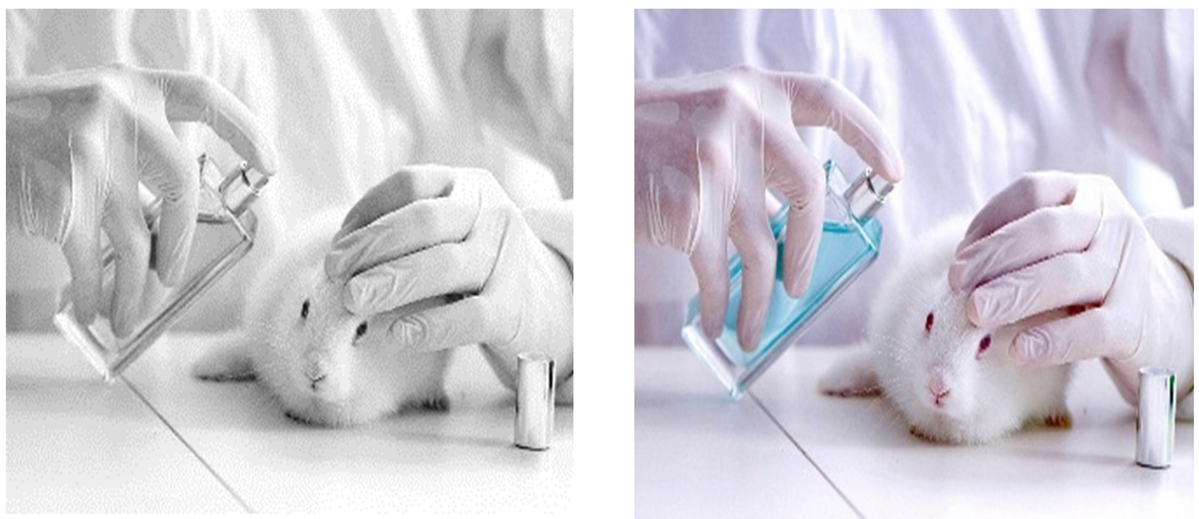


Figure 1 Examples of pictures of physical and moral disgust (above), and moral disgust (below).

Results

We averaged the disgust ratings of the 8 colored images (α = .831 for physical and moral disgust, α = .875 for moral disgust) and the disgust ratings of the 8 BW images (α = .87 for physical and moral disgust, α = .894 for moral disgust).

We submitted the mean disgust ratings to a 2 (disgust type: physical and moral, moral; between-participants) x 2 (construal level: abstract - BW, concrete - color; within-participant) mixed ANOVA. There was a significant effect for construal level, *F (1,160) =69.4, p<.001,* indicating that participants rated colorful pictures as more disgusting than BW pictures. There was no main effect for disgust type *F (1,160) =0.355, p=.552.* We found a significant interaction between construal level and disgust type *F (1,160) = 13.5, p<.001* (Figure 2). In the moral disgust condition the difference between disgust level for color and BW pictures was smaller *t(83) = -3.88, p<.001* than the difference in the moral physical condition *t(77) = -7.4, p<.001.*

We also conducted a linear regression to test whether the probability to eat meat was predicted by disgust score (i.e., the ratings of disgust for color picture minus for BW pictures), the disgust type (moral vs. physical and moral), and whether participants are vegetarians (0-no 1-yes), and their interactions. The regression yielded a main effect for the disgust score *(β=.2489, p=.046),* indicating that the more participants were disgusted by colored compared to BW pictures; the more likely they were to eat meat. We also found a significant interaction of disgust score and disgust type (β=-.315, p=.05), which indicates that the smaller the difference of disgust level in the physical and moral condition the less people are likely to eat meat.

