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Cultural variability and consistency in adolescents' emotional regulation and relationship with their parents: data from Argentina, Ghana, India and Zambia

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ABSTRACT

The aim of the current study was to examine the relationship between parent–child relationship and emotional regulation in adolescents across four countries regarding: (a) mother–child relationship; (b) father–child relationship; (c) adolescents' emotion regulation; and (d) the relationship between mother–child/father–child close relationships and adolescents' emotion regulation. Sex differences were also considered in the analysis. The sample of 270 Zambian, 216 Argentinian, 200 Ghanaian, and 180 Indian adolescents answered *The Experience in Close Relationship Questionnaire* and the *Emotional Regulation Questionnaire*. Results revealed cultural differences in the way adolescents perceived their relations with parents. Zambian adolescents were more likely to perceive their relationship as avoidant compared to Ghanaian, Argentinian and Indian. Consistent with literature, Zambian and Argentinian adolescents who perceived their parents as avoidant were likely to use less cognitive appraisal as an emotion regulation strategy. Finally, Argentinian adolescents who used expressive suppression were also likely to perceive their parents as avoidant.

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Adolescents; emotional–regulation; parent–child close relationship; cross-country

Adolescence is considered a period of significant physical, neurological, cognitive and socio-psychological development (Oliva & Arranz, 2005; Steinberg, 2017). Although the adolescent's interactions with parents tend to decrease during this period, parents continue to play a key role in the adolescent's development, influencing their personality, emotional development, and behavioural habits, as well as a host of other factors. Research around the world shows that the quality of the relationship between adolescents and parents has profound effects on adolescent's cognitive, social and specifically, emotional functioning (Arnett, 2012; Dutra-Thomé & Koller, 2014; Moretti & Peled, 2004). However, the mechanisms underlying the relationship between adolescent's emotional functioning and the quality of their relations with parents and how this relationship differs in various socio-cultural environments are not well understood. Therefore, the current study examines the relationship between adolescent's emotional regulation and parental close relationship quality with adolescents from Argentina, Ghana, India and Zambia.

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Parent–child relationship

An individual's social interactions with others are not random but are built on early long-term interactions and relationships with parents and siblings (and in some cultures, with grandparents and extended family members – aunts, uncles, cousins). This is based on the tenets of attachment theory (Bowlby, 1980), which argues that the kinds of relationships individuals form depend on the relationships they had earlier with their significant others. This attachment quality has been identified as an important factor that contributes to psychological development not only in childhood and adolescence, but also throughout adult life (Gryczkowski, Jordan, & Mercer, 2010). With time, the relationship with parents changes in some ways but remains stable in others (Trinke & Bartholomew, 1997). During adolescence, there is the challenge of maintaining close relationship with parents while at the same time fostering new social networks and fostering relationships with peers and romantic partners (Moretti & Holland, 2003). Research shows that a healthy transition to adulthood is not achieved through detachment from parents but rather having a close relationship and emotional connectedness with parents (Allen, McElhaney, & Land et al., 2003). The parent–child relationship quality and their consequences as well as the transition to autonomy in adolescence is considered (implicitly) normative and universal (Criss, Shaw, Hitchings, Ingoldsby, & Moilanen, 2009). However, culturally comparative studies, such as the current study, would be necessary to learn more about the unique ways in which these relationships may occur across cultures. The present study is an attempt to contribute to the studies on adolescence by analyzing whether and how the emotional regulation differs among adolescents in three socio-cultural living environments in Southern America (Argentina), Africa (Ghana and Zambia) and Asia (India).

Emotional development and culture

Research has demonstrated that parents play a critical role in the development of emotion regulation during childhood and adolescence (e.g. Brenning, Soenens, Braet, & Bal, 2012; Morris, Silk, Steinberg, Terranova, & Kithakye, 2010; Petersen, Koller, Motti-Stefanidi, & Verma, 2017). One of the main functions accomplished by the adolescent-parent attachment relationship may be to provide an emotionally secure base and teach adolescents how to deal with their own emotional states. Healthy attachment with caretakers allows the adolescent to recognize, explore, and face their own emotional states in an adequate manner. Parental responsiveness and sensitivity to their child's affective signals provide a critical context and working models with which the child organizes emotional experiences and regulates them. Moreover, adolescence is a time of strong and dramatic emotions (Crone & Dahl, 2012) and one of the core developmental tasks of this stage involves establishing a balance between emotion regulation and its expression.

Developmental psychosocial processes might be considered to some extent 'universal' and to some extent 'culture-specific'. Parent–child relationships as well as emotional development are embedded in the larger cultural context. Every culture has shared beliefs, ideals, and experiences that guide how individuals feel, think, and act (Chen & Farruggia, 2002), which differentiate it from other cultures. Adolescents adapt their individual development to conform to the cultural demands in order to achieve the best cultural fit. This adaptation strongly influences adolescents' social competence, mental and physiological health, and emotional health (Jennings & Greenberg, 2009). Parents commonly organize caregiving to fit their indigenous cultural belief systems, sometimes to the disregard of other more objective sources of information on childcare. Unfortunately, it is the case that the vast majority of knowledge on child development comes from studies primarily using Western European and North American samples (Arnett, 2012). However, researchers are increasingly examining development from a cross-cultural perspective with the emerging evidence, suggesting that there is considerable cultural variability as well as consistency in children's experiences (Chen, French, & Schneider, 2006).

