

Psychosocial Outcomes and Predictors of Distress Among Military Spouses

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Abstract

The current research aimed to further investigate the nature and extent of psychological distress among Australian Defence Force spouses, predictors of such distress, and the protective factors that moderate these negative effects, using internationally validated methods. This study used Lazarus and Folkman's (1984) theory of stress and coping as an overarching theoretical framework. A sample of spouses ($n = 184$) completed an online self-report instrument that assessed psychological distress, depression, anxiety and stress, quality of sleep, barriers to care, and levels of perceived social support. Consistent with hypotheses, multiple regression analyses showed that military spouses reported significantly higher rates of distress and significantly poorer sleep quality than rates reported in the general Australian population. Higher rates of depression were predicted by greater discrepancy between emotional support received than was desired, greater discrepancy between practical support received than was desired, and current deployment status of the service partner. High rates of anxiety were predicted by the total number of barriers to care endorsed by spouses. Poorer sleep quality was predicted by more discrepancy between practical support received than was desired. Contrary to hypotheses, military risk factors of the duration of service for the ADF partner and amount of times deployed did not predict psychological distress. Similarly, barriers to care and self-stigma of help-seeking did not moderate the association between the discrepancy between emotional support received than was desired and psychological distress outcomes. Findings indicated that military spouses are a vulnerable population group with high rates of distress and sleep difficulties. Spouses are impacted by stressors such as the current deployment of the service partner and help-seeking efforts are impeded by deficient access to supports, and barriers to care. Clinical implications are

discussed, including the need to design appropriate interventions to specifically address the psychological implications of the demands placed on military spouses.

Keywords: military, spouse, depression, anxiety, sleep quality, social support, barriers to care

Declaration

I, Melanie J. Quinn, declare that the Doctor of Psychology (Clinical Psychology) thesis entitled *Psychosocial Outcomes and Predictors of Distress Among Military Spouses* is no more than 40,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Signature:

A solid black rectangular box used to redact the signature of the author.

Date: 27th March, 2017

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Chapter 1: Introduction

“A common saying in the military is that when one person joins, the whole family serves...”

(Park, 2011, p. 65).

In 2011, there were approximately 33,000 recognised spouses (henceforth referred to as “spouses”, or “military spouses”) of Australian Defence Force (ADF) personnel (henceforth referred to as “service partners”, “personnel”, “members”). Further, these recognised military spouses had in their care approximately 18,000 dependents under the age of 18 years (McGuire et al., 2012). Military families are largely a robust and resilient group (Cozza, Chun, & Polo, 2005; McGuire et al., 2012). However, they face unique lifestyle conflicts and stressors, which have been shown in the international literature to increase vulnerabilities to physical, psychological and relationship health difficulties (Cozza et al., 2005; Dimiceli, Steinhardt, & Smith, 2010; Huebner, Mancini, Bowen, & Orthner, 2009; MacDermid Wadsworth, 2010; McFarlane, 2009; McLeland, Sutton, & Schumm, 2008). The unique challenges faced by military spouses needs attention to assist this population group to cope in an ongoing manner (Dimiceli et al., 2010).

There is a dearth of Australian research exploring the psychosocial outcomes of ADF spouses (Outram, Hansen, MacDonell, Cockburn, & Adams, 2009; Siebler, 2009). However, emerging research has begun to recognise the resilience and risk factors associated with this population (MacDonell, Bhullar, & Thorsteinsson, 2016; McGuire et al., 2012; Westerink & Giarratano, 1999). The ADF has in place several programs to attempt to address the unique needs and vulnerabilities of families (e.g., access to the Veterans’ and Veterans’ Families Counselling Service, health, housing, relocation and childcare subsidies) (Defence Families of Australia, n.d.). Despite this, military spouses remain a marginalised and often forgotten voice, and there is a little research examining the psychosocial outcomes of this population (Aducci, Baptist, George, Barros, & Nelson Goff, 2011; Wheeler & Torres Stone, 2010).

Like their international counterparts, ADF families face specific military-related demands (Broderick, 2012), the impact of which is vital to investigate further, and is the focus of the present study.

Such unique lifestyle stressors faced by military spouses may be both egocentric and allocentric (Milgram & Bar, 1993). Egocentric concerns refer to those regarding the need to move relatively frequently for postings; associated disturbances to social networks and access to ongoing employment; and loss of companionship of his or her service partner and having to solely manage life and household demands (Milgram & Bar, 1993). In contrast, allocentric concerns relate to those about others, such as the physical and mental well-being of his or her service partner (Milgram & Bar, 1993). It is the confluence of these demands which is argued to make military life unique relative to other work-life conflicts (Burrell, Adams, Durand, & Castro, 2006).

Military life is a burden that impacts on spouses' psychological well-being, with spouses reporting increases in depression, anxiety, sleep difficulties, acute stress reactions, and adjustment disorders (Mansfield et al., 2010). The few Australian studies which exist present mixed findings (McGuire et al., 2012). However, there is an emerging body of literature to suggest that despite differences in local and international defence force profiles (McGuire et al., 2012), ADF spouses may also be vulnerable to psychiatric disturbances (MacDonell et al., 2016; Westerink & Giarratano, 1999).

It is fundamental to understand more about the prevalence and predictors of such psychiatric sequelae among ADF spouses. In the past decade, both global (Patel et al., 2008) and national (Slade, Johnston, Oakley Browne, Andrews, & Whiteford, 2009) policies have made mental health prevention and treatment a priority in the civilian population. This has led to more understanding about the high population prevalence of depression and anxiety (Slade et al., 2009), as well as the great contribution towards the global burden of disease

(Whiteford et al., 2013). In Australia, the leading contribution to the burden of disease for females comes from depression and anxiety, contributing 10% of the total female burden (Begg et al., 2007). With military spouses facing a unique collection of stressors, assessing the prevalence and predictors of depression and anxiety within this vulnerable group is pertinent. Sleep disturbances are also a core diagnostic feature of both anxiety and depression, as well as independent risk factors for psychiatric disorders (Anderson & Bradley, 2013). Thus, understanding more about the bidirectional influence of both sleep and psychosocial distress on wellness and health in military populations is also called for (Brooks Holliday, Haas, Shih, & Troxel, 2016). Families who do not cope well may be more likely to separate from the military (Warner, Appenzeller, Warner, & Grieger, 2009). Therefore, more focus should be given to the well-being of spouses, given the vital role they play in the retention of service personnel (Atkins, 2009).

Therefore, this thesis focussed on the military and non-military resilience and risk factors associated with psychosocial outcomes in a sample of ADF spouses. The cognitively-oriented stress and coping theory of Lazarus and Folkman (1984) was employed as a theoretical framework within which spouses may be understood to be overwhelmed by demands of military life, resulting in poorer psychosocial outcomes. The role of emotional and practical social support on mental health symptoms was examined, alongside the potential for barriers to care and self-stigma of help-seeking to moderate this association. Depressive, anxious and sleep disordered symptomatology were the mental health outcomes explored.

Specific research questions asked in this study included:

1. Do ADF spouses have higher rates of depression, anxiety and sleep difficulties than the general Australian population?

2. What effects do military risk factors of service length, current deployment status of the service partner, and current home location have on ADF rates of spousal depression, anxiety and sleep difficulties?
3. What effects do non-service factors of desired emotional and practical support have on rates of spousal depression, anxiety and sleep difficulties?
4. Does self-stigma, and other barriers to care, moderate the relationship between the discrepancy between emotional support received versus that which was desired and rates of depression, anxiety and sleep difficulties?

This thesis addresses the shortage of research in this field to contribute to an improved understanding of the impact of service life on Australian families. The distribution of the findings of this research provides valuable information to better support ADF spouses. Thus, relevant military bodies supporting ADF spouses may benefit from the findings in this study. These include the Defence Community Organisation; clinicians, such as community Allied Health professionals; and ADF-specific supports, such as those working for the Veterans and Veterans' Family Counselling Services.

In summary, the focus of this thesis is the military and non-military resilience and risk factors associated with psychosocial outcomes in a sample of ADF spouses. This chapter provides an introduction. Chapter two provides a review of the relevant existing literature examining the unique challenges, and associated risk and resilience factors impacting military spouses' well-being. A great majority of research into the well-being of military families thus far has been conducted in the United States of America (Kaczmarek & Sibbel, 2008). Note that international research for military family outcomes is not necessarily directly comparable with the Australian context. There are differences in the nature of each defence force, variations in defence operations, and social demographics (McGuire et al., 2012). Due to the paucity of research on the psychosocial outcomes of military spouses, the international

research will be reviewed herein alongside the limited data available examining outcomes of Australian military spouses. The literature review is followed by an overview of the current research; detailing aims and hypotheses. Included in chapter three is a presentation of research methods, while chapter four presents the results of the analyses. In chapter five, a discussion of the findings is provided, as well as a consideration of the clinical implications, limitations and research imperatives to consider.

Chapter 2: Selective Literature Review

2.1 Unique Profile and Associated Resilience and Risk Factors of Military Spouses

Military families comprise a unique subset of the Australian population. As such, it is essential to understand the specific characteristics of this subgroup, together with the associated supports and challenges with which spouses are faced.

2.1.1 Military-specific resilience factors. Australian military families report several benefits associated with military life. These include access to stable partner employment, financial benefits, entitlements, and counselling supports (Runge, Waller, MacKenzie, & McGuire, 2014). ADF families have access to financial benefits of the service member, which are somewhat higher than rates earned by US personnel (Defence Force Recruiting, 2013). Qualifying Defence families may also benefit from subsidised housing, medical and allied health benefits, cost-free counselling and other support services (Defence Force Recruiting, 2016; Department of Defence, 2017). Moreover, spouses of ADF members report having the benefit of the opportunity to travel around Australia and have expressed pride in their partner's ADF service (Runge et al., 2014). For some military couples, periods of separation have contributed to developing closer relational bonds with one's spouse and extended family, in the midst of the fear of loss of one's partner (Baptist et al., 2011). Additionally, much of the research literature has focused on the difficulties associated with military-related separation from the service partner. Yet, some theorists have proposed that separations offer the prospect for personal growth, including the opportunity for the spouse to develop self-confidence, independence, new supports, and skills (Dandeker, French, Birtles, & Wessely, 2006; Drummet, Coleman, & Cable, 2003). Resilience factors in military families is an understudied area (Palmer, 2008). The present study does not specifically examine military-related resilience factors and the relative contribution of these in protecting against negative psychosocial outcomes. However, it is acknowledged that ADF spouses are considered to be a

resilient cohort (McGuire et al., 2012), and further research into the contributing military resilience factors would be beneficial.

2.1.2 Social support. Another resilience factor of primary importance is drawing on social support, which is widely known as an effective coping strategy in the face of stress (Andres, 2014). Social support refers to emotional, informational and instrumental assistance provided to persons by significant others and members of the community (Thoits, 2011). Thoits (2011) defines emotional support as assistance provided in terms of affection and appreciation, care and respect, encouragement, and sympathy. Both informational and instrumental support are provided by assistance to help an individual problem-solve. In the case of informational support, the individual is provided with facts, instructions or directions, while instrumental supports offer physical or material assistance to fulfil this need (Thoits, 2011). Social supports may come from significant others (such as family and friends), or similar others (such as military spouses or larger networks such as spousal support groups) (Thoits, 2011; M.-C. Wang, Nyutu, Tran, & Spears, 2015).

The importance of social support from friends, family, colleagues, and military and community services has been emphasised in the international literature. Social support buffers against distress among civilian populations (Ozbay, Fitterling, Charney, & Southwick, 2008), military servicemen (Fontana, Rosenheck, & Horvath, 1997; Pietrzak et al., 2010), and most applicable to the present study, military spouses (Andres, 2014; Drummet et al., 2003; Wheeler & Torres Stone, 2010; Wood, Scarville, & Gravino, 1995). It is appropriate to consider the role of social support within the unique ecological context of military families. Social support is needed to alleviate the stressors of military life (Adler & Riviere, 2017). Yet, support is also disrupted due to military demands such as separation from partner due to deployments and training exercises (Runge et al., 2014; Warner et al., 2009). Families also experience frequent relocation away from family and established friend

networks due to postings (Barker & Berry, 2009; Wood et al., 1995). Moreover, military spouses may censor their disclosures to others due to fears of the potential reactions or of receiving unhelpful advice or unsolicited information (Rossetto, 2015). Thus, there may be various mechanisms by which spouses are impeded from soliciting and receiving the support required (Rossetto, 2015).

International research has sought to understand more about the resilience factor of social support among military spouses. Rosen and Moghadam (1990) examined the effect of four types of social support on the subjective distress of 1,090 military spouses whose partners were absent for military-related reasons. Perceived support from other spouses in the unit, but not from their extended civilian friends or family, was protective against distress. Rossetto (2015) conducted a qualitative study with 26 US spouses whose partners were currently deployed to explore the nature and mechanism of helpful and unhelpful supports during deployment. This study found that helpful supports spanned four main categories: emotional, instrumental, informational and network/external support. Emotional support from family, friends, and partners, was noted to be communicated through encouragement, recognition, and appreciation for the sacrifices the spouse endures. One of the principal sources of support identified was that of other military spouses. Spouses valued the opportunity to receive a mutual understanding of the unique experience of being a military spouse. Instrumental supports were also identified as key during and after deployment, where spouses drew on others to share household tasks such as running errands, care of dependents, and domestic labour. Informational support from partners, and especially other military spouses was also noted to be of benefit. Other sources of support came from the external community, including support from therapists, online forums for military spouses, military support groups and information centres, and religious groups. However, some of these same supports were perceived as unhelpful when they were unsolicited, or appeared insincere or

lacked awareness and understanding of the spouse's circumstances. Overall, supports were exemplified as vital to meet spousal needs of understanding, mastery, validation and stress-reduction.

In a Canadian study, Skomorovsky (2014) examined the role of social support in predicting stress from deployment separation from partners and the moderating effect of social support on stress and depression among spouses ($n = 639$). Higher rates of deployment stress were significantly and positively predictive of depression scores. Conversely, social support from family and non-military friends were significantly and negatively predictive of depression symptoms. Among spouses whose partners had recently returned from deployment, the above-mentioned predictors, plus support from the military partner, were inversely associated with depression scores. In brief, more support from the returned partner was predictive of fewer depression symptoms (Skomorovsky, 2014). Interestingly, social support from other military spouses was not found to be a predictor of psychological health, nor depression symptoms. This is in contrast to research in the US and UK, where spouses preferred informal supports from their own family, other military spouses, and work colleagues to assist in managing the demands associated with deployment-related separation (Dandeker et al., 2006; Rosen & Moghadam, 1990).

Military spouses who have higher rates of social support experience greater life satisfaction and greater well-being (Klein, Tatone, & Lindsay, 1989). For example, a study of 17,161 spouses of US Air Force personnel demonstrated that positive perceptions of community and unit support determined how well families adapted to their communities (Bowen, Mancini, Martin, Ware, & Nelson, 2003). A smaller study of 207 US military spouses found that positive affect was related to a strong sense of community, which in turn lead to higher rates of psychological well-being (M.-C. Wang et al., 2015). Wang and colleagues (2015) also found that support from friends had a significant impact on spousal

well-being, while family support did not. This was attributed to the likelihood of living away from family due to military relocation requirements.

Spousal social support from one source of support has been linked to the quality of supports in other areas. For example, one Dutch study indicated that there were decreases in perceived support available to spouses during the deployment-related separation from their partners (Andres, 2014). Further, levels of social support were predictive of later relationship satisfaction among military couples (Andres, 2014). Social support has also been demonstrated to be predictive of higher rates of marital satisfaction, lower rates of psychological distress, and fewer health difficulties in spouses living internationally on Army installations (Crouch, Adrian, Adler, Wood, & Thomas, 2016). Another study of 708 partners of Dutch peacekeepers found that partners of service members who endorsed PTSD symptoms reported more negative social support, and more problematic marital relationships than those without PTSD symptoms (Dirkzwager, Bramsen, Adèr, & van der Ploeg, 2005). Therefore, there is some international evidence to suggest that that military risk factors associated with trauma symptomatology may impede spousal access to needed social supports both within and external to the family system (Dirkzwager et al., 2005).

Correspondingly, Australian research has demonstrated the important role of social support in moderating negative physical and mental health outcomes in civilian populations (Emmanuel, St John, & Sun, 2012), and among military spouses (McGuire et al., 2012). For example, McGuire and colleagues (2012) found a significant negative association with the quality of the spousal relationship, where relationships with greater spousal support and security had better mental health outcomes, and relationships with greater relational conflict had poorer mental health outcomes. In addition, spouses with higher social support reported lower psychological distress and less frequently endorsed symptoms of PTSD. Also, spouses

with poorer family functioning reported increased symptoms of PTSD and psychological distress.

It is of note that during a period of military-related separation, spouses are isolated from a primary source of support, that of their partner. For this reason, it is also worthwhile to consider the research on the contribution of social support from the service partner on spousal well-being. It may be argued that the partner is the main source of support for military spouses (Dirkzwager et al., 2005), thus times of deployment may place the military spouse in a vulnerable position. This is supported by the research of Atkins (2009), which found that spouses of ADF personnel ($n = 5,749$) reported the most common stressor of deployment as managing life demands and stressors alone without the emotional and instrumental support of the spouse. Similarly, Orthner and Rose (2009) found that access to informal supports, and especially the quality of the marital bond, were significantly and positively related to spouse well-being during, and were protective against the decline of well-being associated with non-deployment military-related work separations from their service partners. Communication technologies have recently improved significantly, enhancing the opportunity to maintain links during periods of military separation via the Internet and webcam services (Lapp et al., 2010). Yet, some ADF spouses continue to report experiences of unreliable, or lack of provision of, communication with their service partners, or a sudden change in communication without notice (Atkins, 2009). There may also be other contributing factors which may make it difficult for the military spouse to access the support of their partner. Spouses may perceive that they need to buffer their service partners from their distressing disclosures in order to prevent additional role strain in an already stressful field environment of their own (Joseph & Afifi, 2010). In a study examining 105 spouses' patterns of disclosure and protective buffering of disclosures to their service partners, Joseph and Afifi (2010) found that wives were less likely to divulge and more likely to protectively buffer their

disclosures when under the perception that their service partners were faced with danger. In these situations, spouses may perceive that relying on one's spouse for emotional support may further endanger the safety of his or her partner, or other military members (McNulty, 2005). Spouses remaining at home were also less likely to make distressing disclosures to their service members if they perceived that their husbands were not supportive of these disclosures. However, military spouses who censored their stressors from their supports were more likely to have physical and mental health difficulties (Joseph & Afifi, 2010), thus contributing to the cycle of spousal distress. Therefore, despite experiencing negative affect in the face of military-related stressors, many spouses fail to express such distress, for the sake of their partner or dependents (M.-C. Wang et al., 2015). Although it may appear at face value to be a useful coping strategy to censor disclosures from one's spouse, researchers posit that such breakdown of communication can cause additional stress for the spouse (van der Kloet & Moelker, 2002).

In summary, research examining resilience factors in assisting military spouses to manage military-related risk factors has begun to demonstrate the importance of access to social support. Social support is protective against the development of psychopathology in spouses (Dirkzwager et al., 2005; McGuire et al., 2012; Orthner & Rose, 2009), and is predictive of better marital outcomes following spousal reunification after deployment (Andres, 2014), which is then likely to be protective for the military couple in managing military life beyond deployment. However, the research examining the role of social support in predicting symptoms of depression, anxiety and sleep outcomes in Australian military spouses is very limited. The present study sought to investigate more about the resilience factors of perceived emotional and practical support, and the potential for these to buffer against psychosocial distress in a cohort of Australian military spouses.

2.1.3 Military-specific spousal risk factors. In Segal's (1986) seminal paper examining the unique risk characteristics of military families, the specific demands which military life imposes on families were described. Segal (1986) argued that both the military and the family may be categorised as "greedy organisations" due to the demands and obligations imposed on members, each placing the military spouse under considerable burden. Military demands may encompass geographic mobility, including frequent relocations resulting in a change of home for the family, a job for the spouse, and school for the children (Segal, 1986). Social supports may be difficult to maintain in such circumstances (Dunt, 2009), and surveys have reported that up to 53% of ADF spouses have cited that re-establishing supports are difficult following relocation (Brown & Wensing, 2016). In addition, partners of deployed personnel contend with additional difficulties associated with periodic separation from the military partner, such as maintaining a household and finances, managing dependents as a sole parent, and marital strain associated with the uncertainties of the length of the deployment separation (Mansfield et al., 2010). Other problems that may directly impact the health of their families include intimate partner violence, posttraumatic stress disorder, substance use, marriage dissolution and suicidal ideation (Dunt, 2009; Larson et al., 2012). Such military risk factors place military spouses at risk of developing adverse mental health outcomes, such as major depressive disorder (Faulk, Gloria, Cance, & Steinhardt, 2012). The following literature review of military risk factors considers several of these risk factors in detail. The demand for geographic mobility, separation-related challenges from the service partner, duration of the partner's military service, multiple deployments, barriers to help-seeking, including self-stigma of help-seeking, will be explored.

2.1.3.1 Geographic mobility. Of primary consideration is the burden that frequent moves of home location places upon military spouses. Relocation may take place within

Australia or even internationally. The purpose of relocation is to afford service personnel the opportunity to engage in training, gain skills and experience, and preparation for international operations (Commonwealth of Australia, 2001; Siebler, 2009). The ADF has taken steps to reduce the impact of relocation on families by including in policy the provision of a three-month period between the return from deployment and relocation for training or exercises (Atkins, 2009). ADF policy also suggests that postings are of three years' duration, and preferably occurring back-to-back in the same location (Commonwealth of Australia, 2001). In spite of this, military compliance data indicated that in the majority of cases, neither of these requirements are met (Commonwealth of Australia, 2001). This may mean that spouses are regularly having to manage the emotional and physical fatigue associated with relocation (Drummet et al., 2003). A recent ADF families survey ($n = 3,733$) showed that 42% of significant others surveyed had moved between one and three times, 34% had moved between four and nine times, and 11% of respondents had moved ten or more times over the duration of their military service life (Brown & Wensing, 2016). Moreover, the survey found that 56% of the surveyed families had moved less than two years ago. A prior ADF Families survey also revealed that a clear majority of spouses (60.4%) reported difficulty re-establishing a support network following relocation. The authors documented that there was an association between the number of postings and coping, such that the greater the number of service relocations, the greater the difficulty adapting (Atkins, 2009). Therefore, ADF surveys indicate that movement for postings is relatively frequent, and places strain on spouses' capacity to cope.

Geographical relocation necessitates considerable and repeated readjustment on the part of spouses to living away from extended families, friends, and local networks of social support. Such mobility limits spousal access to many of their typical informal supports (Brown & Wensing, 2016; Di Nola, 2008; Segal, 1986; M.-C. Wang et al., 2015). It is

common in the US for military families to relocate to a military base, where they might have access to military supports. In contrast, Australian military families are more likely to relocate and live within the community (Bakhurst & Halford, 2016). This may make ADF military families at risk of further isolation at an already vulnerable time. During a military-related separation from his or her service partner, ADF spouses report multiple difficulties with accessing adequate supports (Atkins, 2009). Spouses commonly experience feelings of loneliness, isolation, as well as alienation from civilian supports, due to the perception that civilians do not understand the difficulties faced by the military spouse (Atkins, 2009). Thus, community supports who do not have direct military involvement may not always have the understanding or resources to meet the specific needs of the military family (Andres, 2014). Social and friendship supports have been identified as difficult to form, as civilians may be unlikely to invest in relationships with military spouses posted to a geographical location for a limited time (Brown & Wensing, 2016; Runge et al., 2014). Equivalently, Defence friendships may be tenuous due to this mutual posting cycle. In the case of spouses who successfully build supports following military relocation, these are often severed following ongoing demands to relocate as directed by military requirements. Thus, accessing supports necessary to manage the difficulties of military life is disrupted by the need to move frequently for defence force postings.

Geographical relocation may be particularly difficult for families at certain developmental stages of life. For example, the establishment of a new marriage, during pregnancy, and raising young children or children with special needs, and adolescents are vulnerable periods for families (Segal, 1986). These are developmental stages when families necessarily need to draw on considerable support in order to sustain emotional well-being and meet the required practical life demands (Brown & Wensing, 2016). ADF spouses with children have been found to be more likely to report difficulty coping with relocation than

those without dependents (Atkins, 2009). Spouses may also find it difficult to access childcare to assist with relocation at a time when it is most needed, particularly when moving at short-notice (Broderick, 2012). This is corroborated by evidence which found that most ADF spouses (52.3%, $n = 5,749$) reported difficulty re-establishing child-care following posting (Atkins, 2009). Spouses must, in turn, take on part of the burden of assisting children to manage distress associated with geographical movement, changes in education and curriculum (Runge et al., 2014). This is pertinent, as the number of military relocations is associated with child behaviour difficulties during deployment-related absence from the service parent (Barker & Berry, 2009). Furthermore, military children's adjustment difficulties are predicted by the degree of change in their lives (as measured by reports of changes in residence, educational setting, primary caregiver, daily schedules, or separations from friends and family) (Pierce, Vinokur, & Buck, 1998). Relocation may be particularly difficult for children in their schooling years, due to the importance of peer relationships at this developmental stage (Barker & Berry, 2009). Accordingly, ADF spouses with dependents must navigate an array of military-related challenges, and therefore, may be more vulnerable to psychosocial difficulties at various times of developmental change within the family.

