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TITLE: Optimizing and Validating a Brief Assessment for Identifying Children of Service Members at Risk for Psychological Health Problems following Parent Deployment

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14. ABSTRACT Parental deployment can disrupt the care children receive both as a result of deployment-related separation and the potentially destabilizing impact of deployment on the remaining caregiver and daily routines. This study follows 97 intact military families with a child between 4-7 years in a longitudinal pre- mid- and post-deployment study. At pre- and post-deployment, Service Members and their Spouses complete questionnaires and interviews regarding their psychological health, marital, family and parent functioning. Spouses complete questionnaires regarding children's psychological health and development at pre- mid- and post-timepoints. Children participate through doll and puppet play interviews. The objectives of this study are to: 1) Determine the impact of Service Member's post-deployment psychological health on children ages 4 to 7 years old, and; 2) Identify those particular Service Member's Psychological Health-related symptoms that place children at risk for negative outcomes and assess the means by which these symptoms undermine children's adjustment directly by the Service Member and indirectly via negative impact on the Spouse. Data collection is almost complete with some families completing the post-deployment phase of the study and data analysis and coding to be completed.		
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TABLE OF CONTENTS

	<u>Page</u>
1. Introduction	5
2. Keywords	5
3. Accomplishments	5 - 11
4. Impact	11 - 12
5. Changes/Problems	12 - 13
6. Products	13
7. Participants & Other Collaborating Organizations	14 - 16
8. Special Reporting Requirements	--
9. Appendices	17 - 27

1. INTRODUCTION

Estimates released by the Department of Defense indicate that 49% of deployed Service Members have children and that over half a million children have at least one parent that has been deployed or is currently deployed to the Global War on Terror (GWOT). These sobering statistics raise concern about the impact of parent deployment on child adjustment. While most families of deployed Service Members appear to be resilient in the face of this potentially challenging experience, research also indicates that a substantial number of families and children display significant adjustment difficulties including poor school adaptation, increased depression and anxiety, sleep difficulties, and externalizing behavior problems. Given the increased length and frequencies of recent deployments it has been hypothesized that children with parents involved in these conflicts may be at greater risk for negative outcomes. However, the paucity of careful research examining the impact of combat deployment during periods of major military operations, such as the GWOT, on family and child well-being results in gaps in both our understanding of the implications of postdeployment health and directions for future intervention. Furthermore there is a paucity of empirically supported investigations that can provide clinicians of the likely impact parental post-deployment psychological health issues have on child well being. The 2007 report issued by the American Psychological Association Presidential Task Force on Military Deployment Services for Youth, Families, and Service Members highlights the importance of supporting research that specifies the psychological impact of deployment on families that in turn serves as a conduit for specifying and developing evidence based prevention and intervention efforts. The overall objective of the research conducted in this study has been to differentiate which symptoms of Service Members' psychological health related problems place children at the greatest risk for negative outcomes in those Service Members with children between the ages of 4 and 7. In addition, this study set out to examine the indirect effects of Service Members psychological health risks on child well being via homefront spouses' own well being and parenting as it was also hypothesized to be a potentially important mechanism by which child and family well being would be impacted.

2. **KEYWORDS:** Deployment, Service Member, Marine, homefront spouse, young children, family, development, symptoms of psychopathology, emotion regulation, self regulation, parenting stress, short term longitudinal study

3. ACCOMPLISHMENTS

a. Major goals of the study: The overall objective of the proposed study is to differentiate which symptoms of Service Members' Psychological Health-related problems place children at greatest risk for negative outcomes in those Service Members' whose children are ages 4-7. Whereas Service Members who exhibit any number of Psychological Health-related symptoms are likely to negatively impact child adjustment, we hypothesize unique profiles of symptoms in Service Members will place children at unique risk for psychological health problems.

- Determine the impact of Service Member's post-deployment psychological health on children age 4 to 7 years old.
- Identify those particular Service Member's Psychological Health-related symptoms that place children at risk for negative outcomes and assess the means by which these symptoms undermine children's adjustment directly by the Service Member and indirectly via negative impact on the spouse.

b. What was accomplished under these goals:

- **Methods:** Data collection for this study entailed completion of online questionnaires by both Service Members and homefront spouses across the predeployment, 4 to 6 week postdeployment, and 6 month followup time points. In addition, homefront spouses completed online questionnaires at the middeployment time point. Constructs measured via questionnaires included both Service Members and homefront spouses: psychological health (i.e. PTSD, depression, dissociation, problematic drinking), marital functioning and interpersonal approaches (i.e. anger, conflict management, marital satisfaction and quality), parent functioning (i.e. parenting stress, perceptions of parent-child relationships, feelings of efficacy), and perceptions of child well-being (i.e. symptoms of psychopathology and stage salient

developmental task achievement). Sociodemographic information including age, marital status, household composition, education, personal/household income, spouse/partner occupational status/history, race/ethnicity, and current living situation (e.g. on base, off base, with extended family etc.) were also collected as well as military specific information including service member's military history such as current rank, history of deployment (i.e. number of deployments, longest and shortest deployment), length of time stationed at Camp Pendelton.

In addition, home visits occurred at each time point. Tasks varied at each visit but generally consisted of activities designed to measure parent and child attachment, children's perceptions of their own well-being and parent-child relationships and observations of parent-child relationships, parent scaffolding, co-parenting, and children's emotion and self regulation. Tasks are videotaped, transcribed, and coded to quantify what is observed. The Peabody Picture Vocabulary Test-Revised (PPVT-R; Dunn & Dunn, 1981) a measure of receptive language was used as an estimate of children's intellectual functioning

- **Activities:** Data collection and coding of observation data is ongoing. As seen below, all predeployment data collection (n = 97 families) is complete.
 - **Data collection:**
 1. Protocol development and IRB: Completed
 2. Predeployment data collection: Completed
 3. Middeployment data collection: 96% Complete
 4. Postdeployment data collection: 72% Complete
 5. Followup deployment data collection: 65% Complete

	Predeployment	Middeployment	Postdeployment	Followup
Status				
Completed	99	94	70	63
Scheduled in next month			15	
To come		3	12	34

- **Data coding:**

Predeployment

Task	Participants	Construct measured	Coding Complete
Tower Task	Child, SP, and SM	Co-parenting, parent-child interactions	<ul style="list-style-type: none"> • Co-parenting coding completed • Parent-child interaction coding still to be completed
Free Play	Child and SP Child and SM	Parent-child interaction, parent scaffolding of child behavior and emotions	<ul style="list-style-type: none"> • Parent-child interaction coding still to be completed
Delay Task – M&M	4 year old children	Child self regulation	Complete
Persistence Task - puzzle	5 – 7 year old children	Child self regulation	Complete
Problem Solving Tasks – Lego models and Mazes	Child and SP Child and SM	Child emotion regulation, parent-child interaction, parent scaffolding of child behavior and	Coding to be completed

		emotions	
Wait Task	Child and SP	Child emotion regulation	Complete

Middeployment

Task	Participants	Construct measured	Coding Complete
Free Play	Child and SP	Parent-child interaction, parent scaffolding of child behavior and emotions	Coding to be completed
Delay Task – Dinky Toys	4 year old children	Self regulation	Coding to be completed
Persistence Task – Imperfect Circles	5 – 7 year old children	Self regulation	Coding to be completed
Wait Task	Child and SP	Child emotion regulation	Complete for participants to date