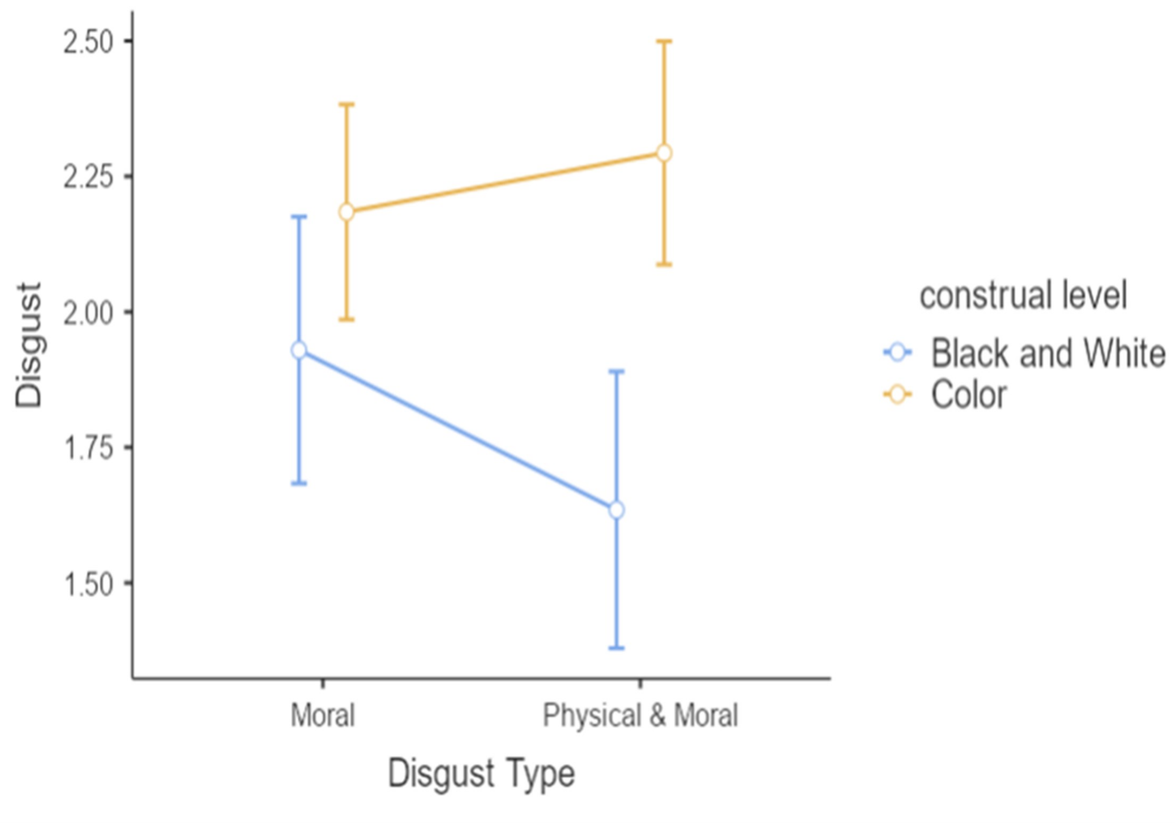


Figure 2. Mean disgust ratings as a function of Disgust Type and Construal Level (color vs. BW)

Discussion

We found that participants reported a higher level of disgust following colorful images than BW images. However, this effect was attenuated when the images were of moral disgust only. This finding demonstrates that the elicitation of physical disgust depends on concrete construal more than the elicitation of moral disgust, supporting the idea of two disgust types.

We also found that the smaller the difference of disgust the less people were likely to eat meat. This may be an indication that we may be able to affect people's attitudes and behavior by inducing specific types of disgust (i.e., moral) and promoting it with abstract messages (e.g., not presenting physical disgust images which may be annoying for some people). A possible explanation of the interaction we found in the regression model is related to cultural norms. Because the majority of the participants in the study were Arabs who typically see meat eating as an important part of their customs and diet, which make changing their attitudes toward eating meat is difficult.

References

Moran, T., Bornstein, O., & Eyal, T. (2021). The level of construal involved in the elicitation of core versus moral disgust. *Emotion, 21*(2), 391–404. https://doi.org/10.1037/emo0000709

A Music-based Manipulation for Inducing Enjoyment versus Pride

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Introduction

The experimental paradigms used to induce positive emotions are limited in their ability to discriminate between similar yet distinct emotions, such as enjoyment and pride. In the current research we aimed to establish a valid manipulation for inducing enjoyment versus pride. Common manipulations for inducing joy (e.g., images, movies, Siedlecka & Denson, 2019) are less suitable for inducing pride, since the experience of pride requires attributing a socially valued outcome to the self (Tracy & Robins, 2004). Except for autobiographical memories, stimuli such as imagery and videos are typically not self-referential. Pride is often manipulated by giving bogus positive feedback on performance (e.g., Williams & DeSteno, 2009), yet this creates a large difference in the procedure from the manipulation used for inducing joy. Consequently, the ability to study the unique effects of joy and pride is limited. Therefore, we aimed to establish a novel and valid manipulation to induce enjoyment versus pride, using similar procedures.

Method

Participants: One hundred and eight British participants (74% women, M_{age}= 33.31, SD = 11.53) were recruited through Prolific. They were paid for their participation.

