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Authors

Gülseven, Zehra
Carlo, Gustavo
Kumru, Asiye
[et al.](#)

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The Protective Role of Early Prosocial Behaviours Against Young Turkish Children's Later Internalizing and Externalizing Problems

Zehra Gülseven ^a, Gustavo Carlo ^a, Asiye Kumru ^b, Melike Sayıl ^c
and Bilge Selçuk ^d

^aSchool of Education, University of California, Irvine, CA, USA; ^bDepartment of Psychology, Ozyegin University, Istanbul, Turkey; ^cDepartment of Psychology, TED University, Ankara, Turkey; ^dDepartment of Psychology, Koc University, Istanbul, Turkey

ABSTRACT

This study examined the protective roles of early prosocial behaviours (at age 4) on later internalizing and externalizing problems (at age 6) and to what extent emotion regulation skills (at age 5) mediated these longitudinal associations in children from Turkey. Participants were 293 Turkish preschool children ($M_{\text{age}} = 49.01$ months; 141 girls). Results showed that higher prosocial behaviours at age 4 were linked to higher emotion regulation at age 5, which, in turn, was linked to less internalizing problems at age 6. Additionally, prosocial behaviours at age 4 were negatively linked to emotional lability at age 5, which, in turn, was positively linked to externalizing problems at age 6. We also found that higher prosocial behaviours at age 4 were directly and negatively linked to both internalizing and externalizing problems at age 6. These results were robust for boys and girls and children who lived in big and small cities. Overall, there was supportive evidence on the protective roles of earlier prosocial behaviours on later internalizing and externalizing problems. These findings extend existing models of risk and resilience to a sample of children from a non-Western, relatively collectivist-oriented culture and inform our understanding of these posited relations in young children.

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KEYWORDS Prosocial behaviour; emotion regulation; internalizing problems; externalizing problems; culture

Individuals have a variety of benevolent traits and behaviours that are necessary for human survival and group living (Carlo, 2014). Among those, prosocial behaviours are voluntary actions intended to benefit others (e.g., helping, sharing; Eisenberg et al., 2015). These behaviours

CONTACT Zehra Gülseven  gulseven@uci.edu  School of Education, University of California, 3200 Education, Irvine, CA 92697-5500, USA

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play key roles in community cohesion, harmony, and cooperation among people because prosocial qualities are linked to better sociocognitive and socioemotive skills (Eisenberg et al., 2015). Moreover, children who frequently express prosocial behaviours might be inhibited from engaging in problem behaviours and show less internalizing and externalizing problems (Caprara et al., 2014; Flouri & Sarmadi, 2016; Nantel-Vivier et al., 2014; Spataro et al., 2020). However, to date, few studies exist on the interrelations between prosocial behaviours and both internalizing and externalizing problems in young children.

Additionally, scholars suggest indirect relations between prosocial and problem behaviours (Carlo et al., 2014) possibly through children's emotion regulation skills because these skills are related to both prosocial and problem behaviours (Eisenberg et al., 2010, 2015). However, the mediating mechanisms in the relations between children's prosocial and problem behaviours have rarely been studied. Moreover, studies on the relations between prosocial and problem behaviours have been exclusively conducted in Western, individualist-oriented societies. People in different cultures have their own unique beliefs and values about child development and distinct socialization experiences; thus, cultural contexts might have distinct effects on children's social-emotional development (Carlo & de Guzman, 2009; Whiting & Edwards, 1988). Therefore, we aimed to examine the protective roles of early prosocial behaviours (at age 4) on later internalizing and externalizing problems (at age 6) and to what extent emotion regulation skills (at age 5) mediated these longitudinal associations in children from a non-Western, relatively collectivist-oriented society.