Emotional regulation and parent–child relationship

A review of cross-cultural studies on adolescent emotional development and parent–child relationship shows that researchers have approached this topic from different perspectives. Cross-cultural studies are typically studied under the dichotomous individualism/collectivism dimensions (Hofstede, 1980). However, it has become increasingly commonplace to question this dualism but rather to study and consider cultural values as more or less collectivistic and more or less individualistic (Rubin, Oh, Menzer, & Ellison, 2011; Smith, Vignoles, Becker, & Easterbrook et al., 2016).

With regard to emotions in a cross-cultural context, Imada and Ellsworth (2011) reasoned that individualistic and collectivistic cultures (the researchers worked with American and Japanese samples) experience different emotions in similar situations, due to their different underlying attributions for success and failure. Cultural differences in emotions became either not significant or were markedly reduced when both cultures were prompted to make the same attribution. Another study in Surinamese and Turkish contexts showed that as compared to emotions in individualistic cultures, emotions in collectivistic cultures were more grounded in assessments of social worth and were to a large extent taken to reflect reality rather than the inner world of the individual (Mesquita, 2001).

Some cross-cultural studies on emotions have significant differences even among seemingly collectivistic societies. For instance, a research examined differences in youth's reported management of anger and sadness in Ghana, Kenya, and US, and found that Ghanaian youth reported more overt anger expression than youth from Kenya and the United States, and less anger inhibition than Kenyan youths. Children from the US reported less obvious expression and more constraint over sadness than Kenyan and Ghanaian children, although Kenyans reported being calmer when experiencing sadness than Ghanaian and American youths. Regardless of nationality, boys reported more control of sadness than girls who reported more under control of sadness and more over control of anger than boys (Morelen, Zeman, Perry-Parrish, & Anderson, 2012). Similarly, a study conducted in Iran and Germany found that children in Iran reported more internalizing and externalizing symptoms described as difficulties for young children in Iran to express themselves. This was believed to be as a result of the cultural expectation to show respect and maintain harmony in the family (Tahmouresi, Bender, Schmitz, Baleshzar, & Tuschen-Caffier, 2014).

With regard to parent–child relationships, and against the backdrop of collectivistic/individualistic continuum, some researchers have argued that collectivistic societies may place more premium on maintaining intimate relationships with parents than more individualistic societies (Lee & Lee, 1990). Moreover, in such collectivistic societies, the importance of extra-familial relationships (e.g. friendships) is somewhat lessened. Therefore, individuals are more likely to turn to family members than to nonfamily members for social provisions and support (French, 2004). In an Arab cross-regional study (Algeria, Saudi, Lebanon, Palestine, Egypt, Jordan-all considered collectivistic societies), high levels of interdependence and connectedness were demonstrated in parent–child relationships; autonomy and individuation were not positively viewed regardless of the degree of modernization, country and parents' education (Dwairy, Achoui, Abouserie, & Farah, 2006).

The positive perception of parent–child relationships is further associated with well-being. Rubin and Chung (2006) reported that perceived support and warmth in parent–child relationships and friendships have been linked to positive adjustment (e.g. social competence, self-worth, etc.). However, perceived lack of supportiveness and warmth has been associated with internalizing and externalizing problems (e.g. Collins & Laursen, 2004; Laursen & Mooney, 2008; McCartney, Owen, Booth, Vandell, & Clarke-Stewart, 2003).

An even more complex cultural difference in parent–child relationships and perceptions and consequences is revealed in a study of American, Korean, and Middle Eastern (Omani) young adolescents. The researchers found that the cultures (e.g. USA) in which autonomy and individuality are promoted, young adolescents are dissatisfied when their parents are viewed as adhering to a dominant, top-down relationship (Rubin et al., 2006). Similarly, Dwairy and Achoui (2006) found that when parent exhibits

relatively high levels of control harsh punishment and low levels of expressed warmth, Arab children and youth report high levels of satisfaction in the parent–child relationship. Taken together, the empirical findings suggested that cultural orientations might influence the salience, interpretation and perceptions of parent–child relationships, as well as appropriate emotional regulation. However, it is not clear how emotional regulation relates to the parent–child relationship quality.

There is a large body of evidence establishing that children’s emotion regulation behaviours and capacities emerge from within the parent–child relationship (Kiel & Kalomiris, 2015). Studies have shown that children with close relationships to parents adopt effective emotion regulation strategies both in their relationship with parents and with others even when the parental figure is not present (Chen, Lin, & Li, 2012). An earlier study on Chinese children and their parents also showed that harsh parenting that had a direct and indirect effect on a child’s aggression in the school environment through the child’s emotion regulation. The study also found that mothers’ harsh parenting affected a child’s emotion regulation more intensely than fathers’, but that fathers’ harsh parenting had a stronger effect on a child’s aggression. Fathers’ harsh parenting also affected sons more than daughters, whereas there was no gender differential effect with mothers’ harsh parenting (Chang, Schwartz, Dodge, & McBride-Chang, 2003).

