

It's a Mind Game:

The Relationship Between Maternal Coping Style and Medical Adherence in Pediatric Solid Organ Transplantation Candidates



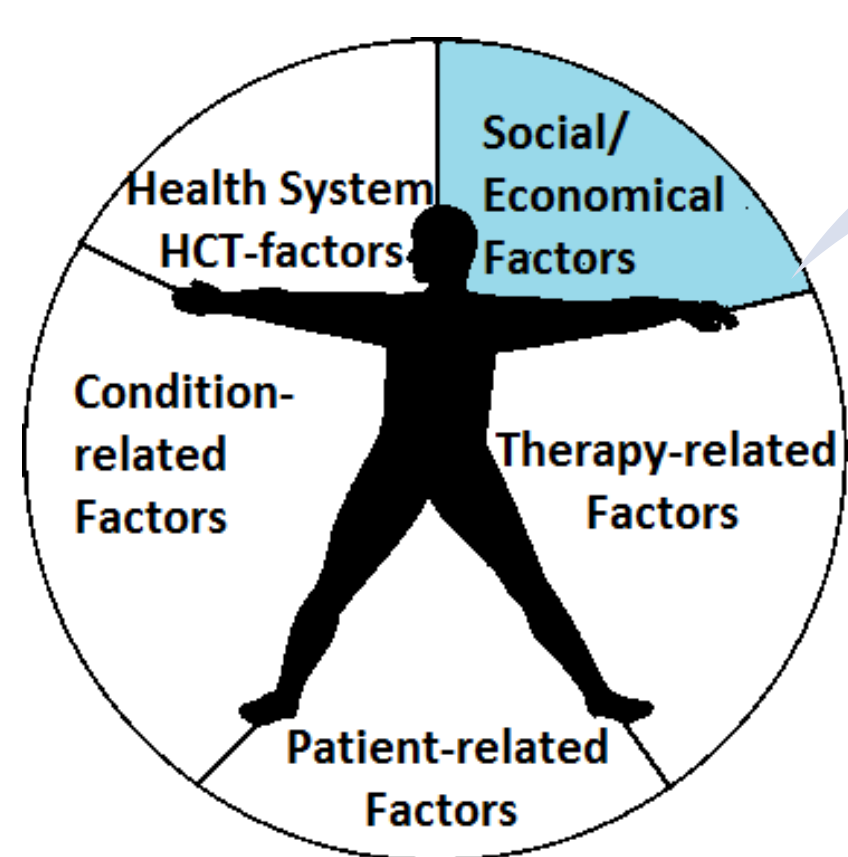
Vishruti Patel,² Cindy L. Buchanan, PhD^{1,2}, Elizabeth A. Steinberg, PhD^{1,2}

¹University of Colorado Anschutz Medical Campus, Department of Psychiatry; ²Children's Hospital Colorado, Pediatric Mental Health Institute

Introduction

- 2,000 children on the organ transplant waiting list¹
- **Adherence to treatment:** essential to avoid graft rejection, re-transplantation, and mortality, especially given the organ shortage²
- **Non-adherence:** est. from 30-70% in pediatric candidates³
- **Parental support and family dynamic play an important role** in pediatric adherence to treatment

Figure 1. 5 Factors of Adherence



- Parental stress, fatigue, financial issues, and disruption to work and social life challenge parental ability to manage pediatric adherence²

- **2 types of coping style⁴:**

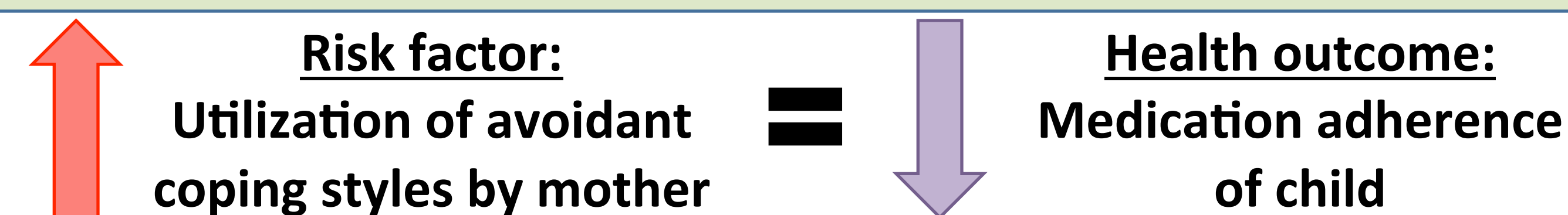
Avoidance: maladaptive; avoid the stressor