There may also be other family demands which make relocation at certain periods difficult. For example, relocations may be more problematic at various points in the deployment cycle. A change in posting which occurs immediately before a deployment may remove families from valuable supports at a vulnerable time when such support is necessary (Barker & Berry, 2009; Wood et al., 1995). Spouses in Atkins (2009) ADF Families Survey ($n = 5,749$) confirmed that a change of posting prior to deployment made coping difficult due to the absence of both their partner and usual support network. Other family factors such as illness or financial difficulties may also make adjusting to separation more difficult (Wood et

al., 1995). Therefore, several military and non-military risk factors may compound with the stress of relocation to make spouses more vulnerable to distress.

Other difficulties associated with geographical relocation may include challenges in finding appropriate employment for the civilian partner. Surveys confirmed that up to 56% of ADF spouses reported that employment is difficult to re-establish following relocation (Brown & Wensing, 2016). In fact, military spouses are a population group who have high rates of unemployment (Harrell, Lim, Castaneda, & Golinelli, 2004). A change of posting can also cause a substantial decline in income and workforce participation (Burke & Miller, 2016). Runge and colleagues (2014) conducted a thematic analysis of ADF spouse responses to an open-ended question of family experiences following Timor-Leste deployment. They found that lower spousal emotional well-being was associated with difficulty obtaining work, having to accept jobs at a lower level of seniority and potentially lower pay, and restricting career ambitions because of ADF postings. In addition, it was reported that spouses described financial hardship due to the impact of lost or changed employment. ADF spouses in part-time employment also reported more difficulty coping with military-related partner absences than those in full-time employment (Atkins, 2009), which may be indicative of the protection offered to spouses who are able to access a higher number of work-related supports. Consequently, limitations of relocation on employment may also deprive spouses of a major source of social connectedness at a time when they are needing to access such resources (Bowen et al., 2003). These findings corroborate those military spouse career experiences indicated internationally. Spouses working during periods of military absence from their partner reported fewer appraisals of danger to their spouse whilst deployed (Milgram & Bar, 1993). They also exhibited less apprehension about their partner's safety, less anxiety, and fewer somatic complaints than spouses who were not working (Milgram & Bar, 1993). Moreover, in Castaneda and Harrell's (2008) mixed-methods study, it was found that spouses

perceived that their partner's military involvement had affected their work opportunities and impacted them negatively. Negative effects on spouses' employment were attributed to frequent moves and the perception of employer stigmatisation or bias against engaging military spouses due to the possibility of premature termination of the role for relocation. Spouses were also concerned about employer bias due to other military-related risk factors, such as the effect of extended separations from the service partner (Castaneda & Harrell, 2008). Spouses may also be restricted in career opportunities following movement to areas with limited employment (Drummet et al., 2003), such as regional, remote or rural municipalities. Thus, spouses' limitations to employment due to geographic mobility have been demonstrated to impact their wellbeing (Runge et al., 2014).

Conversely, some spouses are not able to move with their service partner due to employment and education-related responsibilities or to enable ongoing access to main supports. A recent survey found that between 11 and 25% of ADF service members were classified as Members with Dependents (Unaccompanied) (Brown & Wensing, 2016). It is also emphasised that many military situations exclude families, including training exercises, enlisted barracks, and ships (Segal, 1986). Moreover, it is known that some spouses choose to relocate away from military postings for proximity to supports during deployment, which severs access to organisational supports and other previously utilised formal and informational community supports (Flake, Davis, Johnson, & Middleton, 2009). Challenges associated with such separation include partner and ADF spouse loneliness, financial costs associated with living apart, and difficulty organising reunion trips (Brown & Wensing, 2016). Consequently, it is not solely those spouses who relocate with their service partner, but also those who choose not to move, who face challenges associated ADF with posting requirements.

It may also be argued that military members posted to regional, rural and remote locations may have added difficulties in accessing needed formal and informal supports. These communities are smaller than those located in metropolitan areas, and there is often a shortage of community and allied health care supports (Rajkumar & Hoolahan, 2004). Studies examining well-being in the general Australian population indicate that symptoms of depression (Gunn et al., 2008), suicidality (Rajkumar & Hoolahan, 2004) and anxiety are more common in rural populations. There may also be other stressors associated with living in such locations. For example, ADF members posted to remote locations such as Karratha, Geraldton, Nhulunbuy, Tully, and Mission Beach have reported having trouble accessing affordable and safe housing, which may be a particular stressor of relocation (Broderick, 2012).

In sum, ADF families, like their international counterparts, are faced with the strain of having to move frequently for military requirements. These frequent relocations are not without their consequences. Spouses report difficulties associated with geographic mobility. Such difficulties include disruptions to their support networks and demands related to managing the care of dependents (Atkins, 2009), who may be experiencing adaptation problems of their own (Barker & Berry, 2009). Furthermore, spouses report relocation-related and employment difficulties, which have been shown to be linked to poorer well-being outcomes (Runge et al., 2014). Importantly, spouses posted to regional, remote, and rural locations have added difficulties above and beyond each of these areas. Spouses face limitations due to living in municipalities with reduced population density and therefore, fewer formal and informal supports (Rajkumar & Hoolahan, 2004). Therefore, the present thesis focused on the impact of living in a rural location on the well-being of military spouses.

2.1.3.2 Spousal separation-related challenges. Another military-related risk factor which has been examined in research is that of the effects of separation on families during the

period of service member absences related to training, exercises and overseas activities and deployment. As previously noted, most research on military spouses has been conducted internationally, and length of separations differ between international and Australian defence forces. For example, the length of deployments differs. Australian deployments generally range between three and six months and were increased in Afghanistan to up to eight months. Still, this is relatively shorter than US deployments of up to 15 months duration (McGuire et al., 2016). Despite this, international research has identified that deployment separations in excess of three months may lead to adjustment difficulties in 29-38% of US spouses (Orthner & Rose, 2006). Thus, the length of Australian deployments remains worthy of consideration in terms of the impact on ADF spouses.

Separation from the ADF service member commonly begins for reasons outside of those related to deployment. Personnel may be required to work long hours in preparation for deployment, or to post to a location separate to the family for field training and exercises (deployment-related training) for weeks to several months (Runge et al., 2014; Warner et al., 2009). Personnel in the Navy posted to seagoing ships may spend longer away from home, with non-deployment separations lasting from 150 to 180 days per year (Broderick, 2012). ADF spouses report that at times, their service partners are required to work lengthy hours prior to deployment (Atkins, 2009). This deprives the family of a crucial period of preparation for deployment and quality time together (Atkins, 2009). In one qualitative study, ADF spouses expressed distress associated with such separation, with resultant impacts on relationship strains with their partner and children (Runge et al., 2014). Likewise, Orthner and Rose (2009) investigated the psychological well-being of 8,056 US Army spouses whose service partners were not absent on military deployment. Psychological well-being was found to be reduced as a function of the length of non-deployment, military-related work separation (Orthner & Rose, 2009). While deployment-related separations have been more widely

studied in the literature, other extended separations are a part of military family life which can be clearly stressful for the family.

It is noted that by recent estimates in any one year, approximately 12,000 servicemen and women are in the midst of an operational deployment sequence – either preparing for, deploying, or transitioning home from deployment (Hodson, McFarlane, Van Hooff, & Davies, 2011). In addition, the number of ADF deployments have steadily increased since 1999 (Siebler, 2009). In the last few decades, the ADF has deployed personnel on various peace-keeping and war-like operations in nations as diverse as Afghanistan and Iraq, Timor-Leste, and Cambodia (Bakhurst, Loew, McGuire, Halford, & Markman, 2016; McGuire et al., 2016). Further to this, ADF personnel have served on various humanitarian operations. They have provided support in Indonesia following the 2004 Boxing Day Tsunami, in Pakistan following the 2005 earthquake and Vanuatu following the 2015 cyclone (McGuire et al., 2016). In fact, there were approximately 50,000 ADF Vietnam veterans, as well as in excess of 60,000 ADF servicemen and women who deployed overseas since Vietnam (Outram et al., 2009). Therefore, this organisational demand poses a broad variety of military-related risks to ADF personnel and also places considerable burden and stress on their families and supports (Carter & Renshaw, 2015; Hodson et al., 2011).

Movements have been made towards the understanding of the emotional and psychological impact of deployment on families. Pincus, House, Christenson and Adler (2001) proposed a theoretical model suggesting five distinct emotional phases associated with the deployment cycle, each phase marked by a series of emotional challenges and tasks to be accomplished by the spouse remaining at home. Such a model may be useful in understanding the demands which the deployment cycle places upon military families. It is noted that failure to adequately negotiate the emotional challenges of each phase may be associated with subsequent emotional or relational difficulties in the family (Pincus et al., 2001). They argue

that the *pre-deployment* stage is marked by anticipation of the loss and separation. This is distinguished by periods of denial of the impending deployment, completing household and life maintenance and administration tasks and beginning to psychologically and physically separate as the service member prepares for deployment. This stage is also characterised by significant arguments due to the strain which the impending separation places on the family. They propose that the stage of *deployment* is characterised by a myriad of emotions, from feeling disoriented and overwhelmed to relieved, strong, anxious, numb, sad, angry, and lonely. A third phase is described as one of *sustainment* of the deployment. They posit that in this phase, spouses establish a range of new supports and routines to manage the period of deployment. The fourth stage is defined as one of *re-deployment*, identified by anticipation of the homecoming of the deployed service member, excitement and apprehension. The fifth stage is one of *post-deployment*, in which spouses welcome their service partner back into the household. They argue that this stage is denoted by a time of both joy, and frustration, as spouses learn to manage a loss of independence which previously characterised the period of deployment. There may be difficulties associated with reintegration into the family and routines which had likely changed during the prior period of deployment. In one study, spouses identified that this is potentially a more stressful period to negotiate than the phase of deployment. This is particularly so, as spouses manage the difficulty their children may have in adapting to ongoing changes in the family and household (Runge et al., 2014).

The risks of deployment are noted to be substantial and diverse, including the risk of physical injury or death of the service member. This hazard applies not only to deployments in areas of armed conflict, but to peacetime and international training operations, which may also carry a level of risk. Although peacekeeping is generally thought to be a type of low-intensity deployment (Gravino, Segal, Segal, & Waldman, 1993), the dangers related to peacekeeping are known to be significant (Shigemura & Nomura, 2002). In fact, it has been

reported that internationally 3,510 lives have been lost since peacekeeping commenced in 1948 (United Nations, 2016), with ten Australian deaths occurring in the period between 1948 and 2016. The ADF peacekeeper may be exposed to potentially traumatic situations, such as witnessing or handling casualties or bodily remains, being the target of gunfire or ambush, or being involved in the injury of conflicting parties or civilians (Siebler, 2009). Furthermore, peacekeepers may be obligated to provide humanitarian aid to civilians in various states of distress, such as those starving, injured, or ill (Dirkzwager et al., 2005). Combat-related deployments also understandably expose service members and their families to significant stressors and challenges (Allen, Rhoades, Stanley, & Markman, 2010). For example, deployment and combat experiences are associated with the emergence of post-traumatic stress disorder (PTSD) among service personnel, which may, in turn, impact functioning in the family (Allen et al., 2010). It is essential to consider spouses during such deployments. Spouses must manage concerns around the safety of their loved one and ambiguous loss, where spouses may not know when or whether they will return from duty (Faber, Willerton, Clymer, MacDermid, & Weiss, 2008). Thus, the experience of the partner who remains at home while their spouse is deployed, whether for war-like or non-war-like service, is understandably marked by uncertainty and associated anxiety (Dimiceli et al., 2010).

Beyond this, there may be the added demand of spouses taking on the burden of caring for their partner following deployment, as some partners return with physical or psychological injuries. The link between military exposure, especially combat-related exposure, and mental health disorders, most notably posttraumatic stress disorder (PTSD), depression, and alcohol misuse, is well documented in the international literature (Hoge, Auchterlonie, & Milliken, 2006; Hoge, Terhakopian, Castro, Messer, & Engel, 2007; Jacobson, Ryan, Hooper, & et al., 2008; Jakupcak et al., 2010; Milliken, Auchterlonie, & Hoge, 2007; Sundin et al., 2014). Point prevalence estimates state that 4% to 17% of military personnel receive a diagnosis of

PTSD (Hoge, Auchterlonie, et al., 2006), with higher rates among service members in the US and lower rates among those in the UK (Creamer, Wade, Fletcher, & Forbes, 2011).

In contrast, the Australian Defence Force Mental Health Prevalence and Well-being Study (Hodson, McFarlane, Van Hooff & Davies, 2011) findings from 1,798 ADF personnel showed that although ADF members have a similar point-prevalence of mental disorders to the general Australian community, service personnel have a higher lifetime prevalence of mental disorders. Anxiety disorders were the most prevalent type of disorder, and post-traumatic stress disorder (PTSD) was the most prevalent type of anxiety disorder (Hodson, McFarlane, Van Hooff & Davies, 2011). Therefore, although international service profiles and mental health outcomes somewhat differ, ADF personnel are a population group vulnerable to posttraumatic stress conditions over the course of their service (Hodson et al., 2011).

Of further consideration is the emerging field of research directed at understanding the overlap between blast-related traumatic brain injuries (TBI) sustained during combat-related deployments, and PTSD symptomatology, including the risk of development of PTSD following TBI (Bryant, 2011). Dyadic coping with trauma symptoms may also be complicated by increases in alcohol use, as deployed US military personnel have been shown to be significantly more likely than their non-deployed counterparts to experience new-onset heavy weekly drinking and other alcohol-related problems (Jacobson et al., 2008). Spouses caring for service partners with TBI, polytraumatic injuries and/or PTSD may be vulnerable to shock, confusion, mood and anxiety symptoms (Collins & Kennedy, 2008). Further, spouses are vulnerable to secondary traumatisation, with resultant increases in sleep and somatic difficulties, and poor access to social support (Dirkzwager et al., 2005). Relationship difficulties are also cited in the context of caring for military service partners returning with PTSD (Nelson Goff, Crow, Reisbig, & Hamilton, 2007; Renshaw & Caska, 2012). Moreover,

US personnel with diagnosed PTSD, depression or drug misuse were more likely to perpetrate intimate partner violence than their non-symptomatic counterparts (Taft et al., 2005). In Australia, approximately 10% of military spouses experienced intimate partner violence, and there was a significant association between military spousal experience of intimate partner violence and poorer mental health outcomes, including diagnosis of PTSD (McGuire et al., 2012). Overall, the post-deployment mental health of the service member appears to be a risk factor for poorer mental health outcomes in spouses.

Another area of challenge for military spouses during periods of separation is that of role and boundary ambiguity. This has been defined in the literature as uncertainty regarding the perception of who makes up the family, and who is responsible for given roles and duties within the family (Faber et al., 2008). This is likely to arise following changes in family perception and roles related to military deployment. During deployment, servicemen and women move away from the family and home. This necessitates that the remaining spouse takes on responsibilities which they may not have previously completed, may be considered androgynous or non-traditional, and/or may demand a new skill-base from the spouse remaining at home (Aducci et al., 2011). One such role ambiguity relates to the changes in the care of dependents, where a two-parent family reverts to a sole parent family for the duration of the deployment. This has been identified in the literature as a major stress for spouses (Wheeler & Torres Stone, 2010). The ADF have taken steps to assist families caring for dependents during deployment, by implementing access to Defence School Transition Aides to qualifying schools (Macdonald, 2016). Nevertheless, international data indicate that families with children are greatly burdened by deployment, with increases in rates of child maltreatment (Gibbs, Martin, Kupper, & Johnson, 2007; Rentz et al., 2007). During deployment, in families of enlisted soldiers with at least one substantiated report of child abuse, there was an increased risk of child neglect and a 42% increase in maltreatment from

parents remaining at home (Gibbs et al., 2007). These increases in rates of neglect and maltreatment were argued to be the result of increased stress of the parent remaining in the home during the period of their spouse's deployment (Gibbs et al., 2007). Similar research has corroborated the finding that child maltreatment increases during periods of operational deployment (Rentz et al., 2007). This occurs despite the finding that the rate of substantiated child abuse is typically lower in the military than non-military families (Rentz et al., 2007). In brief, families with dependents face unique challenges above and beyond those of being separated from their service partner, which may place both spouses and their children at risk of poorer psychosocial well-being.

Such role ambiguities also place additional stress on family relationships. In some cases, periods of deployment-related separation from service partners contributed to a strengthening of the spousal bond (Aducci et al., 2011). Yet, other spouses described having a partner as a member of the military as a burden on their marriage (Aducci et al., 2011). Adduci and colleagues (2011) argued that the military couple in a relationship may be considered by spouses to be a part of not a dyad, but a triad, involved in a "threesome" with the military. They noted that whether this triad is resisted or accepted, the stress of the intensity of such a relationship is inevitable. These periods are also times when relationship satisfaction is reduced, adding to the burden on spouses and their service partners (McLeland et al., 2008). For example, there were substantial and significant marital satisfaction reductions observed among deployed service personnel and their spouses ($n = 74$), when compared to civilian, and never-deployed groups ($n = 46$) (McLeland et al., 2008). While one study demonstrated that relationship functioning was not necessarily reduced as a function of a recent deployment, current PTSD symptoms in the service member were shown to be related to reduced relationship satisfaction, confidence in the partnership, bonding, and dedication to the marriage (Allen et al., 2010). Moreover, following the return of their service

partner from deployment, military spouses experiencing depression reported less satisfaction with their relationship (Renshaw, Rodrigues, & Jones, 2008). Service partners who endorsed depressive symptoms following deployment also had lower rates of relationship satisfaction, as did their partners (Nelson Goff et al., 2007; Renshaw et al., 2008). Thus, the deployment-related impact on service personnel has been demonstrated to further impact relationship dynamics in the family, which may be linked to poorer spousal outcomes.

While deployment-related stressors place a strain on the spouse remaining at home, the military members' return, although welcome, is also known to be a stress on families (Aducci et al., 2011; Faber et al., 2008; Lapp et al., 2010). The return from deployment necessitates that both partners undergo a process of readjustment to civilian life in the one household, along with a realignment and reorganisation of previous systems of discipline and caretaking (Drummet et al., 2003; McFarlane, 2009). It has been found that there may be changes in the identity of each partner and relationship changes which may also need renegotiation following deployment (Aducci et al., 2011). This may provoke familial conflict and stress (Blow et al., 2012; Faber et al., 2008). In one qualitative study, many US spouses expressed that return from deployment was marked by anxiety and a hesitation towards discussion of the events of both the deployment and of home-time scenarios during the time of separation (Stevenson, 2014). This was largely attributed by spouses to fear of angry or unpredictable reactions in their service partners (Stevenson, 2014). Family members also experience difficulties following reintegration of the previously deployed family member. Spouses report difficulties resuming previous roles and responsibility of tasks, renegotiation of new roles, and relinquishing tasks delegated to the non-deployed spouse during the period of separation (Knobloch & Theiss, 2011; Sayers, Farrow, Ross, & Oslin, 2009). Therefore, it is not solely preparing for deployment and managing the time of deployment, but also managing the return from deployment which holds separate challenges for spouses.

Hence, deployment-related separations necessitate a reestablishment of family roles and practices as the spouse living at home must make changes due to their partner's absence. Pressures on the remaining spouse are wide and varied, including potential marital difficulties and deployment concerns (Van Vranken, Jellen, Knudson, Marlowe, & Segal, 1984). Spouses also report strains associated with the need to negotiate child-care responsibilities, other administrative and home maintenance needs, and management of potential emotional distress in children related to household changes, changes in family dynamics (Van Vranken et al., 1984). This impact of deployment on families places individuals at risk of experiencing psychiatric symptoms (Mansfield et al., 2010). Spouses' situations may be appraised as overwhelmingly stressful, and coping resources may be exceeded by such demands (Folkman, 1984).

2.1.3.3 Barriers to care and self-stigma of help-seeking. It has also been identified in the literature that despite having access to military supports and programs, often spouses fail to make use of existing services (Di Nola, 2008). For example, a US National Military Family Association survey found that even with families' reports of stress at times of redeployment or return of their deployed partner, few families attended formal training or briefing sessions (National Military Family Association, 2005). Research with military personnel themselves suggests that mental health utilisation is met with elevated rates of self-stigma of help-seeking (Pietrzak et al., 2010). This is fundamental to consider, as spouses may share their service partner's concerns regarding stigma, and avoid seeking treatment when necessary (Mansfield et al., 2010). There has been some international research to demonstrate that military personnel exposed to combat deployments were vulnerable to psychiatric problems, and that the majority of those affected did not seek mental health treatment, and were two to three times as likely as those without such difficulties to report barriers to care, including stigmatisation relating to career impact or adverse effects to

professional relationships with colleagues or superiors (Hoge et al., 2004). Likewise, Gorman and colleagues (2011) found that in a sample of US National Guard personnel, those screening positive for a mental health problem were significantly more likely than those without an identified mental health problem to report multiple barriers to care, including difficulty scheduling an appointment, the perception that seeking treatment was an impediment to one's career, embarrassment, being viewed as weak, the perception that mental health care seemed ineffective, and the perception that colleagues and superiors may treat one differently (Gorman et al., 2011). Studies have shown that concerns about stigma and barriers to care in ADF personnel follow a similar pattern and rate of endorsement as their counterparts in the US, UK, Canada, and New Zealand, and that ADF personnel who endorse mental health difficulties are also more likely than their non-symptomatic colleagues to have higher rates of stigma and barriers to care (Gould et al., 2010). In attempting to explain the reasons why service members may be reluctant to seek help, it has been postulated that in meeting the demands of combat-related warfare, the military culture promotes "collectivism, hierarchy, structure, authority, and control" (Maguire & Wilson, 2013, p. 750), requiring personnel to complete all military-related operations above other priorities. It is thought that these values may make it difficult for service members to access help due to associated stigmatisation (Hoge et al., 2004; Maguire & Wilson, 2013). In short, service personnel endorsing high rates of psychological difficulties also endorse high rates of stigma and barriers to care. However, there is little extant research examining stigmatisation and barriers to care among spouses of service members, and this has been identified in the literature as a relevant research imperative (Eaton et al., 2008).

Authors have argued that spouses, being connected to the military through their service partner, also have the influence of the aforementioned military values to contend with (Maguire & Wilson, 2013). While service members have a commitment to military

operations, so too may their spouses (Maguire & Wilson, 2013). Other authors have suggested that military families adopt the rank of their service member by proxy, thus taking on military principles for behaviour and the associated expectations to conform to the espoused culture and values (Drummet et al., 2003). As with service personnel, spouses may be inhibited to access available supports due to a perceived attribution that in doing so, they may be incapable of managing their difficulties (Di Nola, 2008; Joseph & Afifi, 2010). Others have hypothesised that military spouses experience stress related to the expectation that they conform to the service lifestyle, which may include the attribution that seeking help for psychological distress may adversely reflect on their military service partner (Blank, Adams, Kittelson, Connors, & Padden, 2012; Stevenson, 2014). Military spouses may even be directed to avoid disclosing stressful information to their deployed service partners (e.g., McNulty, 2005). Moreover, spouses of military personnel often have the perception that they must censor their own emotional responses of dependence, anxiety, vulnerability and fear to portray to their partners, children, the military and wider community a sense of stoicism, independence and strength (Aducci et al., 2011; Stevenson, 2014). For example, Lapp and colleagues (2010) refer to spouses as possessing of a “certain cultural stoicism” (p.61), despite the need to seek assistance in managing the difficulties associated with military life, such as managing household and childrearing duties without one’s partner during periods of deployment. Military spouses may thus find it difficult to access the emotional and practical supports which may be available to them due to their own inherent stoicism and façade of strength, and this may come at the cost of increased distress. Given that little research has been directed at spousal barriers to care, this is a fundamental field to devote empirical attention to, to understand more about what prevents spouses from accessing needed care.

Consequently, exploring the scholarly literature examining the impact of barriers to care on emotional wellbeing outcomes among military spouses is relevant. Eaton and

colleagues (2008) asked US spouses screening positively for depression and generalised anxiety disorder about perceived barriers to seeking help for their mental health problems. Barriers to treatment cited by spouses with mental health problems included work and child care constraints (43.1%), difficulty getting an appointment (26%), and financial barriers (26%). Other barriers to care included stigma-related barriers such as embarrassment (20%), perceived weakness (22%) associated with seeking care, and the perception that it may harm the military career of the service partner (20.5%). Warner and colleagues (2009) found that in a sample of spouses of deployed military members, just 8.9% of participants sought mental health care treatment in the preceding year, despite half of the sample (43.7%) screening positive for depression, with a further 24.4% endorsing mild depressive symptoms. Spouses described several barriers to care, including having time for appointments (difficulty getting time off work or being absent from the family) (74.9%), aversion to using medications (40.3%), fear that attendance at mental health appointments would harm their spouse's military career (28.5%), and fear that she would be perceived by others as weak (28.5%). Univariate analyses indicated that spouses who met criteria for depression were significantly more likely than non-depressed spouses to cite barriers to care including feeling embarrassed, being perceived as weak, fearing that their spouse or family would view them differently, having an aversion to medication use, and difficulty obtaining time off work for appointments. Logistic regression analyses indicated that risk of developing moderate or severe depression was solely predicted by the global perception of stress. Linear regression analyses demonstrated that the global perception of stress was positively associated with depression severity, and the number of children was negatively associated with depression severity.

