

MARRIED IN THE MILITARY: RELATIONSHIP SATISFACTION AND DISTRESS AMONG SERVING UK COUPLES

ABSTRACT

Background: The competing demands of the military can adversely affect the relationships of military couples. However, there is little UK research and most research focuses only on the role of personnel mental health on relationship outcomes.

Method: Data from 219 female partner/male military personnel couples collected during a study of military-connected children (2010-2012) was used to determine relationship distress among UK serving military couples (DAS-7<21). Dyadic analyses were used to examine associations between individual couple member DAS-7 scores and socio-demographic, military, and health factors.

Results: 29.2% of personnel and 26.9% of partners met criteria for relationship distress; 41.5% of couples contained at least one member who met criteria. Relationship satisfaction was associated with relationship satisfaction in the other couple member ($\beta=0.460$), partner PTSD scores ($\beta=-0.276$), and lower personnel rank ($\beta=-0.344$).

Conclusion: Partners of personnel of lower rank and personnel with increased PTSD symptoms may be more at risk of lower relationship satisfaction. Findings highlight the importance of examining the mental health of both serving and non-serving couple members when examining military family outcomes given the impact of partner health on personnel relationship satisfaction. Additional information should be provided to military partners and couples on the realities of Service life prior to joining, with greater advertisement of military initiatives to raise awareness of available services for personnel and their partners.

Keywords: military couples; relationship satisfaction; dyadic analysis; UK; military families

Public Significance Statement: Few studies look at the relationship satisfaction of both military couple members. This study finds that partner PTSD, not that of personnel, may be important to think about for this group. More research should look at both couple member outcomes to better understand military couple wellbeing.

INTRODUCTION

As a ‘greedy’ institution (Segal, 1986), the demands of military service such as deployment, relocation, and separation, often compete with those of the family. While there are benefits of military service for families, such as a sense of identity and community and access to services like healthcare (Committee on the Well-Being of Military Families, 2019), the frequency of these military-specific events can cause disruption to family life, stressing relationships between military personnel and their partners (Gribble & Fear, 2022; Gribble et al., 2019; Keeling et al., 2015; Knobloch et al., 2013). As a result of these stressors, military couples may experience reduced relationship quality, driven in part by greater alcohol misuse and poor mental health difficulties in this population, and an increased risk of intimate partner violence compared to civilian populations (McIntosh et al., 2023). However, much of the previous research focuses on the role of personnel mental health on relationship outcomes, ignoring the potential for a more holistic approach that includes the health of civilian partners.

Key factors influencing relationship satisfaction among military couples

Research conducted with both personnel and partners highlights the impact the milestone challenges of military life can have on intimate relationships. Deployment, as well

as increased mobility and family separation and reintegration, have all been associated with concerns about relationships or lower relationship satisfaction among military partners (Anderson et al., 2011; Andres, 2014; Bellou & Gkousgkounis, 2015; Knobloch-Fedders et al., 2020). Variations in relationship satisfaction are evident across the deployment cycle (Pincus et al., 2001), with pre-deployment often associated with improved connection, followed by difficulties readjusting on return of personnel (Knobloch-Fedders et al., 2020; Pye & Simpson, 2017). Regular family separation, while less of a focal point in the research, shows similar impacts of non-deployment separations to deployment separation across shorter time points, with feelings of resentment and frustration noted among partners (Bellou & Gkousgkounis, 2015; Gribble et al., 2019). The repeated strain of relocation can negatively influence relationships between personnel and partners (Blakely et al., 2014) as well as partner psychological wellbeing (Jervis, 2011; Ribeiro et al., 2023).

Mental health outcomes, linked to military deployments or other events, can also impact on relationships. Problems with communication (Bakhurst et al., 2018) and muted emotional responses and emotional numbing (Doncaster et al., 2019; Renshaw et al., 2014) arising from posttraumatic stress disorder (PTSD) can lead to increased relationship dissatisfaction among serving and ex-serving personnel with PTSD compared to those without PTSD (Campbell & Renshaw, 2013; Caska-Wallace et al., 2019; Erbes et al., 2012; Whisman et al., 2021). Personnel endorsing alcohol misuse, depression and anxiety (Allen et al., 2010; Knobloch & Theiss, 2011; Riviere et al., 2012), outcomes which are more common among UK military personnel (Goodwin et al., 2015; Stevelink et al., 2018), have been shown to have lower relationship satisfaction than those without these outcomes. Importantly, mental health outcomes may impact couple members differently depending on whether they met criteria for an outcome (*actor* effects) or if their partner does (*partner* effects).

Depression and PTSD among one couple member has been shown to negatively affect the

relationship satisfaction of the other couple member (Campbell & Renshaw, 2013; Dirkzwager et al., 2005; Erbes et al., 2012; Klaric et al., 2011). This impact of this relationship may differ between couple members – while alcohol misuse by personnel has been associated with reductions in their marital quality (Riviere et al., 2012), this does not universally hold for partners (Blow et al., 2013). Conversely, stronger links between depression and relationship satisfaction are evident for women within relationships than men (Goldfarb & Trudel, 2019; Proulx et al., 2007).

Differences in the experiences across military families are also noted due to differing resources available to each family unit. Families of officers may be endorse greater relationship satisfaction than those of lower ranked personnel as they are more able to manage military life due to greater income and higher levels of spouse employment and education (Eran-Jona, 2011; Keeling et al., 2015). Reservist families report more relationship difficulties than regular personnel as a result of difficulties negotiating the absence of personnel from the family home in addition to civilian work absence (Chandra et al., 2011; Cunningham-Burley et al., 2018). Unmarried relationships may face more stressors and be less stable than married relationships in the military (Allen et al., 2010; Edwards-Stewart et al., 2018; Keeling et al., 2015; Knobloch et al., 2013; Riviere et al., 2012). The presence of children is a noted stressor for couples, especially for women as they take on the majority of parenting care (Huss & Pollmann-Schult, 2020), a situation often exacerbated within military families due to the frequent absence of the serving (male) parent. Other important stressors include caregiver burden, especially relating to PTSD (Brickell et al., 2022), financial problems (Edwards-Stewart et al., 2018), managing work-family conflict (Andres, 2014), and a perceived lack of social support (Pflieger et al., 2018).

Research focusing on military couples

Despite previous research interest in relationship satisfaction within military couples, much of the focus to date has been on the impact of personnel mental health on couple relationship outcomes (Edwards-Stewart et al., 2018; Gerlock et al., 2014; Knobloch et al., 2013; McLeland et al., 2008), overlooking the potential role of partner mental health on both personnel and partner relationship satisfaction. Where couple-based studies of relationship satisfaction have been conducted to explore a more equal understanding of military couple relationships, (Allen et al., 2018; Allen et al., 2010; Bergmann et al., 2014; Campbell & Renshaw, 2013; Karney & Trail, 2017; Knobloch-Fedders et al., 2020; Knobloch et al., 2013), many average outcomes between couple members, limiting understanding of the impact of particular outcomes from individual couple members (Pflieger et al., 2022). Such an approach fails to reflect the bidirectional nature of relationship satisfaction or acknowledge multi-faceted influences within and between couples and families.

