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Family Relations
Interdisciplinary Journal of Applied Family Science

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Supporting Military Family Resilience at the Transition to Parenthood: A Randomized Pilot Trial of an Online Version of Family Foundations

Objective: *This article examines whether family resilience can be enhanced among military families via an online prevention program for military couples at the transition to parenthood.*
Background: *Military families experience normative stressors similar to those of civilian families, as well as military-specific stressors, such as deployment, frequent moves, and uncertainty.*
Method: *Participants were 56 heterosexual couples who, at the time of recruitment, were expecting their first child and were living together (regardless of marital status). Mothers and fathers completed measures online: Pretest was administered upon recruitment during pregnancy, and posttest was administered at 6 months postpartum. After pretest, couples were randomized to control and intervention conditions; intervention couples were provided access to the online version of Family Foundations.*
Results: *Although outcomes require replication given the sample size and issues with attrition, results indicated significant program impact, with moderate to strong effect sizes, on parent depression, mothers' report of coparenting support, and infant mood and soothability.*
Conclusion: *These results suggest online delivery of prevention programming is a potentially effective means of enhancing military family well-being—and thus resilience.*
Implications: *Low-cost and effective support for military families is possible via online modalities.*

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Key Words: coparenting, family systems, infant well-being, military families, prevention.

Military families encounter stressors and challenges that are common to all families, as

well as stressors that are unique to the military context, including frequent relocations, long duty-related separations, employment challenges for military spouses, and soldier morbidity and mortality associated with combat exposure (Booth, Segal, & Bell, 2007; Castro, 2006; Drummet, Coleman, & Cable, 2003; Harrell, Lim, Castaneda, & Golinelli, 2004). Moreover, military family–related stressors take many forms. Separations can involve temporary duty in other locations within the United States, combat deployment, humanitarian deployment, or other types of missions. Separation length and conditions can vary greatly based on operational need and an individual's military occupation. Furthermore, service members who are in the National Guard and reserves are often geographically separated from other military families and frequently do not have close access to a military installation and the supports and resources found on bases. As in the civilian population, many military families navigate stressors successfully (Easterbrooks, Ginsburg, & Lerner, 2013). However, for some, these stressors contribute to parent mental health and substance use problems, family discord and violence, compromised parenting quality, and child mental health and behavior problems (Cozza et al., 2018; Vest, Heavey, Homish, & Homish, 2018).

Given the increased level of stressors faced by military families, advocates and the military have called for the development of tools and programs to support the resilience of military families (Department of Defense, 2017; Gewirtz, Pinna, Hanson, & Brockberg, 2014; Julian et al., 2018; Lester et al., 2011). Because many military recruits are young adults and the military provides supports such as health insurance and other benefits that facilitate childrearing, many service members begin families during their service. According to data from close to the time when this study was implemented, 42% of active duty and reserve service members have children; almost a quarter of children in active duty families are age 2 or younger (Department of Defense, 2015). Thus, developing effective supports for military families around family formation and early childrearing may represent a key strategy for enhancing the overall adjustment, well-being, and mission readiness of service members and their families.

In this context, readiness is defined as "the ability of military forces to fight and meet the demands of assigned missions" (Office of the Chairman of the Joint Chiefs of Staff, 2019). It comprises multiple dimensions, including unit readiness, operational readiness, medical readiness, and family readiness. Family readiness is defined as "The state of being prepared to effectively navigate the challenges of daily living experienced in the unique context of military service" (Department of Defense, 2017, p. 31). Family readiness contributes to overall readiness by enabling service members to focus on their mission with fewer worries about their families back home (Carter et al., 2015; Durham, 2010) and by improving retention (Heilmann, Bell, & McDonald, 2009).

This article examines whether family readiness—a form of resilience—can be enhanced among military families via an online prevention program for military couples at the transition to parenthood. The online program was based on an evidence-based group-format program, Family Foundations (FF), which has demonstrated positive outcomes in previous research with civilian families (Feinberg, Jones, Hostetler, et al., 2016; Feinberg, Jones, Kan, & Goslin, 2010). FF was designed to support couples at the transition to parenthood—a period of heightened stress for military and civilian couples alike—by enhancing coparenting support and cohesion. Given the small sample size and attrition issues, we consider this a preliminary but important test of the intervention.

Military Families and Family Formation

Given the combination of normative and unique stressors among military families, it is important to identify the malleable factors that contribute to resilience to such stressors. As in civilian families, predictors of child maltreatment in military families include individual parent factors, such as parental stress and depression, and relational factors such as family conflict and low couple relationship satisfaction (Schaeffer, Alexander, Bethke, & Kretz, 2005). A similar set of factors seems to enhance military family resilience when a parent is deployed, which is a defining experience for many military families (Cozza, Chun, & Polo, 2005; Houston, 2009; Huebner & Mancini, 2005; Warner, 2009; Wiens & Boss, 2006). A review of the existing research concluded that deployment of a parent away from home is linked with mood and behavior problems among children (Sheppard, Malatras, & Israel, 2010). However, family

resilience factors such as positive parent mental health and positive family relationships can protect children's well-being from the strains of deployment periods. For example, when mothers have high levels of mental health during deployment (Lester et al., 2010), children tend to fare better. The quality of family relationships influences children's coping, internalizing, and externalizing problems related to deployment and reintegration (Bello-Utu & DeSocio, 2015; Flittner O'Grady, Whiteman, Cardin, & MacDermid Wadsworth, 2018). Mothers report that the negative impact of deployment is mitigated when fathers had been more involved with children before deployment (Posada et al., 2015). Stable family routines and roles across deployment may promote children's adjustment (Sheppard et al., 2010), which themselves may be enhanced when family relationships are more cohesive and less conflictual.

