

Resilience in at risk young people in Guatemala

**Promoting or suppressing resilience to mental health outcomes in at risk young people in Guatemala: the role of school connectedness and peer attachment.**

**Abstract**

Adolescent attachment relationships formed with parents are salient predictors of mental health. Few studies, however, have demonstrated whether peer attachment or school connectedness can predict resilience to mental health difficulties in the context of poor parental attachment. Ninety adolescents living in disadvantaged areas and attending informal schooling projects in and around Guatemala City participated. Participants completed self-report measures of parental and peer attachment, school connectedness and mental health. Resilience to mental health difficulties was predicted by more secure school connectedness but lower levels of secure peer attachment. School connectedness may provide a role in promoting resilience for mental health for adolescents living in risk, whereas the potential negative influence that peers exert needs to be explored further.

## **Introduction**

### *Guatemala*

Guatemala is one of the poorest and most violent countries in Central America (Hernandez, Hong, Frias-Martinez, Whitby & Frias-Martinez, 2017; Branas et al., 2013). With a total population estimated to be around 16,673,000, 60% are thought to be living in poverty (Hernandez et al., 2017). The experience of poverty has negative effects on physical and psychological developmental outcomes – and these are known as being long-term and pervasive (Gallo & Matthews, 2003; Lund et al., 2011; Yoshikawa, Aber & Beardslee, 2012).

These negative effects might be particularly salient for children and young people, as currently around 36% of the population is under the age of 15 years (Pan American Health Organization, 2016). Children are often forced to work to support their families, as subsistence farmers in rural areas, or selling on the streets in towns and cities. According to UNICEF (2016) around 26% of Guatemalan children are involved in the labour market. With high levels of child labour there is a notable effect on school attendance, with primary school enrollment currently around 89%, and a significant drop to 69% in the numbers enrolling into secondary school (UNICEF, 2016).

Clear links are evident within the research literature between child poverty and later adolescent mental health difficulties (Yoshikawa et al., 2012), an outcome of particular concern for the present study. Within Guatemala the prevalence rates of mental disorders is around 27.8%, although only 1% of the national health budget is spent on mental health support (Pan American Health Organization, 2012). Few studies have specifically investigated mental health in young people in Guatemala. However, one study, which was carried out in 2015 with a representative sample of 4374 young people did find that of those between 13-17 years of age, 15.6% had seriously contemplated suicide, and 6.5% identified as having no close friends (World Health Organization, 2015). There is clearly further scope

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to investigate the effects of mental health in at risk young people in Guatemala, and to explore how resilience to mental health outcomes could be promoted for this population.

### *Parental attachment as risk*

Attachment Theory (Bowlby, 1969) is a well-accepted and validated theory of human development, explaining the nature of the caregiver-child bond, and how this affects later outcomes such as social and emotional development (Nickerson & Nagle, 2005; Kochanska & Kim, 2013). More insecure attachments to parents in adolescence are associated with conduct related problems (Fearon, Bakermans-Kranenburg, van Ijzendoorn, Lapsey & Roisman, 2010; Kochanska & Kim, 2013), and more severe emotional difficulties (Brumariu & Kerns, 2010; Shochet, Homel, Cockshaw & Montgomery, 2008). It is an undisputed stance that attachments to parents hold at least some influence over adolescent mental health outcomes. For this reason insecure parental attachment can be conceptualized as a risk factor. Risk factors can be defined as “*a measureable characteristic in a group of individuals or their situation that predicts negative outcome on a specific outcome criteria*” (Wright & Masten, 2005 p. 9). Risk factors can comprise traits, experiences, situations or relationships that are ultimately measurable (Keyes, 2004). They impinge on development contributing to negative trajectories, (Murray, 2003). There is a plethora of research studies demonstrating that more insecure attachments to parents contribute to mental health difficulties. However, whether this relationship holds for at risk populations and particularly for Guatemalan children could be further explored. Furthermore, investigating how resilience to mental health could be promoted in this context of risk, is warranted.

### *Peer attachment as protection*

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Attachments that adolescents form with their peers are important relationships that may have some influence on mental health outcomes. During adolescence individuals become more autonomous, they are not so dependent upon parents and are able to transfer certain dependencies onto their friends (Allen, 2008). Individuals will gravitate towards their friends in times of stress, seeking them out to help meet their attachment needs. Their peers may become sources of social and emotional support (Laible, 2007) and can serve as safe havens and secure bases for emotional support (Zeifman & Hazan, 2008).