Research aims

A healthy body of research exists on relationship outcomes among US military couples, yet differences in both culture and military operations and structure, such as deployment length (Fear et al., 2010), mean these findings cannot be applied to a UK context. Similar UK studies of relationship satisfaction among military couples has not yet been conducted to the knowledge of the authors. This paper therefore aims to address this gap by examining relationship distress among military couples in the UK and identifying how individual couple member socio-demographic, military, health, and family factors are associated with this outcome.

METHODS

Description of sample

Data on military couples comes from the Children of Military Fathers study (2010-2012), established to investigate the impact of PTSD on military families (Fear et al., 2018). Ethical approval was granted by the Ministry of Defence Research Ethics Committee and the King's College Hospital Research Ethics Committee (reference: 08/H0808/27).

In brief, serving and ex-serving personnel deployable to Iraq and Afghanistan were invited into the Children of Military Fathers study if they reported having children aged 3-16 years during phase 2 of the King's Centre for Military Health (KCMHR) Health and Wellbeing cohort study (Fear et al., 2010). Serving and ex-serving personnel were selected into the study according to PTSD caseness as assessed by the PTSD Checklist – Civilian Version (PCL-C) (Weathers et al., 1993); the first group comprised personnel who met probable PTSD (score ≥ 50) or borderline (score 40-49) caseness or reported at least two of three symptom cluster domains ($n=50$) and the second, those who did not. Of the 1030 serving and ex-serving personnel invited to participate, 621 completed the survey (66.7% response) and 507 (81.6%) gave consent and contact details for the mother(s) of their children. 519 current and former partners of serving and ex-serving personnel were contacted, of which 397 (77.1%) provided full data. Data were collected via online surveys.

Current analyses were restricted to couples comprised of one currently serving male member of the Armed Forces and their female partner who both declared they were in a relationship and had matching relationship types (e.g., both married) in order to best capture the potential impacts of in-Service life on couple outcomes. A total of 219 currently serving couples were identified (211 married, 8 living together).

Measures

Relationship distress and satisfaction

Relationship distress and satisfaction were assessed using the Dyadic Adjustment Scale-7 (DAS-7) (Sharpley & Rogers, 1984; Spanier, 1976). DAS-7 measures perceived agreement between couple members on seven areas: life philosophy, aims and goals, amount of time spent together, stimulating exchanges of ideas, calmly discussing something, working together on a project; and relationship happiness. Six items are 6-point Likert scales with response options from ‘*Always disagree/Never* (0)’ to ‘*Always agree/More often* (5)’. The last item is a 7-point rating of relationship happiness from ‘*Extremely unhappy* (0)’ to ‘*Perfect* (6)’. Higher DAS-7 scores indicate greater relationship satisfaction. A total score of <21 on the DAS-7 was used to provide an estimate of relationship distress among personnel and partners (Hunsley et al., 1999; Sabourin & Valois, 2005). Continuous DAS-7 scores denoting increasing relationship satisfaction were used in further analyses. Median personnel and partner scores on the DAS-7 were 23 (IQR=20-27) and 24 (IQR=20-28), respectively.

Mental health

Probable depression

Probable depression was assessed using the Patient Health Questionnaire (PHQ-9), a 9-item measure of mood, concentration, sleeping, diet and behavioural symptoms in the previous 2-week period (Kroenke & Spitzer, 2002; Kroenke et al., 2001; Löwe et al., 2004). Each item is assessed on a 4-point Likert scale indicating how much participants have been bothered by certain problems in the last month, with response options ranging from ‘Not at all (0)’ to ‘Nearly every day (3)’. Total scores range from 0 to 27, with higher scores indicating greater symptomology. Probable depression caseness was determined as a PHQ-9 score of ≥ 10 , indicating moderate, moderately severe or severe depression (Kroenke &

Spitzer, 2002). Median scores on the PHQ-9 were 2 (IQR=0-5) for partners and 3 (IQR=1-6) for personnel.

Probable post-traumatic stress disorder (PTSD)

Probable PTSD was assessed using the 17-item PTSD Checklist Civilian Version (PCL-C) (Weathers et al., 1993). Items cover repeated, disturbing memories thoughts or images of stressful events (re-experiencing), physical reactions to reminders of events (arousal) or avoiding stressful experiences or taking part in activities or situations that are reminders of traumatic events (avoidance/numbing). Each item is a 5-point Likert scale indicating how much participants were bothered by certain problems in the last month, with response options from 'Not at all' (1) to 'Extremely' (5). Total scores range from 17 to 85, with higher scores indicating greater PTSD symptomology. A PCL-C score of ≥ 44 was used to denote PTSD caseness among partners (Terhakopian et al., 2008) and ≥ 50 among personnel (Blanchard et al., 1996). Median partner scores on the PCL-C were 21 (IQR=17-25). Median personnel scores were 22 (IQR=18-28). Due to the low number of cases (<5% in both personnel and partners), examination of differences by PTSD symptom clusters were not possible.

Alcohol consumption

The 10-item Alcohol Use Disorders Identification Test (AUDIT)(Babor et al., 2001), a screening tool for identifying excessive or risky alcohol consumption and the consequences of harmful use was used to measure alcohol misuse. Items 1 and 2 are 5-point Likert scales determining frequency of alcohol use (Never (0) to 4 or more times a week (4)) and number of alcoholic drinks consumed on a typical drinking day (1-2 (0) to 10 or more (4)). Items 3-8, completed on 5-point Likert scales, determine alcohol dependence and reductions in functioning, with responses ranging from 'Never' (0) to 'Daily or almost daily (4)'. Items 9 and 10 are 3-point Likert scales relating to alcohol-related injury and expressions of concern

about drinking from others, with response ‘No’ (0), ‘Yes, but not in the last year’ (2), and ‘Yes, during the last year’ (4). Total scores range from 0 to 40, with higher scores indicating greater alcohol misuse. A cut-off of AUDIT ≥ 8 was used to denote alcohol misuse caseness for partners and ≥ 16 for personnel (Babor et al., 2001; Fear et al., 2007). Median partner scores on the AUDIT were 4 (IQR=2-6) and 8 (IQR=5-10) for personnel.

Cronbach’s alphas indicated good to excellent internal consistency (personnel DAS-7 ($\alpha=0.80$), PHQ-9 ($\alpha=0.82$), PCL-C ($\alpha=0.91$), AUDIT ($\alpha=0.99$); partners DAS-7 ($\alpha=0.83$), PHQ-9 ($\alpha=0.83$), PCL-C ($\alpha=0.91$), AUDIT ($\alpha=0.99$)).