Another study demonstrated that spouses of US National Guard personnel had similar rates and patterns of barriers to care as those identified among spouses in the above-

mentioned studies (Gorman et al., 2011). It showed that while spouses generally had lower rates of barriers to care than their US National Guard service partners, mental health services were generally underutilised by spouses identified with mental health concerns (Gorman et al., 2011). Gorman and colleagues (2011) found that among 137 spouses screening positive to a mental health problem, multiple barriers were endorsed significantly more frequently than those not screening positive to a mental health problem ($n = 71$). These barriers included the cost of mental health care, difficulty scheduling an appointment, work constraints, fear of being perceived as weak, and travel constraints to accessing care. Therefore, like their active-duty counterparts, spouses of National Guard and reserve units correspondingly endorse multiple barriers to care which inhibit them from accessing necessary treatment for difficulties.

ADF families also cite stigma as a relevant barrier to seeking care. McGuire and colleagues (2012) found that approximately one-third of ADF spouses ($n = 1,332$) noted that barriers to care would inhibit them from seeking assistance for psychological difficulties. The most commonly endorsed barriers to care included excessive cost and stigma ($\approx 50\%$ and 40% , respectively). Spouses who had psychological difficulties endorsed a greater number of barriers to care than their non-symptomatic counterparts (McGuire et al., 2012).

Therefore, the scholarly literature emerging in this area indicates that spouses of military personnel, especially those screening positively for a mental health condition, may also be more likely to endorse multiple barriers to care, including self-stigma of help-seeking. Military spouses may find it difficult to receive the treatment they need when experiencing mental health difficulties. The present study aimed to investigate more about the impact of barriers to care on emotional well-being outcomes within a sample of ADF spouses. It also investigated whether self-stigma and barriers to care moderates the association between psychological outcomes and a lack of desired emotional support.

2.2 Psychosocial Outcomes of Military Spouses

2.2.1 Impact of deployment on the wellbeing of spouses – psychiatric and sleep disorder outcomes. Given the discussion above regarding the challenges of deployment separations placed on spouses, it is relevant to closely examine the impact of deployment on the well-being of spouses. More specifically, it is relevant to consider the psychiatric and sleep disorder outcomes of spouses. In international literature, deployment has been reported as the greatest single stress factor for families, one of the greatest predictors of spousal mental and physical well-being, and a primary reason cited for servicemen leaving the military (Dandeker et al., 2006; Dimiceli et al., 2010; Knox & Price, 1999; Padden, Connors, & Agazio, 2011; Schumm, Bell, & Gade, 2000; Segal & Harris, 1993). Importantly, spouses enduring the deployment of their service partner may experience increased mental and physical health difficulties such as depression, headaches, menstrual irregularity, weight changes, and sleep difficulties (Van Vranken et al., 1984). Spouses may experience emotional difficulties as a result of deployment, as noted by increases in the use of specialist health care, antidepressant and anti-anxiety medications (Larson et al., 2012).

Periods of deployment place military spouses at risk of the development of mental health difficulties (de Burgh, White, Fear, & Iversen, 2011). Military spouses remaining at home show elevated rates of distress during periods of current deployment of their service partners (Dimiceli et al., 2010; Lester et al., 2010). US spouses with partners deployed to the Persian Gulf War experienced greater amounts of stressors and depressive symptoms than those spouses whose partners did not deploy (Jensen, Martin, & Watanabe, 1996). In one study considering the impact of deployment on the psychiatric health of wives of military personnel, Mansfield and colleagues (2010) found that the prevalence rates of psychiatric disturbances were similar to those of service members. They examined the impact of deployment on the mental health of wives of US military personnel. The study examined the

medical records of 250,626 wives for mental health diagnoses, adjusting for the number of deployments of their spouse, demographic characteristics, and previous mental health history. Spouses endorsed depression with a prevalence rate of 19%, which was more than three times greater than the rate reported by their civilian counterparts (Kessler, Chiu, Demler, & Walters, 2005). Rates of depression increased to almost 25% when spouses' partners were deployed. Lengthier periods of deployment were also associated with higher rates of stress and adjustment disorders, anxiety and sleep difficulties. Rates of diagnoses associated with 1 to 11 months and greater than 11 months of deployment were 21 to 40% higher for sleep disorders, 25 to 29% higher for anxiety disorders, and 23 to 39% higher for acute stress reactions and adjustment disorders (Mansfield et al., 2010). The rate of use of mental health services for any mental health diagnosis was 19% higher among spouses of military members who were deployed for 1 to 11 months and 27% higher among spouses of military members who were deployed for more than 11 months, as compared with spouses of non-deployed military personnel. Therefore, military spouses whose partners deployed experienced significant mental health difficulties, including depression, anxiety and disordered sleep, and the prevalence of these disorders increased as a function of the length of the deployment.

In another study exploring the prevalence of mental health problems in spouses of military personnel, Eaton and colleagues (2008) examined the proportion of those spouses with mental disorders accessing services. Questionnaires were administered to 940 spouses of military personnel involved in the Iraq and Afghanistan deployments. The survey was focused on symptoms associated with depression and generalised anxiety disorder endorsed within the previous month. Twenty percent of spouses met screening criteria for either major depression or generalised anxiety disorders, with almost 8% of spouses screening positive for depression or generalised anxiety with functional impairment. This was noted to be similar to rates reported by personnel returning from combat deployment (Hoge et al., 2004). A portion of

spouses (32%) who met criteria for a mental disorder reported that they did not receive some form of mental health care in the preceding year. Spouses were more likely than their service partners (21.7% and 6.2%, respectively) to report that stress or psychological difficulties negatively impacted their work or life functioning (Hoge, Castro, & Eaton, 2006).

Warner, Appenzeller, Warner and Grieger (2009) also investigated the effect of military deployment on spouses' mental health. Results from their self-report survey of 295 spouses revealed that the clear majority (90%) of spouses endorsed current stressors of loneliness and fear for the safety of the 2 service partner. Other stressors included care of young children in the absence of their partner (63.1%) and difficulty communicating with the service partner (61.4%). Almost half of the spouses (43.7%) screened positive for depression, with a further 24.4% meeting criteria for mild depressive symptoms. More than one out of every ten (10.8%) experienced symptoms of severe depression. Higher rates of stress and lower numbers of dependents predicted the severity of depressive symptomatology.

Other studies have corroborated the finding that deployment is associated with psychiatric difficulties in spouses remaining at home. Steelfisher, Zaslavsky and Blendon (2008) conducted a study investigating the impact of deployment extension on spouses of US military personnel. The study surveyed 798 spouses who had experienced deployment-related separations, and a subset of the sample who had experienced extensions to their partners' deployments. The deployment-related impact on spouses was prevalent, with negative impacts mental health, including feelings of loneliness, anxiety and depression (79.2%, 51.6% and 42.6% respectively). Within the group of spouses who experienced deployment-related extensions, there were significantly more reports of loneliness, anxiety and depression than for spouses who did not experience extensions. Subsequent logistic regression analyses demonstrated that spousal feelings of loneliness, anxiety and depression were significantly associated with deployment extensions. Likewise, Faulk and colleagues (2012) found that in a

sample of 367 US military spouses, over one third experienced moderately severe levels of depression. Higher rates of perceived stress were predictive of higher rates of depression, while higher ratios of positive to negative emotions were predictive of lower rates of depression (Faulk et al., 2012).

Studies have also demonstrated that US National Guard and reserve families are also psychologically vulnerable to the effects of deployment (Gorman et al., 2011). In one study examining the psychosocial outcomes of National Guard members ($n = 332$) and their significant others ($n = 212$), Gorman and colleagues (2011) found that 34% of spouses had at least one mental health problem (with 17% meeting screening criteria for PTSD, 22% depression, 10% suicidal ideation, and 3% for hazardous alcohol use). Of those spouses who met the threshold for a mental health problem, 39% did not seek help from mental health services. Therefore, it is not solely spouses of enlisted or officer personnel who may be vulnerable to psychiatric symptoms during and following deployment, but also the spouses of reserve personnel.

Spouses of partners deployed to peacekeeping operations are also vulnerable to depression. Almost 10% of Dutch spouses ($n = 423$) described feelings of despair, emptiness, or feeling down (van der Kloet & Moelker, 2002). Depression in spouses was found to be associated with physical and sexual symptoms, and poor marital outcomes. As the survey was conducted nine months following the return of their partner from deployment, authors concluded that this was indicative of lasting effects of deployment on spouses' stress levels (van der Kloet & Moelker, 2002). Likewise, studies from the US have corroborated the finding that spouses of personnel on peacekeeping and humanitarian deployments are vulnerable to psychological difficulties. Burrell and associates (2006) found that spouses ($n = 346$) who were separated from their service partners due to a peacekeeping deployment had poorer psychological and physical well-being and lower rates of satisfaction with the military

and their marriage. Thus, it is not exclusively combat-related deployments, but also those of a peace-enforcing nature, which can lead to poorer psychological outcomes among military spouses.

Military spouses may be more vulnerable to psychiatric disturbance at certain developmental periods. Hass and Pazdernik (2007) found that pregnant spouses whose partners were deployed at the time of survey exhibited higher rates of stress than those with their partners remaining at home ($n = 463$; 36.9% and 24.2%, respectively). Predictors of higher rates of stress included spouses with partners on active-duty (as opposed to Defense reserve members), service partners on deployment at the time of the survey, more advanced weeks' gestation, the presence of two or more children in the home, and the absence of a support person. It is noted that the study did not use a validated measure of stress, and deferred to a self-report rating, where spouses disclosed whether they had high, medium, or low rates of stress. Moreover, Robrecht, Millegan, Leventis, Crescitelli and McLay (2008) found that deployment during the period of spouses' pregnancy was predictive of later postnatal depression. ADF spouses also have difficulties coping during pregnancy when separated from their spouse, including limitations to accessing supports during this time (Atkins, 2009). Having to care for children while one's spouse is deployed may also place a burden on the psychosocial well-being among spouses. Further, ADF spouses with children report more difficulty coping with absence from their partner than those with no dependents (Atkins, 2009). It has also been suggested that spouses of junior enlisted personnel may be more vulnerable to the demands of separation, and may have less knowledge of available supports to assist at this time (Wood et al., 1995). This is corroborated by research by Pittman and associates (2004), who found that spouses of officers had greater access to social supports than those of enlisted personnel, which may demonstrate that there are some spouses who may be more vulnerable to the effects of military-related risk factors. Thus, the effects of

deployment may be further compounded by developmental considerations faced by the spouse, such as during pregnancy, when raising children, and when new to military service.

Deployment-related impact on spouses has also been examined in the literature indirectly, for example, by examining spouse use of health-care service and use of medications during periods of military partner absence (Larson et al., 2012). Larson and associates (2012) examined the health records of 55,000 US spouses of deployed Army personnel and found an increase in the spousal use of specialist health services, antidepressants, and anxiolytic medications. Some ADF spouses resorted to potentially maladaptive coping strategies to manage psychosocial difficulties associated with absence from their partner, for example, by using alcohol and hypnotics to aid sleep (Atkins, 2009). Such findings confirm reports of spousal mental health vulnerabilities during the military-related absence of the service partner.

Looking more closely at the impact of deployment on spouses' sleep outcomes is also paramount, considering that research has demonstrated links between sleep difficulties and increased levels of stress, depression and anxiety (Hall et al., 2000; Taylor, Lichstein, Durrence, Reidel, & Bush, 2005). Furthermore, the presence of sleep disturbances has been identified as a risk factor for the development of psychopathology, including depression, anxiety, suicidal ideation, and substance abuse or dependence (Taylor, Lichstein, & Durrence, 2003). There is relatively scant research examining the contribution of deployment on sleep outcomes in spouses (Brooks Holliday et al., 2016). Nonetheless, emerging international research suggests that military spouses commonly experience sleeping problems (Riggs & Riggs, 2011). In fact, as noted above, one large US study indicated that sleep disturbances were the most commonly occurring mental health condition among spouses ($n = 250,626$) seeking treatment, and this was most apparent during the deployment of their service partner (Mansfield et al., 2010).

An early US study conducted shortly after the commencement of the Persian Gulf War found that spouses ($n = 180$) of deployed servicemen reported that insomnia was the most common physical reaction among spouses, which was experienced by approximately half of participants surveyed (Wexler & McGrath, 1991). Spouses also had high rates of loneliness (78%), sadness (65%), and anxiety (56%). Again, empirically validated outcome measures of disturbances were not used, and the study relied on the spousal endorsement of isolated symptoms. US spouses whose military partners deployed to Bosnia also experienced high levels of stress symptoms, including sleep difficulties and mood-related difficulties (Bell, 1998). Another study looked at secondary traumatisation in 708 partners of Dutch peacekeepers (Dirkzwager et al., 2005). Spouses whose partners endorsed PTSD had more sleeping and somatic problems, more negative social support and were more likely to report a problematic spousal relationship than those whose partners did not endorse PTSD symptomatology (Dirkzwager et al., 2005). Equally, in a study looking at stress and symptoms of somatisation among military spouses, Burton, Farley and Rhea (2009) found that spouses whose partners were deployed at the time of investigation reported significantly more perceived stress, and rates of somatisation. The most common symptoms of somatisation were those of feeling tired or lacking in energy, and sleep difficulties (Burton et al., 2009). In a qualitative study of 18 US National Guard spouses, Lapp and colleagues (2010) found that many spouses encountered sleep deprivation, attributed to having to complete excessive household and childrearing tasks alone. In addition, spouses commonly endured insomnia, nightmares, and poor sleep quality associated with deployment-related psychosocial distress. A more recent study indicated that spouses ($n = 1,805$) of US military personnel reported higher rates of extremely short sleep duration than rates documented in normative data (Brooks Holliday et al., 2016). Correlates of sleep difficulties included current and previous deployment of the service partner. Sleep difficulties were significantly

associated with depression, health and marital outcomes. Therefore, despite a lack of studies examining sleep outcomes in military spouses, preliminary international research suggests that sleep disorders are prevalent within this population group.

With regard to Australian data, military-related separations have also been noted to be stressful for remaining family members, with the resultant impact on their physical and mental well-being and satisfaction with life (MacDonell, Marsh, Hine, & Bhullar, 2010). Like their international counterparts, ADF spouses report multiple difficulties associated with coping during deployment, including depression, stress, sleep difficulties, and anxiety (Atkins, 2009). Research outlining the impact of deployment specifically on ADF spouses is reviewed below.

In one ADF survey of 32 family members of ADF reservists who were deployed to the Solomon Islands from December 2007 to April 2008, family members (including parents, siblings and spouses) experienced negative feelings related to difficult and infrequent communications, loneliness, uncertainty and anxiety, and increased domestic work and responsibilities (Orme & Kehoe, 2011). Another qualitative study also found that spouses of Vietnam veterans had a significant negative impact on their mental health, with anxiety, depression and insomnia among the most commonly reported mental health difficulties (Outram et al., 2009). Approximately 40% of Vietnam veterans stated that their partners had health or psychiatric difficulties which may have been linked to Vietnam deployment (Australian Institute of Health and Welfare, 1999). Limitations of the studies mentioned above are noteworthy, as these studies did not use validated measures of mental health symptomatology, relying on spousal reports of endorsement of difficulties. Nevertheless, preliminary research into ADF spousal mental health outcomes indicated that spouses were vulnerable to depression, anxiety and sleep difficulties.

Among a sample of 32 military spouses of Australian veterans receiving treatment for PTSD, compared to a control group of 15 adult civilian volunteers, spouses had significantly higher levels of somatic symptoms, anxiety, insomnia, social dysfunction and depression than their non-military counterparts (Westerink & Giarratano, 1999). Other Australian studies of spouses of military service personnel have corroborated these early findings of increased rates of distress. O'Toole, Outram, Catts and Pierse (2010) assessed the psychiatric health of 240 female spouses of veterans of the Vietnam war using the Composite International Diagnostic Interview (World Health Organisation, 1997). Results of the study indicated that among spouses of veterans, rates of depression, dysthymia, panic disorder, social phobia, generalised anxiety disorder, and PTSD were significantly higher than Australian population prevalence rates. Service partner diagnosis of PTSD was associated with spouse diagnosis of depression, with severe depression higher for spouses who had a service partner who themselves had depression, or who had witnessed a battle casualty. Predictors of panic disorder among spouses were service partner experience of fatality. Given that this study examined the well-being of spouses three decades after the Vietnam war, this research demonstrated the long-lasting impact of combat-related deployment on the mental health outcomes of spouses. Notably, while spouses had higher rates of depression and anxiety than the general population, they did not have higher rates of medication use or visits health services, suggesting that there are other variables not considered in this study which may be associated with inhibiting spouses to seek assistance.

More recent research has also found higher rates of distress among Australian partners of military personnel, but this was not shown to exist uniformly across different Defence Force regiments (MacDonell et al., 2016). MacDonell and colleagues (2016) compared rates of psychological distress of four partner samples (partners of Australian combat veterans from Partners of Veterans support groups, $n = 282$; partners of Australian combat veterans from a

previous study dataset, $n = 50$; partners of Special Air Services Regiment personnel, $n = 40$; and partners of current serving military (non-Special Air Services Regiment) personnel, $n = 38$). Findings indicated that partners of ADF combat veterans endorsed significantly higher rates of depression, anxiety, and stress than the Australian normative data, and partners of currently serving military (non-Special Air Services Regiment) personnel endorsed significantly higher rates of stress than the Australian norms, while partners of Special Air Services personnel endorsed significantly lower rates of depression and anxiety. Thus, findings indicated that some ADF spouses are vulnerable to depression, anxiety and stress.

However, other research Australian research conflicts with the finding that partners of ADF service members have increased levels of psychiatric conditions. McGuire and colleagues (2012) conducted the first ADF study to measure the impact of military deployment on family functioning. The Timor-Leste Family Study consisted of a self-report survey administered to 1,332 spouses of ADF personnel, with the group of comparison being spouses of military personnel not deployed to Timor-Leste. Participants were asked to complete a self-report battery of questionnaires regarding demographic information, deployment information, physical, mental and family health outcomes, and risk and protective factors. Mental health outcomes were assessed with the K-10, a 10-item measure of general distress, and the Posttraumatic Stress Disorder Checklist. Risk and protective outcomes were measured by several indicators, including quality of informal supports and barriers to seeking care. Results of the Timor-Leste Family Study (McGuire et al., 2012) indicated that 34.9% of spouses of deployed personnel exhibited mild-moderate general psychological distress, and 5.3% experienced severe levels of distress. In comparison, 32.9% of non-deployed partners had mild-moderate distress, and 6.3% severe levels of distress. There were no statistically significant differences between the physical, mental, or family health of spouses whose partners were deployed to Timor-Leste when compared to military spouses whose service

partners were not deployed there. The number of deployments was not significantly associated with negative physical, mental or family health outcomes, although as the number of deployments increased, spouses were more likely to indicate that the military had a negative effect on their relationship. There were no differences in the physical, mental and family health of spouses whose ADF partner was currently deployed to those who were not deployed at the time of the research. Yet, it was noted that as just 8% of spouses surveyed had a partner on current deployment, there may have been lack of statistical power to be assured of this result. Perceived barriers to help-seeking included financial constraints and stigma. Ongoing research into the mental health outcomes of spouses of military personnel is warranted, given that this research did not use a comparison group from the general population.

In summary, international research largely indicates that spouses of military personnel experience increased rates of depression, sleep problems, anxiety, adjustment disorders, and acute stress reactions (Eaton et al., 2008; Mansfield et al., 2010; SteelFisher et al., 2008). The impact of deployment on international military families is significant, with increased specialist visits and use of antidepressants and anxiolytics among families of deployed personnel (Larson et al., 2012). International research also demonstrates that predictors of mental health problems in spouses may include the length of deployment (Mansfield et al., 2010) and deployment extensions (SteelFisher et al., 2008), as well as deployment coinciding with vulnerable developmental periods, such as during pregnancy (Robrecht et al., 2008). The psychosocial well-being of military spouses remains an under-researched area in Australia, and there are somewhat conflictual findings. While one study found no differences in rates of distress between spouses whose partners deployed to Timor-Leste with those who did not (McGuire et al., 2012), other studies have corroborated the finding in the international literature that spouses experience psychosocial distress related to military risk factors

(MacDonell et al., 2016; O'Toole et al., 2010; Westerink & Giarratano, 1999). Such associations as those between military involvement and mental health difficulties are crucial to explore, considering the impact on spouses. Overall, the consequences of military deployment may impact the entire family. The Review of Mental Health Care in the ADF and Transition through Discharge report (Dunt, 2009) recognised the impacts of military involvement on the families of ADF personnel. Recommendations of the review included further attention to the impact of deployment on families and involvement of families in post-deployment screening programs. Despite acknowledging its importance, little research has been conducted examining the impact of military deployment and conflict on the families of military personnel (Warner et al., 2009). The existing Australian studies are few and point to the lack of Australian research examining mental health outcomes. Besides this, the studies largely fail to use validated measures of mental health symptomatology and lack the use of normative data to compare rates of difficulties with the general population. Therefore, the purpose of the present study was to add to the beginning literature to elucidate what is known about the psychosocial impact of military involvement, including current deployment, on spouses of ADF personnel, using validated measures, and comparative data from the general Australian population.

2.2.2 Spousal challenges related to the service length of the military partner. It is also worthwhile to consider the impact of duration of military service on spouses.

Considering the typical length of service of ADF members, by recent estimates, personnel serve for considerably shorter periods than in previous generations (Broderick, 2012). There are now fewer numbers of service members reaching the previous twenty-year milestone, and the median service length of service for permanent members is approximately 7 years, (Broderick, 2012) and this is similar to recent international rates of the duration of service (Clever & Segal, 2013). As many as half of all ADF members have deployed multiple times

(Hodson et al., 2011). As there is shared variance, and the potential for multicollinearity when conducting analyses of military-related variables such as age, years of marriage, length of service, and number of deployments, these variables are not consistently examined in the literature, with studies tending to focus on one variable in isolation (e.g., McGuire et al., 2016). Furthermore, there is a lack of literature assessing the impact of multiple deployments on spouses (Wheeler, 2009). There are also methodological difficulties in the literature examining these variables, with most studies focusing on spouses of currently serving personnel, and it has been suggested that families experiencing psychological difficulties as a result of military demands may not continue to remain in service (Warner et al., 2009). Both the length of service and effect of multiple deployments will be examined to review the literature relating to the duration of military service and the impact on spouses.

Findings from the scholarly literature examining the impact of multiple deployments and military service over time are mixed (McGuire et al., 2016). One early study by Wexler and McGrath (1991) found that among spouses ($n = 180$) those who were older, and those who had experienced prior deployments, had significantly more anxiety and insomnia than those who had not experienced prior deployments of their service partner. Similarly, Frankel, Snowden, and Nelson (1992) found that among spouses ($n = 75$) of US naval personnel on routine deployments, prior deployments were significantly associated with poorer adjustment, with negative impact observed on health and parenting outcomes. A more recent study from the US also indicated that multiple deployments were associated with higher rates of spousal ($n = 406$) depression and PTSD symptomatology (Wheeler, 2009). Therefore, there is a body of research indicating that multiple deployment experiences are linked to poorer mental health outcomes in military spouses.

Conversely, studies have also demonstrated that previous deployments and longer service lengths may be linked to positive adjustment among spouses (Milgram & Bar, 1993).

An early study exploring adjustment to the partner's hazardous deployment among Israeli reservist spouses indicated that prior reserve duty was associated with lower stress reactions among spouses (Milgram & Bar, 1993). However, those spouses whose partners had experienced a prior injury on deployments exhibited higher anxiety, depression, and behavioural disruption (Milgram & Bar, 1993). This potentially indicated that it is not necessarily prior deployment which impacts spouses negatively, but secondary effects from their partners' traumatic deployment experiences. Warner and colleagues (2009) examined the psychological effects of deployment on 872 US spouses and found that rates of depression were not associated with prior deployments. Likewise, Padden and associates (2011) found a significant negative correlation between spousal stress and the number of years the service partner had served on active duty ($n = 105$). The authors concluded that more inexperienced spouses may be more likely to use avoidant and emotion-focused coping strategies, and thus find the military demands such as deployment more stressful than more experienced spouses (Padden et al., 2011). Burrell and associates (2006) found that while separation from the service partner had a negative impact on US spouses' ($n = 346$) distress, the number of separations was not predictive of psychological distress. They concluded that the spousal attributions to the separation, rather than the number of separations per se, which determined the impact on spouses (Burrell et al., 2006). However, as the mean number of separations experienced was relatively few ($M = 3.53$), the authors asserted that this may be indicative that the spouses may have reached a threshold of positive adjustment that may have been exhausted with a greater number of deployments (Burrell et al., 2006).