Research has demonstrated links between peer attachments and mental health in adolescence (Oldfield, Humphrey & Hebron, 2015a). Lower levels of peer attachment are related to increases in conduct problems such as externalizing problems and bullying (McElhaney, Immele, Smith, & Allen, 2006; Laible, et al. 2000; Burton, Florell & Wygant, 2012). Links are also evident between poorer peer attachment and the display of emotional difficulties, such as low mood and self-esteem (Nickerson & Nagle, 2005; Formoso, Gonzales & Aiken, 2000; Millings, Buck, Montgomery, Spears & Stallard, 2012; Gorrese & Andrisano-Ruggieri 2013).

Nonetheless, there is some inconsistency within the literature as to whether higher or lower quality relationships with peers leads to better or worse outcomes for adolescents. In the context of risk for adolescents with poorer parental relationships, those with higher quality relationships experienced poorer outcomes (Young, Berenson, Cohen & Garcia, 2005). Chester, Jones, Zalot, and Sterrett (2007) also demonstrated that there was an interaction between parenting behaviour and peer influences on externalizing behaviour. For example, when mothers demonstrated low levels of positive parenting, young people with higher levels of peer relationship quality demonstrated more, rather than fewer, externalizing problems. Adolescents may however be influenced by both positive and negative behaviour of their friends (Chester et al., 2007). As in the context of risk (victimization) stronger peer

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attachment can protect against mental health difficulties (Hodges, Boivin, Vitaro, Bukowski, (1999). Further study is therefore warranted on whether peer attachment can help or hinder resilience to mental health difficulties in the context of risk (poor parental attachment), and particularly for young people in Guatemala who might be exposed to additional risk factors associated with poverty.

### *School connectedness as protection*

The bond an adolescent forms with their school or educational establishment can be termed school connectedness. Goodenow (1993) defines it as '*the extent to which students feel personally accepted and respected, included and supported by others in the school social environment*' (p. 80). School connectedness is therefore an umbrella term attempting to operationalize how much an individual feels part of their school, experiences positive relationships with teachers and peers, and has a sense of belonging (Thompson, Iachan, Overpeck, Ross & Gross, 2006). It is not considered an attachment to the educational process in general, but rather a real sense of connectedness with the actual school the individual attends (Diaz, 2005; Johnson, Crosnoe & Thaden 2006).

Research has demonstrated school connectedness to be particularly robust predictor of adjustment in adolescence (Hill & Werner, 2006; Shochet et al., 2008). Lower levels of school connectedness are related to more severe behaviour problems (Frey, Ruchkin, Martin, & Schwab-Stone, 2009; Loukas, Ripperger-Suhler, & Horton, 2009) and greater emotional difficulties (Govender et al., 2013; Millings, et al., 2012). Higher levels of school connectedness may also play an important role in adolescent development, giving the individual a sense of direction within life, and increasing self-esteem (Mouton, Hawkins, McPherson & Copley, 1996).

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School connectedness also operates as a protective factor, being particularly salient for children and adolescents experiencing risk. Crosnoe, Erickson & Dornbusch (2002) demonstrated that school factors were able to act in protective ways to buffer against adverse influences of deviant peers and lead them away from behavioural problems. The school factors included having positive relationships with teachers and stronger commitments to achievement, and these were more important than family factors in offering protection. Becker and Luthar (2002) highlighted that individuals with higher levels of a sense of school connectedness displayed better positive adaptation and were more able to deal with stressful experiences. Furthermore, school connectedness was able to act as a protective factor against violence perpetration for children at risk, (Borowsky, Ireland & Resnick, 2002), and reduce drug use in an at risk population in Guatemala (Martinez et al. 2016).

Schools factors could potentially offer protection and help to build resilience as they reduce the chance that young people engage in negative behaviour and ultimately foster positive development, by boosting positive social relationships, self-identity, social skills, and academic success which buffer against risk, (Martinez, 2016). These factors might be particularly pertinent issues in less stable environments such as in Guatemala, and where there are many other risk factors to navigate.

