

The Double Edge of Goodness? Exploring the Links Between Prosocial Behavior and Internalizing Symptoms from Childhood to Emerging Adulthood

Fabiola Silletti, Manuel Eisner, Denis Ribeaud, & Pasquale Musso





Hello!



Fabiola Silletti, PhD

 Hello!



 Hello!



Agenda

Background

Methods

Preliminary Results

Discussion

Feedback Request & Next Steps



Background

Prosociality as Ordinary Magic

(Masten, 2001; Memmott-Elison et al., 2020a)

Prosociality as Ordinary Magic

(Masten, 2001; Memmott-Elison et al., 2020a)



Prosociality is negatively linked to externalizing problems

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Does Prosociality in Early-to Mid-Adolescence Protect Against Later Development of Antisocial Behaviours?

[Lydia Gabriela Speyer](#)  , [Ingrid Obsuth](#), [...], and [Aja Louise Murray](#)  [View all authors and affiliations](#)

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Longitudinal associations between youth prosocial behavior and dimensions of psychopathology


Gabrielle E. Reimann, Benjamin B. Lahey, Hee Jung Jeong, E. Leighton Durham, Camille Archer, Carlos Cardenas-Iniguez, Marc G. Berman, Tyler M. Moore, Brooks Applegate, Antonia N. Kaczurkin 

First published: 31 August 2024 | <https://doi.org/10.1002/jcv2.12282> | Citations: 1

Prosocial behavior and psychopathology: An 11-year longitudinal study of inter- and intraindividual reciprocal relations across childhood and adolescence

Published online by Cambridge University Press: 12 August 2022

[Madison K. Memmott-Elison](#) and [Umar Toseeb](#) 

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First published: 31 August 2024 | <https://doi.org/10.1002/jcv2.12282> | Citations: 1

Journal of Child Psychology and Psychiatry / Volume 55, Issue 10 / pp. 1135-1144

Original Article | Full Access

Developmental association of prosocial behaviour with aggression, anxiety and depression from infancy to preadolescence

Amélie Nantel-Vivier, Robert O. Pihl, Sylvana Côté, Richard E. Tremblay

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Prosocial and Aggressive Behavior: A Longitudinal Study

Dale F. Hay, Amy L. Paine, Oliver Perra, Kaye V. Cook, Salim Hashmi, Charlotte Robinson, Victoria Kairis, Rhiannon Slade

First published: 11 May 2021 | <https://doi.org/10.1111/mono.12427> | Citations: 19

Prosociality and Internalizing Problems: What Link?

Prosociality Link to Internalizing Problems



What Empirical Evidence Says?

What Empirical Evidence Says



What Empirical Evidence Says

negative

What Empirical Evidence Says

BRIEF REPORT

Prosocial Behavior and Childhood Trajectories of Internalizing and Externalizing Problems: The Role of Neighborhood and School Contexts

Eirini Flouri , Zahra Sarmadi



[Author Affiliations](#) ▶

Flouri, E., & Sarmadi, Z. (2016). Prosocial behavior and childhood trajectories of internalizing and externalizing problems: The role of neighborhood and school contexts. *Developmental Psychology*, 52(2), 253–258. <https://doi.org/10.1037/dev0000076>

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Social Science & Medicine

Volume 56, Issue 2, January 2003, Pages 259-269



Volunteering and depression: the role of psychological and social resources in different age groups

Marc A Musick ^a , John Wilson ^b

Brief Reports

The Impact of Work and Volunteer Hours on the Health of Undergraduate Students

Alyssa M. Lederer, MPH, CHES, Dana M. Autry, PhD, MCHES, Carol R. T. Day, MSN, BSN & Sara B. Oswald, PhD, MPH

Pages 403-408 | Received 03 Jul 2014, Accepted 18 Jan 2015, Published online: 11 Aug 2015

 Cite this article  <https://doi.org/10.1080/07448481.2015.1015028>



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Rewards of kindness? A meta-analysis of the link between prosociality and well-being.

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Hui, Bryant P. H., Ng, Jacky C. K., Berzaghi, Erica, Cunningham-Amos, Lauren A., Kogan, Aleksandr

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Hui, B. P. H., Ng, J. C. K., Berzaghi, E., Cunningham-Amos, L. A., & Kogan, A. (2020). Rewards of kindness? A meta-analysis of the link between prosociality and well-being. *Psychological Bulletin*, 146(12), 1084–1116. <https://doi.org/10.1037/bul0000298>



Journal of Adolescence

Volume 80, April 2020, Pages 98-114


Associations between prosocial behavior, externalizing behaviors, and internalizing symptoms during adolescence: A meta-analysis

Madison K. Memmott-Elison ^a , Hailey G. Holmgren ^b, Laura M. Padilla-Walker ^c, Alan J. Hawkins ^c

Are prosocial tendencies relevant for developmental psychopathology? The relations of prosocial behavior and empathy-related responding to externalizing problems, internalizing problems, and autism spectrum disorder

Published online by Cambridge University Press: 13 February 2024

Nancy Eisenberg , Antonio Zuffianò and Tracy L. Spinrad

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negative



Development and Psychopathology

What Empirical Evidence Says

positive

What Empirical Evidence Says



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Longitudinal associations between youth prosocial behavior and dimensions of psychopathology

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First published: 21 August 2024 | <https://doi.org/10.1002/psp.12282> | Citations: 1

positive

What Empirical Evidence Says



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Pathways of behavioural and emotional symptoms in kindergarten children: What is the role of pro-social behaviour?

ORIGINAL CONTRIBUTION | Published: 05 December 2006

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What Empirical Evidence Says



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Do Self-Control and Parental Involvement Promote Prosociality and Hinder Internalizing Problems? A Four-Wave Longitudinal Study From Early to Mid-To-Late Adolescence

[Fabiola Silletti](#) , [Nicolò M. Iannello](#), [...], and [Pasquale Musso](#) [View all authors and affiliations](#)

[Volume 44, Issue 9](#) | <https://doi.org/10.1177/02724316231210250>

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European Child & Adolescent Psychiatry

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What Empirical Evidence Says

null

What Empirical Evidence Says

CHILD DEVELOPMENT



 Full Access

Prosocial Development in Relation to Children's and Mothers' Psychological Problems

Dale F. Hay, 1 Susan Pawlby 2

First published: 12 September 2003 | <https://doi.org/10.1111/1467-8624.00609> | Citations: 86

✉ concerning this article should be addressed to Dale Hay, School of Psychology, Cardiff University, Cardiff, Wales, CF10 3YG, United Kingdom.

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Prior Research Limitations

- **Scant research & inconclusive findings**

(e.g., Flouri & Sarmadi, 2016; Hay & Pawlby, 2003; Nantel-Vivier et al., 2014; Perren & Alsaker, 2009; Perren et al., 2017; Reimann et al., 2024; Silletti et al., 2023)

→ Raises questions about **when** and **for whom** prosocial behavior is beneficial

- **Small, homogeneous samples**

→ Limits representativeness

- **Focus on a single developmental stage**

→ Are effects different across childhood, adolescence, and emerging adulthood?

(e.g., positive relations in adolescence but negative in childhood?)

- **Internalizing problems not differentiated**

→ Depression vs anxiety?

- **Limited generalizability**

- **Potential moderators rarely considered**

→ ?

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→ Victimization and Social Support

The Moderating Role of Partner Support and Victimization

❖ **Protective Role of Prosociality**

- **Victimization** can weaken this protective effect: kind or helpful children may still develop anxiety or depression if bullied or rejected.
- **Social support**—from peers, family, or teachers—can strengthen prosociality, buffering against internalizing difficulties.

❖ **Prosociality as a Potential Risk Factor**

- Under high victimization, prosociality may increase vulnerability: helpful children may become targets of bullying or exploitation, raising the risk of internalizing problems.
- Social support can counteract this risk, preserving the protective benefits of prosocial behavior.

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➤ **Study: Victimization & Social Support – Contemporary Insights**

▪ **Unreciprocated or Exploited Prosociality**

- Prosocial efforts that go unrecognized or unrewarded—e.g., in non-supportive environments or problematic peer relationships, including victimization—can lead to:
 - Disillusionment
 - Resentment
 - Sense of helplessness
- This perceived inefficacy, both personal and relational, can contribute to depressive thoughts and anxiety.

The Current Study

Developmental & Multisystemic Approach

- Track prosocial behavior → internalizing problems
- Across childhood, adolescence, and emerging adulthood

Moderators Explored

- Victimization
- Social support
- Gender

Why This Study?

- Fills major gaps in prior research
- Uses large, heterogeneous longitudinal dataset (z-proso)
- Disentangles the dynamic interplay between *doing good & feeling well*

Expected Impact

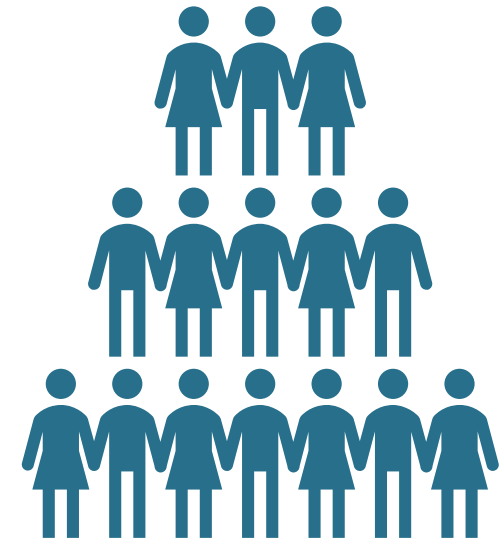
- Inform developmentally sensitive interventions
- Promote both mental health & prosocial engagement across the lifespan



Methods

Participants

- Data were drawn from the *z-proso* project (Ribeaud et al., 2022);
- $N = 1523$ participants (49% females) from Zurich, Switzerland;
- 4 waves: ages 13, 15, 17, 20, starting 2011
 - Initially planned: ages 7–24



Instruments

		K1	K2	K3	K4	K5	K6	K7	K8	K9
Items overlap (13-20y)		7	8	9	11	13	15	17	20	24
5 items	INTERNALIZING PROBLEMS****	≠	na	≠	☑	☑	☑	☑	☑	☑
8 items	PROSOCIALITY	≠	≠	≠	☑	☑	☑	☑	☑	☑
5 items	(BULLYING) VICTIMIZATION	na	≠	na	☑	☑	☑	☑	☑	☑
x	PEER SUPPORT	na	na	≠	≠	☑	☑	☑	na	na
4 items	ADULT SUPPORT	na	na	≠	≠	☑	☑	☑	☑	na

Measures

Internalizing Problems



Measure	Dark Blue Segment	Light Blue Segment
Internalizing Problems	Short	Long
Prosociality	Medium	Medium
Victimization	Short	Long
Social Support	Medium	Medium
Gender	Short	Long

Prosociality

Victimization

Social Support

Gender

Instruments

Internalizing Problems

- Social Behavior Questionnaire (SBQ; Tremblay et al., 1991), adapted for adolescents (Murray et al., 2017; Murray et al., 2019) and adulthood (Averdijk et al., 2022; Murray et al., 2023).
- Of the original 9 items, 5 items were common across all measurement time points (i.e., age 13-20), 2 for depression and 3 for anxiety, and were used in the current study.
- Respondents were asked to indicate how they had felt over the past month using both anxiety (e.g., “I was worried”) and depression (e.g., “I was unhappy”) sub-domains.
- Items were rated on a 5-point Likert-type scale ranging from never (1) to very often (5).
- An average composite score was created.

K8_English

I cried.

n/a

I was scared, fearful, or anxious.

I was worried.

I was sad without knowing why.

n/a

n/a

I was unhappy, miserable, or distressed.

n/a

Instruments

Prosociality

- Social Behavior Questionnaire (SBQ; Tremblay et al., 1991), adapted for adolescents (Murray et al., 2017; Murray et al., 2019) and adulthood (Averdijk et al., 2022; Murray et al., 2023).
- Of the original 10 items, 8 items were common across all measurement time points (i.e., ages 13-20) and used in the current study.
- Respondents were asked to indicate which things they had done over the past 12 months using items like:
 - “You tried to comfort someone who was crying or was upset” indicative of altruism/pacification,
 - “You were good at understanding another person’s feelings,” indicative of empathy/sympathy.
- Items were rated on a 5-point Likert-type scale ranging from *never* (1) to *very often* (5).
- An average composite score was created.

K8_English
You showed sympathy to someone who was upset or who suffered.
You volunteered to fix a mess someone else has made.
When others had a quarrel or dispute you tried to stop it. .
You tried to help someone who was in need of assistance. n/a
n/a
You tried to comfort someone who was crying or was upset.
You listened carefully to the point of view of others.
You were good at understanding another person's feelings.
You were generous to others.

Instruments

Victimization

- Peer victimization was assessed through self-report.
- The scale was derived from Olweus (1993) and has demonstrated consistency and predictive validity with cross-informant behavioral measures (Scholte et al., 2007).
- Four types of victimization were included, referring to experiences during the past year:
 1. teasing in a mean and hurtful way,
 2. stealing and destroying possessions,
 3. physical violence,
 4. and rejection or exclusion.
- Response categories ranged from 0 to 5.
- An average composite score was created.