A malleable family factor that influences both parent mental health and parenting quality is the quality of the interparental relationship. Couple relationship quality is reciprocally linked to parent mental health, including depression and posttraumatic stress disorder (MacKenzie et al., 2014). Moreover, conflict and aggression in the couple relationship has been found to "spill over" to parent–child interactions: Couple conflict is linked to harsh and negative parenting quality (Krishnakumar & Buehler, 2000). As a result of both direct influence and indirect pathways through parenting quality, couple conflict and relationship difficulties ultimately are detrimental to children's health and well-being.

Evidence from research with military families also demonstrates the importance of couple relationship quality as a resilience factor across deployment. In military families, the quality of a couple's relationship is a key factor in the adjustment of both the at-home spouse and the service member during deployment: Positive couple relationship quality increases the likelihood of positive adjustment to deployment (Orthner & Rose, 2006), and better relationship quality before deployment predicts better relationship quality after deployment (Karney, Ramchand, Osilla, Caldarone, & Burns, 2008). Furthermore, the mental health of the returning service member may be enhanced by positive support and couple communication, particularly for service members with PTSD (Monson, Taft, & Fredman, 2009).

In a line of work with civilian families, we have focused on a subset of the overall couple relationship: the coparenting relationship, referring to the ways that parents coordinate and support each other in their roles as parents (Feinberg, 2003). Indications of the importance of coparenting emerged in the literature on couple conflict, including the finding that conflict related to the child and parenting arrangements is particularly detrimental to children's well-being (Jouriles et al., 1991). A focus on coparenting helps circumscribe intervention efforts because the coparenting relationship does not include areas of couple relations such as sexuality and finances, affection and companionship to the extent that these are separate from the parenting role. Research demonstrates that coparenting quality shows a stronger association than the quality of the overall couple relationship with both parenting quality and child outcomes (Feinberg, 2002).

Although there is little research on coparenting quality among military families, among populations in which coparenting relationship quality has been assessed, this factor has been reliably linked to the quality of family relationships and both parent and child adjustment. Research across age, family structure, ethnicity, and nationality has demonstrated the important role played by coparenting quality across many diverse families (Caldera, Fitzpatrick, & Wampler, 2002; McHale, Rao, & Krasnow, 2000). Thus, our conceptual model is that coparents who coordinate smoothly and feel supported by each other tend to experience lower levels of stress, conflict, and depression. This increased parent well-being then has a downstream impact on parents' ability to be patient, loving, and engaged with their children. All of these factors support better child mental health and developmental outcomes.

Preventive Intervention at the Transition to Parenthood

Given the importance of couple relationship quality for managing the strains of military family life and the extant evidence indicating that coparenting quality is particularly important for family and child outcomes, we selected coparenting relationship quality as a key resilience factor to enhance among military families. In addition to other strategic reasons for focusing on coparenting, parents are generally strongly

motivated by their children's well-being. Moreover, parents can generally easily understand the benefits of maintaining a positive coparenting relationship for their children's well-being.

In designing a preventive intervention, the issue of timing of the intervention is critical. The development and testing of FF has focused on enhancing resilience at the family formation stage, thereby helping set parents on a positive trajectory rather than attempting to remediate problems in family dynamics after they have become established. Research with civilian families has demonstrated that the transition to parenthood is a key window for supporting families for a number of reasons, including the fact that most expectant and new parents are excited about creating a family and open to education and support (Deave, Johnson, & Ingram, 2008). In research with civilian families, the transition to parenthood is frequently stressful, with parents reporting lower levels of adjustment (e.g., elevated levels of stress and depression) during infancy and the early childrearing years (Matthey, Barnett, Ungerer, & Waters, 2000). Couples' relationship quality also suffers during this period, with conflict between couples increasing and affection, romance, and time for companionship decreasing (Doss, Rhoades, Stanley, & Markman, 2009). These increases in individual parent adjustment, including stress and mental health problems, as well as increases in relationship distress, undermine parents' abilities to manifest their intentions to provide loving, patient, nurturing care for their children and each other. In fact, levels of family conflict and child maltreatment seem to be highest in the early childhood period (Slep & O'Leary, 2007).

The stressors related to the responsibilities and strains of early parenthood are present in military families as well, and military families with young children have been identified as a population in need of targeted support (Caliber Associates, 2002). Rates of child maltreatment among military families have been found to be highest among families with infants and toddlers (Rentz et al., 2007). Although comparisons are difficult to draw, some evidence suggests that overall child maltreatment rates are no higher among military families than in the civilian population (Milner, 2015). Given these parallels between civilian and military families, testing a preventive intervention at the family formation period among military families seemed a reasonable extension of a successful strategy with civilian families.