Socio-demographic and military factors

Information on age (in years), relationship status and type (e.g., married, living together, single) and number of children was provided by both partners and personnel. One partner did not provide information on age. Partners provided information on employment status, occupation (used to determine occupational social class in accordance with the National Statistics Socio-economic Classification (NS-SEC), a standardised method of classifying occupations within the UK according to the level and content of skill involved in each job (managerial/professional, intermediate and routine/manual, and unemployed/never worked) (Office for National Statistics, 2010), self-reported proximity to military bases, current postcode (used to derive urban/rural residence via the Rural-Urban Definition for Small Area Geographies method (RUC2011) (Bibby & Brindley, 2013), and age of youngest child (years).

Military information provided by personnel included Service (Royal Navy, Royal Marines, Army, Royal Air Force), rank (officer, non-commissioned officer (NCO) or other ranks (corporal or lower)), engagement type (regular or reserve), serving status, length of service (years), combat role in parent unit, deployment to Iraq and/or Afghanistan, and self-reported separation from children in the last 2 years.

Statistical analyses

To account for interdependence in the relationship distress of military couple members, as well as factors associated with this outcome, dyadic analyses via structural equation modelling (SEM) were conducted in Mplus[®] 8.4 (Muthén & Muthén, 1998-2019) in accordance with the Actor Partner Interdependence Model (APIM) (Kenny et al., 2006).

To inform these analyses, Stata[®] 17 (StataCorp, 2015) was used to provide a socio-demographic, military and health profile of the sample (Table 1) and estimate the prevalence of relationship distress (DAS-7<21) among UK military couples (Table 2). Associations between relationship distress, socio-demographic, military, and mental health factors were firstly examined using correlations (see supplementary material) and then unadjusted and age-adjusted logistic regressions to identify for inclusion in building the SEM using $p < .10$ as a suggested cut-off (Bursac et al., 2008) (data available from authors). Personnel and partner age were included as *a priori* covariates given robust associations with relationship satisfaction (Beach et al., 2003; Blow et al., 2013). Covariates included personnel rank (officer vs. NCO/other), combat role (no combat role in parent unit vs. combat role in parent unit), personnel engagement type (regular vs. reserve), personnel PCL score, personnel PHQ score, personnel AUDIT score, partner PCL score, and partner PHQ score.

Model building

Following confirmatory factor analyses of personnel and partner relationship satisfaction based on DAS-7 items (Model 1a and Model 1b), a series of models were developed. Model 2 merged model 1a and 1b along with socio-demographic and military factors identified as associated with relationship satisfaction in age-adjusted regressions. The final set of models comprised Model 2 combined with mental health factors associated with relationship satisfaction among military couples, with each outcome entered separately to

examine how model fit changed. The final model is based on $n=217$ due to missing data on engagement type ($n=2$).

SEM assumptions

DAS-7 items were included as categorical variables given their ordinal nature, with a general analysis type with a weighted least squares means and variance adjusted (WLSMV) estimator was used to account for these categorical data (Flora & Curran, 2004; Rhemtulla et al., 2012). In constructing the SEM, individual DAS items were co-varied between couple members as it was hypothesised couple members would give similar answers to the same items (e.g., personnel DAS-01 and partner DAS-01). Following exploratory analyses, personnel DAS-01 (“Philosophy of life”) and DAS-02 (“Aims, goals, and things believed important”) were co-varied to improve model fit, as were those of partners. Due to the large variances across mental health measure scores, scores were rescaled to between 1 and 10 by dividing by 3.5 as recommended (Muthen, 2018). Given the high correlation between PHQ-9 and PCL-C scores of personnel and partners, investigations were made into co-varying these scores, but this did not improve fit.

Standardised SEM parameter estimates and standard errors for the effect of variables on partner relationship satisfaction were estimated based on STDYX standardisation for continuous variables and STDY standardisation for binary variables (Table 3). Test statistics (RMSEA, CFI, TLI) were used to estimate model fit to the data, with cut-offs of 0.05-0.08 for RMSEA and values close to 1.0 for CFI and TLI indicating good fit (West et al., 2012). The chi-square test was not used to determine model fit due to its tendency to erroneously suggest rejection of models in larger sample sizes (Kenny et al., 2006). A statistical significance level of $p < .05$ was used to identify variables associated with relationship satisfaction within military couples in the SEM.

RESULTS

Profile of sample

79% of personnel and 73.4% of partners were aged 35 years and over – 96% were in married relationships and 58% had two or more children (Table 1). Couples were largely affiliated with regular service by non-commissioned officers (NCO) in the British Army (<60%). 10.1% of personnel and 14.2% of partners met criteria for alcohol misuse, while rates of probable depression or probable PTSD were low (approximately 5% or less).

TABLE 1 ABOUT HERE

Prevalence of relationship distress

29.2% (n=64) of personnel and 26.9% (n=59) of partners met criteria for relationship distress (DAS-7<21) (Table 2). 41.5% of couples had one or both members who met criteria for relationship distress (26.9% (n=59) one member, 14.6% (n=32) both).

TABLE 2 ABOUT HERE

Factors associated with couple relationship satisfaction

The model demonstrated a good fit to the data (RMSEA=0.055 [90% CI 0.044-0.066], $p = .211$, CFI=0.942, TLI=0.930, $\chi^2(231)=2417.273$, $p < .001$) (Figure 1: Table 3). After accounting for covariates identified as associated with personnel or partner relationship satisfaction in model building ($p<0.10$), partner and personnel relationship satisfaction were significantly associated (std. $\beta=0.460$, $p < .001$). Only actor effects for mental health were evident, with partner PCL-C scores associated with partner relationship satisfaction (std. $\beta=-0.276$, $p = .004$). Personnel AUDIT scores were no longer associated with personnel relationship satisfaction after accounting for other variables ($p = 0.073$). Associations with the characteristics of personnel (*partner effects*) were limited to rank, with significantly lower relationship satisfaction among partners of non-officer personnel compared to officers (std. $\beta=-0.344$, $p = .036$).

FIGURE 1, TABLE 3 ABOUT HERE

DISCUSSION

This is the first study to examine relationship outcomes among serving UK military couples and to identify associations with individual couple member socio-demographic, military, health, and family factors. The findings provide an initial estimate for relationship distress among serving military personnel and their partners in the UK Armed Forces community and contribute to deeper understanding of the nature of relationships within the military through exploration of associated factors. In particular, the findings highlight the bidirectional relationship between mental health and relationship outcomes between serving and non-serving couple members.

29.2% of personnel and 26.9% of partners met criteria for relationship distress met criteria for relationship distress (DAS-7<21). Relationship distress at a couple level appeared to be high, with 41.5% of couples containing at least one member who endorsed criteria for relationship distress. These figures are higher than the 12-22% reported in similar studies of personnel using variations of the DAS (Meis et al., 2010; Whisman, 1999) and the 16-25% reported in prior research with partners (Campbell & Renshaw, 2013; Dirkzwager et al., 2005; Pflieger et al., 2018; Renshaw et al., 2008). The findings indicate there may be elevated levels of relationship discord among serving personnel and their partners within the UK Armed Forces community. Prior US research has suggested relationship discord may be higher among military spouses than women married to civilians (Asbury & Martin, 2012), however there is a lack of suitable UK comparison studies to quantify a significant difference from civilian UK couples. Consideration should also be given to the fact that the estimates provided may relate to greater operational deployment at the time of the original study or to the life-cycle stage participants were at during data collection given older age and having

children are both associated with reporting greater relationship difficulties (Huss & Pollmann-Schult, 2020; VanLaningham et al., 2001).

