This supplementary material is for the article Scott et al. (2016)

Scott, L.N., Wright, A.G.C., Beeney, J.E., Lazarus, S., Pilkonis, P.A., & Stepp, S.D. (2016). Borderline personality disorder symptoms and aggression: A within-person process model. *Manuscript submitted for publication*.

Supplementary Material: Table of Contents

Items used to assess aggression and victimization during ecological momentary assessment protocol2-4

Table S1. Frequency of aggression and victimization reported during ecological momentary assessment protocol5

Table S2. Person-level intercorrelations for all study variables6

Table S3. Results of initial multilevel model examining the direct effect of perceived rejection on increases in the likelihood of aggression7

Table S4. Results for moderated mediation model 1: General negative affect as mediator8

Table S5. Results for moderated mediation model 2: Anger as mediator9

Table S6. Results for moderated mediation model 3: Shame as mediator10

Table S7. Summary of results for supplemental analyses11

**Items used to assess aggression and victimization during ecological momentary assessment (EMA) protocol\***

*\*Note.* Some items were adapted for EMA from established measures of aggressive behavior over longer time frames, including the Revised Conflict Tactics Scale (Strauss, Hamby, Boney-McCoy, & Sugarman, 1996) and the Self-Report of Aggression and Victimization (Linder, Crick, & Collins, 2002).

A. Non-Physical (Verbal/Relational) Aggression

Since the last prompt have you….

1. Had an URGE or WANTED to get back at someone or hurt someone emotionally or socially (for example, yell at someone, spread rumors about someone, insult someone, intentionally make them jealous, etc.)?

(1= *not at all*, 2=*a little*, 3=*moderately*, 4=*quite a bit*, 5=*extremely*)

1. THREATENED to hurt someone emotionally or socially (for example, yell at someone, threatened to spread rumors about someone, to share something private about them with others, etc.)?

(1= *not at all*, 2=*a little*, 3=*moderately*, 4=*quite a bit*, 5=*extremely*)

1. Since the last prompt, did you DO anything to get back at someone or to hurt them emotionally or socially (such as yell at someone, insult someone, spread rumors about someone, or try to embarrass them)?

(1= *not at all*, 2=*a little*, 3=*moderately*, 4=*quite a bit*, 5=*extremely*)

(IF RESPONSE IS > 1 to items A1, A2, or A3):

1. Since the last prompt, did you DO any of the following on purpose to anyone just to hurt them or get back at them? (check all that apply)

* Insult or call someone names
* Damage someone’s property on purpose
* Shout, scream, or yell at someone
* Purposely exclude someone, act "cold" toward them, or try to make them jealous
* Try to embarrass someone or ruin someone's reputation, such as spreading rumors or revealing private information about them
* Did you do anything else to hurt someone emotionally or get back at them? (if yes, enter text description)

(IF YES to any of the above in item A4): WHO did you do this to? [*ask for each endorsed item*]

* romantic partner/spouse
* ex-romantic partner or ex-spouse
* parent or stepparent
* other family member
* friend/acquaintance
* boss/teacher
* coworker
* roommate
* other

B. Physical Aggression

Since the last prompt have you….

1. Felt an URGE or WANTED to hurt someone else physically (for example, throw something at someone; shove, hit, or slap someone, etc.)?

(1= *not at all*, 2=*a little*, 3=*moderately*, 4=*quite a bit*, 5=*extremely*)

1. THREATENED to hurt someone else physically (for example, threaten to throw something at someone; threaten to hit someone, etc.)

(1= *not at all*, 2=*a little*, 3=*moderately*, 4=*quite a bit*, 5=*extremely*)

1. Did you DO anything on purpose to hurt anyone physically? (for example, hit or push someone, throw something at someone that could hurt, etc.)