### *Resilience as a theoretical frame*

The current study will be framed with resilience theory. According to Luthar Cicchetti & Becker (2000) resilience can be defined as “*a dynamic process encompassing positive adaptation within the context of significant adversity*” (pp 543). Research investigating resilience attempts to understand how humans who have experienced, or who are currently experiencing, significant adversity have been able to demonstrate positive adaptation (Masten, 2001). These individuals have been able to respond positively to their adverse situation,

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rather than avoid it. They are able to overcome the odds and ultimately avoid an otherwise negative trajectory (Rutter, 1999). In order for the term resilience to be applied, two fundamental judgments must hold. Firstly, the individual must have experienced significant adversity. Secondly they must show evidence of a better than expected outcome across a specified domain (Masten & Powell, 2003). Resilience is therefore acknowledged when there is an interaction between risk and protective factors, leading to positive adaptation. Resilience is therefore not directly measured but inferred on this basis (Naglieri & LeBuffe, 2005)

Adopting a resilience framework is a popular and optimistic stance as researchers aim to focus on the positive aspects of human behaviour and their environments that moderate risks (Fergus & Zimmerman 2005, Evans & Pinnock 2007). These strengths have been termed protective factors and may be composed of individual level influences, or those within the family, or community that moderate the risk experience and lead to outcomes that are better than would otherwise be expected (Ungar, 2015). The process of how protective factors overcome risk is essentially resilience. Masten (2001) states resilience is a common phenomenon and *“does not come from rare and specific qualities, but from everyday magic of ordinary, normative human resources in the minds, brains, and bodies of children, in their families and relationships, and in their communities”* (pp 235).

In order to demonstrate resilience the individual needs to show a successful outcome. This could be problematic for young people who are exposed to particularly high levels of risk. Nevertheless, for some, the outcome may not be overtly positive in nature but is better than would otherwise be expected. Resilience is also regarded as domain specific (Stevenson, Oldfield & Ortiz, 2017). In one situation or outcome an individual's protective factors may lead to positive outcomes but in a different situation or outcome they might have considerable vulnerabilities. Therefore in order to address this, five different constructs of mental health were investigated in the present study.

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### *Justification for the study*

Adolescents living in poverty in Guatemala and not attending full-time state school may be at an increased risk of developing mental health difficulties. Low levels of parental attachment can further heighten the risk. The aim of the present study was therefore to investigate protective factors within these young people's background, such as their attachment to peers and connectedness to schools as sources of strength that can overcome adversity and lead to better than expected outcomes. As resilience is context specific, protective factors may operate in a different fashion depending on the outcome. Therefore, the present study will investigate five different areas of mental health difficulty which these possible protective factors may support.

The aim of the present study is to better our understanding of how at risk young people who are experiencing poor parental attachment maintain positive mental health outcomes. Our research question asked: whether peer attachment and school connectedness promote or suppress resilience to mental health outcomes in at risk young people in Guatemala.

## **Method**

### *Design*

This study utilised a cross-sectional, natural variation survey design. Risk for mental health difficulties was assessed with a measure of parental attachment. Peer attachment, and school connectedness were measured as possible protective factors. The response variables



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were indicators of adolescent mental health; including conduct problems, emotional difficulties, hyperactivity, peer problems and a total difficulties score.

### *Sample*

A purposive sample of 90 adolescents attending two community-based informal schooling projects in or around Guatemala City were the participants within this study. These schooling projects are run by local charities and provide part-time non-formal educational support for children and young people otherwise not in full-time education. The children do not attend state schools either due to their behavioural and emotional needs or their family financial situation. The two projects, one urban and the other rural, cater for children from the lowest socio-economic backgrounds. Parents of the participants were either street sellers, rubbish collectors or subsistence farmers. The young people themselves were often working to support the family outside time spent in the educational projects. They were considered by the project leaders to be at particularly high risk of drug abuse, homelessness, poverty and neglect. Their ages ranged from 11 to 18 years, and comprised 49% females ( $M$  14.89 years,  $SD$  2.05) and 51% males ( $M$  14.13 years,  $SD$  1.80).

