



Analyzing Patient-Provider Communication in Clinical Contexts to Identify Novel Behavior Change Targets

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Patient-Provider Communication is a Primary Treatment Strategy

- Key clinical skill
- Few guidelines
- Minimal training
- Few effective interventions

(Institute of Medicine, 2006)



Sequential Analysis

[0:11:38.5] C: ^①Okay, so the two big things you really want to focus on are the fried and cutting back on those, and also the fast food. And you really are thinking maybe like less than three times a week, maybe once or twice a week would be a good way for you to cut back on some of the calories from that.]

① R-CML+
(313)

[0:11:58.5] T: Not back to back, like one day and [inaudible] one day =

CML +1 (105)

[0:12:03.3] C: ^①Okay, kind of spread it out.]

① R-CML+ (313)

[0:12:04.0] T: Yeah. [laughs]

LUP+ (117)

[0:12:05.4] C: ^①[laughs] Because you know it's something you like doing, you enjoy, enjoy fast foods, it tastes good. You know, so it's that kind of have it throughout the week.]

① RCT+ (311)

[0:12:14.0] T: (And eat more) vegetables.

CML +2 (106)

Sequential Analysis

Traditional Coding

<u>Provider Codes</u>	<u>Tally</u>	<u>Patient Codes</u>	<u>Tally</u>
R-CML+	2	CML+1	1
R-CT+	1	CML+2	1
		LUP+	1

Vs.

Sequential Coding

Sequence 1

R-CML+ → CML+1 → R-CML+ → LUP+ → R-CT+ → CML+2

Sequential Analysis

$t1 \downarrow$	$t2 \rightarrow$	Response Behavior 1	Response Behavior 2
Antecedent Behavior 1	<i>Transition Probability 11</i>	<i>Transition Probability 12</i>	
Antecedent Behavior 2	<i>Transition Probability 21</i>	<i>Transition Probability 22</i>	

Lag: difference between $t1$ and $t2$

Lag 1 = behaviors that immediately follow one another

Generalized Sequential Querier, <http://www2.gsu.edu/~psyab/gseq/index.html>

Bakeman, R., & Quera, V. (1997). *Observing interaction: An introduction to sequential analysis* (2nd ed.). New York: Cambridge University Press.

