

# Chapter 8

## Children's Mental Health, Deployment, Parental Mental Health, and Family Dynamics: Findings from the Millennium Cohort Family Study



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The growing recognition of the toll that military service can have on the more than two million children (U.S. Department of Defense [DoD], 2015) of service members (SMs) has prompted researchers to explore different facets of military life (e.g., deployment, parental mental health) that may impact child and family functioning (Fairbank et al., 2018; Lester et al., 2010; Lincoln et al., 2008). Two recent national studies—the Millennium Cohort Family Study (Family Study; Briggs et al., 2020; Fairbank et al., 2018; Steenkamp et al., 2018) and the RAND Corporation Deployment Life Study (Tanielian et al., 2014)—have helped to broaden the focus of deployment health research beyond outcomes for SMs to include the mental health of military-involved spouses (SPs) and children. For instance, in the Family

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Study, over a third (35.9%) of military SPs screened positive for one or more psychiatric conditions (e.g., depression, 6.7%; post-traumatic stress disorder [PTSD], 9.2%; anxiety, 6.1%; alcohol misuse, 8.2%; Steenkamp et al., 2018). In the Deployment Life Study, multiple conditions, including anxiety (2.1%) and binge drinking (13.8%), were found among military SPs; 16% of SPs and 14% of SMs reported the need for mental health counseling services due to recent emotional problems (Tanielian et al., 2014).

With respect to children, the Family Study found that older youth in military families with combat-deployed parents were more likely to have received a diagnosis of attention-deficit disorder/attention-deficit hyperactivity disorder (ADD/ADHD) than youth in families whose SM parents were not deployed (Fairbank et al., 2018). In addition, any parental military deployment (combat deployed or noncombat deployed) was associated with increased rates of depression among youth in military families (Fairbank et al., 2018). The RAND Deployment Life Study further documented moderate-to-high levels of emotional difficulties in 28% of the children in their sample (Tanielian et al., 2014). Taken together, these findings highlight the need to better understand and respond to the mental health needs of military SPs and children, particularly as they relate to unique military experiences such as deployment.

There is an extensive civilian literature on family systems and dynamics that suggests that children's mental health and behavior are interconnected with parental mental health and family functioning. Notable is the robust literature on maternal mental health (e.g., anxiety, depression) and links to child emotional and behavioral problems (e.g., Gao et al., 2007; Goelman et al., 2014; Koutra et al., 2013). Family Systems Theory describes how the components of a system individually, collectively, and dynamically interact, such that, for example, maternal depression may impact children's behavior by affecting parenting strategies, regulation and expression, or quality of the marital relationship. Far fewer studies have examined paternal mental health and its connection to child functioning, but similar patterns of paternal mental health and emotional and behavioral problems in children have been observed (e.g., Kvalevaag et al., 2013; Pettit et al., 2008). Additionally, evidence suggests that the risk for child mental health problems is further heightened when both parents have a mental health condition (Weitzman et al., 2011).

Similar findings have been documented for military and veteran populations; that is, children of parents with a mental illness are often found to be at high risk for behavioral and psychological difficulties themselves (e.g., Jordan et al., 1992; Lester et al., 2010). Further, the literature on family functioning suggests that the potential protective nature of adaptive family processes (e.g., cohesiveness, communication, support, and satisfaction) tends to be negatively correlated with child behavioral problems (e.g., Wang & Zhou, 2015). The robustness of the connection between family functioning and child outcomes has not been firmly established, however, because there has not been consensus on the confluence of risk and protective factors.

The framework proposed by Palmer (2008) for military families may help researchers understand how to integrate findings on parental and family functioning from civilian populations while simultaneously considering how the military context may yield different child outcomes. Palmer's framework suggests that

psychosocial outcomes associated with military life for children are impacted by parental stress and psychopathology. Thus, the impact of military-specific stressors, such as frequent moves, changes in schools and friends/peer groups, parental SM deployments, family reunion and reintegration, and other factors that promote and/or undermine resilience and well-being among military children, is strongly influenced by parental mental health (e.g., anxiety, depression) and functioning. For example, each reported family-related military stressor increased the odds of a child being diagnosed with depression or anxiety by 23%, while deployment- and injury-related stressors were also associated with an increased risk for a range of maladaptive child psychosocial outcomes (Briggs et al., 2020).

To date, relatively few studies have gone beyond deployment to explore the influence of parental and familial factors on child well-being in military families. Specifically, there is much to learn about whether parental mental health and family functioning convey risk for negative child outcomes in the context of military life and key differences between each parent's link with the child's adjustment. For example, is the heightened risk of child emotional and behavioral problems associated more with the mental health status of the SM or that of the SP who is often the primary caregiver? Is the risk of child mental health problems further amplified when both parents have a mental health condition? To what extent does family functioning influence outcomes over and above parental mental health?

To this end, the primary objectives of the analyses conducted for this chapter were to address the following three study questions:

1. To what extent do children's psychosocial functioning and mental health vary at the family level when the SM, SP, or both parents have a history of problematic mental health?
  - SP mental health was expected to be more influential than SM mental health on children's outcomes.
  - More problematic children's outcomes were expected when both parents have mental health difficulties.
2. What are the effects of deployment on children's outcomes, accounting for parental mental health and family functioning?
  - Type of deployment experienced was expected to have differential effects on children's outcomes.
3. Are there differences in children's psychosocial and mental health outcomes for military households with female SMs and male SPs?