The SEM examining individual couple member socio-demographic, military, health, and family factors associated with relationship distress highlighted how relationship outcomes among military couples were lower among those experiencing greater stressors and demands. In this sample of UK serving military couples, greater mental health problems in the partner and lower personnel rank were associated with greater relationship distress. Prior research identifying positive correlations between personnel and partner relationship satisfaction were supported by our findings (Blow et al., 2013; Nelson Goff et al., 2007; Renshaw et al., 2008), highlighting the intrinsic, bi-directional nature of relationship outcomes among couples. In contrast to prior studies, associations with mental health were limited to actor effects only, with only partner PTSD (PCL-C scores) significantly associated with partner relationship satisfaction, possibly due to low levels of mental health caseness among this sample. Previous findings regarding the role of personnel mental health in partner relationship satisfaction and vice versa, especially that of personnel PTSD on partner relationship satisfaction were not supported (Allen et al., 2018; Dirkzwager et al., 2005; Renshaw et al., 2008; Westman et al., 2004). Increasing alcohol misuse as determined by AUDIT scores did not appear to influence relationship distress within serving military couples despite prior links to intimate partner violence and marital breakdown (McIntosh et al., 2023; Sparks et al., 2022). The strength of the association between partner PTSD and partner relationship satisfaction was unexpected, possibly as much of the prior focus has been on male personnel mental health. However, while this should be explored in future studies, severe mental health problems such as PTSD are known to be associated with poorer mental health among women in the general population. Overall, the findings highlight the need to move beyond a focus solely on combat-related mental health when examining military family

outcomes to include examination of the impact of wider family health and a specific focus on the prior trauma of military partners.

Findings in relation to military, family, and socio-demographic factors were mixed. Despite prior literature suggesting relationship satisfaction among military couples can be negatively associated with the unique demands of military life such as combat, deployment and longer periods of deployment-related separation (Andres, 2014; Erbes et al., 2012; Keeling et al., 2015; Renshaw et al., 2008), no such associations were found in the present sample. Such differences from prior US research may be due to differing deployment regimes as other military family work in the UK has found a lack of notable impact of deployment on child outcomes (Fear et al., 2018). A difference by rank was identified within the SEM, with partners of lower ranked members of the military (NCO or other ranks) endorsing significantly lower relationship satisfaction than partners of officer ranks. It did not appear that this finding related to potential differences in socioeconomic status as partner occupational social class and partner employment were not associated with relationship distress or relationship satisfaction, although income could not be explored as this information was not collected. For example, the ability to cohabit prior to marriage may be easier in higher-income couples, relieving unintended pressures for some military couples to marry sooner than their civilian counterparts in order to live together (Beavor, 1990). Recent updates opening up military housing to couples in long-term, committed relationships (Ministry of Defence, 2019) are likely to improve the accessibility of this option for lower ranked UK personnel and may aid relationship outcomes as well. Future research should continue to try and understand these differences to unpick key influences on relationship outcomes.

Associations were not found between relationship satisfaction and respondent age, number of children, or other family factors. This may be due to the sample of military

couples used in these analyses, all of which had children as well as a compressed age range of 35-55 years of age, potentially reducing the ability of analyses to detect differences across age categories noted in earlier work (Karney & Bradbury, 1997; VanLaningham et al., 2001). Research has suggested that distal factors are more relevant for marital quality than deployment, such as lack of social support, work-family conflict, and financial strain (Pflieger et al., 2018). Such factors were not captured in the original study and therefore could not be explored. These experiences are likely to also be impactful for UK couples and should be included in future research, alongside mental health, to better understand their role in the relationship outcomes of UK serving military couples.

Strengths and limitations

This study is one of the first to examine relationship satisfaction and distress among serving military couples in the UK military community and to identify associations with socio-demographic, military, health, and family factors. As such, this paper provides a much-needed understanding of relationship outcomes among current military couples and the intra-familial demands and resources that can aid or strain relationship outcomes. A particular strength of this paper is consideration of the potential influence of both personnel and partner socio-demographic, military, health, and family factors in relationship distress, providing a more detailed understanding of relationship outcomes among military couples than combining outcomes might achieve.

There are limitations that should be considered. As a cross-sectional study, estimates of relationship satisfaction and distress may vary across different time points and associations do not indicate causality. There were limitations due to what data was collected in the original study, with information on income, relationship length, and education not collected. Due to the nature of the Children of Military Fathers study and the method of recruitment, the sample of military couples is not representative of the wider community, excluding non-

heterosexual couples and couples without children. However, with 44% of regular UK Service personnel reporting they are married or in a civil partnership near the time of the survey (Head of Defence Statistics (Tri Service), 2014), the findings of this study are relevant to nearly half of the UK military community serving at the time. Personnel were selected into the study according to their PTSD symptoms, however the total number of couples containing personnel meeting PCL-C caseness for PTSD was minimal (n=4). While this seems low, it is proportionally similar to that reported in larger UK cohorts at the time (Fear et al., 2010), suggesting no over-representation of couples living with combat-related PTSD. It does prevent examination of differences by PTSD symptom clusters which should be further explored (Allen et al., 2018).

Relationship satisfaction was measured via self-report which may be subject to social desirability bias, however research suggests the impact of such biases is minimal (Visschers et al., 2017). Comparisons of the prevalence of relationship distress to the general population were not possible as community studies using DAS-7 are lacking in the UK. It is not clear what an appropriate comparison sample would be given the particular challenges of this occupational setting for family outcomes. Associations between partner relationship satisfaction and military factors relate to British involvement in Iraq and Afghanistan only and are limited to what was collected in the original study. Finally, during the dyadic data analyses, couples with the same relationship status were included under the assumption that partners recruited via personnel and reporting the same relationship status were still in a relationship with said personnel.

Implications

Given the elevated prevalence of relationship distress among personnel and partners both as individuals and as couples, this study suggests there are aspects of military life that may be negatively associated with satisfaction with romantic relationships. However, these

factors differed from previous studies and varied between personnel and partners. Further quantitative and qualitative research, including the use of longitudinal studies, should be conducted to examine the drivers of relationship satisfaction and distress among UK military couples prior to, during, and post-Service as well as comparisons with civilian couples and international studies. Such studies should collect data on both risk and resiliency factors to further develop understanding of how couples maintain relationships during the demands of military life and the impact on health and well-being. This could include experiences relating to relocation, separation, including deployment, and employment (Bellou & Gkousgkounis, 2015; Gribble & Fear, 2022; Gribble et al., 2019) or occupational stressors among personnel such as working above trade, ability, and experience or frequent deployment away from home (Keeling et al., 2015). Additional focus should be given to the experiences of particular under-represented groups, such as the partners of reservists, male partners, and LGBT couples (Gribble et al., 2020), as well as attempting to understand the interplay between age and relationship length in relationship satisfaction. Whatever the nature of the study, the impact of partner, as well as personnel, health and wellbeing on couple relationship satisfaction should be included to widen research on family systems to include the health of all family members. Moving beyond centring the serving member or veteran is essential that future studies of military family health and well-being shift focus from only examining the impact of personnel health on the family towards a more holistic understanding of family dynamics and processes to better understand how trauma and mental health affect the outcomes of Service personnel, veterans, partners, and children.