Followup

Task	Participants	Construct measured	Coding Complete
Draw a picture	Child, SP, & SM	Co-parenting, Parent-child interaction	Coding to be completed
Free Play	Child and SP Child and SM	Parent-child interaction, parent scaffolding of child behavior and emotions	Coding to be completed
Persistence Task - puzzle	5 – 7 year old children	Self regulation	Complete for participants to date
Problem Solving Tasks – Lego models and Mazes	Child and SP Child and SM	Child emotion regulation, parent-child interaction, parent scaffolding of child behavior and emotions	Coding to be completed
Wait Task	Child and SP	Child emotion regulation	Complete for participants to date

c. Significant results:

- Demographics

As seen above, 99 families were initially included in the study; however, due to cancelled deployments a total of 97 families have been followed over time. Participating homefront spouses, all mothers, ranged in age from 22 to 49 ($M = 33.2$ years; $SD = 4.17$ months) and most self-identified as Caucasian (74%; African-American, 4%; Hispanic, 13%; American Indian/Alaskan Native, 2%; other, 5%). Participating Marines ranged in age from 23 to 44 ($M = 33.74$ years; $SD = 4.10$ months) and again most self-identified as Caucasian (75%; African-American, 4%; Asian, 1%; Hispanic, 13%; American Indian/Alaskan Native, 1%; other, 4%). For families with more than one child in the 4 to 7 years age range, they were asked to choose their youngest child. Children were 49% girls, and ranged in age at the predeployment time point from 4 years, 0 months to 7 years, 8 months ($M = 5$ years, 6.7 months; $SD = 1.10$ months). Children were identified by their mothers as Caucasian, 67%; African-American, 4%; Asian, 8%; Hispanic, 10%; of mixed race or other, 19%. Family income, as measured by self-report household yearly income, ranged from 0 to \$4999 a year at the bottom of the range to above \$80,000 at the other end of the range.

Approximately 1.5% of the sample earned between \$25,000 and \$29,500, 1% between \$35,000 and \$39,999, 7% between \$40,000 and \$44,999, 8% between \$45,000 and \$49,999, 3% between \$50,000 and \$54,999, 2% between \$55,000 and \$59,999, 5% between \$60,000 and \$64,999, 15% between \$65,000 and \$79,999, and 23% of the sample earn \$80,000 or more.

- **Research Questions**

To address our aims, descriptive analyses across all 4 deployment time points were first used to examine mean levels of Marine and homefront spouse's difficulties with symptoms of psychopathology including depression and PTSD, difficulties with problematic drinking, as well as elevated levels of worry among spouses. In addition, to means and standard deviations, frequencies were observed and the percentage of individuals scoring above the clinical cutoff scores that are typically agreed upon in the literature were noted. These include CESD (depression) scores above 16, PCL (PTSD) scores above 33, and MAST (drinking) scores above 5. Penn State Worry Questionnaire Scores between 40 and 59 are considered moderate worry whereas scores above 60 are considered high worry. In addition, we examined the means and standard deviations at each time point for children's internalizing and externalizing symptomatology. Again, cutoff scores were examined and the percentage of children with a T-score above 65 was noted. See Table 1.

Although more complex analyses are planned, preliminary analyses with the available data have been completed to begin examining key research questions. Notably, low power given the incomplete sample at this juncture only begins to allow observations regarding potential links. Partial correlations were used to examine the impact of Service Member's post-deployment psychological health on children age 4 to 7 years old, controlling for level of child functioning prior to the deployment. Partial correlations between Service Members' symptoms of PTSD, depression, and problematic drinking both immediately following deployment (postdeployment at 4-6 weeks) and at followup (6 months following deployment) were examined in association with changes in children's symptoms of internalizing and externalizing difficulties. These links were examined at both the immediate at 4-6 week post deployment time period and 6 month follow up deployment time point. In addition, in order to examine the potential role of method bias via reporter both Service Members and homefront mother's ratings of children's internalizing and externalizing symptoms were examined. As seen in Table 2, higher rates of Service Member PTSD immediately following deployment demonstrated some initial trends towards associations with higher rates of both internalizing and externalizing child symptoms as rated by the Service Member and higher rates of internalizing difficulties at 6 month follow up as rated by the homefront spouse. Several trends were also observed. Higher rates of Service Members' problematic drinking immediately following deployment was inversely related to child internalizing symptoms whereas higher rates of Service Member depression immediately following deployment demonstrated trend level associations with increases in children's internalizing symptoms at 6 month followup. When correlations between Service Members difficulties at the 6 month followup and children's difficulties at this time point were examined two findings emerged: homfront mother's rated their children as demonstrating heightened rates of internalizing symptoms when Service Members were higher on PTSD symptoms and Service Members rated their children as having elevations in externalizing symptoms that were related to higher levels of drinking.

Given the significant increases in homefront spouses' difficulties with symptoms of PTSD, depression, and problematic drinking over the course of deployment as well as

the high rates of worry demonstrated by spouses, partial correlations were also examined. Specifically given the peak in rates of difficulty during the deployment, middeployment rates of maternal symptoms and children's symptoms of internalizing and externalizing difficulties, controlling for predeployment levels of child difficulties, were examined at mid-, post-, and followup deployment periods. See Table 3. Of note, homefront spouses' ratings of depressive symptoms at middeployment were related to heightened levels of child internalizing symptoms both concurrently and following deployment at both post and followup deployment time points. These findings are striking as they are found not only when considering homefront parent's ratings of their children's symptoms but also when considering Service Member's post- and followup deployment ratings. There was also some evidence to suggest links between homefront spouses' depressive symptoms and ratings of children's externalizing symptoms. Further, some associations were demonstrated between homefront spouses' symptoms of PTSD and internalizing symptoms at middeployment and followup deployment time points. Correlations between homefront spouses' middeployment worry and heightened rates of internalizing and externalizing symptoms were also demonstrated across mid-, post-, and follow-up time points both when homefront spouses and Service Members were rating children's symptoms of psychopathology. Interestingly, correlations emerged linking higher rates of homefront spouse drinking behavior with lower ratings by Service Members' of child difficulties with internalizing and externalizing problems.