Procedure: We first conducted a pretest where participants listened to 15 songs, two minutes each, with the lyrics displayed simultaneously. Participants rated the extent to which they experienced enjoyment, pride, gratitude, and hope (0 = not at all, 100 = very much). We chose one song ("Uptown Funk" by Bruno mars) that received the highest enjoyment ratings, which was also significantly different from the other emotional ratings.

Participants were randomly allocated to one of three conditions: enjoyment and two pride conditions. Participants in the enjoyment condition listened to "Uptown Funk" and watched a clip of the lyrics. Participants in the pride conditions read that the task "examines working memory and attention span, two cognitive abilities that have been found to be closely related to IQ". They watched the muted clip and counted how many times the letters "R" and "U" appeared in the lyrics. They reported the total number after the song ended. Participants received an illustration of the counting task (Figure 1). To control for the possible influence of the joyful lyrics, we manipulated pride in two different conditions. One pride condition included the muted song with the original lyrics of the song. A second pride condition included a fictional song without emotional words, but with the exact sum of the counted letters as in the original song. After participants completed the task, they received bogus positive feedback (Figure 2). Next, participants rated the extent to which they experienced enjoyment, pride, gratitude and hope (0 = not at all, 100 = very much). In addition, participants indicated whether the predominant emotion they felt was pride or enjoyment, (-2 =more enjoyment than pride, 0 = both emotions to the same extent, 2 =more pride than enjoyment). Finally, participants indicated whether they knew the song, the frequency in which they listen to the song, age and gender.

Figure 1: An illustration given to participants in the pride condition.

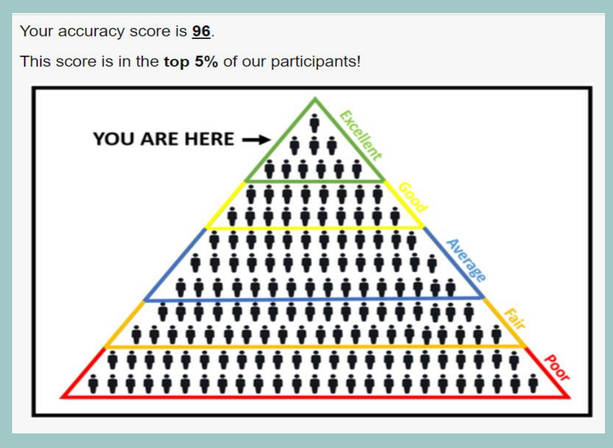

Figure 2: The bogus positive feedback received by the subjects.

Results:

Emotional intensity: The means and standard errors of the emotion measures are displayed in figure 3. Post-hoc comparisons using the Tukey HSD test indicated that in the enjoyment condition, enjoyment intensity was significantly higher than pride, p = .021, but not significantly higher than the intensity of gratitude, p = .708, and hope, p = .102. In the pride condition with the original song, pride intensity was not significantly higher than neither enjoyment, p = .702, hope, p = .938, and gratitude, p = .992. Similarly, in the pride condition with the fictional song, pride intensity was not significantly higher from neither enjoyment, p= .997, hope, p= .967, and gratitude, p= .093.

Comparative measure of pride and joy: figure 4 demonstrates the ratio of the dominant emotion, enjoyment or pride, within each condition. a one-way ANOVA yielded a main effect of emotion type, $F(2, 105) = 8.89$, $p < .001$, η_p^2=.14. As expected, planned contrast revealed that participants experienced more enjoyment than pride in the joy compared to the pride conditions, ($F(1, 105) = 16.42$, $p < .001$, η_p^2=.13). However, there was no significant difference between the pride condition with the original song and pride condition with the fictional song, ($F(1, 105)$= .882, p= .35, η_p^2<. 01. Specifically, participants in the joy condition experienced more enjoyment than pride, $t(39) = 4.22$, $p < .001$, d=.56, while participants in the two pride conditions experienced both enjoyment and pride to a similar extent, $t(31) = 1.57$, p =.12, d=.28, for Uptown Funk, $t(35) = -.13$, p = .89, d=-.02, and the fictional song.

