Less is More: Emotion Regulation Deficits in Military Fathers Magnify their Benefit from a Parenting Program

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Abstract

Combat deployment and exposure to traumatic events may cause deficits in emotion regulation, thus impairing military parents' capacities to respond effectively to children's emotions. This is a particularly salient issue for fathers – who comprise the majority of service members – following deployment to war. Evidence-based parenting programs have been developed to improve parenting practices in military families, however, little is known about the role of parents' emotion regulation on the effectiveness of the parenting program. Using data from a randomized controlled trial, this study examines the effects of the After Deployment, Adaptive Parenting Tools (ADAPT) program, on observed emotion socialization related parenting behaviors (ESRBs), and whether self-reported emotion regulation of service member fathers affects program outcomes. This study used a subset of data from the ADAPT study, which included 181 fathers (*M* age = 37.76, *SD* = 6.42) in 2-parent families who had been deployed to recent conflicts and who had at least one 4-12-year-old child living in the home. Structural equation modeling was used to examine the intent-to-treat effect of the ADAPT program on observed effective parenting 1 year post-baseline, the moderating effect of self-reported emotion dysregulation at baseline, and the mediating role of emotion dysregulation at baseline at 1-year post-baseline. Results showed that the intervention did not directly improve fathers' observed ESRBs relative to the control group. However, the intervention did significantly reduce observed reactivity/coercion and distress avoidance among fathers with .5 SD above average self-reported difficulties in emotion regulation at baseline. Moreover, fathers' emotion regulation difficulties at 1 year were found to mediate the intervention effect on observed reactivity/coercion, which was strengthened by higher

levels of baseline emotion regulation difficulties. Implications for personalized parenting interventions are described.

Keywords: fathers, service members; parenting intervention/prevention; emotion socialization related parenting behaviors, emotion regulation.

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Introduction

More than two million U.S. military personnel have been deployed in conflicts in Iraq and Afghanistan since 2001, and during these conflicts, National Guard and Reserve (NG/R) personnel have been deployed at unparalleled rates. 81.0% of them are male service members, and they are, on average, older and more likely to be married and have children before or during deployment, compared to active duty personnel (Office of the Deputy Under Secretary of Defense, 2015). Although deployment to combat zones and exposure to war-related trauma can be highly stressful to all service members, it has been found that NG/R personnel are at particularly elevated risk for psychopathology and adjustment problems compared with active duty personnel (Jacobson et al., 2008; Milliken, Auchterlonie, & Hoge, 2007). Evidence indicates that National Guard and Reserve soldiers reported substantially higher rates of posttraumatic stress disorder (PTSD), depression, and overall mental health risk, and they are more likely than active duty soldiers to report family/relationship disruptions (Griffith, 2010; Milliken et al., 2007).

Emotion socialization related parenting behaviors in military service members

The stress of deployment and subsequent adjustment difficulties persist during the reintegration period, and may present substantial challenges to children in military families. Evidence has shown that children with deployed parents are more likely to exhibit externalizing behavior problems, distress, and poor academic performance (Chartrand, Frank, White, & Shope, 2008; Mansfield, Kaufman, Engel, & Gaynes, 2011; Palmer, 2008). Children's psychosocial adjustment and behavior problems are directly associated with parenting behaviors (Patterson, Reid, & Dishion, 1992). According to the

family stress model, family transition may have a negative impact on child maladjustment through high levels of parental psychological distress and ineffective parenting practices (Barnett, 2008; Conger et al., 2002). Furthermore, Patterson's (1982) social interaction learning (SIL) model also posited that children's disruptive and aggressive behaviors can be shaped and maintained by negative reinforcement in their interactions with caregivers. For example, coercive parenting, which is characterized by parental hostility and demanding but ineffective responses to children's adverse behaviors, may reinforce children's aggressive reactions to terminate the undesired parental requests (Eddy, Leve, & Fagot, 2001). These models suggest that parenting is one of the key mechanisms influencing children's psychological well-being, especially in stressful contexts.

As a result of deployment and combat involvement, military service members may experience difficulties in specific parenting behaviors — effective emotion socialization related parenting behaviors (ESRBs). ESRBs are defined as parenting practices and behaviors aiming to socialize children's emotion-related functioning (Eisenberg et al., 2001). Three key processes of ESRBs have been proposed in prior studies: (1) parental reactions to children's emotions; (2) discussion of emotions; and (3) parental emotional expressiveness (Eisenberg, Cumberland, & Spinrad, 1998).

Exposure to traumatic events and subsequent PTSD symptoms, especially experiential avoidance and withdrawal, may impair parents' interactions with their children (Brockman et al., 2016; Ruscio, Weathers, King, & King, 2002). Interaction with children on a daily basis, especially when children are bidding for attention, expressing extreme emotions, or unable to regulate their emotions, calls for parents'

efforts to effectively display and regulate their own emotions, as well as cope with children's difficult emotions (Eisenberg, Fabes, & Murphy, 1996). Children learn implicitly and explicitly how to cope with their emotions in a certain context by observing their parents' emotion expression and regulation, and by discussing emotions with parents (Morris, Silk, Steinberg, Myers, & Robinson, 2007). If parents suppress their emotions in frustrating situations due to their military training during deployment or due to posttraumatic stress disorder symptoms, their children may not feel comfortable expressing their negative feelings when they are distressed.