Online Intervention and Military Families

Several parenting programs designed for military families have been successful in improving parent and child outcomes. For example, a postdeployment program has been found efficacious in reducing parenting stress (DeVoe, Paris, Emmert-Aronson, Ross, & Acker, 2017). A family program that included both parents and their children enhanced both parent and child adjustment (Lester et al., 2016). Further, a test of a parenting program for recently deployed parents of school-age children resulted in better parenting quality and child adjustment (Gewirtz, DeGarmo, & Zamir, 2018).

Although parenting and family education classes such as the ones just described may be offered on military bases, it may be difficult for parents to fit a formal class into their schedule. In addition, National Guard and reserve families often do not live close to a military installation and lack the institutional structures and social support readily available to active duty personnel (Sullivan & Harrison, 2010). Therefore, military families may benefit from online parenting program that can be completed on their own time and in their own homes. Further, parents may benefit from online programs when one parent is on temporary duty at another location or is deployed.

Online programs offer important advantages over traditional face-to-face interventions, including efficient dissemination and high fidelity in program presentation. These advantages make online programs one delivery model in a diverse portfolio of delivery channels (Kazdin & Blase, 2011) for programs aimed at reducing the prevalence and incidence of mental health and relationship problems. Reviews of clinical trials provide evidence of the efficacy of online mental health programs (Barak, Hen, Boniel-Nissim, & Shapira, 2008; Griffiths, Farrer, & Christensen, 2010; Spek et al., 2007). Indeed, the effect sizes of Internet-based programs are similar to those obtained using treatments delivered in person (Barak et al., 2008).

The low rate of completion common to the majority of Internet-based programs is arguably the most serious obstacle to the effectiveness of these interventions (Barak et al.,

2008; Richardson, Stallard, & Velleman, 2010). Waller and Gillbody's (2009) systematic review of computerized cognitive behavioral treatment programs found a median program completion rate of 56%. Some program completion rates are much lower; for example, Buller and colleagues reported a completion rate of 18.6% for a smoking prevention program targeting adolescents (Buller, Young, Fisher, & Maloy, 2006). We developed MFF to use retention strategies found to be effective in prior research, such as interactive content and sending reminders to prompt participants to use the intervention (Clarke et al., 2005; Fridrici & Lohaus, 2009; Ritterband, Andersson, Christensen, & Carlbring, 2006; Wantland, Portillo, Holzemer, Slaughter, & McGhee, 2004). In addition, we used best practices for online family life education and prevention programming according to Hughes et al. (2012): short audio and video segments to illustrate concepts; use of audio rather than text to explain visuals; support for applying program content to participants' own lives; use of modeling, coaching, or scaffolding to introduce new ideas; and inclusion of a variety of instructional activities. Boring et al. (2015) employed these strategies in a program for children of divorce and yielded the highest program completion rate of any full-scale trial of an online program for children published to that point.

Accordingly, based on the conceptual framework around coparenting and the recognition of the strains of early parenthood, we developed an in-person group-format program for first-time parents, FF, to help parents develop a positive, cohesive coparenting relationship during the perinatal period. The development of FF was partly based on the innovative group discussion approach of supporting couples at the transition to parenthood developed by Philip Cowan and Carolyn Cowan (Schulz et al., 2006). A number of other researchers have aimed to support couples at the transition. However, few, if any, such programs have both used rigorous evaluation methods and shown strong positive impact (Pinquart & Teubert, 2010). For example, Shapiro and Gottman (2005) purported to show impact on parent depression and relationship quality. However, several flaws limit the validity of the study (e.g., the Gottmans themselves served as group facilitators; the study had a small sample size, and significant attrition occurred but was poorly described; and the missing data procedure used was inappropriate). A more rigorous study in Australia (Halford et al., 2010) found that a couple relationship intervention adapted for expectant parents had mixed results on measures of couple relationship quality and little to no impact on parental stress and parenting. The large ($N = 6{,}500$) Building Strong Families study tested adaptations of leading couple-focused prevention programs for low- and moderate-income couples at the transition to parenthood (Wood et al., 2012). Although the interventions were intensive and included group sessions as well as caseworker support, there was no overall impact on participants.

In contrast to these couple-focused programs, FF was developed with a central focus on supporting the development of cohesive coparenting relationships among new parents. FF was designed to reduce parental stress and mental health problems by enhancing coparental support and cohesion. In two trials of the group-format version of FF, analyses of questionnaire and videotaped family interaction data supported program efficacy, as impacts on the targeted outcomes were found at posttest 6 to 10 months postpartum (Feinberg, Jones, Hostetler, et al., 2016; Feinberg & Kan, 2008), and the durability of program impact was demonstrated with continued impact found at follow-up waves from 2 to 7 years after birth (Feinberg et al., 2010; Feinberg, Jones, Roettger, Solmeyer, & Hostetler, 2014; Jones, Feinberg, Hostetler, Roettger, Paul, & Ehrenthal, 2018). At 7 years of age, children whose parents were randomly assigned to the intervention condition versus control were reported by teachers to show lower levels of depressive and anxiety symptoms and, among boys, lower levels of disruptive and aggressive behavior. Among children whose parents demonstrated modest levels of bickering and anger in videotaped couple conflict discussions during pregnancy, levels of teacher-reported disruptive and aggressive problem behaviors were lower among both intervention-condition boys and girls, and levels of school adjustment and learning engagement were higher. In both prior trials, birth outcomes (preterm birth, birth weight, mother and infant duration of stay in the hospital) were better among intervention mothers who were at risk for adverse pregnancy outcomes due to moderate to high levels of pretest stress (cortisol levels) or mental health symptoms (Feinberg, Jones, Roettger, et al., 2016; Feinberg, Roettger, Jones,