## Method

The Family Study (Crum-Cianflone et al., 2014) is a prospective cohort study designed to evaluate the interrelated health and well-being effects of military service on families, including the SM, SP, and children. The Family Study is a component of the Millennium Cohort Study, a longitudinal, prospective examination of

long-term health outcomes among active-duty and National Guard/Reserve personnel and their families across US military branches (Ryan et al., 2007). To be eligible for the Family Study, SMs and their SPs had to be married at the time of enrollment (2011–2013) and service affiliated for 2–5 years. Female SMs were oversampled in the Millennium Cohort study to ensure that male SPs had adequate representation in the Family Study. To maximize response rates, the survey methods for the Family Study included both online and paper mail survey response options (Dillman et al., 2009; McMaster et al., 2017).

The study described herein uses survey data collected between 2014 and 2016, which were the first follow-up data collected and the most recent data available for analysis. Only married couples with at least one child 3–17 years of age were eligible for inclusion in the analyses. The data are structured with children nested within families ( $n = 3849$  weighted) as the primary sampling unit for paired SM and SP dyads ( $n = 2336$  weighted). Responses were weighted at the family level to account for the probability of original selection of the SM, as well as SM and SP nonresponse, using a combination of response propensity modeling and raking-ratio estimates to known population totals.

Informed consent was obtained from all participants. The Institutional Review Board (IRB) of the Naval Health Research Center (NHRC) reviewed and approved the research protocol (NHRC.2015.0019) and provided ongoing oversight. Exemptions for secondary data analysis were approved by the Duke University Health System IRB (Pro00064951). More details about the Millennium Cohort and the Family Study methods are described elsewhere (Corry et al., 2017; Crum-Cianflone, 2013; Crum-Cianflone et al., 2014; Gray et al., 2002).

## **Millennium Cohort and Family Study Surveys**

The SM survey assessed a variety of topics, including medical conditions, psychosocial well-being, substance use, and military-specific and occupational exposures. The military SP survey contained questions based on a conceptual model with four main domains: (1) SP physical health, (2) SP mental health and adjustment, (3) SP reports of their children's mental/physical health and functioning, and (4) family functioning and protective and vulnerability factors (Crum-Cianflone et al., 2014). The present study focused on the latter three domains and included the following specific variables to address the study aims and hypotheses:

### ***Demographic Characteristics***

Demographic variables included gender of the SP and SM, age, race/ethnicity, marital duration, number of children in the household, as well as age of the oldest child in the family. Administrative data were used to assess SM military branch (Army, Air Force, Marine Corps, Navy), component (active duty, Reserve/National Guard), pay grade

(officer, enlisted), and deployment history. Deployment status was determined using a computed variable based on administrative records from the Contingency Tracking System documenting deployments in support of military operations (e.g., Operations Enduring Freedom, Iraqi Freedom, and New Dawn) since September 11, 2001. Combat exposure during deployment was further determined based on SM self-reports on the DoD Post-Deployment Health Assessment (PDHA; Hoge et al., 2006; Milliken et al., 2007) screening and 18 items on the Millennium Cohort survey. A combat experience designation was assigned if the SM endorsed any of the 3 combat exposure items on the PDHA (i.e., encountering dead bodies or seeing people killed or wounded; engaging in direct combat and discharging weapon; and feeling in great danger of being killed) or any of the 18 items included on the Millennium Cohort survey (e.g., being attacked or ambushed; receiving small arms fire; having a member of unit be seriously injured or killed; personally witnessing a person's death due to war, disaster, or tragic event; witnessing instances of physical abuse; and seeing dead or decomposing bodies, maimed soldiers or civilians, or prisoners of war or refugees). SM deployment history was then categorized as lifetime history of no deployment, deployment without combat exposure, or deployment with combat exposure.

### ***Parental Mental Health Indicators***

SMs and military SPs responded to the Veterans RAND 36-Item Health Survey (VR-36; Kazis et al., 2004), wherein lower scores on the mental component summary (MCS) reflect worse mental health functioning and more functional impairment. Respondents were also asked to report whether they had ever received a mental health diagnosis by a clinical provider (i.e., depression, schizophrenia or psychosis, bipolar disorder, and/or PTSD). We combined the two mental health indicators into a *problematic mental health composite* (PMHC) for endorsement of either a history of mental health disorder(s) or a low MCS score for SMs ( $M \leq 33.99$ ) and SPs ( $M \leq 35.34$ ), which represents one standard deviation below the mean sample MCS score for SMs and SPs, respectively (LeardMann et al., 2009). We then categorized each family into one of the four mutually exclusive dyad groups to characterize parental mental health status: neither parent with a PMHC (NP), SM only with a PMHC, military SP only with a PMHC, and both parents with a PMHC (BP).

### ***Global Indicator of Parental Social Functioning***

Parental social functioning had a numeric range from 0 to 100 based on transformed scores of two questions in the VR-36: "During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?" "During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives)?" Higher scores represent better social functioning.