Next, the PROCESS Macro Model 4 (Hayes 2013) was used to test whether Marines' difficulties with elevations in symptoms of depression, PTSD, and problematic drinking were indirectly related to children's behavior problems (i.e. externalizing symptoms) and depressive affect (i.e. internalizing symptoms) via associations with homefront spouses' difficulties with emotion regulation and parenting stress. In addition, we hypothesized that Marines's difficulties with emotion regulation and parenting stress might also contribute indirectly to children's symptoms of psychopathology via homefront spouses' difficulties with emotion regulation and parenting stress. Recent guidelines have indicated that unlike prior mediation recommendations a direct effect between an independent and dependent variable is not needed to examine an indirect effect (Preacher et al., 2007). Therefore, the indirect effect of Service Members' symptoms of psychopathology or difficulties with parenting stress or emotion regulation 4 to 6 weeks follow deployment was examined on child symptoms of psychopathology regardless of whether there was a direct effect. For the results of these analyses to be considered significant, the 95% CIs must not encapsulate 0. All mediational analyses covaried children's predeployment level of the outcome variable (i.e. either internalizing or externalizing symptoms). Service Members' difficulties immediately following deployment (i.e. at the 4-6 week postdeployment time point) were used as predictors of homefront spouses' and children's 6 month followup deployment adaptation. (See Figure 1 for heuristic model).

The first set of models examined the direct and indirect effects of Marine's elevations in symptoms of psychopathology on children's elevations in internalizing and externalizing problems of the course of deployment via mothers' emotion regulation. See Figure 2. Marines' elevations in PTSD were significantly associated with mother's difficulties with emotion regulation. Although there was not a direct effect from Marine's PTSD to children's increases in internalizing and externalizing difficulties, there was also a significant indirect effect of Marine's elevations in PTSD and depressive symptoms on both children's internalizing and externalizing symptoms via mother's difficulties with emotion regulation (See Table 4). Similar findings emerged for Marine's depressive symptoms with a significant link between Marine's depressive

symptoms and homefront spouses' emotion regulation, homefront spouses' emotion regulation and children's internalizing and externalizing difficulties, but only an indirect effect from Marine's depressive symptoms to children's outcomes via homefront spouses regulation (See Table 4 and Figure 3). Examinations of Marine's problematic drinking produced the same pattern of findings, however only links with internalizing symptoms emerged (See Table 4 and Figure 4).

The second set of models examined the direct and indirect effects of Marines' difficulties with emotion regulation on children's symptoms of psychopathology via mother's parenting stress. Marines' difficulties with emotion regulation were significantly associated with heightened maternal parenting stress (i.e. distress with parenting and perceptions of dysfunction within the parent-child relationship). In turn, greater maternal parenting stress was linked with changes in children's internalizing symptoms. Whereas there was no direct effect of Marines' emotion regulation difficulties on children's psychopathology, a significant indirect effect was evidenced. (See Table 4 and Figure 5). Similar findings were not evidenced for changes in children's externalizing symptoms.

The final set of models were used to examine the direct and indirect effects of Marine's difficulties with parenting stress on children's symptoms of psychopathology via mothers' emotion regulation. Marines' difficulties with parenting stress were directly related to heightened difficulties with mother's emotion regulation. Again, no direct effect was observed from Marine's parenting stress to increases in children's symptoms of internalizing symptoms; however an indirect effect on internalizing symptoms was evidenced via mother's difficulties with emotion regulation. (See Table 4 and Figure 6). Again, Similar findings were not found for changes in children's externalizing difficulties.

d. What opportunities for training and professional development has the project provided:

Nothing to Report.

e. How were the results disseminated to communities of interest:

A number of briefings and team meetings were held regarding the emerging results of the research at Camp Pendleton with Marine Corp Marine and Family Programs leadership, MEU leadership, Family Readiness Officers, MFLCs, the Community Counseling Center, FOCUS, Battalion leadership, Chaplains, Child Development Center teachers, children's library staff, and ASYMCA staff.

f. What do you plan to do during the next report period to accomplish the goals:

Although the grant period has ended there are still families who are finishing the final phases of data collection in the research. Data collection using Wayne State funds is ongoing to complete the study. In addition, data coding of observational data is ongoing. Upon completion of data collection and coding final data analysis based on the proposed data plan will be engaged. After the research and analysis is complete, Drs. Wargo Aikins and Aikins will return to Camp Pendleton for a final visit to reengage in conversations regarding the outcomes of the research with the stakeholders who are listed above. The support of the stakeholders has been fundamental in helping to recruit the families in the study and to ask pertinent questions that have influenced our thought processes regarding the experiences of Marine families. Sharing the results of the research will be important in contributing to the ongoing dialogue regarding the impact of military deployment on young children and families as well as thinking about the ways in which these findings help to suggest important targets for intervention. In addition, we have maintained contact with the families in our study, even those who have completed all time points, via

holiday and birthday cards. We will distribute a newsletter to these families with pertinent findings outlined in lay language given the significant contribution they have made to the research.

4. IMPACT

a. What was the impact on the development of the principal discipline of the project:

Although not yet complete, the ability to collect data with almost 100 deploying families of young children across the deployment cycle has the potential to have important implications for our understanding of the impact of deployment on young children and families. Families in the current study have on average experienced 4 ($SD = 1.92$) deployments, reflecting the current period of lengthy military service and frequent redeployments. Moreover, the opportunity to collect nuanced observational and interview data, in addition to questionnaire data, allows this study to ask more in-depth questions regarding child psychopathology, child development, parent-child interaction, parent relationships and approaches (e.g. co-parenting), and parent attachment. Moreover, this data provides multi-method and multi-reporter approaches to understanding children and families, which are the gold-standard in the field of developmental psychology and developmental psychopathology. Taken together, these approaches will allow for specific targets for preventions and interventions in the near future.

It is notable that for Service Members, a relatively low percentage demonstrated significant self-reported difficulties with depressive symptoms, PTSD, or problematic drinking. These percentages, particularly following deployment, are lower than those that have been routinely found in the literature over the course of the last decade. Given the voluntary nature of participation in this research it is possible that Service Members who chose to have their families participate were better functioning and less at risk for negative deployment outcomes. It is also possible that the immediate impact of deployment on the Service Members at the postdeployment and followup time points was not completely adequate for measuring the impact of deployment. Research for instance often examines the emergence of PTSD over the course of a year following deployment, it is possible that symptoms associated with deployment for the Service Members have yet to emerge. Further longitudinal studies that follow families for longer periods of time, accounting for the complexities of additional deployments and long separations for training may be important for understanding the complete impact of Service Members symptoms.

Strikingly, homefront spouses demonstrated heightened rates of depressive symptoms from predeployment to followup with the highest rate occurring during Service Members' deployment (i.e. 34% at or above the clinical cutoff score). Increased rates of PTSD from pre- to mid-deployment were also observed for homefront spouses with a higher percentage of mothers at this time point demonstrating clinically concerning reports of PTSD symptoms than either Service Members or homefront spouses reported at any other time. Taken together, these findings may reflect the stress of Service Member deployment on homefront parents.