Relations between prosocial behaviours and internalizing and externalizing problems

According to risk and resilience frameworks, there are assets that can modulate exposure to risk factors and predict positive developmental outcomes (Masten, 2001). For example, some scholars suggest that children who frequently exhibit prosocial behaviours are likely to have sociocognitive and socioemotive assets that can increase resilience and protect children against developing subsequent internalizing and externalizing problems (Carlo, 2014). Prosocial behaviours are associated with such traits as perspective taking (i.e. understanding others' situations), moral reasoning (i.e. thinking about moral dilemmas), empathy and

sympathy (i.e. feeling the same others and sorrow for others' misfortunes), and good self-regulation skills (Carlo, 2014; Eisenberg et al., 2015). Thus, the presence of adaptive behaviours (i.e. prosocial behaviours) in early childhood can help children navigate risk exposure and inhibit the development of future adverse outcomes (Luthar et al., 2000; Masten, 2001).

Two commonly studied developmental outcomes are internalizing and externalizing problems. Internalizing problems include social withdrawal, anxiety, depression, and somatic complaints in childhood (Achenbach & Rescorla, 2001). Conceptually, there are several reasons to expect negative links between prosocial behaviours and internalizing symptoms. First, prosocial behaviours require resources to engage in actions that benefit others, and internalizing symptoms reflect a depletion of resources (Eisenberg et al., 2015; Muraven & Baumeister, 2000). Second, prosocial behaviours require other-oriented, rather than self-oriented, tendencies, which are inhibited in children with internalized symptoms. And third, internalizing symptoms are indicative of difficulties with emotion regulation, which can mitigate prosocial actions that require good self-regulation skills (Eisenberg et al., 2001, 2015). Indeed, previous studies demonstrate negative relations between prosocial behaviours and internalizing symptoms (Flouri & Sarmadi, 2016; Nantel-Vivier et al., 2014; see Memmott-Elison, Holmgren, et al., 2020 for a meta-analysis).

Externalizing problems include aggression, disobedience, and rule-breaking behaviours in childhood (Achenbach & Rescorla, 2001). Similar to the links between internalizing problems and prosocial behaviours, scholars have posited negative relations between externalizing symptoms and prosocial behaviours. Some researchers point out that engaging in prosocial behaviours mitigates the opportunities to engage in externalizing behaviours (Huebner & Betts, 2002). Moreover, prosocial children are less attracted and likely to affiliate with deviant peers and engage in externalizing behaviours (Carlo et al., 2014). In addition, as is the case of internalizing problems, self-regulation is negatively associated with externalizing symptoms but positively associated with prosocial behaviours (Eisenberg et al., 2001, 2015). Several studies document that prosocial behaviours are negatively related to externalizing problems (Flouri & Sarmadi, 2016; Nantel-Vivier et al., 2014; see Miller & Eisenberg, 1988 for a meta-analytic review).

Relations between prosocial behaviours and emotion regulation

Emotion regulation refers to children's capacity to modify emotions to achieve their goals (e.g. finding a playmate) (Saarni, 1999) and has been considered as one of the core indicators of social-emotional development (Eisenberg et al., 2015; Malti & Noam, 2016). In contrast, emotional lability refers to emotion dysregulation and frequent mood swings (Shields & Cicchetti, 1997). According to Collaborative for Academic, Social, and Emotional Learning (CASEL)'s widely implemented social-emotional learning (SEL) framework (CASEL, 2013), children's self-management skills, such as emotion regulation, and social relationship skills, such as prosocial behaviours are interrelated and can influence each other. Similarly, the character development framework (Baehr, 2017; Lickona & Davidson, 2005) argues that children's performance character virtues, such as emotion regulation, and moral character virtues, such as prosocial behaviours are interdependent and 'support each other in an integrated, interdependent way.' (Lickona & Davidson, 2005, p. 21). Based on these frameworks and prior research, prosocial behaviours are deemed socially adaptive in early childhood and such actions provide training opportunities to promote emotion regulation skills (see also Eisenberg et al., 2015). Specifically, these scholars assert that prosocial behaviours can mitigate children's over-arousal and modulate emotional lability. Recent studies have tested these propositions and examined the bidirectional relations between self-regulation and prosocial behaviours in middle childhood and adolescence (Gülseven et al., 2021; Memmott-Elison, Padilla-Walker, et al., 2020). Thus, children who display relatively high levels of prosocial behaviours at early ages might demonstrate better emotion regulation skills and less emotional dysregulation (i.e. emotional lability) at later ages.

