Chapter 2
Does Deployment Keep Military Marriages Together or Break Them Apart? Evidence from Afghanistan and Iraq

Benjamin R. Karney and John S. Crown

Abstract Marriages under stress are generally at increased risk of ending in separation and divorce. Since 2001, military marriages have been under unprecedented levels of stress, with deployments longer and more frequent than in recent decades. The analyses described here drew from the personnel records and deployment histories for the entire population of the U.S. military to estimate the effects of time deployed to Afghanistan and Iraq on the subsequent risk that a military couple will dissolve their marriage in the first 3 years of the conflict. Contrary to expectations, time deployed was associated with reduced risk of marital dissolution for most of the military, and longer time deployed was associated with greater reductions in risk. Moreover, the benefits of deployment were greater for younger couples and couples with children. Together, these results highlight the frequently overlooked role of supportive institutions in promoting resilience in marriages under stress.

To the extent that maintaining a successful marriage takes work, then doing that work should be harder under conditions of stress. Indeed, compared to couples who are relatively free from stress, married couples under stress do tend to have more difficulties communicating effectively (Neff & Karney, 2004; Story & Repetti, 2006), and evaluate their relationships more negatively (Karney, Story, & Bradbury, 2005; Tesser & Beach, 1998). Couples facing chronic difficulties, such as financial strain, are at significantly higher risk of divorcing compared to couples in more supportive environments (e.g., Bramlett & Mosher, 2002; Conger et al., 1990). Moreover, challenging events that affect large numbers of couples, like natural disasters, tend to be associated with elevated rates of divorce among affected couples (e.g., Cohan & Cole, 2002).

Acknowledging the role that external stress may play in marriage has led, in the years since the terrorist attacks of September 11, 2001, to rising concerns for the

B.R. Karney (✉)
Department of Psychology, University of California,
P.O. Box 951563, Los Angeles, CA, 90095-1563, USA
e-mail: Karney@psych.ucla.edu

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marriages of service members in the U.S. military. These concerns stem from two observations. First, the modern military is, for the most part, a married military (Hosek, Asch, Fair, Martin, & Mattock, 2002). Not only are the majority of service members married (Segal & Segal, 2004), but those who are unmarried enter marriage at higher rates than comparable unmarried civilians (Cadigan, 2000). As the largest employer in the country, the U.S. military is currently "responsible for more family members than personnel in uniform" (Segal & Segal, 2004, p. 31) and together this includes upwards of three million people.

Second, since the beginning of military operations in Afghanistan and Iraq, the demands on the U.S. military have been more pronounced than at any time since the Vietnam War (Hosek, Kavanagh, & Miller, 2006). Deployments in particular have been longer and more frequent, especially for the Army and the Marines, for whom it is now common to be deployed multiple times with only brief intervals between one deployment and the next (Defense Manpower Data Center, 2004). Moreover, the heightened pace of deployments has affected reservists as well, over half of whom have been activated involuntarily for periods of a year or more (Loughran, Klerman, & Martin, 2006). Among the many consequences of these demands is the fact that large proportions of service members have been required to spend extended periods separated from their families.

In the latter half of 2005, press reports raised concerns that that the increasing length and heightened pace of deployments had led to rising rates of divorce in military marriages (e.g., Fiore, 2005; Jaffe, 2005; Zoroya, 2005). In every case, reporters highlighted the difficulties that families face when male soldiers are deployed and their wives are left alone to maintain the home. A front page story in the *New York Times* summed up the underlying idea: "Military deployments have a way of chewing up marriages, turning daily life upside down and making strangers out of husbands and wives" (Alvarez, 2006). In other words, the stress of deployments damages marriages, leading to divorces that would not have occurred otherwise. Taking these concerns seriously, the federal government in 2006 allocated an unprecedented level of funding for programs and services to address the needs of military families.

Yet, despite widespread acceptance of the idea that deployments harm military marriages, the evidence for this association is surprisingly limited. The goal of the current study is to address this gap in the existing literature and describe new analyses to evaluate, more comprehensively than has been attempted in the past, the effects of deployment on the risk of dissolution in military marriages. Toward this end, the rest of this introduction is organized into three sections. The first section reviews the existing literature that has examined the effects of deployment on marriage, highlighting the limitations and inconsistencies within this literature. The second describes theoretical perspectives on how the stress associated with deployments might affect the outcomes of military marriages. The final section provides an overview of the current study, which drew upon personnel records for the entire population of the U.S. military to estimate the effects of time deployed on subsequent risk of marital dissolution.

Prior Research on the Effects of Deployment on Military Marriages

Reuben Hill, in his classic book *Families Under Stress* (1949), was among the first to study how military families respond to being separated by long deployments during World War II. In the intervening years, one might expect that the effects of deployment on military marriages would have been well established. Yet clear evidence for an effect of deployment on marital outcomes has been hard to come by, for several reasons. First, since Hill's pioneering work, the meaning of military service has changed. During World War II, for example, conscription meant that military service was a fact of life for the majority of eligible males (Segal & Segal, 2004). Since the creation of the all-volunteer military in 1973, this has no longer been the case. Thus, even though there has been excellent research by Elder and his colleagues on how service during World War II affected the families of that generation of males (e.g., Elder, 1987; Elder, Pavalko, & Hastings, 1991), this work is unlikely to apply to veterans of subsequent wars (e.g., Ruger, Wilson, & Waddoups, 2002) or to today's all-volunteer force.

