

RUNNING HEAD: BEST FRIENDS AND BETTER COPING

Best friends and better coping:

Facilitating psychological resilience through boys' and girls' closest friendships

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### **Abstract**

This is a novel investigation of whether, and how, a single close supportive friendship may facilitate psychological resilience in socioeconomically vulnerable British adolescents. 409 adolescents (160 male, 245 female, 4 unknown), aged between 11 and 19 years, completed self-report measures of close friendship quality, psychological resilience, social support and other resources. Findings revealed a significant positive association between perceived friendship quality and resilience. This relationship was facilitated through interrelated mechanisms of developing a constructive coping style (comprised of support-seeking and active coping), effort, a supportive friendship network, and reduced disengaged and externalising coping. While protective processes were encouragingly significantly present across genders, boys were more vulnerable to the deleterious effects of disengaged and externalising coping than girls. We suggest that individual close friendships are an important potential protective mechanism accessible to most adolescents. We discuss implications of the resulting Adolescent Friendship and Resilience Model for resilience theories and integration into practice.

**Keywords:** Resilience, Peer Relationships, Friendship, Coping, Protective Mechanism, Adolescence, Social Support, Socioeconomic Status

### **Best friends and better coping:**

#### **Facilitating psychological resilience through boys' and girls' close friendships**

Psychological resilience is a psychosocial developmental process through which people exposed to sustained adversity experience positive psychological adaptation (Luthar, Cicchetti & Becker, 2000; Rutter, 1999, 2006). Resilience is associated with lowered psychological distress and health-promoting lifestyles (Black & Ford-Gilboe, 2004; Campbell-Sills Cohan, & Stein, 2006). Promoting resilience in socioeconomically vulnerable adolescents is important given the pervasive impact of socioeconomic risk during adolescence upon functioning immediately and in later life, particularly upon mental health outcomes and risky externalising behaviours such as substance use and violence (Turner, Finkelhor & Ormrod, 2006; Zimmerman & Brenner, 2010).

Interpersonal protective mechanisms that directly or indirectly modify response to risk at turning points in life to facilitate resilience include perceived social support and good interpersonal relations (Rutter, 1990). Friendships are an important source of support during adolescence (Hartup & Stevens, 1999). Supportive friendships may model effective coping, demonstrate how to recruit and offer support, and foster well-being while best friendships are especially intimate (Finkenauer & Righetti, 2011; Frydenberg, 1997). These qualities suggest that adolescents' close friendships may be a protective mechanism facilitating resilience.

This study extends existing conceptualisations of psychological resilience by positing a single close supportive peer friendship as a protective mechanism accessible to most adolescents. While some models of resilience explicitly consider supportive peer relationships, many curiously omit or underplay them (e.g., Haase, Heiney, Ruccione, & Stutzer, 1999; Rew & Horner, 2003). However, peer relationships are assets for resilience promotion through school-based social competency (Morrison, Brown, D'Incau, O'Farrell & Furlong, 2006). Healthy peer relationships have been theorized to promote resilience by

fostering a sense of belonging and providing ways of coping (Hart, Blincow & Thomas, 2007). Qualitative evidence suggests friendships are a source of companionate, emotional and motivational support among resilient young women (Everall, Altrows & Paulson, 2006; Shepherd, Reynolds & Moran, 2010).

Increasing resilience by initiating new opportunities and fostering positive chain reactions are distinct processes to mitigating risk pathways (Rutter, 1999). Yet within resilience research, peer relationships have largely been conceptualised through associations with victimization and maladjustment (e.g., Tiet, Huizinga, & Byrnes, 2010). Most resilience research has furthermore focused on peer groups, whose effects need not reflect those of a single friendship. We therefore suggest that an association with greater resilience may be one, as yet unassessed, benefit of a single close friendship in vulnerable adolescents.

### **Mechanisms Facilitating Resilience**

Prior research suggests that several psychological mechanisms might mediate and moderate the anticipated relationship between adolescents' closest friendship and resilience.

**Coping.** Effective coping is a key protective mechanism (Ahern, 2006). As coping underlies habitual responses to challenges, if friendships foster ineffective responses, this may explain associations between peer groups and poor outcomes (e.g., Tiet, Huizinga & Byrnes, 2010). Approach (e.g., planning) and accommodation (e.g., positive reinterpretation) are typically adaptive while avoidance and self-punishment are typically maladaptive (Zuckerman & Gagne, 2003). Little research has assessed how friendships might facilitate resilience through effective coping. Because of opportunities for behavioural modelling, support and well-being (Frydenberg, 1997), we suggest that greater perceived friendship quality will be associated with adaptive coping which will in turn facilitate resilience.

**Self-efficacy.** General and specific self-efficacy beliefs relate to resilience, for example by predicting academic resilience in the face of general educational challenges and

mediating between adolescents' home environment and problem indices (Bradley & Corwyn, 2001; Martin & Marsh, 2008). Tentatively providing evidence for associations between peer relationships and self-efficacy, and between self-esteem and resilience, peer-led initiatives such as reciprocal support positively influence self-efficacy in health contexts (Turner, 1999).