On the other hand, Brumariu (2015) emphasized that there is not enough evidence to show that problematic parent–child relationships are related to negative emotion regulation processes hence more empirical studies are needed in this regard. Kiel and Kalomiris (2015) further asserted that the increased acknowledgement of contextual factors and culture in the development of emotional regulation within the parent–child relationship means that more research effort should be focused on detangling these cultural and contextual influencers. Against this background, the current study aims to investigate the relationship between parent–child close relationships and the adolescent’s emotional regulation. The specific objectives are:

- (1) To compare mother–child close relationship across four countries (Zambia, Ghana, Argentina, and India), and as a function of sex.
- (2) To compare the father–child close relationship of residents of the four countries, and observe how this variable is affected by sex.
- (3) To compare adolescents’ emotion regulation in the four countries, and observe how this variable is affected by sex.
- (4) To study the effect of mother–child close relationship and father–child close relationship on adolescents’ emotion regulation in all four of the countries under study.

Method

Participants – Zambian sample

The Zambian sample was composed of 270 adolescents of both sexes (136 males – 50.7% and 132 females – 49.3%) living in the city Lusaka. The mean age was 17.32 with a standard deviation of 1.5. The distribution of the educational level of the mothers of these adolescents was 22.3% without formal education, 33.2% primary education, 21% high school incomplete, 19.3% high school complete, and 4.2% university or equivalent. The distribution of the occupation of the head of the family was 39.7% unspecialized blue-collar worker, 23.4% specialized blue-collar worker, 21% employed without a university education, 10.3% high technical professional, and 5.6% university level professionals (see Table 5 for details).

Participants – Ghanaian sample

The Ghanaian sample was composed of 200 adolescents of both sexes (64 males – 31.7% and 136 females – 68.3%) living in the capital city of Accra. The mean age was 16.10 with a standard

deviation of 0.74. The distribution of the educational level of the mothers of these adolescents was 24.5% without formal education, 18% primary education, 34% high school incomplete, 22.5% high school complete, and 1% university or equivalent. The distribution of the occupation of the head of the family was 6% unspecialized blue-collar worker, 10% specialized blue-collar worker, 15% employed without a university education, 22.5% high technical professional, and 46.5% university level professionals.

Participants – Argentinean sample

The Argentinean sample was composed of 216 adolescents of both sexes (95 males – 44% and 121 females – 56%) living in the city of Buenos Aires. The mean age was 16.83 with a standard deviation of .97. The distribution of the educational level of the mothers of these adolescents was 1.4% without formal education, 1.9% primary education, 7.9% high school incomplete, 23.7% high school complete, and 65.1% university or equivalent. The distribution of the occupation of the head of the family was 3.7% unspecialized blue-collar worker, 9.3% specialized blue-collar worker, 16.2% employed without a university education, 19.9% high technical professional, and 50.9% university level professionals.

Participants – Indian sample

The Indian sample was composed of 180 adolescents of both sexes (114 males – 63.3% and 66 females – 36.7%) living in the city of Delhi. The mean age was 16.3 with a standard deviation of .53. The distribution of the educational level of the mothers of these adolescents was 1.1% without formal education, 0.6% primary education, 8.3% high school incomplete, 40.6% high school complete, and 49.4% university or equivalent. The distribution of the occupation of the head of the family is 1.1% unspecialized blue-collar worker, 16.1% specialized blue-collar worker, 0.0% employed without a university education, 40.6% high technical professional, and 42.2% university level professionals.

Measures

Measures were administered in English except in Argentina where they were administered in Spanish. In Argentina, measures were translated to Spanish by a professional psychologist who was also a qualified professional English–Spanish translator and then backtranslated to English to ensure linguistic equivalence.

Experiences in close relationships Questionnaire-ECR-RS (Fraley, Heffernan, Vicary, & Brumbaugh, 2011)

It is a self-report measure of attachment derived from the Experiences in Close Relationships–Revised Inventory-ECR-R (Fraley, Waller, & Brennan, 2000), and designed to assess individual differences separately in each of four relational domains: relationships with mother, father, romantic partner, and (non-romantic) best friend. The first two domains with 9 items were used to assess attachment in each domain. Within each relational domain, the ECR-RS assesses two dimensions: attachment-related anxiety (e.g. 'I often worry that this person doesn't really care for me') and avoidance (e.g. 'It helps to turn to this person in times of need'). The Cronbach's alpha for the present study is depicted in [Table 1](#).

Emotion regulation questionnaire (ERQ)

Ten-item self-report measure of an individual's tendency to use reappraisal and expressive suppression to regulate emotion (Gross & John, 2003). Each item consists of a 7-point Likert scale – strongly disagree (1) to strongly agree (7). The ERQ consists of six reappraisal items (e.g. 'I control my emotions by changing the way I think about the situation I'm in.') and four expressive

Table 1. Cronbach's alpha for each scale used in this study.