Second, even research on more recent conflicts has tended to examine the effects of military service in general, rather than the effects of deployment per se. In such analyses, associations between service and marital outcomes appear to be either ambiguous or positive. For example, two independent analyses of data on Vietnam veterans have found that, controlling for age at marriage and other demographic variables, divorce rates for those who served during that war either did not differ or were lower than the rates for those who did not serve (Call & Teachman, 1991; Zax & Flueck, 2003). Analyses of retrospective data from the National Survey of Families and Households (NSFH) indicate that differences in divorce rates between veterans and nonveterans emerged in the years after the Korean and Vietnam wars, rather than during them when military service was presumably more stressful (Ruger et al., 2002). Yet, none of these analyses distinguished between military service and the specific experience of being deployed.

Third, research that has examined the effects of deployment directly has produced inconsistent results. For example, Angrist and Johnson (2000), drawing upon data from the 1992 Survey of Officers and Enlisted Personnel (SOEP), evaluated the effect of time spent deployed on the marriages of those who served in the 1991 Persian Gulf War. Controlling for background variables, female service members who had been deployed were significantly more likely to divorce than those who had not been deployed. However, for male service members, who comprise over 85% of the military, these analyses revealed no significant differences in divorce rates between those who were deployed and those who were not deployed.

Fourth, prior studies in this area have relied mostly on cross-sectional and retrospective data. For example, one survey of soldiers deployed during Operation Desert Storm asked those whose marriages remained intact to report whether their deployment had affected their marital satisfaction (Schumm, Hemesath, Bell, Palmer-Johnson, & Elig, 1996). On average, these soldiers reported no significant

drop in satisfaction, but the lack of a comparison group of nondeployed soldiers, and the reliance on retrospective reports of change, prevent strong conclusions. Similar problems weaken a survey of spouses of soldiers deployed during that war (Rosen, Durand, Westhuis, & Teitelbaum, 1995). On average, wives in this study report that they coped effectively during their husbands' deployment and remained close to their partners, but it is not clear how this group compares to wives of soldiers who were not deployed.

Finally, prior research on the effects of deployment has relied exclusively on data provided by volunteer respondents. In most prior research, these have been convenience samples, and the relationship of these samples to the military population has been impossible to evaluate. In the best available survey research on the military, the Defense Manpower Data Center (DMDC) administers periodic web-based surveys of service members or their spouses (e.g., the Status of Forces surveys). The sample sizes in these surveys tends to be large (>10,000 respondents), but these respondents are nevertheless self-selected and represent less than 1% of the Active Component of the military. Furthermore, members of the Reserve Components are not included. Thus, available data on how service members and their spouses have reacted to deployments may not represent the true effects of deployment in the military population.

In sum, despite enduring interest in the effects of deployment on military families, to date there has been little consistent evidence that being deployed increases the risk of divorce. Yet, methodological limitations in prior studies suggest that this hypothesis has yet to receive a definitive test. Bell and Schumm (2000) reached a similar conclusion in their review of this literature, observing that "Although the public associates deployments with high divorce rates, there is no direct evidence that deployments cause divorce. … Accordingly, any relationship between deployments and subsequent divorce may be an artifact of self-selection or predeployment conditions" (Bell & Schumm, 2000, p. 146).

Theoretical Perspectives on Deployment and Military Marriage

The lack of clear evidence of an effect of deployment on divorce in military marriages has not diminished the widespread belief that such an effect exists. One source of this belief is the undisputed fact that deployments are a source of considerable stress for military families. A number of qualitative and survey studies have described these stresses in detail, noting that each stage of the deployment cycle (e.g., notification and preparation, separation, and reunion) is associated with unique and severe demands on military couples (e.g., Amen, Jellen, Merves, & Lee, 1988; Figley, 1993; Rosen, Durand, & Martin, 2000; Rosen et al., 1995). For the deployed service member, these stresses include not only separation from loved ones, but also long hours, cultural dislocation, and risk of injury and death (Segal, 1989). For the family members left behind, deployment entails not only anxiety and

uncertainty over the spouse's well-being, but also the burdens of maintaining a household in the spouse's absence.

Given these necessary adjustments, it is not surprising that spouses of service members, when surveyed, name deployments as one of the most significant challenges of life in the military (Rosen & Durand, 2000). Recent evidence suggests that these stresses are leading to a number of negative consequences for service members, including higher rates of smoking, drinking, and illicit drug use (Bray et al., 2006), and high rates of service members seeking counseling (Hoge, Auchterlonie, & Milliken, 2006). To the extent that deployment is not only stressful itself, but increases risk for poorer mental and physical health outcomes, it makes sense to predict that deployments will have the same effects on marriage as other stressful events and circumstances, such as illness, poverty, and unemployment, all of which are associated with lower marital quality and higher rates of divorce (Bramlett & Mosher, 2002; Rohrbaugh et al., 2002).

To account for these effects, most existing models borrow heavily from Hill's (1949) original ABC-X model of family crises, or *crisis theory*. According to the model, when faced with a source of stress (A), families bring to bear their available resources (B) and their ways of interpreting the stressor (C), that is, as either a challenge to be overcome or a catastrophe to be endured. A family's response to the crisis (X) will be a function of these three elements, such that families whose resources and interpretations are appropriate to meet the challenge posed by a given stressor should grow more cohesive, whereas families less able to mount an adaptive response to the stressor should be at increased risk of growing apart and dissolving.