**Self-esteem.** Self-esteem is a well-evidenced protective mechanism, although its role is complicated by inconsistent operationalization as an indicator or a consequence of resilience (Harvey & Delfabbro, 2004). Increased self-esteem mediates between social support and reduced adolescent problem behaviour (Moran & DuBois, 2002). Perhaps counterintuitively, resilient youth may have lower self-esteem than their peers (Dumont & Provost, 1999). Overreliance on peers for support and self-definition may negatively impact self-esteem (DuBois et al., 2002; Hay & Ashman, 2003; Moran & DuBois, 2002). We hypothesize a positive effect whereby higher perceived friendship quality should be associated with greater self-esteem and, in turn, greater resilience.

**Self-construal.** Self-constructs are influenced by sources including environment, family and – increasingly in adolescence – peers (Hay & Ashman, 2003). Individuals with high relational interdependent self-construal (RISC) construct their self-concept in terms of significant relationships, roles, and social networks (Cross, Morris, & Gore, 2002). This suggests that RISC linked to a supportive friendship may facilitate resilience.

**Perceived stress.** The link between perceived stress, social support and coping, as well as the role of friendships in providing distraction and support, suggests that perceived stress might mediate between perceived friendship quality and resilience (Frydenberg, 1997).

**Friendship network.** A single supportive close friendship may facilitate the development of a wider friendship network which is supportive, rather than risk-promoting. Measurement of perceived friendship network support furthermore allows us to account for psychological influences of the group itself. Two key processes in friendship networks tend

to differentiate along gender lines: an internalizing process of co-rumination among girls (Rose, 2002) and an externalizing process of deviancy training among boys in which friendships reinforce antisocial behaviour (Dishion, 2000).

**Moderators.** Gender has been operationalized as a risk factor because of cascading effects on health and coping behaviours, with boys more likely to engage in risky health-related activities (Rew & Horner, 2003). We therefore expected to find weaker protective effects among boys. We also included perceived family support because the significance of friendships as a risk or protective mechanism may depend on the quality of family relationships, due to social skills and other social resources gained at home (Masten, 2005).

Extending current research, we use cross-sectional analyses to build a structural model of whether and how supportive close friendships may facilitate psychological resilience. We first hypothesize that greater perceived friendship quality will be positively correlated with increased psychological resilience. We then hypothesize that this relationship may be fully or partially explained through suggested inter-related mediating mechanisms: self-esteem, self-efficacy, coping, RISC, perceived stress, and friendship network support. Finally, we consider whether this process differs according to sex and perceived family support, such that boys exhibit comparatively weaker benefits from a supportive close friendship, and adolescents with greater perceived family support demonstrate stronger associations between greater friendship quality and resilience processes.

## **Method**

### **Participants**

Participants were recruited through three secondary schools and two colleges in Yorkshire, England serving low-socioeconomic status catchment areas, and an online mailing list for peer supporters. Three comprehensive secondary schools and two colleges in West and South Yorkshire participated. School A was located on a socioeconomically deprived

estate where the surrounding area reported 36.8% child poverty. School B had a lower rate of socioeconomic deprivation in its ward (6.8%) but bussed in a high proportion of children from other areas of a city where child poverty ranged as high as 29.8% (personal communication, April 19 2010). The intake of School C covered areas with child poverty ranging from 11.9% to 40.6%. The two colleges were located in central areas reporting a level of child poverty of 39.6%. All child poverty figures are taken from HM Revenue & Custom's report by ward for the year 2010, when data collection commenced and 20.6% of children in England lived in poverty (HM Revenue & Customs, 2011). The final sample was comprised of 409 (160 male, 255 female, 4 unknown) participants aged between 11 and 19 ( $M = 14.77$  years,  $SD = 2.16$ ). Fifteen (11 females, 4 males) were recruited online (total  $M$  age = 17.80 years,  $SD = 1.37$ ). Sixty-six participants were recruited from college A (45 females, 20 males, total  $M$  age = 17.15 years,  $SD = 0.98$ ) and 69, all female, from College B ( $M$  age = 16.71,  $SD = 1.29$ ). School A yielded 133 participants (48 females, 84 males, total  $M$  age = 12.74 years,  $SD = 1.16$ ). School B yielded 62 participants (37 females, 26 males, total  $M$  age = 15.05,  $SD = 1.03$ ) and School C yielded 64 participants (37 females, 26 males, total  $M$  age = 13.42 years,  $SD = 0.64$ ).

### **Procedure**

Ethical approval was obtained from the Ethics Committee of the Institute of Psychological Sciences, University of Leeds. We used an opt-out system of informed consent. Following administrators' consent, participants' completion of the questionnaire denoted permission for their responses to be used. Administration in schools and colleges took place during lessons lasting 45-90 minutes. The first author introduced the study, restated ethical information and remained to clarify items.

## Measures

Measures on friendship quality and social support were counterbalanced with measures on other resources. Missing item scores were substituted for individual sub-scale or scale mean scores for further analyses as appropriate for data missing at random, but not completely at random, given the administration conditions (Schafer & Graham, 2002).

**Perceived Friendship Quality.** Adolescents were asked to select their closest friend, who was not a sibling or romantic partner, and assess perceived friendship quality using the McGill Friendship Function Questionnaire (McGill FF - Mendelson & Aboud, 1999). This is a 30-item subjective assessment ( $\alpha = .94$ ,  $N = 404$ ) of how well a friend fulfils each of 6 friendship functions scored along a 9-point Likert scale: *stimulating companionship* (fun), *help* (perceived tangible support), *intimacy* (perceived openness and acceptance), *reliable alliance* (perceived availability and loyalty), *self-validation* (perceptions of encouragement) and *emotional security* (trustworthiness and perceived available emotional support).