In the interim, additional information could be provided to military couples to support relationships, especially among those of lower rank and with greater mental health burden. This could occur as families join the military or prior to marriage to increase awareness about the realities of family life in the military and the common stressors families may experience

during relocation, separation, deployment, and transition to pre-empt some of the difficulties couples may face. For those couples who are experiencing difficulties, the UK military currently provides financial support for relationship counselling sessions via Relate, a volunteer service providing relationship counselling for families or through initiatives such as the Royal Air Force-led Building Stronger Families. International schemes and interventions should be explored for adaptation in the UK, such as OurRelationship (Doss et al., 2016) or FOCUS (Lester et al., 2016). However, awareness of any such services must be widely publicised to ensure uptake and their independence from the chain of command maintained.

Studies to replicate these findings should be conducted to determine whether they are applicable to the wider UK military community, including veteran families. Military family researchers should consider collecting additional data to deepen our understanding of resiliency and risk factors for relationship outcomes within military couples. Longitudinal cohort studies could be used to by estimate variations in relationship satisfaction among couples from entry into the military community, during their partner's (or their own) military service, and throughout the transition period after Service to better understand how aspects of military life influence relationships. Other studies of note include relationship outcomes military couples without children, male partners, LGBT+ couples, and unmarried couples to provide more in-depth understanding of this issue.

Conclusion

29.2% of personnel and 26.9% of partners met criteria for relationship distress; 41.5% of couples had at least one member who endorsed criteria for relationship distress.

Relationship satisfaction among couples was associated with the relationship satisfaction of the other couple member, lower personnel rank, and increased partner PTSD symptoms. The findings highlight the importance of examining the mental health of partners as well as personnel in future research on military families. Additional information could be provided to

military partners and couples on the realities of Service life prior to joining and greater advertisement of current military initiatives to help support relationships to encourage help-seeking.

REFERENCES

- Allen, E. S., Knopp, K., Rhoades, G. K., Stanley, S. M., & Markman, H. J. (2018). Between- and within-subject associations of PTSD symptom clusters and marital functioning in military couples. *Journal of Family Psychology*, 32(1), 134-144. <https://doi.org/10.1037/fam0000363>
- Allen, E. S., Rhoades, G. K., Stanley, S. M., & Markman, H. J. (2010). Hitting home: relationships between recent deployment, posttraumatic stress symptoms, and marital functioning for Army couples. *Journal of family psychology : JFP : journal of the Division of Family Psychology of the American Psychological Association (Division 43)*, 24(3), 280-288. <https://doi.org/10.1037/a0019405>
- Anderson, J. R., Johnson, M. D., Goff, B. N., Cline, L. E., Lyon, S. E., & Gurss, H. (2011). Factors That Differentiate Distressed and Nondistressed Marriages in Army Soldiers. *Marriage & Family Review*, 47(7), 459-473. <https://doi.org/10.1080/01494929.2011.619301>
- Andres, M. (2014). Distress, Support, and Relationship Satisfaction during Military-Induced Separations: A Longitudinal Study among Spouses of Dutch Deployed Military Personnel. *Psychological Services*, 11(1), 22-30. <https://doi.org/10.1037/a0033750>
- Asbury, E. T., & Martin, D. (2012). Military Deployment and the Spouse Left Behind. *The Family Journal: Counseling and Therapy for Couples and Families*, 20(1), 45-50. <https://doi.org/10.1177/1066480711429433>
- Babor, T. F., Higgins-Biddle, J. C., Saunders, J. B., & Monteiro, M. G. (2001). *The Alcohol Use Disorders Identification Test (AUDIT): Guidelines for Use in Primary Care* https://apps.who.int/iris/bitstream/handle/10665/67205/WHO_MSD_MSB_01.6a.pdf?sequence=1
- Bakhurst, M., McGuire, A., & Halford, W. K. (2018). Trauma Symptoms, Communication, and Relationship Satisfaction in Military Couples. *Family Process*, 57(1), 241-252. <https://doi.org/https://doi.org/10.1111/famp.12285>
- Beach, S. R., Katz, J., Kim, S., & Brody, G. H. (2003). Prospective Effects of Marital Satisfaction on Depressive Symptoms in Established Marriages: A Dyadic Model. *Journal of Social and Personal Relationships*, 20(3), 355-371. <https://doi.org/10.1177/0265407503020003005>
- Beavor, A. (1990). Married to the Army. In *Inside the British Army* (pp. 47-64). Chatto & Windus.
- Bellou, V., & Gkousgkounis, G. (2015). Spouse-and Service-related Antecedents of Officers' Commitment: The Case of the Greek Army. *Armed Forces & Society*, 41(3), 440-459. <https://doi.org/10.1177/0095327X13514226>
- Bergmann, J. S., Renshaw, K. D., Allen, E. S., Markman, H. J., & Stanley, S. M. (2014). Meaningfulness of service and marital satisfaction in Army couples. *Journal of Family Psychology*, 28(5), 701-706. <https://doi.org/10.1037/fam0000013>
- Blakely, G., Hennessy, C., Chung, M. C., & Skirton, H. (2014). The Impact Of Foreign Postings On Accompanying Military Spouses: An Ethnographic Study. *Health Psychology Research*, 2(2), 1468. <https://doi.org/10.4081/hpr.2014.1468>
- Blanchard, E. B., Jones-Alexander, J., Buckley, T. C., & Forneris, C. A. (1996). Psychometric properties of the PTSD checklist (PCL). *Behaviour Research and Therapy*, 34(8), 669-673. [https://doi.org/https://doi.org/10.1016/0005-7967\(96\)00033-2](https://doi.org/https://doi.org/10.1016/0005-7967(96)00033-2)