I-ignored or excluded [K8_1101]

I-insulted or taunted [K8_1102]

I-physically attacked [K8_1103]

I-took or destroyed belonging [K8_1104]

I-sexual harassment [K8_1105]

Instruments

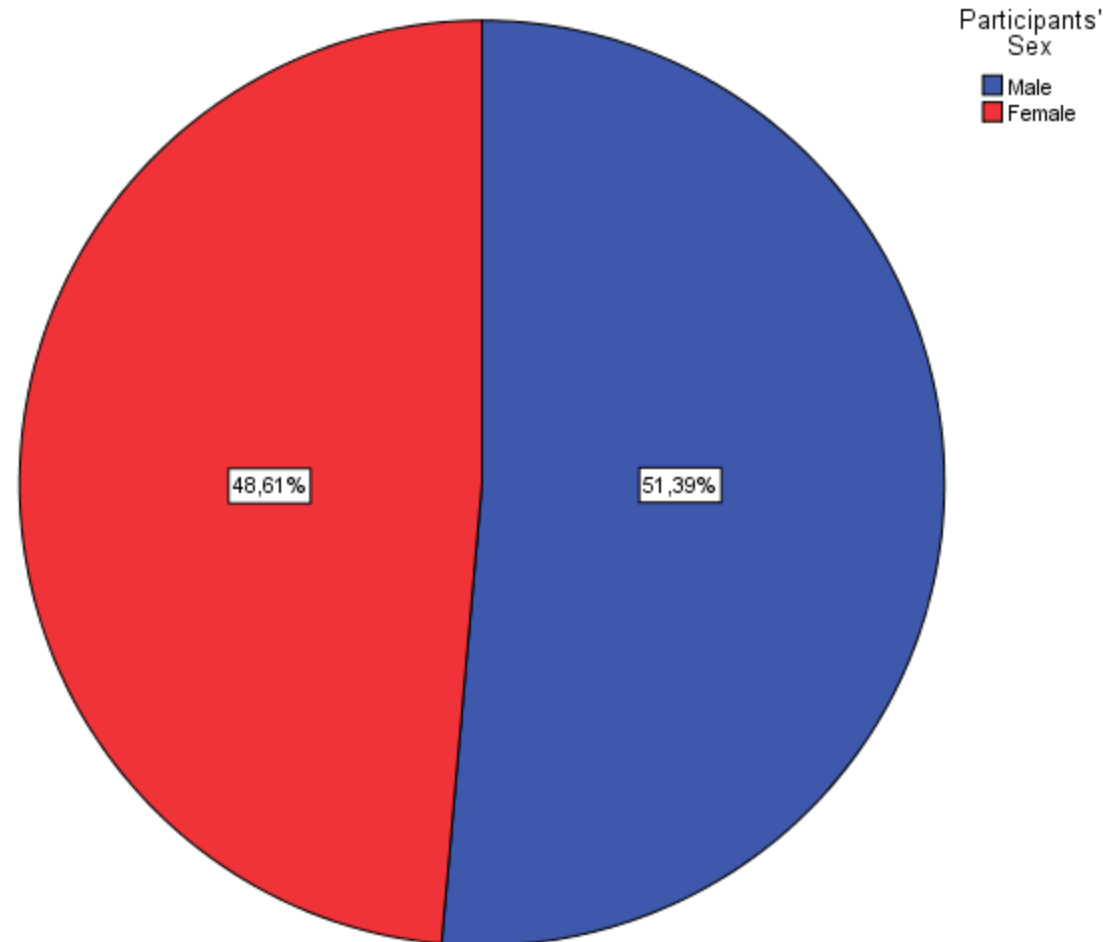
Social Support (Resiliency)

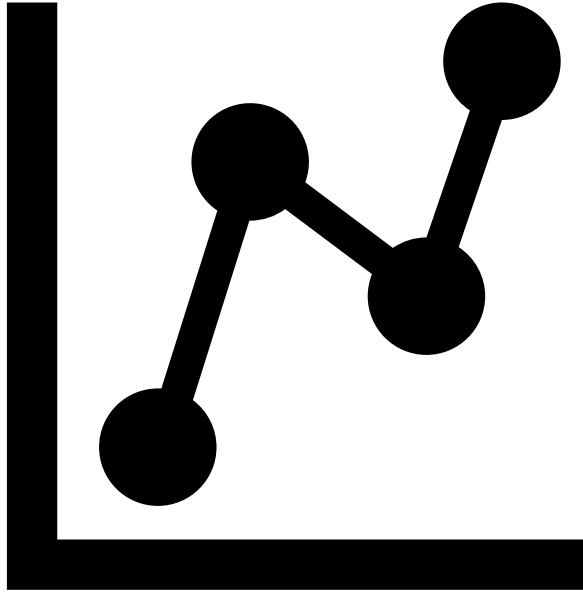
- Social support from adults was assessed through self-report (e.g., Shanahan et al., 2020)
- Participants were asked questions about the extent to which they had people around them whom they could rely on in case of personal issues and whom they admired.
- 4-point scale (from "fully untrue" to "fully true")
- An average composite score was created.

K8_401	adults to talk about problems
K8_403	adults i admire
K8_405	discuss my problems with adults
K8_407	adults i can trust

Instruments

Sociodemographics questions were collected





Analytical Strategy

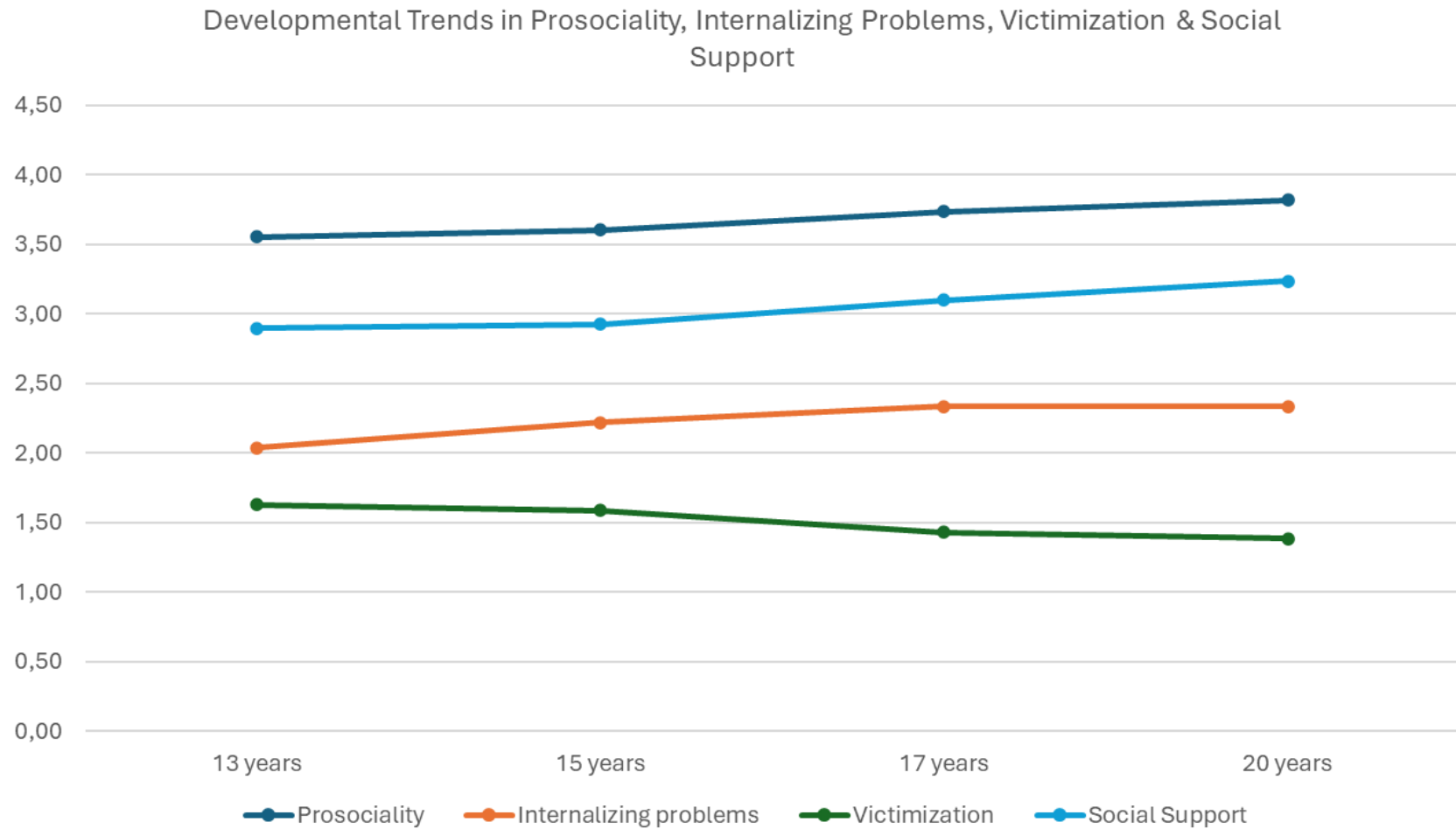
- Exploratory correlations and multiple hierarchical regression analysis
- SPSS software



Results

Preliminary Results

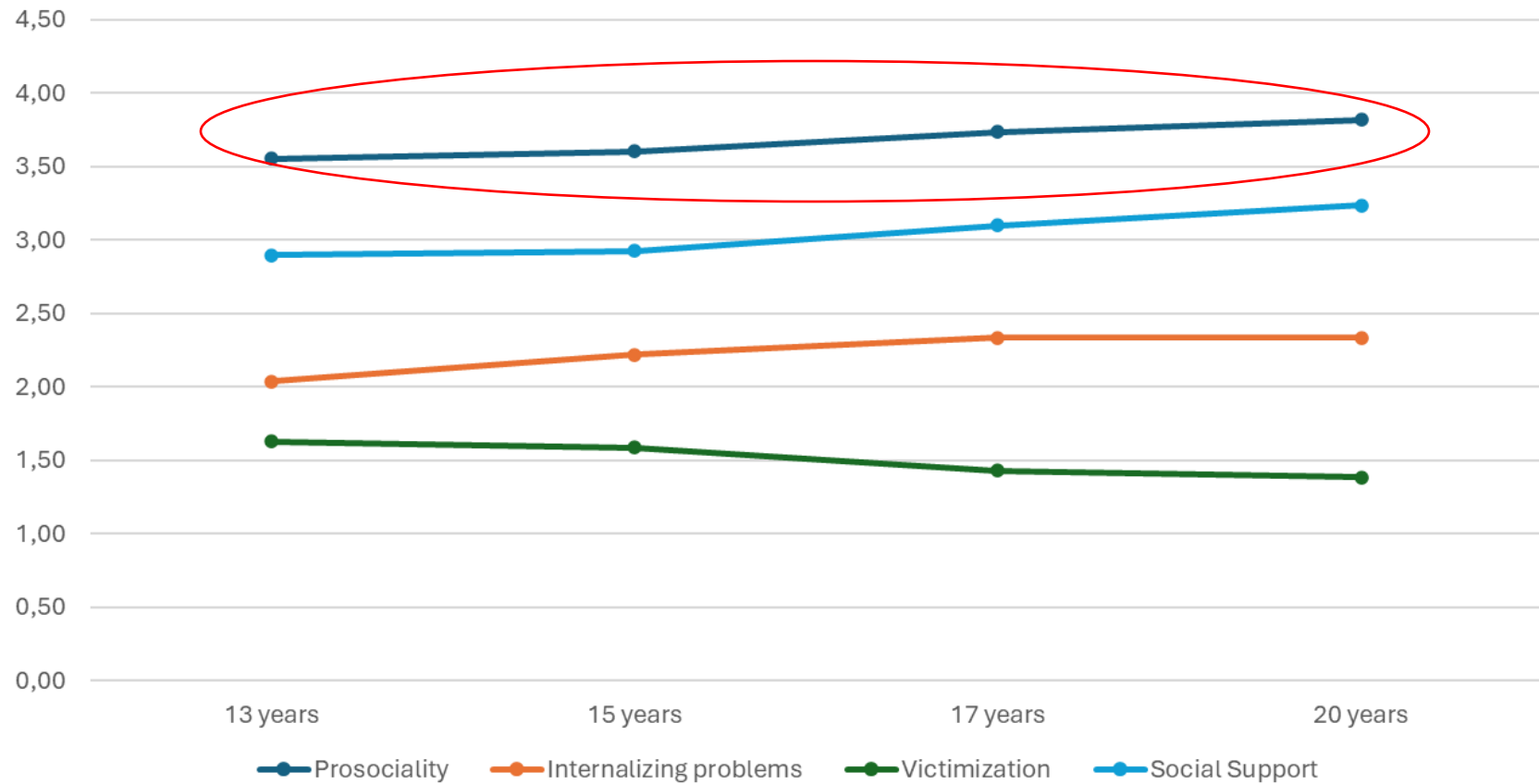
Developmental Trends



Paired-sample tests: all significant
– except Internalizing (17–20)
– Social support (13–15)

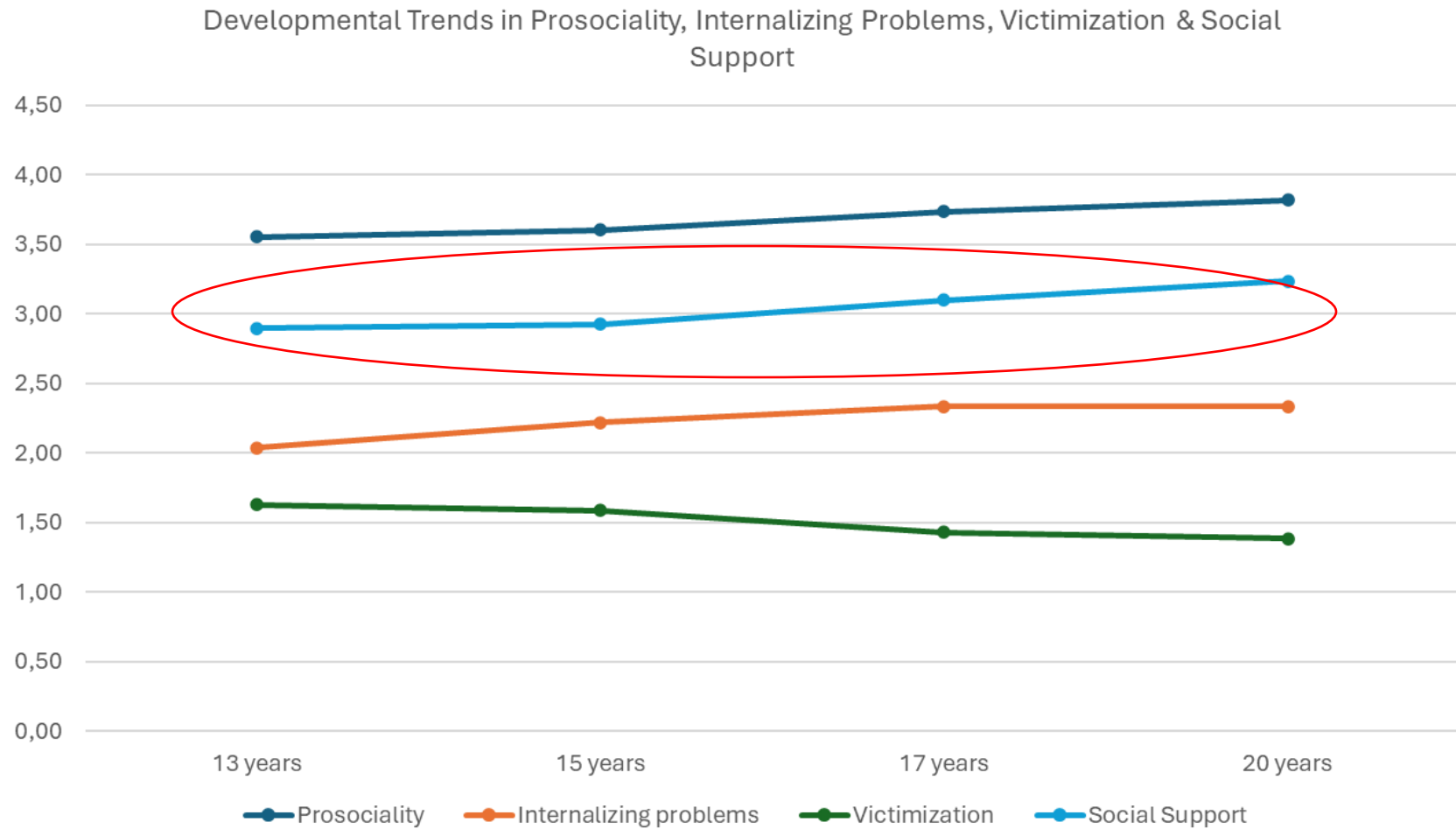
Developmental Trends

Developmental Trends in Prosociality, Internalizing Problems, Victimization & Social Support