Approach: engage to change nature of stressor

Objective:

Identify the level of utilization of avoidant coping style by mothers of pediatric organ transplantation candidates and determine its relationship to pediatric medication adherence

Hypothesis



Methods

Sample: 86 pediatric organ transplantation candidates

Brief Coping Orientation to Problem Experienced (COPE):

- Self-assessment on utilization of 14 different coping strategies
- Utilization of avoidant coping style measured as a composite sum score of mother's report on 5 coping strategies⁵:

Avoidance

Self-distraction Denial Behavioral Disengagement Self-blame Substance Use (Max possible score = 40)

- Larger composite score = greater utilization of avoidance coping
- **Pediatric Transplant Rating Instrument (P-TRI):**
- Subjective measure of medication adherence of child assessed by clinical psychologist during pre-transplant evaluation
- Score of 1-4 with higher score indicating greater medication adherence

Statistical Analysis:

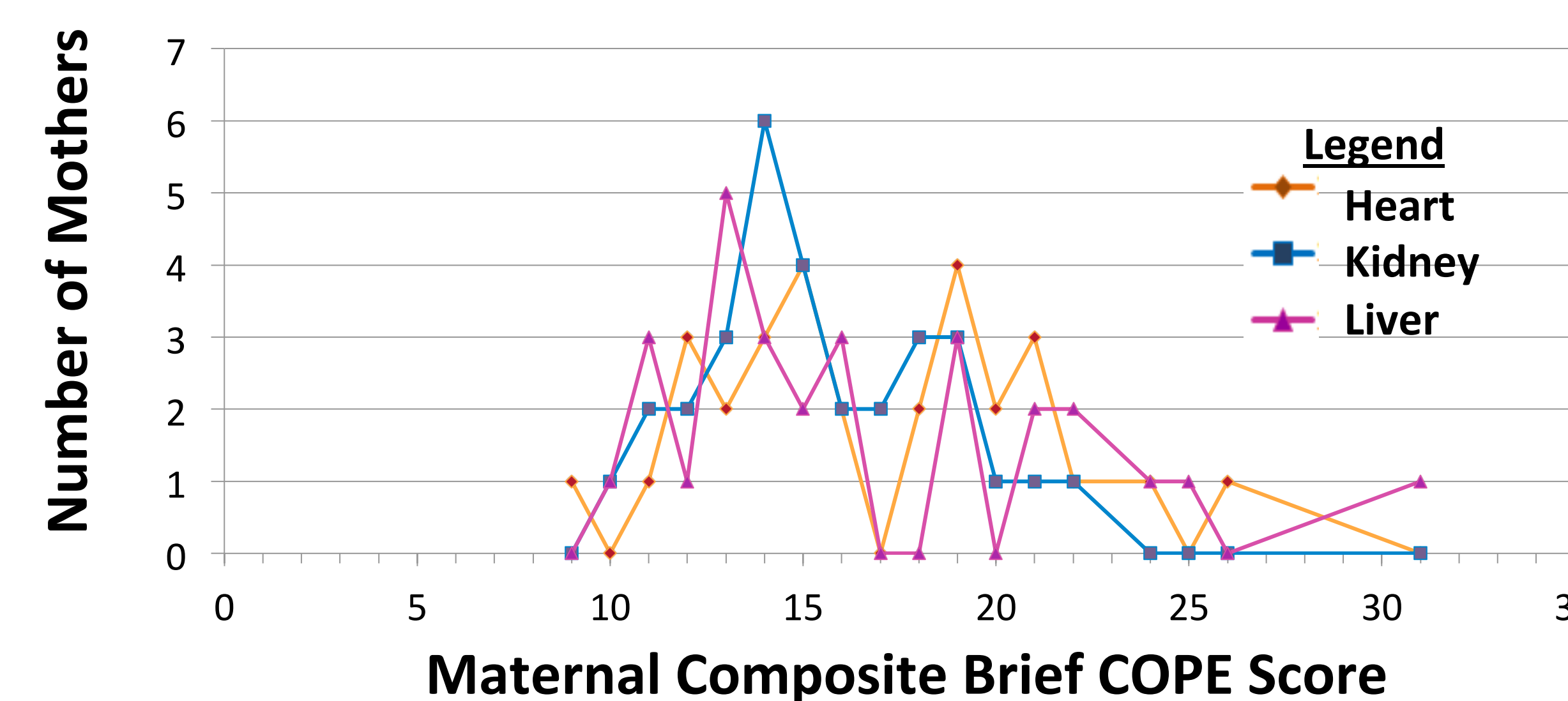
- Pearson correlation and descriptive statistics on maternal coping and adherence