	Mother-child close relationship		Father-child close relationship		Emotional regulation	
	Avoidance	Anxious	Avoidance	Anxious	Cognitive reappraisal	Expressive suppression
Zambia	.74	.86	.62	.92	.77	.62
Ghana	.51	.78	.48	.77	.68	.58
Argentina	.83	.82	.81	.88	.79	.67
India	.74	.53	.73	.61	.71	.70

suppression items (e.g. 'When I am feeling positive emotions, I am careful not to express them') subscales scored as the mean of the items. The Cronbach's alpha for the present study is depicted in Table 1.

In all the four countries, data were collected during school breaks so that the entire process caused minimum disruptions to school activities. The study received ethical approval or exemption from the institutional ethics boards of each country.

Data analysis

A MANOVA was used to test the first objective of the study regarding differences between countries (Zambia, Ghana, Argentina and India) and sexes in mother-child close relationship (Anxiety and Avoidance). The dimensions of mother-child close relationship form the dependent variables of the model, and the four countries and sex were fed into the model as fixed factors. A further MANOVA was performed to study whether father-child close relationship (Anxiety and Avoidance) differ between countries and sexes. The two dimensions of father-child close relationship constitute the dependent variables, and the four countries and the two sexes the fixed factors. With regards to the aim of comparing the adolescents' emotional regulation of different countries, we conducted a four (countries) by two (sexes) MANOVA. Finally, to evaluate possible relationships between mother-child close relationship and father-child close relationship (independent variables), and adolescents' emotional regulation (dependent variable), a multiple regression analysis was performed.

Results

This section shows the results of our findings. The results are presented in accordance to our study objectives. We first present demographic characteristics. Table 2 shows the descriptive statistics of the variables under study by country and sex of the participants.

Comparison of mother-child close relationship by country and sex

A four (countries) by two (sexes) factorial MANOVA provided the tool to test the first objective of comparing mother-child close relationship across the four countries and according to sex. The model was significant, according to Hotelling's trace criterion, for the country variable, $F(6, 1628) = 94.06, p \leq .001, \eta^2 = .26$, but there were no significant differences for sex, $F(2, 810) = 1.87, p = .15, \eta^2 = .005$, and for the Country \times Sex interaction. Significant differences across countries for mother avoidance facet, $F(3, 811) = 88.78, p < .001, \eta^2 = .25$, and mother anxiety facet, $F(3, 811) = 150.94, p < .001, \eta^2 = .35$, emerged under univariate analysis.

The post hoc Scheffé contrast indicated that Zambian adolescents perceive higher mother attachment-related avoidance than the adolescents from Ghana, Argentina and India (Zambia vs. Ghana Scheffé = 1.13, $p < .001$; Zambia vs. Argentina Scheffé = 1.57, $p < .001$; Zambia vs. India Scheffé = 1.84, $p < .001$). Moreover, Ghanaian adolescents perceive higher levels of mother attachment-related avoidance than the adolescents from Argentina and India (Ghana vs. Argentina

Table 2. Descriptive statistics of the variables under study by country and sex of the participants.

	Zambia				Ghana				Argentina				India				
	Male		Female		Male		Female		Male		Female		Male		Female		
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	
Mother-child Close relationship																	
Avoidance	4.92	1.48	4.87	1.40	3.86	.84	3.73	.92	3.43	1.39	3.27	1.43	3.13	1.08	2.94	1.27	
Anxious	4.82	2.17	4.91	2.12	2.96	1.33	2.38	1.44	1.87	1.41	1.65	1.3	2.39	1.41	2.38	1.20	
Father-child Close relationship																	
Avoidance	4.44	1.27	4.36	1.27	3.91	.95	3.9	.90	3.52	1.29	3.90	1.39	3.14	1.15	3.31	1.25	
Anxious	4.83	2.03	5.03	2.14	2.87	1.44	2.57	1.48	1.84	1.43	1.75	1.50	2.24	1.36	2.45	1.30	
Emotional regulation																	
Cognitive reappraisal	3.24	1.34	3.16	1.45	3.77	1.16	3.64	1.04	4.37	1.22	4.5	1.16	4.46	1.21	4.53	1.32	
Expressive suppression	3.9	1.48	3.66	1.52	3.62	1.20	3.30	1.12	3.51	1.17	3.35	1.26	4.19	1.41	4.42	1.57	

Scheffé = .44, $p < .01$; Ghana vs. India Scheffé = .70, $p < .001$). Despite these results, there is an absence of significant differences between the adolescents from Argentina and those from India on attachment-related avoidance.

The post hoc Scheffé contrast indicated that, in the case of mother anxiety-related avoidance, Zambian adolescents had a more anxious attachment to their mothers than their Ghanaian, Argentinean, and Indian counterparts (Zambia vs. Ghana Scheffé = 2.31, $p < .001$; Zambia vs. Argentina Scheffé = 3.12, $p < .001$; Zambia vs. India Scheffé = 2.49, $p < .001$). Moreover, Ghanaian and Indian adolescents perceived a greater level of anxious attachment to the mother than Argentinean adolescents (Ghana vs. Argentina Scheffé = .81, $p < .001$; India vs. Argentina Scheffé = .63, $p < .001$).