## ***Family Satisfaction***

The Family Adaptability and Cohesion Evaluation Scale IV (FACES IV) assesses the cohesion and flexibility dimensions of the Circumplex Model of Marital and Family Systems (Olson, 2000). Family satisfaction is a sum score ranging from 10 to 50 based on SP ratings of the 10-item FACES-IV. Higher scores reflect greater satisfaction.

## ***Strengths and Difficulties Questionnaire***

An adaptation of the parent report version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997), a brief emotional and behavioral screening measure of children and adolescents aged 3 through 17 years, was administered to SPs. The present study included four of the five original subscales (conduct problems, emotional symptoms, hyperactivity/inattention, and peer problems) with 20 respective items rated dichotomously (yes/no). Values were computed for the subscales and a total SDQ score per the SDQ developer's coding protocols ([sdqscore.org](http://sdqscore.org)). For family-level SDQ analyses, we selected the most severe child score for each scale as the outcome of interest.

## ***Children's Mental Health Conditions***

Military SPs were asked about common mental health conditions and developmental concerns for their children based on the National Survey of Children's Health (U.S. Department of Health and Human Services, 2007) survey question: "Has a doctor or health professional ever told you that your child has (1) behavioral or conduct problems, (2) depression, (3) anxiety problems or other emotional problems, or (4) ADD/ADHD?" As required by the NHRC IRB to enhance protection of the identity and privacy of individual children in the family, SPs indicated if *any* child in the home had received these diagnoses. For analysis, endorsements of depression, anxiety, and other emotional problems were collapsed into one construct given the likelihood of co-occurrence.

## **Data Analysis**

Descriptive statistics of frequencies and means were calculated for parent demographics, mental health, and family characteristics. Child SDQ means and diagnosis/disorder frequencies were compared across the four parental mental health dyads

for PMHC. Unadjusted regressions for each outcome compared the marginal means of the NP, SM only, SP only, and BP dyad groups to determine if there were statistical differences. Adjustments for multiple tests were not applied given the hypothesis-driven study aims and preference to minimize type II errors (false negatives) that could result by imposing overly conservative thresholds for significance. Hierarchical regression models estimated unstandardized and standardized effects of PMHC dyads on child outcomes by introducing groups of variables in four stages: (1) demographic variables, (2) deployment and other military variables, (3) parental mental health dyad groupings, and (4) family dynamic variables. We also tested models with deployment after parental mental health to assess suppression effects. Then, moderation tests were run to evaluate interaction effects on PMHC dyads and gender of parent. Lastly, we conducted a sensitivity analysis by rerunning unstandardized and standardized hierarchical regression models among female SMs ( $N = 368$ ). Analyses were conducted at the family level using SAS software, version 9.3, and Stata software, version 15.1 (StataCorp, 2017), survey commands. Statistically significant differences were defined a priori at  $p < 0.05$  and relaxed to  $p < 0.10$  for interaction tests.

## Results

### *Parental Demographic and Mental Health Characteristics*

The analytical sample consisted of 3849 observations comprising 2336 parental dyads of paired SMs and SPs. The descriptive statistics in Table 8.1 show sample demographics, family characteristics, and indicators of parental mental health.

**Table 8.1** Parental demographic and mental health characteristics

Characteristic	SM		SP	
Age, <i>M, SE</i>	32.1	0.19	31.8	0.20
Female, %, <i>n</i>	13.3	368	86.7	3481
Race/ethnicity, %, <i>n</i>				
White, non-Hispanic	66.4	3130	69.3	3083
Black, non-Hispanic	16.7	208	11.3	182
Hispanic	9.9	254	11.5	333
Other	7.0	257	7.9	234
Social functioning, <i>M, SE</i>	76.1	1.14	82.2	0.90
MCS score, <i>M, SE</i>	47.3	0.58	47.5	0.47
MHdx, %, <i>n</i>	21.9	552	21.1	703
PMHC, %, <i>n</i>	28.6	739	29.3	955

Note: *SM* service member, *SP* spouse; *MCS*, mental composite summary, *MHdx* mental health diagnosis, *PMHC* problematic mental health composite. To maximize generalizability, the table was based on the larger weighted analytic nested sample of 3849

Percentages, means, and number of observations ( $n$ ) are weighted at the family level. Military couples mainly consisted of male SMs married to female SPs (87%), with both approximately 32 years of age on average. SMs and SPs, respectively, were predominately non-Hispanic White, 66% and 69%; non-Hispanic Black, 17% and 11%; and Hispanic, 10% and 12%. Social functioning was high—in the top 25th percentile on a 100-point scale:  $M = 76.1$  for SMs and  $M = 82.2$  for SPs. Conversely, less than a quarter of SMs (22%) and SPs (21%) endorsed ever having had one or more mental health disorders or diagnoses. Overall, the average score for the MCS was similar for SMs and SPs at approximately  $M = 47$  on a scale ranging from 3.5 to 71.8.