### *Materials*

The Spanish version of the Inventory of Parent and Peer Attachment (Gullone, & Robinson, 2005) (IPPA-S) is a self-report inventory used to evaluate adolescents' perceived bonds with their parents and peers (Gallarín & Alonso-Arbiol, 2013). The Spanish version contains 16 items to assess parental (mother or father) and peer attachment. Items within the parental attachment scale include *Mi madre/padre respeta mis sentimientos* (My mother/father respects my feelings) and *Desearía tener una/un madre/padre diferente* (I wish I had a different mother/father). Within the present study participants were asked to respond

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according to the single parent who had most influenced them. The peer attachment scale includes 16 items to assess peer attachment such as *Mis amigos/as pueden saber cuándo estoy disgustado/a por algo* (My friends can tell when I'm upset about something) and *Cuando hablamos de cosas, mis amigos/as tienen en cuenta mi punto de vista* (When we discuss things, my friends care about my point of view).

Items for both scales are rated on a three point Likert scale (1 – never/almost never true; 2 – sometimes true; 3 always, or almost always true). The IPPA-S has a single factor structure (Gallarín & Alonso-Arbiol, 2013) and scores range from 16 – 48, with higher scores indicating more secure attachment to parents and peers. There are two negatively worded items in the parental attachment scale that are reverse scored before totals are calculated. Good internal consistency of the IPPA-S has been reported with Cronbach's Alpha values of .87 for the mother scale, .88 for the father scale, and .93 for the peer scale (Gallarín & Alonso-Arbiol, 2013). These are comparable to those within the present study .89 for parental attachment, and within an acceptable range .79 for peer attachment.

The Psychological Sense of School Membership (PSSM) is a self-report survey that measures adolescents' perceptions of their attachment and belonging in school (Goodenow, 1993). It contains 18 items including *Siento que soy parte de este proyecto* (I feel part of this project) and *Es difícil que la gente como yo sea aceptada aquí* (It is hard for people like me to be accepted here). Within the present study participants were asked to respond in relation to the educational project that they were attending.

Items are scored on a 5-point Likert scale (ranging from 1 – not at all true to 5 – completely true). Five items are negatively worded and need to be reverse scored before total scores are calculated. Scores range from 18 – 90 with higher scores indicating a stronger sense of connectedness to their educational project. Goodenow (1993) reported that the PSSM has high internal consistency for a Spanish version (.77), a similar score of .78 was

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obtained within the present study.

The Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997) is a self-report survey to measure the mental health of adolescents. There are 5 subscales 4 which were used in the present study including; Conduct problems; *Cuando me enfado, me enfado mucho y pierdo el control* (I get very angry and often lose my temper); Emotional Difficulties; *Suelo tener muchos dolores de cabeza, estómago o nauseas* (I get a lot of headaches, stomach-aches or sickness); Hyperactivity; *Termino lo que empiezo, tengo buena concentración* ( I finish the work I'm doing. My attention is good); Peer Problems; *Me llevo mejor con adultos que con otros de mi edad* (I get on better with adults than with people my own age). A total difficulties score (a general measures of mental health) is calculated and involves adding up each of the 4 sub-scales.

Each construct is measured with 5 items located on a 3-point Likert scale (0-not true, 1- somewhat true, 2-certainly true). Total scores range from 0-10 per construct. Higher scores indicate more conduct problems, emotional difficulties, hyperactivity and peer problems. The SDQ has been well validated (Goodman, 2001) and has been used extensively cross-culturally in a variety of languages to assess mental health difficulties in children and in young people (Woerner, et al. 2004). Cronbach's alpha levels for the present study were conduct problems (0.62), emotional difficulties (0.54), hyperactivity (0.75), peer problems (0.71), and total difficulties (0.87).

### *Procedure*

Students in groups of around 20 were introduced to the study by the research team. Full details of the investigation were explained, and participants made were aware it was a university study. The researchers gave instructions of how to complete the survey and answered any questions the participants had at this stage. Participants were assured of

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confidentiality of their responses and only signed the consent form if they understood and were willing to participate within the research. The project leaders had already agreed to act in *loco parentis*. Ethical approval was granted by the Research Integrity Committee at Manchester Metropolitan University. A survey pack containing the IPPA-S, PSSM, and SDQ was then distributed to participants and they were given approximately 30 minutes to complete it. The research team and project leaders supported its completion where reading ability was low or if anyone had difficulty.