Subsequent research on stress and marriage has refined Hill's original model in several ways. First, research has confirmed that demands outside the home do affect spouses' evaluations of their relationships, such that on average spouses report lower satisfaction with their marriages when they are confronting higher levels of external stress (Karney et al., 2005; Tesser & Beach, 1998). Second, observational and longitudinal research has begun to identify specific mechanisms through which external stress affects marital processes. Specifically, when couples are under stress, not only do they have more problems to deal with and less time for intimacy and relationship maintenance, but their ability to resolve conflicts in an adaptive manner suffers as well (Bodenmann, 1995; Neff & Karney, 2004; Story & Repetti, 2006). Third, current research has supported Hill's original suggestion that the way couples respond to a specific acute stressor depends in part on the resources available to cope with the problem. The more chronic problems a couple must deal with, and the fewer sources of social support, the more negatively their marriage will be affected by specific acute stressors when they arise (Karney & Bradbury, 2005; Karney et al., 2005).

To date, research elaborating Crisis Theory has drawn almost exclusively from the civilian population. Yet applying the lessons of these recent developments toward understanding the effects of deployment suggests several concrete hypotheses about the how deployments should affect military marriages. First, the theory predicts a main effect of being deployed, such that, all else being equal, couples

experiencing the stress of deployment should be at greater risk of negative outcomes than couples who are not exposed to deployment, or who are exposed to deployment less (i.e., fewer days deployed). This is the effect that news reporters and military spouses themselves find intuitive, but that has yet to be examined with adequate data.

Second, to the extent that part of the stress of deployment stems from the non-deployed spouse having to bear an increased childcare burden, deployment should be more stressful for couples with children than couples without children. Thus, the theory predicts that couples with children in the home should be more negatively affected by deployments than couples without children.

Third, to the extent that a couple's level of resources facilitates more or less adaptive responses to stress, then military couples with the fewest available resources should have the most restricted ability to respond adaptively during separations. It follows that deployments should be experienced as more stressful, and thus more damaging, to the marriages of enlisted service members, who tend to be younger, less educated, and more likely to be exposed to combat, as compared to the marriages of officers, who are on average older, better educated, and more likely to be committed to careers in the military. Regardless of rank, this premise further suggests that younger couples, who by definition will have been married less time, should be at greater risk after deployments than older couples, who are likely to have a longer shared history from which to draw strength.

Finally, the theory suggests different reactions to deployment between members of the Active and Reserve Components. Members of the Reserve Component, because they are not engaged in military service full-time, are less likely than service members in the Active Component to anticipate being deployed, more likely to be engaged in nonmilitary activities that might be disrupted by deployment, and less likely to be closely affiliated with a military base from which they might draw support (Loughran et al., 2006). As a result of these differences, the theory predicts that deployments should be more stressful, and so should be more strongly associated with negative marital outcomes, for members of the Reserve Component than for members of the Active Component.

Overview of the Current Study

The ideal approach to evaluate hypotheses regarding the effects of deployment on risk of divorce would be *survival analysis* (Willett & Singer, 1995), a statistical technique to account for the timing of discrete events (in this case, marital dissolution). To date, survival analysis has never been applied toward understanding the dissolution of military marriages because this approach makes high demands on the data. For example, survival analysis requires repeated measures of individuals over time. In this case, it would require data on the marital history and the deployment history of individual service members since the beginning of military operations in Afghanistan and Iraq. By identifying when service members were married, such a

data set would allow for analyses that compare individuals married for the same length of time before they were deployed. By accounting for the specific periods that each service member is deployed, such a data set would allow for analyses that examine only those marital dissolutions that occur after service members have returned from their deployments. Even the Status of Forces surveys conducted by DMDC do not contain such data.

The current study, however, examined a data set that did allow survival analyses: military service personnel records and deployment histories. Each branch of the military maintains personnel records on each service member within the Active and Reserve Components. These records contain data on ethnicity, age, and marital status, among other data, and are compiled quarterly and maintained by DMDC. By linking the quarterly summaries over time, it is possible to describe transitions in the marital status of individual service members. Since the onset of military operations in Afghanistan and Iraq, DMDC also maintains records of the deployment histories of each service member that has served in either of those conflicts. By linking the deployment histories to the personnel records, it is possible to examine how length of time deployed to Afghanistan or Iraq predicts a service member's subsequent risk of ending a marriage, controlling for other information available in the service records, such as gender, ethnicity, age at marriage, and parental status.

For several reasons, access to these data offered us an unprecedented opportunity to evaluate the effects of a highly salient stressor on the marriages of a sizeable and noteworthy segment of the population. Most importantly, we were given access to data, not from a sample of service members, but from the entire population of the military since the beginning of the current conflicts, including all of the services, enlisted members and officers, and the Active and Reserve Components. In addition, the deployment history data included a cumulative tally, compiled quarterly, of the number of days that each service member spent deployed, a level of detail that has never been matched in prior research on this subject. Finally, although service members themselves inform their personnel offices when they transition into and out of marriage, their deployment histories are recorded by the military, and so were not subject to the presentational and memory biases that plague self-reports.

Methods

Data Source

The current analyses examined service personnel records and deployment history data from every individual that has served in the United States military since the beginning of fiscal year (FY) 2002 (i.e., fall of 2001), the year that military operations began in Afghanistan in response to the terrorist attacks of September 11, 2001.

Each service maintains these records in an idiosyncratic way. In the absence of a centralized database, the services currently send monthly extracts of their service records to the DMDC, where the data are assembled into forms that can be analyzed. For this project, DMDC was asked to generate quarterly summaries of the monthly extracts, beginning with the first quarter of FY2002 and ending with the last quarter of FY2005. These summaries include data on every person who served in the armed forces during that period. To conduct these analyses, we drew from the quarterly personnel summaries to create a longitudinal data set that linked information from individual service members across quarters. This file was then linked with a separate file provided by DMDC that contained deployment histories for all service members deployed since military operations began in Afghanistan and Iraq. To allow controls for prior marital status and length of time married, these analyses were conducted only on the 566,895 individuals who entered into marriages *after* the current conflicts began, that is, entered marriage after September of 2001. The result was a file containing data from 48 consecutive months that allowed us to map, from FY2002 through FY2005, the timing and cumulative length of time these individuals spent deployed against the timing of their marriages and marital dissolutions.