**Resilience.** Psychological resilience was assessed using the 25-item ( $\alpha = .94$ ,  $N = 404$ ) Resilience Scale (RS). The scale encompasses five dimensions of resilience: *self-reliance* (belief in oneself and one's abilities), *meaning* (a sense of life purpose), *equanimity* (balanced perspective of life and experiences), *perseverance* (persistence and self-discipline despite adversity); and *existential aloneness* (perceived ability to face experiences alone). Scores of 120 and below indicate low resilience; 121 to 145 indicate moderately-low to low resilience; and 146 to 175 indicate moderately-high to high resilience (Wagnild, 2009).

**Hypothesized Moderators.** Sex and perceived family support were hypothesized to moderate between close friendship and resilience. The 4-item Family sub-scale of the *Multi-dimensional Perceived Social Support Scale* (MPSSS - Zimet, Dahlem, Zimet, & Farley, 1988) assessed family support along a 7-point Likert scale ( $\alpha = .92$ ,  $N = 399$ ).



**Hypothesized Mediators.** The 11-item *Relational Interdependent Self-Construct* scale (RISC - Cross, Bacon, & Morris, 2000) measured participants' tendency to base their self-construct in relation to others using a 7-point Likert scale ( $\alpha = .80$ ,  $N = 384$ ). The MPSSS Friends 4-item sub-scale ( $\alpha = .94$ ,  $N = 400$ ) assessed wider friendship network support. The *Perceived Stress Scale* (PSS - Cohen, Kamarck & Mermelstein, 1983) assessed how often participants experienced their lives within the past month to be unpredictable, uncontrollable or overloading, using 14 items scored on a 5-point Likert-style scale ( $\alpha = .73$ ,  $N = 407$ ). Self-efficacy was measured using the *General Self-Efficacy Scale* (GSES - Bosscher & Smit, 1998). The GSES supports one higher-order factor, general self-efficacy ( $\alpha = .77$ ) and 3 correlated factors represented by three sub-scales scored on a 5-point Likert scale: a 5-item Effort component ( $\alpha = .79$ ) and 2 negatively-valenced components, Initiative (3 items;  $\alpha = .76$ ) and Persistence (4 items;  $\alpha = .78$ ). Summed sub-scale scores give a total for general self-efficacy. Self-esteem was assessed using the *Self-Esteem Scale* (SES - Rosenberg, 1989), a 10-item scale of general self-esteem scored on a 4-point Likert scale ( $\alpha = .82$ ,  $N = 407$ ). The highest possible score of 30 denotes low self-esteem.

We assessed coping using the *Brief COPE* (Carver, 1997), a 28-item measure of coping using 14 sub-scales of conceptually distinct coping responses. Participants rate on a 4-point scale how often they perform various behaviours in response to a problem. Alphas were calculated for sub-scales to reflect distinct coping responses (Carver, 1997). Moderate to good internal reliability ( $N = 409$ ) was achieved for each of the 2-item sub-scales: *active coping* such as engagement ( $\alpha = .58$ ), *planning* ( $\alpha = .51$ ), *positive reframing* of a situation ( $\alpha = .58$ ), *acceptance* ( $\alpha = .50$ ), prolonged *behavioural disengagement* ( $\alpha = .46$ ), *self-blame* ( $\alpha = .51$ ), *humour* ( $\alpha = .49$ ), *religion* ( $\alpha = .72$ ), *substance use* ( $\alpha = .81$ ), *using emotional support* ( $\alpha = .58$ ), *using instrumental support* including help or advice ( $\alpha = .43$ ), *self-distraction* ( $\alpha = .39$ ), *denial* ( $\alpha = .63$ ) and *venting* ( $\alpha = .42$ ). We reduced the sub-scales into coping styles

using exploratory factor analysis (N = 409) to aid interpretation, generate regression scores for analyses, and inform latent model variables. Preliminary analyses indicated data suitability (determinant = .015, Kaiser-Meyer-Olkin value = 0.848, Bartlett's  $p < .001$ ). Principal axis factoring extraction using a direct oblimin rotation revealed an acceptable 2-factor structure cumulatively explaining 45.27% of the total variance. Two distinct coping styles were observed: Factor 1 contributed 32.30% of the variance and Factor 2 contributed 12.97%. Factor 1, Constructive Coping, included positive reframing (0.81), active coping (0.76), planning (0.74), using instrumental support (0.69), using emotional support (0.63), acceptance (0.52), self-distraction (0.40), humour (0.34), and religion (0.26). Factor 2, Disengaged and Externalising Coping, included behavioural disengagement (0.81), self-blame (0.56), denial (0.56), venting (0.43), and substance use (0.44).

## Results

### Characteristics of Friendships, Resilience and Perceived Support

Adolescents reported a high-quality close friendship and a high degree of perceived support from their family and friendship network. 89.6% of participants reported gender-congruent friendships. Mean friendship duration was 5.47 years (SD = 4.50, N = 374). They spent an estimated mean 21.9 hours (SD = 20.25, N = 388) each week with their closest friend. Participants' closest friendships were perceived as highly supportive and fulfilling, even as they varied in closeness. Participants demonstrated a low mean level of resilience.