Parents' responses to child emotions are another pathway to exerting influence on children's emotion expression and relation. Supportive reactions, such as recognition, labeling, and validation, have shown effects on promoting children's awareness of their emotions and effectively regulating their own emotions with the help of parents. On the contrary, emotion dismissing, for example, minimizing negative emotions or distracting children from experiencing their emotions, is regarded as having a negative impact on children's emotion regulation abilities and may further escalate the display of negative emotions (Gottman, Katz, & Hooven, 1996; Morris et al., 2007; Snyder et al., 2013). After deployment to a combat zone, parents experiencing posttraumatic distress may react to emotionally charged situations by becoming emotionally unavailable and numb. This is a result of having less psychological flexibility to be engaged in social interactions due to their avoidance of unwanted thoughts and emotions (Kashdan, & Rottenberg, 2010). Their lack of emotional attunement may restrict parents' abilities to react actively and positively to children's displays of their emotions. In addition, their tendency to dismiss emotions and avoid emotion-related stimuli, may escalate their punitive and

controlling behaviors to resolve conflicts, leading to increased rates of coercive parent–child interactions (Dishion & Patterson, 2006). Therefore, combat exposure and subsequent psychopathology symptoms may lessen military service members' capacity to respond constructively to children's strong emotions.

Emotion regulation and parenting behaviors

As a core internal process underlying various psychopathologies, emotion regulation is central to effective parenting behaviors, especially ESRBs. Parental emotion regulation refers to parents' ability to monitor, evaluate and modify their emotion expressions and reactions to meet their own goals, as well as acting appropriately in response to situational demands (Gross, 2002; Thompson, 1994). This intrapersonal regulatory process can be translated to a number of interpersonal interactions, for example, parent–child interactions. Effective parenting calls for parents' emotion regulation skills to intentionally and flexibly manage their own emotions, as well as their reactions to children's emotions (Rutherford, Wallace, Laurent, & Mayes, 2015).

The conceptual framework proposed by Crandall and her colleagues (2015) addresses how maternal emotion regulation capacities, which are modified by contextual factors, have a direct impact on parenting, which in turn influences child adjustment throughout their development. Empirical studies have also found that observed effective maternal emotion regulation (e.g., recovering quickly from becoming upset, showing understanding of her own emotions, etc.) was negatively associated with unsupportive ESRBs (Morelen, Shaffer, & Suveg, 2016). In addition, mothers with more adaptive emotion regulation strategies tend to display less overreactive discipline and are more

engaged in emotion socialization-related parenting behaviors (Gottman, Katz, & Hooven, 1996; Lorber, 2012).

Emotion regulation difficulties may reduce parents' abilities to effectively respond to children. Difficulties in emotion regulation, or emotion dysregulation, is defined as having maladaptive emotion regulation valence, duration and intensity, which may interfere with one's goal-oriented behaviors (Cicchetti, Ganiban, & Barnett, 1991; Linehan, Bohus, & Lynch, 2007). Emotion dysregulation has been shown to be core to many mental disorders, such as depression, generalized anxiety disorder and PTSD (Joormann & Gotlib, 2010; Salters-Pedneault, Roemer, Tull, Rucker, & Mennin, 2006; Tull, Barrett, McMillan, & Roemer, 2007). Studies have shown that mothers with more difficulties modulating their emotional response reported more rejection of and less warmth toward their children, as well as more unsupportive responses to child difficult emotions (Morelen et al., 2016; Sarıtaş, Grusec, & Gençöz, 2013). Therefore, parents with more difficulties in emotion regulation may be at greater risk of exhibiting ineffective ESRBs.

Can a parenting program improve parents' ESRBs?

Evidence is clear that parenting programs improve parents' behavior management strategies. For example, The Incredible Years (Webster-Stratton, 2001), Triple P - Positive Parenting Program (Sanders, Markie-Dadds, Tully, & Bor, 2000), and Parent Management Training (Pearl, 2009) all demonstrated positive parenting behavioral outcomes, such as more effective limit setting, monitoring, and problem-solving. However, less research has focused on emotion socialization related parenting behaviors, such as parents' regulation of their emotions, and parents' reactions to children's

emotional needs. After Deployment, Adaptive Parenting Tools (ADAPT; Gewirtz, & Davis, 2014; Gewirtz, DeGarmo, & Zamir, 2016) is a 14-week, group-based preventive intervention program tailored for the specific needs of post-deployed military families. This parenting program is an adaptation of the Parent Management Training–Oregon model (PMTO) (Forgatch & Gewirtz, 2017; Forgatch & Patterson, 2010), which is grounded in the social interaction learning framework (SIL) and aims to empower parents with effective skills to reduce coercive parenting and promote positive parenting. Given that military service members who have been exposed to combat events and traumatic experiences may struggle in regulating their own emotions as well as their children's, mindfulness and emotion coaching components are added to the training to strengthen parents' emotion regulation and emotion socialization skills. A body of research has demonstrated the positive effects of mindfulness exercises (e.g., breath exercises, body scan, sitting and observing) on emotion regulation skills (Roemer, Williston, & Rollins, 2015). Parental emotion coaching (e.g., awareness, recognition, validation, labeling of child emotions) has also been shown to promote child emotion regulation and prevent behavior problems (Lunkenheimer, Shields, & Cortina, 2007).

The ADAPT intervention improves effective parenting skills, which include the five core indicators in the SIL model (i.e., problem-solving, harsh discipline, positive involvement, skill encouragement, and monitoring) at 1-year post-baseline (Gewirtz, DeGarmo, & Zamir, 2017). However, in terms of emotion socialization related parenting outcomes, for example parental emotion socialization, only mothers in the intervention group showed significant improvement on self-reported socialization behaviors compared to the control group at 6 months post-intervention (Zhang, Zhang, Gewirtz, & Piehler,

under review). The lack of improvements in fathers' emotion-related socialization behaviors may be due to the fact that the self-reported measurement of parent emotion socialization was not sensitive enough to changes after the intervention. Observational assessment of ESRBs may provide more direct and reliable evaluation for fathers, especially service members for whom combat exposure may reduce their capacities to constructively respond to children's emotional needs.