- Blow, A. J., Gorman, L., Ganoczy, D., Kees, M., Kashy, D. A., Valenstein, M., Marcus, S. M., Fitzgerald, H. E., & Chermack, S. (2013). Hazardous Drinking and Family Functioning in National Guard Veterans and Spouses Postdeployment. *Journal of Family Psychology*, 27(2), 303-313. <https://doi.org/10.1037/a0031881>
- Brickell, T. A., French, L. M., Varbedian, N. V., Sewell, J. M., Schiefelbein, F. C., Wright, M. M., & Lange, R. T. (2022). Relationship satisfaction among spouse caregivers of service members and veterans with comorbid mild traumatic brain injury and post-traumatic stress disorder. *Family Process*, 61(4), 1525-1540. <https://doi.org/https://doi.org/10.1111/famp.12731>
- Bursac, Z., Gauss, C. H., Williams, D. K., & Hosmer, D. W. (2008). Purposeful selection of variables in logistic regression. *Source code for biology and medicine*, 3(17). <https://doi.org/10.1186/1751-0473-3-17>
- Campbell, S. B., & Renshaw, K. D. (2013). PTSD Symptoms, Disclosure and Relationship Distress: Explorations of Mediation and Associations Over Time. *Journal of Anxiety Disorders*, 27(5), 494-502. <https://doi.org/10.1016/j.janxdis.2013.06.007>
- Caska-Wallace, C. M., Smith, T. W., Renshaw, K. D., & Allen, S. N. (2019). Standardized Assessment of Relationship Functioning in Iraq and Afghanistan Veterans with PTSD. *Mil Psychol*, 31(5), 373-383. <https://doi.org/10.1080/08995605.2019.1645536>
- Chandra, A., Lara-Cinisomo, S., Jaycox, L. H., Tanielian, T., Han, B., Burns, R. M., & T., R. (2011). *Views From the Homefront: The Experiences of Youth and Spouses from Military Families*.
- Committee on the Well-Being of Military Families, N. A. o. S., Engineering, and Medicine,. (2019). *Family Well-Being, Readiness, and Resilience In S. Le Menestrel & K. Kizer (Eds.), Strengthening the Military Family Readiness System for a Changing American Society*. National Academies Press (US). www.ncbi.nlm.nih.gov/books/NBK547609/
- Cunningham-Burley, S., Tindal, S., Morrison, Z., & Connelly, V. (2018). *Negotiating civilian & military lives: How Reservists manage their military service, families and civilian work*. www.future-reserves-research.ac.uk/wp-content/uploads/2018/07/FRRP-project-briefing-1-Negotiating-civilian-and-military-lives.pdf
- Dirkzwager, A., Bramsen, I., Adèr, H., & van der Ploeg, H. M. (2005). Secondary Traumatization in Partners and Parents of Dutch Peacekeeping Soldiers. *Journal of Family Psychology*, 19(2), 217-226. <https://doi.org/10.1037/0893-3200.19.2.217>
- Doncaster, E., Hiskey, S., McPherson, S., & Andrews, L. (2019). "I'm Still Fighting for the Two of Us": How Partners of UK Veterans Construct Their Experience of Living with Combat-Related Trauma. *J Marital Fam Ther*, 45(3), 464-479. <https://doi.org/10.1111/jmft.12340>
- Doss, B. D., Cicila, L. N., Georgia, E. J., Roddy, M. K., Nowlan, K. M., Benson, L. A., & Christensen, A. (2016). A randomized controlled trial of the web-based OurRelationship program: Effects on relationship and individual functioning. *J Consult Clin Psychol*, 84(4), 285-296. <https://doi.org/10.1037/ccp0000063>
- Edwards-Stewart, A., Rennebohm, S. B., DeSimone, J., Willey, B., Smolenski, D. J., & Hoyt, T. (2018). Relationship satisfaction and mental health treatment among active-duty military. *Couple and Family Psychology: Research and Practice*, 7(3-4), 201-211. <https://doi.org/10.1037/cfp0000108>
- Eran-Jona, M. (2011). Married to the Military: Military-Family Relations in the Israel Defense Forces. *Armed Forces & Society*, 37(1), 19-41. <https://doi.org/10.1177/0095327X10379729>
- Erbes, C. R., Meis, L. A., Polusny, M. A., Compton, J. S., & Wadsworth, S. M. (2012). An Examination of PTSD Symptoms and Relationship Functioning in U.S. Soldiers of the Iraq War Over Time. *Journal of Traumatic Stress*, 25(2), 187-190. <https://doi.org/10.1002/jts.21689>
- Fear, N. T., Iversen, A., Meltzer, H., Workman, L., Hull, L., Greenberg, N., Barker, C., Browne, T., Earnshaw, M., Horn, O., Jones, M., Murphy, D., Rona, R. J., Hotopf, M., & Wessely, S. (2007). Patterns of drinking in the UK Armed Forces. *Addiction*, 102(11), 1749-1759. <https://doi.org/10.1111/j.1360-0443.2007.01978.x>

- Fear, N. T., Jones, M., Murphy, D., Hull, L., Iversen, A. C., Coker, B., Machell, L., Sundin, J., Woodhead, C., Jones, N., Greenberg, N., Landau, S., Dandeker, C., Rona, R. J., Hotopf, M., & Wessely, S. (2010). What Are The Consequences of Deployment to Iraq and Afghanistan on the Mental Health of the UK Armed Forces? A Cohort Study. *Lancet* 375(9728), 1783-1797. [https://doi.org/10.1016/S0140-6736\(10\)60672-1](https://doi.org/10.1016/S0140-6736(10)60672-1)
- Fear, N. T., Reed, R. V., Rowe, S., Burdett, H., Pernet, D., Mahar, A., Iversen, A. C., Ramchandani, P., Stein, A., & Wessely, S. (2018). Impact of paternal deployment to the conflicts in Iraq and Afghanistan and paternal post-traumatic stress disorder on the children of military fathers. *British Journal of Psychiatry*, 212(6), 347-355. <https://doi.org/10.1192/bjp.2017.16>
- Flora, D. B., & Curran, P. J. (2004). An Empirical Evaluation of Alternative Methods of Estimation for Confirmatory Factor Analysis with Ordinal Data. *Psychological Methods*, 9(4), 466-491. <https://doi.org/10.1037/1082-989X.9.4.466>
- Gerlock, A. A., Grimesey, J., & Sayre, G. (2014). Military-Related Posttraumatic Stress Disorder and Intimate Relationship Behaviors: A Developing Dyadic Relationship Model. *Journal of Marital and Family Therapy*, 40(3), 344-356. <https://doi.org/10.1111/jmft.12017>
- Goldfarb, M. R., & Trudel, G. (2019). Marital quality and depression: a review. *Marriage Fam Rev*, 55(8), 737-763. <https://doi.org/10.1080/01494929.2019.1610136>
- Goodwin, L., Wessely, S., Hotopf, M., Jones, M., Greenberg, N., Rona, R., Hull, L., & Fear, N. T. (2015). Are common mental disorders more prevalent in the UK serving military compared to the general working population? *Psychological Medicine*, 45(9), 1881-1891. <https://doi.org/10.1017/S0033291714002980>
- Gribble, R., & Fear, N. (2022). Living separately during the week: Influences on family functioning, health, and well-being of UK naval families. *Journal of Military, Veteran and Family Health*, 8(2), 82-93. <https://doi.org/10.3138/jmvfh-2021-0062>
- Gribble, R., Goodwin, L., Oram, S., & Fear, N. T. (2019). 'It's nice to just be you': The influence of the employment experiences of UK military spouses during accompanied postings on well-being. *Health Psychology Open*. <https://doi.org/10.1177/2055102919838909>
- Gribble, R., Mahar, A. L., Keeling, M., Sullivan, K., McKeown, S., Burchill, S., Fear, N. T., & Castro, C. (2020). Are We Family? A Scoping Review of How Military Families Are Defined In Mental Health And Substance Use Research. *Journal of Military, Veteran and Family Health*, 6(2), 85-119. <https://doi.org/10.3138/jmvfh-2019-0054>
- Head of Defence Statistics (Tri Service). (2014). FOI 2014 02967.
- Hunsley, J., Best, M., & Lefebvre, M. (1999). *The Dyadic Adjustment Scale Short Form: Establishing a Marital Distress Cut-off Score* 33rd Annual Convention of the Association for Advancement of Behavior Therapy,, Toronto, Canada.
- Huss, B., & Pollmann-Schult, M. (2020). Relationship Satisfaction Across the Transition to Parenthood: The Impact of Conflict Behavior. *Journal of Family Issues*, 41(3), 383-411. <https://doi.org/10.1177/0192513x19876084>
- Jervis, S. (2011). *Relocation, Gender And Emotion: A Psycho-social Perspective On The Experiences Of Military Wives*. Karnac Books Ltd.
- Karney, B. R., & Bradbury, T. N. (1997). Neuroticism, Marital Interaction, and the Trajectory of Marital Satisfaction. *Journal of Personality and Social Psychology*, 72(5), 1075-1092. <https://doi.org/10.1037/0022-3514.72.5.1075>
- Karney, B. R., & Trail, T. E. (2017). Associations Between Prior Deployments and Marital Satisfaction Among Army Couples. *Journal of Marriage and Family*, 79(1), 147-160. <https://doi.org/10.1111/jomf.12329>
- Keeling, M., Wessely, S., Dandeker, C., Jones, N., & Fear, N. T. (2015). Relationship Difficulties Among U.K. Military Personnel: Impact of Sociodemographic, Military, and Deployment-Related Factors. *Marriage & Family Review*, 51(3), 275-303. <https://doi.org/10.1080/01494929.2015.1031425>
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic Data Analysis*. The Guildford Press.