### Correlational Analysis

Supporting the first hypothesis, bivariate correlations revealed that higher perceived friendship quality was significantly correlated with higher psychological resilience (Table 1).

### Mediation Analyses

To facilitate subsequent development of a structural model, mediation analyses examined hypothesized mechanisms underlying the significant relationship between

perceived friendship quality and psychological resilience: friendship network support, RISC, perceived stress, self-efficacy and its components, self-esteem, constructive coping, and disengaged and externalising coping. A series of linear bootstrapping mediations (Table 2) used 5000 resamples and 95% bias-corrected intervals (Preacher & Hayes, 2008).

The total effect of perceived friendship quality upon resilience ( $c$ ) was 5.11 ( $p < .001$ ). The 95% bias-corrected confidence intervals indicated that the predictive relationship of perceived friendship quality upon resilience was significantly and partially mediated by positive associations with a supportive wider friendship network (direct effect of friendship upon resilience ( $c' = 3.72, p < .001$ ), RISC ( $c' = 3.72, p < .001$ ), the effort ( $c' = 3.62, p < .001$ ) component of self-efficacy, and constructive coping ( $c' = 3.36, p < .001$ ). The relationship was additionally mediated by reduced persistence component of self-efficacy ( $c' = 5.57, p < .001$ ) and reduced externalising and disengaged coping ( $c' = 5.54, p < .001$ ). Total indirect effect sizes as indicated by point estimates showed constructive coping to be the strongest mediator.

### **Structural Equation Analyses**

We undertook structural equation modeling (SEM) using AMOS 18 (Arbuckle, 2009) to develop a structural model using a hierarchical process of model trimming using fit guidelines appropriate for complex models (Kline, 2011; Schmitt & Kuljanin, 2008). Root Mean Square Error of Approximation (RMSEA) values of 0.08 or below and a chi-square to degrees of freedom (CMIN/DF) ratio of less than 3.0 indicate good fit, as large samples can yield a significant chi-square (Arbuckle & Wothke, 1999; Kline, 2011). Comparative Fit Index (CFI) values of .95 and above indicate good fit. Akaike Information Criterion (AIC) and chi-square difference tests assessed comparative fit (Kline, 2011).

**Confirmatory Factor Analyses of Latent Variables.** We refined each of the four hypothesized latent variables through confirmatory factor analysis: perceived friendship quality, resilience, constructive coping, and disengaged and externalising coping (Table 3).

No latent variable was constructed combining persistence and effort because of an inadmissible solution arising from opposing directions in their correlations with resilience.

**Model Development.** In our hypothesized model ( $N = 409$ ), perceived friendship quality facilitated psychological resilience through development of a supportive friendship network, RISC, effort and constructive coping; and suppression of disengaged and externalising coping and persistence. Effort, persistence, friendship network support, and RISC were specified as manifest variables. This model (AFR.1) demonstrated moderate fit and predicted a good proportion of outcome variance ( $R^2$  resilience = .42; Table 3). However, the regression pathways revealed that neither persistence ( $p > .1$ ) nor RISC ( $p > .1$ ) predicted resilience. We therefore tested a more parsimonious model removing persistence and RISC.

A revised model (AFR.2) demonstrated better fit according to relative and absolute indices. In contrast to AFR.1, all regression paths were significant ( $p < .01$ ), with the path from friendship to externalising and disengaged coping marginally significant at  $p = .06$ . All indicators loaded significantly onto lower order factors ( $p < .001$ ). The model predicted a good proportion of the variance in resilience (42%) with all paths in hypothesized directions. Perceived friendship quality significantly predicted the hypothesized mediators, promoting effort, a supportive friendship network and constructive coping while discouraging disengaged and externalising coping. Disengaged and externalising coping negatively related to resilience. Relationships were positive between resilience and other mediators. Figure 1 depicts the retained Adolescent Friendship and Resilience Model (AFRM) including the standardized regression weights for the paths. This showed acceptable fit according to a portfolio of indices, considering complexity and novel theory development.

We then assessed whether AFR.2 showed mediational effects over and above indirect effects. A model including a direct effect of supportive close friendship upon resilience was compared to the hypothesized model, in which this direct effect was removed by setting the

weight of the parameter to zero. Nested model comparison supported retaining the more parsimonious (i.e., the mediational) model ( $\Delta\chi^2 = 1.70, p > .1$ ). Analysis showed that AFR.2 fully mediates the relationship between friendship and resilience as this direct effect was non-significant ( $\beta = .06, p > .1$ ), over and above indirect effects. Table 4 shows the direct, indirect and total effects of perceived friendship quality, coping style, effort, and supportive friendship network on resilience. The most powerful mediator was constructive coping. Reduced use of disengaged and externalising coping was associated with resilience. Coping style and effort related to resilience more strongly than a supportive friendship network.