Measurement

Personnel records include considerable data on each service member. Only the most relevant variables were included in the data set assembled for these analyses. Many of the variables in these records are stable from month to month and change only when the service member reports a change in status (i.e., getting married, getting divorced, having a child) to the appropriate personnel office. Thus, the marital transitions of greatest interest here are all reported at the discretion of the service member. That said, it is in the interests of the service member to have his or her accurate status reflected in the personnel record, as these records determine benefits and level of pay. Thus, we may have reasonable confidence in the transitions identified for each individual member.

Defining marital status categories. The critical variable for these analyses is a single item in the personnel record describing marital status. All of the services code for marital status in the same way, using one of the following codes: M = Married; D = Divorced; A = Annulled; I = Interlocutory (i.e., in the middle of legal proceedings but not yet officially granted a divorce); L = Legally Separated; N = Never Married; W = Widowed; Z = Unknown. Only those individuals with a status code of M were treated as married in the analyses described here. In contrast, to assess the end of military marriages, the status code of D for "divorced" was viewed as too restrictive. In the broader literature on civilian marriage, descriptions restricted to divorce are known to underestimate marital disruption, because a substantial portion of marriages end through legal separation and other means even if they never register as a divorce (e.g., 11%; Castro-Martin & Bumpass, 1989).

We use the term *marital dissolution* to refer collectively to all of the ways that marriages can end by choice, that is, through divorce, legal separation, or annulment (e.g., Karney, Bradbury, & Johnson, 1999). Accordingly, marriages in these analyses were considered dissolved if the marital status of a service member transitioned from M (married) to D (divorced), A (annulled), I (interlocutory), or L (legally separated). Marriages that ended in the death of a spouse (i.e., widowed) were not counted as dissolutions.

Control variables and moderators. Personnel records contain data on several other variables that were included in all analyses as control variables and also examined as potential moderators of deployment effects. These included *gender* (1 = female; 0 = male), *age when married*, *presence of children* (1 = yes; 0 = no), and *race*. For these analyses, race was coded in terms of three variables: black (1 = black; 0 = non-black), white (1 = white; 0 = non-white), and other (1 = not black or white, 0 = black or white).

Analysis Strategy

To evaluate the effect of deployments on subsequent risk of marital dissolution, the data were examined with *multiple-spell discrete-time survival analyses* (Willett & Singer, 1995). Because this method allows the model variables to update at each time period during the marriage, there were several benefits to this approach. First, unlike multivariate regression, survival analyses account for the timing of the dependent variable, that is, whether or not those service members who were married during their deployments experienced a marital dissolution *subsequent* to their deployments. Second, this approach allowed us to account for the cumulative effects of longer or shorter periods of deployment. Third, this approach allowed us to ensure that individuals were matched on their marital duration in all analyses, that is, that the analyses evaluated risk of dissolution for individuals taking into account how long they had been married. Fourth, this approach allowed us to conduct multivariate analyses at the same time, controlling for other demographic variables known to be associated with risk of marital dissolution.

To account for risk of marital dissolution, we estimated models that contained three types of variables. The first group consisted of *demographic data* treated as control variables. These included gender, race, age when married, and the presence of children. Examining these variables provides a check on the analyses, that is, there can be greater confidence in the results of the analyses of deployment effects to the extent that results obtained for the demographic variables match results obtained in other research addressing the effects of the same variables on marital dissolution.

The second group consisted of two variables created to test the *direct effects* of deployment on subsequent risk of marital dissolution. One of these was the total number of days deployed while married that the individual had accumulated by a given marital duration. This variable estimated the linear effect of the number of

days deployed on dissolution risk. The other variable entered in this group was a squared term, designed to estimate curvilinear effects, that is, whether the effects of shorter deployments differ from the effects of longer deployments. Preliminary analyses suggested that curvilinear component of the deployment effect was rarely significant, and was very small even when significant. To simplify the presentation of the results, the estimates of the curvilinear effects are not presented below, but the term was included as a control in all models estimated.

The third group consisted of *interaction terms* created to estimate whether the effects of deployment are moderated by any of the demographic variables examined in the first group. All three groups of variables were entered simultaneously, so the results for each set of variables are adjusted for the other variables in the model.

It is worth highlighting that personnel records provide data on service members only while they are in the service. Personnel who leave the service before experiencing a transition are therefore missing from these data, even though it can be expected that the effects of military service on marital outcomes may well extend beyond the length of service itself. The data are therefore *right censored*, and appropriate controls for right censoring are implemented in the analyses (e.g., Willett & Singer, 1995). Nevertheless, the fact that the analyses address only the transitions that occur while serving means that the trends and patterns reported here are likely to underestimate the true effects of military service on marital outcomes throughout the lifetime of those who have served.

Results

Analyses were run separately on data from enlisted members and officers and separately for each of the services of the Active Component, the Reserve Component, and the National Guard, for a total of 20 separate analyses. Tables 2.1–2.3 provide the estimated weights for each variable in the models for the active services, the Reserve services, and the National Guard, respectively. The tables also report the total number of individuals that provided data for each analysis. The weights reported in these tables can be understood as the association between a unit increase in the variable and the change in the risk of a marriage being dissolved in a given quarter, controlling for the other variables in the model. Thus, positive weights indicate that a variable is associated with increased risk of dissolution, and negative weights indicate that a variable is associated with decreased risk of dissolution.