Paul, & Kan, 2015). Mediation analyses have demonstrated support for our conceptual model (Feinberg, Kan, & Goslin, 2009): Results indicate that the intervention enhanced child adjustment through improved coparenting quality in one study, and a combination of improved coparenting, parent mental health (depression), and parenting in the other (Feinberg & Jones, 2018; Solmeyer, Feinberg, Coffman, & Jones, 2014).

In the adaptation of FF for military families, Military Family Foundations (MFF), we retained the core content and strategies used to help expectant and new parents build supportive, cohesive coparenting relationships. However, to appeal to military families, the FF activities and skills were modified to apply to the specific case of military families. This included cosmetic alterations (e.g., using images of military families in visuals throughout the program), suggestions on how to complete program activities given circumstantial barriers that are more typical in military families (e.g., one of the partners is deployed or in a training period), and limited modifications to FF program content to provide skills and resources to help families cope with challenges specific to military families (e.g., extended periods of deployment and training).

Thus, the goal of the current study was to pilot the online MFF program with military families to assess whether couples completed the program and whether, compared with a control group, the program enhanced factors considered to build resilience among military families. We hypothesized the program would positively influence coparenting relationship quality and parent adjustment (parental efficacy, depression) at 6 months postpartum. Because prior trials of FF have found impacts on child self-regulation and adjustment as early as infancy, we also assessed impact on infant outcomes at 6 months postpartum.

Method

Participants

Participants were 56 heterosexual couples who, at the time of recruitment, met the criteria of being at least 18 years of age, expecting their first child together, and living together (regardless of marital status). In addition, at least one partner was in the military and not assigned to deploy in the next 6 months (to avoid attrition). The majority of the couples were married (93%). Six fathers and five mothers had previously had a child with a different partner. Participants self-reported as non-Hispanic White (71%), Hispanic (7%), African American (10%), and "other" or multiple ethnicities (12%). Median annual household income was $72,500 ($SD$ = $34,388), with a wide range from $12,500 to $162,500. Mean ages for expectant mothers and fathers were 29.7 years (SD = 4.7) and 31.0 (SD = 5.3) years, respectively. Both members were in the military in 20% of the 56 couples, only the father in 62%, and only the mother in 16%.

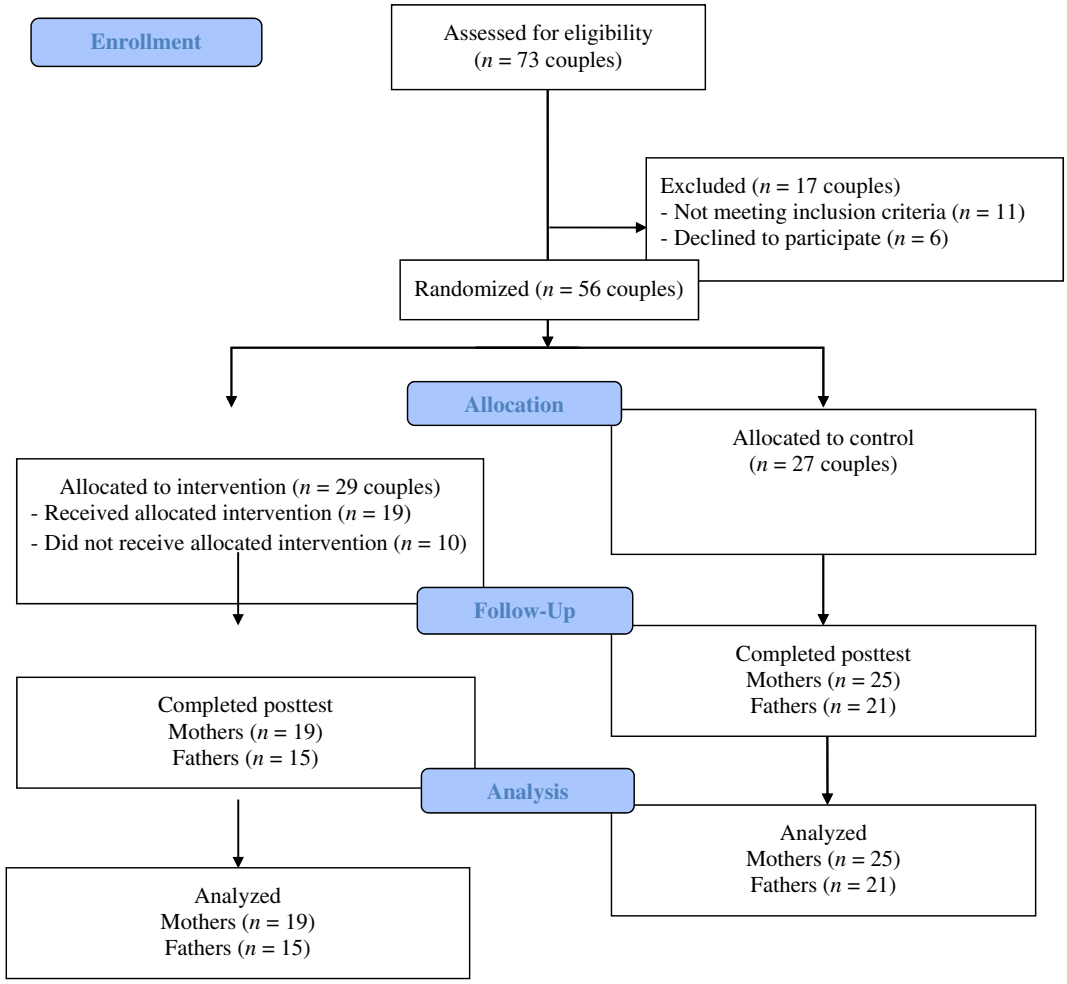
Forty-seven of all participating fathers were in military service: 35 in the Army, 5 each in the Air Force and Marine Corps, and 2 in Navy. Of these fathers, 11 were active duty, 19 in the National Guard, 12 reserves, and 5 Active Guard Reserve. Among the 20 mothers in military service, 17 were in Army, 2 Air Force, and 1 Marine Corps. Of these mothers, 2 were active duty, 10 National Guard, 7 reserves, and 1 Active Guard Reserve. Of military service members, 6 of mothers and 9 of fathers were officers. The sample was representative of the total service member population in terms of the proportion officer (17%) and enlisted (83%) and the proportion male (83%) and female (17%; Department of Defense, 2015).