(1= *not at all*, 2=*a little*, 3=*moderately*, 4=*quite a bit*, 5=*extremely*)

(IF RESPONSE IS > 1 to items B1, B2, or B3):

1. Since the last prompt, did you DO any of the following on purposeto hurt anyone physically?

* Throw something at someone, or hit someone with something that could hurt
* Pull or twist someone’s arm or hair
* Grab, push, shove, or slam someone against something (like a wall)
* Punch, slap, hit, kick, or beat someone up
* Burn or scald someone (such as throwing hot liquid on them)
* Use a knife or a gun on someone, or physically threaten them with a weapon
* Choke someone
* Did you do anything else on purpose to hurt anyone physically? (if yes, enter text)

(IF YES to any of the above in item B4): WHO did you do this to? [*ask for each endorsed item*]

* romantic partner/spouse
* ex-romantic partner or ex-spouse
* parent or stepparent
* other family member
* friend/acquaintance
* boss/teacher
* coworker
* roommate
* other

C. Victimization

Since the last prompt ….

1. Has someone THREATENED to harm you in any way (physically, socially, or emotionally)?

(1= *not at all*, 2=*a little*, 3=*moderately*, 4=*quite a bit*, 5=*extremely*)

1. Did anyone DO anything on purpose to try to hurt you physically?

(1= *not at all*, 2=*a little*, 3=*moderately*, 4=*quite a bit*, 5=*extremely*)

1. Did anyone DO anything on purpose just to get back at you, or to hurt you emotionally or socially (such as yelling at you, insulting you, spreading rumors about you, or sharing embarrassing things about you with others)?

(1= *not at all*, 2=*a little*, 3=*moderately*, 4=*quite a bit*, 5=*extremely*)

(If response > 1 to items C1, C2, or C3, then ask items 4 and 5)

1. Since the last prompt, did anyone DO any of the following to YOU on purposeto hurt you physically?

* Throw something at you, or hit you with something that could hurt
* Pull or twist your arm or hair
* Grab, push, shove, or slam you against something (like a wall)
* Punch, slap, hit, kick, or beat you up
* Burn or scald you (such as throwing hot liquid on you)
* Use a knife or a gun on you, or physically threaten you with a weapon
* Choke you
* Did anyone do anything else on purpose to hurt you physically? (if yes, enter text)

1. Since the last prompt, did anyone DO any of the following to YOU on purpose just to hurt you or get back at you?

* Insult or call you names
* Damage your property on purpose
* Shout, scream, or yell at you
* Purposely exclude you, act "cold" toward you, or try to make you jealous
* Try to embarrass you or ruin your reputation, such as spreading rumors or revealing private information about you
* Did anyone do anything else to hurt you emotionally or get back at you? (if yes, enter text description)

1. Did anyone force you to engage in sexual activity with them against your will? (Yes/No)

(IF endorsed any items in C4 or C5, or yes to item C6): WHO was it that did that to you? [*ask for each endorsed item*]

* romantic partner/spouse
* ex-romantic partner or ex-spouse
* parent or stepparent
* other family member
* friend/acquaintance
* boss/teacher
* coworker
* roommate
* other

Table S1

*Frequency of participants in the overall sample (N = 117) who endorsed aggression and victimization during the ecological momentary assessment protocol (ever)*

|  |  |
| --- | --- |
|  | *N* (%) Endorsed |
| Non-physical (verbal/relational) aggression |  |
| Urges | 63 (53.8%) |
| Threats | 29 (24.8%) |
| Behaviors | 51 (43.6%) |
| Insulted/called someone names | 28 (23.9%) |
| Damaged someone's property on purpose | 4 (3.4%) |
| Shouted, screamed, or yelled at someone | 35 (29.9)% |
| Excluded someone, acted cold, or tried to make jealous | 29 (24.8%) |
| Tried to embarrass or ruin someone’s reputation | 9 (7.7%) |
| Other | 5 (4.3%) |
| Physical aggression |  |
| Urges | 49 (41.9%) |
| Threats | 18 (15.4%) |
| Behaviors | 9 (7.7%) |
| Threw something at someone or hit someone with something | 4 (3.4%) |
| Pulled or twisted someone’s arm or hair | 2 (1.7%) |
| Grabed, pushed, shoved, or slammed someone into something | 4 (3.4%) |
| Punched, slaped, hit, kicked, or beat up someone | 4 (3.4%) |
| Experiences of Victimization |  |
| Victim of threats (any) | 12 (10.3%) |
| Non-physical victimization | 28 (23.9%) |
| Insulted/called you names | 15 (12.8%) |
| Damaged your property on purpose | 2 (1.7%) |
| Shouted, screamed, or yelled at you | 18 (15.4)% |
| Excluded you, acted cold, or tried to make you jealous | 14 (12.0)% |
| Tried to embarrass you or ruin your reputation | 11 (9.4%) |
| Other | 1 (0.9%) |
| Physical victimization | 13 (11.1%) |
| Threw something at you or hit you with something | 2 (1.7%) |
| Pulled or twisted your arm or hair | 3 (2.6%) |
| Grabbed, pushed, shoved, or slammed into something | 6 (5.1%) |
| Punched, slapped, hit, kicked, or beat you up | 3 (2.6%) |
| Used/threatened you with knife or gun | 2 (1.7%) |
| Other | 1 (0.9%) |
| Sexual assault | 3 (2.6%) |