Australian studies have shown equivalently inconsistent findings on the impact of length of ADF service on spouse outcomes. The 2009 ADF Families Survey indicated that length of service was not related to spousal perceptions of life satisfaction or level of coping with absence from their deployed service member (Atkins, 2009). However, this research

also indicated that length of service was significantly associated with experiencing increased difficulty with managing relocation (Atkins, 2009). McGuire and colleagues (2016) found no association between the number of deployments among service partners and mental and physical health of spouses.

In summary, the limited literature presents mixed findings regarding the duration of service length or number of deployments over the military career and associations with spousal psychological well-being. Such inconsistencies in the literature have been argued to be explained by a potentially curvilinear relationship between number of deployments and adjustment, whereby some spouses gather experience and self-confidence with the first one or two deployments, which may then be beneficial in providing spouses with better adjustment, whereas increasing numbers of deployments beyond a given threshold may exceed the resources needed to cope, leading to poorer adjustment over time (Frankel et al., 1992). The present thesis examined the impact of length of service history on spousal outcomes to further elucidate the relative contribution of this military risk factor for depression, anxiety, and sleep difficulties.

2.3 Theoretical Framework

Lazarus and Folkman's (1984) cognitively-oriented model of stress and coping is used in the present study as a theoretical framework. Lazarus and Folkman (1984) emphasise the importance of how an encounter is interpreted, together with coping resources available, on adaptation outcomes. They propose that the degree to which an individual experiences psychological stress is a function of what is at stake in a specific situation and the evaluation of coping resources and options available to the person.

Lazarus and Folkman's (1984) theory is transactional in that it asserts that the individual and the environment are constantly engaged in a set of reciprocal actions, where each is affected by the other. This theory of stress and coping posits that both cognitive

appraisals and coping mediate stress and stress-related adaptation outcomes (Folkman, 1984). When an individual forms a primary appraisal that there exists the possibility of harm or loss, a threat or challenge (such as an impending relocation due to military requirements, or separation from one's partner due to deployment), a secondary appraisal process follows, whereby the individual must decide what they can do in response to this primary appraisal. In the secondary appraisal process, then, the individual draws from coping resources, be they physical, social, psychological, or material (Folkman, 1984). Therefore, the degree to which the individual experiences psychological stress is considered a function of what is at stake in a specific situation and the evaluation of coping resources and options available to the person. These mechanisms have been demonstrated to be involved in moderating stressors experienced among military spouses (Faber et al., 2008; MacDermid, Samper, Schwarz, Nishida, & Nyaronga, 2008).

Coping refers to attempts to reduce or overcome internal and external conflicts. Thus, coping can be problem-focused, whereby the person-environment relationship is managed or altered, or emotion-focused, where stressful emotions are regulated (Folkman & Lazarus, 1980). Folkman and Lazarus (1980) emphasise the importance of the appraisal process in coping. They argue that threatening or harmful situations appraised as possessing few opportunities for beneficial change will be most likely approached with emotion-focused coping strategies, whereas harmful or threatening situations appraised as possessing opportunities for amelioration will be approached using problem-focused coping strategies. Furthermore, Folkman (1984) asserts that without adequate control over one's emotions, problem-focused strategies are likely to fail. Therefore, both forms of coping are utilised in most stressful situations (Folkman & Lazarus, 1980). Emotion-focused coping is necessary to regulate negative emotions such as anxiety or depression which may accompany appraisals of

threats or harm in order to maintain an acceptable mental state, as well as to keep the negative emotions from interfering in problem-focused coping (Folkman, 1984).

Emotion-focused coping strategies include cognitive reappraisals of a situation, which help to change the way in which a stressful situation is construed, rather than actually changing the situation (Lazarus & Folkman, 1984). For example, a spouse may find it helpful to appease his or her distress by minimising the difficulty of deployment and perceiving it as an opportunity for personal growth. Other emotion-focused coping strategies do not change the meaning of a situation directly, but may nevertheless help the individual to deal with the negative emotions accompanying a stressful situation. Behavioural strategies such as seeking social support, meditating or engaging in strenuous exercise might be other strategies that some use to this end. Problem-focused coping strategies can also include strategies focused both inward and outward. Focused inward, cognitive reappraisals such as learning new skills or procedures may allow an individual to manage or solve a problem, such as a spouse managing deployment-related separation by learning to manage household tasks previously completed by their service partner. On the other hand, strategies directed at the environment might include using strategies to move barriers or find resources, such as spouses asking friends, families, or external services to manage household tasks previously completed by their deployed partner.

Drawing from this framework, the present study proposes that individuals who are exposed to the stress of risk factors inherent to being a military spouse, such as exposure to current deployments, multiple deployments over time, length of ADF service, and living in a rural or remote location, will need to utilise problem-focused and emotion-focused coping strategies to regulate the stress involved in these encounters. It may be that those emotion-focused coping strategies, such as the knowledge that one can draw on support networks to

allay depression and anxiety, reduce the initial stress of these risk factors. This then serves to enhance the possibility of using problem-focused coping to alter the stressful encounter.

Additionally, individuals exposed to more risk factors may experience negative emotions which may then impede problem-focused coping, potentially leading to adverse mental health outcomes. This may be further exacerbated by high levels of stigma and barriers to seeking care, which might impede spouses from accessing supports beyond their own social system. This may lead to a kind of learned helplessness, where spouses are more likely to fall prey to depression and anxiety (Seligman, 1992). This is supported in the non-military scholarly literature, which suggests that psychopathology develops in the context of stressful life events (Kendler, Karkowski, & Prescott, 1999; Kessler, 1997). Within the theory of stress and coping presented, this may occur when there has not been sufficient opportunity to reappraise the stressful situation or regulate the distress.

In sum, involvement as a military spouse can be conceptualised as a chronic strain, in that this specific relationship with the individual spouse and the military environment may often be appraised as a crisis. Spouses who have exposure to multiple military risk factors may find their coping resources exhausted, which poses a threat to his or her well-being. This theory may help to explain why sleep difficulties, depression and anxiety are elevated in this population group.

2.4 Significance of the Proposed Study, Aims, and Specific Hypotheses

As noted in the above review, the relative paucity of research on the psychological impact of military life on ADF personnel, together with preliminary findings suggesting its substantial impact on the psychological health of spouses, indicate that this is an essential area of further study. In addition to this, the few Australian studies that exist used self-report indicators, or measures of general psychological health, rather than validated instruments measuring specific indicators of distress, such as depression, anxiety, and stress. The present

study extended on research by using empirically validated measures of psychological well-being. This study also compared rates of psychosocial distress with Australian normative data, which has been documented only once before for Australian military spouses, in a recent study (see MacDonell et al., 2016). In addition, it extended on the research by examining the impact of military risk factors on spouse sleep outcomes, which had not been investigated before in a cohort of ADF military spouses. Moreover, the current study addressed the importance of investigating the role of social support on spousal sleep and psychological outcomes. This study also explored barriers to care in more detail to that which has been previously researched, which enables appropriate interventions to be designed to support ADF families, and assists policymakers in planning needed family support services.

2.4.1 Research aims. First, due the relative dearth of past research on the psychological impact of military life on spouses, particularly in Australia, together with limited studies utilising full clinical diagnostic measures, this study aimed to examine the prevalence of depression, anxiety and sleep problems among a sample of spouses of ADF personnel, using specific psychometric instruments that had been previously validated, and comparing rates with that of Australian normative data. An additional aim was to investigate informal supports available to the spouses, as well as barriers associated with help-seeking. Finally, the present research intended to understand more about the antecedents of distress among military spouses, along with the protective factors that moderate distress levels.

The current study specifically extended on the research of McGuire and colleagues (2012) by using empirically validated measures of depression and anxiety, as well as sleep difficulties, and comparing these to the normative data available from the general Australian population. In addition, it extended this research by taking a sample of the wider spouse population, rather than limiting to spouses whose partner did not deploy on the Timor-Leste missions. This is critical, as the Timor-Leste Family Study sampled ADF couples who

experienced deployments from 1999, which would have biased the sample, given that comparatively fewer young ADF couples were included in the study (McGuire et al., 2012). Given that younger age has been shown to be a risk factor for poorer spouse coping (Harrell, 2001), it was pertinent to include this cohort in the sample.

2.4.2 Hypotheses. The following hypotheses were proposed:

H1: Rates of self-reported depression and anxiety symptoms and sleep quality for military spouses would be elevated compared to the broader Australian population.

H2: Spouse service risk factors including service length, current deployment status, and current home location, would be associated with self-reported depression, anxiety, and sleep disturbance symptoms.

H3: Protective non-service factors, specifically desired emotional and practical social support, would be associated with self-reported depression, anxiety, and sleep disturbance symptoms.

H4: Non-service risk factors, specifically self-stigma and barriers to care, would moderate the relationship between desired emotional support and depression, anxiety and sleep disturbances.

Chapter 3: Method

3.1 Participants

The participants formed a sample of convenience, recruited from specified Australian military spouse social media websites. Inclusion criteria for participation comprised individuals who self-nominated as a spouse of an ADF service member, were aged older than 18 years and consented to complete an online questionnaire. Spouses of ADF full-time staff and Defence Reservists could participate in the research. Participants were not asked whether they were also ADF members, however, this was not an exclusionary criterion.

Data were collected from March to May 2014. In total, 240 participants responded to the survey. Following an inspection of the dataset, 31 cases were deleted due to no data being entered into the survey. A further 23 cases were deleted due to responding only to the demographic questions. Two male spouses completed the survey, and preliminary analyses were compared with these cases. As there were no differences in the outcome of the analyses, the two cases completed by males were deleted due to low numbers in this demographic group. This is consistent with methodological patterns and exclusions in prior research with military spouses (Lara-Cinisomo et al., 2012). Therefore, 184 surveys from female spouses of military personnel were included in the final analysis.

Fifty percent of all participants were aged between 25 and 34. This made up a greater proportion of the cases than was representative of the population, where 14.4% of all Australian individuals were aged between 25 and 34 according to the 2016 census (ABS, 2016). Most participants were married ($n = 154$), again representing a greater proportion of families than in the general Australian population, where 47.7% of couples were married (ABS, 2016). The largest proportion of participants had a relationship of six to ten years' duration (31.9%), and just under two ($M = 1.78$) children per household (see Table 1).

Similarly, the general Australian population also had an average of 1.8 children per household.

Table 1

Demographic Characteristics of the Sample

Characteristic	<i>n</i>	<i>M (SD)</i>	Valid Percent in the sample	Valid Percent from Australian Census Data ^a
Age (<i>n</i> = 184)				
18 to 24 years ^b	18		9.7	12.8
25 to 34 years	92		50.0	14.4
35 to 44 years	62		33.7	13.5
45 to 54 years	12		6.5	13.3
Children (<i>n</i> = 184) ^c		1.78 (1.43)		
0	46		25.0	37.8
1	33		17.9	
2	51		27.7	
3	33		17.9	
4 or more	21		11.4	
Age of children		7.75 (6.47)		
Marital status (<i>n</i> = 184)				
Married	154		83.7	47.7
De facto	26		14.1	10.4
Other	4		2.2	41.9
Current relationship length				
1 to 5 years	44		24.2	
6 to 10 years	58		31.9	
11 to 15 years	46		25.3	
> 16 years	34		18.6	
Home location (<i>n</i> = 145)				
Metropolitan	101		69.7	
Rural	44		30.3	
Home location due to ADF requirements? (<i>n</i> = 145)				
Yes	126		86.9	
No	19		13.1	

Note.

^aAustralian Census data provided for comparison purposes with the current sample, as cited in ABS (2016). ^bAustralian Census data comparison provided for ages 15-24. ^cAustralian census data revealed an average of 1.8 children per family (ABS, 2017).

In terms of spouse military history, most participants' spouses/partners (45.4%) had military involvement for six to 15 years, had been involved in a combat (51.6%) or peace-

keeping (40.1%) deployment and were not currently deployed (89.5%). Most ADF members (38.6%) had been involved in one to two separate deployments (see Table 2).

Table 2

Military History Information

Military History Characteristic	<i>n</i>	Valid percent
ADF service length (<i>n</i> = 183)		
0 to 5 years	41	22.4
6 to 15 years	83	45.4
16 to 25 years	43	23.5
> 26 years	16	8.8
Deployment history ^a		
Never	39	21.4
Combat mission	94	51.6
Peace-keeping mission	73	40.1
Other	26	14.3
Current deployment (<i>n</i> = 181)		
Yes	19	10.5
No	162	89.5
Number of separate deployments (<i>n</i> = 184)		
0	39	21.2
1-2	71	38.6
3-4	48	26.1
> 5	26	14.1

Note.

^aParticipants could endorse multiple items, depending on deployment history.

3.2 Measures

3.2.1 Demographic questionnaire. Participants answered questions concerning their age, marital status, sex, and number and age of dependents.

3.2.2 Information about informal supports. Access to and satisfaction with informal supports was assessed using the Significant Others Scale (SOS; Power, Champion, & Aris, 1988). The SOS was a self-report measure requiring participants to list up to ten significant others. However, low numbers of participant responses were yielded beyond the first person for whom support was recorded. Therefore, only actual SOS data for Person 1 were analysed.

This is in line with analysis methods utilised in other research with this measure (e.g., Craig, Blumgart, & Tran, 2015).

Participants were required to rate perceived levels of practical and emotional support received and desired for each significant other over a series of four questions, including, for example, “Can you trust, talk to frankly and share feelings with this person?” Higher scores indicate greater levels of received or desired social support. Items were rated on a seven-point Likert-type scale (1 = *never*, 7 = *always*). Composite measures for emotional support received and desired and practical support received and desired were generated by summing items. Comparison data exists for a number of different groups; however, there is little normative data from large samples (Johnston, Wright, & Weinman, 1995). Data indicated that depressed individuals report higher rated ideal levels of emotional and practical supports than their non-depressed counterparts (Power et al., 1988). The discrepancy between the received and desired levels of support provided a measure of the satisfaction with extant supports, where higher levels of discrepancy indicated less than ideal support. The SOS has good criterion and concurrent validity and test-retest reliability (Power et al., 1988).

3.2.3 Information about barriers to care. Information about barriers to care was adapted from McGuire and colleagues (2012). Six items targeted barriers to care, including perceived expense, difficulty obtaining time away from work or family, logistical limitations, and not knowing where to obtain help. An example of an item was, “People would treat me differently”. Participants rated items on a five-point Likert-type scale, where participants endorsed the relevant rating (strongly agree, agree, neutral, disagree, and strongly disagree). This scale has been used in an adapted form in similar studies of psychosocial outcomes of military spouses and veterans, (see Eaton et al., 2008; Gorman et al., 2011; Hoge et al., 2004; McGuire et al., 2012; Warner, Appenzeller, Mullen, Warner, & Grieger, 2008; Warner et al., 2009 for studies using an adapted form of this measure). Warner and colleagues (2008)

evaluated the internal consistency of an adapted form of this scale, demonstrating excellent reliability, with a Cronbach's alpha coefficient of .94.

Perceived stigma as a barrier was also assessed using the Self-Stigma of Seeking Help Scale (SSOSH; Vogel, Wade, & Haake, 2006), which is a measure of the individual perception of the harm to self-confidence that would come from seeking care for mental health difficulties (Bathje & Pryor, 2011). The SSOSH is a ten-item measure on which participants rated their perceptions of self-stigma on a Likert scale from 1 to 5 (1 = *strongly disagree*, 5 = *strongly agree*). Half of the items are reverse-scored. Higher scores indicate higher levels of perceived self-stigma of seeking psychological care. An example of an item on this questionnaire was, "If I went to a therapist, I would be less satisfied with myself." The SSOSH has demonstrated adequate face and construct validity (Vogel et al., 2006). Factor analysis has established construct validity, with all items loading on one factor eigenvalue 1.0 (eigenvalue = 5.31), accounting for 53% of the total variance (Vogel et al., 2006). The scale has strong internal consistency, with a reported Cronbach's alpha coefficient of .91 (Vogel et al., 2006).

3.2.4 Depression and anxiety. Symptoms of depression and anxiety were assessed using the short form of the Depression, Anxiety Stress Scales (DASS-21; Lovibond & Lovibond, 1995). The DASS-21 is a 21-item, self-report, symptom-oriented measure consisting of three subscales: Depression, Anxiety, and Stress. Items on the Depression scale measured dysphoric mood, lack of interest and anhedonia: For example, "I felt down-hearted and blue"(Lovibond & Lovibond, 1995). Items on the anxiety scale measured autonomic stimulation, situational and subjective anxiety: For example, "I felt I was close to panic". Each scale consisted of seven items and subscales were summed to yield a global scale score. Participants rated their experience of each item during the previous week across a four-point frequency, from "did not apply to me at all", to "applied to me very much, or most of the

time”. The DASS-21 has strong construct validity (Crawford & Henry, 2003), as well as adequate discriminant, convergent and divergent validity, test-retest reliability (Antony, Bieling, Cox, Enns, & Swinson, 1998; Lovibond & Lovibond, 1995). According to Lovibond and Lovibond (1995), the 7-item Depression Anxiety Stress Scales also have good internal consistency, with Cronbach’s alpha coefficients of .81, .73 and .81, respectively.

For the purposes of comparison with Australian census data, levels of global psychological distress was measured using the Kessler K10 (Kessler et al., 2002). K10 has been utilised as a screening tool for general psychological distress (Kessler et al., 2003). The measure involves ten questions regarding emotional states including depression and anxiety in the preceding four weeks. Items are rated on a five-point Likert scale from “all of the time” to “none of the time” (range = 10-50, with higher scores indicating greater levels of distress). A sample item from the measure is, “During the last 30 days, about how often did you feel worthless.” The K10 is established as a valid measure, sensitive to detecting depression and anxiety (Spies et al, 2009). Internal reliability for the K10 has been reported with a Cronbach’s alpha coefficient of .93 (Kessler et al., 2002).

3.2.5 Sleep quality. Overall sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI; Buysse, Reynolds, Monk, Berman, & Kupfer, 1989). The PSQI is a 19-item self-report measure of sleep quality and disturbances. Individuals provided information about sleep habits and rated their experience of each indicator in the preceding month across a four-point frequency, from “not during the past month” to “three or more times a week”.

Scores for each subscale ranged from 0 to 3, where higher scores indicated poorer sleep quality. The scale yields seven subscales, including duration of sleep, sleep disturbance, sleep latency, daytime dysfunction due to sleepiness, sleep efficiency, perceived sleep quality and use of sleep medications. A global score is calculated by summing the scores from each subscale, with scores ranging from 0-21 and scores greater than 5 indicating poor overall

sleep quality. A sample item from the scale is, “During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?” The overall scale has acceptable validity and good internal consistency, with a Cronbach’s alpha coefficient of .83 (Buysse et al., 1989).

3.3 Procedure

The Victoria University Human Research Ethics Committee reviewed the questionnaire and all other documents to be circulated to participants prior to granting approval (see Appendix A). Moderators of each military spouse social media platform were contacted, and they granted approval prior to conducting the research.

An online Qualtrics-based survey was made available to participants. Participant information was provided preceding the survey explaining the nature of the study, its aims, participants’ rights and management of the study data. Information detailing local counselling services was provided in the initial information, in the case that possible uncomfortable feelings arose whilst completing questionnaires (see Appendix B). Participants indicated their consent to participate in the study by checking a box indicating that they satisfied inclusion criteria and that they consented to their results being included in the study (see Appendix C). Participants who gave their consent proceeded to the questionnaire battery. The questionnaire battery consisted of demographic questions, questions regarding perceived supports, barriers to care, and clinical measures (see Appendix D).

3.4 Statistical Analysis

All data analyses were completed using the statistical package, IBM SPSS Statistics 23.0 for Windows. Prior to analysis, outcome and predictor variables were examined for accuracy of data entry, missing values, and fit between their distributions and the assumptions of multivariate analysis. Missing values analysis revealed that 9.0% of the data were missing. Performing complete cases analysis would yield a loss of 67 (36.41%) participants, as these

participants had missing values on one or more items. A Missing Values Analysis indicated that Little's (1988) test of Missing Completely at Random (MCAR) was not significant, $\chi^2 = 3645.586$, $DF = 3602$, $p = .30$. When significant, this test suggests that the hypothesis that the data are MCAR can be rejected. Therefore, there was no evidence to suggest that the data were not MCAR. As such, pairwise deletion was used in the statistical analyses.

3.4.1 Regression diagnostics. Data were examined for the assumptions of multivariate normality, linearity, and homoscedasticity. Examination of residual scatterplots revealed some violations of the assumptions of normally distributed errors, linearity, and homoscedasticity. Although, violations of the assumptions weaken, rather than invalidate the analysis (Tabachnick & Fidell, 2007). Also, clinical measures of emotional disturbance (such as the DASS) are known to be commonly positively skewed when used within a normal population (Pallant, 2013). As transformations were not recommended for variables which were known to be naturally skewed, and they may pose problems with interpretability of results (Tabachnick & Fidell, 2007), transformations were not applied. Outliers were also retained in analyses, assumed as representing true participant responses.

Due to violations of assumptions of normality of errors, linearity, and homoscedasticity, bootstrapping methods were employed to test H3 and H4. Bootstrapping is a nonparametric approach which is less dependent on normal and symmetrical sampling distributions, thus providing advantages over traditional parametric approaches (Mooney, Duval, & Duval, 1993; Preacher & Hayes, 2004; Preacher, Rucker, & Hayes, 2007). Regression parameters and bootstrapped coefficients with 95% confidence intervals were estimated. Bias-corrected confidence intervals were calculated to evaluate the significance of the model. For this study, the linear model of predictors of distress was performed with 1,371-1,760 bootstrap samples to calculate main effect coefficients with confidence intervals.

Durbin-Watson statistics were examined to assess for the assumption of independence of errors. The Durbin-Watson test explores serial correlations between errors, testing whether adjacent residuals were correlated (Field, 2013). Test statistics were expressed as a value between 0 and 4, with values close to 2 indicating that residuals were uncorrelated. Durbin-Watson statistics for regression analyses with depression and sleep quality as outcome variables were all within Field's (2013) recommended conservative boundaries of 1-3, suggesting independence of errors. For regression analyses with anxiety as the outcome variable, the Durbin-Watson statistic was 0.83, indicating the possibility of non-independence of errors. However, it has been noted that it is only appropriate to interpret independence of errors when testing if residuals are correlated serially from one observation to the next when there is a natural order, such as a time-series order (Field, 2013). As the data in the present study were collected by questionnaires to independent participants over an extended period, it was preferable to examine plots of standardised residuals against standardised predicted values to test the assumption of independent errors.

No correlations were high enough to be of concern. The strongest correlation (shown in Table 3) was between sleep quality and anxiety ($r = .69$). An examination of tolerance statistics confirmed no violations of multicollinearity, as all tolerance values were above 0.10; the minimum tolerance value was 0.61. No Variance Inflation Factors exceeded 10; the largest was 1.65.

To evaluate evidence of bias in the model, the multiple regression residuals were examined for extreme cases of residual bias greater than or less than 2. Field (2013) stipulates that 95% of cases should have standardised residuals within this range. The present sample consisted of 111 valid cases in the regression model for depression and anxiety as the outcome variable, and 101 valid cases for sleep quality as the outcome variable. Therefore, it was expected that five cases (5%) would have standardised residuals outside of these limits.

In the current analysis, five cases (5%) were found to be outside these limits for anxiety and sleep quality. For depression, seven cases (6%) were outside of these limits. In addition, Cook's distances were examined. No variables in the analyses had a Cook's distance greater than 1, the largest was 0.60, indicating that none of the cases had undue influence on the model. Therefore, extreme cases were determined to be a legitimate part of the sample and were retained for multiple regression analyses.

To screen for multivariate outliers among protective variables, risk variables, and moderator variables, Mahalanobis distance scores were generated from multiple regression analyses. Mahalanobis distance follows a Chi-square (χ^2) distribution, with degrees of freedom equivalent to the number of independent variables in the regression (Tabachnick & Fidell, 2007). In the current analyses, there were ten degrees of freedom, which equated to a critical Chi-square value of 29.59 (at $\alpha = .001$). The test revealed three cases with a distance score exceeding this critical value. Examination of the cases revealed that the individual response pattern across the variables was not sufficiently abnormal to indicate that they were illegitimate respondents, or unrepresentative of the population from which participants were drawn. Examination of the parameter estimates, when excluded from the model (DFBeta statistics) confirmed this, indicating that no cases had a large influence on the regression parameters, as all cases were within Field's (2013) boundaries of absolute values of DFBeta ± 1 . Therefore, all three cases were retained for the multiple regression analyses.

Table 3

Reliabilities, Spearman's Bivariate Correlations and Descriptive Statistics for Predictors and Outcome Variables in Multiple Regression

Analyses (n = 184)

	1	2	3	4	5	6	7	8	9	10	11
1. Spouse service length ^a											
2. Current deployment status ^b	.10										
3. Times deployed ^c	.31**	-.07									
4. Housing location ^d	.01	.03	-.14								
5. SSOSH ^e	.04	-.01	.00	.14	(.89)						
6. Total barriers ^f	-.03	.06	-.03	.11	.39**	(.70)					
7. PSQI ^g	.04	-.15	.06	.11	.12	.20*	(.81)				
8. SOS emotional support ^h	-.04	-.06	.03	-.05	-.14	-.13	-.09	(.84)			
9. SOS practical support	.05	.03	.13	-.12	-.06	-.08	-.13	.44**	(.68)		
10. Depression ⁱ	-.00	-.22**	.04	.18*	.30**	.33**	.53**	-.24**	-.31**	(.93)	
11. Anxiety	.03	-.08	.02	.16	.10	.30**	.54**	-.16**	-.24**	-.69**	(.85)
M					24.38	1.81	9.74	-1.10	-2.02	6.37	3.86
SD					7.77	1.44	4.04	1.97	2.59	5.79	4.32

Note. Cronbach's alpha shown along the diagonal.