### *Military and Family Characteristics*

As shown in Table 8.2, all branches of military service were represented in the sample, and slightly over half were affiliated with the Army (56%). Most SMs (72%) were previously deployed, with more than half (58%) reporting combat exposures while deployed. Nearly three-quarters (74%) of parents had been married

**Table 8.2** Military and family characteristics

<b>SM branch</b>	<b>%</b>	<b><i>n</i></b>
Army	56.2	1903
Navy	12.7	561
Marine Corps	12.4	272
Air Force	16.0	1024
Coast Guard	2.7	88
<b>SM ever deployed</b>	<b>%</b>	<b><i>n</i></b>
Not deployed	27.9	1068
Deployed without combat	14.1	498
Deployed with combat	58.0	2276
<b>Marital duration</b>	<b>%</b>	<b><i>n</i></b>
≥6 years	73.6	3184
<6 years	26.4	665
Family satisfaction, <i>M, SE</i>	36.8	0.42
<b>Number of children</b>	<b>%</b>	<b><i>n</i></b>
1	17.2	609
2	38.2	1513
3	25.2	971
4+	19.4	756
Age of oldest child, <i>M, SE</i>	8.4	0.18

Note: *SM* service member. To maximize generalizability, the table was based on the larger weighted analytic nested sample of 3849

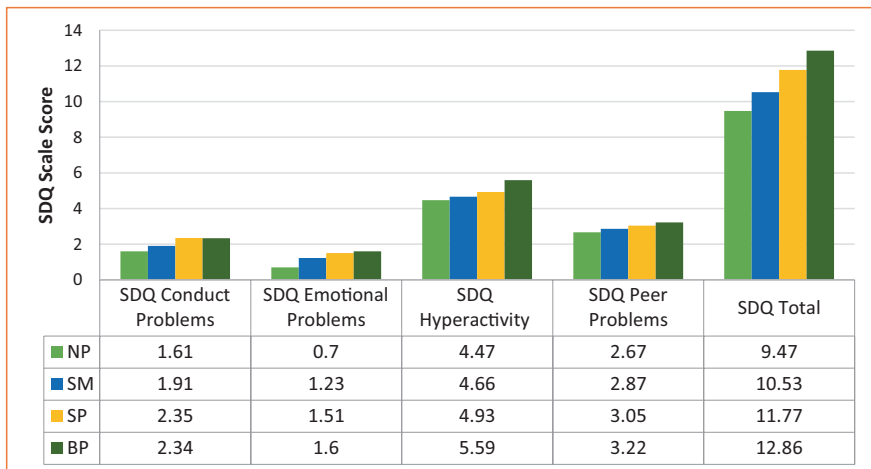


for more than 5 years, the majority of whom had two or more children (83%). The average age of the oldest child in each family was 8.4 years (SE = 0.18). Mean family satisfaction was slightly above average ( $M = 36.80$ ,  $SE = 0.42$ ), in the top 50th percentile for the scale.

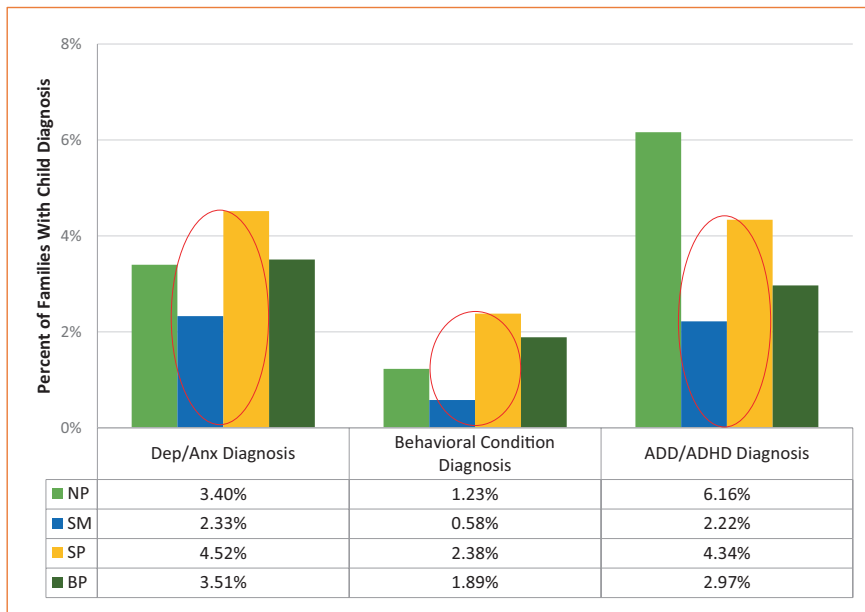
### Indicators of Children’s Mental Health

Less than half (48.9%) of the families with data for both SMs and SPs on parental mental health indicators had a positive PMHC value for either a history of mental health diagnosis/disorder or a low MCS score. The child SDQ mean scores increased in rank order when NP had a PMHC, only the SM had a PMHC, only the SP had a PMHC, and BP had a PMHC. Figure 8.1 shows that the upward trend across the four PMHC dyads was consistent for SDQ conduct problems, emotional problems, hyperactivity, peer problems, and SDQ total scores. Likewise, unadjusted regression models of pairwise comparisons revealed that BP had statistically greater effects than NP on SDQ outcomes. However, we found no significant differences in effects between SMs and SPs for emotional problems, hyperactivity, and peer problems.