The role of emotion regulation on intervention effects

Although much is known about how parental emotion regulation fosters and modulates parenting behaviors, little research has examined how parents' emotion regulation difficulties affect intervention's impact on emotion socialization related parenting behaviors (Shaffer & Obradović, 2017). Over the past decade, questions about "who benefits most", and "for whom the intervention is more suitable" have drawn greater attention in the field of parenting interventions (Gardner, Hutchings, Bywater, & Whitaker, 2010). It has been found that family and parent risk factors, such as socio-economic status (SES) (Lundahl, Risser, & Lovejoy, 2006) and mental disorders (e.g., parental Attention-Deficit/Hyperactivity Disorder symptoms) (Dawson, Wymbs, Marshall, Mautone, & Power, 2016), may diminish gains from parenting programs. It was also found that the ADAPT intervention is less effective for fathers who reported clinical levels of PTSD symptoms (Chesmore, Piehler, & Gewirtz, 2018).

On the contrary, a study assessing the effectiveness of PMTO found that parents with higher antisocial characteristics exhibited more reductions in coercive parenting 24-month post-baseline (Wachlarowicz, Snyder, Low, Forgatch, & DeGarmo, 2012). Another study focusing on parent skills training using dialectical behavior therapy also

found that parents with more affect dysregulation had more benefit from DBT. It suggested that parents at higher risk and needing the intervention more would obtain more improvement after intervention since they were in greater need of effective parenting behaviors. In other words, compensatory effects may appear when people with lower levels of the targeted variable at the beginning stage exhibit more desirable improvement after the intervention (Bröning et al., 2017). Little is known about whether difficulties in emotion regulation, which serves as an important factor for effective parenting, might boost or lessen parents' benefit from parenting programs, especially for male military service members who are more likely to have emotion regulation problems.

Besides, few studies have examined the mechanism of parenting training program from the emotion regulation perspective. Maliken and Katz (2013) pointed out in their review paper on parent management training (PMT) that a lot of parenting programs have added emotion regulation training for parents, for example, Triple P-Parenting Program and Parent–Child Interaction Therapy. However, little is known about intervention effects on emotion regulation, and whether parental emotion regulation could explain the mechanism of intervention effect on ESRBs. In order to investigate how and why the intervention works, we examined interventions effect on fathers' emotion regulation, as well as the mediating role of emotion regulation on the impact of the intervention on ESRBs.

Baseline-targeted moderated mediation design

We employed the baseline target moderated mediation (BTMM) design (Howe, Beach, Brody, & Wyman, 2016) to explore the role of emotion regulation. The basic idea of BTMM is to test, in a longitudinal study, whether the baseline target (i.e., fathers'

emotion regulation difficulties) moderates the intervention effect on the change in the target, and whether the change in this target mediates the impact of intervention on the distal outcomes (i.e., emotion socialization related parenting practices) (see **Figure 1** for the conceptual model). In other words, it is investigated whether the mediation effect of the proximal outcome is conditional on the baseline levels of the proximal outcome. One of the main goals of the BTMM design is to identify tailoring variables to inform personalized preventive interventions (Howe, 2017).

The current study

The current study aims to investigate the effectiveness of a parenting program at 12 months post baseline on fathers' ESRBs, as well as the role of emotion regulation difficulties on intervention effects. The target population is post-deployed male National Guard and Reserve service members. In terms of the moderating role of ER, the direction of the effect is still unclear due to inconsistent empirical results regarding whether people with higher or lower risk tend to benefit from parenting interventions (Spoth, Shin, Guyll, Redmond, & Azevedo, 2006). Therefore, the research questions were as follows:

RQ1: Can the ADAPT program improve father's emotion regulation capacities and ESRBs?

RQ2: Do deficits in emotion regulation strengthen or weaken the impact of the ADAPT program on fathers' emotion socialization related behaviors?

RQ3: Does the ADAPT program improve father ESRBs through reducing their emotion regulation difficulties?

RQ4: Is the mediating effect of fathers' emotion regulation difficulties affected by fathers' baseline emotion regulation difficulties?

Methods

Participants

A total of 336 families located in a Midwestern state enrolled in the ADAPT study, including 314 mothers, 294 fathers and 336 children. They were eligible to participate if at least one parent had deployed to Operation Iraqi Freedom (OIF), Operation Enduring Freedom (OEF), or Operation New Dawn (OND) and parents had at least one child between the ages of 4 and 13 living in the home. Of the 336 families, 60% were randomly assigned to the intervention group and 40% to the services-as-usual group. This study used a subset of data from the ADAPT study, which included 181 deployed fathers in 2-parent families whose wives are civilians[1]. The fathers were on average 37.76 years old (*SD* = 6.42), primarily white and non-Hispanic (87.8%). They were relatively well-educated, with 52% having a 4-year college or advanced degree. Most of them (67.4%) reported annual family incomes above $60,000, which indicated that they are predominantly from the middle to upper class. Their average year of marriage was 9.83 years (*SD* = 5.26), ranging from 1 to 26 years. The majority of the fathers (74.6%) were National Guard or Reserve military service members who had been deployed in OIF/OEF/ OND conflicts, with the remainder serving in other Guard/Reserve military branches, such as the Air Guard and Navy Reserves. The average of deployment length was 3.85 months (*SD* = 1.79), and the average number of deployments was 2 (*SD* = 1.13). The target child was on average 8.43 years old (*SD* = 2.44), where 47% were boys.

[1] The 181 fathers were the subset of families with emotion coding from an additional grant to Jim Snyder. Please see detailed information about the coding process in Brockman et al., 2016 and Snyder et al., 2016.