### **Results**

#### *Descriptive Statistics*

The descriptive statistics relating to participants' self-reported scores on the parental and peer attachment scale (IPPA-S), school connectedness (PSSM) and outcomes from the Strength and Difficulties Questionnaire (SDQ) are shown in Table 1.

<< Insert Table 1 here >>

Bivariate correlations between the various attachment scores (parental attachment, peer attachment and school connectedness) and outcomes on the strength and difficulties questionnaire (conduct problems, hyperactivity, emotional difficulties, peer problems and total difficulties) are provided in Table 2 to show the relationship between attachment security and mental health outcomes.

<< Insert Table 2 here >>

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The degree of attachment security to parents and peers and the level of school connectedness were all significantly positively correlated with one another with moderate to strong correlation coefficients (Cohen, 1992). The outcomes from the SDQ were also all significantly positively correlated with one another with moderate to strong correlation coefficients (Cohen, 1992). Results demonstrated that parental attachment was significantly negatively correlated with conduct problems, peer problems and total difficulties. Therefore, a relationship emerged with more insecure parental attachment and more conduct problems, peer problems, and total difficulties.

### *Generating resilience outcome scores*

In order to derive various scores for mental health resilience to insecure parental attachment we followed the procedure described by Bowes, Maughan, Caspi, Moffitt & Arsenuault (2010), Collishaw et al. (2016) and Miller-Lewis, Searle, Sawyer, Baghurst & Hedley (2013). We regressed scores of each mental health outcome on levels of parental attachment. We saved the residual scores and then reverse coded them. Positive residual scores would therefore indicate that an individual is displaying better than expected mental health outcomes given their degree of parental attachment security. These adolescents can be described as showing resilience in this particular domain. The ranges of the residual scores were -5.36 to 3.35 for conduct problems, -4.37 to 3.91 for hyperactivity, -5.40 to 5.19 for emotional difficulties, -4.96 to 4.04 for peer problems and -14.95 to 13.11 for total difficulties. The residual scores became the outcome variables and were named e.g. conduct problems resilience. Correlations between resilience to mental health outcomes are displayed in Table 3.

<<Insert Table 3 here>>

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### *Predictors of mental health resilience*

In order to answer the research question whether peer attachment and school connectedness promote or suppress resilience to mental health outcomes in at risk young people in Guatemala, the mental health resilience scores computed in the method outlined above, comprised the outcome, with hierarchical multiple regression analyses used to demonstrate whether any attachment/connectedness relationship (peer or school) could predict these outcomes after controlling for age and gender. For each of the subsequent models the demographic variables (age and gender) were added in step 1, with the attachment/connectedness measures (peer, and school) added in step 2.

For model 1 (conduct resilience) a significant model emerged in step 2,  $F(4, 63) = 3.977, p = .006$ . The R square value .202 indicates the predictors in the model account for about 20% of the variance in conduct resilience, indicative of a medium effect (Cohen, 1992). After controlling for the demographic variables, peer attachment emerged as a significant predictor, with more secure peer attachments associated with decreases in conduct resilience, ( $\beta$  -.409,  $p = .004$ ). A non-significant trend also emerged with school connectedness; more secure school connectedness was associated with increases in conduct resilience, ( $\beta$  .188,  $p = .182$ ).

For model 2 (hyperactivity resilience) a non-significant model emerged in step 2,  $F(4, 64) = 2.137, p = .086$ . The R square value .118 indicates the predictors in the model account for 12% of the variance in hyperactivity resilience.

For model 3 (emotional resilience) a significant model emerged in step 2,  $F(4, 63) = 4.704, p = .002$ . The R square value .230 indicates the predictors in the model account for 23% of the variance in emotional resilience, indicative of a medium effect (Cohen, 1992). After controlling for the demographic variables, peer attachment emerged as a significant

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predictor, with more secure peer attachments associated with decreases in emotional resilience, ( $\beta$   $-.410$ ,  $p = .004$ ). A non-significant trend emerged with school connectedness; more secure school connectedness was associated with increases in conduct resilience, ( $\beta$   $.183$ ,  $p = .187$ ).

For model 4 (peer problem resilience) a non-significant model emerged in step 2,  $F(4, 64) = 1.910$ ,  $p = .120$ . The R square value  $.107$  indicates the predictors in the model account for 11% of the variance in peer problem resilience.