Results

Table 1. Patient Demographics

Demographic Group		Pediatric Organ Transplant Candidates
Gender	Female	45.3 % (n = 39)
	Male	54.7 % (n = 47)
Race	White	84.9 % (n = 73)
	Native American/Alaska Native	2.3 % (n = 2)
	More than one race	2.3 % (n = 2)
	Other	10.5 % (n = 9)
Ethnicity	Hispanic/ Latino	9.3 % (n = 8)
	Transplant Type	
	Heart	33.7 % (n = 29)
	Kidney	34.9 % (n = 30)
	Liver	31.4 % (n=27)

Figure 2. Maternal Utilization of Avoidance Coping Style by Transplant Type



Mothers demonstrated similar trends in utilization of avoidant coping styles across different transplant types.

Table 2. Descriptive Statistics

Scale	Range (min-max)	Mean ± SD
Mother's Utilization of Avoidant Coping Style (Brief COPE)	22 (9-31)	16.3 ± 4.1
Medication Adherence (P-TRI)	2 (2-4)	3.8 ± 0.5

- There was no significant correlation between mother's utilization of avoidant coping styles and the child's medication adherence ($r^2 = 0.000025$; $p = 0.967$).

Acknowledgement

Members of Pediatric Organ Transplantation Psychology Lab & 2017 Summer Research Program for Undergraduate Students at the Pediatric Mental Health Institute

Discussion

- **Results did not support the hypothesis.**
- Mother's avoidant coping style showed **no relationship** to child's medication adherence.
- The results observed could be due to the following factors:
 - **Low variability:** P-TRI's restricted scoring scale and anchors do not account for variability in level of medication adherence⁶.
 - **Social desirability bias:** Brief COPE is a self-report measure, thus mothers' responses are subject to social desirability bias.
 - **Sample size:** A small sample size may have contributed to some of the factors mentioned above. A larger sample of mothers may be helpful, though response rates are a challenge with self-reported assessments.
- The above mentioned factors posed a challenge to statistical inference and highlight the need for different modalities for evaluating risk factors

Future Implication

- Utilize or develop different assessments or quantitative measurement tools that will address the limitations of the current survey based tools
- Use of objective markers of adherence (immunosuppressant lab values)
- Development of different models for evaluation of risk factors in a clinical setting

References

1. United States Department of Health and Human Services. Organ Donation Statistics (Data file)
2. Annunziato R.A., et.al. Psychosocial assessment prior to pediatric transplantation: A review and summary of key considerations. *Pediatric Transplantation*, 14: 565-574.
3. Steinberg, E.A., et.al. (2017). Adherence in pediatric kidney transplant recipients: solutions for the system. *Pediatric nephrology*.
4. Bergvik, S. (2010). Approach and avoidance coping and regulatory focus in patients having coronary artery bypass graft surgery. *Journal of Health Psychology*, 15(6): 915-924.
5. Nahlen Bose, C., et.al. (2015). Assessment of Coping Strategies and Their Associations With Health Related Quality of Life in Patients With Chronic Heart Failure: the Brief COPE Restructured. *Cardiology Research*, 6(2), 239-248.
6. Fisher, M., et.al. (2011). Inter-rater reliability of Pediatric Transplant Rating Instrument (P-TRI) Challenges to reliably identifying adherence risk factors during pediatric pre-transplant evaluations. *Pediatric Transplantation*, 15: 142-147.