Figure 8.2 shows that child diagnosis percentages increased consistently in rank order from SM to SP, but not consecutively across all four dyad groups from NP to BP. Differences in help-seeking behaviors for clinical care may explain why NP was higher than expected and BP was lower than expected. Statistically, however, the



**Fig. 8.1** Strengths and difficulties questionnaire mean scores by PMHC dyads. Note: *PMHC* problematic mental health composite dyads, *NP* neither parent, *SM* service member only, *SP* spouse only, *BP* both parents, *SDQ* strengths and difficulties questionnaire



**Fig. 8.2** Percentage of families with children with mental health disorders by PMHC dyads. Note: *Dep/Anx* depression/anxiety, *ADD/ADHD* attention-deficit disorder/attention-deficit hyperactivity disorder, *PMHC* problematic mental health composite dyads, *NP* neither parent, *SM* service member only, *SP* spouse only, *BP* both parents

odds of depression/anxiety and behavioral disorders were greater for BP than NP in unadjusted regressions with multinomial pairwise comparisons.

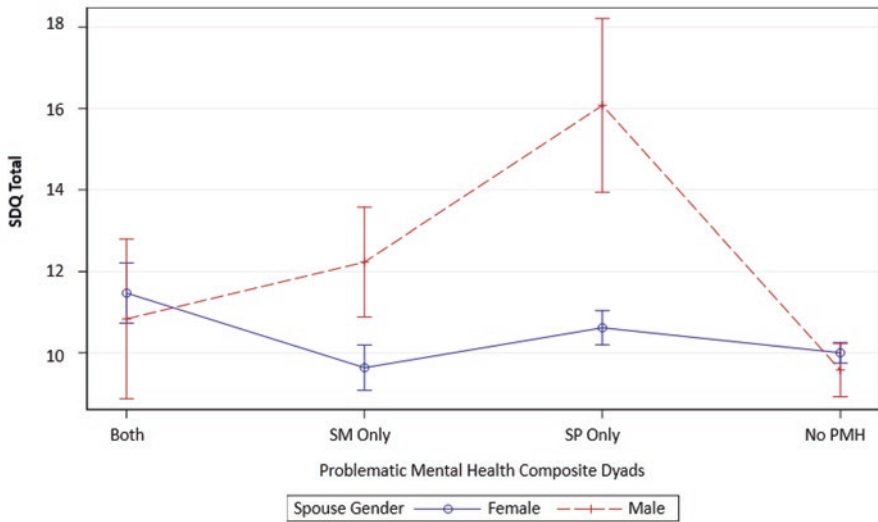
Table 8.3 shows significant associations between various factors (SP age, child age, years of marital duration, service branch, deployment, PMHC dyad, SM and SP social functioning, and family satisfaction) and children’s mental health outcomes in the four stages of the hierarchical regression models. In Stage 1, oldest child age is noteworthy because it is a significant risk factor for all five SDQ subscales and all three disorders. In Stage 2, we observed increased odds for select child disorders for Marine Corps (behavioral disorders), Air Force (behavioral disorders and ADD/ADHD), and Coast Guard (depression/anxiety) SMs compared with Army SMs. Deployment without combat compared with no deployment history is also significant (behavioral disorders) when added before or after Stage 3. In Stage 3, SP dyads’ PMHC increases SDQ conduct problems, SDQ emotional problems, SDQ total scores, and odds of depression/anxiety disorders more than NP dyads’ PMHC. Also, BP dyads, compared with NP dyads, have a greater effect on SDQ emotional problems and SDQ total scores. Among the family dynamics variables in Stage 4, family satisfaction stands out as a protective factor against most of the negative outcomes assessed, including all five SDQ subscales and ADD/ADHD. In fact, family satisfaction is one of the most influential significant factors in the standardized hierarchical models; second only to SP-only PMHC dyads.