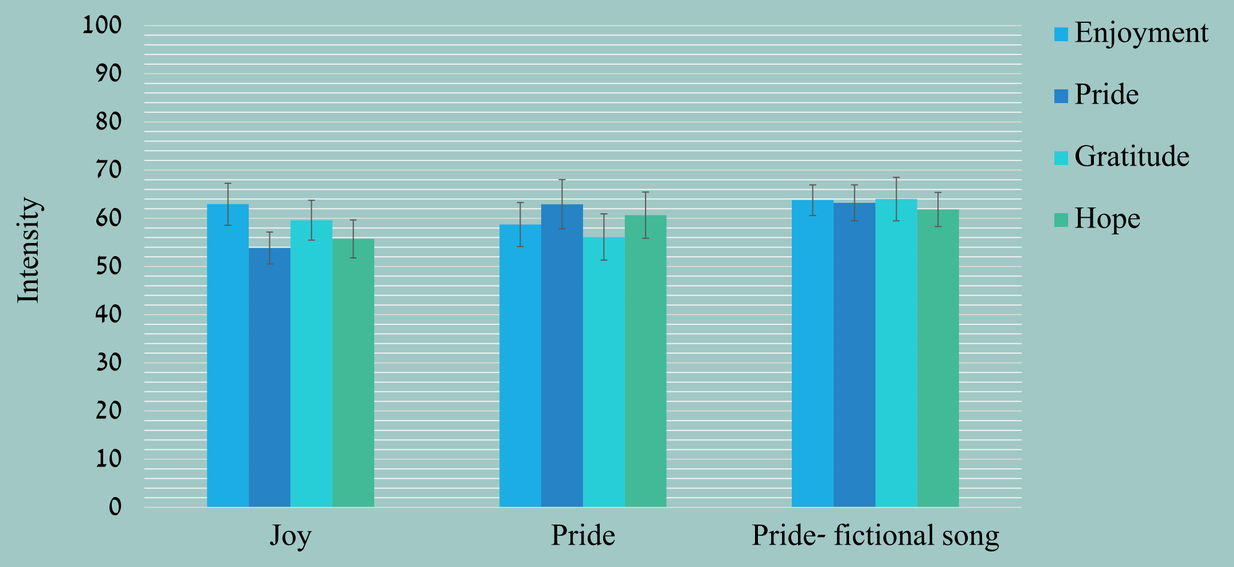

Figure 3: Means of emotional intensity by condition.

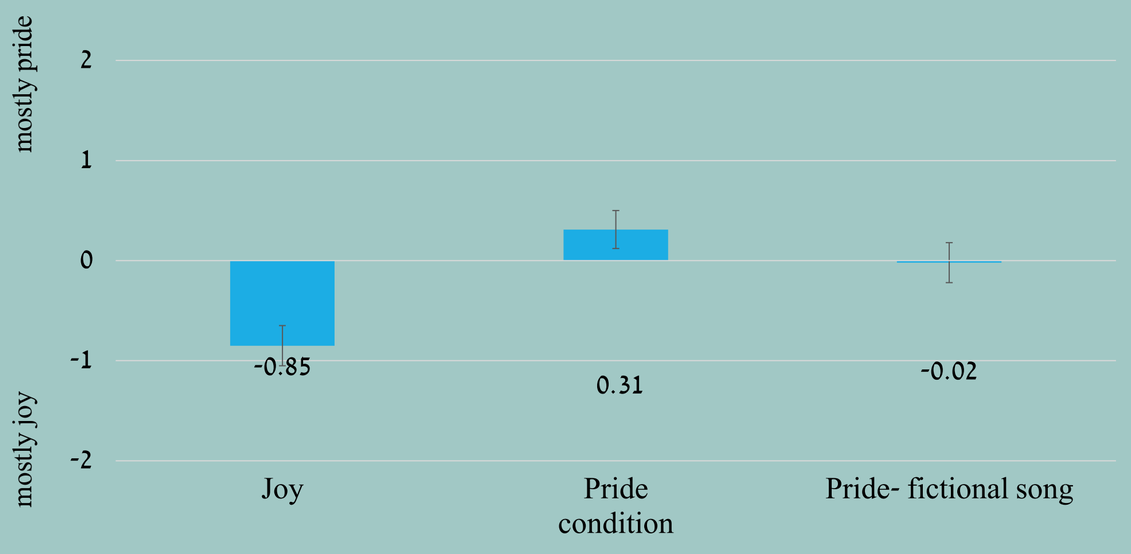

Figure 4: Comparing the dominance of joy and pride.

Discussion:

We found that the song evoked more enjoyment than pride. However, both pride conditions did not evoke more pride that enjoyment. These findings suggest that the manipulation we created only partly differentiated between joy and pride. It is possible that the lyrics of the song, even without audio, evoked enjoyment. It might also be that it is not possible to induce pride without joy because the experience of pride involves the experience of joy (Johnson- Laird& Oatley, 1989). Thus, the challenge of finding a valid manipulation for pride versus enjoyment remains.