In general, the pattern of significant results in these analyses, especially for the demographic variables, was stronger for the Active Component than for the other components of the military. This is likely due to the fact that members of the Reserve Component and National Guard are older than active duty members on average, and so are substantially less likely to be entering a marriage in a given year, lowering the power of those analyses to detect significant effects. Despite these limitations, however, the general pattern of results for the analyses of the

Table 2.1 Survival analysis results for Active Component

	Army		Navy		Air Force		Marines	
	Enlisted	Officer	Enlisted	Officer	Enlisted	Officer	Enlisted	Officer
N	112,997	18,612	110,343	16,522	81,261	14,110	54,472	3,442
Demographic variables								
Age at marriage	*−0.061****	*−0.018****	*−0.060****	*−0.065****	*−0.010**	*−0.002*	*−0.095****	*−0.095****
Gender (F vs. M)	0.131**	*−0.332****	0.326***	0.384**	0.619***	0.670***	0.708***	1.178***
Children (yes vs. no)	*−0.507****	*−0.124**	*−0.285****	0.003	*−0.495****	*−0.229*	*−0.354****	*−0.194*
Race (Bl vs. W)	0.125**	0.227***	0.006	0.399**	*−0.060*	0.366	0.023	0.442
Total days deployed while married	*−0.006****	0.001	*−0.004****	*−0.003****	0.005***	0.007***	*−0.006****	*−0.014**
Moderators of deployment effects								
Age at marriage	0.0002***	0.000	0.0002***	0.0002***	*−0.000*	0.000	0.0003***	0.0004*
Gender (F vs. M)	0.002***	*−0.000*	0.002***	0.001	0.001**	0.0009	0.002***	*−0.003*
Children (yes vs. no)	*−0.001***	*−0.002****	*−0.001****	*−0.004****	*−0.001**	*−0.002*	*−0.002****	*−0.003*
Race (Bl vs. W)	*−0.0005**	0.000	*−0.000*	0.001	*−0.001*	*−0.001*	*−0.000*	0.002

Note: Entries in the table represent weights from a survival analysis in which all variables in each column were entered simultaneously. Positive weights indicate variables associated with increased risk of marital dissolution subsequent to deployment. Negative weights (italicized) indicate variables associated with reduced risk of marital dissolution subsequent to deployment

*$p<0.05$, **$p<0.01$, ***$p<0.001$

Table 2.2 Survival analysis results for Reserve Services

	Army		Navy		Air Force		Marines	
	Enlisted	Officer	Enlisted	Officer	Enlisted	Officer	Enlisted	Officer[a]
N	31,398	5,603	21,738	7,973	5,646	1,207	8,229	475
Demographic Variables								
Age at marriage	*−0.036***	*−0.050***	*−0.016***	*−0.046***	*−0.073***	*−0.189***	*−0.099***	–
Gender (F vs. M)	0.068	0.187	0.108	*−0.075*	*−0.092*	0.1627	0.173	–
Children (yes vs. no)	*−0.000*	0.124	0.190***	0.047	*−0.138*	0.461	0.339	–
Race (Bl vs. W)	0.130*	0.208	*−0.198***	*−0.203*	*−0.975***	1.024	*−0.368*	–
Total days deployed while married	*−0.004****	*−0.007***	*−0.002*	*−0.016****	*−0.006***	*−0.006*	0.000	–
Moderators of deployment effects								
Age at marriage	0.0001**	0.0002*	0.0003***	0.0003**	0.0002**	0.0005*	*−0.000*	–
Gender (F vs. M)	0.003***	0.002	0.003*	0.007***	0.003***	0.004	0.003	–
Children (yes vs. no)	*−0.002****	*−0.001*	*−0.001*	*−0.0014*	*−0.000*	*−0.007*	*−0.004***	–
Race (Bl vs. W)	*−0.001*	*−0.000*	*−0.0008*	0.000	0.002	*−0.001*	0.003*	–

Note: Entries in the table represent weights from a survival analysis in which all variables in each column were entered simultaneously. Positive weights indicate variables associated with increased risk of marital dissolution subsequent to deployment. Negative weights (italicized) indicate variables associated with reduced risk of marital dissolution subsequent to deployment

*$p<0.05$, **$p<0.01$, ***$p<0.001$

[a]Due to the small sample size, this model could not be estimated reliably

Table 2.3 Survival analysis results for National Guard Component

	Army		Air Force	
	Enlisted	Officer	Enlisted	Officer
N	54,082	5,091	11,731	1,423
Demographic variables				
Age at marriage	*−0.062***	*−0.069***	*−0.084***	*−0.167***
Gender (F vs. M)	0.305***	0.239	*−0.056*	*−0.1192*
Children (yes vs. no)	*−0.175**	*−0.458*	0.250	*−0.161*
Race (Bl vs. W)	*−0.504***	0.098	*−0.144*	*−1.047*
Total days deployed while married	*−0.004***	*−0.006**	*−0.005***	*−0.015***
Moderators of deployment effects				
Age at marriage	0.00009***	0.000	0.0003***	0.0004***
Gender (F vs. M)	0.002***	0.003*	0.003***	0.006*
Children (yes vs. no)	*−0.0009***	*−0.000*	*−0.002***	0.000
Race (Bl vs. W)	*−0.001*	0.000	*−0.002*	0.003

Note: Entries in the table represent weights from a survival analysis in which all variables in each column were entered simultaneously. Positive weights indicate variables associated with increased risk of marital dissolution subsequent to deployment. Negative weights (italicized) indicate variables associated with reduced risk of marital dissolution subsequent to deployment
*$p<0.05$, **$p<0.01$, ***$p<0.001$

Reserve Component and National Guard data are similar to the results obtained from the Active Component data.