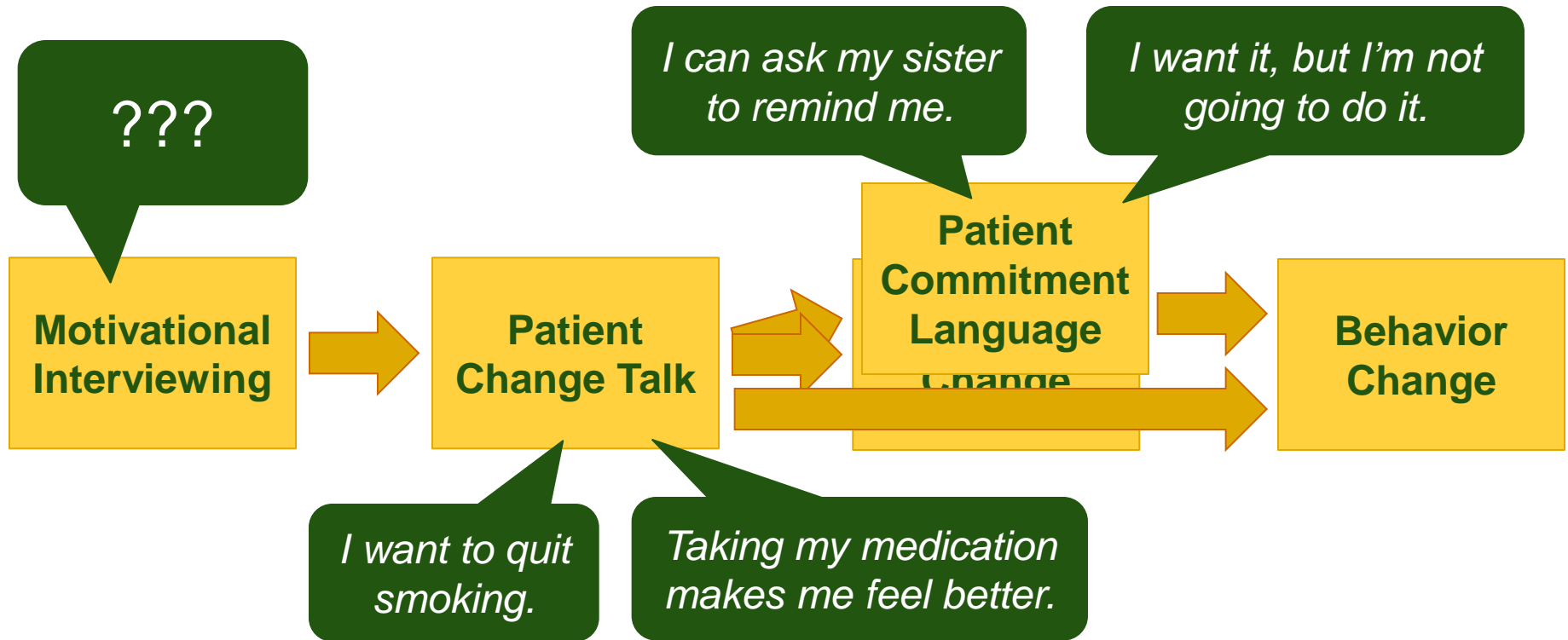
Bakeman, R., & Quera, V. (2011). *Sequential analysis and observational methods for the behavioral sciences*. New York: Cambridge University Press.

Motivational Interviewing as a Framework To Study This Process



- MI is a specific method of communication designed to increase intrinsic motivation
- Counselors guide patients through an exploration of the factors influencing their behavior stasis

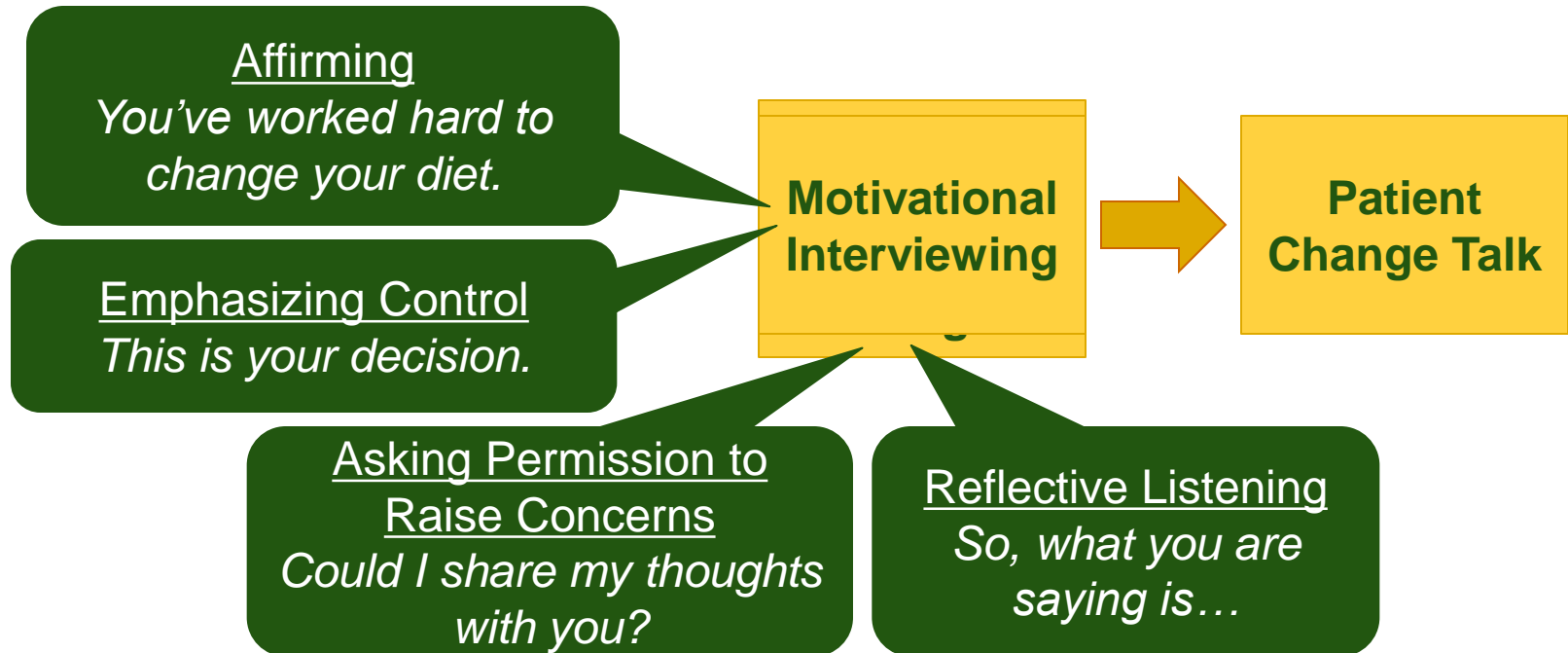
Mechanism of Change in Motivational Interviewing