Relations between emotion regulation and internalizing and externalizing problems

Better emotion regulation skills lead to better behaviour regulation and, thus, fewer internalizing and externalizing problems (Aldao et al., 2016; Eisenberg et al., 2010). In contrast, emotional lability, which reflects emotion dysregulation, can increase children's negative arousal (Eisenberg et al., 2015). Over-aroused children may have difficulties in regulating their behaviours; thus, they may be more likely to display aggressive behaviours. Similarly, emotional lability is related to internalizing

problems because individuals with such tendencies are prone to develop distress, anxiety, and depression (Eisenberg et al., 2001; Zeman et al., 2002). Consistent with these assertions, scholars find that emotional lability is positively associated with internalizing (e.g., depressive symptoms) and externalizing (e.g., aggression) problems (e.g. Eisenberg et al., 2001, 2010).

Mediating roles of emotion regulation and emotional lability

Despite the known links among prosocial behaviours, emotion regulation, internalizing and externalizing symptoms, no research has examined whether emotion regulation can account for the relations between early prosocial behaviours and subsequent internalizing and externalizing behaviours. Engaging in prosocial actions can boost individuals' overall positive mood and stimulate positive emotions (e.g. pride, gratitude), which can inhibit negative affectivity (e.g. guilt, shame, and sadness) and protect individuals against developing internalizing problems (see Eisenberg et al., 2015). Indeed, researchers have shown that prosocial children tend to have more positive emotions, positive moods, higher self-esteem, lower anxiety, depression, and other internalizing problems (Bandura et al., 1999; Eisenberg et al., 2015; Flouri & Sarmadi, 2016).

Prosocial children show better emotion regulation skills and less emotional lability (see Eisenberg et al., 2015). Further, children with successful emotion regulation skills at an early age tend to develop and maintain competent behaviours (Denham, 1998). For example, better emotion regulation skills lead to better behaviour regulation and fewer behaviour problems, aggressive and antisocial behaviours (Cole et al., 1996; Saarni, 1999), whereas higher emotional liabilities lead to greater difficulties in regulating behaviours and more internalizing than externalizing problems (Eisenberg et al., 2001, 2010). Therefore, it was expected that emotion regulation and emotional lability would mediate the relations between children's early prosocial behaviours and subsequent internalizing and externalizing problems.

Cultural characteristics of Turkey

As previously noted, most prior research examining the relations between prosocial behaviours and internalizing and externalizing problems has been conducted in Western, individualist-oriented societies.

Cultural scholars, however, note that each culture group has unique beliefs, traditions, and socialization patterns which can have distinct consequences on children's social-emotional development (Carlo & De Guzman, 2009; Whiting & Edwards, 1988). Studies of developmental models in non-Western, collectivist-oriented cultures are needed to test the generalizability of such models. Therefore, the present study was conducted in young children from Turkey.

According to Kağıtçıbaşı's (2007) family model, most urban, middle-class, Turkish families are strongly oriented towards relational-autonomous socialization goals. These families tend to socialize their children to be psychologically or emotionally interdependent on family members; however, they also acknowledge and support their children's autonomy (Kağıtçıbaşı, 2007). From this perspective, though there are some similarities to Western cultures, Turkish culture is distinct from most Western cultures with their collectivism orientation (Hofstede et al., 2010). In other words, Turkish parents do not endorse individualism in their children or do not encourage their children to be independent but instead, try to socialize their children as self-sufficient individuals who maintain connectedness with extended family members and relatives. These cultural orientation differences can result in culture-specific patterns of children's prosocial behaviours and emotion regulation skills. For instance, cross-cultural scholars have suggested that parents from collectivist-oriented societies tend to endorse prosocial values in their children and socialize their children to suppress their negative emotions (e.g. anger) while encouraging them to express positive emotions (e.g. sympathy) to maintain group harmony (Chan, Bowes, & Wyver, 2009; Keller & Otto, 2009; Triandis, 1995). In one study, Turkish mothers were found to encourage their children to express sadness more than anger because the expression of anger is believed to be detrimental to family hierarchy and cohesion (Çorapçı et al., 2012). Other research shows that children from collectivist-oriented cultures tend to show more prosocial and cooperative behaviours than children from individualist-oriented cultures (Whiting & Edwards, 1988). Concerning emotion regulation, research across 23 countries showed that persons from collectivist-oriented cultures tend to suppress emotions and not freely express them (Matsumoto et al., 2008). Based on cultural differences in values (Hofstede et al., 2010; Kağıtçıbaşı, 2007) and analogous cross-cultural research (e.g., Keller & Otto, 2009; Whiting & Edwards,