Procedure

Potential participants were reached in several ways: a) presentations at mandatory predeployment and reintegration events for all NG/R personnel; (b) mailings from the Minneapolis Veterans Affairs Medical Center to all OIF/OEF veterans; (c) flyers posted throughout the Minneapolis/St. Paul area; (d) media (e.g., newspaper and radio reports), and social media coverage (e.g., Facebook and Twitter); and (e) word of mouth from fellow military parents and stakeholder groups. Participation in the research was voluntary.

Interested families were directed to online screening, and then consent and an initial online assessment. After completion of the initial survey, research staff would set up an in-home assessment, during which additional assessments (self-report, observational, and physiological) involved the parent(s) and the target child. Following the in-home assessment, 40% of families were randomized to a services-as-usual condition, while 60% of families were randomized to the intervention condition. In the current sample, 108 fathers were in the intervention group and 73 fathers were in the control group. Both parents in the families assigned to the intervention group participated in the 14-week group-based preventive intervention. The program targeted six components of positive parenting: skill encouragement, positive involvement, problem-solving, monitoring, discipline, and emotion socialization (Gewirtz, Pinna, Hanson, & Brockberg, 2014). Mindfulness practices and emotion coaching skills were also infused in each session. Online resources including videos demonstrating parenting principles and mindfulness exercises were also available to the parents. Twelve months after baseline assessment (and approximately six months following the end of the

intervention), another in-home assessment including self-report, observational, and physiological assessments was conducted. 77.3% of the deployed fathers were retained at the 12-month follow-up, and there were no differences in retention rates for the intervention group and the control group.

Measures

Difficulties in Emotion Regulation. The Difficulties in Emotion Regulation Scale (DERS, Gratz & Roemer, 2004) is a 36-item self-report scale assessing individuals' responses to negative emotional experiences. Participants were asked to rate on a 1 to 5 scale (1 = almost never, 5 = almost always) their emotion regulation difficulties in six subscales (nonacceptance, difficulty engaging in goal-directed behaviors, impulse control difficulties, lack of awareness, limited strategies, and lack of clarity). The internal consistency in this subsample is .942 at baseline and .857 at T3.

Emotion socialization related parenting behaviors (ESRBs). Parent-child interactions during structured family interaction tasks (FITs) were videotaped at baseline and 12-month at participants' homes. A series of dyadic or triadic tasks were conducted among father-child, mother-child, or father-mother-child, and each task is approximately 5 min long. In this study, father-child problem-solving, father-mother-child problem solving, and father-child conversations about deployment were used to assess the quality of father-child relationships and fathers' parenting practices. During the problem-solving tasks, parent(s) and the focal child were instructed to discuss an issue they had identified earlier and to try to come up with a solution. During the deployment discussion, the father and the child were directed to discuss their thoughts and feelings related to previous deployments and deployments that may happen in the future.

The Macro-Level Family Interaction Coding System (MFICS; Brockman et al., 2016; Snyder, 2013) was used to provide an overall assessment of the behaviors in parent-child interaction. The MFICS is comprised of 55 Likert scale items (1 = not true, not occur, 5 = clearly evident, very descriptive), logically designed using an a priori, face-valid approach to assess the occurrence of behaviors reflecting positive engagement (14 items), withdrawal avoidance (9 items), reactivity-coercion (17 items), and distress avoidance (10 items). [2]

The positive engagement (PE) category reflects a generalized pattern of attentive, cooperative, responsive and warm behavior during family interaction. It is characterized by joy and happiness expressed in the interaction tasks, as well as constructive responses to others' negative emotions, such as validation, empathy and soothing. The items under this category include "attached and warm", "shows interest", and "comfort/regulates emotions." Fleiss' kappa (1971) was used to indicate the inter-rater reliability, which was .82 at baseline and .84 at T3.

The withdrawal avoidance (WA) category reflects a lack of energy and interest, and a distancing and passivity during family interaction. It is characterized by verbal or nonverbal disengagement behaviors, for example, "tentatively avoids upsetting another family member by displaying somber mood". The items under this category include "distant, inattentive, unengaged", and "ignore other's affect." Fleiss' kappa was .89 at baseline and .90 at T3.

[2] The detailed information about the factor analyses process was explained in Brockman et al., (2016). The factor "distress avoidance" emerged from the original three categories, and we added it to be the fourth category in the current study.

The reactivity-coercion (RC) category reflects irritability, bossiness, nattering and persistent negativity that may be accompanied by anger and contempt and escalate to threats. It is characterized by irritability and negative reactivity, aversive physical or verbal actions, and angry and contemptuous affect. The items under this category include "physical threats, actions", "demanding and threatening". Fleiss' kappa was .91 at baseline and .90 at T3.

The distress avoidance (WA) category describes parents' behavioral responses to the aversive behavior or affective distress of their child or partner. Five of the items reflect rapid soothing, and minimizing responses to others' aversive behavior or distress, and five items reflect fear, wariness, ignorance, and low empathy in response to others' distress. The overall score of distress avoidance reflects positive responding to displays of emotional distress or negative behavior of other family members–grounded in one's own wariness and fear–perhaps without genuine empathy and supportiveness. The items under this category include "holds own in disagreement", "fearful, anxious". Fleiss' kappa was .90 at baseline and .91 at T3.

Combat exposure. The Deployment Risk and Resilience Inventory (DRRI; King, King, Vogt, Knight, & Samper, 2006) was used to assess father's stressful combat experiences. Two sections of the DRRI measuring battle and post-battle experiences were employed in this study, including 30 items (e.g., "I or members of my unit received hostile incoming fire"). All items are rated "yes" or "no". The summed scores were used, with higher scores indicating greater combat composures.

Covariates. Intervention effect was coded as 1 for ADAPT intervention condition and 0 for control condition. The number of months parents were deployed was treated as

another indicator of deployment besides combat exposure. Year of marriage (the aggregated number of husband and wife reports), education level, age, and child gender were controlled in each model.