Procedure

Recruitment took place from May 2014 to October 2017 through multiple channels, including emails, flyers and newsletters through military New Parent Support structures, military units, and on a study Facebook website. After delays in obtaining military approval for the study with reserve and National Guard personnel, we expanded the study to include active duty personnel as well. Interested couples contacted the study coordinator by phone or email and were then screened for eligibility via phone. After both partners completed the online pretest questionnaire, a couple was randomly assigned to the intervention or control group by the study coordinator based on a sequential enrollment list linked to a random number sequence.

Pretest data were collected online when mothers were pregnant (average weeks of gestation = 24.4, SD = 8.3). As indicated in Figure 1, couples were randomly assigned to intervention (n = 29) or to no-treatment control condition (n = 27). Couples in the intervention and control conditions did not significantly differ in terms

FIGURE 1. CONSORT FLOW DIAGRAM.



of age, income, marital status, mental health, relationship quality, and proportion of service members and officers (*ps* > .11). Couples in the intervention condition received an online version of the FF program, consisting of five prenatal and three postnatal modules. The program was designed to be self-paced and for parents to undertake together as the program included written and communication exercises for couples in the middle of modules. After couples started the program, we sent email reminders to continue if they stopped engaging in the program for more than 10 days. The program content followed the in-person version of the FF program fairly closely, helping couples consider and adjust expectations, adopt a realistic vision and prepare for the strains of parenthood, and develop skills related to supportive, cohesive coparenting communication, and problem-solving.

Measures

Parental adjustment. To reduce participant burden, *parental depression* was assessed pre- and posttest using a 14-item version of the Center for Epidemiological Studies Depression Scale (Radloff, 1977) asking individuals to indicate their feelings and outlook within the past week on a scale ranging from *rarely or none of the time* (0) to *most or all of the time* (3). The 14-item version has demonstrated correlations over .9 with the full version (Feinberg et al., 2010). *Parent*

efficacy was assessed posttest with an abbreviated eight-item version of the Parenting Sense of Competence scale (Gibaud-Wasston & Wandersman, 1978); e.g., "I feel confident in my role as a parent") on a 7-point Likert scale.

Interparental relationship. Coparenting was assessed in four key domains using the Coparenting Scale (Feinberg, Brown, & Kan, 2012), including Coparental Agreement (four items; e.g., "My partner and I have the same goals for our child"), Coparental Support (five items; e.g., "My partner appreciates how hard I work at being a good parent"), Coparental Undermining (six items; e.g., "My partner tries to show that she or he is better than me at caring for our child") and Parenting-Based Closeness (five items; e.g., "I feel close to my partner when I see him or her play with our child"). All items used 7-point Likert response scales. *Relationship conflict* was assessed pre- and posttest using the conflict subscale from the Relationship Questionnaire (Braiker & Kelley, 1979; e.g., "How often do you feel angry or resentful toward your partner?") on a 9-point Likert scale. *Couples' conflict resolution style* was assessed at pre- and posttest using an eight-item Ineffective Arguing Inventory (Kurdek, 1994; e.g., "Our arguments are left hanging and unresolved") with a 5-point Likert scale.