References:

Johnson-Laird, P. N., & Oatley, K. (1989). The language of emotions: An analysis of a semantic field. *Cognition and emotion*, 3(2), 81-123.

Shimoni, E., Berger, A., & Eyal, T. (2019). Priming pride promotes delay of gratification. *Motivation and Emotion*, 43(5), 786-802.

Shiota, M. N., Campos, B., Oveis, C., Hertenstein, M. J., Simon-Thomas, E., & Keltner, D. (2017). Beyond happiness: Building a science of discrete positive emotions. *American Psychologist*, 72(7), 617.

Siedlecka, E., & Denson, T. F. (2019). Experimental methods for inducing basic emotions: A qualitative review. *Emotion Review,* 11(1), 87-97.

Tracy, J. L., & Robins, R. W. (2004). Show Your Pride. *Psychological Science*, 15(3), 194–197

Williams, L. A., & DeSteno, D. (2009). Pride: Adaptive social emotion or seventh sin?. *Psychological Science*, 20(3), 284-288.

The Effect of Anxiety and Emotion Source Salience on Intuition

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Introduction

Previous research on the connection between negative affect and gambling has shown that anxiety is connected with less risk-taking than sadness. It has been suggested that anxiety increases a prevention motivation (Raghunathan & Pham, 1999). Prevention motivation is also related to the need for a sense of certainty (Molden et al., 2009).

It has also been found that increasing the salience of the emotion source cancels the difference between the influence of sadness and anxiety on risk-taking behaviors. This finding was explained by the Mood Attribution Theory, according to which a variety of sources of information are used to reach a continuous mood interpretation (Raghunathan et al, 2006).

Also, researchers that investigated methods of problem-solving showed that solving problems analytically induces a strong sense of certainty and confidence. They also found a strong negative correlation between analytic and intuitive decision-making (Sinclair, et al., 2010).

In this research, we wished to examine the influence of anxiety on intuition based problem-solving. We hypothesized that when the salience of the emotion source is low compared to high, anxiety will lead to a decreased use of intuitive decision-making strategy. We compared the effect of anxiety to sadness, for which we did not expect an effect of salience. In addition, we hypothesized that participants in the high salience anxiety condition will use an intuitive strategy than participants in the low salience anxiety condition.

Method

Participants

One hundred and twenty-four participants (85 women), ages 18-65 (Mage = 27.6, SD = 7.76), completed the study. The sample size was determined by a power analysis to obtain a medium effect size (d = 0.3) with a statistical power of 0.80.

Procedure

Participants conducted the experiment online. Participants read a 250-word text that has been found to evoke either sadness or anxiety (Raghunathan & Pham, 1999).

To manipulate the emotion source salience participants wrote freely about the elements of the text which stood up the most for them (high salience condition; Raghunathan et al, 2006), or described their current location (low salience condition).

To measure the use of an intuitive strategy participants performed the CRT (Cognitive Reflection Test) which included three questions, each having a correct answer and a previously defined intuitive answer (Frederick, 2005). The questions were:

(1) A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost?
Intuitive answer: $0.10
Correct answer: $0.05

(2) If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?
Intuitive answer: 100 minutes
Correct answer: 5 minutes

(3) In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake,how long would it take for the patch to cover half of the lake?
Intuitive answer: 24 days
Correct answer: 47 days

Results

Our dependent variable was calculated as the proportion of intuitive answers from all incorrect answers on the CRT (Frederick, 2005).
An ANOVA with emotion (sadness, anxiety) and emotion source silence (low, high) as between-subjects factors on the intuition score did not yield a main effect for emotion, $F(1,120)=2.06$, $p=.651$, $\eta p2 =0.002$, or silence $F(1,120)= 0.263$, $p=.609$, $\eta p2 =0.002$ and sis not yield an interaction between, $F(1,120)= 0.136$, $p=.173$, $\eta p2 =0.001$.