Data analytic strategies

Preliminary data analysis included the descriptive statistics for the variables of interest. The main effect of intervention was examined using an intent-to-treat (ITT) approach, which means that after randomization all of participants would be analyzed regardless their participation or completion of the program. Both the main effect and moderating effect of emotion dysregulation were tested using structural equation modeling (SEM) using *M*plus 7.4 (L. K. Muthén & Muthén, 1998-2015). Observed ESRBs were assessed at baseline pre-intervention (T1) and 12-month post-intervention (T3). In the main effects model, four domains of ESRBs (i.e., positive engagement, withdrawal and avoidance, reactivity-coercion, and distress avoidance) were predicted separately in four models by intervention status, the corresponding domain of ESRBs at baseline, and self-reported emotion dysregulation at baseline. In the moderation model, interaction between intervention status and emotion dysregulation was added to the prior model. All variables were mean-centered for further interpretation. The Johnson-Neyman Region of Significance technique (Johnson & Fay, 1950) was conducted to determine the value of moderator (i.e., emotion dysregulation) for which the effect of intervention status on observed ESRBs becomes or ceases to be significant. Missing data were managed using full information maximum likelihood (FIML) in *M*plus. According to recommendations by Hu and Bentler (1999), acceptable model fit would be indicated as

Comparative Fit Index (CFI) greater than .95, Root Mean Square Error of Approximation (RMSEA) below .06, and Standardized Root Mean Square Residual (SRMR) below .08.

Results

Preliminary analyses

Descriptive statistics and bivariate correlations are shown in Table 1. No significant differences were found for the key study variables across intervention and control groups. The correlation between emotion dysregulation and observed ESRBs varied from small to moderate across the different categories at baseline and T3 (r = .14-.37). Emotion dysregulation at baseline and T3 were consistently significantly correlated with observed positive engagement and withdrawal avoidance at baseline and T3, whereas emotion dysregulation was significantly correlated with distress avoidance only at baseline and reactivity/coercion only at T3. The four categories of observed ESRBs were mostly significantly correlated with each other across time, except that distress avoidance at T3 was only concurrently associated with other ESRBs factors.

Intervention main effects analyses

Main effects path models were used to assess the ITT intervention effect on the four categories of ESRBs at T3 controlling for corresponding scores at T1, combat exposure, and other demographic variables. ESRBs at baseline were significantly associated with the same constructs at T3 ($p < .001$), but the intervention condition did not demonstrate significant direct effect on changes in ESRBs from baseline to 1-year post-baseline. The ITT intervention effect on emotion regulation difficulties at T3 was

also investigated, controlling for baseline emotion regulation difficulties, deployment related variables and education. The direct effect of intervention was significant and negative (β = -.131, p < .05), which suggested that assignment to the ADAPT condition was associated with lower scores on emotion regulation difficulties 1-year post-baseline among the deployed fathers.

Moderation analyses

To estimate the moderating effect of baseline difficulties in emotion regulation, an interaction term (i.e., intervention by mean-centered baseline DERS) and the mean-centered baseline DERS score were added to the main effects models for each category of ESRBs. The main effect of intervention condition was still not significant in the interaction term, but baseline emotion regulation difficulties was found to significantly predict decreases on reactivity-coercion (β = .51, p < .001) and distress avoidance (β = .48, p < .001). Moreover, baseline emotion regulation difficulties were found to moderate the ITT effect on RC (β = -0.33, p = .02) and DA (β = -0.42, p = .00) controlling for the corresponding constructs at baseline.

The regions of significance of the moderating effect were assessed using the Johnson-Neyman approach (Preacher, Rucker, and Hayes 2007) to illustrate when moderation effect occurred as a function of the value of the moderator. As is shown in **Figure 2** from approximately 0.5 SD above the mean, the moderating effect of baseline emotion regulation difficulties started to be significant. In other words, fathers with higher levels of baseline emotion regulation difficulties (i.e., about 0.5 SD above mean, which was approximately 25% in the sample) had significantly greater decreases in reactivity-coercion and distress avoidance in intervention group relative to control group.

Mediation analyses

To test the indirect effect of intervention status on emotion socialization related parenting behaviors through emotion regulation difficulties, T3 emotion regulation difficulties was added to the main effects model as a mediator. Although, as mentioned above, the main ITT effect on observed ESRBs was not significant, each mediating pathway was significant after adding the mediator in the model in the RC and DA models (see **Table 2**). The indirect effect through emotion regulation difficulties was significant in the RC model (B = -.02, SE = .01, p <.05), but only marginally significant in the DA model (B = -.02, SE = .01, p = .07). Both models demonstrated adequate model fit (in RC model, $\chi^2(3) = 3.51$, $p > .05$, CFI = .10, SRMR = .02, RMSEA = .03; in DA model, $\chi^2(3) = 3.40$, $p > .05$, CFI = .10, SRMR = .02, RMSEA = .03).

Moderated mediation analyses

To test the moderated mediation model (i.e., conditional mediation effect), the interaction term of intervention condition and mean-centered baseline emotion regulation difficulties was added to the mediation models above. Since the emotion regulation difficulties at T3 were found to significantly or marginally significantly mediate the ITT effect on observed ESRBs at T3 in the RC and DA models, we only conducted the moderated mediation analyses for those two models. As is shown in **Table 2**, the indirect effect of intervention status on reactivity-coercion through emotion regulation difficulties was only significant when baseline level of emotion regulation difficulties was high (i.e., 0.5 SD above the mean level). Thus, for fathers with more deficits in emotion regulation at baseline (approximately 25% in the sample), the intervention significantly decreased

their reactive and coercive parenting practices (as was shown in the moderation analysis), and the effect was mediated through reductions in their emotion regulation difficulties.