Similar to Service Members, a low percentage of children demonstrated clinical levels of internalizing symptoms (e.g. anxiety or depression) or externalizing symptoms (e.g. behavior problems). These findings are encouraging. At the broadest level at most 5% of children within this sample had symptoms that were rated by their parents as clinically significant difficulties. However, the richness of this data allows for further examination that will allow us to understand whether children are achieving stage salient developmental skills such as emotion and self-regulation, social skills and friendships, as well as positive parent-child relationships and secure attachment. Continued data coding and analysis will allow us to examine in more depth whether alterations in trajectories of development are observed for some children.

Preliminary regression analysis examining mediation seem to suggest that the associations may also be much more complex and that simple direct effects between Service Members' symptoms of psychopathology or difficulties with parenting and regulating emotions may not be responsible for undercutting child well-being. Rather, the findings to date, seem to suggest that broadly Service Members' difficulties are dysregulating to homefront spouses which in turn is related to children's

increasing difficulty with internalizing and externalizing symptoms. While further analyses are necessary to examine potential bidirectional pathways between Service Member and homefront spouses difficulties these findings point towards systemic family associations that might be at play when examining the impact of military deployment on children and families.

Further planned analyses will use growth mixture modeling to understand trajectories of adaptation and potential influences for children, Service Members, homefront spouses, and families in more complex ways. Completion of data collection and coding will allow us to accomplish these analyses.

b. What was the impact on other disciplines:

Although military deployment is unique in many ways, the associated stress for families may be an important model for thinking about child development in a broader sense. Moreover, child theories of stress and coping as well as family systems theories may provide important approaches for thinking about military deployment. In this manner, the bidirectional impact of this research is apparent. Future research will compare an age-yoked sample of 4 to 7 year olds experiencing socioeconomic stress as a means for comparing base rates of internalizing and externalizing difficulties as well as pathways from paternal and maternal difficulties to negative child outcomes.

c. What was the impact on technology transfer:

Nothing to Report

d. What was the impact on society beyond science and technology:

The potential to influence approaches to intervention for military-affiliated families may be a particularly important impact of the research. By mechanistically pinpointing where family difficulties may evolve and how interventions may target these areas of breakdown, targeted interventions may be developed.

5. CHANGES/PROBLEMS:

a. Changes in approach and delays encountered:

A number of challenges were encountered over the course of this award that led to significant delays. In short, this began with the Co-PIs leaving their respective institutions to which the grant was initially awarded. Many difficulties ensued in the transfer of the award and obtaining new IRB approvals. Initial plans to pursue this research with the Army was suspended due to difficulties obtaining approval of command at Fort Drum. Efforts were re-tasked to obtaining a commitment from the Marine Corps to engage in this research with their families.

In Winter 2014, the Drs. Aikins presented the study to the Marine and Family Programs Division, Headquarters Marine Corps, Quantico, VA. Several suggestions were made regarding revising the study to fit USMC-specific details of the deployment lifecycle. In December 2014, we received a letter of support from BGen Sanborn, Director, Marine and Family Programs Division. We then submitted our revised IRB protocol to our local Academic Institution and received approval of the USMC-based protocol in March, 2015. The study was recognized by I Marine Expeditionary Force (I MEF) at Base Camp Pendleton in July, 2015. I MEF supports the 15th, 13th and 11th Marine Expeditionary Units (MEUs) on a rotating deployment schedule.

It was determined in the Fall of 2015 that a renewed FWA amendment between Wayne State University and the Department of the Navy was required resulting in further delay. The 15th MEU had been on-board and eager to participate however the timing of new approvals led to a missed opportunity to engage the many families deploying with this unit prior to their deployment in Winter 2016.

We have also found over the course of this study that recruitment of Marine Corp families for this type of in-depth study without a research infrastructure already established on base is a difficulties task. Recruitment efforts were focused both on family events and places where young children and their

parents might be found (e.g. libraries, the YMCA, bowling alleys, on base family events) and on deploying units' activities (e.g. deployment briefings, town hall meetings, unit events, FRO trainings). Given the highly mobile nature of military families and the sheer size of Camp Pendleton many families reported never hearing of the study prior to the contact where they became aware of it and decided to participate.

As a result of all of these delays and difficulties, we received 3 No Cost Extensions, Summer 2016, 2017, and 2018. Over this time, we actively recruited and were able to follow the 97 families that were required according to the power analyses that are designed specifically for the analyses proposed in accordance with the feedback received at our last IPR. Although our time frame has been significantly slowed we have been successful in keeping the recruited families engaged over the course of the short-term longitudinal study and are eager to complete the data collection, coding, and analysis.

b. Changes that impacted expenditures:

The reduced number of families in the study resulted in fewer expenditures for participant reimbursements. However, increased distance necessary to travel to participants' homes and significant effort necessary for recruitment, including the hiring of a recruitment coordinator at Camp Pendleton for a short period of time, resulted in additional expenditures above those initially budgeted for some of those expenses.

c. Significant changes in IRB:

There are no significant deviations, unexpected outcomes or changes to the IRB to report. Personnel changes and small changes to the protocol were approved (i.e. changes to the wording of a question, movement of a task from one time point to another due to length of visit considerations) by IRB when necessary.

6. PRODUCTS

Conference Presentations:

Jakubik, A., Wargo Aikins, J. Aikins, D. Family cohesion as a moderator between maternal and child depressive symptoms during deployment. Poster presented at the Society for Research in Child Development, Baltimore, MD, March, 2019

Kalian, C. L., Wargo Aikins, J. Aikins, D. Genders' moderating effects on childhood parentification in military connected youth. Poster presented at the Society for Research in Child Development, Baltimore, MD, March, 2019.

7. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS

a. What individuals have worked on the project:

Name	Julie Wargo Aikins
Project Role	PI
Research Identifies	
Nearest person month worked	
Contribution to Project	Dr. Wargo Aikins designed the procedure, has directed the research staff both in San Diego and Detroit, designed or adapted the coding systems for the observational coding, has liaised with personnel at Camp Pendleton to establish connections at I MEF, has run preliminary analyses, and has begun substantive analyses.

Name	Deane Aikins
Project Role	Co-PI
Research Identifies	
Nearest person month worked	
Contribution to Project	Dr. Aikins collaborated on the design of the procedure particularly as relevant to adult psychopathology and Marine risk and resiliency. Dr. Aikins' expertise in PTSD has shaped the hypotheses regarding the influence of Marine well being on children's adaptation following deployment. Dr. Aikins is collaborating on analyses as data collection is concluding.