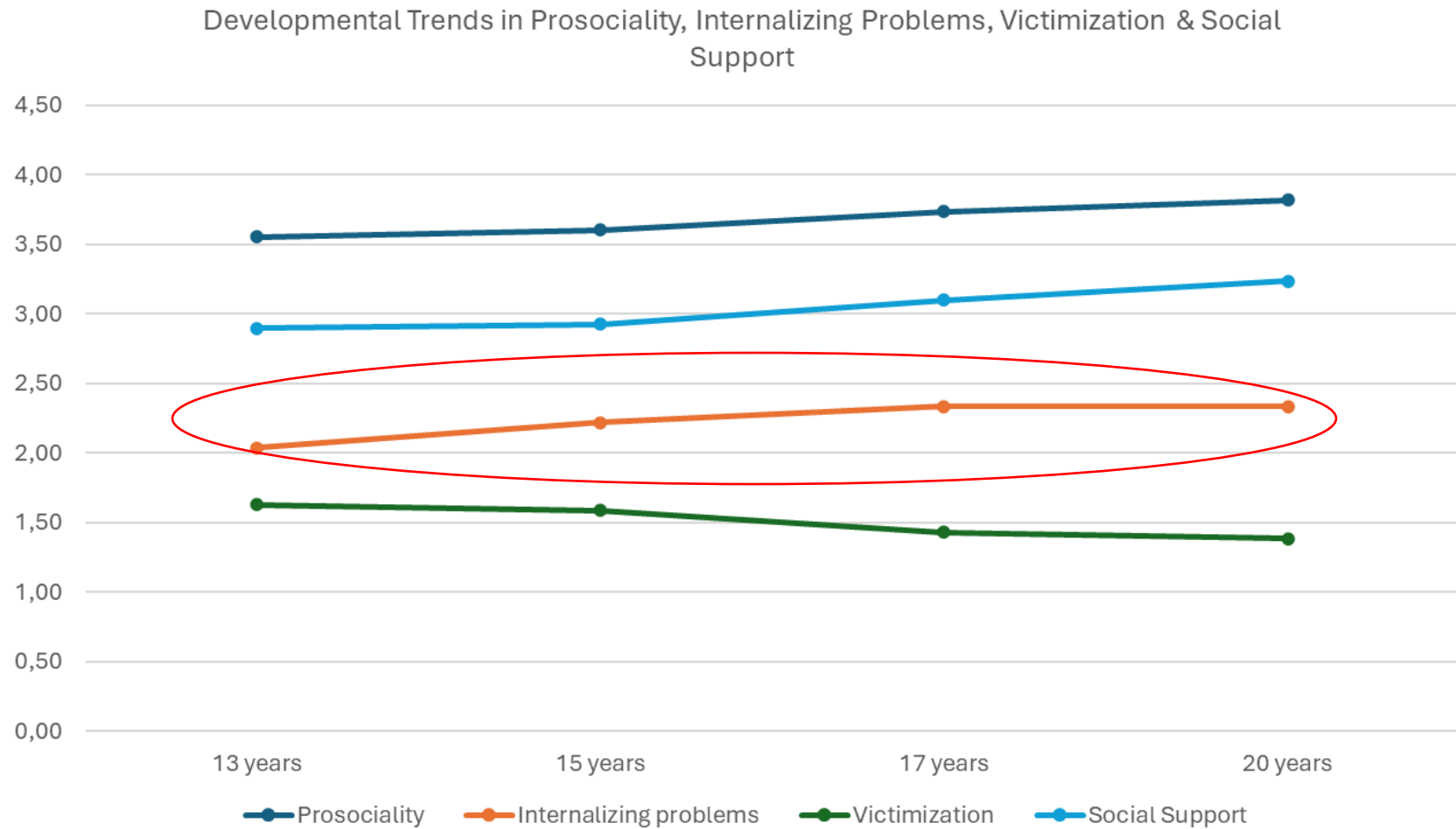
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Developmental Trends



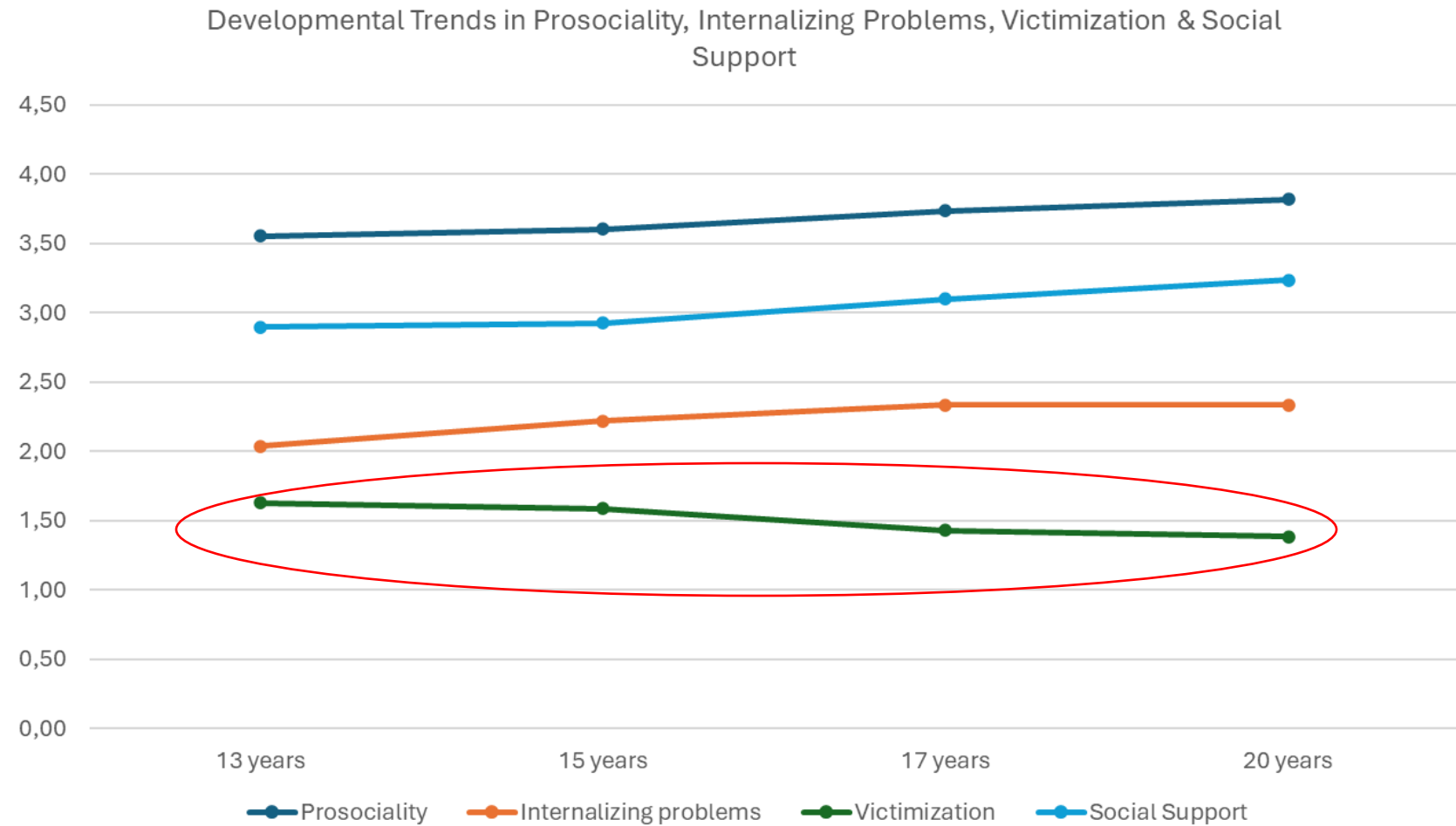
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Correlations

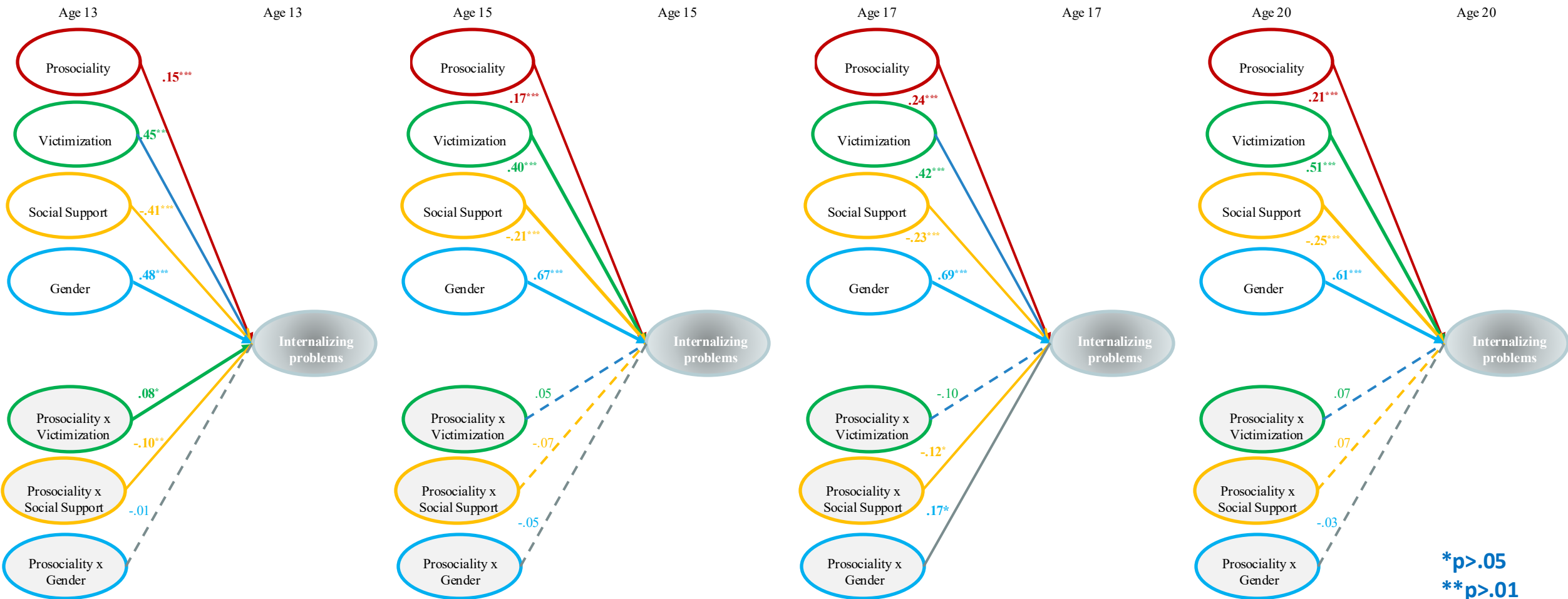
Table 3
Correlations Among Study Variables over Time

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
1. T1_Prosociality		1															
	N	1364															
2. T1_Internalizing Problems		.215**	1														
	N	1364	1365														
3. T1_Victimization		.015	.389**	1													
	N	1362	1363	1363													
4. T1_Social Support		.227**	-.109**	-.028	1												
	N	1359	1360	1358	1360												
5. T2_Prosociality		.557**	.158**	.027	.131**	1											
	N	1328	1329	1327	1324	1446											
6 T2_Internalizing Problems		.175**	.529**	.221**	-.085**	.217**	1										
	N	1327	1328	1326	1323	1445	1445										
7. T2_Victimization		.048	.259**	.459**	-.054*	.044	.317**	1									
	N	1326	1327	1325	1322	1444	1443	1444									
8. T2_Social Support		.130**	-.095**	-.104**	.475**	.199**	-.185**	-.089**	1								
	N	1327	1328	1326	1323	1445	1445	1445	1445								
9. T3_Prosociality		.432**	.137**	.003	.105**	.599**	.207**	.038	.146**	1							
	N	1213	1214	1212	1209	1287	1286	1285	1286	1305							
10. T3_Internalizing Problems		.205**	.430**	.187**	-.104**	.193**	.605**	.233**	-.109**	.257**	1						
	N	1213	1214	1212	1209	1287	1286	1285	1286	1305	1305						
11. T3_Victimization		.063*	.239**	.362**	-.044	.042	.247**	.469**	-.086**	.044	.284**	1					
	N	1211	1212	1210	1207	1285	1284	1283	1284	1303	1303	1303					
12. T3_Social Support		.137**	-.040	-.044	.353**	.162**	-.127**	-.060*	.475**	.215**	-.156**	-.091**	1				
	N	1208	1209	1207	1204	1282	1281	1280	1281	1300	1300	1298	1300				
13. T4_Prosociality		.322**	.151**	.083**	.055	.424**	.142**	.082**	.045	.497**	.209**	.059*	.110**	1			
	N	1103	1103	1103	1099	1165	1164	1164	1164	1117	1117	1116	1115	1180			
14. T4_Internalizing Problems		.091**	.359**	.163**	-.082**	.115**	.489**	.174**	-.140**	.156**	.592**	.198**	-.145**	.180**	1		
	N	1103	1103	1103	1099	1165	1164	1164	1164	1117	1117	1116	1115	1180	1180		
15. T4_Victimization		.019	.195**	.253**	-.082**	.031	.228**	.309**	-.152**	.073*	.281**	.417**	-.106**	.114**	.328**	1	
	N	1102	1102	1102	1098	1164	1163	1163	1163	1116	1116	1115	1114	1179	1179	1179	
16. T4_Social Support		.155**	-.020	-.010	.292**	.155**	-.041	-.042	.370**	.131**	-.071*	-.057	.465**	.201**	-.181**	-.125**	1
	N	1102	1102	1102	1098	1164	1163	1163	1163	1116	1116	1115	1114	1179	1179	1178	1179
17. Gender		.351**	.335**	-.039	-.021	.317**	.438**	-.007	-.008	.310**	.449**	.036	.000	.188**	.376**	.070*	.014
	N	1031	1031	1030	1026	1088	1087	1087	1087	994	994	992	992	916	916	915	915