^aSpouse Service Length: 1 = *less than one year*, 2 = *1-2 years*, 3 = *3-5 years*, 4 = *6-10 years*, 5 = *11-15 years*, 6 = *16-20 years*, 7 = *21-25 years*, 8 = *26-30 years*, 9 = *≥ 31 years*. ^bCurrent Deployment Status: 0 = *no*, 1 = *yes*. ^cTimes deployed: range of scores 1-10, higher scores indicate more times deployed.

^dHousing location: 1 = *metropolitan*, 2 = *rural*. ^eSSOSH = Self Stigma of Help Seeking Scale: maximum possible range 10-50, where 10-22 = *low stigma*, 23-32 = *moderate stigma*, 33-50 = *high stigma*. ^fTotal number of endorsed barriers to care: range of scores 1-6, higher scores indicate more barriers endorsed. ^gPSQI = Pittsburgh Sleep Quality Index: maximum possible range 0-21, where scores ≥ 5 = *poor sleep quality*. ^hSOS = Significant Others Scale: scores indicate discrepancy between ideal and actual levels of support. Negative scores indicate dissatisfaction with support received. ⁱDepression and Anxiety: maximum possible range 0-21, higher scores indicate higher distress.

* $p < .05$. ** $p < .01$.

3.4.2 Recoded outcome variables.

3.4.2.1 Psychological distress. To test H1, whether Australian military spouses had elevated rates of distress in comparison to the general Australian population, cut-offs on the K10 were set according to those utilized by the Australian Bureau of Statistics National Survey of Mental Health and Well-being 2007, to enable comparisons to be made with Australian normative data (Australian Bureau of Statistics, 2012). Scores were grouped into four categories, where 15 or lower = 1 (*low distress*; $n = 50$, 28.1%), 16-21 = 2 (*moderate distress*, $n = 52$, 29.2%), 22-29 = 3 (*high distress*; $n = 43$, 24.2%) and 30-50 = 4 (*very high distress*; $n = 33$, 18.5%).

For the purpose of Chi-square tests of independence, total scores on the Depression, Anxiety and Stress Scales were used to form a new variable with five categories that corresponded to descriptors suggested by Lovibond and Lovibond (1995). Standard (Z-) scores were calculated from the total scores on the Depression, Anxiety and Stress Scales, where 0.49 or lower = 1 (*normal*; Depression Scale $n = 137$, 75.3%; Anxiety Scale $n = 135$, 73.4%; Stress Scale $n = 127$, 69%), 0.50-0.99 = 2 (*mild*, Depression Scale $n = 15$, 8.2%; Anxiety Scale $n = 16$, 8.7% Stress Scale $n = 20$, 10.9%), 1.00-1.99 = 3 (*moderate*, Depression Scale $n = 17$, 9.3%; Anxiety Scale $n = 22$, 12.0% Stress Scale $n = 30$, 16.3%), 2.00-2.99 = 4 (*severe*, Depression Scale $n = 13$, 7.1%; Anxiety Scale $n = 9$, 4.9% Stress Scale $n = 7$, 3.8%), and scores greater than 3.00 = 5 (*extremely severe*, Depression Scale $n = 0$; Anxiety Scale $n = 2$, 1.1% Stress Scale $n = 0$).

3.4.2.2 Depression, Anxiety, and Stress. To enable comparison with normative Australian data from Crawford, Cayley, Lovibond, Wilson and Harley (2011), total sub-scores on the Depression and Anxiety subscales were calculated to yield a score out of 21.

3.4.2.3 Pittsburgh Sleep Quality Index. Total scores on the Pittsburgh Sleep Quality Index were used to form a new variable with three categories that corresponded to cut-off

scores employed by Soltani and colleagues (2012), to enable comparisons to be made with Australian normative data. Scores 5 or lower = 1 (*normal sleep quality*), scores greater than 5 and up to and including 10 = 2 (*moderately poor sleep quality*), and scores above 10 and up to 21 = 3 (*very poor sleep quality*). This variable was also used for the purpose of Chi-square tests of independence.

3.4.3 Comparisons with the general Australian population. As the data were positively skewed for all measures of psychological distress, one-sample Wilcoxon signed-rank tests were conducted to evaluate H1, whether there were elevated rates of psychological distress (measured by the DASS Depression and Anxiety subscales), among ADF spouses, compared to the general Australian population. Comparison data were yielded from Crawford, Cayley, Lovibond, Wilson and Harley (2011).

To further evaluate H1, whether there were elevated rates of sleep difficulties among ADF spouses, compared to the general Australian population (measured by Pittsburgh Sleep Quality Index), the Chi-square test for goodness of fit was employed. Comparison data were yielded from Soltani and colleagues (2012).

3.4.4 Associations between military risk factors, distress, and sleep quality. Due to low case numbers violating the Chi-square assumption of expected frequencies greater than 5, Fisher's exact tests was employed to evaluate H2, to investigate possible associations between military risk factors, distress, and sleep quality.

3.4.5 Predictors of psychological distress. Hierarchical multiple regression analyses were performed to examine the predictors of depression, anxiety, and sleep difficulties.

The total Depression subscale score of the DASS was first entered as the outcome variable. Following this, the total score for the Anxiety subscale of the DASS, and PSQI total score were entered separately as outcome variables. The discrepancy between emotional support received versus desired, as well as the discrepancy between practical

support received versus desired were entered as the predictors. Next, risk factors (stigma of help seeking, barriers to care, current deployment status, total times spouse was deployed, the total length of spouse ADF service and home location) were entered to examine their relative contribution to the model.

Finally, the interaction terms for the self-stigma of help seeking by the discrepancy between emotional support received versus what was desired, and total barriers to care by the discrepancy between emotional support received versus what was desired were entered to determine whether lower rates of stigma of help-seeking and barriers to care moderated the association of deficient emotional support and depression scores.

Chapter 4: Results

4.1 Internal Consistencies, Bivariate Correlations, and Descriptive Statistics

Table 3 reports reliabilities, bivariate correlations, and descriptive statistics of all the predictor variables for analyses for variables used in the multiple regression analyses. All scales demonstrated adequate to very strong internal consistency, with alphas ranging from $\alpha = .68$ to $\alpha = .93$.

As all measures of psychological distress were statistically significant and positively associated with general distress, with strong correlations ($r_s = .62 - .69$), subsequent analyses omitted the use of the K10 and employed the use of the DASS to measure psychological distress.

Depression was statistically significant and positively associated with housing location, self-stigma of seeking help, barriers to care, sleep quality, and anxiety ($r_s = .18 - .69$), and inversely associated with current deployment status, emotional support discrepancy, and practical support discrepancy ($r_s = -.22$). Anxiety was statistically significant and positively associated with sleep quality and depression ($r_s = .54, .69$), and inversely associated with emotional support discrepancy and practical support discrepancy ($r_s = -.16, -.24$). On average, military spouses had rates of moderate distress ($M = 21.76, SD = 8.72$), and normal rates of depression ($M = 1.49, SD = 0.94$) and anxiety ($M = 1.52, SD = 0.96$).

Table 4 reports means, standard deviations and proportions of measures of psychological distress, including for general distress (measured by the K10), depression and anxiety (measured by the DASS-21), and sleep difficulties (measured by the PSQI). Further explanatory figures and notes regarding these measures follow.

Table 4

*Means (M), Standard Deviations (SDs) and Proportions of Measures of Psychosocial**Distress (n=163)*

Measure	<i>n</i>	<i>M (SD)</i>	%	Range
K10	176	21.76 (8.72)		10-46
DASS				
Depression	180	1.49 (0.94)		1-4
Anxiety	182	1.52 (0.96)		1-5
DASS-21 Total	177	1.53 (0.94)		1-4
PSQI				
Sleep latency (minutes)	161	50.55 (53.36)		1-360
Sleep duration (hours)	161	6.06 (1.39)		2.5-10
Hours spent in bed	162	7.95 (1.32)		3-11.5
Habitual sleep efficiency	160	76.89 (14.94)		24-129
% who used sleep medication in past month	161		19.9%	
% with global score > 5	150		76.0%	

Note. DASS = Depression, Anxiety, Stress Scales: 1 = *normal*, 2 = *mild*, 3 = *moderate*, 4 = *severe*, 5 = *extremely severe*. PSQI = Pittsburgh Sleep Quality Index: higher scores indicate poorer levels of sleep quality.

Figure 1 shows the levels of depression and anxiety among military spouses. The frequency of depression and anxiety among the spouses was 24.9%, and 26.9%, respectively. In depression measurement, 17.7% had mild to moderate and 7.2% had severe depression. In anxiety measurement, 20.9% had mild to moderate and 6% had severe-extremely severe anxiety.

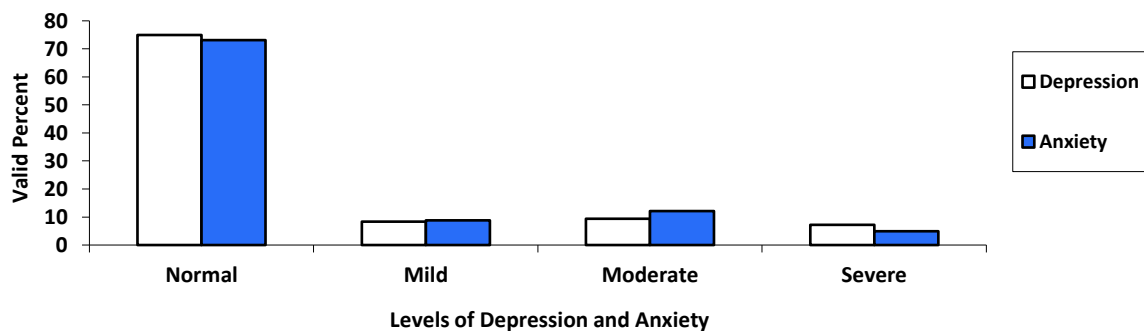


Figure 1. Levels of depression, anxiety, and stress among military spouses.

Figure 2 shows the levels of psychological distress, measured by the K10 (Kessler et al., 2003). Results indicated that 27.3% of ADF spouses had low rates of psychological distress. Moderate rates of psychological distress were reported by 29.5% of spouses. High and very high rates of distress were reported by 24.2% and 18.8% of spouses, respectively. By comparison, general Australian rates of psychological distress were lower, where 20.7% had moderate distress, 8.5% of persons had high distress, and 3.5% of persons reported very high distress.

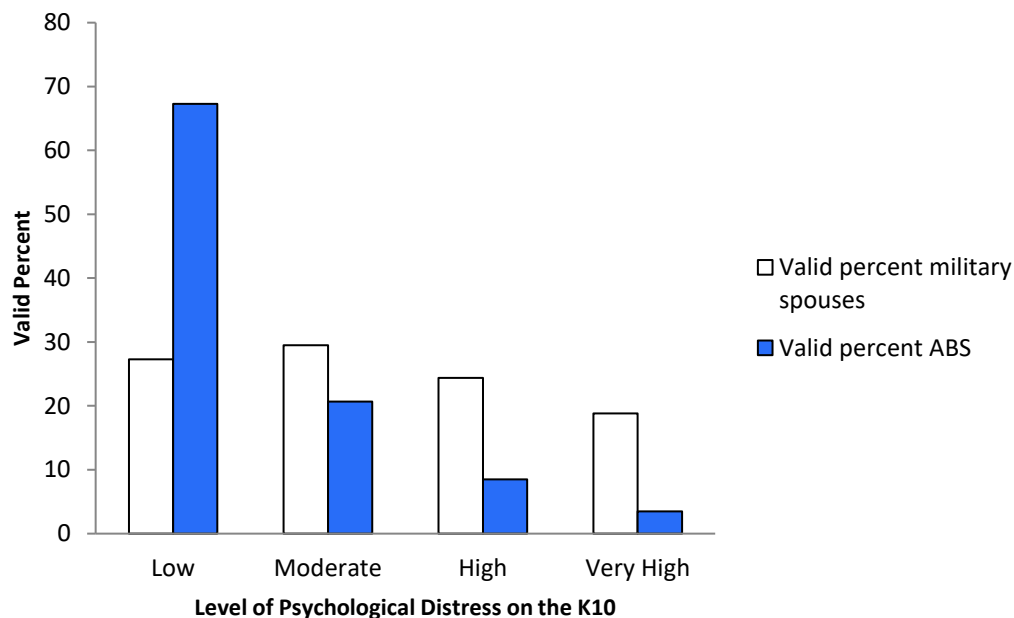


Figure 2. Levels of psychological distress among military spouses and the general Australian population, as measured by the K10.

Figure 3 shows the rates of normal, moderately poor, and very poor sleep quality in the current sample of military spouses, as compared to Australian normative data. Approximately one-fifth (19.3%) of spouses experienced normal sleep quality, compared to 36% and 44.7% of spouses who had moderately poor sleep quality and very poor sleep quality, respectively. By comparison, more Australian women reported normal sleep quality

(65.2%), and fewer Australian women reported moderately and very poor sleep quality (26.4% and 8.5%, respectively).

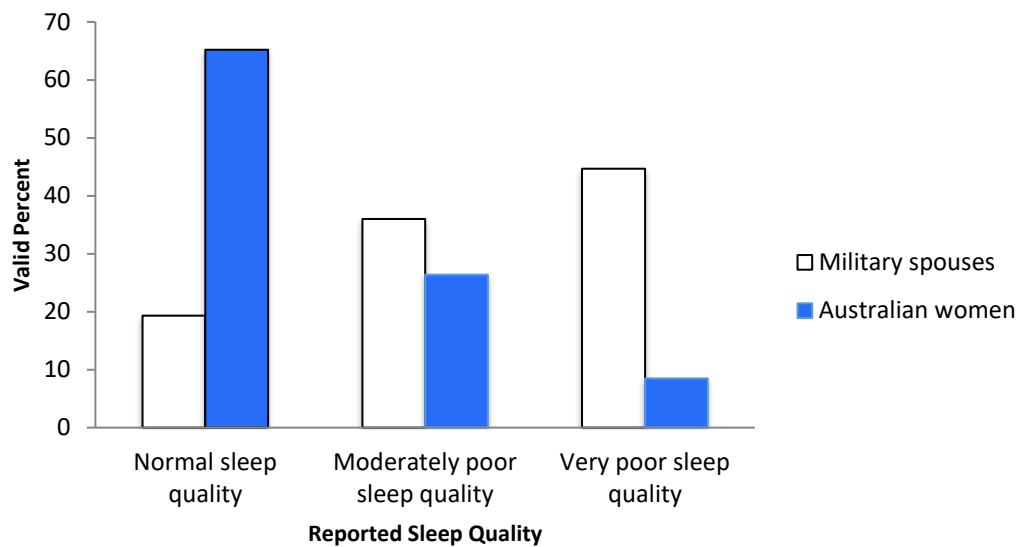


Figure 3. Percentage of participants receiving normal, versus moderately and very poor-quality sleep among military spouses.

This study also investigated non-military risk factors, including barriers to care, and stigma associated with help-seeking (as measured by the SSOSH; Vogel et al., 2006).

Results of these measures are shown in Table 5. Many spouses reported practical impediments to seeking care. The most common barriers to care were the limitation of the expense of care (61.8%), difficulty getting time off work (31.2%), and not knowing from where to get help (25.6%). Self-stigma of help-seeking scores fell largely within the moderate range ($M = 24.38$, $SD = 7.77$).

Table 5 also reports results of the non-military resilience factor of social support, measured by the Significant Others Scale (Power et al., 1988). Spouses received adequate amounts of emotional ($M = 12.15$, $SD = 2.45$) and practical support ($M = 10.70$, $SD = 3.00$) from at least one significant other. However, discrepancy scores indicated that the levels of

support received was less than that desired for both emotional ($M = -1.10$, $SD = 1.97$) and practical support ($M = -2.04$, $SD = 2.59$).

Table 5

Means (SDs) and Proportions of Perceived Barriers to Care, Self-Stigma of Help-Seeking, and Social Support (n = 184)

Measure	n	M (SD) or %	Range
Barriers to care ^a			
It would harm my career prospects	157	17.2%	
I would have difficulty getting time off work	157	31.2%	
I don't know where to get help	157	25.6%	
It is too expensive	157	61.8%	
I would be seen as weak	157	22.9%	
People would treat me differently	157	21.7%	
Self-stigma of help-seeking	154	24.38 (7.77)	10-46
Significant Others Scale	162		
Received emotional support	166	12.15 (2.45)	2-14
Desired emotional support	166	13.25 (1.66)	3-14
Received-desired emotional support discrepancy	166	-1.10 (1.97)	-10-2
Received practical support	166	10.70 (3.00)	2-14
Desired practical support	166	12.71 (1.71)	4-14
Received-desired practical support discrepancy	166	-2.04 (2.59)	-12-3

Note. ^aProportion of participants endorsing items (indicating Agree or Strongly Agree) are shown. Percentages are based on valid percent (i.e., missing values are not included).

4.2 Inferential Statistics

4.2.1 Comparisons of psychological distress and sleep disturbances with

Australian normative data. H1 posited that military spouses would have higher rates of psychological distress (measured by the DASS-21 Depression and Anxiety subscales, Lovibond & Lovibond, 1995) and sleep difficulties (measured by the PSQI, Buysse et al., 1989), as compared to the wider Australian population. As the data were positively skewed for all measures of psychological distress, one-sample Wilcoxon signed-rank tests were conducted to evaluate H1. Comparison data for the DASS-21 was yielded from Crawford, Cayley, Lovibond, Wilson and Harley (2011), who sampled 497 participants (221 females,

276 males) to generate norms for a variety of mood scales, including the DASS-21. The results indicated that for military spouses, Depression scores were significantly higher ($Mdn = 5$) than the Australian general population ($Mdn = 1$), $p < .001$. Anxiety scores were also significantly higher for military spouses ($Mdn = 2$) than the Australian general population ($Mdn = 1$), $p < .001$.

To further evaluate whether there were elevated rates of sleep difficulties among ADF spouses, compared to the general Australian population, the Chi-square test for goodness of fit was employed. Comparison data were yielded from Soltani and colleagues (2012), who sampled 3,655 Australian women to investigate predictors of sleep quality among this cohort. The Chi-square goodness-of-fit test indicated that there was a significant difference in the proportion of spouses reporting normal (19.3%), moderately poor (36%), and very poor sleep quality (44.7%), compared with the respective values of 65.2%, 26.4%, and 8.5% outlined in Soltani and colleagues' large nationwide study, $\chi^2(2, n = 150) = 284.75, p = .00$.

4.2.2 Association of spousal service risk factors with distress and sleep quality.

Due to low case numbers violating the Chi-square assumption of expected frequencies greater than 5, Fisher's exact test was employed to evaluate H2: whether spouse service length and psychosocial well-being scores, as measured by the Depression, Anxiety, and PSQI scores, were associated. There was no significant association between the ADF service length of the partner and depression scores (Fisher's exact test, $p = 0.24$). There was no significant association between the ADF service length of the partner and anxiety scores (Fisher's exact test, $p = 0.68$). Neither was there a significant association between the ADF service length of the partner and sleep quality scores (Fisher's exact test, $p = 0.84$). This means that spouses' partners with longer military service durations were not more likely to

report greater levels of psychological distress or sleep disturbances than those spouses' partners who served for shorter periods.

Due to low case numbers violating the Chi-square assumption of expected frequencies greater than 5, Fisher's exact test was employed to further evaluate H2: whether current deployment status and psychosocial well-being scores, as measured by the Depression, and Anxiety total scores, were associated. There was a significant association between current deployment status and depression scores (Fisher's exact test, $p = 0.01$), where 15.8% and 15.8% of those with deployed partners had moderate and high levels of distress, respectively. In contrast, 9.1% and 5.0% of those with partners not currently deployed reported moderate and high levels of depression, respectively. This means that spouses with a partner currently serving on a military deployment were more likely to report greater severity of depression symptomatology than those spouses with a partner not currently deployed. Table 6 outlines the results of this Fisher's exact test for association between current deployment of the service partner and depression.

Table 6

Fisher's Exact Test of Current Deployment Status and Depression (n = 137)

Source	Value	df	Asym. sig. 2-sided	p	Monte Carlo sig. 2-sided 99% confidence interval
Pearson Chi-square	9.97	3	.02	.02	(.02, .02)
Likelihood ratio	8.48	3	.04	.04	(.04, .05)
Fisher's exact test	9.90			.01	(.01, .01)

Due to low case numbers violating the Chi-square assumption of expected frequencies greater than 5, Fisher's exact test was employed to further evaluate H2: whether current deployment status and anxiety were associated. There was no significant association between the ADF service length of the partner and depression scores (Fisher's exact test, $p =$

0.07). This means that spouses whose partners were currently deployed were not more likely to report greater levels of anxiety than those spouses whose partners were not deployed at the time of interview.

Due to low case numbers violating the Chi-square assumption of expected frequencies greater than 5, Fisher's exact test was employed to further evaluate H2: whether current deployment status and sleep quality were associated. There was a significant association between current deployment status and sleep quality scores, where 5.9% and 70.6% of spouses with partners currently deployed had moderately poor and very poor sleep quality respectively. In contrast, 40.4% and 39.4% of spouses with partners not currently deployed reported moderately poor and very poor sleep quality, respectively (Fisher's exact test, $p = .01$). This means that spouses with a partner currently serving on a military deployment were more likely to report poorer quality sleep than those spouses with a partner not currently deployed. Table 7 outlines the results of Fisher's exact test for association between current deployment of the service partner and spousal sleep quality.

Table 7

Fisher's Exact Test of Current Deployment Status and Sleep Quality (n = 111)

Source	Value	df	Asym. sig. 2-sided	p	Monte Carlo sig. 2-sided 99% confidence interval
Pearson Chi-square	8.15	2	.02	.02	(.01, .02)
Likelihood ratio	9.94	2	.01	.01	(.01, .01)
Fisher's exact test	8.96			.01	(.01, .01)

Due to low case numbers violating the Chi-square assumption of expected frequencies greater than 5, Fisher's exact test was employed to test for associations between home location and depression scores. There was a significant association between home location and distress scores (Fisher's exact test, $p = 0.05$), where 8.1% and 4.0% of those

partners living in a metropolitan area had moderate and high levels of distress respectively.

In contrast, 14.0% and 11.6% of those living in a rural area reported moderate and high levels of distress respectively. This means that spouses currently living in a rural area reported significantly more distress than military spouses living in a metropolitan area.

Table 8 outlines the results of Fisher's Exact test for association between home location and depression.

Table 8

Fisher's Exact Test of Home Location and Depression (n = 139)

Source	Value	df	Asym. sig. 2-sided	<i>p</i>	Monte Carlo sig. 2-sided 99% confidence interval
Pearson Chi-square	7.80	3	.05	.05	(.04, .05)
Likelihood ratio	7.37	3	.09	.09	(.08, .10)
Fisher's exact test	7.85			.05	(.04, .05)

Due to low case numbers violating the Chi-square assumption of expected frequencies greater than 5, Fisher's exact test was employed to test for associations between home location and anxiety scores. There was a significant association between home location and anxiety (Fisher's exact test, $p = 0.02$), where 6.0% and 5.0% of those partners living in a metropolitan area had moderate and high levels of distress respectively. In contrast, 22.7% and 9.1% of those living in a rural area reported moderate and high levels of distress respectively. This means that spouses currently living in a rural area reported significantly more severe anxiety symptomatology than military spouses living in a metropolitan area. Table 9 reports the results of Fisher's Exact test for association between home location and anxiety.

Table 10

Fisher's Exact Test of Home Location and Anxiety (n = 139)

Source	Value	df	Asym. sig. 2-sided	<i>p</i>	Monte Carlo sig. 2-sided 99% confidence interval
Pearson Chi-square	11.97	4	.02	.01	(.01, .01)
Likelihood ratio	11.38	4	.02	.03	(.02, .03)
Fisher's exact test	11.08			.02	(.01, .02)

Due to low case numbers violating the Chi-square assumption of expected frequencies greater than 5, Fisher's exact test was further employed to test for associations between home location and sleep quality scores. There was no association between home location and sleep quality (Fisher's exact test, $p = .32$), indicating that military spouses' living in a rural area were not more likely than spouses living in a metropolitan area to have sleep difficulties.

Due to low case numbers violating the Chi-square assumption of expected frequencies greater than 5, Fisher's exact test was employed to test for associations between times deployed and depression and anxiety scores. There was no significant association between partner deployment frequency and neither depression, nor anxiety scores (Fisher's exact test, $p = 0.40, 0.97$ respectively). Moreover, there was no significant association between times deployed and sleep quality (Fisher's exact test, $p = 0.62$). This means that spouses with partners who had multiple deployments were not more likely to have greater distress, nor were they more likely to have sleep difficulties than those spouses whose partners had fewer deployments.