1988), we examined whether the hypothesized associations generalize to a distinctively collectivist-oriented culture (Turkey).

Study hypotheses

The present study aimed to examine the relations between Turkish children's prosocial behaviours at age 4 and their internalizing and externalizing problems at age 6, and the mediating roles of emotion regulation and emotional lability at age 5. We hypothesized that children who scored relatively high on prosocial behaviours at age 4 would score high on emotion regulation at age 5, which, in turn, would be linked to low scores on internalizing and externalizing problems. Additionally, children who scored low on prosocial behaviours at age 4 would score high on emotional lability at age 5, which, in turn, would be linked to high scores on internalizing and externalizing problems. Furthermore, children's prosocial behaviours at age 4 were hypothesized to be directly and negatively linked to internalizing and externalizing problems at age 6. Finally, given the gender differences in children's prosocial behaviours and emotion regulation (Eisenberg et al., 2015) and the possible societal differences (e.g., because of modernization, industrialization) between relatively large and small cities in Turkey (see Kağıtçıbaşı, 2007), we examined whether hypothesized associations vary by gender and city.

Method

Participants

The sample was 293 preschool children ($M_{age} = 49.01$ months, $SD = 3.86$; 141 girls; 56% single child; 48% from public and 52% from private schools) and their mothers at Time 1 in Bolu ($n = 147$, represents a small city) and Ankara ($n = 146$, represents a big city) in Turkey. Mothers reported on average 13.81 years ($SD = 3.46$) of education; mothers who lived in Ankara reported significantly higher levels of education ($M_{education} = 15$ years, $SD = 2.94$) than mothers who lived in Bolu ($M_{education} = 12.63$ years, $SD = 3.53$), $F(1,290) = 38.64$, $p < .001$. The sample was 248 children (118 girls) at Time 2 and 184 children (87 girls) at Time 3. The attrition rate was 15% ($n = 45$) from Time 1 to Time 2, 26% ($n = 64$) from Time 2 to Time 3, and 37% ($n = 109$) from Time 1 to Time 3 due to the relocations in other parts of Turkey or transferring non-participating schools. A series of one-

way ANOVA tests were conducted to explore whether there is a mean level difference in the main study variables between participants who stayed in the study and participants who withdrew after the first or second year of the study. Results showed no significant mean level differences in the main study variables. A follow up analyses showed that families who completed study at Time 3 reported lower level income ($M = 4.11$, $SD = 1.08$) than those who withdrew ($M = 4.37$, $SD = 1.11$), $F(1, 287) = 3.98$, $p = .047$. In general, the present sample represents urban, middle-class, and educated Turkish families.

Procedure

The data comes from a large longitudinal study of Turkish children's cognitive, emotional, and prosocial development. After receiving approval from the institutional review board and Ministry of Education, recruitment letters were sent to mothers via their children at participated schools, and 96.7% of the mothers accepted to participate in the study voluntarily. Mothers signed consent forms; then, they completed questionnaires and sent them back to researchers in a sealed envelope via their children.

Measures

Prosocial behaviours

Mothers reported children's prosocial behaviours when they were 4 years old on a 7-point scale (1 = *Never* and 7 = *Always*) using the modified version of the Prosocial Behaviour Scale (PBS; Iannotti, 1985; see Yağmurlu & Sanson, 2009 for modification details). PBS includes 19 items ('Shares his toys or play.', 'Helps a child who is distressed.'). $\alpha = .92$. PBS was translated and back-translated to Turkish language, and the evidence for validity and reliability was well documented with Turkish children (Yağmurlu & Sanson, 2009).