*Note.* Only behaviors that were endorsed in the study sample are listed in the table.

Table S2

*Person-level intercorrelations for all study variables* *(N = 117)*

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 1. Age | - |  |  |  |  |  |  |  |  |  |  |
| 2. Compliance | -.02 | - |  |  |  |  |  |  |  |  |  |
| 3. ASPD severity | -.07 | .03 | - |  |  |  |  |  |  |  |  |
| 4. BPD severity | .17 | -.15 | .44\*\*\* | - |  |  |  |  |  |  |  |
| 5. Time elapsed | .06 | .73\*\*\* | -.004 | -.03 | - |  |  |  |  |  |  |
| 6. Perceived Rejection | .02 | -.24\* | .06 | .11 | -.25\*\* | - |  |  |  |  |  |
| 7. Perceived Criticism | .03 | -.36\*\*\* | .07 | .16 | -.31\*\* | .68\*\*\* | - |  |  |  |  |
| 8. General Negative Affect | .09 | -.13 | -.02 | .30\*\* | -.11 | .57\*\*\* | .52\*\*\* | - |  |  |  |
| 9. Anger | .11 | -.11 | .06 | .34\*\*\* | -.03 | .32\*\* | .42\*\*\* | .82\*\*\* | - |  |  |
| 10. Shame | .05 | -.18 | -.07 | .12 | -.22\* | .57\*\*\* | .55\*\*\* | .88\*\*\* | .61\*\*\* | - |  |
| 11. Aggression (binary) | .21\* | -.23\* | .24\*\* | .40\*\*\* | -.23\* | .32\*\*\* | .38\*\*\* | .32\*\*\* | .32\*\* | .28\*\* | - |
| 12. Victimization (binary) | -.04 | -.27\*\* | .23\* | .31\*\* | -.28\*\* | .24\* | .37\*\*\* | .28\*\* | .29\*\* | .28\*\* | .43\*\*\* |

*Note*. ASPD = Antisocial Personality Disorder; BPD = Borderline Personality Disorder. Repeatedly observed variables from the ecological assessment protocol protocol are aggregated by person. General Negative Affect scale includes items that overlap with Anger and Shame scales; overlapping items were removed prior to analyses for Anger or Shame as mediators.

\**p* < .05. \*\**p* < .01. \*\*\* *p* < .001.

Table S3

*Results of initial multilevel model examining the direct effect of perceived rejection on increases in the likelihood of aggression*

|  |  |  |  |
| --- | --- | --- | --- |
| Within-person predictors | *B* | *SE* | *p* |
| Rejection at time *t-1* (*c*) | 0.32 | 0.13 | .01 |
| Time at time *t* | -0.10 | 0.02 | < .0001 |
| Victimization at time *t* | 4.61 | 0.50 | < .0001 |
| Aggression at time *t-1* (*ar2*) | 1.50 | 0.25 | < .0001 |
| Between-person predictors |  |  |  |
| Age | 0.19 | 0.07 | 0.01 |
| Compliance | -0.003 | 0.004 | 0.45 |
| Rejection (person mean) | 1.47 | 0.62 | 0.02 |
| ASPD severity | 0.06 | 0.02 | 0.02 |
| BPD severity | 0.06 | 0.02 | 0.02 |

*Note.*  ASPD = Antisocial Personality Disorder; BPD = Borderline Personality Disorder. Unstandardized coefficients are reported. Model coefficients for aggression can be interpreted as the change in log odds (i.e., logit) of aggressive urges or behaviors per a one-unit change in the predictor. All within-person predictors were person-mean-centered, and between-person predictors were grand-mean-centered.