Note. T = Time. * $p < .05$, ** $p < .01$

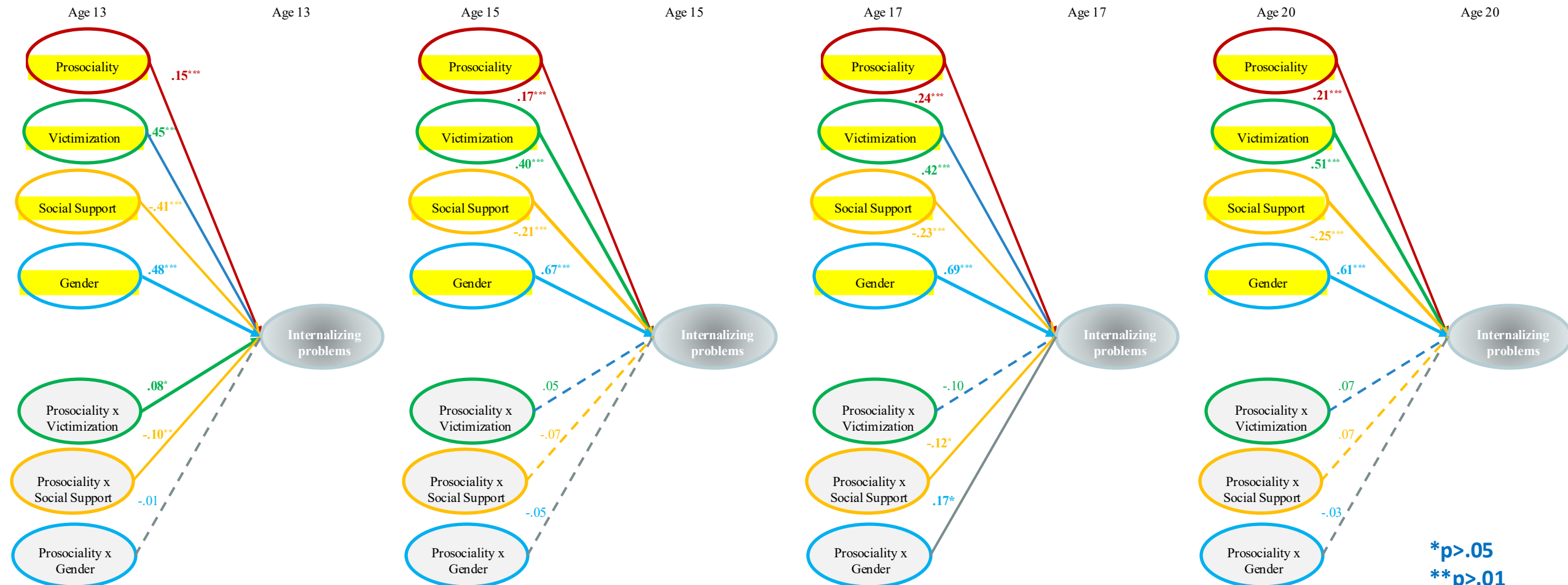
Regression Analysis Results

CROSS-SECTIONAL RESULTS



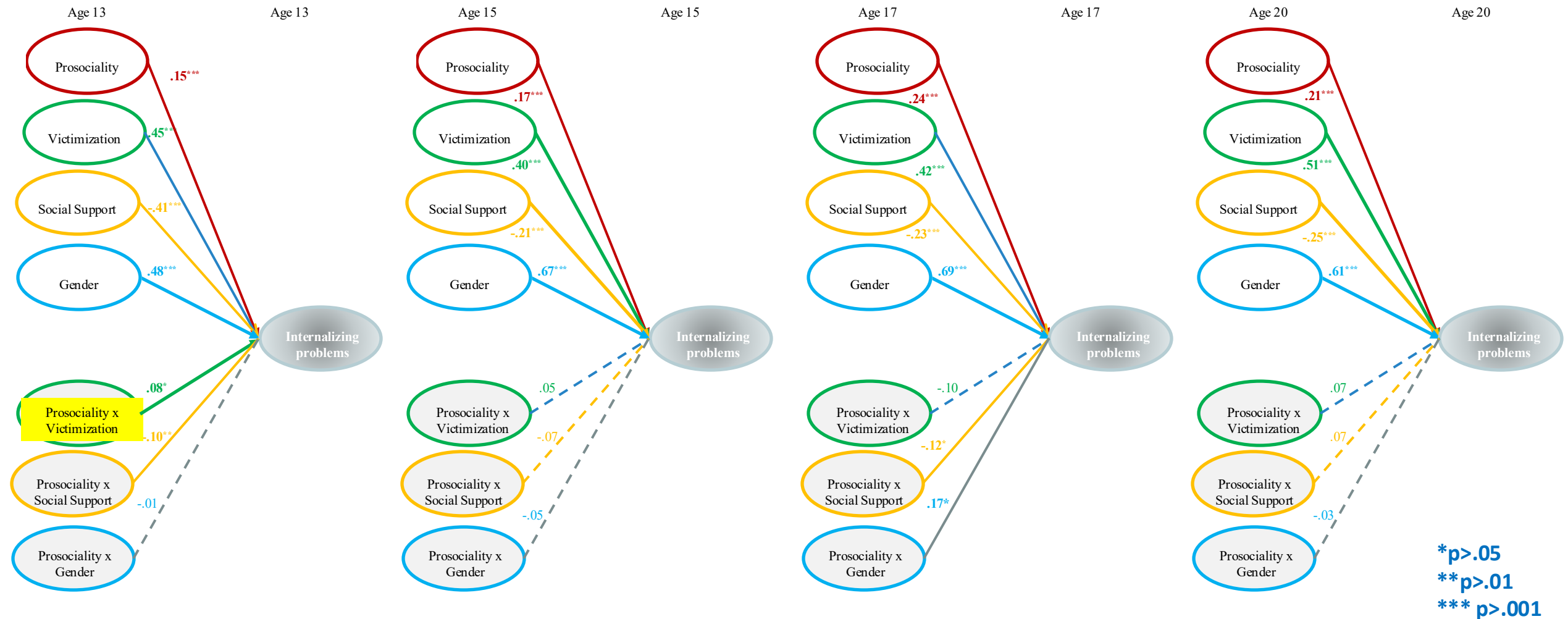
*p>.05
 **p>.01
 ***p>.001

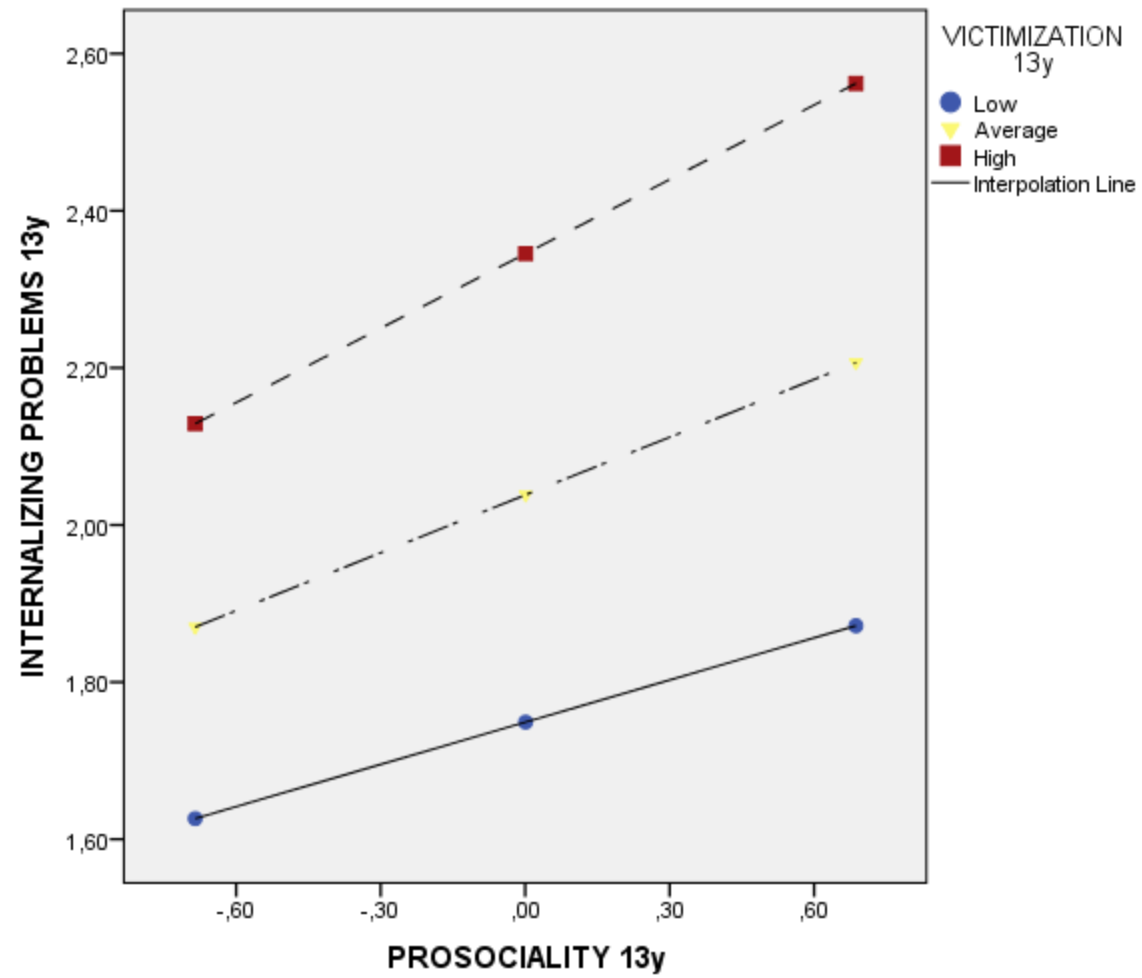
CROSS-SECTIONAL RESULTS



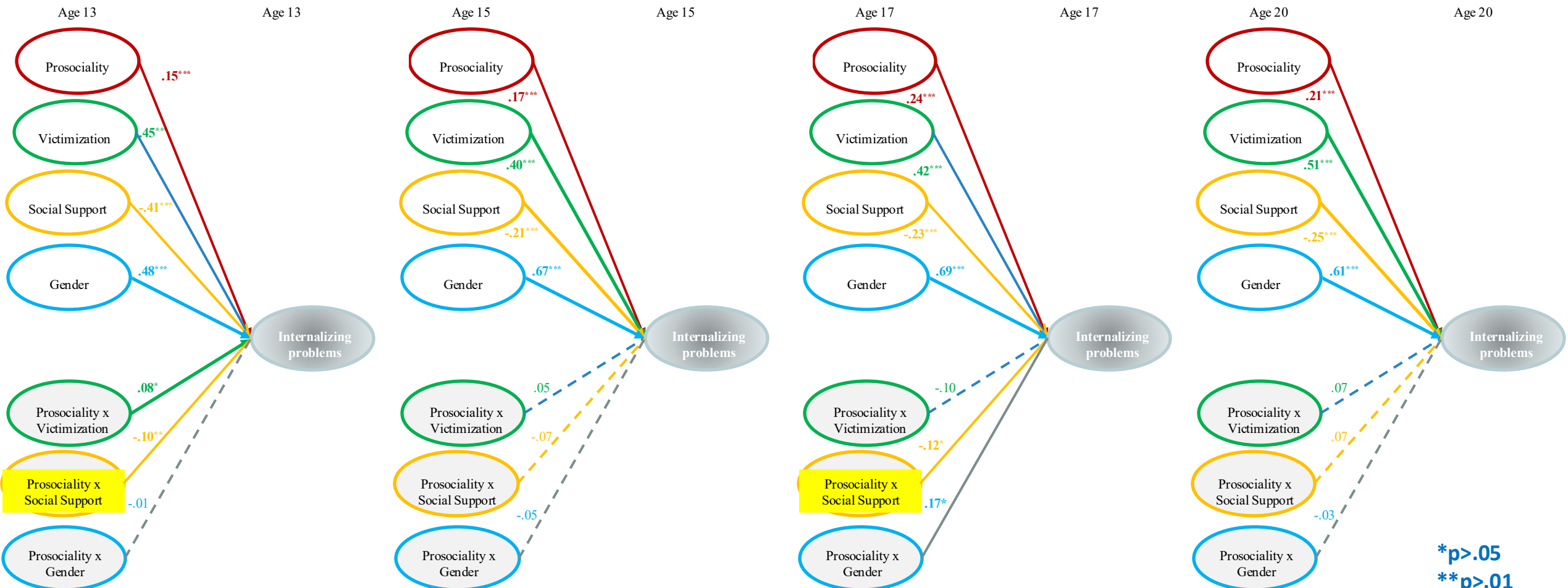
*p > .05