For model 5 (total difficulties resilience) a significant model emerged in step 2,  $F(4, 62) = 5.806$ ,  $p < .001$ . The R square value  $.272$  indicates the predictors in the model account for 27% of the variance in total difficulties resilience, indicative of a large effect (Cohen, 1992). After controlling for the demographic variables, peer attachment emerged as a significant predictor, with more secure peer attachments associated with decreases in total difficulties resilience, ( $\beta$   $-.469$ ,  $p = .001$ ). School connectedness also emerged as a significant predictor, with more secure school connectedness associated with increases in total difficulties resilience, ( $\beta$   $.278$ ,  $p = .047$ ).

<< Insert Table 4 here >>

## Discussion

The study aimed to find evidence of whether poorer parental attachment was related to more severe mental health difficulties, and if peer attachment and school connectedness could predict resilience in relation to these mental health outcomes. Within the present study insecure parental attachment was only related to more negative mental health on three out of the five outcomes (conduct problems, peer problems, and total difficulties). This provides support for previous research, which has also investigated parental attachment and

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conducted-related problems (Fearon et al., 2010; Kochanska & Kim, 2013). However, the relationship with emotional difficulties cannot be supported (Brumariu & Kerns, 2010; Shochet, et al., 2008). Risk within the present study was based upon a measure of poor parental attachment, it is important that this measure of risk actually predicts a negative outcome, before resilience can be inferred. Within the present study risk was only predictive of three outcomes, conduct problems, peer problems and total difficulties.

School connectedness was a significant predictor of mental health resilience when the outcome was total difficulties resilience (a global mental health measure). This relationship demonstrated that increases in school connectedness predicted higher levels of resilient functioning. In two other models (conduct problem resilience and peer problem resilience) school connectedness emerged as a marginal non-significant trend. This evidence would suggest that schools do play a role (albeit fairly limited) in promoting resilience by buffering against risk and reducing the display of problem behaviour. School connectedness is a sense of belonging and the experience of positive relationships with teachers and peers. The findings of the present study therefore support others in a similar vein that have demonstrated that higher levels of school connectedness is a salient predictor of positive adjustment (Frey, et al., 2009; Loukas, et al., 2009; Govender et al., 2013; Millings, et al., 2012).

Furthermore, school connectedness within the present study promoted resilience and was important for an at risk population of students within Guatemala – supporting other studies which have investigated the protective effects of this construct (Borowsky et al., 2002 and Martinez et al., 2016). Students who had a higher sense of connectedness, which included positive relationship with teachers and stronger commitments to achievement, might feel an increase sense of belonging, which improves their self-identity, and social skills, and allows them to experience academic success, all of which lead to a buffering against the risk



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they have experienced. In this at risk group of students, the stability that schools bring to their lives might be particularly pertinent.

One of the most salient findings was that more secure attachment to peers actually predicted worse than expected resilience to mental health outcomes. This finding was significant across all models (except peer problems resilience). This finding could be explained in terms of adolescents who spend more time with their peers socializing in unstructured time without the presence of responsible adults are at an increased risk of antisocial behaviour (Osgood et al., 1996). A stronger sense of affiliation with antisocial peers leads towards more adjustment problems (Espinoza, Gillen-O'neel, Gonzales & Fuligni, 2014). Therefore, when assessing quality of friendship, the level of prosocial behaviour needs to be taken into account. It is important to recognize who the friends are in terms of levels of support they give in influencing school behaviour, and whether the peer relationships are deviant or more achievement-orientated (Espinoza et al., 2014).

Previous literature has suggested that when parental attachment relationships are poor, adolescents with higher quality relationships with peers will actually experience poorer outcomes (Chester et al., 2007; Young et al., 2005). Adolescents are therefore influenced by both positive and negative behaviour of their friends (Chester et al., 2007). Lower levels of parental involvement might push an adolescent towards more antisocial peers, and forming strong relationships with these peers in turn could lead to displays of more negative behaviour. These influences could be particularly pertinent in Guatemala where gang culture and community violence are high (Bruneau, 2014). These additional risks in the environment will have both direct and indirect (being mediated through peers) influences on adjustment.