Amrhein, P. C., Miller, W. R., Yahne, C. E., Palmer, M., & Fulcher, L. (2003). Client commitment language during motivational interviewing predicts drug use outcomes. *Journal of Consulting and Clinical Psychology, 71*(5), 862.

Apodaca, T. R., & Longabaugh, R. (2009). Mechanisms of change in motivational interviewing: A review and preliminary evaluation of the evidence. *Addiction, 104*(5), 705-715.

What Counselor Communication Strategies Elicited Change Talk?



Moyers, T. B., & Martin, T. (2006). Therapist influence on client language during motivational interviewing sessions. *Journal of Substance Abuse Treatment, 30*(3), 245-251. doi: 10.1016/j.jsat.2005.12.003

Moyers, T. B., Martin, T., Christopher, P. J., Houck, J. M., Tonigan, J. S., & Amrhein, P. C. (2007). Client language as a mediator of motivational interviewing efficacy: Where is the evidence? *Alcoholism: Clinical and Experimental Research, 31*(s3), 40s-47s.

Moyers, T. B., Martin, T., Houck, J. M., Christopher, P. J., & Tonigan, J. S. (2009). From in-session behaviors to drinking outcomes: a causal chain for motivational interviewing. *Journal of Consulting and Clinical Psychology, 77*(6), 1113.



Fit Families Communication Study

What are the specific counselor communication behaviors most likely to elicit client statements of intrinsic motivation among African American adolescents with obesity?

Participants

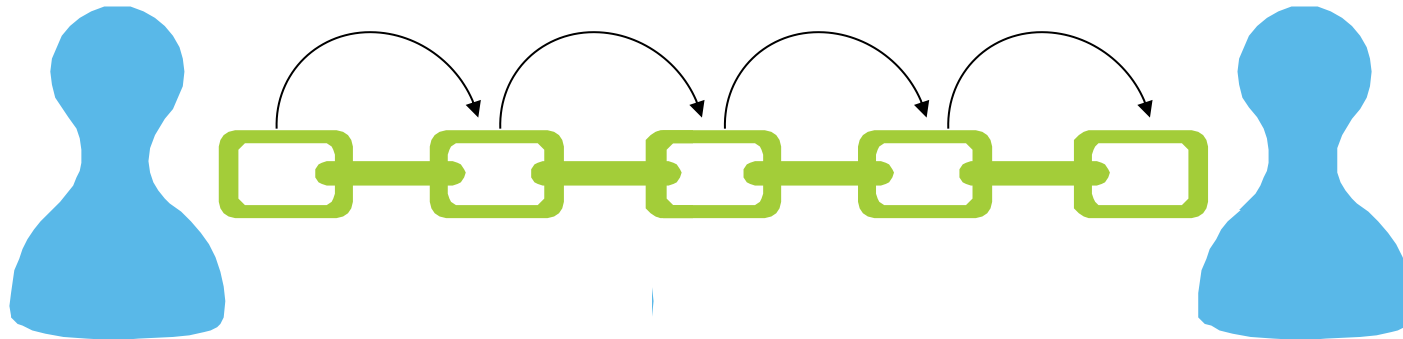
- 37 African American adolescents
 - 14.7 ± 1.63 years
 - 73.0% female
 - 38.5 ± 8.33 ($98.6\% \pm 1.99\%$) BMI
 - \$16,000-\$21,999 median family income