 **p > .01
 ***p > .001

CROSS-SECTIONAL RESULTS

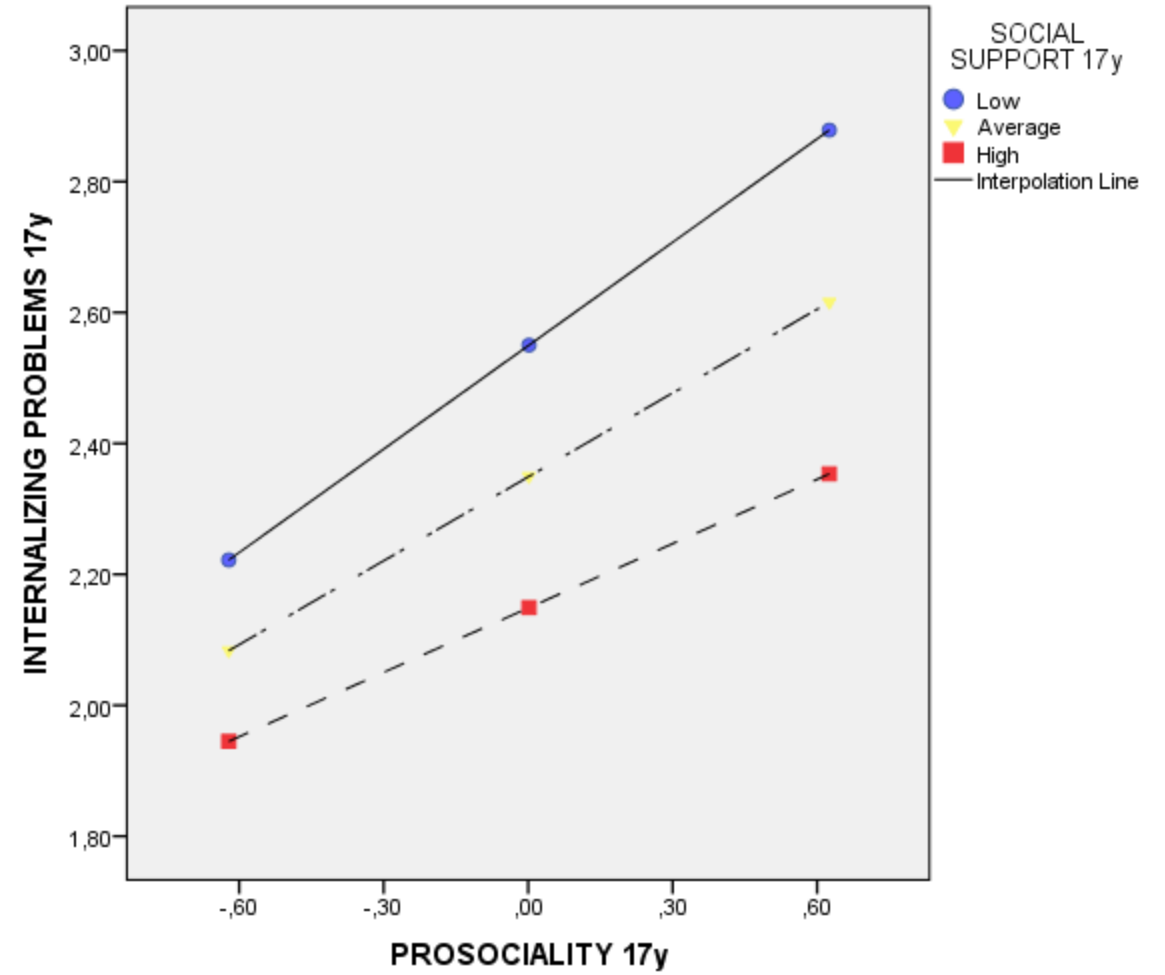
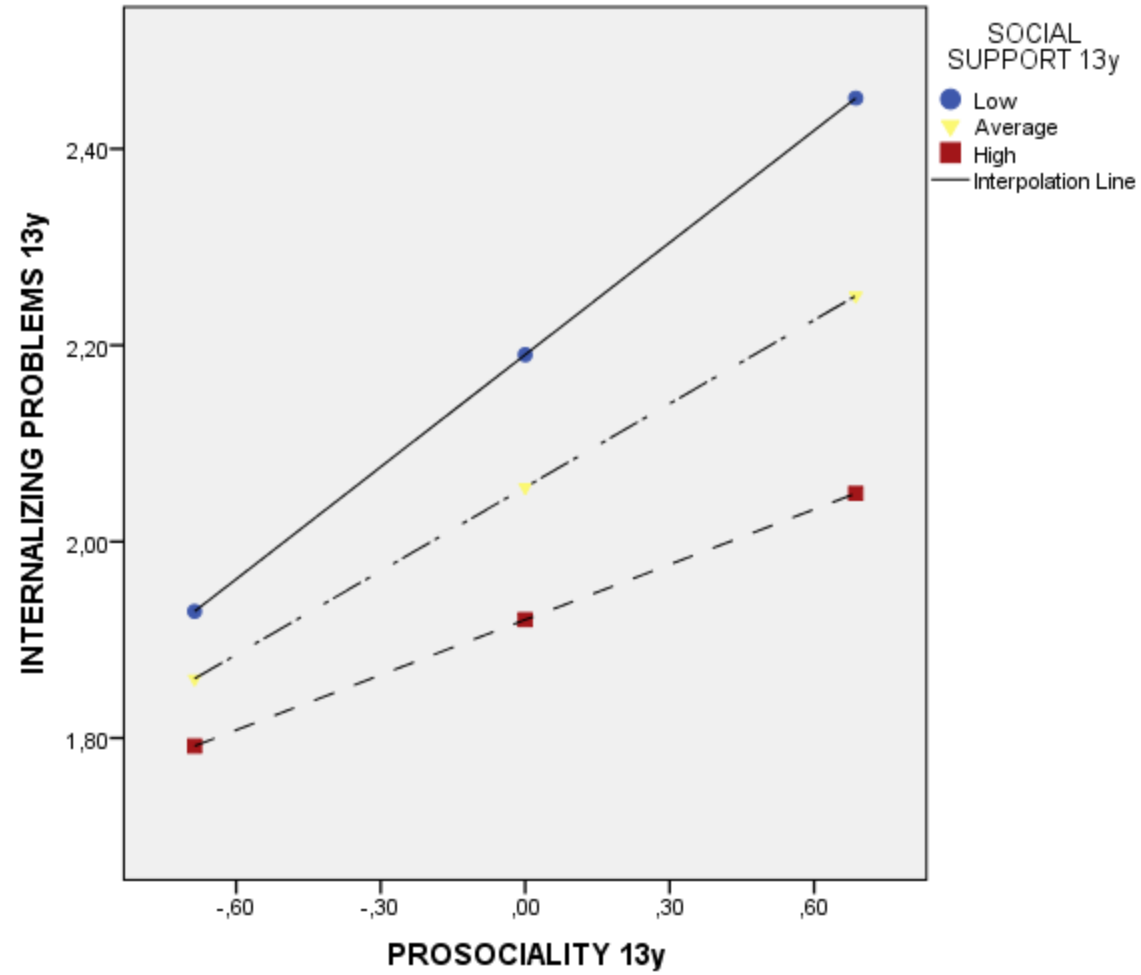




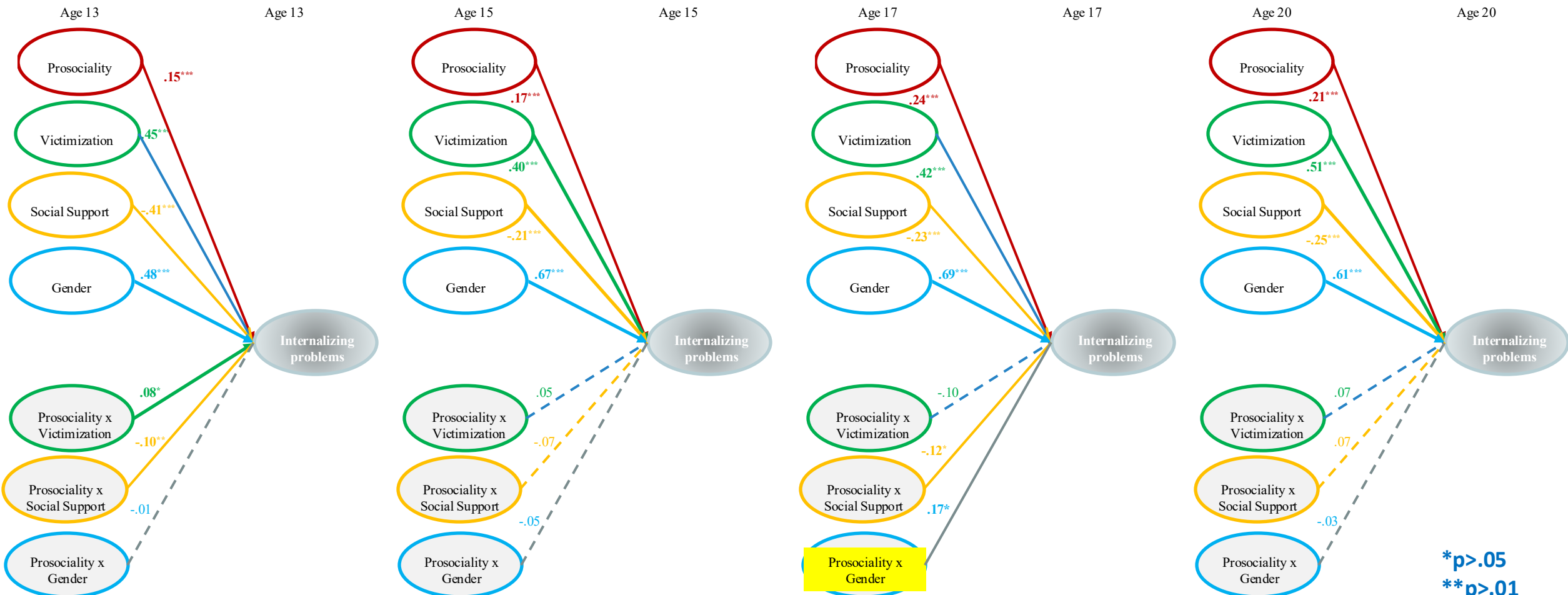
CROSS-SECTIONAL RESULTS



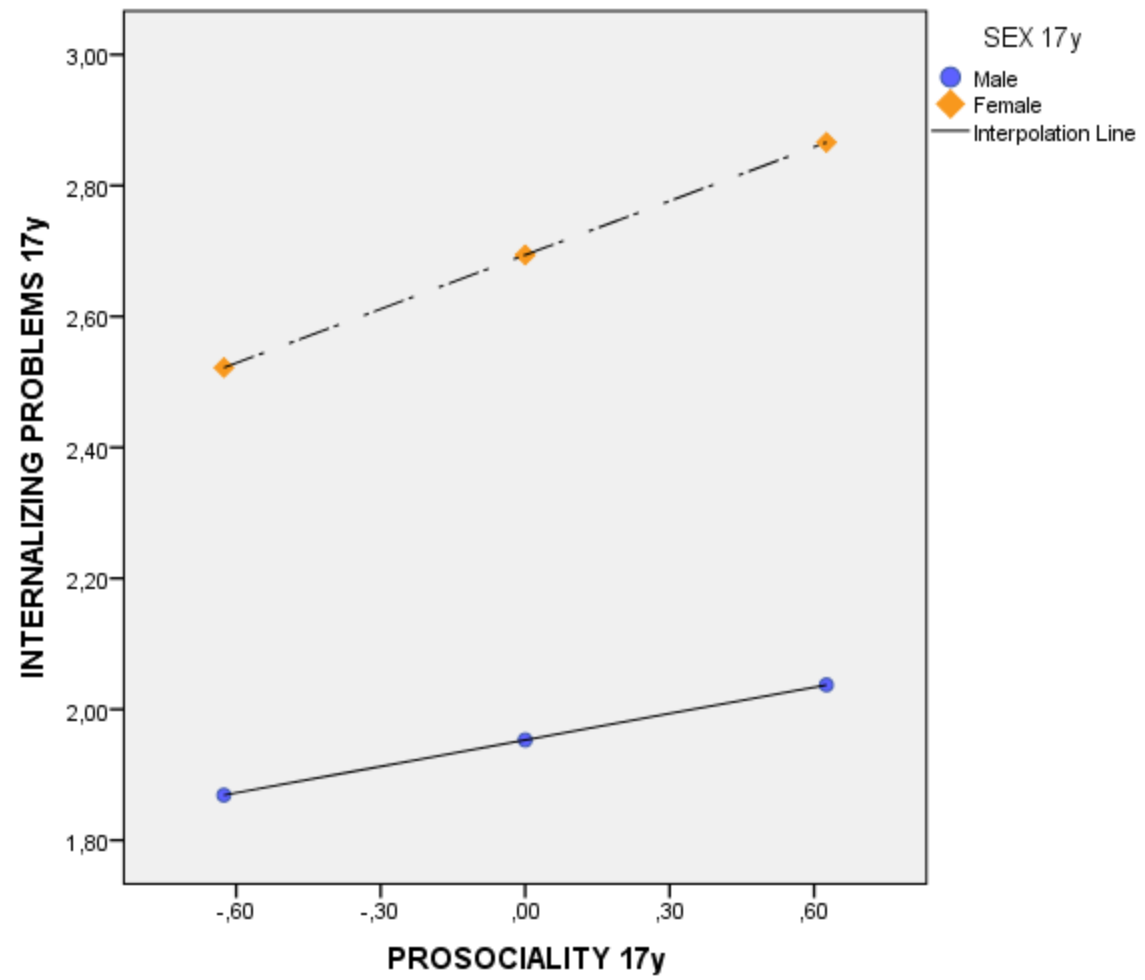
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 **p>.01
 ***p>.001