Finally, from the significant models – the total variance that could be explained by the predictors of peer attachment, and school connectedness ranged from 11% for peer problems

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resilience (small effect, Cohen 1992) to 27% for total difficulties resilience (large effect, Cohen 1992). Although these figures ranged from small to large effect sizes, there are still substantial amounts of variance in these resilience-related outcomes that remain unexplained and further research is needed to investigate other predictors of mental health resilience in this population.

### *Limitations and future research directions*

The findings within the present study need to be interpreted in light of a number of methodological limitations. First, the study employed a correlational cross-sectional design therefore causation cannot be inferred. This design, however, was adopted due to the transient nature and difficulty in accessing the population under investigation. Adopting a longitudinal study in future would aid understanding of resilience in this at risk population. It would also be possible to see the extent to which resilience is a static or changeable process.

Second, data collection was made with a single respondent using self-reported measures, and as such the results could be overestimated by shared method variance. More objective data collection methods (i.e. observations and diagnostic interviews), although beyond the scope of the present study, could be acknowledged as possible contributions to future research in this area. Use of more stimulating, interactive and visual methods of data collection would also be beneficial to enhance participation and enlightenment on resilience in this population (Stevenson, et al., 2017). Despite researchers making text and the design of the survey as engaging as possible, a number of participants struggled with literacy and needed considerable help from the research team and project workers to complete the survey.

Third, the method used to establish risk was an adolescent's attachment relationship with their parents. The survey asked participants to rate this with regard to the parent that had most influenced them. It is possible there are substantial differences in attachment

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relationships formed with different parents and it is also possible that other family figures such as grandparents might have held a stronger influence on the adolescents' lives. In a similar vein, when rating peer attachment, participants were asked to rate in accordance with their best friend, although they may have had substantially different relationships with other peers.

Fourth, the potential for additional risk factors within an adolescent's background was not controlled for as risk was based on parental attachment. In future more objective measures of family adversity could be included. Alternatively, a cumulative risk metric (Oldfield, Humphrey & Hebron 2015b) may have been appropriate, as this would have given a more reliable indication of risk within an adolescent's background.

Finally, a single method of assessing resilience was used within this study, whereas other studies have looked at multiple methods (Miller-Lewis et al. 2013). What is encouraging was that Miller-Lewis et al. (2013) found similar outcomes despite the methodology used. However, in order to improve credibility this is something that could be added in future. The present study explored promotive rather than protective factors – i.e. the factors were beneficial to all despite level of parental attachment - whereas future studies might investigate protective factors (those factors particularly beneficial for those experiencing high levels of risk). Nonetheless, the current methodology did allow anyone doing better than expected to be regarded as resilient even with moderate as well as good outcomes.

### *Implications*

The findings from the present study demonstrate that there are a number of modifiable protective factors that are able to promote resilience to mental health problems in adolescence. The role of peer influences on mental health outcomes for adolescents at risk is

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worrying and further investigation is required to tease apart what this means and why stronger attachments to peers in the context of poor parental attachment appear to be detrimental for mental health resilience. Perhaps adopting interventions that not only focus on forming strong relationships with peers, but specifically on forming strong relationships with positive peers, would be effective.

Schools also have a role to play, albeit a fairly limited one, in promoting resilience to mental health difficulties more generally for those pupils at risk in terms of experiencing poor parental attachment. Schools need to use this knowledge and invest in intervention programmes for mental health difficulties. Specifically, teachers within schools can make a positive difference to those experiencing risk (Liebenberg et al., 2016). Training teachers in how to build meaningful relationships with their students, might be of particular benefit. The formation of positive relationships might aid a student's capacity to deal with adversity and lead towards more positive outcomes. Facilitating changes in the ethos of the school to promote a sense of connectedness, would also be useful. Schools need to not only create environments where young people are valued and respected, but also really understand the complex needs of children who are living in risk.