Comparison of father-child close relationship by country and sex

A four (countries) by two (sexes) factorial MANOVA provided the tool to test the second objective of comparing father-child close relationship across the four countries and according to sex. The model was significant, according to Hotelling's trace criterion, for the country variable, $F(6, 1602) = 80.97$, $p \leq .001$, $\eta^2 = .23$, but there were no significant differences for sex, $F(2, 802) = .83$, $p = .44$, $\eta^2 = .002$, and for the Country \times Sex interactions. Significant differences across countries for father avoidance facet, $F(3, 811) = 31.03$, $p < .001$, $\eta^2 = .10$, and father anxiety facet, $F(3, 811) = 149.40$, $p < .001$, $\eta^2 = .36$, emerged under univariate analysis.

The post hoc Scheffé contrast indicated that Zambian adolescents perceived higher levels of father attachment-related avoidance than the adolescents from Ghana, Argentina and India (Zambia vs. Ghana Scheffé = .48, $p < .001$; Zambia vs. Argentina Scheffé = .65, $p < .001$; Zambia vs. India Scheffé = 1.19, $p < .001$). Moreover, Ghanaian and Argentinean adolescents perceived higher levels of father attachment-related avoidance than the adolescents from India (Ghana vs. India Scheffé = .71, $p < .001$; Argentina vs. India Scheffé = .54, $p < .001$).

The post hoc Scheffé contrast indicated that, in the case of father anxiety-related avoidance, Zambian adolescents had more anxious attachment to their fathers than their Ghana, Argentinean, and Indian counterparts (Zambia vs. Ghana Scheffé = 2.27, $p < .001$; Zambia vs. Argentina Scheffé = 3.15, $p < .001$; Zambia vs. India Scheffé = 2.62, $p < .001$). Moreover, Ghanaian and Indian adolescents perceived a higher-level of anxious attachment to their fathers than Argentinean adolescents (Ghana vs. Argentina Scheffé = .87, $p < .001$; India vs. Argentina Scheffé = .53, $p < .05$).

Comparison of emotional regulation by country and sex

To test the second objective of the study, which addresses the variation of emotional regulation (cognitive reappraisal and expressive suppression) across the four countries and opposite sexes, a four (countries) by two (sexes) factorial MANOVA was performed.

Hottelling's trace criterion showed the model to be significant for country, $F(6, 1612) = 34.52$, $p < .001$, $\eta^2 = .11$. There were no differences by sexes $F(2, 807) = .82$, $p = .44$, $\eta^2 = .002$ and the interaction Country \times Sex is non-significant $F(2, 1612) = .89$, $p = .50$, $\eta^2 = .003$. Univariate analysis reveals significant differences between countries for cognitive reappraisal, $F(3, 808) = 50.73$, $p < .001$, $\eta^2 = .16$, and expressive suppression, $F(3, 808) = 16.11$, $p < .001$, $\eta^2 = .06$.

The post hoc Scheffé contrast indicated that the Zambian adolescents used less cognitive reappraisal to emotional regulation than the adolescents from Ghana, Argentina and India (Zambia vs. Ghana Scheffé = $-.49$, $p < .001$; Zambia vs. Argentina Scheffé = -1.25 , $p < .001$; Zambia vs. India Scheffé = -1.29 , $p < .001$) and Ghana adolescents used less cognitive reappraisal to emotional regulation than the adolescents from Argentina and India (Ghana vs. Argentina Scheffé = $-.76$, $p < .001$; Ghana vs. India Scheffé = $-.80$, $p < .001$). There were no differences between Argentinean and Indian adolescents on the cognitive reappraisal dimension.

The post hoc Scheffé contrast indicated that, in the case of expressive suppression dimension, Indian adolescents use more expressive suppression to emotional regulation than their Ghanaian, Argentinean, and Zambian counterparts (India vs. Zambia Scheffé = $.51$, $p < .01$; India vs. Ghana Scheffé = $.87$, $p < .001$; India vs. Argentina Scheffé = $.85$, $p < .001$).

Influence of mother–child and father–child close relationship on two facets of adolescents' emotional regulation

For each country, a regression analysis for the criterion variable was performed to test the contribution of mother–child close relationship (attachment-related avoidance and anxious attachment) and father–child close relationship (attachment-related avoidance and anxious attachment) in the adolescents' emotional regulation (cognitive reappraisal and expressive suppression separately). Multicollinearity tests yield satisfactory results, with all variance inflation factors taking a value of less than 2.00 and tolerance metrics for all variables taking values in the vicinity of 1.00. The results of the eight multiple regression analyses are displayed in [Tables 3](#) and [4](#).

Discussion

The study examined how perceived parental closeness among adolescents from Zambia, Ghana, Argentina and India is related with emotional regulation.