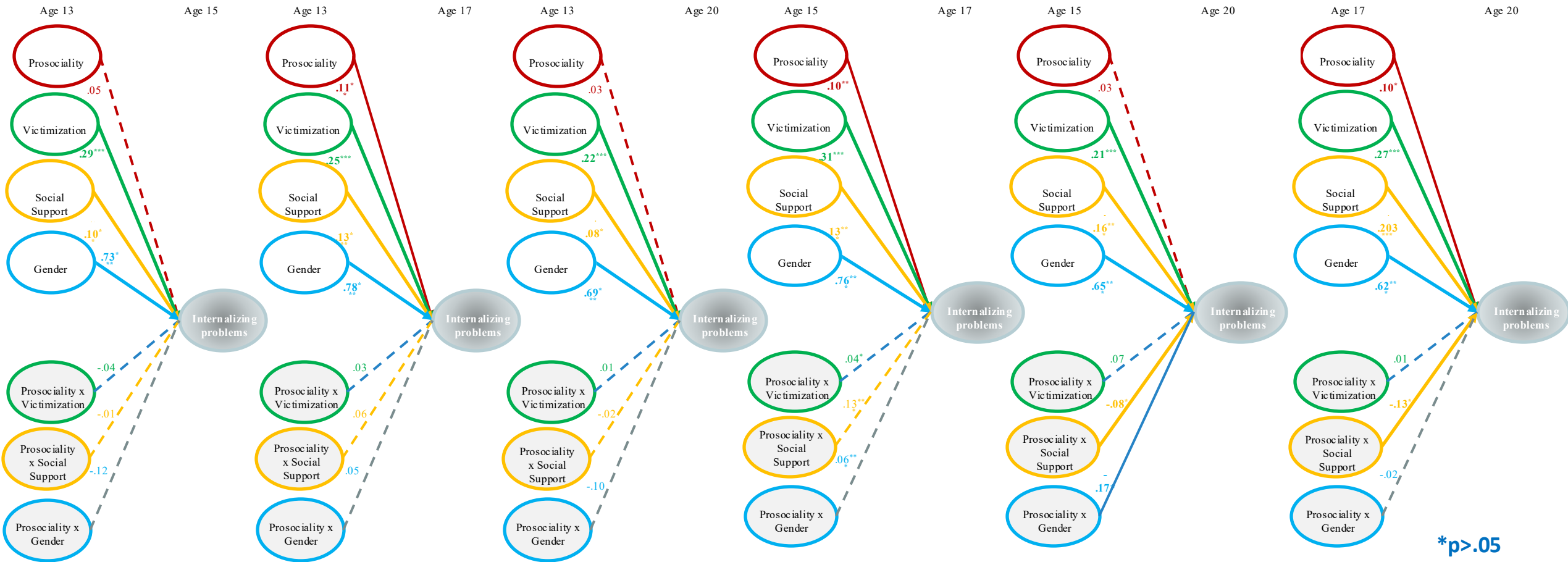
CROSS-SECTIONAL RESULTS



*p>.05
 **p>.01
 ***p>.001

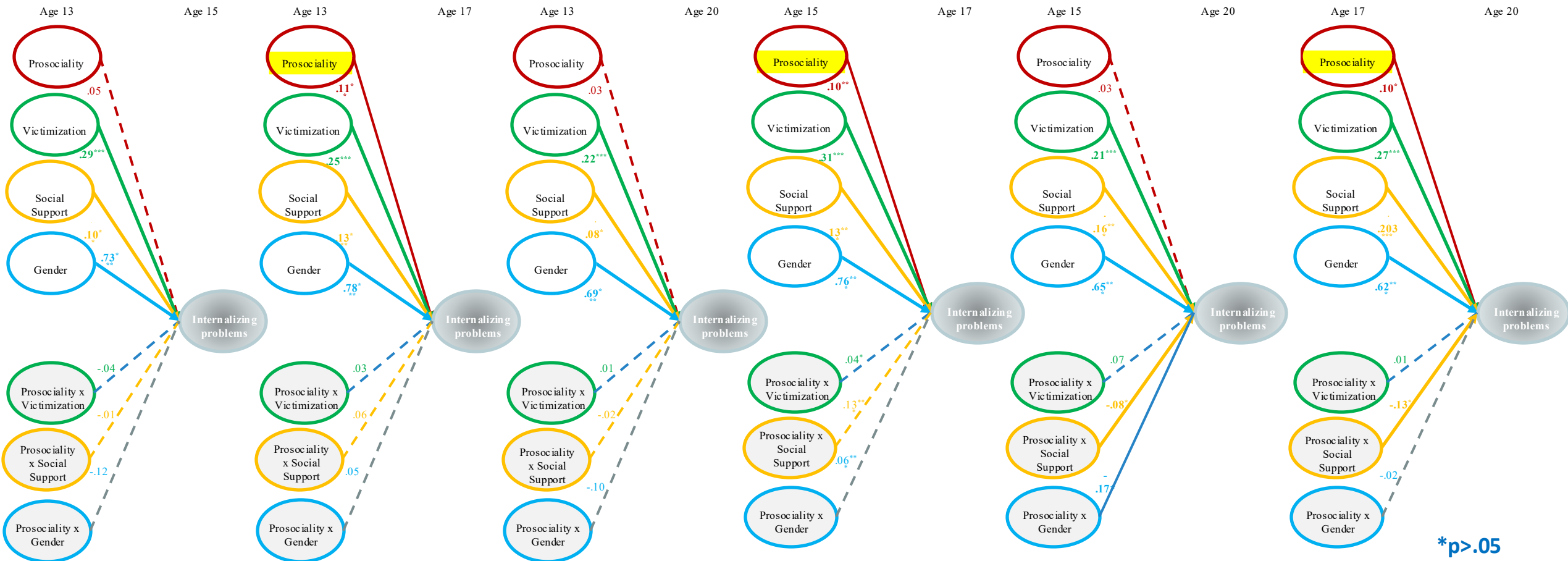


LONGITUDINAL RESULTS- T1 Moderators



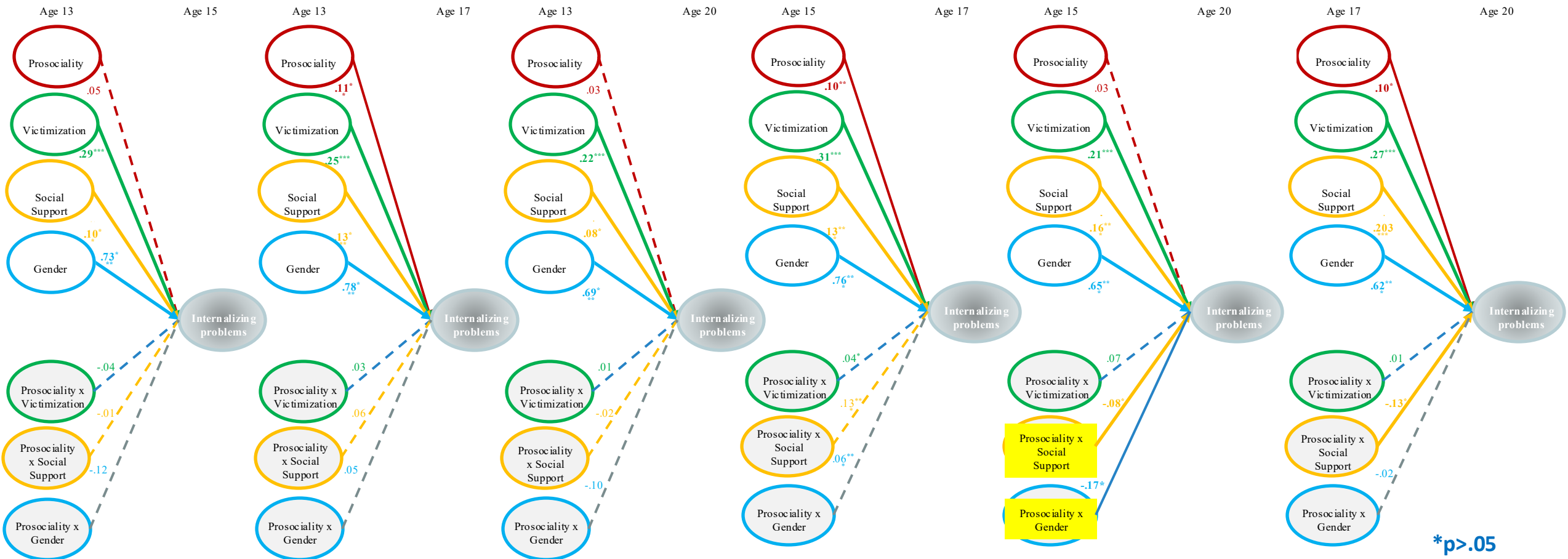
*p>.05
 **p>.01
 ***p>.001

LONGITUDINAL RESULTS- T1 Moderators

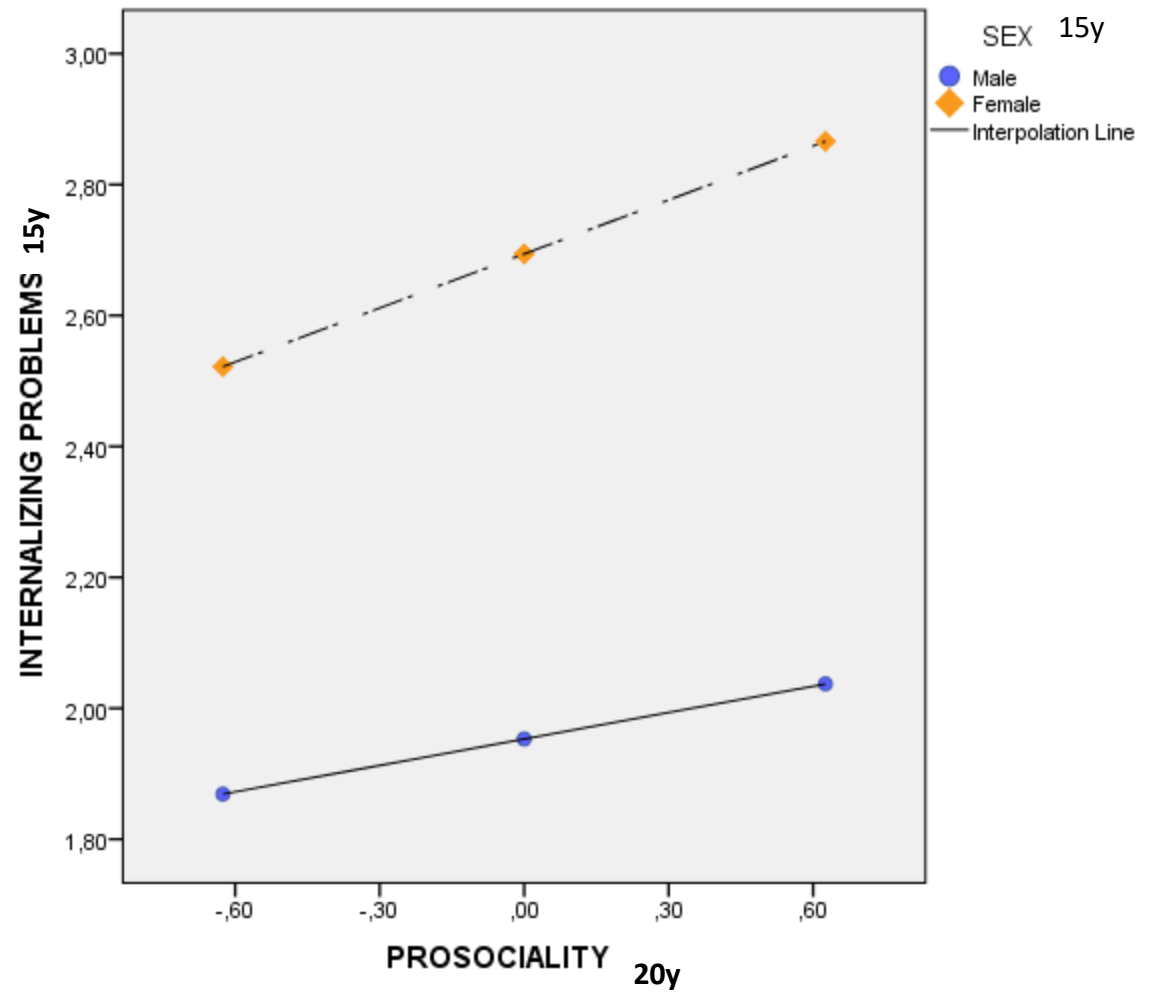
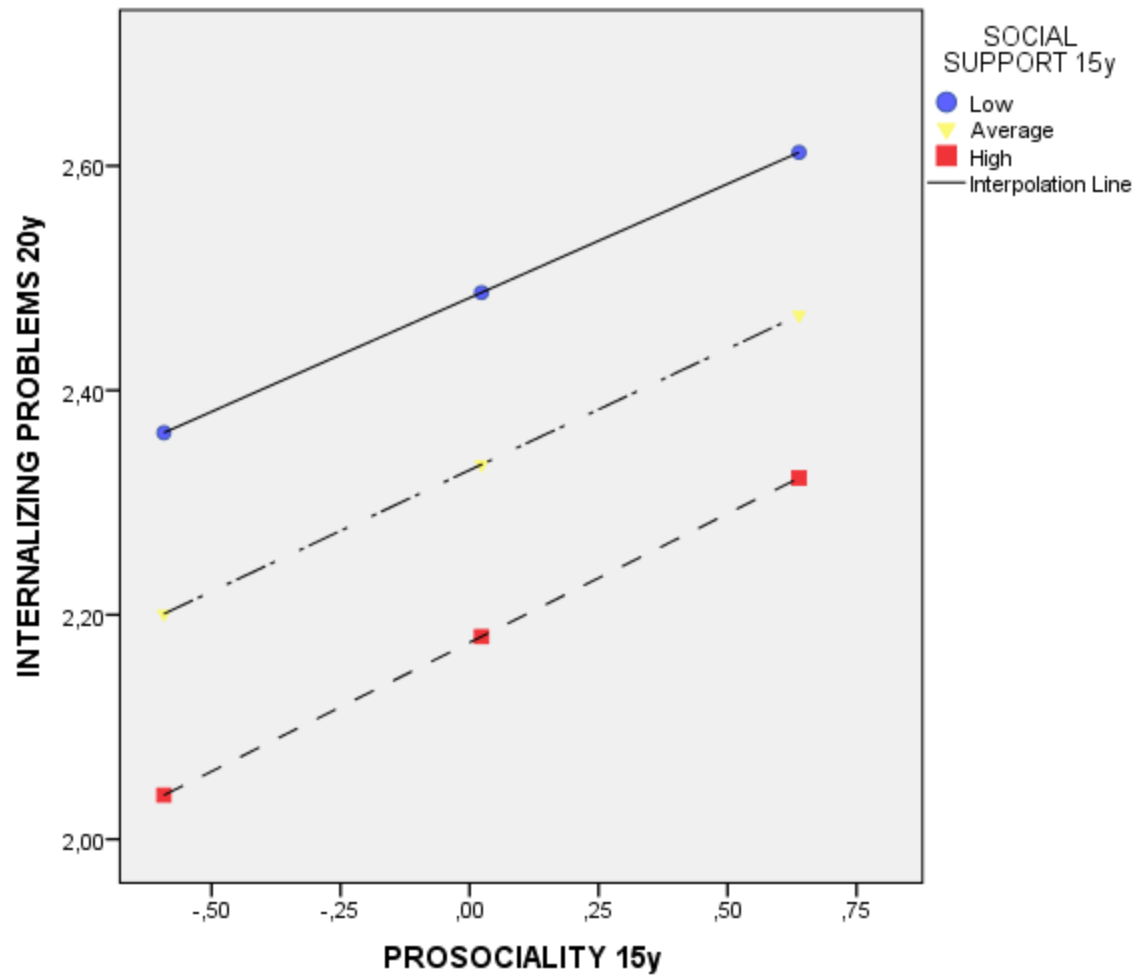