Name	Devon Malloy
Project Role	Project Manager
Research Identifies	
Nearest person month worked	
Contribution to Project	Mr. Malloy ran the day-to-day operations of the project including the programming of the online surveys, initial recruitment of families, and aided in training research assistants.

Name	Kristyn Wong
Project Role	Project Manager
Research Identifies	
Nearest person month worked	
Contribution to Project	Dr. Wong ran the day-to-day operations of the project including the recruitment and scheduling of families, training and supervision of research assistants, and processing and coding of data.

Name	Anna Smith
Project Role	Project Manager
Research Identifies	
Nearest person month worked	
Contribution to Project	Ms. Smith ran the day-to-day operations of the project including the recruitment and scheduling of families, training and supervision of research assistants, and processing and coding of data, data collection, and ordering and management of supplies.

Name	Sally Bolus
Project Role	Reesarch Assistant
Research Identifies	
Nearest person month worked	
Contribution to Project	Ms. Bolus collects data during homevisits with the families at Camp Pendleton and in the surrounding areas.

Name	Dominic Marroquin
Project Role	Reesarch Assistant
Research Identifies	
Nearest person month worked	
Contribution to Project	Mr. Marroquin collects data during homevisits with the families at Camp Pendleton and in the surrounding areas.

Name	Klaudia Marroquin
Project Role	Reesarch Assistant
Research Identifies	
Nearest person month worked	
Contribution to Project	Ms. Marroquin collects data during homevisits with the families at Camp Pendleton and in the surrounding areas.

Name	Anna Dowd
Project Role	Reesarch Assistant
Research Identifies	
Nearest person month worked	
Contribution to Project	Ms. Dowd collected data during homevisits with the families at Camp Pendleton and in the surrounding areas.

Name	Scott Litwack
Project Role	Coder
Research Identifies	
Nearest person month worked	
Contribution to Project	Dr. Litwack is serving as the reliability coder for the Adult Attachment Protocols. He is one of a small handful of coders in the US that are trained to reliability greater than 80% on this measure.

b. Change in the active other support of the PI or Co-PI:
Nothing to report.

c. What other organizations were involved as partners:
Nothing to report

Table 1. Means, standard deviations, and percentage of Service Members, Homefront Spouses, and children above agreed upon problematic cutoff scores.

	Predeployment	Middeployment	Postdeployment	Followup
	<u>Depressive Sxs</u>	<u>Depressive Sxs</u>	<u>Depressive Sxs</u>	<u>Depressive Sxs</u>
SM	6.89 (7.08) 12%		5.64 (6.20) 8%	6.91 (4.26) 3%
SP	8.27 (6.62) 10%	12.07 (9.01) 34%	9.21 (10.45) 14%	10.20 (6.99) 20%
	<u>PTSD</u>	<u>PTSD</u>	<u>PTSD</u>	<u>PTSD</u>
SM	7.53 (9.24) 3%		7.06 (10.48) 5%	8.22 (13.30) 5%
SP	8.52 (10.06) 3%	11.49 (11.34) 8%	8.14 (12.13) 5%	6.75 (9.13) 5%
	<u>Drinking</u>	<u>Drinking</u>	<u>Drinking</u>	<u>Drinking</u>
SM	1.52 (2.21) 9%		1.55 (2.76) 11%	1.70 (2.90) 10%
SP	.68 (1.19) 2%	.53 (1.16) 2%	.56 (1.15) 3%	1.75 (2.68) 10%
	<u>Worry</u>	<u>Worry</u>	<u>Worry</u>	<u>Worry</u>
SP	48.30 (14.39) 44% moderately 28% high	45.43 (18.96) 44% moderately 25% high	48.19 (10.28) 60% moderately 16% high	47.65 (9.50) 68% moderately 10% high
	<u>Internalizing Sxs:</u>			
SM	46.69 (9.59) 2%		44.54 (8.37) 2%	44.77 (9.02) 2%
SP	45.94 (9.58) 5%	49.45 (9.97) 10%	45.91 (9.99) 2%	46.10 (8.69) 3%
	<u>Externalizing Sxs:</u>			
SM	45.92 (9.13) 2%		44.75 (9.33) 0%	45.80 (8.85) 2%
SP	45.09 (9.60) 2%	47.42 (10.01) 5%	45.33 (9.91) 5%	45.30 (9.41) 3%

Notes. SM = Service Member and SP = Homefront Spouse
M (SD) n% above the typically agreed upon cutoff score for clinical severity.
 No middeployment questionnaire data was collected from Service Members' given their deployment in the field.

Table 2. Partial correlations between Service Members' own ratings of symptoms of difficulties and ratings of children's symptoms of psychopathology at postdeployment and followup time points, controlling for predeployment levels of child internalizing and externalizing levels of symptoms.

Rater	Postdeployment				Followup			
	<i>Service Member</i>	<i>Service Member</i>	<i>Homefront Spouse</i>	<i>Homefront Spouse</i>	<i>Service Member</i>	<i>Service Member</i>	<i>Homefront Spouse</i>	<i>Homefront Spouse</i>
Children's Sx	Internalizing	Externalizing	Internalizing	Externalizing	Internalizing	Externalizing	Internalizing	Externalizing
Service Member Own Ratings of Difficulties								
<i>Postdeployment:</i>								
PTSD	.27*	.24 ^T	.12	.15	.17	.18	.34*	.06
Depression	.16	.20	.00	.16	.17	.08	.24 ^T	.11
Drinking	.05	.11	-.22 ^T	-.06	.14	.18	-.03	-.04
<i>Followup:</i>								
PTSD					.17	.22 ^T	.19	.07
Depression					.19	.17	.41**	.07
Drinking					.17	.06	.16	.11

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

Table 3. Partial correlations between homefront spouses own ratings of difficulties and their ratings of children's difficulties with internalizing and externalizing difficulties at mid-,post-, and followup deployment time points, controlling for predeployment levels of child internalizing or externalizing levels of symptoms.