Country and sex differences in parent–child close relationship

The first and second aims of the study were to compare parent (mother and father)–child close relationship across four countries, and as a function of sex. The results showed that there was no difference for sex on mother–child and father–child close relationships across the four countries. However, there were differences on mother–child close relationship across the four different countries. Zambian adolescents perceived their mothers as most avoidant followed by Ghana, Argentina and India, respectively. These findings were surprising since all the countries under study are categorized as collectivist culture. However, a study that compared parental expectation of adolescent from three collectivistic countries (Argentina, Colombia and Spain) found important differences between adolescents' perception (Mesurado et al., 2014). These findings highlight the importance and the necessity of understanding the peculiarities of different collectivist countries particularly how the constructs are measured.

Table 3. Mother-child and father-child close relationship as predictors of adolescents' cognitive reappraisal facet of emotional regulation by country.

Dependent variable	Predictors	Zambia			Ghana			Argentina			India					
		Beta	T	R ²	Beta	T	R ²	Beta	T	R ²	Beta	T	R ²			
Cognitive reappraisal	Mother-child Close relationship			.42	.18	.24	2.99**	.23	.05	-.25	-3.37***	.25	.06	.06	.26	.06
	Avoidance	-.29	-3.6***			-.01	.72			.02	.34			.06	.48	
	Anxious	-.07	-.68			-.02	-.31			-.01	-.20			.31	2.87***	
	Father-child close relationship					-.02	-.31			.02	.34			-.18	-1.62	
	Avoidance	.04	.57			-.09	-.98			.03	.37			-.23	-2.13*	
	Anxious	.13	1.42													

Note: ** $p < .01$, *** $p < .001$.

Table 4. Mother-child and father-child close relationship as predictors of adolescents' expressive suppression facet of emotional regulation by country.

Dependent variable	Zambia			Ghana			Argentina			India		
	Beta	T	R ²	Beta	T	R ²	Beta	T	R ²	Beta	T	R ²
Mother-child Close relationship												
Avoidance	-.11	-1.25	.24	.09	1.05	.16	.22	2.97**	.25	.03	.22	.19
Anxious	.15	1.41		.09	.97		.07	.83		.06	.58	
Father-child Close relationship												
Avoidance	.06	.74		.08	.93		.01	.18		-.21	-1.79	
Anxious	.13	1.36		-.06	.60		.01	.15		-.02	-.18	

Note: ***p* < .01, ****p* < .001.

Table 5. Sample description (education and occupation of parents) *N* = 866.

Country	Gender		Age		Education					Occupation				
	Male	Female	Mean	SD	No schooling	Primary education	High School Incomplete	High School complete	University or Equivalent	Unspecialized blue-collar worker	Specialized blue-collar worker	Employed without a university education	High technical professional	University level professionals
Zambia (<i>n</i> = 270)	50.7%	49.3%	17.32	(1.5)	22.3%	33.2%	21%	19.3%	4.2%	39.7%	23.4%	21%	10.3%	5.6%
Ghana (<i>n</i> = 200)	31.7%	68.3%	16.10	(.74)	24.5%	18%	34%	22.5%	1%	6%	10%	15%	22.5%	46.5%
Argentina (<i>n</i> = 216)	44%	56%	16.83	(.97)	1.4%	1.9%	7.9%	23.7%	65.1%	3.7%	9.3%	16.2%	19.9%	50.9%
India (<i>n</i> = 180)	63.3%	36.7%	16.3	(.53)	1.1%	0.6%	8.3%	40.6%	49.4%	1.1%	16.1%	0.0%	40.6%	42.2%

Collectivistic societies place more premiums on maintaining intimate relationships with parents than more individualistic societies (Lee & Lee, 1990), hence have fewer avoidant type relationships. We speculate that low parenting skills could have contributed to this observation. Feenev and Collins (2001), argued that the largest predictor of insecure attachment styles such as avoidance is lack of knowledge – parent skills. This is collaborated by our findings that show low parental education in the countries with adolescents who perceived their mothers as avoidant. Less education contributes to lower parental skills and pro-social orientation. As with the first aim, in the second aim more Zambian adolescents perceiving their fathers more avoidant followed by Ghana, Argentina and India, respectively. Mothers are more likely than fathers to form a closer relationship (De Jager, 2011; Roman, Makwakwa, & Lacante, 2016). Therefore, it was not surprising that the same pattern as in mothers emerged in fathers.

Differences in socioeconomic (SES) status and sub-parenting cultural practices differences in the four countries could also explain the observed differences. SES plays an important role in influencing parenting practices and children's development, whereby parents of high SES are able to provide a wider range of experiences, material resources, parental actions, and social interactions that many low SES parents may not have access to (Yunus & Dahlan, 2013). Parents (mothers and fathers) in low SES contexts invest relatively less time in their children's social activities such as attending school activities. This may be interpreted as by adolescents as avoidant behaviour (Yeung, Sandberg, Davis-Kean, & Hofferth, 2001). Low SES parents are instead pre-occupied with meeting daily family needs and as a result may be more restrictive, punitive and exhibit a parent-centred style or authoritarian style with their children (Lansford, Deter-Deckard, Dodge, Bates, & Pettit, 2004; Pinderhughes, Dodge, Bates, Petit, & Zelli, 2000). We speculate that low SES could explain our results given that the African Countries (Ghana and Zambia) had the least educated parents than Argentina and India. Zambia had also fewer parents with University level type of jobs (see Table 5). Moreover, these rankings are consistent with World Bank (2016). With regard to cultural practices, research shows that African parents, in general, subscribe to authoritarian styles of parenting (Roman et al., 2016; Sankah, 2007), although this may not necessarily lead to negative adolescent outcomes. However, research also shows that when adolescents perceive that parents may be stifling their autonomy and asserting more control, they experience more emotional problems (Sher-Censor, Parke, & Coltrane, 2011).