Parent report of child outcomes. Using subscales from the Infant Behavior Questionnaire (Gartstein & Rothbart, 2003), parents reported on multiple dimensions of infant temperament, including distress to limitations (seven items), sadness (six items), and soothability (eight items). All items were on a 7-point Likert scale.

Control variables. Guided by analytic methods used in prior trials, several variables representing characteristics of the parents and their contexts were controlled for in analytic models, including age, parent gender, marital status, and perceived economic strain. Perceived economic strain was an average score created from three items asking about anticipated hardships affording certain essentials; anticipation of a reduction in living standard in the next two months; and difficulty living on current total household income.

Analytic Models

The main effect of the condition (intervention = 1; control = 0) was examined in separate models for each outcome. All models were conducted as intent-to-treat analyses such that data from all parents who provided data at the posttest were included regardless of their level of program participation. To account for the interdependence within each dyad, multilevel regression models were used where couple-level variance were modeled by specifying a random intercept (Kenny, Kashy, & Cook, 2006). All models controlled for age, parent gender, marital status, and perceived economic strain. The corresponding pretest measure of the outcome was also controlled for if available (e.g., depressive symptoms was measured at pretest whereas coparenting was not). The extent to which parent gender moderates intervention impact was examined by adding a Gender × Condition term to the model. The interaction term was not retained in the final model if the p value was greater than 0.10. Follow-up analyses were conducted to examine (a) whether findings were consistent excluding intervention couples who did not complete any modules ($n = 25/14$ mothers and 21/12 fathers in the control/intervention groups) and (b) whether low versus high program dosage (exposure to half or less vs. more than half of the modules) among intervention couples was associated with outcomes (as well as gender moderation of the dosage–outcome association).

Results

Descriptive statistics and alphas for all pretest control variables and study outcomes are presented in Table 1. Intervention couples completed an average of 3.93 of the 8 modules (an average of 2.77 of the 5 prenatal modules and 1.13 of the 3 postnatal modules). Couples completed online questionnaires for the posttest wave at 6 months after birth (average child age = 6.2 months, $SD = 0.9$). Due to funding limitations, the study was closed before three couples were scheduled for posttest assessments. Excluding those three couples from calculations, 21% of families (both members of the couple) and an additional 14% of only fathers attritted from pre- to posttest. Unfortunately, we were not able to acquire information on reasons why participating couples quit the study. The posttest completers and dropouts did not differ on a large number of pretest variables assessed; however, there was one significant difference: Fathers who dropped out reported earning higher levels of

Table 1. *Means and Standard Deviations for Control Variables and Study Variables at Pretest and Posttest by Intervention Status*

	Mothers					Fathers				
	Intervention		Control			Intervention		Control		
Variable	*M*	*SD*	*M*	*SD*	α	*M*	*SD*	*M*	*SD*	α
Control variables										
Age	28.93	3.55	31.57	5.28	—	31.47	6.99	32.27	5.34	—
Marital Status: Married	0.89	—	0.92	—	—	—	—	—	—	—
Perceived economic strain	1.59	0.66	1.60	0.75	.86	1.63	0.57	1.59	0.63	.75
Parent adjustment										
Depression (Pretest)	0.45	0.40	0.45	0.36	.84	0.33	0.31	0.41	0.36	.74
Depression (Posttest)	0.22	0.18	0.43	0.46	.85	0.34	0.37	0.44	0.44	.86
Parental efficacy	49.21	5.48	48.00	6.32	.78	44.00	7.78	47.86	6.18	.83
Interparental relationship										
Coparenting agreement	5.21	0.85	4.84	1.06	.53	4.67	1.23	4.35	1.69	.78
Coparenting closeness	5.33	0.85	4.50	1.09	.79	4.77	1.39	5.26	0.79	.78
Coparenting support	5.09	0.91	4.23	1.49	.83	4.59	1.62	5.03	1.39	.94
Coparenting undermining	0.63	0.87	0.81	0.82	.63	1.10	1.45	1.48	1.73	.89
Relationship conflict (Pretest)	17.34	7.45	17.04	7.6	.83	17.66	8.29	15.31	5.66	.81
Relationship conflict (Posttest)	18.94	8.08	21.08	9.12	.84	20.64	9.35	17.68	8.77	.81
Conflict resolution style (Pretest)	14.00	5.82	13.34	7.03	.90	14.82	5.87	13.71	5.21	.91
Conflict resolution style (Posttest)	14.40	5.24	14.95	5.93	.82	14.89	5.99	13.81	6.21	.87
Child outcomes										
Distress to limitations	2.89	0.80	3.34	1.15	.87	3.40	0.92	3.63	0.94	.78
Sadness	3.20	0.72	3.72	1.35	.84	2.98	0.83	3.52	1.29	.85
Soothability	5.89	0.91	4.94	1.05	.89	5.02	0.75	5.04	1.15	.86

annual household income ($p = .04$) than completers. Attrition rates were different by condition: 7.4% and 22.2% of control mothers and fathers, respectively, did not complete posttest measures versus 34.5% and 48.3% of intervention mothers and fathers. However, there was no evidence of differential attrition across conditions due to pretest variables ($ps > .41$).