Table S4

*Results for moderated mediation model 1: General negative affect (GNA) as mediator*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Dependent Variable | | |
|  | GNA at time *t-1* | Aggression at time *t* | Path *a* |
| Within-person predictors | *B (SE)* | *B (SE)* | *B (SE)* |
| GNA at time *t-2* (*ar1*) | 0.31 (0.02)\*\*\* |  |  |
| Rejection at time *t-1* (*a/c’*) | 0.21 (0.02)\*\*\* | 0.24 (0.15) |  |
| GNA at time *t-1* (*b*) |  | 0.42 (0.20)\* |  |
| Time at time *t* |  | -0.10 (0.01)\*\*\* |  |
| Victimization at time *t* |  | 4.59 (0.49)\*\*\* |  |
| Aggression at time *t-1* (*ar2*) |  | 1.47 (0.24)\*\*\* |  |
| Between-person predictors |  |  |  |
| Age |  | 0.24 (0.07)\*\*\* |  |
| Compliance |  | -0.001 (0.003) |  |
| GNA (person mean) |  | -0.23 (0.53) |  |
| Rejection (person mean) |  | 1.05 (0.66) |  |
| ASPD severity |  | 0.05 (0.03) | -0.01 (0.004)\*\* |
| BPD severity |  | 0.07 (0.03)\*\* | 0.01 (0.003)\*\*\* |

*Note.*  ASPD = Antisocial Personality Disorder; BPD = Borderline Personality Disorder. GNA = General Negative Affect. Unstandardized coefficients are reported with standard errors in parentheses. Model coefficients for aggression can be interpreted as the change in log odds (i.e., logit) of aggressive urges or behaviors per a one-unit change in the predictor. All within-person predictors were person-mean-centered, and between-person predictors were grand-mean-centered. Paths *a*, *c’*, and *ar1* were specified as random and had significant variance (all *p*’s < .001). \*p < .05. \*\*p < .01. \*\*\*p < .001.

Table S5

*Results for moderated mediation model 2: Anger as mediator*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Dependent Variable | | |
|  | Anger at time *t-1* | Aggression at time *t* | Path *a* |
| Within-person predictors | *B (SE)* | *B (SE)* | *B (SE)* |
| Anger at time *t-2* (*ar1*) | 0.29 (0.02)\*\*\* |  |  |
| Rejection at time *t-1* (*a/c’*) | 0.32 (0.03)\*\*\* | 0.26 (0.13)\* |  |
| Anger at time *t-1* (*b*) |  | 0.42 (0.13)\*\*\* |  |
| Time at time *t* |  | -0.10 (0.02)\*\*\* |  |
| Victimization at time *t* |  | 4.62 (0.47)\*\*\* |  |
| Aggression at time *t-1* (*ar2*) |  | 1.24 (0.29)\*\*\* |  |
| GNA at time *t-1* |  | -0.21 (0.19) |  |
| Between-person predictors |  |  |  |
| Age |  | 0.18 (0.06)\*\* |  |
| Compliance |  | -0.002 (0.003) |  |
| Anger (person mean) |  | -0.08 (0.29) |  |
| GNA (person mean) |  | -0.01 (0.44) |  |
| Rejection (person mean) |  | 1.73 (0.73)\* |  |
| ASPD severity |  | 0.05 (0.03)\* | -0.015 (0.008)\* |
| BPD severity |  | 0.07 (0.02)\*\* | 0.016 (0.006)\*\* |

*Note.*  ASPD = Antisocial Personality Disorder; BPD = Borderline Personality Disorder. GNA = General Negative Affect (with overlapping anger items removed). Unstandardized coefficients are reported with standard errors in parentheses. Model coefficients for aggression can be interpreted as the change in log odds (i.e., logit) of aggressive urges or behaviors per a one-unit change in the predictor. All within-person predictors were person-mean-centered, and between-person predictors were grand-mean-centered. Paths *a* and *ar1* were specified as random and had significant variance (all *p*’s < .001). \*p ≤ .05. \*\*p ≤ .01. \*\*\*p ≤ .001.