*p>.05
 **p>.01
 ***p>.001

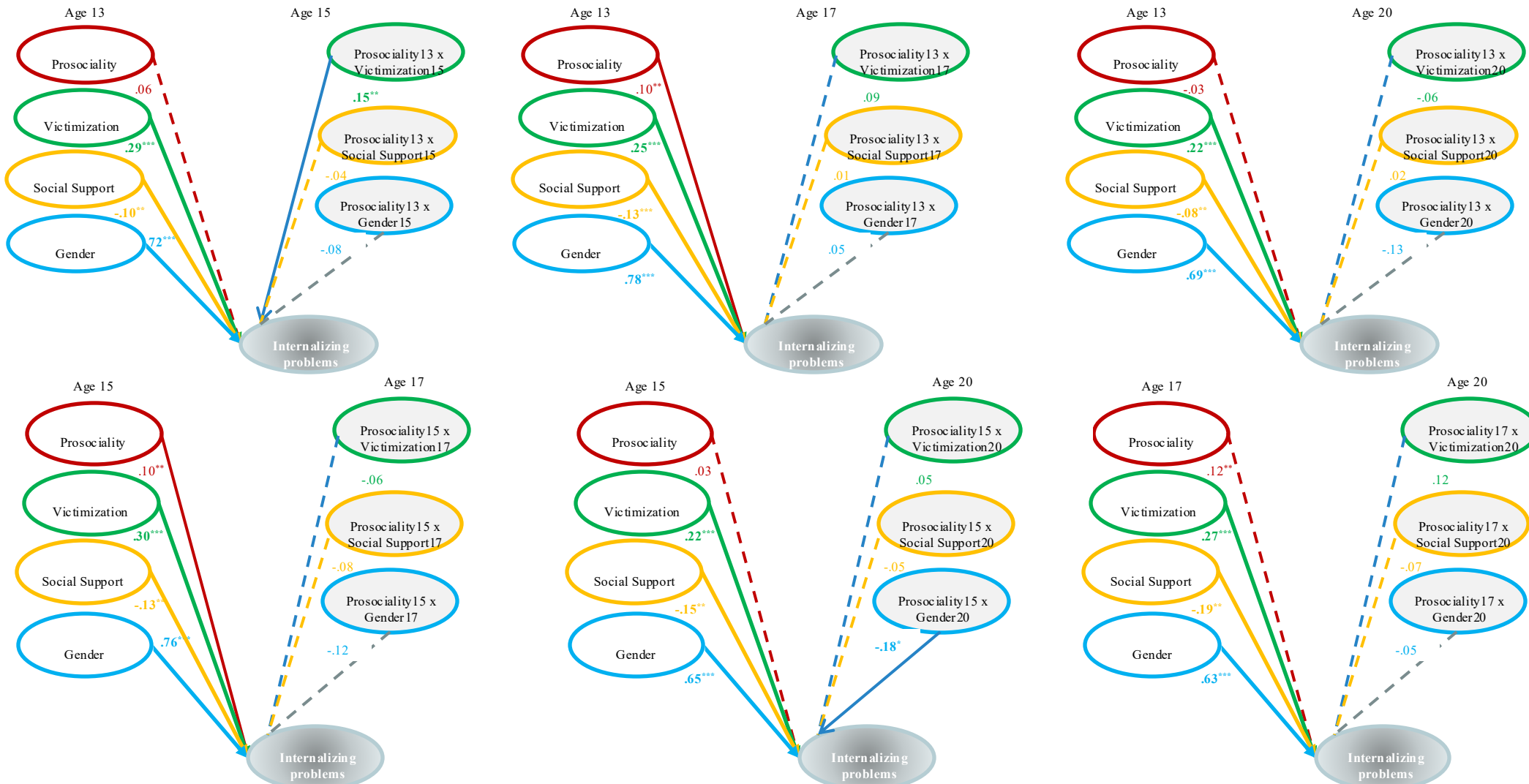
LONGITUDINAL RESULTS- T1 Moderators



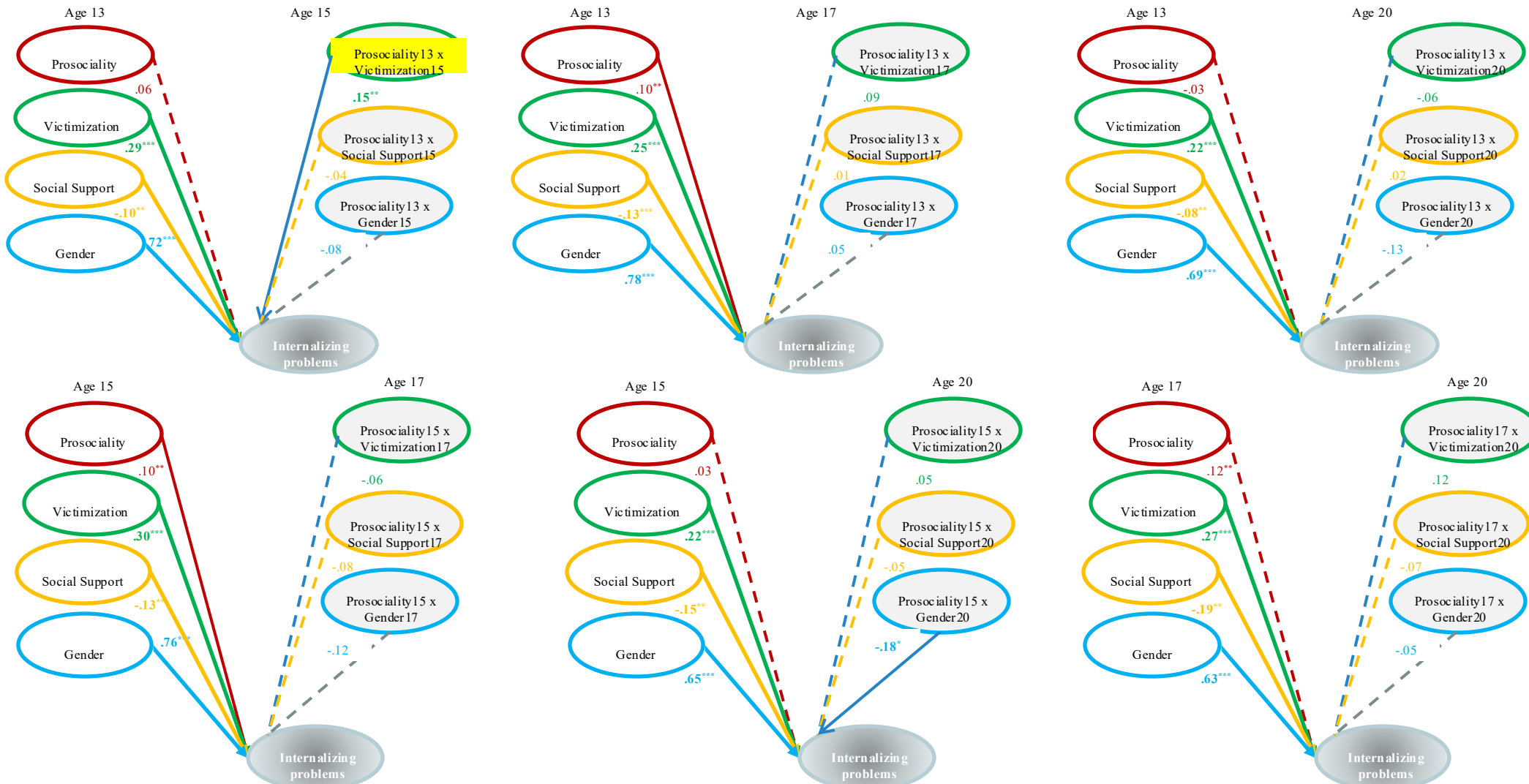
*p>.05
 **p>.01
 ***p>.001



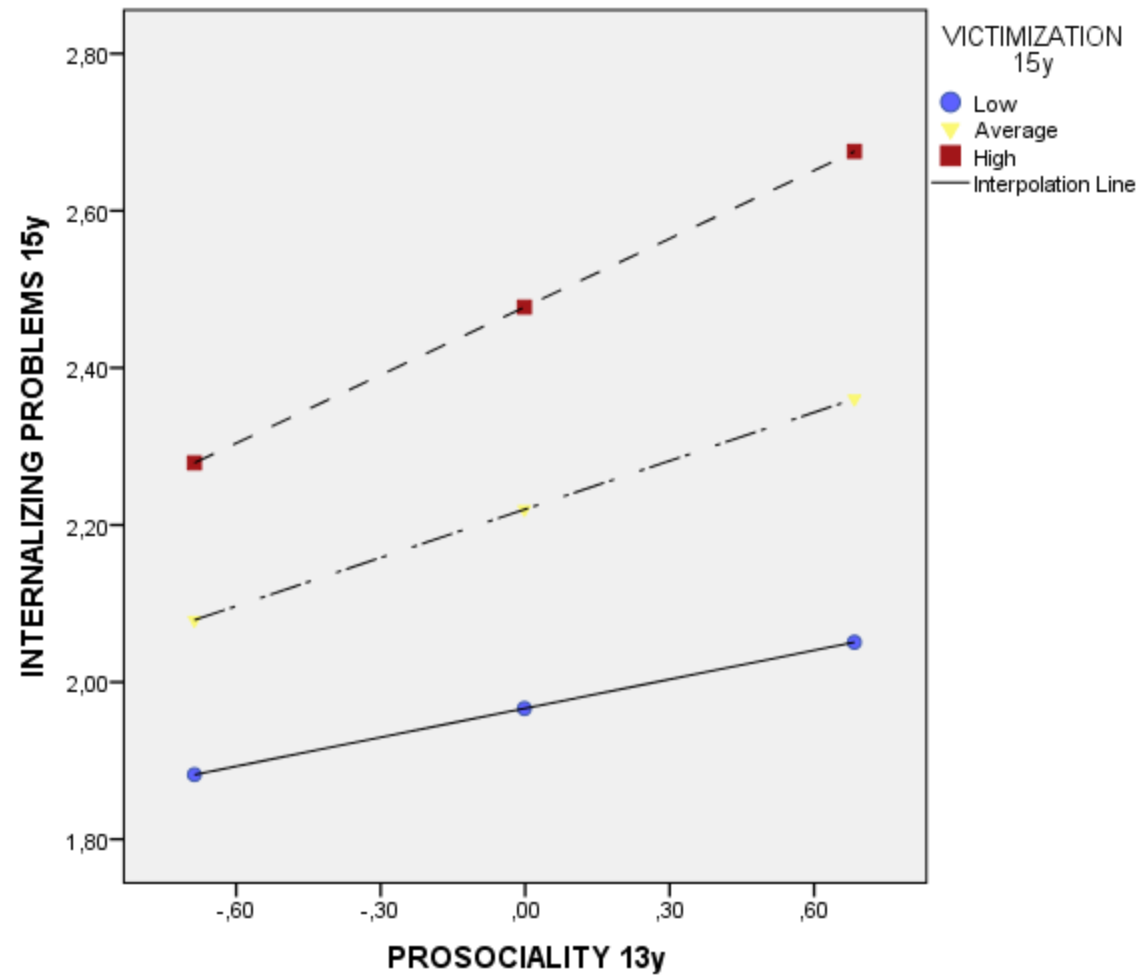
LONGITUDINAL RESULTS- T2 Moderators



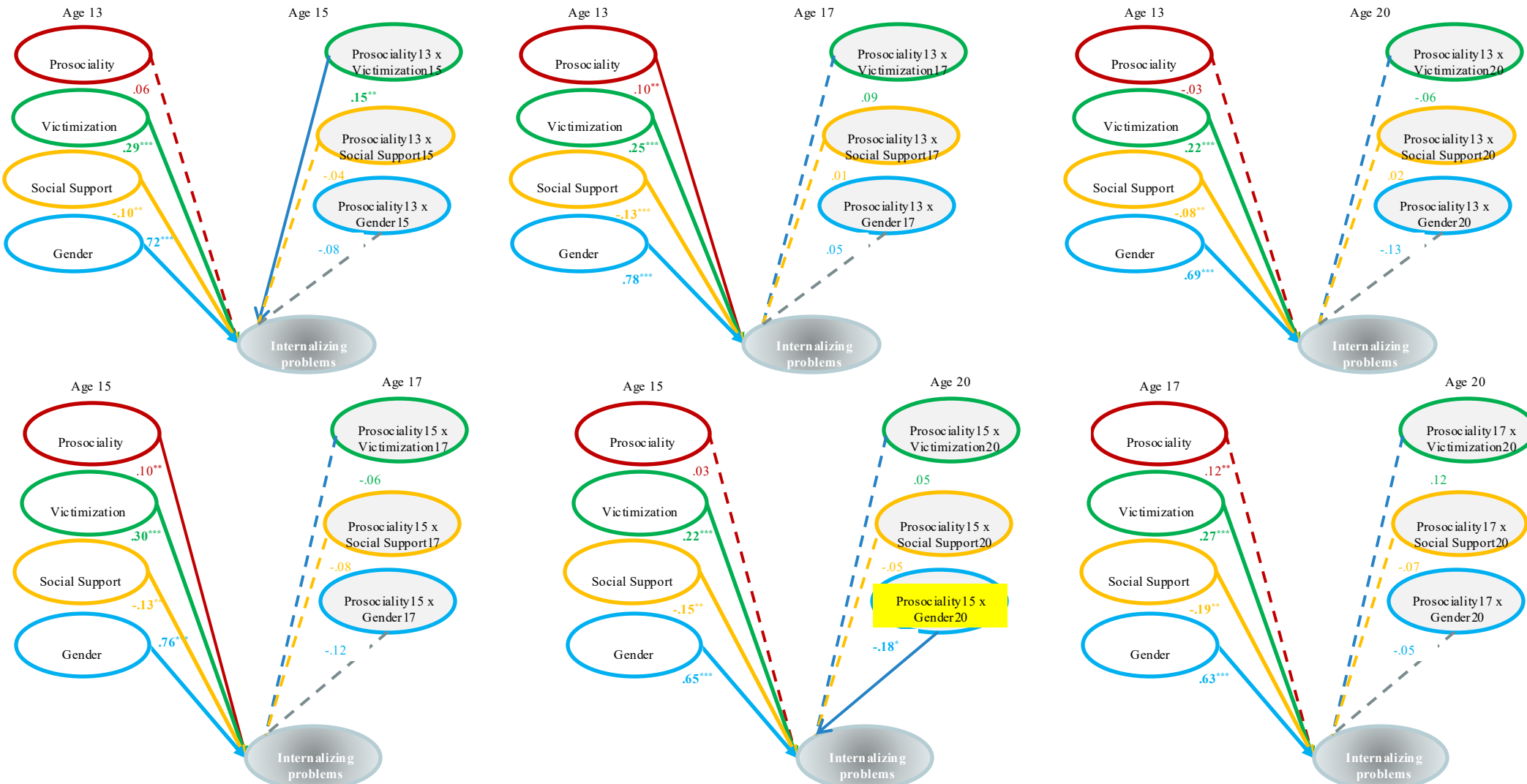
LONGITUDINAL RESULTS- T2 Moderators



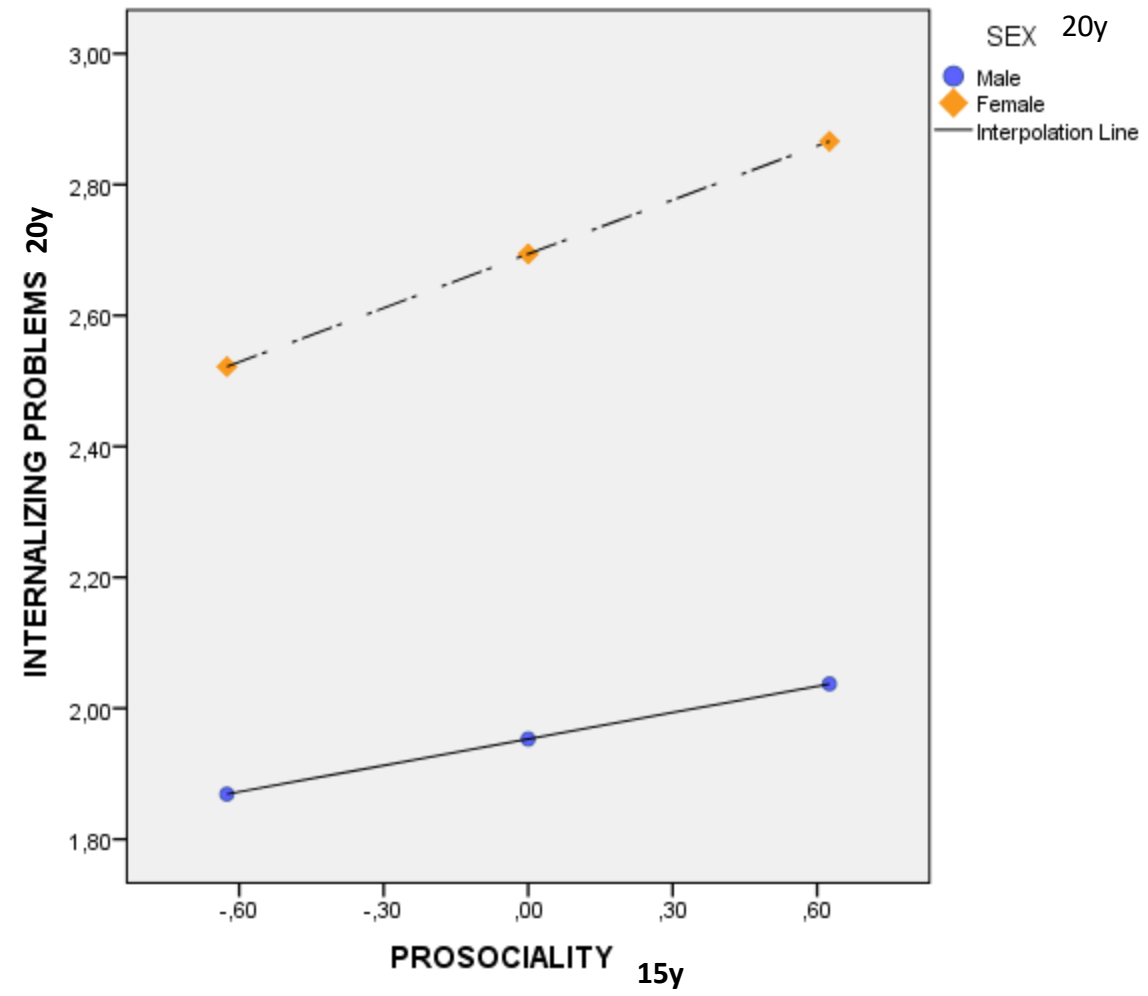
*p>.05
 **p>.01
 ***p>.001



LONGITUDINAL RESULTS- T2 Moderators



*p>.05
 **p>.01
 ***p>.001



A white speech bubble icon containing three horizontal lines, representing a message or discussion.