Finally, we reversed the directionality of AFR.2 to investigate whether, conversely, resilience might facilitate supportive close friendships via the hypothesized mediating mechanisms. This strategy enables greater confidence about the ordering of mediational relationships, although cross-sectional correlational research cannot indicate causation. Analysis supported retaining AFR.2 over the reversed model (AFR.3). AFR.3 was less predictive of friendship quality ( $R^2 = .28$ ) than AFR.2 was on resilience, and neither externalising coping nor effort predicted friendship quality. Compared to an outcome of resilience, total standardised effects on friendship quality were weaker for effort (.03) and engaged (.35) and externalising (-.02) coping. Total standardised effects of friendship network support upon friendship quality (.30) were higher than with a resilience outcome. The total standardised effect of resilience upon friendship quality (.25) was unchanged.

**Multiple Group Analyses.** A series of analyses tested whether observed processes differed according to either sex or perceived family support. We compared a structural model constrained to equality to an unconstrained model where paths between variables and their indicators may differ by group. A non-significant difference in chi-square suggests retaining a more constrained model, indicating no group difference in fit (Widaman & Reise, 1997).

Analysis suggested gender differences in the mechanisms thorough which close friendships facilitate resilience. An unconstrained model fit the data well (CMIN/DF = 1.88,  $p < .001$ , RMSEA = .05, CFI = .92, AIC = 1140.51) across boys (N = 160) and girls (N = 245) and achieved measurement invariance ( $\Delta\chi^2(19) = 24.51, p > .1$ ). A marginally significant structural difference ( $\Delta\chi^2(6) = 12.18, p = .05$ ) indicated greater predictive ability for boys than girls ( $R^2$  resilience = .39, .48, respectively). The structural path from perceived friendship quality to disengaged and externalising coping was non-significant ( $\beta = .03, p > .1$ ) and pairwise parameter comparisons showed significant group difference ( $z = 1.98$ ). The critical difference ratio for the path from disengaged and externalising coping to resilience was significant ( $z = 4.39$ ). A revised model in which these paths were freely estimated while the others were constrained showed a significant fit across groups ( $\Delta\chi^2(4) = 1.83, p > .1$ ).

Friendship network support was associated with resilience only for girls (Table 4). Direct negative effects of disengaged and externalising coping upon resilience were far larger for boys than girls. Perceived friendship quality facilitated effort and friendship network support more strongly for boys ( $\beta = .34, p < .001, \beta = .48, p < .001$ , respectively) than girls ( $\beta = .23, p < .01, \beta = .36, p < .001$ , respectively). By contrast, perceived friendship quality promoted constructive coping more strongly for girls ( $\beta = .35, p < .001$ ) than boys ( $\beta = .30, p < .001$ ). Perceived friendship quality weakly and positively linked to disengaged and externalising coping among girls ( $\beta = .12, p < .05$ ) with no association among boys ( $\beta = -.04, p > .1$ ).

By contrast, analysis suggested no difference in how close friendships facilitate resilience based on perceived family support. An unconstrained model which fit the data well (CMIN/DF = 1.90,  $p < .001$ , RMSEA = .05, CFI = .92, AIC = 1149.26) across groups of low support (N = 190) and family support (N = 219) based upon median MPSSS-Family scores showed metric ( $\Delta\chi^2 = 20.83(19), p > .1$ ) and structural invariance ( $\Delta\chi^2 = 5.82(6), p > .1$ ).

## Discussion

Supporting our first hypothesis, findings revealed a positive association between greater perceived friendship quality and increased resilience. Analysis partially supported our second hypothesis as selected mediators partially accounted for this association. Developing new theory, a fully-mediational Adolescent Friendship and Resilience Model revealed that a supportive close friendship facilitates resilience in socioeconomically vulnerable adolescents by supporting development of a constructive coping style (comprised of engaged coping and support-seeking), encouraging effort, using a supportive friendship network, and reducing disengaged and externalising coping. Important gender differences emerged. Girls' supportive close friendships weakly facilitated disengaged and externalising coping. Surprisingly, boys' supportive close friendships did not significantly relate to this coping style, even as such behaviours were associated nearly twice as powerfully with lowered resilience among boys. Friendship network support facilitated resilience only among girls.

### **Association between close friendship support and resilience**

The association between greater perceived friendship quality and increased resilience revealed in this study supports previous qualitative evidence that close, supportive friendships facilitate resilience processes (Everall, Altrows & Paulson, 2006; Shepherd, Reynolds & Moran, 2010). A single close, or relatively close, friendship is available to most adolescents regardless of social competence, extraversion or closeness preferences (Finkenauer & Righetti, 2011). We add to the resilience literature by suggesting a protective mechanism which links with many aspects of adolescents' lives, and is amenable to facilitation and intervention (Luthar, Sawyer & Brown, 2006). Close friendships are a nexus between resilience processes of support, individual capacities, and interactions with the social environment. Resilience researchers should explore the presence of at least a single peer friendship as a protective resource and attend to supporting mechanisms.

### **How does a supportive close friendship facilitate resilience?**

The Adolescent Friendship and Resilience Model explicitly links the benefits of peer relationships to psychological resilience processes. Perceived close friendship support facilitated resilience most powerfully through a constructive coping style characterised by social support-seeking and active engagement. Effective coping is an integral and pervasive component of resilience (Rutter, 1990). These adolescents' single closest friendship also promoted resilience through effort, supporting previous associations of self-efficacy with resilience and peer health interventions (Martin & Marsh, 2008; Turner, 1999).