Cross-cultural practices are also important to consider when explaining the observed differences across the four countries. For instance, in Zambia like many other African countries, parents seldom praise their children (Murray et al., 2013) and there is evidence that people who score high on the avoidance dimension doubt other's willingness to be responsive to their needs (Winterheld, 2016). Children who perceive parents as avoidant tend to develop strong sense of independence especially when parents are preoccupied with making family's ends meet. In a German study on infants, there was a high percentage of avoidant behaviour, typical of independent children because German parents seek 'independent, non-clingy infants, who do not make demands on parents, but obey their commands (Grossmann, Grossmann, Spangler, Suess, & Unzner, 1985). Anecdotal evidence suggest that African parent-adolescent relationships are seldom clingy and intimate. A classic study by Hewlett (1987) among groups in central Africa supports this evidence when it showed that Aka fathers' relative time investment in play with infants was 23% compared with emotional caregiving (e.g. displaying affection) at 27%, soothing at 18% and physical care (cleaning) at 15%. Mothers' relative time investment in play was 13% compared with emotional caregiving (e.g. displaying affection) at 4%; soothing at 12% and physical care (cleaning) at 5% (Hewlett, 1987). On the other hand, Argentinean parents usually praise their children and have a close relationship with the child. A recent study has shown that 41% of the Argentinean fathers and 50% of the Argentinean mothers play every day with their child; between 80% and 90% of the parents provide daily explicit emotional care with their children (e.g. hug, kiss), and 36% of the fathers and 79% of the mothers prepare meals or bottles daily for their child (Mesurado, 2018).

Ghanaian fathers are considered authoritarian in their approaches to child rearing. They raise children in accordance to set standards of conduct, which are predominantly absolute, theologically motivated and formulated by higher authority (Nyarko, 2013). This could explain the avoidant father–child relationship not only observed in Ghana but Zambia also. Moreover, as adolescents get older, their relationships with parents are also strained. We speculate that because Zambian adolescents were slightly older, this could also explain the perceived relationship with their parents. A study in Nigeria geographically located near Ghana showed that intimate and cordial parent–child relationship was only likely when parents participated and got involved in their adolescent’s social settings and activities (Olusanya & Olusanya, 2014). However, parental involvement tend to be lower as adolescents get older mainly because adolescents spend less time with parents and spend more time with their peers.

Countries and sex differences of adolescents’ emotion regulation

The third aim of this study was to compare adolescents’ emotion regulation in the four countries, and observe how this variable is affected by sex. Surprisingly, there were no gender differences in the way adolescents regulated their emotions. However, a previous study developed in Argentina which found similar results that boys and girls had similar levels of emotional regulation, with the exception of the dimension ‘putting into perspective’ (capacity to minimize the severity of the incident compared to other incidents) measured with Cognitive Emotion Regulation Questionnaire (CERQ) (Medrano, Moretti, Ortiz, & Pereno, 2013). We think that this has to do with adolescents’ perceived parent–child closeness. The mother-adolescent relationship is more likely to report more warmth and acceptance than fathers’ relationships (Updegraff, Delgado, & Wheeler, 2009). One antecedent focused strategy of such as relationship is cognitive reappraisal which entails reinterpretation of an event to change emotional impact by either diminishing negative emotions or enhance positive emotions (Gross & John, 2003; Winterheld, 2016).

Zambian adolescents were found to use less cognitive appraisal than their counterparts in Ghana, Argentina and India. This was not surprising because cognitive appraisal as an emotional regulation strategy is linked with healthy close relationship. Highly secure individuals report greater use of cognitive appraisal, especially if they feel closer in a relationship and engage in less suppression when the other part behaves more negatively towards them. In our study, countries that were more likely to report cognitive appraisal like Argentina are also documented to have a stable emotional relationship between parents and children (Bornstein et al., 2012). In the same line, Richaud et al. (2013) have found that Argentinean children have low levels of emotional instability. On the contrary, avoidant individuals report greater use of suppression, especially when they perceive more negative behaviour in the other part and when the other part is more avoidant (Winterheld, 2016). Zambian adolescents perceived their parent’s avoidant. The antecedent of using suppression is avoidant type of relationship, which entails active inhibition of ongoing emotional expressive behaviour (Gross & John, 2003). The main defence attachment strategy employed by children with avoidant attachment is to never show outwardly a desire for closeness (Feenev & Collins, 2001). This defence mechanism tends to be employed when a relationship bond is perceived distant. We are not arguing that the countries with high avoidance relationships did not experience love and affection in their relationship with parents but rather develop a defence mechanism to feel better when they perceived their relationship as distant. Although Ghanaian adolescents were also less likely to use cognitive appraisal, a study by Morelen et al. (2012) shows that Ghanaian youths overtly express their emotions compared to Kenya and the United States. The results are consistent with Monteiro, Balogun, and Oratile (2014) who observed that students in Botswana who reported more emotion regulation difficulties seem less able to utilize problem-focused engagement and that this could be indicative of the socio-cultural context experienced by students in Botswana that might encourage them to inhibit emotions.