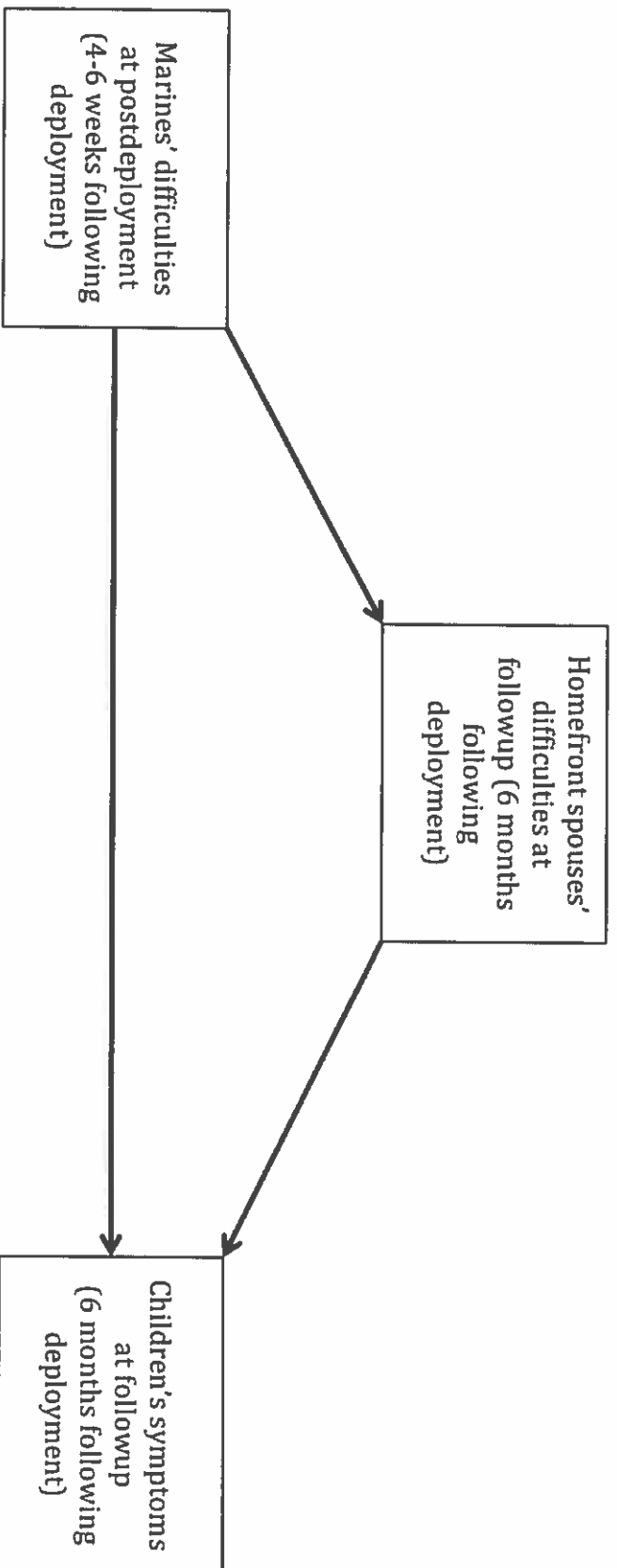
Homefront Spouses' Own Ratings of Difficulties	<i>Middeployment</i>		<i>Postdeployment</i>		<i>Followup</i>					
	Homefront Spouse		Service Member		Homefront Spouse					
	<u>Int</u>	<u>Ext</u>	<u>Int</u>	<u>Ext</u>	<u>Int</u>	<u>Ext</u>				
<i>Middeployment:</i>										
PTSD	.31**	-.17	.13	.04	.01	-.02	.26*	.11	.38**	.19
Depression	.35**	.29**	.44 ^T	.16	.25*	.20	.32*	.14	.40**	.28*
Drinking	.00	-.05	-.23 ^T	-.25	.13	-.04	-.05	-.28*	.08	.14
Worry	.28*	.28*	.12	.31*	.26*	.31*	.44***	.43***	.43***	.33*

Notes. ^T Trend, * p < .05, **p < .01.

Table 4. PROCESS Model results reflecting the direct and indirect effects of Marines' difficulties following deployment in predicting children's symptoms of psychopathology at 6 month deployment followup via homefront spouses' difficulties with emotion dysregulation and parenting stress.

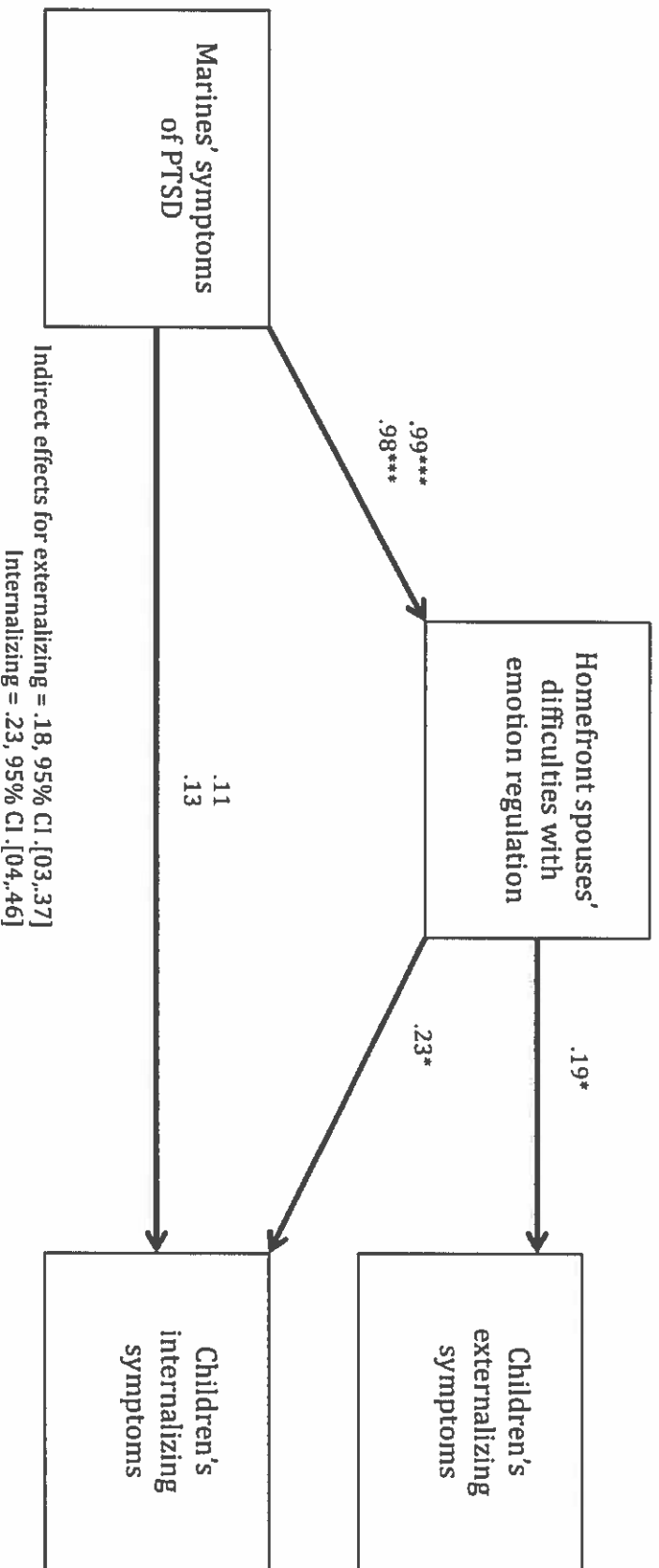
	Marines' elevations in symptomatology <i>4 weeks post-deployment</i>	→ <i>6 months post-deployment</i>	Homefront spouse emotion dysregulation <i>6 months post-deployment</i>	→ <i>6 months post-deployment</i>	Child symptomatology <i>6 months post-deployment</i>
<u>PTSD and Child Externalizing</u>					
	.99, SE = .14, t = 7.08***				.19, SE = .08, t = 2.26*
Direct effect of PTSD on Child Externalizing	.11, SE = .09, t = 1.19, n.s.				
Indirect effect = .18, SE = .09, 95% CI = [.03,.37]					
<u>Depression and Child Externalizing</u>					
	1.89, SE = .20, t = 9.14***				.23, SE = .09, t = 2.54*
Direct effect of Depression on Child Externalizing	.17, SE = .15, t = 1.11, n.s.				
Indirect effect = .45, SE = .17, 95% CI = [.12,.80]					
<u>PTSD and Child Internalizing</u>					
	.98, SE = .14, t = 6.91***				.24, SE = .09, t = 2.67*
Direct effect of PTSD on Child Internalizing	.13, SE = .10, t = 1.30, n.s.				
Indirect effect = .23, SE = .11, 95% CI = [.04,.46]					
<u>Depression and Child Internalizing</u>					
	1.90, SE = .21, t = 9.23***				.31, SE = .10, t = 3.02**
Direct effect of PTSD on Child Internalizing	.21, SE = .17, t = 1.25, n.s.				
Indirect effect = .59, SE = .23, 95% CI = [.16,1.06]					
<u>Drinking and Child Internalizing</u>					
	2.27, SE = .65, t = 3.47***				.19, SE = .07, t = 2.64**
Direct effect of Drinking on Child Internalizing	.40, SE = .37, t = 1.08, n.s.				
Indirect effect = .44, SE = .28, 95% CI = [.08,1.17]					