Emotion regulation and emotional lability

Mothers reported children's emotion regulation and emotional lability when they were 5 years old on a 4-point scale (1 = *Rarely/Almost Never* and 4 = *Always*) using the Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997). ERC includes 24 items taps into two subscales: Emotion Regulation subscale (8 items, e.g., 'Is a cheerful child.'). $\alpha = 0.60$) measures

empathy and proper emotional expression, and Emotional Lability subscale (15 items, e.g., 'Is prone to angry outburst/tantrums easily.'). $\alpha = 0.80$) measures mood swings and dysregulated negative emotions. One item does not belong to any subscale. ERC was translated and back-translated to Turkish language, and the evidence for validity and reliability was well documented with Turkish children (Yağmurlu & Altan, 2010).

Mothers also reported children's temperamental characteristics of emotional reactivity when they were 4 years old on a 6-point scale (1 = *Almost Never* and 6 = *Almost Always*) using the Short Temperament Scale for Children (STSC) (Prior et al., 1989). The STSC includes 30 items and taps into four subscales (i.e. reactivity, persistence, approach, and rhythmicity). Due to the purpose of the current study, we only used the reactivity subscale (9 items, e.g., 'When upset or annoyed with a task, my child throws it down, cries, slams doors, etc.'). $\alpha = 0.75$). High score in emotional reactivity indicates higher levels of emotional lability and difficulties in emotion regulation.

Internalizing and externalizing problems

Mothers reported children's internalizing and externalizing problems when they were 6 years old on a 3-point scale (0 = *Not true* and 2 = *Very true*) using the Child Behaviour Check List (CBCL; Achenbach & Rescorla, 2001). CBCL includes 100 items taps into two broad dimensions as internalizing and externalizing problems. Internalizing problems include the mean score of anxious/depressed, social withdrawn, and somatic complaints items (27 items, $\alpha = 0.77$); Externalizing problems include the mean score of aggressive behaviour items (19 items, $\alpha = 0.86$). Higher scores indicated greater internalizing and externalizing problems. CBCL was adapted in Turkish language and has been used as a valid and reliable scale (Dümenci et al., 2004; Erol et al., 1995).

Results

Preliminary analyses

Descriptive statistics were conducted to examine mean, standard deviation, and to identify covariates (see Table 1). Study variables were normally distributed (the range between ± 3 implies normal distribution; Kline, 2016). Bivariate correlations among main variables were conducted, and we found several significant correlations (see Table 1).

Table 1. Descriptives and correlations among the main variables.

| Variables | 1. | 2. | 3. | 4. | 5. |
|---------------------------|---------|---------|--------|--------|------|
| 1. Prosocial Behaviours | – | | | | |
| 2. Emotion Regulation | 0.36** | – | | | |
| 3. Emotional Liability | –0.26** | –0.43** | – | | |
| 4. Internalizing Problems | –0.28** | –0.38** | 0.27** | – | |
| 5. Externalizing Problems | –0.26** | –0.18* | 0.41** | 0.50** | – |
| Mean | 4.61 | 3.26 | 2.02 | 0.35 | 0.48 |
| Standard Deviation | 0.93 | 0.40 | 0.40 | 0.19 | 0.29 |

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

Main analyses

We conducted path analysis using full information maximum likelihood (FIML) estimation in *Mplus* 8.0 to handle missing data (Enders, 2010; Muthén & Muthén, 1998–2017). We examined whether emotion regulation and emotional liability (age 5) mediate the links between prosocial behaviours (age 4) and internalizing and externalizing problems (age 6; see Figure 1). Maternal education was a statistical control as a proxy of socioeconomic situation in all analyses. We also included two regression paths between emotional reactivity (age 4) and emotion regulation and emotional liability (age 5) to assess the mediating effects of emotional liability and regulation (over and above the previous level of emotional reactivity) in the relations between prosocial behaviours (age 4) and internalizing and externalizing problems (age 6). The model fit was evaluated based on the root mean square error of approximation (RMSEA) with 90% confidence intervals, comparative fit index (CFI), Tucker-Lewis index (TLI), and standardized root mean square residual (SRMR) (Hu & Bentler, 1999).