Procedure

- Single 20-minute MI session
 - Target behaviors: diet and physical activity
- 3 Counselors
 - PhD psychologist (MINTie, MI expert)
 - PhD dietitian (MINTie)
 - Masters-level psychologist

Coding and Analysis

- MY-SCOPE: Minority Youth - Sequential Code for Observing Process Exchanges
 - Video recorded → transcribed → coded
 - $K = .696$



Sequential Analysis

Generalized Sequential Querier (GESQ)

	t2→	Adolescent Response Statement 1	Adolescent Response Statement 2
t1↓			
Counselor Communication Behavior 1		<i>Transition Probability 11</i>	<i>Transition Probability 12</i>
Counselor Communication Behavior 2		<i>Transition Probability 21</i>	<i>Transition Probability 22</i>

Lag: difference between t1 and t2

Lag 1 = patient statement immediately following counselor communication

Transition Probabilities of the Joint Frequencies of Adolescent and Counselor Communication Behaviors at lag 1

$X^2(48) = 975.744, p < .001$

Given ↓	Target →	Change Talk (CT)	Commitment Language (CML)	Counter Change Talk (CCT)	Other Statements
Structure Session		0.20 [†]	0.06 ^{††}	0.01 ^{†††}	0.73 ^{***}
Positive Information		0.21 [†]	0.09 [†]	0.06	0.64 ^{***}
Emphasize Autonomy		0.38 ^{***}	0.20 ^{**}	0.05 ^{††}	0.37 ^{††}
Elicit Feedback		0.19 [†]	0.07 ^{††}	0.09	0.65 ^{***}
Affirmation		0.19 ^{††}	0.17	0.07	0.58 ^{**}
Reflections of CT		0.32	0.05 ^{†††}	0.08	0.55 ^{***}
Reflections of CML		0.13 ^{†††}	0.31 ^{***}	0.03 ^{††}	0.53 [*]
Reflections of Ambivalence		0.22	0.11	0.33 ^{***}	0.33
Reflections of CCT		0.17 [†]	0.10	0.28 ^{***}	0.45
Action Reflection		0.22	0.06	0.10	0.62 [*]
Summary		0.17 ^{††}	0.06 [†]	0.13	0.64 ^{***}
Other Reflections		0.12 ^{†††}	0.09	0.15	0.64 ^{***}
Open-Ended Qs to Elicit CT		0.62 ^{***}	0.10 ^{††}	0.09	0.19 ^{†††}
Open-Ended Qs to Elicit CML		0.20 ^{††}	0.60 ^{***}	0.06 [†]	0.14 ^{†††}
Close-Ended Qs to Elicit CT or CML		0.33	0.10	0.06	0.51
Neutral Open-Ended Qs		0.39	0.16	0.24 ^{***}	0.21 ^{†††}
Open-Ended Qs to Elicit CCT		0.20	0.08	0.53 ^{***}	0.20 ^{†††}

More probable than expected by chance:

*p ≤ .05
**p ≤ .01
***p ≤ .001

Less probable than expected by chance:

