



# Vagal Tone and Perceived Support within Adolescent Friendships: Considering the Role of Interaction Type and Gender

Wenting Sun & Taoru Huang

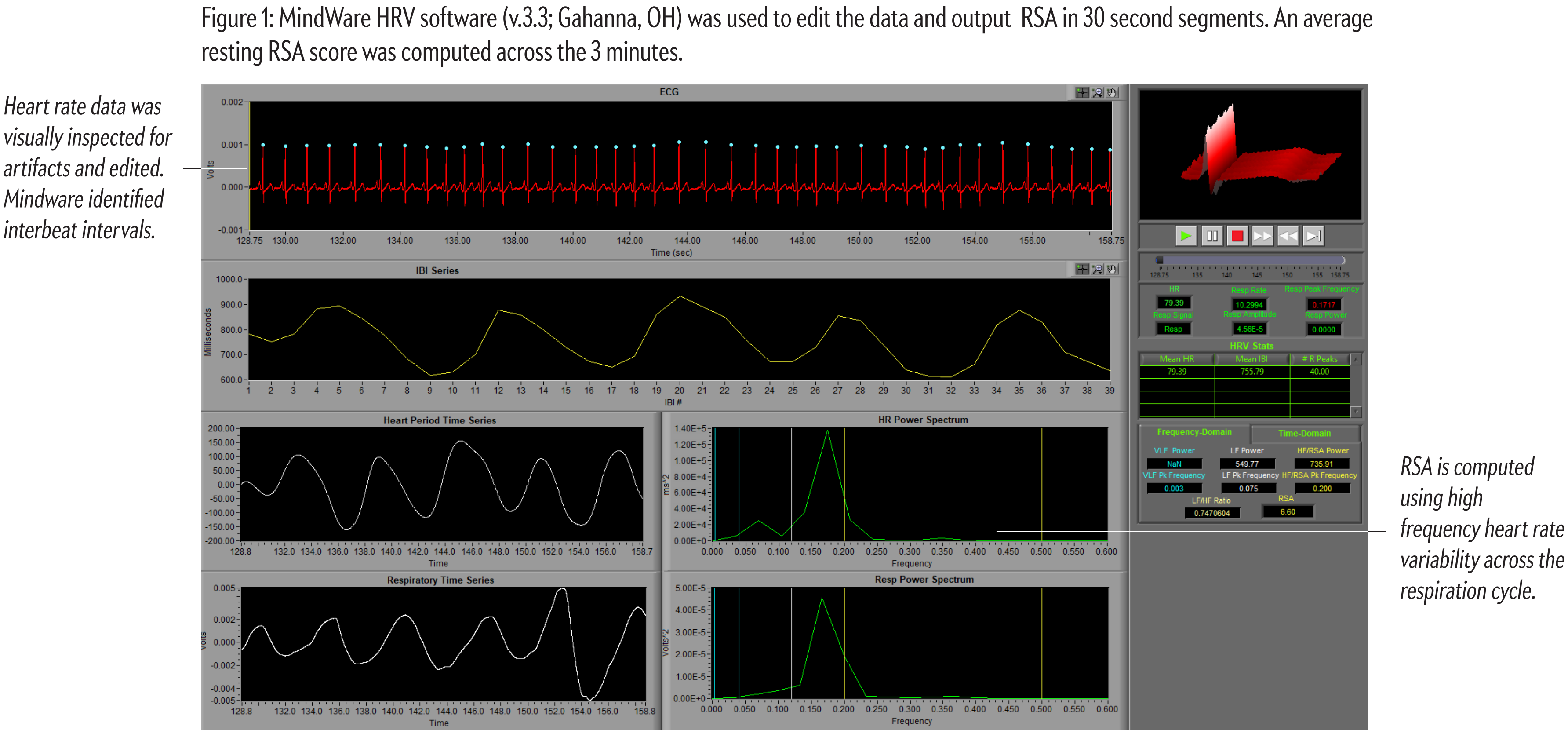
Department of Psychological Sciences, University of Missouri-Columbia