The positive implications of boys' single closest friendship are noteworthy. Our findings suggest that group mechanisms which promote risk are not necessarily evident in boys' single closest friendship. Meanwhile, girls' close friendship weakly promoted maladaptive coping, concurring with previous findings (Rose, 2002). This empirically supports arguments that boys' friendships are critical for emotional well-being. Boys may be intimate, trustworthy and supportive, even as they face social pressures towards a stoic or macho masculinity, deviance-training processes, and risky behaviours (Dishion, 2000; Dishion, Nelson & Yasui, 2005; Way, 2013). Boys are highly vulnerable: the use and impact of disengaged and externalising coping was significantly more deleterious for resilience among boys, highlighting the need to differentiate and understand the links between adaptive single close friendships and more risky group processes in processes of boys' vulnerability and resilience.

Adolescents may perceive benefits such as friendship satisfaction from normatively negative coping responses such as shared substance use. Our findings show that positively-appraised friendships may nonetheless involve some externalising or disengagement. Occasional disengagement need not inhibit resilience (Haase, Heiney, Ruccione, & Stutzer, 1999). For example, both high- and low-resilience adolescents engage in more antisocial and illegal activity with peers than do moderately well-adjusted adolescents (Dumont & Provost,



1999). Significant activity may disrupt realizing goals which are often used as *indicators* of resilience, such as academic achievement. However, it may be problematic to assume absence of resilience processes, thereby overlooking mechanisms and outcomes which fall outside of dominant research paradigms, developmental norms and socio-cultural expectations (Clauss-Ehlers, 2008; Ungar, 2010).

Greater perceived close friendship quality acted to facilitate resilience through a supportive close friendship network for girls only. This may relate to boys' increased vulnerability to antisocial and maladaptive behaviour in groups. It may also relate to participants' number of friends or peer group qualities, which were not assessed. Peer group characteristics are also tied to social skills, peer acceptance, peer rejection, and victimization, which each affect outcomes (Dishion, Nelson & Yasui, 2005; Luthar, 1991).

### **How does a close friendship *not* facilitate resilience?**

An implication of this research for resilience theories (e.g., Masten & Cicchetti, 2010) is that adolescents with stronger family support do not simply transfer social skills learned at home to their friendships, nor are they categorically more effective at recruiting supportive friendships. A single close friend offers a distinctive resource. Hence, findings provide optimism for educators and practitioners targeting resilience in adolescents in difficult family contexts.

Perceived friendship quality was not tied to self-esteem nor contributed to resilience through this route. While negative peer interactions may negatively affect self-esteem (DuBois et al., 2002), positive peer interactions may not measurably affect self-esteem or resilience. Surprisingly, lowered perceived stress was not a significant mediator. Resilience is conceptually distinct from positive affect and sharing activities may not overcome the stress of adversity beyond short-term mood elevation (Zimmerman & Brenner, 2010).

### **Implications for applied and research practice**

Practitioners might prioritize existing and emerging supportive adolescent friendships within resilience interventions, especially within schools-based approaches which may lack adolescent input and rarely target peer relationships as a mechanism to promote positive change (Hart & Heaver, 2013). This study provides evidentiary support for peer support programmes, mentoring programmes, and informal friendship opportunities. Interventions might promote peer-based coping skills and self-efficacy, for example to cope with neighbourhood risk, or to support healthy approaches to social alcohol use (de Visser et al., 2014). Supportive peer friendships might be regularly included within assessments of psychosocial resources by clinicians and educators. Research and practice may better capture processes when these are operationalized from a salutogenic perspective: associations of peers with negative outcomes are unsurprising where discussion is framed in terms of risk.

Our use of self-report measures aligns practice to enable a lifespan approach. Adult resilience research prioritizes self-reports of well-being and functioning, while youth resilience research typically relies upon informant reports and achievement in behavioural domains, despite the availability of robust subjective measures (Luthar, Sawyer & Brown, 2006). Moving beyond informant reports and peer ratings avoids inferences and minimizes confounds of popularity and social competence (Bukowski & Adams, 2005; Hartup & Stevens, 1997; Mendelson & Aboud, 1999).

### **Generalizability of risk factors and other considerations**

The AFRM provides a promising foundation towards understanding the resilience-promoting capacities of peer relationships across different life domains and risk encounters. Young people, such as those in this study, face the risks of low community socioeconomic status together. Shared social, community-based, or developmental risks may be particularly responsive to peer support. We acknowledge two additional considerations. The AFRM may have demonstrated stronger fit and associations given higher sample resilience or greater

variability in friendship quality. However, our aim was to explore resilience processes related to participants' most valued friendship. Including participants of varying resilience is appropriate when conceptualising resilience as a process instead of an extraordinary outcome available to a select few (Vanderbilt-Adriance & Shaw, 2008). Future research may consider whether poor- and high-quality friendships operate through distinct processes. Furthermore, longitudinal research should examine the likely iterative processes of facilitating resilience and recruiting, developing or maintaining supportive friendships taking into account the potentially different timeframes required to exhibit growth via the proposed mechanisms along resilience trajectories which may be curvilinear, domain-specific or variable (Hart, Blincow, & Thomas, 2007; Masten & Cicchetti, 2010; Vanderbilt-Adriance & Shaw, 2008).