4.2.3 Multiple regression analyses for predictors of depression, anxiety, and sleep quality. A series of hierarchical regression analyses were conducted to examine predictors of depression, anxiety and sleep quality among military spouses.

As H3 hypothesised that the discrepancy between social support received and desired was a moderator, interaction terms were used to test moderation effects. The interaction hypothesis was tested following the recommendations of Baron and Kenny (1986). Interaction terms were multiplied from centred means for inclusion in the hierarchical regression analysis. Mean centring was conducted to eliminate the possibility of multicollinearity between the main effects and the interaction effects on distress and sleep outcomes.

4.2.3.1 Predictors of depression. Regarding depression outcomes among spouses, H3 posited that self-reported depression symptoms would be predicted by protective non-service factors, specifically desired emotional and practical social support. Further, H4 posited that non-service risk factors, specifically self-stigma of help-seeking and barriers to care, would moderate the relationship between desired emotional support and depression. The total depression subscale score of the DASS was used in the first multiple regression analysis as the outcome variable. Table 9 reports the results of the predictor variables on this outcome. In Model 1, the discrepancy between emotional support received versus desired, and the discrepancy between practical support received versus desired was entered as a predictor. The model explained 20.2% of the variance in depression scores. The discrepancy score for emotional support ($b = -.82 [-1.37, -0.19], p = .01$) and practical support ($b = -.60 [-1.15, -0.06], p = .03$) were both found to be statistically significant predictors of psychological distress.

In Model 2, the discrepancy scores for emotional support and practical support were retained and risk factors of stigma of help seeking, barriers to care, current deployment status, times deployed, ADF service length, and home location were added. After entry of these risk factors, the total variance explained by the model as a whole was 34.0%, $F(8, 102) = 6.44, p \leq .001$. The risk factors explained an additional 13.8% of the variance in

depression, after controlling for protective factors of emotional and practical support, $\Delta R^2 = .13$, $\Delta F = (6, 102) = 3.42$, $p = .00$). Significant main effects were found for the discrepancy score for emotional support ($b = -.72 [-1.23, -.01]$, $p = .01$), the discrepancy score for practical support ($b = -.52 [-0.98, -.03]$, $p = .03$), and spousal current deployment status ($b = 3.67 [0.82, 6.44]$, $p = .02$). Total number of barriers to care approached significance ($b = .74 [0.42, 1.37]$, $p = .07$).

In Model 3, to evaluate whether stigma of help-seeking and total barriers to care moderated the relation between depression and the discrepancy score for emotional support, the stigma of help-seeking \times emotional support discrepancy and barriers to care \times emotional support discrepancy interaction terms were entered into the model. After entry of these risk factors, the total variance explained by the model as a whole was 34.7%, $F(10, 100) = 5.30$, $p \leq .01$. The risk factors explained an additional 1.1% of the variance in depression, after controlling for protective factors of emotional and practical support, however, this change was not significant ($\Delta R^2 = .01$, $\Delta F(2, 100) = .84$, $p = .44$). Current deployment status of service partner ($b = .23 [0.62, 6.95]$, $p = .02$), and discrepancy in emotional and practical support received, versus that which was desired ($b = -.26 [-1.43, .32]$, $p = .01$, ($b = -.24 [-1.03, -.13]$, $p = .02$), respectively) all remained significant predictors of depression.

The inclusion of the interaction terms was non-significant, indicating that barriers to care ($p = .344$), and stigma of help-seeking ($p = .42$) did not moderate the relationship between the discrepancy between emotional support received versus desired and depression symptoms.

Statistically significant predictors were entered into a final model. The final refined model was statistically significant: $F(3, 119) = 13.01$, $p < .001$. In combination, the predictors in this model explained 24.7% of the variance. By Cohen's (1988) guidelines, this represents a medium effect ($f^2 = .33$).

Statistically significant main effects were found for discrepancy scores for emotional support ($b = -.74 [-1.34, 0.12], p = .02$), discrepancy scores for practical support ($b = -.60 [-1.09, -0.10], p = .23$), and current deployment status ($b = 3.98 [1.27, 6.73], p = .01$), such that more discrepancy between emotional and practical support received than was desired was associated with higher depression scores, and current deployment of the service partner was associated with higher depression scores.

Table 11

Results of Hierarchical Multiple Regression to Predict Depression Levels by Protective and Risk Factors for Military Spouses (n = 114)

		Unstandardised coefficients		Standardised coefficients	sr^2
		<i>B</i>	<i>SE B</i>	β	
Step 1	Constant	5.45 (4.19, 6.73)	0.69		
	Protective factors				
	Emotional support discrepancy	-0.82 (-1.36, -0.19)	0.32	-.28**	.06
	Practical support discrepancy	-0.60 (-1.15, -0.06)	0.27	-.25*	.05
Step 2	Constant	4.08 (-1.66, 10.30)	2.97		
	Protective factors				
	Emotional support discrepancy	-0.72 (-1.23, -0.10)	0.28	-.24**	.04
	Practical support discrepancy	-0.52 (-0.98, -0.03)	0.24	-.22*	.04
	Military risk factors				
	Stigma of help-seeking	0.10 (-0.06, 0.30)	0.08	.12	.01
	Barriers to care	0.74 (0.04, 1.38)	0.40	.18	.03
	Current deployment	3.67 (0.82, 6.44)	1.53	.23*	.05
	Times deployed	0.09 (-0.46, 0.51)	0.27	.03	.00
	ADF service length	-0.21 (-0.94, 0.48)	0.37	-.05	.00
	Home location	1.36 (-0.77, 3.36)	1.11	.10	.01
Step 3	Constant	4.00 (-1.62, 9.64)	2.93		.
	Protective factors				.
	Emotional support discrepancy	-0.78 (-1.42, 0.20)	0.31	-.26**	.04
	Practical support discrepancy	-0.56 (-1.00, -0.11)	0.24	-.24*	.04
	Military risk factors				
	Stigma of help-seeking	0.09 (-0.05, 0.28)	0.08	.12	.01
	Barriers to care	0.652 (-0.09, 1.41)	0.40	.16	.02
	Current deployment	3.72 (0.65, 6.76)	1.54	.23*	.05
	Times deployed	0.06 (-0.42, 0.42)	0.26	.02	.00
	ADF service length	-0.22 (-1.05, 0.62)	0.37	-.06	.00
	Home location	1.51 (-0.55, 3.42)	1.11	.11	.01
	Stigma x emotional support discrepancy	0.04 (-0.04, 0.16)	0.05	.09	.01
	Barriers x emotional support discrepancy	-0.17 (-0.55, 0.24)	0.22	-.10	.01
Final model	Constant	3.67 (2.59, 4.80)	0.57		
	Protective factors				
	Emotional support discrepancy	-0.74 (-1.34, 0.01)	0.31	-.26**	.05
	Practical support discrepancy	-0.60 (-1.09, -0.10)	0.26	-.26**	.05
	Military risk factors				
	Current deployment	3.98 (1.27, 6.73)	1.39	.24**	.06

Note. 95% bias corrected and accelerated confidence intervals shown in parentheses. Confidence intervals and standard errors based on 1,690 bootstrap samples. sr^2 = squared semi-partial correlations (amount of unique variance in the DV accounted for by a predictor). R^2 = .20, adjusted R^2 = .19 for Model 1, R^2 = .34, adjusted R^2 = .28 for Model 2, R^2 = .35, adjusted R^2 = .28 for Model 3, R^2 = .25, adjusted R^2 = .23 for Final model. Results are combined for ease of presentation, but note that the final model was analysed in a separate regression.

* $p \leq .05$, ** $p \leq .01$

4.2.3.2 H3 – Predictors of anxiety. H3 posited that self-reported anxiety symptoms would be predicted by protective non-service factors, specifically desired emotional and practical social support. Further, H4 posited that non-service risk factors, specifically self-stigma of help-seeking and barriers to care, would moderate the relationship between desired emotional support and anxiety. The total anxiety subscale score of the DASS was used in the second multiple regression analysis as the outcome variable.

Table 12 reports the results of the predictor variables on this outcome. In Model 1, the discrepancy between emotional support desired versus received, and the discrepancy between practical support desired versus received was entered as a predictor. The model explained 10.4% of the variance in anxiety scores. The discrepancy score for practical support was the sole statistically significant predictor of psychological distress ($b = -.40 [-.78, -.02], p = .04$).

In Model 2, the discrepancy scores for emotional support and practical support were retained and risk factors of the stigma of help-seeking, barriers to care, current deployment status, times deployed, ADF service length, and home location were added. After entry of these risk factors, the total variance explained by the model as a whole was 21.6%, $F(8, 102) = 3.51, p \leq .01$. The risk factors explained an additional 11.2% of the variance in anxiety, after controlling for protective factors of emotional and practical support, $\Delta R^2 = .15, \Delta F(6, 102) = 2.42, p = .03$. Discrepancy between practical support received versus desired and barriers to care were the sole significant predictors of anxiety ($b = -.34 [-.70, -.04], p = .034$), ($b = .89 [.28, 1.66], p = .01$), respectively.

In Model 3, to evaluate whether stigma of help-seeking and total barriers to care moderated the relation between anxiety and the discrepancy score for emotional support, the stigma of help-seeking \times emotional support discrepancy and barriers to care \times emotional support discrepancy interaction terms were entered into the model. After entry of these risk

factors, the total variance explained by the model as a whole was 22.9%, $F(10, 110) = 2.97$, $p \leq .01$. The risk factors explained an additional 1.3% of the variance in anxiety, after controlling for protective factors of emotional and practical support, however, this change was not significant ($\Delta R^2 = .01$, $\Delta F(2, 100) = .85$, $p = .43$). Barriers to care was the sole significant predictor of anxiety ($b = .96 [0.29, 1.7]$, $p = .01$). The inclusion of the interaction terms was non-significant ($p = .46, .28$), indicating that neither barriers to care nor self-stigma of help-seeking moderated the relationship between the discrepancy between emotional support received versus desired and anxiety.

Statistically significant predictors were entered into a final model. The final refined model was statistically significant: $F(1, 152) = 8.31$, $p < .05$. The predictor in this model explained 5.2% of the variance. A statistically significant main effect was found for the total number of barriers to care ($b = 0.71 [0.18, 1.27]$, $p = .01$), such that more barriers to care was associated with higher anxiety scores.

Table 12

*Results of Hierarchical Multiple Regression to Predict Anxiety Levels by Protective and Risk**Factors for Military Spouses (n = 111)*

		Unstandardised coefficients		Standardised coefficients	<i>sr</i> ²
		<i>B</i>	<i>SE B</i>	β	
Step 1	Constant	3.12 (2.14, 4.16)	0.51		
	Protective factors				
	Emotional support discrepancy	-0.34 (-0.83, 0.27)	0.26	-.15	.02
	Practical support discrepancy	-0.40 (-0.80, -0.03)	0.20	-.23*	.04
Step 2	Constant	1.58 (-2.78, 6.41)	2.29		
	Protective factors				
	Emotional support discrepancy	-0.29 (-0.81, 0.31)	0.27	-.13	.01
	Practical support discrepancy	-0.34 (-0.72, 0.04)	0.18	-.19	.03
	Military risk factors				
	Stigma of help-seeking	-0.05 (-0.17, .08)	0.06	-.09	.01
	Barriers to care	0.89 (0.27, 1.58)	0.34	.29**	.07
	Current deployment	1.80 (-0.90, 4.21)	1.33	.15	.02
	Times deployed	-0.28 (-0.73, 0.24)	0.22	-.11	.01
	ADF service length	0.12 (-0.48, 0.65)	0.30	.04	.00
	Home location	1.19 (-0.62, 2.90)	0.92	.12	.01
Step 3	Constant	1.64 (-2.70, 6.31)	2.29		
	Protective factors				
	Emotional support discrepancy	-0.27 (-0.88, 0.42)	0.27	-.12	.01
	Practical support discrepancy	-0.31 (-0.68, 0.05)	0.20	-.17*	.02
	Military risk factors				
	Stigma of help-seeking	-0.05 (-0.17, 0.08)	0.06	-.09	.01
	Barriers to care	0.96 (0.29, 1.76)	0.36	.32**	.08
	Current deployment	1.79 (-1.06, 4.41)	1.33	.15	.02
	Times deployed	-0.25 (-0.71, 0.4)	0.22	-.10	.01
	ADF service length	0.14 (-0.49, 0.71)	0.30	.11	.00
	Home location	1.07 (-0.71, 2.81)	0.92	.05	.01
	Stigma x emotional support discrepancy	-0.03 (-0.09, 0.10)	0.04	.11	.01
	Barriers x emotional support discrepancy	0.16 (-0.15, 0.35)	0.18	-.08	.01
Final model	Constant	4.22 (3.55, 4.93)	0.36		
	Military risk factors				
	Barriers to care	0.71 (0.18, 1.27)	0.01	.23**	.05

Note. 95% bias corrected and accelerated confidence intervals shown in parentheses. Confidence intervals and standard errors based on 1,371 bootstrap samples. *sr*²= squared semi-partial correlations (amount of unique variance in the DV accounted for by a predictor). *R*² = .10, adjusted *R*² = .09 for Model 1, *R*² = .22, adjusted *R*² = .15 for Model 2, *R*² = .23, adjusted *R*² = .15 for Model 3, *R*² = .05, adjusted *R*² = .05 for Final model. Results are combined for ease of presentation, but note that the final model was analysed in a separate regression. **p* ≤ .05, ***p* ≤ .01

4.2.3.3 H3 - Predictors of sleep quality. H3 posited that self-reported sleep disturbances would be predicted by protective non-service factors, specifically desired emotional and practical social support. Further, H4 posited that non-service risk factors, specifically self-stigma of help-seeking and barriers to care, would moderate the relationship between desired emotional support and sleep disturbances. The total PSQI score was used in the third multiple regression analysis as the outcome variable.

Table 13 reports the results of the predictor variables on this outcome. In Model 1, the discrepancy between emotional support received versus desired, and the discrepancy between practical support received versus desired was entered as a predictor. The model explained 5.5% of the variance in sleep quality scores, with the regression model approaching statistical significance ($p = .07$). The discrepancy score for practical support was the sole statistically significant predictor of psychological distress ($b = -.34 [-0.65, -0.01], p = .03$).

In Model 2, the discrepancy scores for emotional support and practical support were retained and risk factors of the stigma of help-seeking, the total number of barriers endorsed, current deployment status, times deployed, ADF service length, and home location were added. After entry of the risk factors, the total variance explained by the model as a whole was 13.0%, $F(8, 92) = 1.72, p = .10$. The risk factors explained an additional 7.5% of the variance in depression, after controlling for protective factors of emotional and practical support, however, the increase was not significant $\Delta R^2 = .08, \Delta F(6, 92) = 1.38, p = .23$. The discrepancy score for practical support was the sole significant predictor of sleep quality ($b = -.37 [-0.67, -0.05], p = .01$).

In Model 3, to evaluate whether stigma of help-seeking and total barriers to care moderated the relation between sleep quality and the discrepancy score for emotional support,

the stigma of help-seeking \times emotional support discrepancy and barriers to care \times emotional support discrepancy interaction terms were entered into the model. After entry of these risk factors, the total variance explained by the model as a whole was 13.1%, $F(10, 90) = 1.36, p \geq .01$. The risk factors explained an additional 0.1% of the variance in sleep quality, after controlling for protective factors of emotional and practical support, however, this change was not significant ($\Delta R^2 = .00, \Delta F(2, 90) = .05, p = .96$). The discrepancy between practical support received versus that which was desired was the sole significant predictor of sleep quality ($b = -.23 [-.67, -.04], p = .01$).

The inclusion of the interaction terms was non-significant ($p = .95, .73$ respectively), indicating that neither barriers to care, nor self-stigma of help-seeking moderated the relationship between the emotional support received and desired discrepancy and sleep quality.

The sole statistically significant predictor was entered into a final model. The final refined model was statistically significant: $F(1, 101) = 6.28, p = .01$. The predictor in this model explained 5.9% of the variance. The sole main effect was found for discrepancy scores for practical support ($b = -.38 [-0.68, -0.09], p = .01$), such that more discrepancy between practical support received and desired was associated with higher sleep quality scores, and therefore, poorer sleep quality.

Table 13

*Results of Hierarchical Multiple Regression to Predict Sleep Quality by Protective and Risk**Factors for Military Spouses (n = 101)*

		Unstandardised coefficients		Standardised coefficients	sr ²
		B	SE B	β	
Step 1	Constant	9.29 (8.22, 10.36)	0.53		
	Protective factors				
	Emotional support discrepancy	-0.04 (-0.38, 0.31)	0.19	-.02	.00
	Practical support discrepancy	-0.34 (-0.65, -0.01)	0.16	-.22*	.04
Step 2	Constant	5.85 (1.77, 9.90)	2.09		
	Protective factors				
	Emotional support discrepancy	0.09 (-0.31, 0.49)	0.20	.05	.00
	Practical support discrepancy	-0.37 (-0.67, -0.05)	0.15	-.24**	.04
	Military risk factors				
	Stigma of help seeking	-0.01 (-0.12, 0.13)	0.06	-.01	.00
	Barriers to care	0.51 (-0.11, 1.11)	0.30	.19	.03
	Current deployment	1.06 (-1.54, 3.43)	1.37	.10	.01
	Times deployed	0.13 (-0.33, 0.57)	0.22	.06	.00
	ADF service length	0.23 (-0.45, 0.87)	0.32	.09	.01
	Home location	1.28 (-0.46, 3.07)	0.90	.15	.02
Step 3	Constant	5.87 (1.88, 9.76)	2.12		
	Protective factors				
	Emotional support discrepancy	0.09 (-0.54, 0.49)	0.26	.05	.00
	Practical support discrepancy	-0.36 (-0.67, -0.04)	0.16	-.23*	.04
	Military risk factors				
	Stigma of help-seeking	-0.01 (-0.12, 0.12)	0.06	-.01	.00
	Barriers to care	0.53 (-0.12, 1.16)	0.31	.20	.03
	Current deployment	1.08 (-1.88, 3.84)	1.43	.10	.01
	Times deployed	0.14 (-0.34, 0.58)	0.23	.06	.00
	ADF service length	0.24 (-0.44, 0.90)	0.32	.09	.01
	Home location	1.26 (-0.53, 3.18)	0.92	.14	.02
	Stigma x emotional support discrepancy	0.00 (-0.06, 0.14)	0.04	-.01	.00
	Barriers x emotional support discrepancy	0.04 (-0.24, 0.21)	0.14	.03	.00
Final model	Constant	9.12 (8.09, 10.14)	0.53		
	Protective factors				
	Practical support discrepancy	-0.38 (-0.68, -0.09)	0.15	-.24*	.06

Note. 95% bias corrected and accelerated confidence intervals shown in parentheses. Confidence intervals and standard errors based on 1,760 bootstrap samples. sr²= squared semi-partial correlations (amount of unique variance in the DV accounted for by a predictor). R² = .05, adjusted R² = .03 for Model 1, R² = .13, adjusted R² = .06 for Model 2, R² = .13, adjusted R² = .03 for Model 3, R² = .06, adjusted R² = .05 for Final model. Results are combined for ease of presentation, but note that the final model was analysed in a separate regression. *p ≤ .05, **p ≤ .01

Chapter 5: Discussion

The present study compared psychosocial outcomes among a cohort of ADF spouses with Australian normative data. It examined predictors of anxiety, depression and sleep difficulties within this sample. Finally, using Lazarus and Folkman's (1984) cognitively-oriented model of stress and coping as a theoretical framework, it explored the association of risk and resilience factors and psychological distress, together with whether self-stigma of help-seeking, and barriers to care moderated this association.

5.1 Prevalence of Depression, Anxiety and Sleep Difficulties in Military Spouses, and Comparisons to Australian Normative Data

The results of this study demonstrated that spouses of military personnel experience significantly higher rates of psychological distress, depression, anxiety, and sleep difficulties than the general Australian population, supporting the original hypothesis (H1). Rates of mild-severe depression and anxiety occurred at a prevalence of 24.9% and 26.9%, respectively. Rates of moderately poor-very poor sleep occurred at the rate of 80.7% in the current sample. These findings are concerning, and indicate that military spouses are a vulnerable population group in need of research and clinical attention to prevent and treat depression, anxiety, and sleep difficulties.

International research supports the findings in the present study, indicating that spouses of military personnel experienced increased rates of depression, sleep problems, anxiety, adjustment disorders, and acute stress reactions (Eaton et al., 2008; Mansfield et al., 2010; SteelFisher et al., 2008). Lester and colleagues (2010) outlined that spouses of US Army and Marine Corps personnel had significantly greater rates of depression and anxiety compared to normative civilian data. However, differences in defence force profiles make it difficult to compare

findings. There is also an emerging body of Australian research to corroborate the finding that spouses of ADF personnel have higher rates of depression, anxiety and stress than the general Australian population (MacDonell et al., 2016; Westerink & Giarratano, 1999). While there is some evidence to suggest the opposite finding in partners of ADF personnel, where partners of deployed personnel were shown to have similar prevalence rates of mental health difficulties as their non-deployed counterparts (McGuire et al., 2012), it is noted that this study did not make comparisons to the general Australian population, and rather compared spouses whose partners deployed to Timor-Leste with those who did not. Further research is warranted in Australia to validate these findings.

5.2 Association between Military and Non-military Risk and Resilience Factors with Spousal Distress, and Predictors of Psychological Distress Among Military Spouses

Hypotheses exploring the relation between psychological distress and military-related risk (H2) and protective factors (H3) were partially supported. There was no evidence to suggest associations between other military risk factors such as ADF member service length, or times deployed with psychological distress or sleep difficulties in spouses. Living in a rural home location was associated with increases in psychological distress. There were significant associations found between current ADF partner deployment, and spousal psychological distress and poorer sleep quality. Following subsequent hierarchical regression analyses, the strongest predictors of depression included the military risk-factor of current deployment of the ADF partner, and resilience factors of discrepancies in emotional and practical support received, versus that which was desired. A higher number of endorsed barriers to care was predictive of anxiety. More discrepancy in practical support received than was desired was predictive of sleep difficulties. These findings will be discussed in turn.

5.2.1 ADF Service length and psychological outcomes. This study found no association between duration of ADF partner service, nor the number of times deployed, and psychological outcomes. There have been mixed results in the literature regarding these military risk-factors. Some international research has shown evidence for the association between multiple deployments and psychological distress, including anxiety, insomnia, and depression (Wexler & McGrath, 1991; Wheeler, 2009). However, other research documented converse findings. MacDonell and colleagues (2016) found that depression, anxiety, and stress scores were not associated with the number of deployments among partners of two military combat samples, but that there were associations among partners of currently serving non-Special Air Services Regiment personnel. Likewise, Warner and colleagues (2009) found that multiple deployments were not associated with depression in spouses at the time of deployment. Studies have also shown that service partner prior deployment history is associated with lower rates of stress among spouses, but only for those spouses with partners who did not experience a prior injury on deployments (Milgram & Bar, 1993).

The finding that length of service was unrelated to spouse well-being outcomes may be explained by the fact that families who remain in service may have an increased awareness of available supports. This is consistent with research which suggested that ADF spouses' awareness of DCO services increased as did their partner's length of service (Atkins, 2009). Moreover, there was an association between length of service and perception of the ADF as supportive of families, with increased perceptions of support apparent for those spouses whose partners had longer service histories (Atkins, 2009). Spouses aged over 40 years were also significantly more likely to endorse better coping with being separated from their partner due to military service requirements than their younger counterparts (Atkins, 2009). Therefore, spouses

whose partners remain in service may be more likely to have developed positive coping skills due to increased experience with military life, and life experience in general (Atkins, 2009). Therefore, career military families who experienced multiple deployments may be better prepared for further deployments, in that they may know what to expect based on past deployments, or may have developed a repertoire of coping strategies which is protective against future distress (Warner et al., 2009).

McGuire and associates (2012) refer to the phenomenon whereby resilient families may choose to remain in the military, whereas those who may not cope well choose to separate from service, as the “healthy family effect”. Families who experience such problems during or following early deployments may choose to leave military service, and may thus be unlikely to be part of research samples at the time of survey (Warner et al., 2009). Correspondingly, Barker and Berry (2009) detailed that recently deployed soldiers who decided not to re-enlist had partners who were more likely to report high-stress ratings and depression, and children who had more observed behavioural difficulties. Therefore, military members, spouses, and children who cope better with deployment may be more likely to remain in the military, with a greater likelihood of having subsequent deployments.

Other theorists have proposed that there may be a curvilinear relationship between length of service/multiple deployments and spousal well-being, where adjustment outcomes may improve after the first few deployments, but may be overwhelmed with prolonged length of service or ongoing deployments (Frankel et al., 1992). Length of military service has also been demonstrated to be negatively associated with spouse employment (Hosek, Asch, Fair, Martin, & Mattock, 2002), and given that spousal employment has been linked to better adjustment in past research (e.g., Milgram & Bar, 1993), this may also be a mechanism worthy of future research. It

may also be that there are alternative military factors, other than those examined in the current study, which may contribute to psychosocial difficulties experienced by spouses. Work-family conflict in military families has been shown to be associated with hours of work, time spent in training, perceived work overload, predictability of work hours, and time spent away from the home (Adams et al., 2005; Britt & Dawson, 2005) and these are alternative risk factors which may be considered in further research.