Accounting for Marital Dissolution: Demographic Variables

Age at marriage. One of the most consistent results in demographic research in marital outcomes is the fact that individuals who are older when they enter marriage have a lower risk of dissolving the marriage (e.g., Kreider & Fields, 2001). Of the four demographic variables examined in these analyses, age at marriage had the most consistent associations with marital dissolution. Consistent with prior research, service members who were older when they entered marriage were at lower risk of dissolving the marriage, and this effect was significant in every service of every component of the military, with the exception of Air Force officers in the Active Component and Marine officers in the Reserve Component where the effect did not reach significance.

Gender. The next most powerful demographic variable was gender. Whereas news reports have emphasized the risks of divorce for male service members (e.g., Jaffe, 2005), these analyses revealed that, across ranks and across services of the Active Component, and in the Army National Guard, female service members are at significantly greater risk of experiencing marital dissolution than male service members (see also Karney & Crown, 2007). The one exception to this pattern is the result for active duty Army officers, where females appear to be at significantly

lower risk than males for experiencing marital dissolution. Within the Reserve Component and the rest of the National Guard, gender differences in risk of dissolution were not significant.

Presence of children. In civilian marriages, couples with children have a significantly lower risk of divorce than couples without children (Karney & Bradbury, 1995). Within the Active Component of the military, the same effect holds true among enlisted service members in all services, and among officers in the Army. Within the Reserve Component, differences between parents and non-parents reached significance only for enlisted members of the Navy, where the effect was reversed, that is, Navy reservists with children were at greater risk than Navy reservists without children. Within the National Guard, parents were at lower risk than non-parents among enlisted members of the Army, and the two groups did not differ among Army officers or within the Air Force.

Race. In the civilian population, rates of divorce are nearly twice as high for blacks than for whites (Bramlett & Mosher, 2002). Within the Active Component, these analyses revealed that risk of dissolution is significantly higher for blacks only in the Army (among enlisted and officers), and among Navy officers. Within the Reserve Component, blacks are at higher risk than whites among enlisted members of the Army, but are at significantly lower risk among enlisted members of the Navy and Air Force. There are no racial differences in risk of dissolution among reserve officers in any of the services. Finally, within the National Guard, race differences emerged only for enlisted members of the Army, where again blacks were at significantly greater risk than whites. Across all of these results, it is worth noting that racial differences, when they were significant, were still relatively small, and nowhere near the differences observed among civilians. Such results are consistent with other research on military families that suggests that racial differences in family outcomes are greatly reduced within the military as compared to among civilians (e.g., Lundquist, 2004).

In sum, analyses of the effects of demographic variables on risk of marital dissolution within the military replicated the results of similar analyses conducted on civilian populations, suggesting that the data examined here were reliable and the models specified correctly.

Accounting for Marital Dissolution: The Effects of Deployment

Controlling for the demographic variables, conventional wisdom and current models of stress and marriage predicted that time deployed would increase risk of marital dissolution in general, and that this effect would be strongest for the reserve components of the military, who are presumably less prepared for lengthy deployments. In fact, the direct association between the number of days deployed and subsequent risk of dissolution was significant in 15 out of the 20 models estimated in these analyses (see Tables 2.1–2.3). Two of these models revealed the expected effect. Specifically, among enlisted members and officers in the Active Component

Air Force, the longer that a service member was deployed while married, the greater the subsequent risk of marital dissolution. This is the effect that media reports led us to expect.

In the other 13 significant analyses, however, the effect of deployment on subsequent risk of marital dissolution was significant in the opposite direction. Specifically, for enlisted members of the Army, Navy, and Marines and for officers in the Navy and Marines in the Active Component, for enlisted members in the Army and Air Force and for officers in the Army and Navy in the Reserve Component, and for all services and ranks in the National Guard – in short, for the vast majority of the U.S. military – the longer that a service member was deployed while married, the *lower* the subsequent risk of marital dissolution. In these groups, deployment appears to enhance the stability of the marriage, and the longer the deployment, the greater the benefit.

It is worth nothing that, not only did the effects of being deployed run counter to predictions, but there was no evidence that the marriages of reservists were more negatively affected by deployment than were the marriages of active duty members. On the contrary, the only harmful effects of deployment were observed in the Active Component of the Air Force. Within the Reserve Component and National Guard, and even in the Reserve Air Force and Air Force National Guard specifically, time deployed was associated with consistently lower risk of marital dissolution, not higher.

Accounting for Marital Dissolution: Moderating Analyses

Age at marriage. Consistent with the idea that a couple's level of resources helps to buffer the effects of stressful experiences, we predicted that deployment would be especially likely to increase the risk of marital dissolution in the marriages of younger people, who presumably have had less time to accumulate resources. In fact, age at marriage proved a significant moderator of deployment effects in 14 out of 20 analyses. However, in each of these cases the nature of this moderation was in the opposite direction as expected. Specifically, for enlisted members of the Active Component Army, Navy, and Marines, for officers in the Active Component Navy and Marines, for enlisted members and officers in the Army, Navy, and Air Force Reserve Component, for enlisted members of the Army and Air Force National Guard, and for officers in the Air Force National Guard – in short, for the vast majority of the United States military – the marriages of those who were younger when they entered marriage benefited significantly more from deployments than the marriages of those who were older.