†p ≤ .05
††p ≤ .01
†††p ≤ .001

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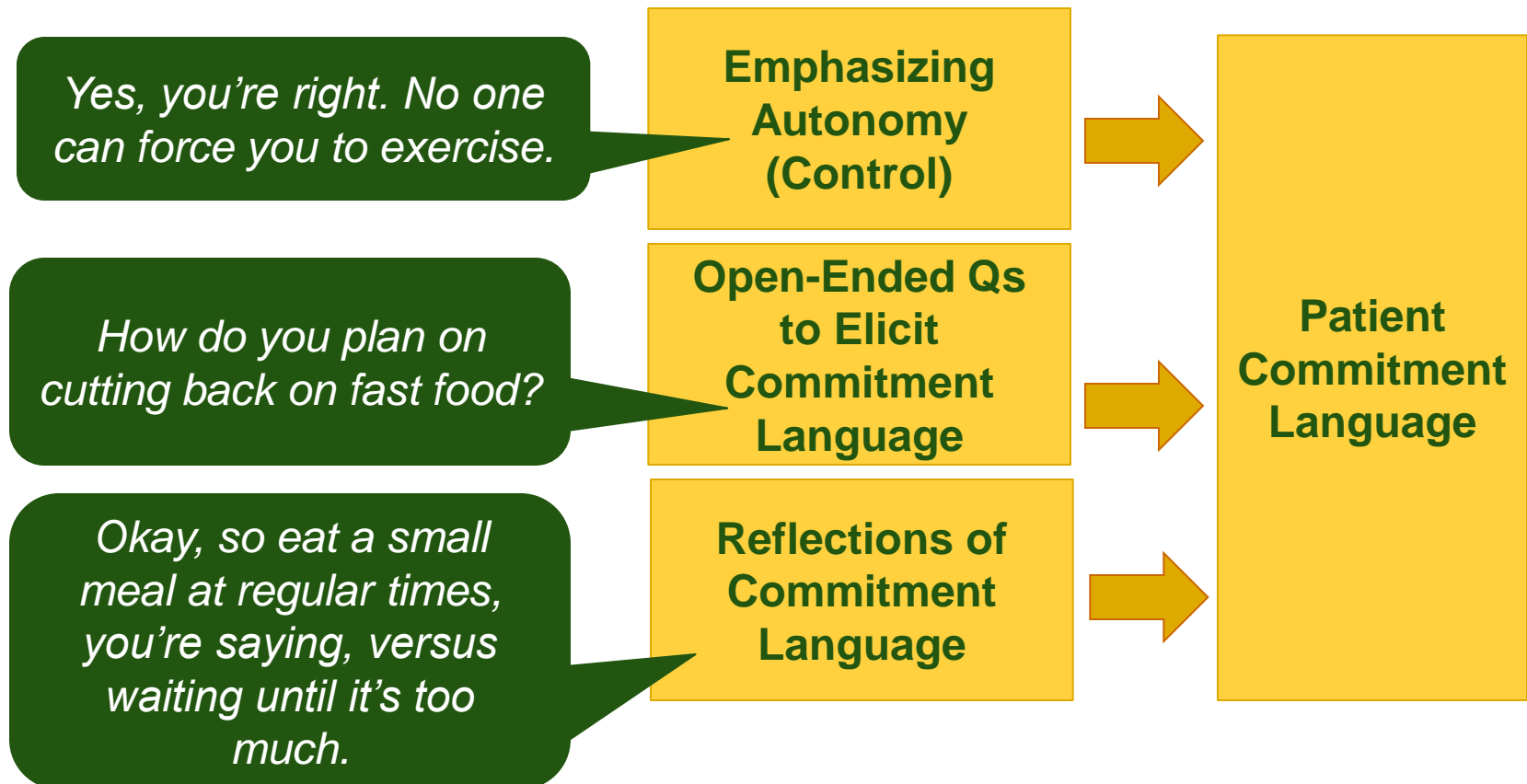