Figure 1. Heuristic model depicting indirect effects of Marines' difficulties following deployment on children's symptoms of psychopathology via homefront spouses' difficulties.



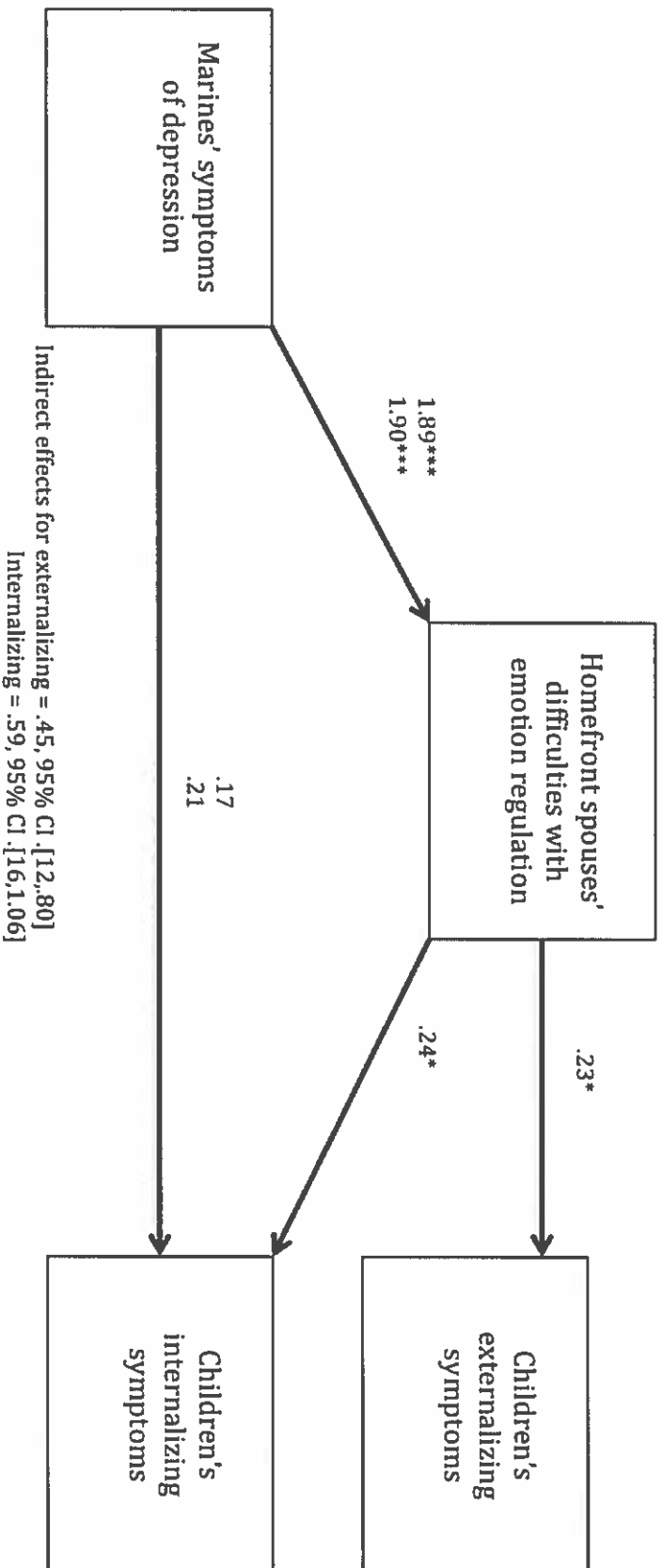
Notes: Children's symptoms of psychopathology were rated by Marines at both pre- and followup deployment time points.
Children's symptoms of psychopathology prior to deployment were covaried in each model.

Figure 2. Model depicting indirect effects of Marines' PTSD following deployment on children's internalizing and externalizing symptoms via homefront spouses' difficulties.



Note. Internalizing and externalizing symptoms were examined in separate models but are depicted in the same figure for simplicity. Where two coefficients are listed the top number is for the model with externalizing symptoms and the bottom coefficient is for the model with internalizing symptoms.

Figure 3. Model depicting indirect effects of Marines' symptoms of depression following deployment on children's internalizing and externalizing symptoms via homefront spouses' difficulties with emotion regulation.



Note. Internalizing and externalizing symptoms were examined in separate models but are depicted in the same figure for simplicity. Where two coefficients are listed the top number is for the model with externalizing symptoms and the bottom coefficient is for the model with internalizing symptoms.

Figure 4. Model depicting indirect effects of Marines' elevations in drinking behavior following deployment on children's internalizing symptoms via homefront spouses' difficulties with emotion regulation.