Main model

The hypothesized model fit the data well, $N = 291$, $\chi^2(6) = 8.64$, $p = .195$, RMSEA (90% CI) = 0.04 (0.00–0.09); CFI = 0.99; TLI = 0.96; SRMR = 0.04. Results showed that after controlling for maternal education, child gender, and children's prior levels of emotional reactivity, children's prosocial behaviours at age 4 were positively linked to their emotion regulation ($\beta = 0.36$, $SE = 0.06$, $p < .001$) and negatively linked to their emotional liability ($\beta = -0.14$, $SE = 0.06$, $p = .025$) at age 5 (see Figure 1). Children's prosocial behaviour at age 4 was directly and negatively linked to internalizing ($\beta = -0.15$, $SE = 0.08$, $p = .051$) and externalizing problems ($\beta = -0.20$, $SE = 0.07$, $p = .008$) at age 6. Emotion regulation at age 5 was negatively linked to internalizing

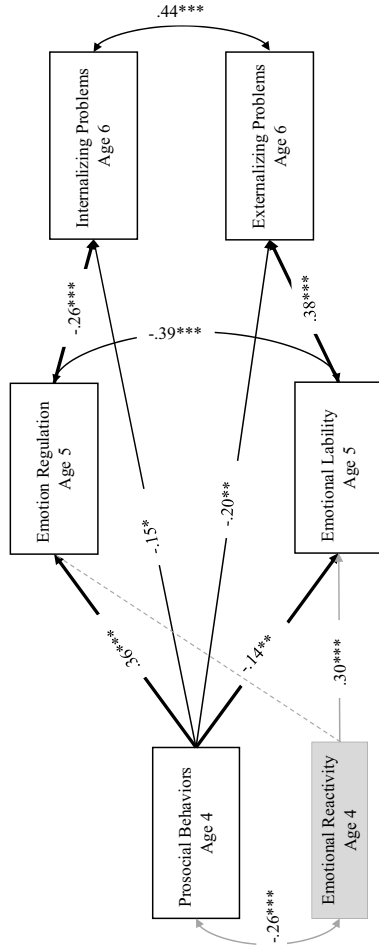


Figure 1. Relations between early prosocial behaviours and later internalizing and externalizing problems, and the mediating roles of emotion regulation and emotional liability. Model fit the data well: $N = 291$, $\chi^2(6) = 8.64$, $p = .195$, RMSEA (90% CI) = 0.04 (0.00–0.09); CFI = 0.99; TLI = 0.96; SRMR = 0.04. Standardized parameters are shown in the figure. The dashed line represents nonsignificant path; bold arrows represent significant indirect effects. Children’s gender and mothers’ education are statistical controls but are not depicted in the figure. Shaded variable is a control variable. * $p < .05$, ** $p < .01$, *** $p < .001$.

problems ($\beta = -0.26$, $SE = 0.08$, $p = .001$) and emotional lability was positively linked to externalizing problems ($\beta = 0.38$, $SE = 0.07$, $p < .001$) a year later.

Moderation by gender and city

To examine whether hypothesized associations vary by children gender (i.e. boys and girls) and city (i.e. big and small), we conducted multigroup analyses. The first multigroup analysis by gender showed that unconstrained model $\chi^2(8) = 10.68$, $p = .221$, RMSEA (90% CI) = 0.05 (0.00–0.12); CFI = 0.99; TLI = 0.95; SRMR = 0.04 and constrained model $\chi^2(25) = 30.58$, $p = .203$, RMSEA (90% CI) = 0.04 (0.00–0.08); CFI = 0.98; TLI = 0.97; SRMR = 0.09 were not significantly different according to chi-square difference test ($\Delta\chi^2(17) = 19.9$, $p = 0.279$) indicating that hypothesized model did not vary between girls and boys.