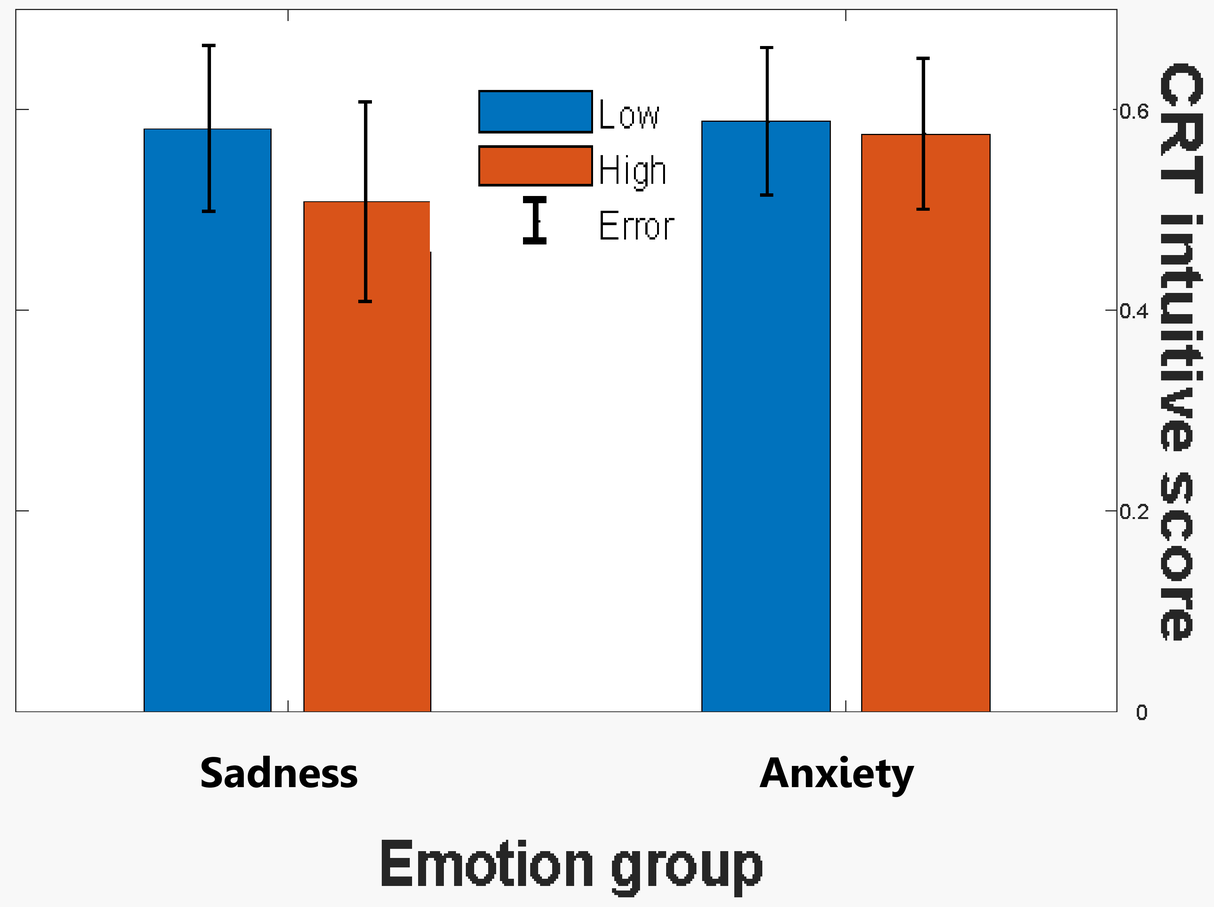

Figure 1: CRT intuitive score as a function of emotion (anxiety vs. sadness) and salience (high vs. low). Error bars represent standard errors.

General Discussion

Our hypotheses were not supported. There was no significant difference between any of our experimental groups, indicating that neither emotion nor salience had an effect on intuition.

Differently than Raghunathan et al's (2006) research, we added a writing assignment to the low salient group (i.e., to describe one's "place") to balance the two salient conditions requirements. From reading the essays, we realized that over half of the participants in the low salient condition had interpreted the word "place" as referring to their mental state. This may have accidentally created two high emotional source salience conditions.

It is also possible that the intuition-based decision-making task (i.e., CRT) is not reliable for measuring intuitive strategy (Erceg & Bubić, 2017). Future studies, using a more reliable measure of intuition might yield different results.

Further understanding the way emotion influences decision-making has the potential to help individuals suffering from anxiety disorders (Liberman & Dar 2018).