Discussion

Previous studies have established that the ADAPT intervention demonstrated significant ITT effect on improvement of observed parenting behaviors, which was in turn associated with child adjustment outcomes (Gewirtz, DeGarmo, & Zamir, 2017). The current study only focused on emotion socialization related parenting behaviors, and aimed to expand knowledge about the mechanism of the intervention effect, as well as *for whom* the intervention was more effective among the deployed fathers. In particular, we examined the role of emotion regulation difficulties on the intervention effect. We found that the ADAPT intervention did not directly affect father's ESRBs, however, the intervention effect was moderated by baseline emotion regulation difficulties. Fathers with more difficulties in emotion regulation at baseline revealed significant improvement in parenting post-intervention. In addition, the intervention effect on reactive and coercive parenting was mediated by emotion regulation difficulties at T3. Moreover, the indirect effect was only significant among fathers with higher emotion regulation difficulties at baseline.

Inconsistent with hypothesis 1, we did not find a significant ITT effect on observed ESRBs at 12-month post-baseline. The results were consistent with Zhang et al.'s (2018) study, which examined the ADAPT ITT effect on both mothers' and fathers' emotion socialization practices at 6-month post-baseline. The ADAPT intervention was shown to significantly improve mother's self-reported emotion socialization behaviors,

however, the ITT effect was not found in fathers. It was speculated that fathers may need more time and participation to exhibit desirable intervention effects. The other possibility was that the intervention effect on ESRBs, such as ignoring children's negative emotions, may be affected by fathers' own abilities to effectively manage their emotions (Snyder et al., 2017), especially among populations who are more likely to have emotion regulation difficulties (Brockman et al., 2016).

Although the main effect was not found for observed ESRBs, fathers in the intervention group reported more improvement in emotion regulation skills compared to the control group at one-year post-baseline. It was surprising to find the intervention effect on fathers' emotion regulation, since the previous studies only found the intervention effect on mother's emotion regulation at 6-month post-baseline (Gewirtz, DeGarmo, & Zamir, 2016). In other words, only mothers who were assigned to the intervention group showed significantly reduced emotion regulation problems at 6-month post-baseline compared to the control group. One possibility was that fathers take longer to exhibit intervention effects than mothers, especially for the military service members who have elevated risks of emotion dysregulation. The mindfulness practices integrated in the ADAPT program—for example, mindfulness breathing, body scan, and loving kindness—aimed to cultivate awareness and acceptance of their thoughts and emotions (Zhang, Rudi, Zamir, & Gewirtz, 2017). It was also reasonable to find the intervention effect on fathers' emotion regulation.

Why emotion regulation could moderate the ITT effect

Consistent with the findings in Snyder et al (2017), fathers with higher baseline emotion regulation difficulties in the intervention group were found to exhibit more

improvements in ESRBs (i.e., reductions in reactivity-coercion and distress avoidance) at 2 years post-baseline, compared to the control group. As was mentioned in Howe et al. (2016), participants enter a program with various levels of risk factors and protective factors. Moreover, participants with more risks would have more to gain in the intervention. This phenomenon has been observed in a number of studies. For example, Perrino et al. (2014) found that the youths with lower levels of parent-adolescent communication (considered as the risk factor in the study) at baseline showed more decreases in internalizing-symptoms in the Familias Unidas Trials group. However, the moderating effect was not found in increasing fathers' positive engagement and reducing their withdrawal avoidance. Positive engagement and withdrawal avoidance, although conceptually opposite, both reflect the psychological presence of fathers. Since military fathers are less likely to be the primary caregivers in their families, they may not have enough opportunities to practice the skills of engagement. In addition, they may need more of a dose of a parenting intervention to exhibit improvements on engagement and presence.

Why emotion regulation mediates the ITT effect

Our findings indicated that the ADAPT intervention affected fathers' reactive and coercive parenting, as well as marginally reducing withdrawn, avoidant parenting and distress, avoidant parenting by improving fathers' emotion regulation capacities. This is in line with what was suggested by Gaviţa et al. (2012): the lack of effect of parenting programs on parenting behaviors may be resulted from parent's emotional distress. Consequently, changes in parenting practices may be augmented by improvements in emotion regulation abilities, since parents may show more attunement to their children.

This is especially relevant to parents who have been exposed to war-related traumatic experiences. The intervention effect on parents' emotion regulation might further lead to engagement with children, as well as fewer over-reactive behaviors in emotional interactions. Therefore, it was no surprise to find that fathers' emotion regulation difficulties mediated the intervention effect on ESRBs.

Why the indirect effect is only significant for fathers with more ER difficulties

In addition to the mediating role of emotion regulation difficulties, we also found that the indirect effect was dependent on fathers' emotion regulation difficulties at baseline. For fathers who showed higher levels of emotion regulation difficulties at baseline, the mediating effect of emotion regulation difficulties at T3 was significant. The moderated mediation model was consistent with findings from a Familias Unidas trial (Perrino et al., 2014), in which parent–adolescent communication (identified as a protective factor) was found to mediate the intervention effect on internalizing symptoms in adolescents. In addition, the mediating effect was only significant for families with lower levels of parent–adolescent communication at baseline. It suggests that, for families with higher levels of risk factors (or lower levels of protective factors), it may be more essential to target the intervention at these risk/protective factors, which in turn lead to more desirable distal intervention outcomes.