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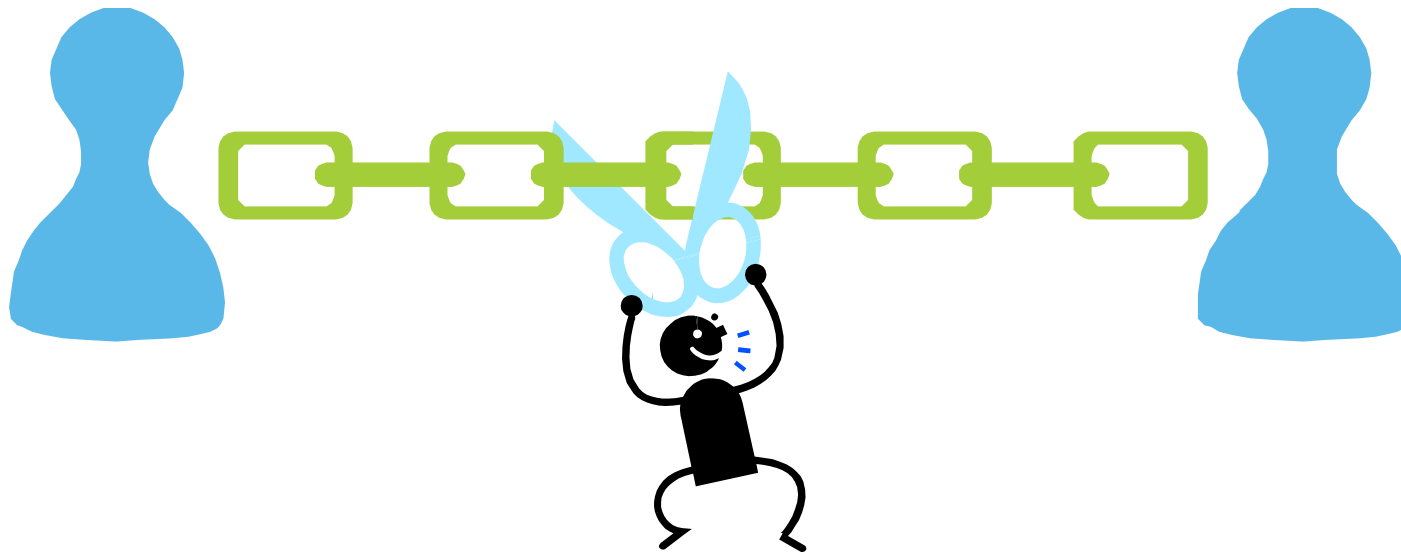
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What Counselor Communication Strategies Elicited Commitment Language?



Current Directions

Thin Slices Sampling



Idalski Carcone, A.; Naar-King, S.; Eggly, S.; Foster, T.; Albrecht, T.; Brogan, K. (under review). Using Thin Slices Sampling to Code Motivational Interviewing Counseling Sessions with African American Adolescents with Obesity.

Current Directions

Text Mining with Computer Science Theory and Technology

I feel like (I could knock down) a few **pounds** because, like, last **year**, I wasn't as big. But then I just **started eating** and **eating** and then I **started** gaining **pounds**. Because my uncle said the same **thing**, he was like, I **don't**, he was like, "You're getting kind of big." I was like, "I know." Because I **eat** a **lot**. **Yeah**, I just gain **pounds**. Because, like, last **year**, I think I was, like, 120-something and then I'm like, 213.

Topic 0, **Topic 1** and **Topic 2**

Current Directions

Sequential Analysis of Triadic MI Sessions



NIDDK 1 R21 DK100760-01A1 (application under review) "Patient-Provider Communication to Promote Health Behavior Change in African American Adolescents," **Idalski Carcone, PI**



Acknowledgements

This research was supported by NIH grant number U01HL097889 (PI: Naar-King/Jen) from NHLBI and NICHD

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