Gender. We had no a priori predictions for how gender might moderate the effects of deployment on risk of dissolution, but gender nevertheless proved a significant moderator in 12 out of 20 analyses. In every case, the nature of the moderating effect was the same: time deployed reduced the risk of marital dissolution significantly less for female service members than for males. This effect reached

significance among enlisted members of all service of the Active Component, enlisted members of the Army, Navy, and Air Force Reserve Component, officers in the Navy Reserve Component, and all ranks and services of the National Guard.

Presence of children. To the extent that children at home put added pressure on the nondeployed spouse, we predicted that deployment would have a stronger association with marital dissolution for parents than for non-parents. In fact, parental status proved a significant moderator of the deployment effect in 10 out of 20 analyses, but again the nature of the moderation was in the opposite direction as expected. Specifically, time spent deployed while married reduced risk of marital dissolution more strongly for parents than for service members without children. The effect was significant for enlisted members in all services of the Active Component, for officers in the Active Component Army and Navy, for enlisted members of the Army and Marine Reserve Component, and for enlisted members of the Army and Air Force National Guard.

Race. We made no a priori predictions about how race would moderate deployment effects on marital dissolution, but prior research suggesting that the military tends to diminish racial differences in family outcomes would argue against the likelihood of race playing an important moderating role. Indeed, race moderated the deployment effect in only 2 of the 20 analyses. Among enlisted members of the Active Component Army, time deployed reduced risk of marital dissolution significantly more for blacks than for whites. Among enlisted members of the Marine Reserve, the effect was significant in the opposite direction, such that deployment reduced risk of marital dissolution less for blacks than for whites.

Discussion

Rationale and Summary of Results

Most people who write or speak publicly about military marriage think that they understand how military marriages have been affected by deployment. Informed by a broad literature documenting the effects of stress on marriage, the widespread assumption is that the effects of deployment on marriage are severe, immediate, and negative, such that couples who have been separated by deployment should be at higher risk of divorcing after they are reunited (e.g., Alvarez, 2006). Although prior research has found scant evidence for this effect, those studies have been ill equipped to address the question, relying on small samples or focus groups and self-reports from affected spouses. Thus, belief in the negative effects of deployment persists, and has raised concerns that the heightened pace of deployments since 2001 may have harmed military families.

The present study evaluated the effects of deployment on risk of marital dissolution in military marriages using the strongest methods that have been applied to this question to date. Rather than sample from the military population, these analyses

addressed data on the entire population of the U.S. military. Rather than relying on self-reports, these analyses addressed detailed deployment histories provided by the Department of Defense. Rather than pooling data across time, these analyses examined a longitudinal data set with survival analyses that controlled for the length of each deployment and the time that each service member had been married prior to deployment. Moreover, these analyses controlled for (and replicated the effects of) other demographic variables that have been associated with marital dissolution in prior research on civilian populations.

The results of these analyses indicate that conventional wisdom about the effects of deployment on military marriage may be wrong. Only within the Active Component Air Force were longer deployments associated with greater risk of ending a marriage. For all other services in the Active Component, and for all services of the Reserve Component and National Guard, the effects of deployment were either insignificant or beneficial, that is, those deployed more days while married were at significantly lower risk of subsequent marital dissolution. Moreover, deployment had the greatest effects for those who would seem to be the most vulnerable, that is, those who married younger, and those with children in the home.

Understanding the True Effects of Deployment

In general, every one of the hypotheses that we derived from prior research on stress and marriage was refuted. Yet deployment has been shown to have the predicted negative effects on service members' physical and mental health (Bray et al., 2006; Hoge et al., 2006). How is it that we failed to observe similar negative effects on the stability of military marriages? What does the prevailing wisdom overlook?

There are several possible answers to these questions. First, in emphasizing the acknowledged negative effects of deployment, the prevailing wisdom fails to recognize that deployment has positive aspects as well. For example, focus groups exploring the effects of deployment on service members indicate that many service members find deployments meaningful and fulfilling as well as stressful (Hosek et al., 2006). Time spent deployed provides some service members with a sense of using their training to further an important national goal, in contrast to time spent serving at home. For those considering a career in the military, deployments provide opportunities for advancement that are unmatched by opportunities available while serving at home. More concretely, being deployed is associated with a higher level of pay, and thus a higher level of family income, and this holds true for both Active and Reserve Components (Hosek et al., 2006; Klerman, Loughran, & Martin, 2006; Loughran et al., 2006). Although the data available in service personnel records do not allow a direct assessment of the relative costs and benefits accumulated by individual members, the overall pattern of results obtained here suggests that, for the majority of deployed service members, the concrete benefits of deployment may compensate for the emotional costs. The results of the moderating analyses are

consistent with this idea. If the effects of deployment on marriage are driven mostly by the income and career implications of deployment, then these effects should be greatest for couples with the most to gain. Indeed, these analyses suggest that the marriages of younger couples and couples with children benefit more from deployment than those of older married female service members. Similarly, male service members, over 90% of whom leave behind a spouse that they need to support when they are deployed, benefit more from deployment than female service members, nearly 50% of whom are married to other service members, who presumably are less in need of support.