**Table 8.3** SDQ and mental health outcomes in the four stages of the hierarchical regression models

Outcomes	SDQ scales				Disorders			
	Conduct	Emotional	Hyperactivity	Peer problems	SDQ total	Dep/Anx	Behavioral	ADD/ADHD
Weighted ( <i>n</i> )	3307	3307	3307	3022	3022	3112	3098	3118
	Coef	Coef	Coef	Coef	Coef	Odds ratio	Odds ratio	Odds ratio
<i>Stage 1</i>								
SM age	<b>-0.04***</b>	<b>-0.02*</b>	<b>-0.03*</b>	-0.01	<b>-0.08*</b>	<b>1.06*</b>	1.03	0.97
SM gender	-0.37	0.06	-0.39	-0.19	-0.90	1.29	1.02	1.40
Oldest child age	<b>0.05***</b>	<b>0.06***</b>	<b>0.06**</b>	<b>0.03**</b>	<b>0.21***</b>	<b>1.17***</b>	<b>1.20***</b>	<b>1.30***</b>
Newly married (<6 years)	-0.23*	-0.16	-0.09	0.13	-0.38	<b>2.32**</b>	<b>1.16</b>	<b>2.79***</b>
<i>Stage 2</i>								
Military								
Navy vs. Army	-0.01	-0.01	-0.08	-0.11	-0.16	1.18	0.96	0.70
Marine Corps vs. Army	0.01	-0.23	0.27	-0.17	-0.17	1.62	<b>5.47**</b>	2.37
Air Force vs. Army	-0.11	0.07	0.31	0.03	0.22	1.74	<b>2.60*</b>	<b>2.45*</b>
Coast Guard vs. Army	-0.07	0.44	-0.13	0.11	-0.02	<b>7.11***</b>	1.30	1.69
Deployed								
Noncombat vs. no	0.23	0.01	-0.04	0.15	0.27	2.32	<b>7.54***</b>	1.20
Combat vs. no	0.10	0.03	0.0007	-0.04	0.02	1.62	1.85	0.56
<i>Stage 3</i>								
PMHC dyad								
SM vs. NP	0.01	0.26	-0.17	-0.17	-0.09	1.53	0.87	0.94
SP vs. NP	<b>0.40**</b>	<b>0.64***</b>	0.14	0.17	<b>1.42**</b>	<b>2.93**</b>	2.71	1.50
BP vs. NP	0.25	<b>0.42*</b>	0.46	0.08	<b>1.53*</b>	2.30	1.53	1.19
<i>Stage 4</i>								
SM social functioning	-0.002	<b>-0.005*</b>	-0.005	<b>-0.005**</b>	<b>-0.02*</b>	<b>0.99*</b>	<b>0.98**</b>	0.99
SP social functioning	-0.003	-0.001	-0.001	-0.003	-0.01	<b>0.99***</b>	<b>0.98**</b>	0.99
Family satisfaction	<b>-0.03***</b>	<b>-0.03***</b>	<b>-0.05***</b>	<b>-0.02***</b>	<b>-0.12***</b>	0.99	0.99	<b>0.97*</b>

Note: *SDQ* strengths and difficulties questionnaire, *Dep/Anx* depression/anxiety, *ADD/ADHD* attention-deficit disorder/attention-deficit hyperactivity disorder, *PMHC* problematic mental health composite dyads, *NP* neither parent, *SM* service member only, *SP* spouse only, *BP* both parents  
 Bolded values: \*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$

*Interaction of PMHC Dyads and Parental Gender on Child SDQ Total Score*



**Fig. 8.3** Interaction of PMHC dyads and parental gender on child SDQ total score. Note: Confidence intervals are at 95%. *PMHC* problematic mental health composite, *SDQ* strengths and difficulties questionnaire, *SM* service member, *SP* spouse

The interactions of PMHC dyads by parental gender (Fig. 8.3) suggest that men pose an elevated risk for negative child outcomes compared with women, especially in their role as the caregiving SP if they are the one parent with the problematic mental health composite. Given the small cell sizes for SP-only PMHC dyad\*male ( $n = 51$ ) in the three-way interaction, a sensitivity analysis of the hierarchical regressions was run only in the subsample of SMs ( $n = 368$ ) to ensure sufficient numbers to detect signals for gender differences. In support of the moderation test, there was a significant association between male SP-only PMHC dyad and SDQ conduct problems, SDQ emotional problems, SDQ peer problems, SDQ total score, and odds for depression/anxiety and behavioral disorders (See Table 8.4).

## Discussion

Consistent with findings from earlier Family Study analyses (Briggs et al., 2020; Fairbank et al., 2018), most children were found to be functioning well, with an important but modest subset presenting with emotional and behavioral symptoms or a mental health diagnosis. Likewise, a minority of SM and SP parents reported mental health problems (~20%). Although different metrics were used, the rates of mental health problems endorsed by SMs and SPs in the Family Study cohort were comparable, on average, to those found in the RAND Deployment Life Study (Tanielian et al., 2014).

**Table 8.4** Sensitivity analysis of the four-stage hierarchical regression model

		Subsample of female SMs									
		SDQ scales					Disorders				
		Conduct	Emotional	Hyperactivity	Peer problems	SDQ total	Dep/Anx	Behavioral	ADD/ADHD		
<i>Weighted observations (n)</i>		<b>319</b>	<b>319</b>	<b>319</b>	<b>272</b>	<b>272</b>	<b>292</b>	<b>292</b>	<b>319</b>		
<i>Stage 1</i>											
SP age		-0.07**	-0.04+	-0.00	-0.02	-0.08	1.10	1.02	0.99		
SP gender		-	-	-	-	-	-	-	-		
Oldest child age		0.03	0.07*	-0.01	0.01	0.11	1.32**	1.39**	1.47***		
Recently married (<6 years)		-0.23	-0.05	-0.12	0.20	-0.15	4.95*	2.93	1.36		
<i>Stage 2</i>											
Military											
Navy vs. Army		0.50+	-0.39	0.28	-0.03	0.47	3.98	8.39	1.15		
Marine Corps vs. Army		-0.94+	-0.78+	-1.45	-0.93*	-4.41***			38.66**		
Air Force vs. Army		-0.04	-0.24	0.15	-0.11	-0.28	4.67	13.68+	5.37+		
Coast Guard vs. Army		-0.37	0.33	-0.10	-0.23	-1.31	11.07+	0.23	7.25+		
Deployed											
Noncombat vs. no		0.72*	0.09	0.28	0.54	1.18	2.61	6.98*	1.09		
Combat vs. no		0.32	-0.01	0.24	0.20	0.68	0.32	0.06+	0.71		
<i>Stage 3</i>											
PMHC dyad											
Female SM vs. NP		0.35	1.17+	0.72	-0.12	2.76+	0.19	0.01+	1.05		
Male SP vs. NP		<b>1.97***</b>	<b>1.40***</b>	0.77	<b>1.69**</b>	<b>6.41***</b>	<b>8.50*</b>	<b>46.57***</b>	3.89		
BP vs. NP		<b>0.66*</b>	0.42	0.74	<b>1.01**</b>	2.82+	6.35+	0.33	0.37		
<i>Stage 4</i>											
SM social functioning		-0.005	0.004	-0.01	0.004	-0.01	0.97**	0.95+	0.98		
SP social functioning		0.01+	0.01	0.004	0.005	0.03	1.03	1.03	0.96+		
Family satisfaction		-0.05***	-0.02	-0.06***	-0.02	-0.16***	0.90+	0.78***	0.95		