Strengths and implications

The current study has several notable strengths. Firstly, although this study was not the first to test a mediator and moderator of intervention effects, this is the first report using the baseline-targeted moderated mediation model in understanding the effects of a parenting intervention. These findings can inform personalized prevention intervention

studies, as well as extend our knowledge on mechanisms of intervention effects. Secondly, the target population of the current study is relatively unique; little prior research has examined parenting practices of fathers following their deployment to war. The current findings focused on fathers' ESRBs and fathers' emotion regulation contribute to our existing knowledge on the risk factors for effective parenting for military service members. Finally, the results regarding the role of emotion regulation have implications for adaptive interventions for this population. For example, tailoring the content and dosage of parenting intervention to fathers' baseline emotion dysregulation may amplify their impact. In addition, emotion regulation appears to be an important intervention target for parenting programs, especially among parents with distress or psychopathology.

Limitations and directions for future studies

Despite the strengths mentioned above, several limitations should be noted. Firstly, the mediator of this study was measured concurrently with the ESRB outcome variable. Future studies should test the mediation effect across different time points in order to establish a more robust relationship. Moreover, the mediation effect in the current study was established in the absence of a significant direct effect (i.e., mean effect of intervention status). Although there is still debate about whether mediation effects should be established based on a direct effect, the credibility of the current study may be constrained because of the non-significant main ITT effect. Second, the current study is one of the few studies testing the baseline-targeted moderated mediation model and thus further studies using BTMM should be done. Finally, the current study used an ITT approach to examine the intervention effect, which means analyzing all participants after

randomization. However, the ability to test significant intervention effects may be limited because fewer fathers participated in the parenting programs, and they may need more dosage of intervention to exhibit the intervention effect. Therefore, further studies should take the "noncompliers" into consideration, for example, using complier average causal effects analyses (CACE).

Conclusions

Emotion regulation was identified as both mediator and moderator of the intervention effect among the deployed fathers in the ADAPT program. Although the main effect of ADAPT on ESRBs was not found in the deployed fathers, the intervention group showed more reduction on emotion regulation difficulties at 1-year post-baseline. In addition, baseline emotion regulation difficulties were found to moderate the intervention effect. That is, fathers with more emotion regulation difficulties at baseline benefited more in their ESRBs. Moreover, emotion regulation difficulties were found to mediate the intervention effect on ESRBs. In particular, the mediating effect was significant for fathers with higher emotion regulation difficulties at baseline.

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Appendix

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Treat	–																	
2. PAge	-.01	–																
3. Educ	-.01	.19*	–															
4. Income	.09	.37**	.36**	–														
5. YMarried	.06	.61**	.27**	.33**	–													
6. DeployM	.12	-.04	-.08	-.04	-.11	–												
7. ChildG	-.01	-.01	-.02	-.06	-.08	.05	–											
8. DERST1	.04	-.12	.00	-.01	.03	-.09	.03	–										
9. DERST3	-.06	-.16	-.07	-.11	-.01	-.05	-.06	.73**	–									
10. DRRI	.01	-.04	-.02	.02	-.10	.33**	-.11	.03	.08	–								
11. PEBL	-.07	.03	.21**	.19*	-.01	-.02	-.06	-.31**	-.29**	-.11	–							
12. WABL	.14	-.02	-.16*	-.16*	.00	-.05	.16*	.173*	.15	.04	-.73**	–						
13. RCBL	-.01	-.08	-.05	-.06	.06	-.02	.09	.15	.14	.07	-.36**	.26**	–					
14. DABL	.07	-.14	-.20**	-.15*	.03	-.04	.09	.15	.14	-.04	-.23**	.19**	.65**	–				
15. PET3	-.02	-.08	.21*	.06	-.12	.01	.01	-.29**	-.18	-.07	.53**	-.40**	-.35**	-.28**	–			
16. WAT3	.12	.07	-.12	-.06	.15	-.14	-.02	.38**	.26**	.07	-.47**	.43**	.28**	.23*	-.74**	–		
17. RCT3	-.08	.08	-.18	-.11	.20*	.16	.01	.27**	.31**	.25**	-.34**	.06	.41**	.26**	-.59**	.44**	–	
18. DAT3	-.06	-.03	-.20*	-.07	.07	.00	-.03	.15	.26**	-.04	-.12	-.02	.13	.36**	-.29**	.21*	.46**	–
M	0.6	37.76	5.28	8.72	9.83	3.85	1.53	69.36	68.66	8.72	3.49	1.33	1	0.79	3.65	1.24	1.1	0.72
SD	0.49	6.42	1.28	3.5	5.26	1.79	0.5	19.1	20.36	7.55	0.52	0.34	0.45	0.5	0.53	0.29	0.27	0.34

Table 1. Descriptive Statistics and Bivariate Correlation.

Note. Page = parent age; Educ = parent education; Ymarried = Years of marriage; DeployM = deployment month; ChildG = child gender (1 = male, 2 = female); DERST1 = difficulties in emotion regulation (baseline); DERST3 = difficulties in emotion regulation (T3); DRRI = combat exposure; PE = positive engagement; WA = withdrawal avoidance; RC = reactivity/coercion; DA = distress avoidance.
*$p < .05$. **$p < .01$.

Table 2. Indirect effect and conditional indirect effect of ADAPT on fathers' emotion socialization related parenting behaviors through difficulties in emotion regulation.

	b	SE	*p*	[95% CI]
Indirect effect				
ITT → DERS → PE	.03	.02	>.10	[-.004, .071]
ITT → DERS → WA	-.02	.01	.07	[-.048, .000]
ITT → DERS → RC	**-.02***	.01	.05	[-.048, -.002]
ITT → DERS → DA	-.02	.01	.07	[-.047, .000]
Conditional indirect effect on RC (moderated by DERS BL)				
-1 *SD* baseline DERS	.00	.01	>.10	[-.020, .018]
Mean baseline DERS	-.01	.01	.10	[-.036, .002]
+1 *SD* baseline DERS	**-.03***	.02	.04	[-.065, -.002]

Note. *p < .05. **p < .01.