Results from multilevel regression models are presented in Table 2. For parent depression, intervention parents reported statistically significant lower levels of depression ($p < .05$), with no significant moderation by parent gender. In contrast, for parent efficacy, there was no overall group difference. For interparental relations, we did not find statistically significant overall intervention effects for any of the five relational outcomes. However, the observed direction of all these overall effects was in line with positive intervention effects. Moreover, we found statistically significant gender moderation for two of the five interparental relations outcomes: Intervention mothers reported significantly higher levels of Coparenting Closeness and Support compared with control mothers. For child outcomes, parents reported that intervention children demonstrated significantly lower levels of Sadness and a trend for lower levels of Distress to limitations, with no moderation by parent gender. Additionally, significant parent gender moderation was found for Soothability: Intervention condition mothers reported their infants as higher on self-soothing compared with control mothers' reports.

Patterns of findings in the follow-up analyses that excluded intervention couples who did not complete at least one online module were consistent with the intent-to-treat findings with two exceptions. When excluding participants who did not complete even the first module, we found a trend demonstrating positive intervention effects for couple's Conflict resolution style (effect size = .52, $p = .09$) and for mother-reported Relationship conflict (effect size = .64, $p = .07$). Moreover, among intervention couples, we found evidence suggesting dosage effects (completing more than four modules vs. four or fewer) for Conflict

Table 2. *Intervention Main Effects and Moderation of Intervention Effects by Parent Gender*

Outcomes	Condition (Coefficient)	ES	Condition × Parent	Mother ES	Father ES
Parent adjustment					
Depression	–.18*	.51	*ns*	—	—
Parental efficacy	–.44	—	5.69**	—	–.58
Interparental relationship					
Coparenting agreement	.41	.34	*ns*	—	—
Coparenting closeness	.39	—	1.27*	.92	—
Coparenting support	.41	—	1.20*	.68	—
Coparenting undermining	–.28	.22	*ns*	—	—
Relationship conflict	–.72	.12	*ns*	—	—
Conflict resolution style	–.89	.26	*ns*	—	—
Child outcomes					
Distress to limitations	–.45**	.46	*ns*	—	—
Sadness	–.69*	.65	*ns*	—	—
Soothability	.39	—	.98*	.84	—

Note. ES = effect size (Cohen's *d*); calculated by standardizing group difference in adjusted means. For Condition × Parent interactions, Mother coded as 1, Father as 0. Pretest score used as control for Depression, Marital Conflict, and Ineffective Arguing. *ns* = not significant.

*$p < .05$. **$p < .10$.

resolution style (effect size = 1.76, $p < .01$) and Coparenting support (effect size = .98, $p < .05$), with no significant gender difference. Additionally, there was a gender difference in dosage effects for Coparenting undermining; there was a significant dosage effect for father-reported Coparenting undermining (effect size = 1.84, $p < .01$) but not mothers. We also found a trend for a dosage effect for mother-reported Relationship conflict (effect size = .94, $p = .08$).

Discussion

This study assessed the effect of an online version of the FF program adapted for military families. Our first goal was to assess the extent to which military couples expecting a first child would complete the modules in the MFF online program. Our second goal was to assess program efficacy in the context of the randomized trial design.

Program and Study Completion

We found that expectant military couples recruited into the study completed about half of the program modules on average; couples completed more than half of the prenatal modules and less than half of the postnatal modules. Although this completion rate is less than optimal, it should be understood within the broader context of attrition in online mental health programs. Low program completion rates are common in trials of online programs (Barak et al., 2008), and our completion rate is similar to the median program completion rate of 56% found by Waller and Gilbody (2009) in their review of computerized CBT programs.

Although the noncompletion rate in this study is similar to those reported by other online program evaluations, it will be critical to identify ways of increasing program completion in future iterations of the program. A higher program completion rate will work toward both ensuring an adequate program dosage and protecting against internal validity concerns engendered by high posttest attrition rates.

In some ways, it is notable that online MFF and other programs have achieved 50% completion rates given the competition in the digital space for "eyeballs." Participants engaging with an online program may frequently receive simultaneous, distracting notifications of text, email, and other messaging service communications. Further, whereas online programs demand some level of participant engagement and learning, participants can easily switch to alternative websites with passive viewing or limited demands. Many sites are built by the world's most wealthy and sophisticated corporations to attract and retain viewers' attention.

A separate but related issue is that our posttest attrition rate of 28.6% was high; but this again must be situated against the rates found in the field. High study attrition rates are common in online trials. Donkin et al.' (2011) review of 69 efficacy trials of online programs found a mean study attrition rate of 23% with a range of 0% to 83%. Further, we found greater attrition in the intervention group than the control group; this pattern is also typical of online interventions similar to MFF (Waller & Gilbody, 2009). Such attrition patterns likely reflect the fact that intervention-condition participants typically experience a greater burden compared with those in control groups.