Discussion

Key Findings

- **MAIN ASSOCIATIONS:**

Positive association between prosociality and internalizing problems, both:

- concurrently (at each wave)
- longitudinally (but only at some stages: between 13-17 years, 15-17, and 17-20 years)

Discussion

ANXIETY

- **Anxiously motivated prosocial behavior** 🤔
Some people engage in **prosociality** not purely out of **altruism**, but to **avoid conflict, rejection, or maintain social harmony**- a pattern often linked to social anxiety
- **Hyper-empathy and emotional overload** 💔
Highly empathetic Individuals may internalize others' **distress**, leading to **empathic overload, chronic stress, and anxiety**.
- **High moral responsibility and worry** ⚖️
Strong prosocial tendencies can trigger **excessive worry** about doing the right thing, mistakes, or hurting others, often accompanied by **ruminat**ion and **hypervigilance**, all hallmarks of **anxiety**.

Discussion

DEPRESSION

- **Self-silencing and self-sacrificing** 🤐 ❤️
Some—especially adolescents or highly empathic people—consistently put **others' needs** first. This can stem from **low self-esteem** or a **need for approval**, and over time leads to **emotional exhaustion**, **emptiness**, or **worthlessness**—core features of depression.
- **Unreciprocated or instrumentalized helping** ⚠️
When **prosocial acts** go **unrecognized** or are **taken for granted** (e.g., in non-supportive family or one-sided relationships), individuals may feel **ineffective**, **undervalued**, or resentful, fueling **depressive thoughts**.

Key Findings

- **MODERATING EFFECTS**

- Gender (female) and Victimization: risk factors
- Social support: as a protective factor

but only in some time points, not in others

Discussion

VICTIMIZATION

- ❖ **Victimization** exacerbated the positive link between prosociality and internalizing problems at age 13 and from early to mid-adolescence.
 - A “social do ut des” scenario
 - When children’s helping behaviors are unreciprocated or exploited, expectations clash with reality, triggering feelings of injustice, inefficacy, or frustration.
 - This can increase anxiety or depressive symptoms.
 - These findings highlight that prosociality’s protective effect depends on a supportive relational environment.

Discussion

GENDER

❖ **Gender** moderated the link at age 17, and from mid-adolescence into emerging adulthood, with females at higher risk.

- Females often show higher empathy, making them more attuned to others' distress, more engaged in helping behaviors, and more prone to ruminating on social issues.
- Highly prosocial females may thus carry a greater emotional burden, increasing anxiety, depressive symptoms, and other internalizing problems.

Discussion

SOCIAL SUPPORT

- ❖ **Social support** protected against internalizing problems concurrently (ages 13 and 17) and longitudinally from mid- to late adolescence.
 - It provides emotional resources, validation, and a sense of belonging, helping adolescents navigate social and identity challenges.
 - Supportive relationships reduce stress, foster coping, and build resilience, lowering the risk of anxiety, depression, and other internalizing symptoms over time.

MAIN LIMITATIONS

- The link between prosociality and internalizing problems in childhood remains unclear.
- Distinct effects on depression versus anxiety have not been examined.
- We cannot separate the effects of support from peers versus adults.

Feedback Request & Next Steps

Feedback Request & Next Steps

A.CHILDHOOD INCLUSION

B.VARIABLE

C.ANALYSIS

D.COLLABORATIONS



A. CHILDHOOD INCLUSION



A. CHILDHOOD INCLUSION

POTENTIAL SOLUTIONS:

1. USING K3 (9 YEARS)
2. USING K4 (11 YEARS) AS LATE CHILDHOOD

POTENTIAL SOLUTIONS

1. USING K3 (9 YEARS)

Childhood

		K1	K2	K3	K4							
Items overlap (13-20y)		7.5	8.1	9.1	11							
5 items	INTERNALIZING PROBLEMS****	≠	na	≠	☑							
8 items	PROSOCIALITY	≠	≠	≠	☑							
5 items	(BULLYING) VICTIMIZATION	na	≠	na	☑							
x	PEER SUPPORT	na	na	≠	≠							
4 items	ADULT SUPPORT	na	na	≠	≠							
						Phase 1	• Parents active	Caregiver_1 (P1)	Computer-aided personal interview at home	7.0	10/11/2004	1239
								Child_1 (K1)	Computer-aided personal interview at school	7.5	03/22/2005	1360
								Teacher_1.1 (T1.1)	Postal survey	7.6	03/29/2005	1349
								Parents_2 (P2)	Computer-aided personal interview at home	7.9	09/15/2005	1191
								Child_2 (K2)	Computer-aided personal interview at school	8.1	11/16/2005	1334
								Teacher_2.1 (T2.1)	Postal survey	8.2	01/04/2006	1325
								Parents_3 (P3)	Computer-aided personal interview at home	8.9	09/13/2006	1180
								Child_3 (K3)	Computer-aided personal interview at school	9.1	11/15/2006	1321
								Teacher_3.1 (T3.1)	Postal survey	9.2	12/27/2006	1293
								Teacher_4.1 (T4.1)	Postal survey	10.7	06/13/2008	1269

POTENTIAL SOLUTIONS

1. USING K3 (9 YEARS)

Childhood

		K1	K2	K3	K4
Items overlap (13-20y)		7.5	8.1	9.1	11
5 items	INTERNALIZING PROBLEMS****	≠	na	≠	✓
8 items	PROSOCIALITY	≠	≠	≠	✓
5 items	(BULLYING) VICTIMIZATION	na	≠	na	✓
x	PEER SUPPORT	na	na	≠	≠
4 items	ADULT SUPPORT	na	na	≠	≠

Some issues:

POTENTIAL SOLUTIONS

1. USING K3 (9 YEARS)

		Childhood			
		K1	K2	K3	K4
Items overlap (13-20y)		7.5	8.1	9.1	11
5 items	INTERNALIZING PROBLEMS****	≠	na	≠	✓
8 items	PROSOCIALITY	≠	≠	≠	✓
5 items	(BULLYING) VICTIMIZATION	na	≠	na	✓
x	PEER SUPPORT	na	na	≠	≠
4 items	ADULT SUPPORT	na	na	≠	≠
		Phase 1			

Some issues:

- Victimization is missing, but we can take it from K2 (phase 1 covers ages 7–9).
 - School Bullying Scale measures school bullying from the victim's perspective with illustrated vignettes
 - but the instrument response categories differ: rescaling needed.

RESCALING MEASURES FORMULA (FROM 0-1 TO 1-5)

$$X_{\text{scaled}} = \frac{X_{\text{mean}} - X_{\text{min}}}{X_{\text{max}} - X_{\text{min}}}$$

- \bar{X} (mean) = average of item scores (e.g., anxiety = mean of 3 items)
- X_{min} = theoretical minimum (e.g., 1 for a Likert 1–5 scale)
- X_{max} = theoretical maximum (e.g., 5 for a Likert 1–5 scale).

a. Media item:

spss

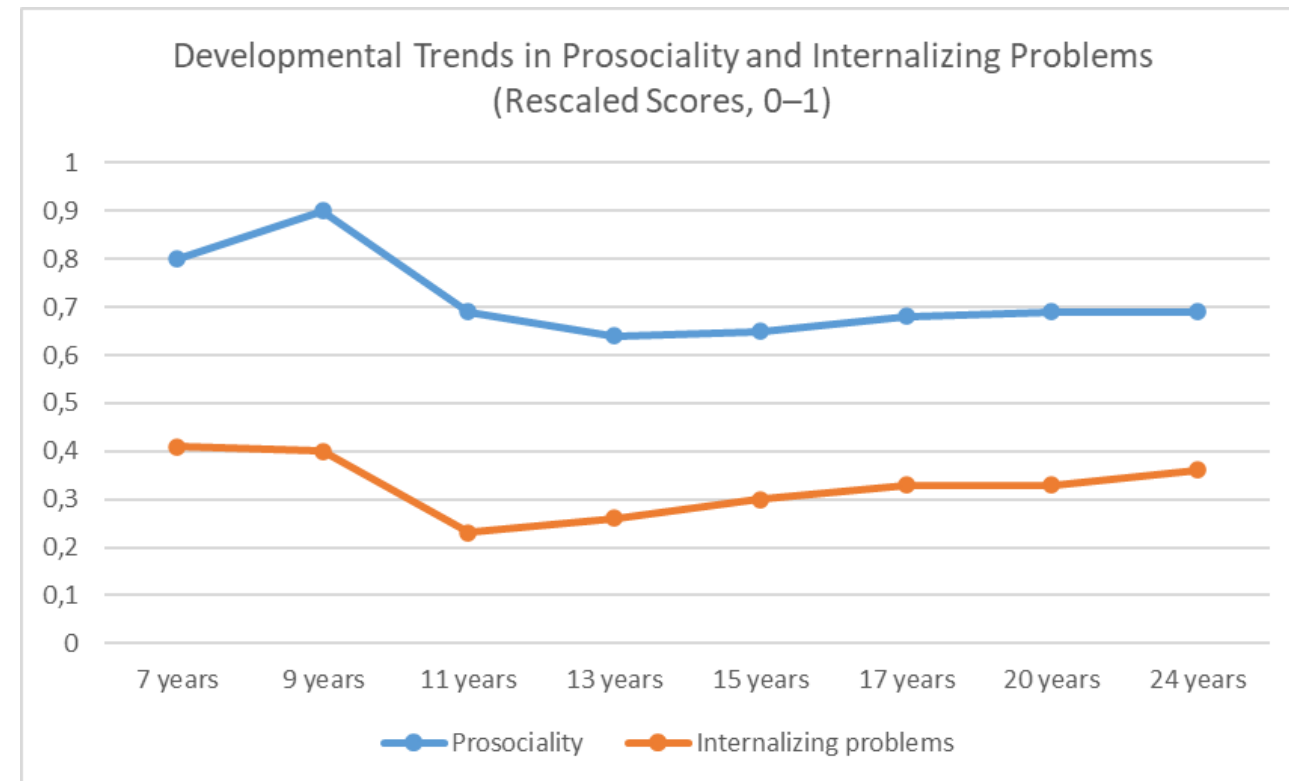
```
COMPUTE anxiety_mean = MEAN(anx1, anx2, anx3).
```

b. Riscalata:

spss

```
COMPUTE anxiety_scaled = (anxiety_mean - 1) / 4.
```

- We attempted a rescaling of the scores, but:
 - The time plot suggests a possible bias.
 - In the future, we might consider using factor scores as a more robust solution.



POTENTIAL SOLUTIONS

1. USING K3 (9 YEARS)

		Childhood			
		K1	K2	K3	K4
Items overlap (13-20y)		7.5	8.1	9.1	11
5 items	INTERNALIZING PROBLEMS****	≠	na	≠	✓
8 items	PROSOCIALITY	≠	≠	≠	✓
5 items	(BULLYING) VICTIMIZATION	na	≠	na	✓
x	PEER SUPPORT	na	na	≠	≠
4 items	ADULT SUPPORT	na	na	≠	≠

Some issues

- The SBQ also needs rescaling:
 - *Child version*: dichotomous (yes/no)
 - *Youth/adult version*: 5-point scale (“never” → “very often”)
- Question: Can we rescale all waves to a common 0–1 metric?

POTENTIAL SOLUTIONS

1. USING K3 (9 YEARS)

		Childhood			
		K1	K2	K3	K4
Items overlap (13-20y)		7.5	8.1	9.1	11
5 items	INTERNALIZING PROBLEMS****	≠	na	≠	☑
8 items	PROSOCIALITY	≠	≠	≠	☑
5 items	(BULLYING) VICTIMIZATION	na	≠	na	☑
x	PEER SUPPORT	na	na	≠	≠
4 items	ADULT SUPPORT	na	na	≠	≠

Some issues

- Social support is not directly available
- Possible proxy: *School Scale* (measuring school bonding, teacher–student relationship, and peer relationship)

POTENTIAL SOLUTIONS

2. USING K4 (11 YEARS) AS LATE CHILDHOOD

Childhood

		K1	K2	K3	K4
Items overlap (13-20y)		7.5	8.1	9.1	11
5 items	INTERNALIZING PROBLEMS****	≠	na	≠	✓
8 items	PROSOCIALITY	≠	≠	≠	✓
5 items	(BULLYING) VICTIMIZATION	na	≠	na	✓
x	PEER SUPPORT	na	na	≠	≠
4 items	ADULT SUPPORT	na	na	≠	≠

POTENTIAL SOLUTIONS

2. USING K4 (11 YEARS) AS LATE CHILDHOOD

		Childhood			
		K1	K2	K3	K4
Items overlap (13-20y)		7.5	8.1	9.1	11
5 items	INTERNALIZING PROBLEMS****	≠	na	≠	✓
8 items	PROSOCIALITY	≠	≠	≠	✓
5 items	(BULLYING) VICTIMIZATION	na	≠	na	✓
x	PEER SUPPORT	na	na	≠	≠
4 items	ADULT SUPPORT	na	na	≠	≠

Some issues

- Social support is missing
- Possible proxies:
 - *School Scale* → school bonding, teacher relationship, classmates relationship
 - *Best Friends Scale* → relationship quality & friends' problem behaviour



B. VARIABLES

- ❖ **Examining internalizing subdomains (anxiety and depression) as outcomes separately?**
 - Challenge: Only 2 depression items are distinct across waves; the rest overlap with anxiety items.
- ❖ **Examining prosociality sub-domains (i.e., altruism /empathy) separately as predictors?**
- ❖ **Other potential moderators?**
 - e.g., cortisol levels, optimism
 - Gender: covariate or moderator?



C. ANALYSIS

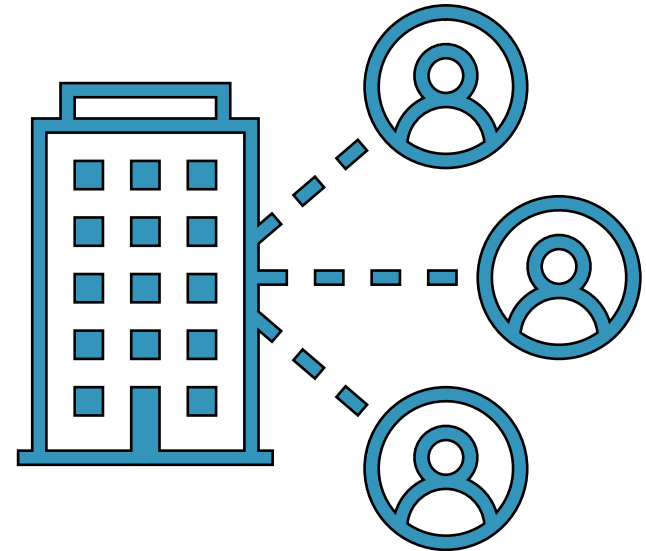
What kind of analysis?

- LMM or Growth Curve Modeling with moderators.
- Cross-lagged Panel Models multigroup with moderation.
- ...



D. COLLABORATIONS

❖ EADP Collaboration Grant





fabiola.silletti@uniba.it



Thank you for
your time