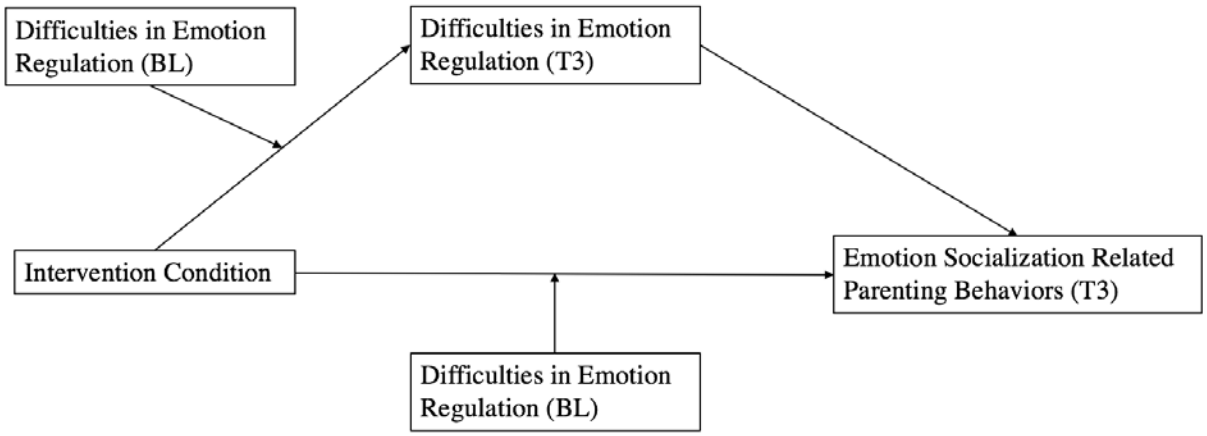

Figure 1. Conceptual model depicting the role of emotion regulation difficulties on the ADAPT intervention effect.

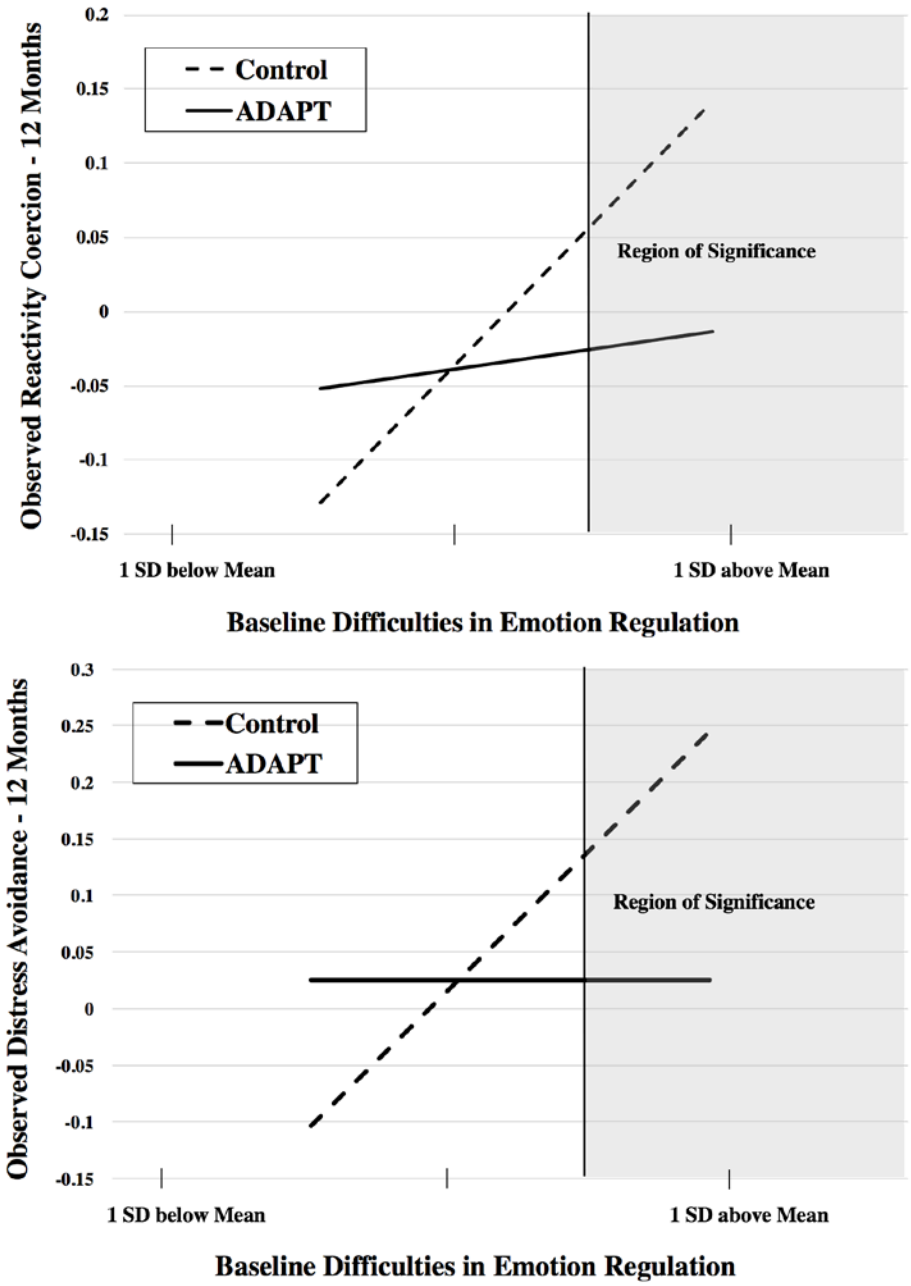

Figure 2. Baseline difficulties in emotion regulation moderating the intervention effects on fathers' observed reactivity-coercion and distress avoidance parenting practices at 12-month post-baseline.