References

Erceg, N. & Bubić, A. (2017) One test, five scoring procedures: different ways of approaching the cognitive reflection test, *Journal of Cognitive Psychology*, 29:3, 381-392
Frederick, S. (2005). Cognitive reflection and decision making. *Journal of Economic perspectives*, *19*(4), 25-42.
Liberman, N., & Dar, R. (2018). Obsessive-compulsive tendencies are related to seeking proxies for internal states in everyday life. *Journal of Behavior Therapy and Experimental Psychiatry*, 61, 164-171.
Molden D.C., Lucas G.M., Gardner W.L., Dean K., Knowles M.L. (2009). Motivations for prevention or promotion following social exclusion: being rejected versus being ignored. *Journal of Personality and Social Psychology*. 96(2), 415-431
Raghunathan, R., & Pham, M. T. (1999). All negative moods are not equal: Motivational influences of anxiety and sadness on decision making. *Organizational Behavior and Human Decision Processes, 79*(1), 56-77.
Raghunathan, R., Pham, M. T., & Corfman, K. P. (2006). Informational properties of anxiety and sadness, and displaced coping. *Journal of Consumer Research*, *32*(4), 596-601.
Sinclair, M., Ashkanasy, N. M., & Chattopadhyay, P. (2010). Affective antecedents of intuitive decision making. *Journal of Management and Organization*, 16(3), 382 - 398.

Is Psychological Distance a Form of Selective Attention?

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Introduction

According to Construal-Level-Theory (CLT), psychological distance affects the way we construe situations. Psychologically distant events and objects are construed more abstractly than psychologically near events.[1] It has been found that increased psychological distance increases self control.[2] In previous studies, the manipulation of psychological distance also manipulated the amount of information given to participants. This raises the hypothesis that the large amount of information requires from participants to use a selective attention filter. **The current study** examined whether psychological distance is a form of selective attention. We hypothesized that the effect of psychological distance on self control will be moderated by cognitive load. Hence, we hypothesized that participants will show an increased effect for Psychological Distance on Self Control when put under Cognitive Load.

Method

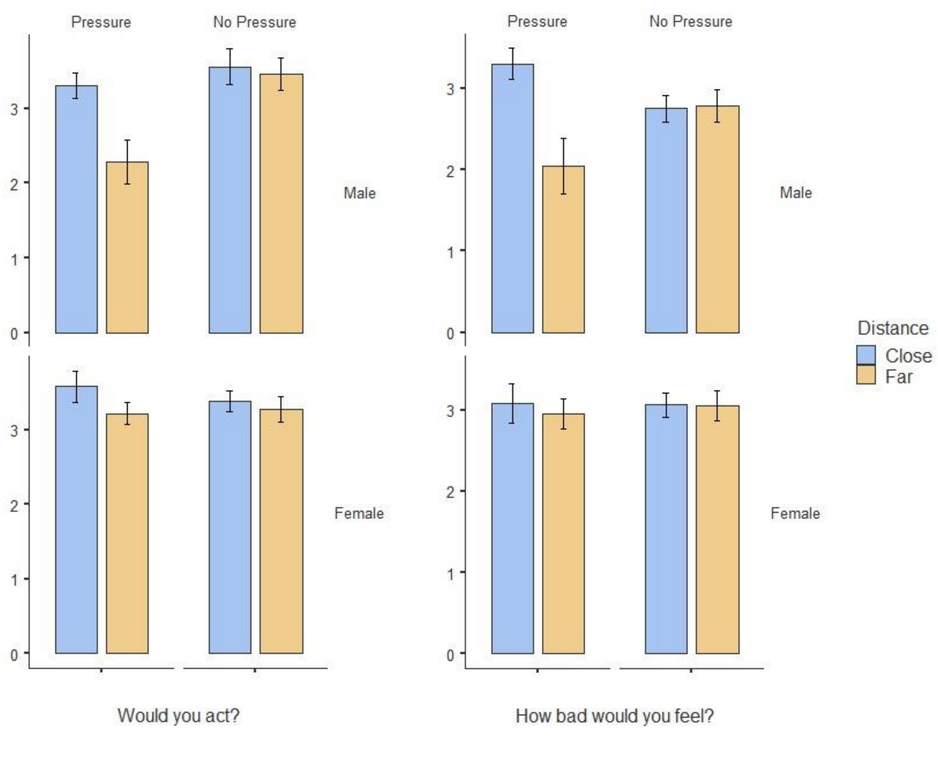
We gathered participants through an online, voluntary survey. The study included 210 participants. We excluded participants who did not complete at least six out of the eight questions, leaving 140 valid participants (46 men, 96 women, age: mean = 28.6, range – 17-74). Each participant was assigned to one of four conditions: psychological distance (Near/Far), and cognitive load (With/Without). Participants read four vignettes, each describing a behaviour of low self control and were asked to imagine themselves in the situation. Psychological distance was manipulated by describing the situation as involving a socially distant (stranger) vs near (close friend) target. Cognitive load was manipulated using time pressure: Participants received either 10 seconds or no limited time to answer the questions. Following each vignette, participants answered two questions: (1) Likelihood to perform an act exhibiting low self-control (2) how bad one would feel if they were to perform the act; rating were made on a 6-point scale.