- Klaric, M., Franciskovic, T., Stevanovic, A., Petrov, B., Jonovska, S., & Nemcic Moro, I. (2011). Marital Quality and Relationship Satisfaction in War Veterans and their Wives in Bosnia and Herzegovina. *European Journal of Psychotraumatology*, 2. <https://doi.org/10.3402/ejpt.v2i0.8077>
- Knobloch-Fedders, L. M., Knobloch, L. K., Scott, S., & Fiore, H. (2020). Relationship changes of military couples during reintegration: A longitudinal analysis. *Journal of Social and Personal Relationships*, 37(7), 2145-2165. <https://doi.org/10.1177/0265407520917461>
- Knobloch, L. K., Ebata, A. T., McGlaughlin, P. C., & Ogolsky, B. (2013). Depressive Symptoms, Relational Turbulence, and the Reintegration Difficulty of Military Couples Following Wartime Deployment. *Health Communication*, 28(8), 754-766. <https://doi.org/10.1080/10410236.2013.800440>
- Knobloch, L. K., & Theiss, J. A. (2011). Depressive Symptoms and Mechanisms of Relational Turbulence as Predictors of Relationship Satisfaction Among Returning Service Members. *Journal of family psychology : JFP : journal of the Division of Family Psychology of the American Psychological Association (Division 43)*, 25(4), 470-478. <https://doi.org/10.1037/a0024063>
- Kroenke, K., & Spitzer, R. L. (2002). The PHQ-9: A New Depression Diagnostic and Severity Measure. *Psychiatric Annals*, 32(9), 509-521. <https://doi.org/10.3928/0048-5713-20020901-06>
- Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a Brief Depression Severity Measure. *Journal of General Internal Medicine*, 16(9), 606-613. <https://doi.org/10.1046/j.1525-1497.2001.016009606.x>
- Lester, P., Liang, L., Milburn, N., Mogil, C., Woodward, K., Nash, W., Aralis, H., Sinclair, M., Semaan, A., Klosinski, L., Beardslee, W., & Saltzman, W. (2016). Evaluation of a Family-Centered Preventive Intervention for Military Families: Parent and Child Longitudinal Outcomes. *Journal of the American Academy of Child & Adolescent Psychiatry*, 55(1), 14-24. <https://doi.org/https://doi.org/10.1016/j.jaac.2015.10.009>
- Löwe, B., Unutzer, J., Callahan, C. M., Perkins, A. J., & Kroenke, K. (2004). Monitoring Depression Treatment Outcomes with the Patient Health Questionnaire-9. *Medical Care*, 42(12), 1194-1201. <https://doi.org/10.1097/00005650-200412000-00006>
- McIntosh, J., Painter, F., Opie, J., Hameed, M., Vuong, A., Dowling, R., Boh, J., McLean, N., Jiang, H., & Booth, A. (2023). Family Cohesion and Relationship Quality in Defence Force Families: Rapid Review. *Open Journal of Social Sciences*, 11, 56-93. <https://doi.org/10.4236/jss.2023.113005>
- McLeland, K. C., Sutton, G. W., & Schumm, W. R. (2008). Marital Satisfaction before and after Deployments Associated with the Global War on Terror. *Psychological Reports*, 103(3), 836-844. <https://doi.org/10.2466/pr0.103.3.836-844>
- Meis, L. A., Erbes, C. R., Polusny, M. A., & Compton, J. S. (2010). Intimate relationships among returning soldiers: the mediating and moderating roles of negative emotionality, PTSD symptoms, and alcohol problems. *J Trauma Stress*, 23(5), 564-572. <https://doi.org/10.1002/jts.20560>
- Ministry of Defence. (2019). *JSP 464 Tri-Service Accommodation Regulations Volume 1: Service Family Accommodation (SFA) and Substitute Service Family Accommodation – UK and Overseas Part 2: Guidance*. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/790805/20190401 - JSP 464 Volume 1 Part 2 - Version 9.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/790805/20190401_JSP_464_Volume_1_Part_2_Version_9.pdf)
- Muthén, L. (2018). *Forum advice*. www.statmodel.com/discussion/messages/11/5266.html?1312503676
- Muthén, L., & Muthén, B. (1998-2019). *Mplus User's Guide*. In Muthén & Muthén.
- Nelson Goff, B. S., Crow, J. R., Reisbig, A. M., & Hamilton, S. (2007). The Impact of Individual Trauma Symptoms of Deployed Soldiers on Relationship Satisfaction. *Journal of Family Psychology*, 21(3), 344-353. <https://doi.org/10.1037/0893-3200.21.3.344>