The second multigroup analyses by city showed that unconstrained model $\chi^2(12) = 17.45$, $p = .133$, RMSEA (90% CI) = 0.06 (0.00–0.11); CFI = 0.97; TLI = 0.91; SRMR = 0.05 and constrained model $\chi^2(33) = 37.23$, $p = .281$, RMSEA (90% CI) = 0.03 (0.00–0.07); CFI = 0.98; TLI = 0.97; SRMR = 0.09 were not significantly different based on chi-square difference test ($\Delta\chi^2(21) = 19.78$, $p = .535$) indicating that hypothesized model did not vary between big and small cities. Therefore, model was presented for the entire sample.

Indirect effects

We conducted a follow-up bootstrap resampling analysis to test the indirect links with bias-corrected 95% confidence intervals (Bollen & Stine, 1990). Emotion regulation significantly mediated the relations between prosocial behaviours and internalizing problems ($\beta = -0.10$; $SE = 0.03$; 95% CI [-0.18, -0.04]; $p = .006$). Further, emotional lability significantly mediated the relations between prosocial behaviours and externalizing problems ($\beta = -0.05$; $SE = 0.02$; 95% CI [-0.11, -0.02]; $p = .024$). There were no other significant relations.

Discussion

The purpose of this study was to examine the longitudinal relations between Turkish preschoolers' prosocial behaviours at age 4 and their internalizing and externalizing problems at age 6, and whether those associations were mediated by emotional lability and emotion regulation

skills at age 5. Of particular interest, higher prosocial behaviours at age 4 were linked to higher emotion regulation at age 5, which, in turn, was linked to less internalizing problems at age 6. Additionally, prosocial behaviours at age 4 were negatively linked to emotional lability at age 5, which, in turn, was positively linked to externalizing problems at age 6. Our findings also revealed that children's higher prosocial behaviours at age 4 were directly linked to less internalizing and externalizing problems at age 6. Notably, these findings were robust across gender and cities and after controlling for prior level of children's emotional reactivity. Overall, there was supportive evidence on the protective roles of earlier prosocial behaviours on later internalizing and externalizing problems. Further, emotion regulation partly accounted for the relations between prosocial behaviours and internalizing problems, and emotional lability partly accounted for the relations between prosocial behaviours and externalizing problems. These findings extend existing models of risk and resilience to a sample of children from a non-Western, collectivist-oriented culture and inform our understanding of these posited relations in young children.

Of particular interest, emotion regulation and emotional lability significantly mediated the relations between early prosocial behaviours and later internalizing and externalizing problems. Higher prosocial behaviours were associated with higher emotion regulation and lower emotional lability a year later. Consistent with theoretical frameworks (Baehr, 2017; Lickona & Davidson, 2005), these findings suggest that prosocial behaviours can facilitate better emotion regulation. And, these successful emotion regulation tendencies, in turn, were linked to children's fewer internalizing problems but not externalizing problems. These findings are consistent with the assertion that 'children with internalizing problems have been referred to as overcontrolled' (p. 505) because some aspects of self-regulation (e.g., emotion regulation) are theoretically linked to internalizing problems (Eisenberg et al., 2010). That is, children may control their overt emotions, which can reduce the internalizing problems (e.g., social withdrawal, Eisenberg et al., 2010). However, emotion regulation was not linked to externalizing problems. This might be due to the different aspects of self-regulation. For instance, inhibitory control (i.e., inhibition of behaviours) is less likely to be associated with internalizing problems than other aspects of self-regulation (such as emotion regulation or effortful control; Eisenberg et al., 2010).

In contrast, emotional lability was, in turn, positively linked to externalizing problems but not significantly associated with internalizing

problems. Difficulties in regulating emotions and having frequent mood swings may increase children's tendency to develop externalizing problems (Eisenberg et al., 2001; Zeman et al., 2002). These findings regarding the relation between emotional lability and externalizing problems were consistent with previous findings (e.g., Eisenberg et al., 2001). This might be due to the role of effortful control in regulating emotions because effortful control also plays a critical role during the information processing, whether to display adaptive or maladaptive behaviours (Eisenberg et al., 2010). However, higher emotional lability was not found to be linked to internalizing problems. Thus, these findings suggest the need for future research examine distinct forms of self-regulation that are differentially linked to internalizing problems and externalizing problems.