Within the present study risk was based on a measure of attachment to parents. It is therefore important for interventions to not only reduce risk from poor parental attachment, but take a dual approach that aims to also improve protection with positive school influences. Facilitating positive relationships and communication between school and home is a potential way risk could be reduced whilst enhancing protection. Within Guatemala the culture may need to be shifted, in terms of teachers and parents working together to increase a sense of safety and belonging. They will be able to form interconnected mesosystems which might be able to form the enabling environments of repair that promote resilience to mental health outcomes (Ungar, Ghazinour & Richter, 2013). Teachers will then be able to learn from

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parents about specific risks and strengths they experience and work alongside them, adopting interventions that are risk sensitive. In the context of the present study many parents of adolescents had not attended school themselves and therefore had limited understanding of the school process. Therefore, schools should take the initiative and target parents of their most vulnerable students, and perhaps adopt parenting courses and family therapy and use attachment-based interventions to reduce risk (Kindsvatter & Desmond, 2013).

Any source of intervention needs to be multifacitated in nature, in order to address the complexity of resilience. There has been discussion in terms of whether interventions should focus on changing the individual child or their environment (Ungar, 2015). Facilitating changes in the environmental that lead to reductions in risk for mental health problems, particularly within schools, might be especially beneficial for the current study's population.

### *Conclusions*

The present study demonstrated that for a population of at risk young people in Guatemala, an adolescent's sense of connectedness to school and attachments formed with peers have the potential capacity to shape resilience to mental health outcomes. The degree of this importance varied by mental health outcome. Whereas a stronger sense of connectedness to schools is important for promoting resilience, more secure attachment to peers was actually detrimental to resilience promotion in the context of more severe risk.

In conclusion, school connectedness and peer attachment have the potential to be modified in interventions which might lead to the enhancement of resilience. However, targeting a single protective factor in isolation will only have limited effect on the outcome, and so interventions need to focus on adopt enhancing multiple protective factors across a number of ecological domains to establish the most effective result (Collishaw et al., 2016).

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*Table 1. Mean and Standard Deviations for Explanatory and Response Variables*

Measure	Variable	Range of possible scores	<i>M (SD)</i>	<i>n</i>
IPPA-S	Parental Attachment	16-48	40.83 (6.48)	90
	Peer Attachment	16-48	36.44 (7.46)	89
PSSM	School Connectedness	1-5	3.91 (0.55)	87
SDQ	Conduct Problems	0-10	2.98 (2.27)	83
	Hyperactivity	0-10	3.93 (2.17)	85
	Emotional difficulties	0-10	4.72 (2.72)	84
	Peer Problems	0-10	4.09 (2.16)	85
	Total Difficulties	0-40	15.71 (7.28)	82





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*Table 3. Bivariate Correlations between the resilience mental health constructs*

	Conduct Problems	Hyperactivity	Emotional Difficulties	Peer Problems	Total Difficulties
Conduct Problems	-	.517**	.581**	.433**	.814**
Hyperactivity	-	-	.485**	.296**	.761**
Emotional Difficulties	-	-	-	.409**	.839**
Peer Problems	-	-	-	-	.682**
Total Difficulties	-	-	-	-	-

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*Table 4: Hierarchical Multiple Regression Models Assessing the Effects of Attachment Variables upon resilient mental Health Outcomes*

Model 1: Conduct Resilience			Model 2: Hyperactivity Resilience			Model 3: Emotional Resilience		
Predictor variables	$\Delta R^2$	$^1\beta$	Predictor variables	$\Delta R^2$	$\beta$	Predictor variables	$\Delta R^2$	$\beta$
Step 1	0.088			0.062			0.115*	
Gender		-0.113	Gender		-0.031	Gender		-0.182
Age		0.302*	Age		0.255*	Age		0.332**
Step 2	0.114*			0.056			0.115*	
Peer Attachment		-0.409**	Peer Attachment		-0.290	Peer Attachment		-0.410**
School Connectedness		0.188	School Connectedness		0.094	School Connectedness		0.183
Total $R^2$	0.202**			0.118			0.230**	

Model 4: Peer Problems Resilience			Model 5: Total Difficulties Resilience		
Predictor variables	$\Delta R^2$	$^2\beta$	Predictor variables	$\Delta R^2$	$\beta$
Step 1	0.064			0.134*	
Gender		0.024	Gender		-0.108
Age		0.247*	Age		0.376**
Step 2	0.042			0.138**	
Peer Attachment		-0.118	Peer Attachment		-0.469**
School Connectedness		0.254	School Connectedness		0.278*
Total $R^2$	0.107			0.272***	

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

Statistics reported are standardised beta values