Note: ADD/ADHD attention-deficit disorder/attention-deficit hyperactivity disorder, BP both parents, Dep/Anx depression/anxiety, NP neither parent, PMHC problematic mental health composite, SDQ strengths and difficulties questionnaire, SM service member, SP spouse  
 Bolded values: \*p < 0.05. \*\*p < 0.01. \*\*\*p < 0.001

The finding that children's SDQ means increased in rank order by PMHC scores from NP, SM, and SP to BP groupings for all SDQ factors is consistent with the broad scientific literature that delineates heightened risk for children associated with a range of parental mental health problems, including parental depression, serious mental illness, and PTSD (Gao et al., 2007; Goelman et al., 2014; Koutra et al., 2013; Monson et al., 2012; Van Loon et al., 2014). Interestingly, the strength of the association with child SDQ problems was consistently higher for SP than SM mental health and amplified further when BP had a mental health condition. Percentages of children's mental health diagnoses also increased in rank order from SMs to SPs, with SPs demonstrating the most consistent association with these outcomes. These findings underscore the crucial role of parental mental health on both parenting and children's mental health and psychosocial functioning, as emphasized in family systems theory and clinical practice (e.g., Swick & Williams, 2006), and they are consistent with literature on military and civilian families that have explored aspects of the links between parents' and children's mental health.

In our study, we found gender of the SM and SP to be a moderator for children's psychosocial functioning and mental health. Overall, fathers with a problematic mental health composite in the role of an SM or SP posed a higher risk than mothers for impacting children's psychosocial functioning and mental health. The adverse consequences were substantially increased for fathers in the role of SPs compared with SMs. A number of factors may contribute to this pattern, including fewer male SPs of female SMs in the military, social isolation of male SP parents from their male SP peers given their minority status among military-connected families, and assumptions and expectations regarding gender roles and challenges associated with perceptions of role reversal (e.g., stigma associated with seeking support). Future studies should consider examining parenting practices, support systems, and family dynamics, among other factors, that may contribute to female gender being a protective factor—and male SP role a potential risk factor—for military children's psychosocial functioning and mental health (see Segal, 1995; Segal & Lane, 2016; Tepe et al., 2016).

Thus, an unanticipated new finding was how the confluence of gender and role (SM or SP) as a significant moderator impacted children's psychosocial and mental health outcomes. Our findings suggest that when fathers served as the primary caregiver (male SP) and had problems with mental health, social, and/or family functioning, their children were more likely to have impairments in emotional and behavioral functioning and to have a mental health diagnosis. This finding underscores a need to learn more about psychosocial variables that may affect the relationship between male SP mental health and psychosocial mental health outcomes for children in military families. For example, findings from a recent study of male SMs (Zhang et al., 2020) suggest that paternal emotion regulation and coercive interactions with children increase the risk for child psychopathology. Similar studies on the association between male SP mental health and psychosocial functioning of children in the family are needed.

Male SPs may also perceive fewer opportunities for services and treatments within military mental health-care systems. To improve the psychosocial health of children in military families, future studies could attempt to better understand the experiences

of male SPs within military and civilian communities and the availability and accessibility of mental health resources, services, and care specifically designed to address the needs of male SPs and their children. The construct of resilience, for example, is valued and emphasized within military culture and is often viewed as a potential protective mechanism. For some male SPs with mental health treatment needs, however, an emphasis on resilience may also have the unintended consequence of fostering stigma that could act as a barrier to reaching out for support when needed. From a policy perspective, male SPs could be targeted as a group for prevention strategies. Families OverComing Under Stress (FOCUS) Resilience Training for military families (Lester et al., 2013) is one such family-based program that promotes resilience training as a prevention strategy (<https://focusproject.org/>). The program is described as a resilience-enhancement program for couples, families, and children that builds on strengths and teaches new skills, such as effective emotion regulation, communication strategies, problem-solving, goal setting, and management of trauma and stress reminders (Lester et al., 2011). It would be useful to learn more about male SP experiences with FOCUS as well as with other evidence-based programs for military parents, such as the After Deployment: Adaptive Parenting Tools (ADAPT) program described in this volume (Gewirtz & Simenec, Chap. 9).