5.2.2 Depression and current deployment. The present study found that spouses whose military service partners were deployed at the time of survey reported elevated levels of depressive symptomatology. Accordingly, the period of service partner deployment is a time of spousal psychiatric vulnerability. This finding is supported by international research, which demonstrated that deployment was a predictor of distress and mental health problems among international military spouses (Andres, 2014; Mansfield et al., 2010). Spousal depression rates have been shown to increase with the deployment of the service partner (Mansfield et al., 2010). In fact, spouses whose service partners were deployed had similar rates of depression as service members returning from combat (Eaton et al., 2008). Spouses who experienced deployment-related separation extensions also reported significantly higher depressive symptoms than those who were reunited with their partners as expected (SteelFisher et al., 2008). Other research has found an increase in specialist visits and use of antidepressants and anxiolytics among families of deployed personnel (Larson et al., 2012).

The finding that depression is predicted by the current deployment of the spouse's military service partner is perhaps unsurprising, given that US research has identified that the majority of spouses (62%) report the highest amounts of stress during the actual period of deployment than at other stages of the deployment cycle, such as on receiving notice of the

deployment (15%), or at the time of departure for the operation (18%) (National Military Family Association, 2005). Additionally, separation due to deployment was the most important predictor of poorer psychological well-being than a host of other predictors, including concerns about the welfare of the deployed partner, frequent geographical moves or international relocation (Burrell et al., 2006).

The limited Australian research which exists presents conflicting findings regarding the association between current deployment and spousal outcomes. McGuire and colleagues (2012) found similar mental health profiles in those spouses whose partners were currently deployed, compared to those whose partners were not deployed at the same time as the survey. However, it was acknowledged that as there were comparatively very few partners in the sample who were currently deployed, there may have been inadequate statistical power to be certain of the findings (McGuire et al., 2012). Therefore, further research with sufficiently large samples is required to elucidate the association between current deployment and emotional well-being of Australian spouses.

5.2.3 Depression and social support. It was found that spouses who received less emotional support and practical support than was desired had elevated symptoms of depression. Therefore, this research places of primary importance the significance of inadequate social support on psychological outcomes in military spouses. Although spouses in this study reported receiving moderate amounts of practical and emotional support, this was inadequate in meeting their needs during the stressful period of deployment. These findings align with international research among civilian populations, which showed that depression was significant and inversely associated with both emotional and instrumental support, where those who lacked emotional and instrumental support were more than two-and-a-half times more likely to have depression than

those with support (Grav, Hellzèn, Romild, & Stordal, 2012). With regards to research among military spouse cohorts, the present study supports the finding of McGuire and colleagues (2012) that social support was significant and inversely associated with psychological distress in ADF spouses. Other studies have also found that spouses find the time of deployment is fraught with loneliness, where even the provision of formal and informal supports can be perceived as inadequate (Lapp et al., 2010).

The finding that spouses had lower rates of emotional and practical support received than desired may be explained by international research, which suggested that spouses rate other military spouses as one of the primary sources of support (Rossetto, 2015). Australian spouses may find it difficult to access support from other military spouses, given that ADF spouses are more likely to live within the civilian community than their US counterparts (Bakhurst & Halford, 2016). In addition, the demands of geographical relocation may make it difficult for spouses to access supports from their previously established networks (Barker & Berry, 2009; Wood et al., 1995). Spouses may also report deficient access to supports due to difficulty disclosing their emotional and instrumental needs to other military spouses, family, friends (Rossetto, 2015), and their service partners (Joseph & Afifi, 2010), as military spouses report fear of disclosure of vulnerability to their supports in order to uphold the perception of being strong, stoic and independent (Aducci et al., 2011; Stevenson, 2014).

These findings lend support for the Transactional Theory of Stress and Coping proposed by Lazarus and Folkman (1984), and in this study, applied to military spouses. Within this framework, it is posited that spouses' coping resources are strained in the context of a crisis such as separation from one's partner due to current deployment, or geographical relocation. Spouses who have deficiencies in the emotional and practical resources perceived as needed to cope with

such crises are therefore less able to manage emotionally and are vulnerable to experiencing depressive symptoms.

5.2.4 Anxiety and barriers to care. In terms of anxiety, the strongest predictor was barriers to care, where the total number of barriers that were endorsed by spouses was associated with higher anxiety scores. Previous studies from civilian samples provide context for these findings (Mojtabai, Olfson, & Mechanic, 2002). Among individuals diagnosed with an anxiety disorder, 21% perceived a need for help, and just 4% sought specialist mental health treatment (Mojtabai et al., 2002). Moreover, while roughly 40% of people with mood disorders sought care within the first year of onset, those with anxiety disorders delayed seeking care for between nine and 23 years (P. S. Wang et al., 2005). Regarding international and Australian military spouse research, previous studies showed that military spouses commonly underutilised psychiatric care services, where spouses screening positive for a psychiatric condition endorsed a greater number of barriers to care than those without a diagnosed condition (Gorman et al., 2011; McGuire et al., 2012).

The most commonly endorsed barriers by spouses in this study included perceived expense, difficulties associated with being released from work, and not knowing where to seek assistance. These findings are supported by previous studies, which confirmed that a large proportion of individuals with a diagnosed mental health condition perceived a need for treatment, but did not seek care (Mojtabai et al., 2002). This is also supported by military spouse research, which demonstrated that spouses screening positive for psychological symptoms commonly endorsed multiple barriers to care, predominately citing difficulty getting time off work or accessing child care for assistance, difficulty obtaining an appointment, and excessive cost (Eaton et al., 2008; Gorman et al., 2011; McGuire et al., 2012; Warner et al., 2009).

The finding that barriers to care influences anxiety may add support to the proposition that the military service culture, which values hardiness and stoicism, may also influence military spouses to adopt an equally stoic attitude, at the cost of their own welfare (Drummet et al., 2003; Maguire & Wilson, 2013). This finding is also consistent with research, which indicated that military spouses, like their service partners, have a pervasive self-stigma towards mental health treatment (Stevenson, 2014). Overall, these findings add support to the scant empirical literature base examining military family mental health outcomes alongside perceived barriers to care (Gorman et al., 2011), and adds to the growing body of Australian and international research elucidating the risk factors of military spousal distress.

5.2.5 Sleep difficulties and social support. The strongest predictor of sleep quality was the discrepancy between practical support received versus that which was desired. Greater discrepancy between practical support received than was desired was associated with worse sleep quality.

Few studies have examined the impact of military risk factors on sleep outcomes among military spouses (Brooks Holliday et al., 2016), making it difficult to compare the findings of this study with the larger empirical base. One recent US study examining military risk factors associated with sleep disturbances found that current and prior service partner deployment was associated with sleep difficulties, with spouses reporting high rates of sleep difficulties (Brooks Holliday et al., 2016). Spouses of Dutch peacekeepers with PTSD also exhibited significantly more sleeping problems than those whose service partners did not meet criteria for PTSD (Dirkzwager et al., 2005). Therefore, there is a limited body of research which is beginning to elucidate the risk factors which make military spouses vulnerable to sleep difficulties. The current study adds to this emerging research base, and highlights the importance of spousal

access to sufficient instrumental supports to alleviate the stress of military life and thereby improve psychological outcomes.

5.3 Differential Moderation by Self-Stigma of Help-Seeking and Barriers to Care

The hypothesis (H4), that self-stigma and barriers to care would moderate the relation between psychological distress and more discrepancy between emotional support received than desired was not supported. In the case of spouses who had less emotional support than was needed, lower amounts of stigma, and fewer barriers to care did not necessarily buffer against the experience of distress. This is alarming, as it emphasises the cycle of distress within this population, where spouses may feel overwhelmed by the existing stressors and have deficient coping resources which may make it more likely to then experience increased levels of distress.

The lack of moderation of self-stigma and other barriers to care may also indicate that there may be underlying mechanisms at play which impede spouses from accessing both informal supports, as well as seeking mental health treatment. For example, as noted previously, it has been argued that spouses likely adopt a stoic attitude in the face of distress (Aducci et al., 2011; Stevenson, 2014). In addition, spouses may fail to seek help for fear that it may damage their service partner's career (Booth et al., 2007), which relates to a broader kind of stigma beyond self-stigma. Once again, this points to the importance of understanding more about the antecedents of psychosocial distress in military spouses.

5.4 Implications for Clinical Practice and Interventions

The current research findings provide information that may help to inform policy and practice regarding mental health difficulties in ADF spouses, including clinical care providers and support services such as Defence Families, Defence Community Organisation, Veterans and Veterans Families' Counselling Service, other community allied health services working with

military families. The findings confirm the need for supportive and preventative services for ADF families, most notably during times of deployment. Clinicians should recognise deployment as a time of increased psychological vulnerability and that it is essential to proactively offer support during these phases. Families also need assistance at other phases of the deployment cycle, and it is imperative that interventions are designed to meet the specific needs of families at each phase.

Military-specific interventions should be made available to vulnerable spouses to alleviate depression and anxiety within this population group. When untreated, it is possible that there are long-term health implications for spouses, children, and service personnel during the cycle of deployment (Verdeli et al., 2011). An approach drawing on interpersonal therapy (IPT) and applied to distress among military spouses may be effective to treat depression, as the findings in this study implied that emotional and instrumental social support deficits predicted depressive outcomes. IPT is focused on social relationships, with the aim of therapy to assist patients to improve their relationships, and change their expectations of others (Jonas et al., 2013). It also helps patients to improve their access to support to cope with psychological distress (Jonas et al., 2013). Both IPT and cognitive behaviour therapy (CBT) are a recommended treatments of choice, with demonstrated efficacy in improving depressive symptoms (Cuijpers et al., 2011). Similarly, CBT has demonstrated effectiveness in treating anxiety disorders in adults (Stewart & Chambless, 2009). Consequently, a targeted psychotherapeutic approach addressing depression and anxiety should be a clinical imperative for vulnerable military spouses. Interventions should assist spouses to combat the negative effects of military risk factors to bolster their attempts to manage such stress. Faulk and colleagues (2012) have proposed that interventions may address this by targeting positivity as a

mechanism by which to increase spouses' capacity to manage military-related stress. For example, they have suggested assisting spouses through support groups and individual counselling to develop cognitive flexibility by disputing negative thinking, limiting rumination, cultivating meaning-making cognitions, and nurturing supports (Faulk et al., 2012).

These findings also provide implications for the importance of addressing sleep difficulties in military spouses. There is evidence to suggest that sleep difficulties are more prevalent among those with a diagnosed psychiatric condition – with prevalence rates between 50-80% of adults presenting with a psychiatric disorder, compared to 10-18% of the general US population (Harvard Medical School, 2009). In addition, sleep difficulties are commonly co-morbid with depression and anxiety disorders (van Mill, Hoogendijk, Vogelzangs, van Dyck, & Penninx, 2010). This high co-morbidity, combined with evidence suggesting that sleep difficulties place individuals at risk of developing, or contributing to a psychiatric disorder (Riemann, 2007), has key implications for the military spouse population, since treating the sleep difficulties in this group may also have implications for improving potentially co-occurring depression and anxiety. Education for spouses addressing sleep hygiene, and other behavioural interventions such as the benefits of physical activity, and negative effects of caffeine, alcohol, and nicotine on sleep may be effective (Schutte-Rodin, Broch, Buysse, Dorsey, & Sateia, 2008). Cognitive behavioural and mindfulness interventions may also be of benefit to address the sleep difficulties in this population (Garland, Zhou, Gonzalez, & Rodriguez, 2016; Schutte-Rodin et al., 2008). There is robust empirical evidence for cognitive behavioural therapy treatment to target insomnia (CBT-I), with numerous studies demonstrating ongoing improvement of symptoms whether the sleep disturbances are primary (Mitchell, Gehrman, Perlis, & Umscheid, 2012; Pigeon, 2010) or co-occurring with other psychological disorders (Belleville, Cousineau,

Levrier, & St-Pierre-Delorme, 2011; Lancee, Bout, Straten, & Spoormaker, 2013; Wagley, Rybarczyk, Nay, Danish, & Lund, 2013). Furthermore, several of these studies demonstrate the effectiveness of treatment regardless of baseline symptoms of depression (Lancee et al., 2013), and moderate treatment effects on all outcomes, including depression, anxiety, and insomnia (Belleville et al., 2011; Wagley et al., 2013). Designing and testing the effectiveness of such therapies with the military spousal population is imperative to treat both psychiatric and sleep disturbances emerging in those vulnerable. Given that this study found that less access to adequate practical social support predicted sleep difficulties, addressing this deficit is also necessary to improve spousal sleep outcomes. Spouses have previously emphasised the importance of having access to support with childcare, gardening, car maintenance, and other manual household chores (Atkins, 2009) to alleviate the burden of absence from their service partner, and being responsible for managing all tasks alone. Defence policymakers may find it beneficial to provide spouses with access to an allowance to fund some of these practical demands external to their informal support base to address broader psychological concerns.

Furthermore, the well-being of the military spouse is vital to the health of the entire military family (Lewis, Lamson, & Leseuer, 2012), with distress in military veterans and spouses contributing to systemic cyclical dysfunction in other members of the military family (MacDonell, Thorsteinsson, Bhullar, & Hine, 2014). For example, there are elevated rates of emotional or behavioural difficulties in children of deployed service members both during and following deployment, most notably for girls and older adolescents (Barker & Berry, 2009; Chandra et al., 2010; Chartrand, Frank, White, & Shope, 2008; McGuire et al., 2016). Children's psychological difficulties were also shown to be more intense when their non-deployed parent had higher rates of stress (Flake et al., 2009), or was experiencing mental health difficulties

(Andres & Moelker, 2011; Chandra et al., 2010; Finkel, Kelley, & Ashby, 2003; Flake et al., 2009; Lester et al., 2010). Symptoms in children were more often reported by caregivers remaining at home who endorsed higher levels of stress, but symptoms were less likely when caregivers had adequate access to formal and informal supports (Flake et al., 2009). Moreover, there is concerning research internationally demonstrating that child maltreatment increases during deployment (Gibbs et al., 2007; McCarroll, Fan, Newby, & Ursano, 2008; Rentz et al., 2007). Similarly, it has been argued that interventions focused at partners of military servicemen and women have the potential to mitigate against the worsening of diagnosed posttraumatic stress disorder in their partners (Renshaw & Caska, 2012), since social support has been demonstrated to be strongly correlated with lower incidence and severity of PTSD following exposure to trauma (Han et al., 2014; Tsai, Harpaz-Rotem, Pietrzak, & Southwick, 2012). Therefore, ongoing research into preventing and treating the mental health difficulties of non-serving ADF spouses is recommended to assist spouses, and thereby the whole family system, to moderate the risks to their psychological health. Treatment focused on the whole family system is mandatory to assist families to cope, as there are bi-directional implications following intervention in retaining military staff, since families who adjust poorly to military separation are unlikely to stay in service (Barker & Berry, 2009; Faulk et al., 2012; Wood et al., 1995). Furthermore, a systemic approach to treatment is likely to reduce future costs to the military by addressing mental health needs and reducing the risk of increased severity of psychopathology in the spousal couple (Lewis et al., 2012).

Spouses may benefit from access to information about what to expect at various phases of the deployment cycle. While the Defence Community Organisation typically offers families the opportunity to participate in pre-deployment operational meetings and education sessions, a large

percentage of families have no knowledge of these briefings, and that of those who attended, 48% did not find them useful (Brown & Wensing, 2016). It is apparent that more work needs to be done to assist families to manage the deployment cycle. Support with negotiating the various phases of deployment may be most needed by spouses who have less military life experience, who may struggle more with the demands of the organisation on the family (Runge et al., 2014). The work by Pincus and colleagues (2001) proposed a conceptual model in understanding the impact of various stages of the deployment cycle on family members, and the empirical validation and application of such a model to treatments may be useful towards this end.

Spouses may also benefit from psychoeducation and counselling aimed specifically at coping with the demands of military life at different stages of life to meet the specific needs of the family. Some spouses may be more vulnerable to distress at various life and developmental stages, such as pregnancy (Haas & Pazdernik, 2007; Robrecht et al., 2008), when caring for dependents (Atkins, 2009), and when less experienced with military life (Atkins, 2009). Such cohorts may need greater assistance with preparation, training, and strategies for managing such demands. Again, interventions should be targeted to these demographic groups of spouses.

There is a need to invest further towards and assisting families in accessing formal and informal supports to mitigate the risks to their psychological well-being. The ADF offers a variety of supports to spouses, such as the Defence Community Organisation critical incident and casualty support, absence from the home support, mobility support, Defence Family Help Line, information sessions to prepare for deployment and time apart, courtesy calls, referrals and counselling through the Veterans and Veterans Families Counselling Service (Defence Community Organisation, n.d.). From a formal support perspective, it has been previously identified in the literature that spouses would like more proactive follow-up from military

supports, as often services are not pursued by spouses in need (Runge et al., 2014). While existing Defence supports are wide and varied, all intervention programs offered to ADF spouses should be subject to evaluation to differentiate which treatment protocols are most effective in mitigating psychological distress. Furthermore, ADF spouses commonly lack knowledge of existing supports (Siebler, 2003) and some supports are not well utilised, nor perceived to be effective (Brown & Wensing, 2016). For example, surveys suggested that just 14% of spouses registered to receive Defence Community Organisation support calls in 2015, with 25% of respondents indicating they were contacted by the service and found it useful (Brown & Wensing, 2016). Working spouses may find it particularly difficult to access Defence Community Organisation supports offered solely during business hours (Broderick, 2012). In addition, spouses who are also ADF members may find it difficult to access such supports (Broderick, 2012). Furthermore, there is no coordinated system in place where ADF families who most need it are offered support during and after deployment (Siebler, 2003). To assist families with their coping during vulnerable periods, services may consider providing spouses with connections to family support groups to facilitate access to other spouses and families, or to assist spouses in relocating to be close to supports during deployment-related separations from their service partner (McGuire et al., 2012). Spouses would likely benefit from attending family support groups with other military spouses, or informal meetings with key significant others, where they may have the opportunity to speak to, hear from and feel validated by others who may understand their plight (Faber et al., 2008). Previous qualitative research from spouses participating in Partners of Veterans Support groups found that spouses rated the support provided by their groups an essential part of their coping repertoire (Outram et al., 2009). These supports may be of specific benefit to spouses who perceive the need to censor their emotions in

front of dependents and their service partner, and those who have a preference to adopt a stoic stance.

It is evident from this and other studies that more intervention is required in order to overcome the self-stigma and barriers to care which impede military spouses from seeking needed help (Gorman et al., 2011; Stevenson, 2014). The provision of psychoeducational programs targeted towards reducing self-stigma of seeking help among military spouses, and thus assisting spouses to manage the adverse effects of such stigma would be useful as a beginning step (Stevenson, 2014; Vogel, Wade, & Hackler, 2007). Authors have also suggested that training family life educators to coordinate informal support groups could be one way to assist spouses in accessing this support (Drummet et al., 2003). Such programs may be perceived as less stigma-provoking than attending therapy, especially where leaders focus on the educational nature of the support, rather than a focus on symptoms (Drummet et al., 2003). Other individuals who may offer help and be perceived as less stigmatising include accessing the supports of family members, other military spouses, and chaplains (Stevenson, 2014). In particular, spouse mentors who have a lived experience of mental health difficulties may offer other spouses a way to reduce stigma, as past research has demonstrated that direct interaction is useful in mitigating stigma of psychological difficulties (Overton & Medina, 2008), and the influence of other military spouses can buffer the stress of deployment (Rosen & Moghadam, 1990). Of equal importance, efforts should be made to reduce the barrier of expense to spouses seeking treatment, by reassessing policy concerning reimbursement of treatment.

Conversely, some of these barriers may be addressed by making alternative services available to spouses of military personnel. Online interventions and telepsychiatry services are drawing increased attention to this end. The use of online interventions in treating psychiatric disorders has grown rapidly in the last decade (Ruwaard, Lange, Schrieken, Dolan, &

Emmelkamp, 2012). There remains a paucity of evidence examining the effectiveness of online interventions, warranting ongoing research in this field (Ruwaard et al., 2012). However, emerging research suggests that online interventions provide a flexible, effective and acceptable treatment choice for patients requiring mental health services that overcome some of the potential barriers to care (Ruwaard et al., 2012). For example, research has revealed that self-disclosure and disinhibition are increased when using online services for communication and counselling (Alleman, 2002; Suler, 2005). Extant research is beginning to demonstrate that online interventions are effective in treating a wide range of mental disorders, including depression, panic disorder, post-traumatic stress disorder, and insomnia (Ruwaard et al., 2012; Williams & Andrews, 2013). Research also suggests that online interventions can be as effective as traditional CBT (Johansson & Andersson, 2012). Online interventions are anonymous, flexible around daily work and life demands, are highly accessible and cost effective (Griffiths & Christensen, 2007). Furthermore, the use of technology to deliver educational counselling to spouses may overcome a lack of continuity of service access due to military-related family relocation, and service limitations in regional, rural and remote postings (Stevenson, 2014). Thus, use of online and telepsychiatry services may have the potential to address several of the barriers to care identified in this study which impede military spouses from seeking needed treatment. Since military spouses have identified that the preferred manner of accessing support services is via the internet (Brown & Wensing, 2016), it should be a priority to invest in creating, demonstrating effectiveness for, and delivering online treatment services to address depression, anxiety, and sleep difficulties in the population of ADF spouses.

The findings in this study may also be relevant to spouses with civilian partners who engage in a career with similarities to the military. For example, it has been emphasised that

spouses of mining and “fly-in/fly-out” workers deal with frequent separations and relocations (Bakhurst et al., 2016). In fact, past research has demonstrated that spouses of frequent business travellers compared with non-travellers presented with three-times more stress-related psychological diagnoses (Dimberg et al., 2002). Equivalently, emergency workers, including police and fire officers, are also exposed to a high-pressure work environment, leaving spouses with concerns regarding the threat of assault, violence, exposure of their partner to trauma, or even potential death of their service partner (Bakhurst et al., 2016; Regehr, 2005). Families of emergency workers also contend with partner limitations to involvement in family life due to shift work and long hours, adding to work-life conflict and role ambiguities of their spouse (Regehr, 2005), conflicts which are shared by the military spouse population.

5.5 Limitations and Research Implications

While this study extended the limited literature exploring the psychosocial outcomes of ADF spouses, there are limitations to consider when interpreting the results.

As with most cross-sectional research, where measurement occurs at one specific point in time, the current study design is limited in that the focus of the present research has been on the associations between variables. Therefore, inferences about the direction of causality of effects cannot be drawn, and it is possible that other variables account for some of the recorded relationships. Moreover, levels of depression, anxiety and sleep difficulties were not able to be recorded prior to military involvement to assess for any change resulting from involvement with the ADF. Future research should incorporate a longitudinal design to ascertain the psychosocial well-being of spouses over time, and explore the resilience and risk factors which protect and mediate against poor outcomes in the long-term. Given that research decades after deployment experiences indicate that there are enduring psychiatric sequelae following from deployment to a

war zone in both veterans and their partners (O'Toole et al., 2010), longitudinal research following spouses over the life course, including after their partner's separation from the military, is essential. Thus, the current lack of longitudinal research into the antecedents of psychological distress in military spouses represents a pressing need for further research enquiry. Future research should use longitudinal data to examine delayed and long-term effects of military-related factors on depression, anxiety, and sleep outcomes. It will also be important for future longitudinal designs to follow spouses who have not experienced depression, anxiety and sleep difficulties, to identify the mechanisms by which some individuals are rendered less likely to experience the negative outcomes of deployment-related stressors. Future research should focus on the resilience and strength of military spouses, rather than employing a deficit-based approach (Aducci et al., 2011). Variables which have been identified as potential resilience factors include the effect of relationship stability, prior experience with deployment, access to formal and informal supports, employment, as well as spousal personality characteristics (Wood et al., 1995). Other resilience factors which have been identified in the literature as protective against depression and stress include optimism, cognitive flexibility, meaning making, acceptance, and exercise (Southwick, Vythilingam, & Charney, 2005). There is limited research examining the role of resilience factors in protecting military spouses from the negative mental health outcomes associated with military risk factors (M.-C. Wang et al., 2015). However, emerging research suggests that factors such as a greater ratio of positive to negative emotions are protective against the development of depression (Faulk et al., 2012). It would be of value to further investigate resilience factors in relation to their relative contribution to buffering against the development of adverse psychosocial outcomes among military spouses.

Another limitation was the sole use of self-report to collect data. Self-report of participant experiences may be affected by individual mental states at the time of completion of the survey. Thus, participants who may feel depressed or anxious at the point of measurement may report their experiences more negatively than those who had the same experience, but are not experiencing any mental health difficulties (McGuire et al., 2012). Alternatively, self-report surveys may be limited in that the respondent may endorse inaccurate responses due to inadequate self-awareness (Dimiceli et al., 2010). The use of multiple sources of information, such as dyadic analyses with partner reports or close friends, and incorporation of objective outcome measures may be helpful in future studies for comparison purposes.