Consistent with prior studies (e.g., Bandura et al., 1999; Flouri & Sarmadi, 2016; Nantel-Vivier et al., 2014; Spataro et al., 2020), we also found direct link between children's prosocial behaviours and internalizing and externalizing problems. That is when young children were prosocial, they were less likely to show internalizing and externalizing problems 2 years later. The overall pattern of findings yields supportive evidence for the resilient roles of prosocial behaviours and emotion regulation as has been found in prior studies of Western, individualist-oriented cultures (e.g. Eisenberg et al., 2001; Flouri & Sarmadi, 2016). Thus, these findings importantly add to support for the generalizability of risk and resilience model (Luthar et al., 2000; Masten, 2001) to children from a non-Western and interdependent-oriented culture. These findings are also supportive of prior research that demonstrates relatively stable and enduring effects of earlier prosocial behaviours on the subsequent problem outcomes, perhaps as a function of the relatively high stability coefficients of prosocial behaviours across childhood and adolescence (see Eisenberg et al., 2015). Thus, the findings yield supportive evidence for the risk and resilience scholars who assert that earlier prosocial tendencies can protect children from developing later internalizing and externalizing problems (Carlo, 2014). Taken together, such findings add to the growing evidence for intervention efforts that focus on fostering earlier prosocial tendencies to mitigate later problem behaviours (Caprara et al., 2014).

Limitations and conclusion

There are several important study limitations. First, the findings represent middle-class, urban, Turkish families. Future studies will be needed with more demographically diverse (e.g. SES, ethnicity, rurality) samples from Turkey. Second, although FIML was used to handle missing data, the attrition rate was high due to the relocation and transfers to non-participating schools. Future research will be needed with larger samples. Third, these findings relied on mother-reported measures. Due to the traditional gender role pressures, Turkish fathers generally do not participate in studies with their children. Future studies will be useful to utilize multiple reporters (e.g. fathers) and multimethod assessments (e.g. experimental and behavioural tasks) to account for shared method variance and social desirability concerns. Fourth, although the current study was longitudinal, the design was correlational; thus, causation and directionality of effects cannot be established. Fifth, children's emotion traits and behaviours were not assessed at all time periods. However, we were able to control for previous effects of children's temperamental characteristics of emotional reactivity to assess the hypothesized mediating relations. Full prospective longitudinal designs (e.g. cross-lagged) would allow for stronger tests of causality across time in the relations among the main study variables. Lastly, it is important to note that children in the current study were non-clinical sample and reported as having low levels of internalizing and externalizing problems on average. Therefore, the associations we found may differ in clinical samples or children with relatively high levels of internalizing and externalizing problems.

Despite the study limitations, the present findings yield evidence on the protective roles of prosocial behaviours and emotion regulation on later problem behaviours in young Turkish children. These findings importantly support the generalizability of risk and resilience models to children from a relational-autonomous family context raised in a non-Western, relatively collectivist-oriented culture. The present findings can be used to inform prevention and intervention programmes aimed at enhancing prosocial behaviours and emotion regulation skills in early childhood to protect Turkish children from developing internalizing and externalizing problems in later childhood.

Data Availability Statement

The data that we used in this study are not publicly available due to privacy and ethical restrictions. However, the data will be available from the corresponding author upon reasonable request.

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ORCID

Zehra Gülseven  <http://orcid.org/0000-0002-8975-9229>

Gustavo Carlo  <http://orcid.org/0000-0002-4967-241X>

Asiye Kumru  <http://orcid.org/0000-0002-1514-4248>

Melike Sayıl  <http://orcid.org/0000-0002-3512-9758>

Bilge Selçuk  <http://orcid.org/0000-0001-9992-5174>

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