## INTRODUCTION

- Vagal tone is an important factor for emotional self-regulation and functioning in close relationships (Beauchaine, 2001; Porges, 2003).
- Vagal tone is often measured using respiratory sinus arrhythmia (RSA), which indexes high frequency heart rate variability over the respiration cycle.
- RSA has been linked with youths’ peer group functioning (e.g. positive coping with victimization; Erath & Tu, 2014, boy’s prosocial behavior; Eisenberg et al., 1995, 1996).
- Research has yet to consider RSA in relation to adolescent friendships.
- The current study examined relations between adolescents’ resting RSA activity and their perceived support during friendship interactions.
- We hypothesize that
  - 1) higher levels of RSA will be associated with higher levels of perceived support
  - 2) the association between resting RSA activity and perceived support depends on the context in which support is given (i.e., whether the friends engage in a emotionally positive task versus emotionally negative task)
- We also consider whether there are gender differences in resting RSA, perceived support, and the associations between resting RSA and perceived support.

## METHOD

- Participants were 128 adolescents in 8th, 9th, and 10th grade who came in the lab with a same-gender close friend.
- To measure RSA, three disposable electrodes were applied to participants’ torsos to monitor electrocardiogram (ECG) data, and a monitor respiration belt was applied around their diaphragms.
- Resting RSA activity was measured while adolescents sat quietly for 3 minutes in separate rooms.
- Resting RSA scores were edited and analyzed offline using Mindware Software (v.3.3; Gahanna, OH). The editing software is displayed in Figure 1.
- The friends participated in two **Friendship Interaction Tasks** together:
  - A Positive Task in which they planned a party
  - A Negative Task in which they each chose a problem to discuss
- After each task, participants responded 10 items assessing perceived friendship support (e.g., “My friend accepts me no matter what I do”) on a 5-point scale ranging from 1 (not at all true) to 5 (really true)



## RESULTS

Table 1: Correlations between Resting RSA and Perceived Support during Friendship Interactions

	1	2	3
1. Resting RSA	--	-.02	.03
2. Support – Pos Task		--	.03
3. Support – Neg Task			--

Table 2: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
1. Resting RSA	127	3.97	10.47	6.6420	1.04838
2. Support – Pos Task	128	3.00	5.00	4.7153	.43354
3. Support – Neg Task	126	3.40	5.00	4.7952	.31212
4. Valid N (listwise)	125				

Table 3: Correlations between Resting RSA and Perceived Support during Friendship Interactions for boys and girls

	1	2	3
1. Resting RSA	--	-.04	-.01
2. Support – Pos Task	-.03	--	.67**
3. Support – Neg Task	.06	.91**	--

Table 4: Gender differences in Resting RSA and Perceived Support during Friendship Interactions

	Girls M (SD)	Boys M (SD)	t-test
1. Resting RSA	6.64 (1.10)	6.64 (.99)	0.01
2. Support – Pos Task	4.88 (.19)	4.65 (.41)	4.37**
3. Support – Neg Task	4.81 (.34)	4.54 (.53)	3.54**

Notes: Correlations for boys are above the diagonal and correlations for girls are reported below the diagonal.

Notes: \*p < .05; \*\*p < .01

## DISCUSSION

- Contrary to hypotheses, resting RSA was not related to perceived support in either task.
  - Given that resting RSA indexes emotional self-regulation, future work might consider other tasks that require more self-regulation (e.g., a conflict task).
  - Future work might also consider different measures of RSA; for example, RSA reactivity (i.e., increases and decreases in RSA based on task demands) might be more strongly associated with perceived support during friendship interactions.
- No gender differences in resting RSA activity or the association between resting RSA activity and perceived support.
- Girls reported greater perceived support in both tasks.
  - This finding replicates previous work in boys and girls friendships (Rose & Rudolph, 2006).
- Additional research is needed to determine whether RSA has implications for adolescents’ friendship interactions.
  - In future research, it could be important to consider specific behaviors in examining the link between RSA and friendship interactions.
  - For example, it’s possible that some adolescent might have discussed problem more than others during the negative task, which could require more self-regulation in comparison to adolescents who did not.

## REFERENCES

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