- Pflieger, J. C., LeardMann, C. A., McMaster, H. S., Donoho, C. J., & Riviere, L. A. (2018). The Impact of Military and Nonmilitary Experiences on Marriage: Examining the Military Spouse's Perspective. *Journal of Traumatic Stress*, 31(5), 719-729.
<https://doi.org/https://doi.org/10.1002/jts.22321>
- Pflieger, J. C., Richardson, S. M., Stander, V. A., & Allen, E. S. (2022). Risk and protective factors predictive of marital instability in U.S. military couples. *Journal of Family Psychology*, 36(5), 791-802. <https://doi.org/https://doi.org/10.1037/fam0000949>
- Pincus, S. H., House, R., Christensen, J., & Adler, L. E. (2001). The Emotional Cycle of Deployment: A Military Family Perspective. *U.S. Army Medical Department Journal*, Apr/June, 15-23.
- Proulx, C. M., Helms, H. M., & Buehler, C. (2007). Marital quality and personal well-being: a meta-analysis. *J Marriage Fam*, 69(3), 576-593.
- Pye, R. E., & Simpson, L. K. (2017). Family Functioning Differences Across the Deployment Cycle in British Army Families: The Perceptions of Wives and Children. *Military Medicine*, 182(9-10), e1856-e1863. <https://doi.org/10.7205/milmed-d-16-00317>
- Renshaw, K., Campbell, S., Meis, L., & Erbes, C. (2014). Gender differences in the associations of PTSD symptom clusters with relationship distress in U.S. Vietnam veterans and their partners. *J Trauma Stress*, 27(3), 283-290. <https://doi.org/10.1002/jts.21916>
- Renshaw, K. D., Rodrigues, C. S., & Jones, D. H. (2008). Psychological Symptoms and Marital Satisfaction in Spouses of Operation Iraqi Freedom Veterans: Relationships with Spouses' Perceptions of Veterans' Experiences and Symptoms. *Journal of Family Psychology*, 22(4), 586-594. <https://doi.org/10.1037/0893-3200.22.3.586>
- Rhemtulla, M., Brosseau-Liard, P. É., & Savalei, V. (2012). When Can Categorical Variables be Treated as Continuous? A Comparison of Robust Continuous and Categorical SEM Estimation Methods under Suboptimal Conditions. *Psychological Methods*, 17(3), 354-373.
<https://doi.org/10.1037/a0029315>
- Ribeiro, S., Renshaw, K. D., & Allen, E. S. (2023). Military-related relocation stress and psychological distress in military partners. *Journal of Family Psychology*, 37(1), 45-53.
<https://doi.org/10.1037/fam0001030>
- Riviere, L. A., Merrill, J. C., Thomas, J. L., Wilk, J. E., & Bliese, P. D. (2012). 2003–2009 Marital Functioning Trends Among U.S. Enlisted Soldiers Following Combat Deployments. *Military Medicine*, 177(10), 1169-1177. <https://doi.org/10.7205/milmed-d-12-00164>
- Sabourin, S., & Valois, P. (2005). Development and Validation of a Brief Version of the Dyadic Adjustment Scale With a Nonparametric Item Analysis Models. *Psychological Assessment*, 17(1), 15-27. <https://doi.org/DOI: 10.1037/1040-3590.17.1.15>
- Segal, M. W. (1986). The Military And the Family As Greedy Institutions. *Armed Forces & Society*, 13(1), 9-38. <https://doi.org/10.1177/0095327X8601300101>
- Sharpley, C. F., & Rogers, H. J. (1984). Preliminary Validation of the Abbreviated Spanier Dyadic Adjustment Scale: Some Psychometric Data Regarding a Screening Test of Marital Adjustment. *Educational and Psychological Measurement*, 44(4), 1045-1049.
<https://doi.org/10.1177/0013164484444029>
- Spanier, G. B. (1976). Measuring Dyadic Adjustment: New Scales for Assessing the Quality of Marriage and Similar Dyads. *Journal of Marriage and the Family*, 38(1), 15-38.
<https://doi.org/10.2307/350547>
- Sparks, A. C., Williams, C. S., Pflieger, J. C., Jacobson, I., Corry, N. H., Radakrishnan, S., & Stander, V. A. (2022). Longitudinal Patterns of Military Spousal Alcohol Consumption: Findings From the Millennium Cohort Family Study. *J Stud Alcohol Drugs*, 83(4), 546-555.
<https://doi.org/10.15288/jsad.2022.83.546>
- StataCorp. (2015). *Stata Statistical Software: Release 14*. In (Version Version 14.2) StataCorp LP.
- Stevellink, S. A. M., Jones, M., Hull, L., Pernet, D., MacCrimmon, S., Goodwin, L., MacManus, D., Murphy, D., Jones, N., Greenberg, N., Rona, R. J., Fear, N. T., & Wessely, S. (2018). Mental health outcomes at the end of the British involvement in the Iraq and Afghanistan conflicts:

- a cohort study. *British Journal of Psychiatry*, 213(6), 690-697.
<https://doi.org/10.1192/bjp.2018.175>
- Terhakopian, A., Sinaii, N., Engel, C. C., Schnurr, P. P., & Hoge, C. W. (2008). Estimating Population Prevalence of Posttraumatic Stress Disorder: An Example using the PTSD Checklist. *Journal of Traumatic Stress*, 21(3), 290-300. <https://doi.org/10.1002/jts.20341>
- VanLaningham, J., Johnson, D., & Amato, P. (2001). Marital Happiness, Marital Duration, and the U-Shaped Curve: Evidence from a Five-Wave Panel Study. *Social Forces*, 79(4), 1313-1341.
<https://doi.org/10.1353/sof.2001.0055>
- Visschers, J., Jaspaert, E., & Vervaeke, G. (2017). Social Desirability in Intimate Partner Violence and Relationship Satisfaction Reports: An Exploratory Analysis. *Journal of Interpersonal Violence*, 32(9), 1401-1420. <https://doi.org/10.1177/0886260515588922>
- Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M. (1993). *The PTSD Checklist (PCL): Reliability, validity, and Diagnostic Utility* 9th Annual Conference of the ISTSS, San Antonio, TX.
- West, S. G., Taylor, A. B., & Wu, W. (2012). Model Fit and Model Selection in Structural Equation Modeling. In R. Hoyle (Ed.), *Handbook of Structural Equation Modeling* (pp. 209-231). The Guilford Press.
- Westman, M., Vinokur, A. D., Hamilton, V., & Roziner, I. (2004). Crossover of Marital Dissatisfaction During Military Downsizing Among Russian Army Officers and Their Spouses. *Journal of Applied Psychology*, 89(5), 769-779. <https://doi.org/10.1037/0021-9010.89.5.769>
- Whisman, M. A. (1999). Marital Dissatisfaction and Psychiatric Disorders: Results from the National Comorbidity Survey. *Journal of Abnormal Psychology*, 108(4), 701-706.
<https://doi.org/10.1037//0021-843x.108.4.701>
- Whisman, M. A., Salinger, J. M., Gilmour, A. L., Steele, B. A., & Snyder, D. K. (2021). Love and war: Prospective associations between relationship distress and incidence of psychiatric disorders in active-duty Army personnel. *Journal of Abnormal Psychology*, 130(1), 3-8.
<https://doi.org/10.1037/abn0000642>