Second, current theories of stress and marriage have yet to elaborate on what may be a crucial distinction between normative and non-normative stressors. All of the stressors that prior research has identified as detrimental to marriage (e.g., unemployment, chronic illness, natural disasters) are unexpected, largely uncontrollable, and counter-normative. One reason that military couples endure the stresses and demands of military service as well as they do may be that, for military marriages, deployments are a normative stressor, that is, a challenge that is consistent with spouses' expectations for themselves and for the marriage. Military couples expect to endure deployments at the outset of the marriage, and so may be prepared when the time comes. Some evidence is consistent with the idea that couples who expect stress may be more resilient. In a study of 407 male Army members and their wives, Pittman (1994) found that the number of hours that husbands spent at work had no direct associations with either spouses' ratings of marital satisfaction. Instead, time spent at work affected marital satisfaction indirectly, through its direct association with spouses' evaluation of the balance between work and family demands. Spouses who expected that the military would make high demands on the husband maintained their satisfaction with the marriage regardless of the hours that the service member spent away from home. Such results raise the broader possibility that military spouses are generally able to keep the demands of military service in perspective, accepting the stress as an unavoidable aspect of their lives, and making allowances for it that maintain the marriage. Thus, the effects of deployment on marriage may resemble the effects of the transition to parenthood, another event that couples describe as profoundly stressful (Cowan & Cowan, 1992), but that is associated with lower rates of marital dissolution (Karney & Bradbury, 1995).

Third, by focusing on stressful events, observers of military marriages may have overlooked the role that military institutions may play in supporting military marriages and buffering military families from the effects of stress. When civilian couples encounter stressful events and circumstances, they may rely on what sources of support are available to them, and these sources vary across couples. In contrast, military couples, and couples in the Active Component in particular, have access to specific institutionalized sources of support that are unavailable to civilians. At the most concrete level, the military provides married service members with access to child care, health care, and housing supports (e.g., Janofsky, 1989; Lundquist & Smith, 2005). More broadly, military families, especially those living on or near bases, form a supportive community for each other, and the ability to rely on that community has been shown to facilitate positive outcomes as well (Bowen,

Mancini, Martin, Ware, & Nelson, 2003; Pittman, Kerpelman, & McFadyen, 2004). Even more broadly, the current political environment, in stark contrast to the environment that veterans of Vietnam returned to, encourages all citizens to express unalloyed support for service members and their families, regardless of their opinions about the conflict in which they are serving. As Hill's (1949) original model suggested, and as subsequent research has confirmed (Karney et al., 2005), when couples have the resources to cope with stress effectively, they may emerge from a stressful period intact or even closer than before. The military may be a context that provides those resources, protecting military marriages from the negative fallout of service members' deployments.

Understanding the Continued Belief in the Negative Effects of Deployment

If we were unable to find much evidence for negative effects of deployments on marriages using the best methods that have been applied to this question to date, why is it that the belief in these effects continues to be so widespread? It is possible that military families, and the public at large, are attending to several aspects of deployment effects not addressed in these analyses.

First, these analyses addressed only a single outcome, marital dissolution. There may be other significant costs to deployments that are highly salient to military families but that are not accessible in the data examined here. Most notably, to extend the analogy between deployments and the transition to parenthood, deployments may predict declines in marital satisfaction even as they reduce risk of marital dissolution. The data examined here do not address processes within marriages at all, but it is hard to imagine that the way military couples communicate and interact is not greatly affected by deployments (although there is no reason to assume that the effects of deployment on these processes are necessarily negative; cf. Fincham & Bradbury, 1988; Tesser & Beach, 1998). Recent evidence also suggests that deployments have costs for the children of deployed parents (e.g., Huebner & Mancini, 2005; Lyle, 2006), and these costs are also not assessed by the data examined here. For military couples, these costs may be highly salient, or more salient than the structural benefits that may keep military marriages intact. To evaluate these other potential costs of deployment for military families, future research must examine a broader range of outcomes than are available in the personnel records examined here.

Second, as noted earlier, these analyses address only those marital dissolutions that occurred while service members were part of the military and reporting their marital status to military personnel offices. Given reports that military families are feeling an immediate negative effect of deployments while still in the service (e.g., Jaffe, 2005), it was reasonable to address effects over this limited span of time. Nevertheless, it remains possible that there may be long-term costs of deployment that emerge after service members have separated from the military or even years after couples are reunited. Military families may be aware of such long-term costs,

but if they occur they were not represented in these data. Without longitudinal research that follows military families after they have separated from the service, the long-term implications of deployment for service members and their families remain an open question.

Third, to control for length of time married prior to deployments, these analyses examined only those couples who married after September 2001, the period for which detailed deployment histories were available. All of these couples entered marriage knowing that the deployments in Afghanistan and Iraq were underway, and may have expected and prepared for them. In contrast, couples who were married prior to that time may not have expected the increased demands they have faced since that date, and may have experienced deployment differently. These couples, omitted from the analyses described here, may be the ones most adversely affected by deployments.

Finally, these analyses only examined divorces that occurred in the first 3 years of the current conflicts (i.e., through 2005). This is a period during which news reports suggested that military marriages had already been damaged by the stresses of deployment, and thus is a reasonable interval to examine. Nevertheless, the conflicts in Iraq and Afghanistan have continued since then, and the pace of deployments remains high. Thus, although the analyses described here found little evidence for the predicted effects of deployment on divorce in the short-term, as more time passes and more data accumulate, the predicted effects of deployment on divorce may yet emerge.

Conclusion

Whereas civilian couples who encounter stress tend to be at higher risk of dissolving their marriages, most military couples separated by deployment are at decreased risk of dissolving their marriages, and this effect is greater the longer the service member is deployed. Thus, in the face of a stressor with demonstrable negative consequences in other domains, military marriages reveal an unexpected and noteworthy resilience. Given that the military tends to recruit from the more vulnerable segments of the population, at least in terms of level of education and prospects for non-military employment (Bachman, Segal, Freedman-Doan, & O'Malley, 2000), the source of this resilience is unlikely to lie entirely within military couples themselves. Instead, the answer may lie in supportive institutions and services (e.g., health care, housing supports, social networks) to which military couples have access. To the extent that the specific sources of resilience in military marriages may be identified, the military may have important lessons for those invested in promoting similar levels of resilience among civilian couples.

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