A noteworthy finding was that parental mental health was generally not associated with deployment history in this analysis. Results did not suggest a mediating role for the sequential effects of deployment, given a lack of unadjusted association and minimal adjusted association. These findings could, in part, be due to how deployment was constructed in our analysis. Including a numerical measure of combat exposure (e.g., total months) instead of the lifetime categorical variable could have offered greater variability and thereby a more powerful predictor. However, the well-known *healthy warrior* effect may also mitigate some of the potentially negative implications of deployment. In this conception, SMs who are *healthier* or functioning better in their military roles are more likely to be deployed, while some of the nondeployed may have been ineligible because of a range of health or functional concerns. Further research would be warranted to investigate what contributing and contextual factors promote deployment as a positive experience for military families.

Both family satisfaction and parental social functioning served as robust protective factors, buffering children from negative outcomes even when parental mental health problems were present. In fact, family satisfaction was the strongest resilience factor associated with better child functioning. The malleability of family satisfaction suggests a target for intervention that could improve the function of those children experiencing mental health problems. For example, prevention programs that are geared toward strengthening family resiliency could, in turn, improve SM readiness (Lester et al., 2011) and provide the family with the skills necessary to act as a conduit to other positive sequelae, such as improved mental health functioning for both children and parents.

These findings highlight the complex array of factors that contribute to the mental health and well-being of children in military families. The observations herein raise additional questions about how these vulnerabilities and protective factors lead to differential outcomes for military-connected children. For example, does a parent

with greater social functioning also parent or interact with their child differently? Are caregivers with fewer mental health concerns more consistent in their parenting? Do they exhibit higher levels of parental attachment and warmth, or regulate their affect or communicate more effectively? Future studies should examine these potential pathways to better understand how we can more effectively support military families and mitigate the risks associated with parental mental health problems and poor family functioning.

The study presented in this chapter has several methodological limitations. This study was cross-sectional in nature and relied on a single respondent (i.e., the SP) to report on children's psychosocial functioning. Consequently, there is potential response bias from the SP because we were not able to examine the reliability of reports across respondents on child functioning (e.g., SMs, mental health professionals, teachers, child self-reports). Unlike symptomatology, children's psychiatric diagnoses were based on SP reports of a mental health provider's diagnosis rather than the actual medical records from the diagnosing provider. Psychosocial functioning and diagnoses were assessed on the family level, that is, across all children in the home rather than a randomly identified child. Symptom measurement also relied on an abbreviated and modified version of the SDQ that used dichotomous rather than Likert-type response options, which has not been validated relative to response options available in the full measure. Lastly, some cell sizes were relatively small, limiting power to detect differences. Although the findings are consistent with the literature on parental mental health and the heightened risk for child mental health diagnoses and difficulties, low base rates of child mental health impairments and diagnoses and modest effects restricted our ability to infer clinical significance and the extent to which findings may guide the development, selection, and application of mental health treatment or relevant services.

Despite these limitations, an important strength of the Family Study that differentiates it from much of the earlier research on the mental health of children in military families is that it is composed of a large, DoD-wide cohort that includes female and male SMs and SPs. Family Study respondents represent all branches and components of the US military. This study also improves on the design and methods of earlier military family research by recruiting a probability-based sample of junior military personnel SPs; thus, the findings will be applicable to a broad population of military families over time. This strategy will also allow researchers to better understand the etiology and progression of risk and protective factors over time. Continued exploration of the relationships between parental, family, and child well-being longitudinally will be an integral part of responding to calls for improving our understanding and addressing the needs of military families.

## Conclusion

This study sought to explore how military parents' mental health and family functioning are associated with children's mental health conditions and impairments in psychosocial functioning. The results highlight the need to understand child



functioning in the context of SP functioning, especially when the SP is male because SPs are often the primary caregiver. Findings also highlight that SM mental health functioning is not inconsequential, given that better mental health and social functioning, especially among female SMs, were found to be associated with fewer child mental health problems. Moreover, the results also suggest that there may be added risk for children's mental health associated with having both the SP and the SM with one or more mental health conditions, underscoring the need to destigmatize and increase access to mental health services and interventions for the entire family, including the SM, SP, and children. Further still, programs, interventions, and support services that foster healthy parental social and family functioning and children's psychological growth and resilience are critical to minimizing the impact of mental health difficulties and conditions on all members of the military family.

Future prospective investigations focused on parental and child mental health would be beneficial, including an investigation of mechanisms that promote child and family well-being. Second, understanding other developmental and contextual factors that impact child and family mental health outcomes is key to a full understanding of who may be at particular risk. The findings of this study can inform military force readiness and strategies for its enhancement by mitigating risk factors and potentiating protective factors related to parenting, parental mental health, and child mental health, all of which can affect SM effectiveness. As well, the findings of this study are relevant to many military family support programs. Relevant information can be disseminated through educational materials, webinars, and newsletters, and used to support the development of new services, interventions, and policies to address some of the unmet needs of military families as reported in this research.

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