As participants were a convenience sample, who self-nominated to complete the online survey, the sample may be biased. Individuals choosing to participate may have been more likely to be experiencing negative psychosocial outcomes than those who did not choose to participate. However, it is also possible that the observed high rates of distress resulted from increased stress associated with military risk factors, and those not participating in the study may have had greater difficulties coping with these stresses (Dimiceli et al., 2010). The potential for bias in this sample cannot be accurately assessed. Further research with more generalisable samples would be of benefit to add to the extant knowledge base.

The sample in this study was limited regarding demographics, including sex and sexual orientation. Due to low response rate from men in the sample, this study analysed data solely from female spouses; consequently, sex differences were not able to be examined. Exploring the impact of military risk and resilience factors of male spouses is relevant, given that more women are now members of the military, with approximately 15% of the ADF workforce occupied by women (Defence People Group, 2014). Similarly, gay, and lesbian personnel have been accepted

to serve openly in the ADF since 1992, and same-sex couples have been recognised for family entitlements since 1998. It has also been identified that lesbian, gay, bisexual, transgender, intersex and queer (LGBTIQ) personnel may be more vulnerable than other personnel to social isolation, and negative mental health outcomes (Matarazzo et al., 2014), and the same may be true of LGBTIQ spouses. Therefore, given that the current research shows that military spouses have greater rates of depression and anxiety, LGBTIQ military spouses may be even more vulnerable to these difficulties. To the author's knowledge, no research has been completed in this area, and this is pertinent to address in future studies.

Further, due to subjective self-reports, there were missing data cases present in the analyses. Using pairwise deletion to manage this issue was advantageous, in that it made it possible to utilise all available data, to estimate parameters on the maximum available sample size (Howell, 2007). However, it is also noted that missing data can lead to loss of information, statistical power (Dong & Peng, 2013) and potentially biased estimates (Myers, 2011). A modern approach to managing missing data such as the expectation-maximisation method should be considered in future research to minimise such complications (Cox, McIntosh, Reason, & Terenzini, 2014).

The current study examined military risk factors related to current and past deployments. However, it is noted that in the Australian Defence Force, there are multiple types of deployments, together with extended training-related separations which may be undertaken, the nature of which differ remarkably within and between Army, Navy and Airforce requirements. Such deployments may include warlike and non-warlike operations, peacekeeping and peace-monitoring operations, non-operational international exercises, national exercises and humanitarian assistance operations. The international research literature shows that the nature of

deployment impacts the likelihood of the service member developing psychological difficulties, where soldiers exposed to combat-related trauma had an increased risk of developing mental health difficulties (Tanielian et al., 2008), which may, in turn affect spousal well-being. As such, it is acknowledged that the current research did not investigate the distinct nature of these separate deployment types, and it is advisable that this is addressed in future research to measure the impact on spouses.

Related to this, the current research did not gather information about the presence of psychiatric disorder among the military partners of the spouses in the sample. Future research should investigate this, given the association in the literature between veteran mental health difficulties, associated spousal relationship difficulties and impact on spouses' well-being (Allen, Rhoades, Stanley, & Markman, 2011; McGuire et al., 2012). As the presence of PTSD or trauma symptoms is strongly associated with relationship dissatisfaction (Allen et al., 2011; Nelson Goff et al., 2007), intimate partner violence (Taft et al., 2005), increases in alcohol use and psychological distress among spouses (MacDonell et al., 2014; McGuire et al., 2012; Renshaw, Blais, & Caska, 2011), gathering this information is pertinent in future research regarding distress outcomes among ADF spouses.

The present study examined partners of ADF servicemen and women as one homogenous group. However, partners are a broadly heterogeneous group that may differ on outcomes. A recent ADF Families report noted that partners may be civilian Defence-recognised (composed of an ADF service member, and a civilian partner), or military Defence-recognised (in the case of dual ADF couples) (Brown & Wensing, 2016). In the current study, data were not collected on whether the spouse participant was also a military member themselves. There may be specific vulnerabilities impacting the psychological well-being of dual Defence members, such as the

difficulty of both member partners being posted to the same location at any one time (Broderick, 2012). For example, spouses who were also permanent ADF members were significantly more likely to report ease with coping following posting relocation and absences from their spouse, whereas non-ADF member spouses were more likely to report more difficulty coping (Atkins, 2009). Future research should focus on these subgroups to understand the specific vulnerabilities and their associated psychosocial outcomes.

Additionally, in this study information was not collected regarding the rank of the serving ADF member, nor was it specified whether the spouse participant was a general ADF member or reservist member and this may be an important factor impacting spouse distress levels. Such information should be gathered in future studies, as these population subsets have specific vulnerabilities of their own which may have an impact on mental health outcomes. For example, reservist members are noted to generally be recruited from units spread across Australia, therefore their family units are also dispersed and less likely to have support from other Defence families and military specific support services (Orme & Kehoe, 2011). In addition, civilian members may have insufficient understanding of supports required in light of the demands of deployment (Orme & Kehoe, 2011). For example, it has been argued that military reserve personnel and their families, who often live and work within the civilian community, may be less integrated into formal and informal military support services, or may be less aware of available supports and entitlements (Faber et al., 2008). Similarly, it has been argued that reserve families are more vulnerable than families of active duty personnel, due to less defence-related experience or exposure to war-like operations (Lapp et al., 2010). Since spouses of more junior enlisted servicemen are more vulnerable to the impact of separation, and might find it more difficult to access extended support from spouses of higher-ranking officers, or other support

services (Harrell, 2001; Orthner & Rose, 2006; Pittman et al., 2004; Wood et al., 1995), asking the spouse for information about the rank of their partner is recommended in future research.

Another limitation in this study worthy of consideration is the fact that it followed spouses of currently serving members, and did not sample spouses whose partners separated from service. Previous authors have argued that the serving military population is subject to a “healthy family effect” (McGuire et al., 2012), whereby it is proposed that those families who continue to remain connected to military service may manage the demands of service life better and they may have gathered positive coping skills throughout the deployment cycles to manage future deployments (Warner et al., 2009). Conversely, those who choose to separate from service may have done so due to more difficulty coping with the demands of military risk factors (Warner et al., 2009), and may be more likely to be underrepresented in studies such as this (McGuire et al., 2012). This theory is supported by research findings that both soldiers and spouses who chose not to reenlist were more likely to endorse depressive symptoms (Barker & Berry, 2009). Therefore, it is possible that families who separated from service may be a vulnerable population group, potentially subject to poorer mental health outcomes. Coupled with this is the finding that servicemen and women have shorter career lengths than previously, with the median length of service now seven years (Broderick, 2012). This trend may make it difficult to gather sample sizes large enough to gain sufficient power to conduct statistical analyses to compare families with multiple deployments, or longer service histories with those families with less military experience. Future research should include separate cohorts of active duty families, including those with shorter, middle, and longer military involvement, as well as families who have separated from service, to compare outcomes in all population groups and test these hypotheses.

While this study sought to investigate more about the military risk factor of geographic mobility, it did not specifically ask spouses about the number of times they have moved for military purposes, proximity of residences to a military base, and length of postings at each residence, which may have provided an effective estimate of the spouse's mobility. Rather, it included a measure of metropolitan, versus rural location of current residence. Future research should ask spouses more specifically about posting information to measure the potential contribution that this risk factor may have on spouse psychosocial distress.

Another methodological issue to consider in the context of the present study is the limitation on the investigation of existing supports. For example, participants were not asked for information about the use of formal supports. In the future, it would be critical to understand more about the nature and frequency of spouse contact with such supports, including formal community supports, such as GP, and Allied Health Professionals, and formal Defence families supports, such as the Defence Community Organisation, Veterans and Veterans Families Counselling Service, and Defence Employee Assistance Program. Additionally, due to low response numbers regarding emotional and practical support from significant others, data were solely analysed for the first relationship documented by participants. This meant that follow-up analyses were not able to be conducted for more than the most significant support nominated. Thus, data were very limited in the present study around understanding the nature of supports available to the spouses. One interpretation of this could be that although spouses have access to at least one key support, their extended support network is, in general, very limited. However, it is impossible to determine whether participant non-response was due to access to limited supports, or was simply a preference not to answer the remaining questions regarding supports. Data were not collected regarding extended supports, such as secondary supports provided by

other spouses. In addition, future research would benefit from an understanding of sources of support to understand more about whether family, friends, spouses or extended military family community supports are most significant in assisting spouses in meeting their emotional and practical needs. Future research should examine the relative contribution of significant others (family and friends, as well as the service partner), compared to similar others (other military spouses) and formal supports on spouses' well-being.

Moreover, although this study builds on previous research by using empirically validated measures of distress, which are effective screening tools, these are not necessarily sufficient to establish a diagnosis of major depressive disorder and anxiety conditions, which would require a follow-up clinical interview. Future studies should employ diagnostic measures to understand more about the clinical implications of military spouse distress.

Lastly, the sample size employed in this study was limited, which may have contributed to the lack of significant findings in some cases. It has been noted in the literature that research with military families is difficult to carry out, due to barriers recruiting families who have a myriad of other priorities and are widely dispersed in location (Adler & Riviere, 2017). The present research is no exception to this. It would be of benefit to conduct further research using larger samples to replicate the results contained herein, as well as to establish the generalisability of these findings to the broader population of ADF spouses.

5.6 Conclusions

The present study aimed to examine the psychosocial outcomes of military spouses and predictors of psychological distress, and to determine whether self-stigma of help-seeking and barriers to care moderated the relationship between distress and the discrepancy in emotional support received, compared to that which was desired. Lazarus and Folkman's (1984)

cognitively-oriented theory of stress and coping was utilised as an overarching framework within which to understand the presence of psychological difficulties among spouses. To this end, the present study provided additional quantitative information on the psychological well-being of military spouses to address the relative shortage of existing studies examining this area. Spouses of military personnel had higher rates of anxiety, depression, and sleep difficulties than the general Australian population, demonstrating that this is an area in need of more research and clinical attention. The period of service partner deployment was identified as a time of psychological vulnerability. Deficiencies in the provision of adequate emotional and instrumental support were predictive of depression. Similarly, deficiencies in instrumental support was predictive of sleep quality among spouses. Barriers to care were prominent in this population group and were predictive of anxiety levels. Clinicians, military organisations, and other community allied health professionals should be aware of the impact which military risk factors have on ADF spouses. The military spousal experience is said to be one of being disenfranchised and unrecognised (Aducci et al., 2011). Without a doubt, more research is warranted to elucidate the experiences and outcomes of life as a military spouse and to understand the coping resources which might be of benefit to reduce psychological distress within this population, support the health of spouses, and in turn, their children and ADF service partners. This is needed to address the ongoing lack of research in this area, together with a growing evidence base demonstrating the significant psychological distress which spouses experience.

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Appendices

Appendix A: Ethical Approval to Conduct Research Involving Humans

From: Quest NoReply
Sent: Wednesday, January 22, 2014 3:29 PM
To: Karen Hallam
Cc: Melanie Quinn; Alexia Pavlis; Carolyn Deans
Subject: Ethics Application Process Finalised - Application Approved

Dear DR KAREN HALLAM,

Your ethics application has been formally reviewed and finalised.

» Application ID: HRE13-315
» Investigators: DR KAREN HALLAM (Primary CI); MS MELANIE QUINN, DR CAROLYN DEANS, MS ALEXIA PAVLIS
» Application Title: Understanding Emotional Well-being in Military Spouses: Barriers and Supports to Help
» Form Version: 13-07

The application has been accepted and deemed to meet the requirements of the National Health and Medical Research Council (NHMRC) 'National Statement on Ethical Conduct in Human Research (2007)' by the Victoria University Human Research Ethics Committee. Approval has been granted for two (2) years from the approval date; 22/01/2014.

Continued approval of this research project by the Victoria University Human Research Ethics Committee (VUHREC) is conditional upon the provision of a report within 12 months of the above approval date or upon the completion of the project (if earlier). A report proforma may be downloaded from the Office for Research website at: <http://research.vu.edu.au/hrec.php>.

Please note that the Human Research Ethics Committee must be informed of the following: any changes to the approved research protocol, project timelines, any serious events or adverse and/or unforeseen events that may affect continued ethical acceptability of the project. In these unlikely events, researchers must immediately cease all data collection until the Committee has approved the changes. Researchers are also reminded of the need to notify the approving HREC of changes to personnel in research projects via a request for a minor amendment. It should also be noted that it is the Chief Investigators' responsibility to ensure the research project is conducted in line with the recommendations outlined in the National Health and Medical Research Council (NHMRC) 'National Statement on Ethical Conduct in Human Research (2007).'

On behalf of the Committee, I wish you all the best for the conduct of the project.

Secretary, Human Research Ethics Committee
Phone: 9919 4781 or 9919 4461
Email: researchethics@vu.edu.au

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Appendix B: Information to Participants Involved in Research

**Information to Participants****INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH****You are invited to participate**

Thank you for your interest in participating in this study looking at the emotional wellbeing of military spouses, perceived social supports and barriers to accessing care.

This project is being conducted by a student researcher, Melanie Quinn, as part of a Doctor of Psychology (Clinical) study at Victoria University under the supervision of Dr Carolyn Deans and Dr Alexia Pavlis from the School of Psychology.

Project explanation

As a partner of an Australian Defence Force (ADF) member, we would like to know about how you are coping with the demands placed upon you. We are interested in your access to formal and informal support networks, as well as what you perceive as being barriers associated with help-seeking.

What will I be asked to do?

As a participant, you will be asked to complete a survey that collects some background information about you, your social supports and any barriers to accessing care services, as well as questions about your emotional wellbeing and sleep quality. The project involves completing an online survey that takes about 20-30 minutes in total.

You are eligible to participate if you are a current spouse of a full time or Defence Reservist member of the ADF, are aged 18 and over, and are able to fluently read written English.

What will I gain from participating?

The topic of emotional wellbeing in military personnel has been thoroughly explored; however, very little research to date has explored this issue from the spouses' perspective. Initial findings suggest that the impact on spouses is substantial, making this an important area of study. Your participation will provide valuable information about the impact of being a spouse of a member of the military. This in turn will enable appropriate treatments to be designed to support ADF families such as yours.

How will the information I give be used?

All data collected in this study will be stored confidentially. Only members of the research team will have access to the data. All data will be coded in a de-identified manner and subsequently analysed and reported in such a way that responses will not be able to be linked to any individual. The data provided will only be used for the specific research purposes of this study.

The results will be reported in a postgraduate research report, possible conference presentation and/or scholarly journal. To protect your confidentiality and anonymity, you will not be expected to provide your name or any

identifying details.

What are the potential risks of participating in this project?

There is potential for uncomfortable thoughts and feelings associated with being a member of an ADF family. However, this is expected to occur only in a minority of cases and to have minor impact on you. Should you experience more than minor uncomfortable feelings you may wish to make an appointment with your GP to arrange a referral to a counsellor; you may also like to make an appointment with your regular counsellor. Alternatively, you may wish to access one of the following supports:

The supervisors of this project are all registered psychologists with counselling experience and may be contacted with any concerns on the numbers listed below. Clinical Psychologist, Associate Professor Gerard Kennedy of the School of Psychology at Victoria University may be contacted on **(03) 9919 2481** to obtain support services and the methods to obtain referral for ongoing assistance. He is unaffiliated with the current study. Beyondblue is the National Depression Initiative and has an information line on **1300 224 636**. It has specific information available about emotional wellbeing. Lifeline on **13 11 14** is a free, 24-hour telephone counselling service where you can discuss any distressing life issues. The Veterans and Veterans' Families Counselling Service provides counselling and group programs to Australian veterans, peacekeepers and their families. It is a specialised, free and confidential Australia-wide service. To access this service, phone **1800 011 046**.

How will this project be conducted?

The questionnaire will be conducted with an online Qualtrics-created survey

Who is conducting the study?

Melanie Quinn
Student Investigator
College of Arts
School of Psychology
Victoria University
St Albans Campus
PO Box 14428
Melbourne VIC 8001
Phone: (03) 9919 2473
Email: melanie.quinn1@live.vu.edu.au

Dr Carolyn Deans
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College of Arts
School of Psychology
Victoria University
St Albans Campus
PO Box 14428
Melbourne VIC 8001
Phone: (03) 9919 2559
Email: alexia.pavlis@vu.edu.au

Please contact Melanie Quinn on the number listed above if you have any queries about your participation in this project.

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

Appendix C: Informed Consent Form

Informed consent

Any queries about your participation in this project may be directed to the student researcher:

Melanie Quinn
Phone: (03) 9919 2473

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

I certify that I am at least 18 years old, am a current partner of a full time or Defence Reservist member of the ADF, and that I am voluntarily giving my consent to participate in the study.

Understanding emotional wellbeing in Military Spouses: Barriers and Supports to Help, being conducted at Victoria University by Ms Melanie Quinn, Dr Carolyn Deans and Dr Alexia Pavlis.

I certify that the objectives of the study and any risks and safeguards associated with the procedures, have been fully explained to me, and that I freely consent to participation in an online survey.

I certify that I have had the opportunity to have any questions answered and that my participation in this study is voluntary. I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

☐ Yes

☐ No

Appendix D: Study Questionnaire

Demographic Information

We are interested in knowing more about you and your family. The following questions relate to this information.

What is your gender?

- ☐ Male
- ☐ Female
- ☐ Other (please specify)

What is your current age?

What is your current marital status?

- ☐ Married
- ☐ De facto
- ☐ Other (please specify)

For how long have you and your partner been in a relationship?

For how long has your spouse been a member of the Australian Defence Force?

What is your current marital status?

- ☐ Married
- ☐ Defacto
- ☐ Other (please specify)

For how long have you and your partner been in a relationship?

For how long has your spouse been a member of the Australian Defence Force?

Has your spouse ever been deployed? (Please select all that apply)

- ☐ Never
- ☐ Yes, on a combat mission
- ☐ Yes, on a peace-keeping mission
- ☐ Other (please specify)

Is your spouse currently deployed?

- ☐ Yes
- ☐ No

How many times has your spouse been deployed?

- ☐ 1 time
- ☐ 2 times
- ☐ 3 times
- ☐ 4 times

- ☐ 5 times
- ☐ Other (please specify)

For how long was each deployment? (Please specify for each deployment)

Do you currently live in a metropolitan (city) or rural area?

- ☐ Metropolitan area (city)
- ☐ Rural area

Do you currently live in this area due to ADF requirements (e.g. for purposes of deployment)?

- ☐ Yes
- ☐ No

How many children do you have?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ Other (please specify)

What are the current ages (in years) of each of your children?

- ☐ Please specify

DASS

We are interested in how you have been doing recently.

Please read each statement and circle a number 0, 1, 2, or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0 Did not apply to me at all
- 1 Applied to me to some degree, or some of the time
- 2 Applied to me to a considerable degree, or a good part of the time
- 3 Applied to me very much, or most of the time

	0	1	2	3
1. I found it hard to wind down	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I was aware of dryness in my mouth	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I couldn't seem to experience any positive feeling at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I found it difficult to work up the initiative to do things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I tended to over-react to situations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I experienced trembling (e.g., in the hands)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I felt that I was using a lot of nervous energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I was worried about situations in which I might panic and make a fool of myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I felt that I had nothing to look forward to	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I found myself getting agitated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I found it difficult to relax	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I felt down-hearted and blue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I was intolerant of anything that kept me from getting on with what I was doing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I felt I was close to panic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I was unable to become enthusiastic about anything	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I felt I wasn't worth much as a person	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I felt that I was rather touchy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I felt scared without any good reason	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. I felt that life was meaningless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

K-10

In the past 4 weeks:

	None of the time	A little of the time	Some of the time	Most of the time	All of the time
About how often did you feel tired out for no good reason?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
About how often did you feel nervous?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
About how often did you feel so nervous that nothing could calm you down?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
About how often did you feel hopeless?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
About how often did you feel restless or fidgety?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
About how often did you feel so restless you could not sit still?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
About how often did you feel depressed?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
About how often did you feel that everything is an effort?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
About how often did you feel so sad that nothing could cheer you up?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
About how often did you feel worthless?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Significant Others Scale (Power, Chamption & Aris, 1988)

We are interested in your current social support networks.

The questions that follow relate to people who are important in your life. Please use a response sheet for each person who you identify is important. Possible relationships include friends, partner, mother, father, children, brothers, sisters, other relatives, work colleagues, and so on.

Please list below a person who is important in your life.
Relationship to you:

Please choose a number from 1 to 7 to show how well this person provides the type of help listed. The second part of each question asks you to rate how you would like things to be if they were exactly as you would most hope for. Again, choose a number from 1 to 7 to show what rating this would involve.

	never			sometimes			always
	1	2	3	4	5	6	7
1 a. Can you trust, talk to frankly and share feelings with this person?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. What rating would your ideal be?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2 a. Can you lean on and turn to this person in times of difficulty?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. What rating would your ideal be?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3 a. Do they give you practical help?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. What rating would your ideal be?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4 a. Can you spend time with them socially?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. What rating would your ideal be?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You can list up to ten people who are important in your life. Use further questionnaire pages for each person you identify as important.

Would you like to list another person who is important in your life? Please indicate "Yes" or "No" and click the "Next" button to proceed with the survey.

- ☐ Yes
- ☐ No

Pittsburgh Sleep Quality Index

Sometimes, having a spouse who is away for a long time or works different hours can influence their partner's sleep patterns. We are interested in how you have been sleeping recently.

The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions.

1. During the past month, what time (on average) have you usually gone to bed at night?

2. During the past month, how long on average (in minutes) has it usually taken you to fall asleep each night?

3. During the past month, at what time (on average) have you usually gotten up in the morning?

4. During the past month, how many hours of **actual sleep** (on average) did you get at night? (This may be different than the number of hours you spent in bed.)

For each of the remaining questions, choose the one best response. Please answer all questions.

5. During the past month, how often have you had trouble sleeping because you . . .

	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
Cannot get to sleep within 30 minutes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wake up in the middle of the night or early morning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have to get up to use the bathroom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cannot breathe comfortably	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cough or snore loudly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feel too cold	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Felt too hot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had bad dreams	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other reason(s) you may have had trouble sleeping, please describe:

How often during the past month have you had trouble sleeping because of this/these other reason(s)?

- ☐ Not during the past month
☐ Less than once a week
☐ Once or twice a week
☐ Three or more times a week

During the past month, how would you rate your sleep quality overall?

- ☐ Very good
☐ Fairly good
☐ Fairly bad
☐ Very bad

During the past month, how often have you taken medicine to help you sleep (prescribed or "over the counter")?

- ☐ Not during the past month
☐ Less than once a week
☐ Once or twice a week
☐ Three or more times a week

During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?

- ☐ Not during the past month
- ☐ Less than once a week
- ☐ Once or twice a week
- ☐ Three or more times a week

During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?

- ☐ No problem at all
- ☐ Only a very slight problem
- ☐ Somewhat of a problem
- ☐ A very big problem

Do you have a bed partner?

- ☐ No partner
- ☐ Partner in other room
- ☐ Partner in same room, but not same bed
- ☐ Partner in same bed

If you have a bed partner, ask him/her how often in the past month you have had . . .

	Not during the past month	Less than one a week	Once or twice a week	Three or more times a week
Loud snoring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Long pauses between breaths while asleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Legs twitching or jerking while you sleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Episodes of disorientation or confusion during sleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you have a bed partner, ask him/her if you have had other restlessness while you sleep; please describe:

How often during the past month have you had other restlessness while you sleep?

- ☐ Not during the past month
- ☐ Less than once a week
- ☐ Once or twice per week
- ☐ Three or more times a week

If you have a bed partner, ask him/her if you have had other restlessness while you sleep; please describe:

How often during the past month have you had other restlessness while you sleep?

- ☐ Not during the past month
- ☐ Less than once a week
- ☐ Once or twice per week
- ☐ Three or more times a week

Self-Stigma Associated With Seeking Psychological Help Scale (Vogel et al, 2006)

People at times find that they face problems that they consider seeking help for. This can bring up reactions about what seeking help would mean. Please use the 5-point scale to rate the degree to which each item describes how you might react in this situation.

	Strongly Disagree	Disagree	Agree and Disagree Equally	Agree	Strongly Agree
I would feel inadequate if I went to a therapist for psychological help.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My self-confidence would NOT be threatened if I sought professional help.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seeking psychological help would make me feel less intelligent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My self-esteem would increase if I talked to a therapist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My view of myself would not change just because I made the choice to see a therapist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It would make me feel inferior to ask a therapist for help	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would feel okay about myself if I made the choice to seek professional help.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I went to a therapist, I would be less satisfied with myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My self-confidence would remain the same if I sought professional help for a problem I could not solve.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would feel worse about myself if I could not solve my own problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Barriers to Seeking Help

Sometimes, people find it hard to seek help from a professional such as a GP or psychologist, even if they think that this might be helpful. The following questions relate to possible barriers that may prevent you from seeking help.

Use the 5-point scale to rate the degree to which each item describes whether or not the factor affects your decision to seek help

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
It is too expensive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be seen as weak	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People would treat me differently	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It would harm my career prospects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would have difficulty getting time off work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't know where to get help	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>