Results

We conducted two 2(distance: stranger, friend) x 2(cognitive load: time pressure, no time pressure) x 2(gender) ANOVA on likelihood of performing the behaviour and on feeling bad for performing the behaviour. **Likelihood of performing the behaviour**: a main effect was found for distance (p=0.007) and cognitive load (p=0.028). The interaction between cognitive load and distance (p=0.045) and the interaction cognitive load and gender (p=0.008) were significant. No simple effect for psychological distance was found in the no-pressure condition; a simple effect was found for psychological distance in the pressure condition: participants scored higher under near-distance condition. **Feeling bad for performing the behaviour**: a main effect was found for distance (p=0.035) and gender (p=0.05). The interaction between cognitive load and distance (p=0.027) was significant: no simple effect for psychological distance was found in the no-pressure condition; a simple effect was found for psychological distance in the pressure condition: participants scored higher under the near-distance condition (see Figure 1).

Descriptives

	Distance	Cognitive Load	Gender	Would you act?	How bad would you feel?
N	Close	Pressure	Male	14	14
			Female	19	19
		No Pressure	Male	13	13
			Female	25	25
	Far	Pressure	Male	7	7
			Female	26	26
		No Pressure	Male	12	12
			Female	24	24
Mean	Close	Pressure	Male	3.30	3.30
			Female	3.58	3.08
		No Pressure	Male	3.56	2.75
			Female	3.38	3.06
	Far	Pressure	Male	2.29	2.05
			Female	3.21	2.96
		No Pressure	Male	3.46	2.79
			Female	3.27	3.05
Standard deviation	Close	Pressure	Male	0.637	0.698
			Female	0.909	1.04
		No Pressure	Male	0.855	0.612
			Female	0.715	0.758
	Far	Pressure	Male	0.770	0.895
			Female	0.751	0.947
		No Pressure	Male	0.760	0.689
			Female	0.824	0.930



ANOVA

	Sum of Squares	df	Mean Square	F	p
Cognitive Load	3.012	1	3.012	4.92	0.028
Distance	4.623	1	4.623	7.55	0.007
Gender	1.287	1	1.287	2.10	0.149
Cognitive Load ✻ Distance	2.516	1	2.516	4.11	0.045
Cognitive Load ✻ Gender	4.501	1	4.501	7.35	0.008
Distance ✻ Gender	0.757	1	0.757	1.24	0.268
Cognitive Load ✻ Distance ✻ Gender	0.804	1	0.804	1.31	0.254

ANOVA

	Sum of Squares	df	Mean Square	F	p
Cognitive Load	0.1317	1	0.1317	0.1801	0.672
Distance	3.3104	1	3.3104	4.5269	0.035
Gender	2.8700	1	2.8700	3.9247	0.050
Cognitive Load ✻ Distance	3.6507	1	3.6507	4.9923	0.027
Cognitive Load ✻ Gender	0.0231	1	0.0231	0.0316	0.859
Distance ✻ Gender	2.1413	1	2.1413	2.9281	0.089
Cognitive Load ✻ Distance ✻ Gender	2.5515	1	2.5515	3.4892	0.064

Figure 1. Self control by psychological distance, cognitive load and gender.

Discussion

Regarding likelihood of performing the behaviour, the findings supported our hypothesis. When no cognitive load was applied, participants were not affected by psychological distance. However, participants placed under cognitive load were affected by psychological distance. This supports the hypothesis that psychological distance is a form of selective attention. As for how bad participants would feel if they performed the behaviour, the interaction was in the opposite direction of what we hypothesized. A possible explanation for the interaction is that likelihood of performing the behaviour relies on appraisal, while feeling bad for performing the behaviour is about emotions. It is plausible that psychological distance affects appraisal differently than emotions. A limitation of the study is the hypothetical nature of the scenarios, which makes them more psychologically distant. This may reduce the power of the manipulation. Furthermore, the interactions for the likelihood ratings were found only when gender was included in the model.

References

[1] Liberman, N., & Trope, Y. (2014). Traversing psychological distance. *Trends in Cognitive Sciences,* 18, 364-369.
[2] Fujita, K., Trope, Y., Liberman, N., & Levin-Sagi, M. (2006). Construal levels and self-control. *Journal of Personality and Social Psychology*, 90, 351-367.