Table S6

*Results for moderated mediation model 3: Shame as mediator*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Dependent Variable | | |
|  | Shame at time *t-1* | Aggression at time *t* | Path *a* |
| Within-person predictors | *B (SE)* | *B (SE)* | *B (SE)* |
| Shame at time *t-2* (*ar1*) | 0.24 (0.03)\*\*\* |  |  |
| Rejection at time *t-1* (*a/c’*) | 0.13 (0.01)\*\*\* | 0.23 (0.13) |  |
| Shame at time *t-1* (*b*) |  | -0.48 (0.27) |  |
| Time at time *t* |  | -0.10 (0.02)\*\*\* |  |
| Victimization at time *t* |  | 4.65 (0.52)\*\*\* |  |
| Aggression at time *t-1* (*ar2*) |  | 1.31 (0.28)\*\*\* |  |
| GNA at time *t-1* |  | 0.71 (0.23)\*\* |  |
| Between-person predictors |  |  |  |
| Age |  | 0.23 (0.08)\*\* |  |
| Compliance |  | 0.001 (0.004) |  |
| Shame (person mean) |  | 0.61 (0.63) |  |
| GNA (person mean) |  | -1.09 (0.63) |  |
| Rejection (person mean) |  | 2.11 (0.73)\*\* |  |
| ASPD severity |  | 0.06 (0.03)\* | -0.006 (0.003) |
| BPD severity |  | 0.08 (0.02)\*\*\* | 0.01 (0.003)\*\* |

*Note.*  ASPD = Antisocial Personality Disorder; BPD = Borderline Personality Disorder. GNA = General Negative Affect (with overlapping shame items removed). Unstandardized coefficients are reported with standard errors in parentheses. Model coefficients for aggression can be interpreted as the change in log odds (i.e., logit) of aggressive urges or behaviors per a one-unit change in the predictor. All within-person predictors were person-mean-centered, and between-person predictors were grand-mean-centered. Paths *a* and *ar1* were specified as random and had significant variance (all *p*’s < .001). \*p < .05. \*\*p ≤ .01. \*\*\*p ≤ .001.

Table S7

*Summary of results for supplemental analyses: Moderated mediation models with perceived criticism at time t-1 (IV) predicting aggression at time t (DV)*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *Model* | *Mediating Variable (MV)* | *Direct Effects* | | | *Indirect Effect (a\*b)* | *Moderation Effects* | |
| *IV🡪 MV (a)* | *MV🡪 DV (b)* | *IV🡪 DV (c’)* | *BPD 🡪 a* | *ASPD🡪 a* |
| *1* | *GNA at time t-1* | 0.22 (0.02)\*\*\* | 0.58 (0.16)\* | 0.08 (0.13) | 0.13 (0.04)\*\*\* | 0.01 (0.004) | -0.007 (0.005)\*\* |
| *2* | *Anger at time t-1* | 0.39 (0.03)\*\*\* | 0.45 (0.13)\*\*\* | 0.03 (0.14) | 0.18 (0.05)\*\*\* | 0.003 (0.01) | -0.009 (0.01) |
| *3* | *Shame at time t-1* | 0.15 (0.02)\*\*\* | -0.40 (0.25) | 0.11 (0.14) | -0.06 (0.04) | 0.003 (0.004) | -0.003 (0.004) |

*Note.* ASPD = Antisocial Personality Disorder; BPD = Borderline Personality Disorder. GNA = General Negative Affect. Unstandardized coefficients are reported with standard errors in parentheses. Mediating variables were assessed at time t-1 while controlling for the same measure at t-2, and aggression was assessed at t while controlling for aggression at t-1. Because aggression is binary, model coefficients for aggression can be interpreted as the change in log odds (i.e., logit) of aggressive urges or behaviors per a one-unit change in the predictor. All within-person variables (IV, MV, and DV) were person-mean-centered. All models were adjusted for time (elapsed in protocol) at time t, victimization at time t, observed person mean levels of negative affects (e.g., GNA, Anger, Shame), age, compliance (number of entries completed), and BPD and ASPD severity scores (SIDP-IV dimensional scores). Models with Anger or Shame as the mediator were adjusted for GNA at t-1 at level 1 and person mean levels of GNA at level 2 (with overlapping items removed from the general NA scale). \*p < .05. \*\*p < .01. \*\*\*p < .001.