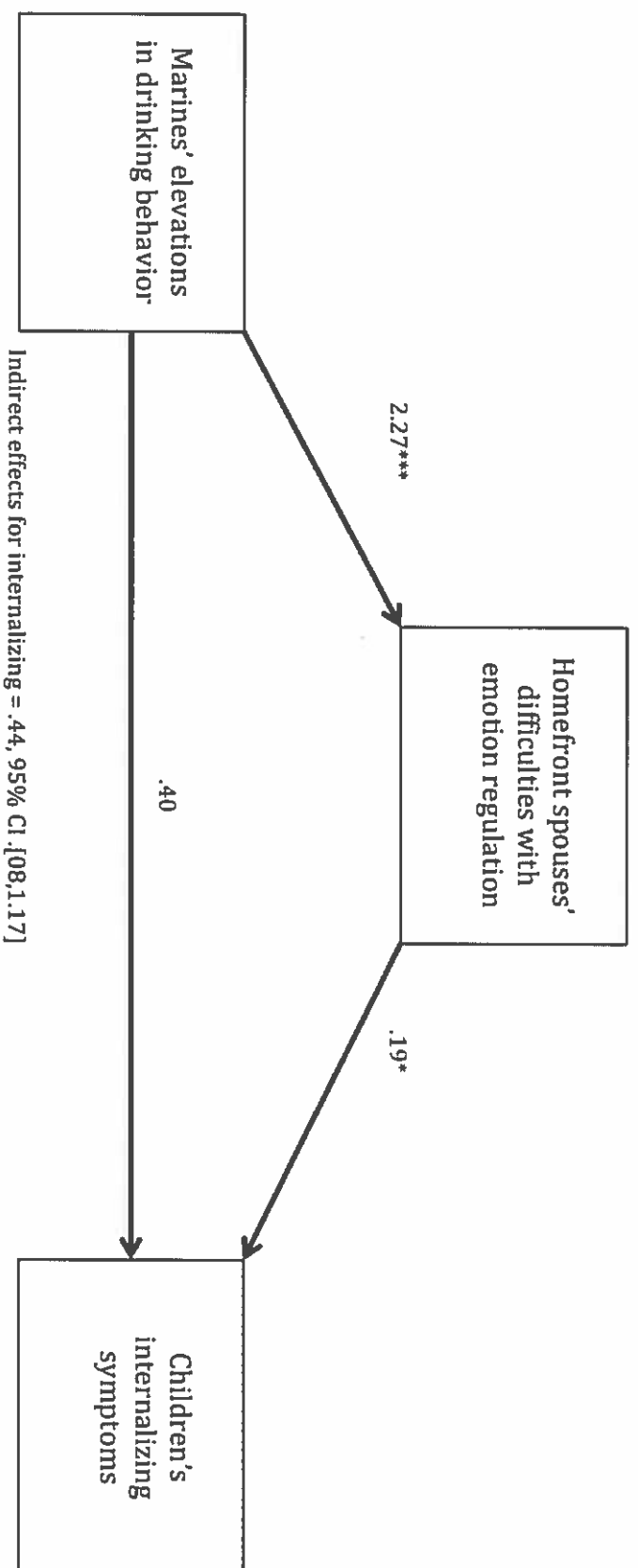
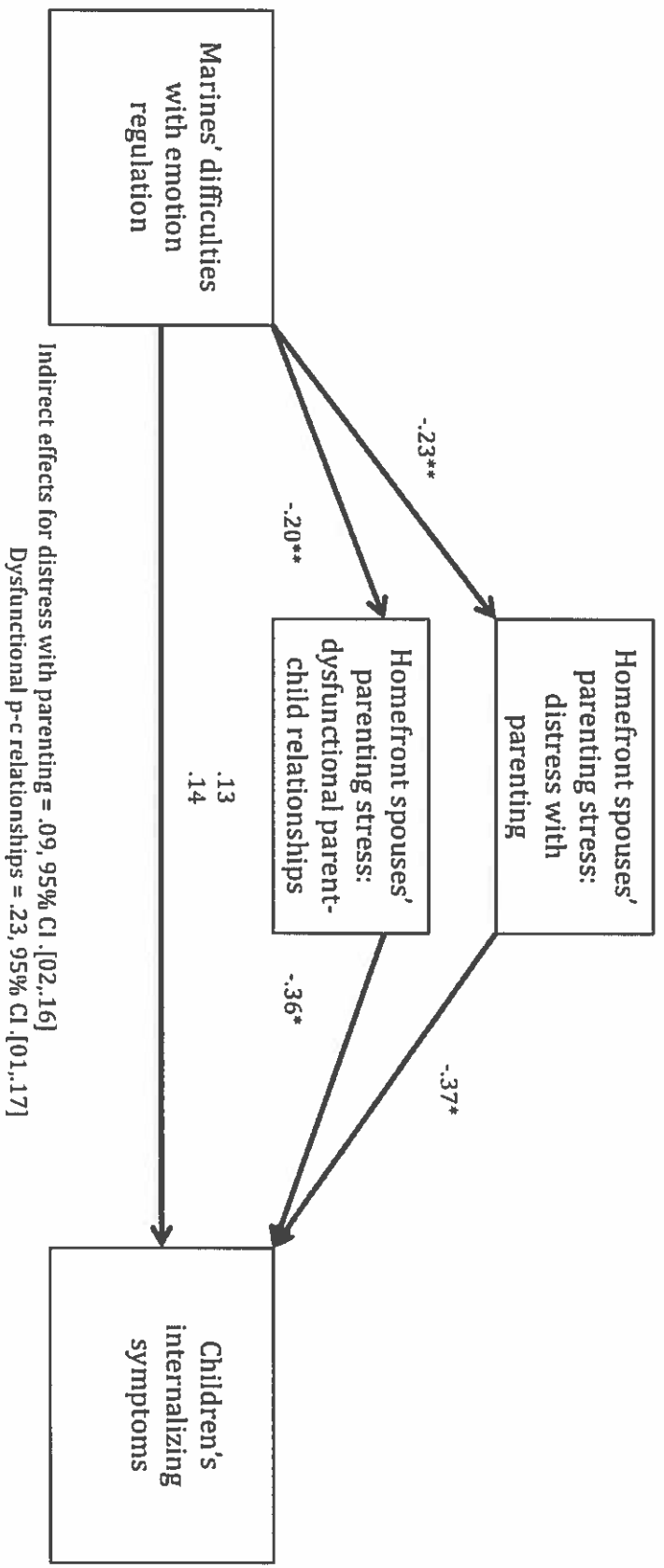


Figure 5. Model depicting indirect effects of Marines' PTSD following deployment on children's internalizing and externalizing symptoms via homefront spouses' difficulties.



Note. Distress with parenting and dysfunctional parent-child relationships were examined in separate models but are depicted in the same figure for simplicity. Where two coefficients are listed the top coefficient is for the model with parenting distress and the bottom coefficient is for the model with dysfunctional parent-child relationships.

Figure 6. Model depicting indirect effects of Marines' PTSD following deployment on children's internalizing and externalizing symptoms via homefront spouses' difficulties.