### **Conclusions**

The Adolescent Friendship and Resilience Model extends resilience frameworks to suggest that a single, supportive close friendship facilitates resilience processes in socioeconomically vulnerable adolescents. We suggest that at least one close friendship helps adolescents craft meaning and strength amid substantial adversity. Findings challenge researchers and practitioners to further explore the positive impact of a valued peer relationship which is open to most young people.

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Table 1.

*Descriptive Statistics and Inter-correlations of Measures in the Friendship and Resilience Questionnaire (Using Listwise Deletion)*

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13
1 FF	7.52	1.44	-	.29***	.11*	.40***	-.03	.03	.20***	-.06	-.12*	.02	.45***	.37***	.14**
2 RS	122.18	28.85		-	.17***	.28***	-.32***	.39***	.46***	.11*	.17**	-.25***	.27***	.33***	-.13**
3 MPSSS- Family	5.11	1.72			-	.57***	-.27***	.20***	.20***	.06	.13**	-.27***	.18***	.10*	-.16**
4 MPSSS- Friend	5.34	1.66				-	-.14**	.08	.13**	-.02	.03	-.13**	.39***	.24***	.04
5 SES†	22.28	5.00					-	-.58***	-.30***	-.36***	-.54***	-.58***	-.02	-.07	.46***
6 GSES Overall	40.19	7.01						-	.58***	.77***	.76***	-.36***	.04	.22***	-.40***
7 GSES Effort	17.19	3.90							-	.08	-.01	-.15**	.21***	.33***	-.10*
8 GSES Initiative	10.07	2.73								-	.67***	.77***	-.07	.05	-.35***
9 GSES Persistence	12.93	3.51									-	-.41***	-.10	.02	-.41***
10 PSS	41.08	7.10										-	-.00	-.02	.42***
11 RISC	5.00	0.90											-	.39***	.15**
12 CC	-	-												-	.47***
13 DEC	-	-													-

*Note.* N = 409. \*\*\*Significant at the .001 level (2-tailed) \*\*Significant at the .01 level (2-tailed). \*Significant at the .05 level (2-tailed). † Scale is inversely coded such that high scores reflect low levels of self-esteem.

Table 2.

*Bootstrapping results for mediators of predictive relationship of perceived friendship quality upon resilience*

Mediator	Point estimate	95% BC Confidence Intervals	
		Lower	Upper
Supportive Friendship Network*	1.40	0.60	2.36
RISC*	1.39	0.56	2.30
Perceived Stress	-0.09	-0.53	0.34
Self-Efficacy (General)	0.18	-0.46	0.84
- Self-Efficacy (Effort)*	1.50	0.69	2.44
- Self-Efficacy (Initiative)	-0.14	-0.52	0.05
- Self-Efficacy (Persistence)*	-0.46	-0.99	-0.14
Self-Esteem	0.15	-0.40	0.72
Constructive Coping*	1.76	0.87	2.88
Disengaged and Externalising Coping*	-0.43	-1.03	-0.10

NB N = 409, \* denotes significant mediation.

Table 3.

*Confirmatory Factor Analyses of Latent Variables and Results of Single-Group Structural Equation Modeling Analyses*

Iteration	Latent Variable Model Name	CMIN/DF	RMSEA	CFI	AIC
FF1.	6-indicator Friendship Quality	15.14*	.19	.96	160.23
FF2.	5-indicator Friendship Quality†	5.34*	.10	.99	46.73
RS1.	5-indicator Resilience	8.25*	.13	.98	61.25
RS2.	4-indicator Resilience†	2.98*	.07	1.0	21.96
CC.1	9-indicator Constructive Coping	5.43*	.10	.89	182.69
CC.2	2-Level Constructive Coping†	2.80*	.07	.96	110.66
DEC.1	5-indicator Disengaged and Externalising Coping	3.39*	.08	.97	36.94
DEC.2	4-indicator Disengaged and Externalising Coping	3.15*	.04	1.0	19.15
AFR.1	6-Mediator Adolescent Friendship and Resilience Model	2.38*	.06	.94	806.68
AFR.2	4-Mediator Adolescent Friendship and Resilience Model †	2.52*	.06	.94	723.54
AFR.3	Reverse 4-Mediator Adolescent Friendship and Resilience Model	2.52*	.06	.94	723.54

Note: † Denotes the model retained as final.\*Denotes  $\chi^2$  significant to  $p < .001$ . FF.2 omits “reliable alliance”. RS.2 omits “existential aloneness”. The disturbances of “using emotional support” and “using instrumental support” were linked to improve the CMIN/DF ratio as indicated by modification indices, retaining a 2-level factor, CC.2, comprising support seeking and engaged coping. DEC.2 omits “venting”.