Indian adolescents used more expressive suppression for emotional regulation than their Ghanaian, Argentinian and Zambian counterparts. It could be that Indian adolescents were more anxious since

they were least avoidant among the countries. Highly anxious individuals also use more suppression when the other part in the relationship is more avoidant, but express less negative emotions when they are paired with less avoidant parts. Our thesis on Indian adolescents is supported by Rava, Martini, and Raval (2007)'s findings that Indian children considered others to be less accepting of their expressions of anger and sadness and, in turn, they reported controlling their anger and sadness more than their physical pain, although there were within culture difference between urban and rural children. Moreover, the degree to which emotions are suppressed has been directly linked to the manner in which the adolescent is encouraged by the parents to identify the socially accepted way of expressing such emotions (Hardy, Power, & Jaedicke, 1993). The contextual nature of the self in the Indian society emphasizes maintaining cordial relationships, peace of mind and harmony with others in the society (Kapadia, 1999; Trommsdorff & Cole, 2011). Therefore, Indian parents might encourage suppression of extreme emotions such as anger, which is considered undesirable in interdependent relationships as it may threaten relational harmony. Within Asia societies there are difference. For instance, Nepalese Brahman caregivers are more likely to engage in emotionally neutral control of their preschool-age children whereas Nepalese Tamang caregivers engage in more affiliative control. With regard to emotion socialization, the Brahmins tend to ignore child shame and to be responsive to child anger, whereas Tamang caregivers ignore or punish child anger but are responsive to child shame (Cole, Walker, & Lama-Tamang, 2006; Trommsdorff & Cole, 2011).

Relationship between parent-child close relationship and emotional regulation

Our last objective was to investigate the effect of mother-child close relationship and father-child close relationship on adolescents' emotion regulation in all the four countries under study. Consistent with literature (Chang et al., 2003; Gross & John, 2003; Winterheld, 2016), Zambian and Argentinian adolescents who perceived their parents as avoidant were less likely to use cognitive appraisal as an emotional regulation strategy. Surprisingly, Ghanaian adolescents who perceived their parents as avoidant were more likely to use cognitive appraisal while in Indian adolescents, anxious relationship was associated with increased use of cognitive appraisal. It could be that Ghanaian culture encourages the expression of emotions in situations that elicit negative emotions. Morelen et al. (2012) observed that Ghanaian children overtly express their emotions. It can be argued that Ghanaian adolescents who perceive their parents avoidant, use cognitive appraisal because they reinterpret emotional eliciting events in order to determine whether to express their emotions or not (Morelen et al., 2012). Contrary to Ghanaian adolescents, adolescents from Argentina who perceived their parents avoidant were more likely to use expressive suppression as an emotional regulation strategy consistent to theory and literature (Chang et al., 2003; Gross & John, 2003; Winterheld, 2016). The findings on the Indian sample is contrary to literature (Gross & John, 2003; Winterheld, 2016) and also to findings by Rava et al. (2007) that the Indian children considered others to be less accepting of their expressions of anger and sadness and, in turn, they reported suppressing their anger and sadness. Indian adolescents who perceived an anxious relationship with their parents probably used more cognitive appraisal because they needed to reinterpret any emotional eliciting event by continually seeking out for parental support to attract attention from them.

Limitations and future research direction

The present study focused on adolescents in four collectivist low and middle-income countries. Therefore, our cross-cultural comparison would have been more robust if individualistic and high-income countries from Europe and North America were part of the study. In future, such cross-cultural comparison studies should sample from all continents. Secondly, our study used self-report measures on adolescents' perceptions of their relationship with their parents, which are prone to response bias. In future, self-report measures should be combined with interviews and also ask parental perceptions

of their own relationship with their children. Future studies should also test for metric comparability across cultures beyond linguistic and psychological comparability of the measures used in this study. In addition, future studies should further explore the role of SES on parent–child close relationship and emotional regulation strategies using culturally appropriate measures.

In conclusion, Zambian adolescents perceive higher levels of mother and father avoidance than their counterparts in Ghana, Argentina and India. It is important not to confuse these results as indicating attachment patterns since we know there are fewer avoidant patterns in collective cultures. Further, Zambian adolescents used less cognitive appraisal than their counterparts and Indian adolescents used more expressive suppression than their counterparts in Ghana, Argentina and Zambia. Our study findings to a large extent are consistent with literature and theory on parent–child close relationship and emotional regulation strategies. However, our findings highlight how demographic characteristics and socio-cultural practices may alter the parent–child attachment and emotional regulation in adolescents in the four countries.

Data Availability

Data can be accessed by request to the first author.

Disclosure statement

No potential conflict of interest was reported by the authors.

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