Trial Outcomes: Efficacy

Despite the small sample size and thus limited statistical power, we found evidence in this trial that MFF is efficacious, especially in the view of mothers. Mothers in the intervention condition reported higher levels of coparenting closeness and support than their counterparts in the control condition; the effect sizes were larger than those found for these outcomes in the trials of the in-person version of FF (Feinberg & Kan, 2008). Although fathers did not report significantly higher levels of coparenting quality in the intervention condition, it may be most critical for family functioning during this period that mothers' experience coparenting support. Mothers in the United States generally adopt the primary parenting role and report higher levels of stress and depression than fathers in this transition period, with negative consequences for their mental health and parenting quality (Matthey et al., 2000). Cowan and Cowan (2000) reported that mothers first detect a lack of support in the first postpartum year around sharing the parenting burden, and this leads to demands on fathers and consequently fathers' unhappiness with the coparental dynamics and increasing conflict. In recent work, we have also found that mothers' daily report of coparenting support predicts fathers' report of coparenting support the next day, but fathers' report did not predict mothers' next-day report of coparenting support (Le, Fredman, McDaniel, Laurenceau, & Feinberg, 2019). Thus, enhancing coparental support at 6 months postpartum by mothers' perspective may be a critical target.

As we have found in prior work and as suggested by our logic models (Feinberg, 2003), evidence of positive impact on coparenting was accompanied by positive significant findings for parent mental health and infant adjustment. Both mothers and fathers reported lower levels of depression in the intervention condition compared with their control counterparts; here, the effect size was moderate and similar to that obtained in our previous trials with the in-person program version. Further, compared with control parents, intervention parents reported that infants showed less sadness, and mothers' reported that infants were more soothable. There was also a trend toward a finding of reduced ($p < .10$) infant distress. Effects for all three outcomes ranged from moderate to strong.

We also note that when we examined intervention effects by including only couples who completed at least one module—that is, dropping the intent-to-treat framework—we found evidence of additional program impact. Although our power was limited by the small sample size and the effects demonstrated significance only at a trend level ($p < .10$), the magnitude of the effect sizes revealed were fairly large: .52 for conflict resolution style and .64 for mothers' report of relationship conflict. This evidence suggests that engaging with the material did lead to sizable benefits for change in couples' management of conflict.

In summary, despite the fact that half the couples did not finish the program, and that the average rate of completion of the material was about 50%, the size program outcome effect sizes were moderate to strong across the key targeted dimensions of coparenting, parent depression, and children's adjustment. Although the sample was small and power limited, effect sizes indicated that the strength of the online program was similar to that of the in-person program. However, a strong caveat is called for here: Because the samples for this and the in-person trials were recruited in different ways, in different places, and from different populations, drawing conclusions about the relative impacts of different program modalities must await a future trial that directly compares program modalities through randomizing families to one or the other.

Limitations and Conclusion

This study demonstrates that supporting military couples at the transition to parenthood is possible via online methods. Although the results in this study are promising and the magnitude of

effects are as large or larger than those found in prior trials of the group-format version of FF with civilian couples, the results are limited to the assessment of outcomes at 6 months postpartum. In addition, this sample was relatively small and attrition was higher than desirable with higher rates in the intervention group. The recruitment period into the study was long due to multiple barriers faced in obtaining Defense Department, service, and local administrative and ethical approvals to disseminate study information. These barriers consumed months and years at various settings and levels. Moreover, after obtaining approvals, the gatekeepers to recruitment (i.e., those whom we asked to disseminate information through flyers, newsletters, online postings) frequently asked if this were a military-sponsored study, and seemed less interested when they learned it was not Department of Defense–sponsored. Thus, we are unsure regarding the extent to which recruitment materials were disseminated even after approvals were obtained, and this makes it difficult to assess how eager military couples are to undertake such a program. A final limitation is that the self-report data is potentially confounded by participant social desirability biases.

Nonetheless, the promising results obtained from this small trial have implications for practice and policy. Of particular interest for military policymakers and providers is the question of whether the resilience factors enhanced by either the in-person program or the online program can serve to buffer parents and children from the stresses of military family life, including frequent moves, unpredictable deployments of a parent to a combat zone, and consequent injury and trauma. Longer term follow-up should be included in future evaluations of such programs to understand the longevity of effects; it is possible that effects deteriorate over time; however, it is also possible that the short-term impacts lead to other changes in the family that together accumulate and reinforce each other over time.

The findings of higher levels of coparenting support, lower levels of depressive symptoms among both mothers and fathers, and higher levels of parent-reported infant adjustment at 6 months after birth due to relatively brief, online and thus accessible interactive program represents a significant result in the effort to support vulnerable families and children. Given the minor adaptations of the FF material for the military context—consisting of cosmetic changes to visually represent military service members, tips to manage program engagement despite military-related obstacles, and limited support for recognizing and preparing for future military-related stressors such as deployment—these results lead one to expect that this or similar online approaches can effectively support civilian families as well.

Author Note

This study was funded by grants from the National Institute of Child Health and Development (HD072394), Mark Feinberg, principal investigator.

Mark Feinberg created the Family Foundations program and is the owner of a private company, Family Gold, which disseminates the Family Foundations program. His financial interest has been reviewed by the Institutional Review Board and the Conflict of Interest Committee at The Pennsylvania State University.

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