Table 4.  
*Decompositions for Effects of Predictor and Mediating Variables on Resilience in the LST1.2 SEM model*

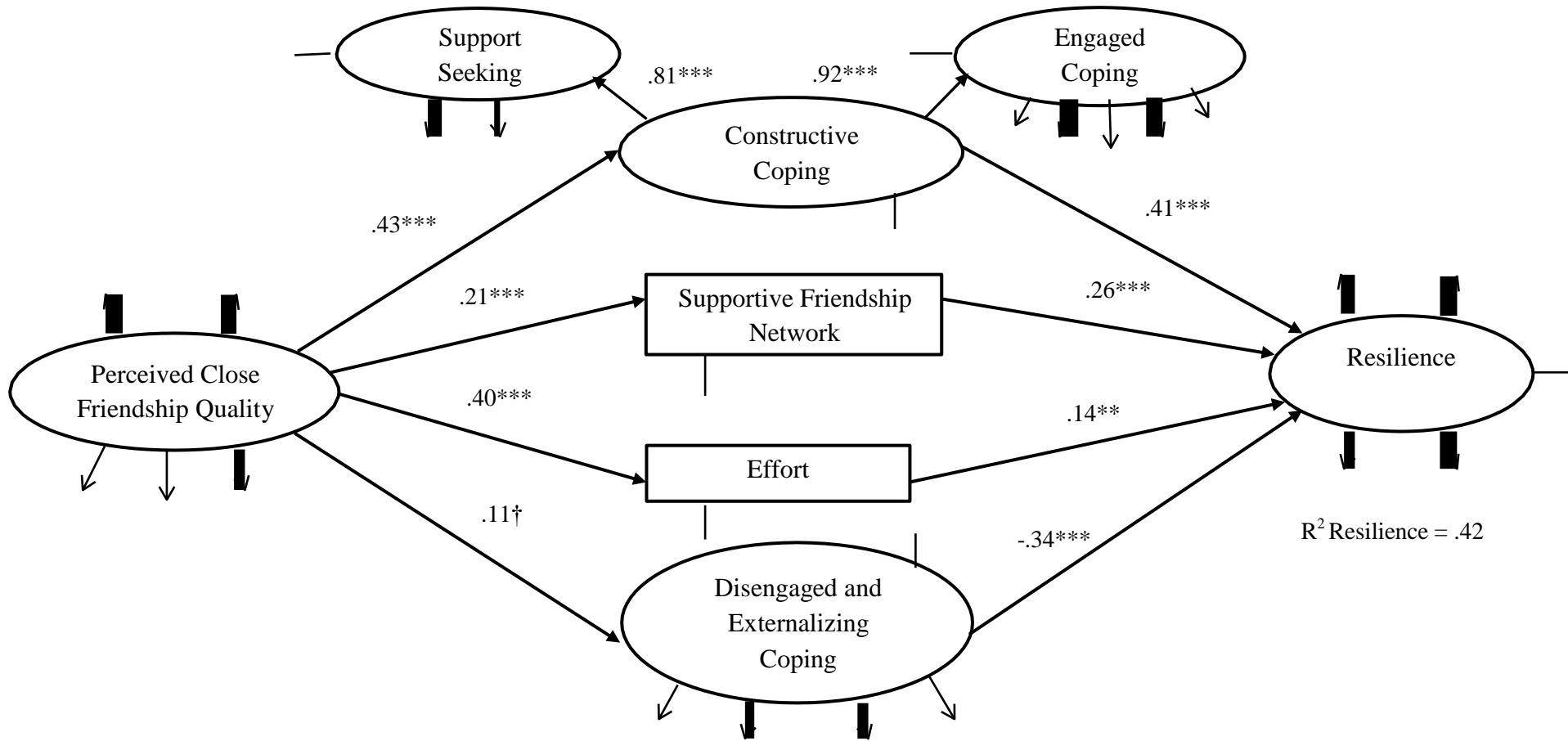
	Perceived friendship quality			Supportive friendship network			Effort			Disengaged and externalizing coping			Constructive coping		
	Unst.	SE	St.	Unst.	SE	St.	Unst.	SE	St.	Unst.	SE	St.	Unst.	SE	St.
Resilience															
Overall sample (N = 409)															
Direct	–	–	–	.13**	0.04	.14	.23***	0.05	.26	–.50***	0.10	–.34	.527***	0.096	.412
Total indirect	.29	–	.25	–	–	–	–	–	–	–	–	–	–	–	–
Total	.29	–	.25	.13**	0.04	.14	.23***	0.05	.26	–.50***	0.10	–.34	.527***	0.096	.412
Boys (N = 160)															
Direct	–	–	–	.12	0.07	.13	.19*	0.08	.22	–.72***	0.18	–.49	.519***	0.140	.434
Total indirect	.31	–	.34	–	–	–	–	–	–	–	–	–	–	–	–
Total	.31	–	.34	.12	0.07	.13	.19*	0.08	.22	–.72***	0.18	–.49	.519***	0.140	.434
Girls (N = 245)															
Direct	–	–	–	.12**	0.05	.13	.28***	0.06	.31	–.38**	0.13	–.25	.503***	0.126	.369
Total indirect	.24	–	.20	–	–	–	–	–	–	–	–	–	–	–	–
Total	.24	–	.20	.12**	0.05	.13	.28***	0.06	.31	–.38**	0.13	–.25	.503***	0.126	.369

Note. Unst. = unstandardized; St. = standardized regression.

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

Figure 1.

*The Adolescent Friendship and Resilience Model (AFR.2)*



Note: \*\*\* denotes  $p < .001$ , \*\* denotes  $p < .01$ , † denotes  $p = .06$ . Indicators of latent variables are represented by arrowhead connectors and (error) residuals are represented by straight connectors.