



Participation in occupations, health and adjustment during the transition from military service: A cross-sectional study

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ABSTRACT

Participation in meaningful occupations is central to health, well-being, and adjustment during the transition from military service. The aim of the present study was to identify what occupations transitioning Australian Defence Force members participate in for the purpose of improving their health and well-being. A secondary aim was to identify if participation in various occupations was associated with better self-reported health and/or adjustment outcomes. One hundred and ninety-eight former Australian Defence Force members discharged on or after January 1, 2004 responded to a cross-sectional survey measuring adjustment, physical and mental health, and participation in occupations. Occupations were coded using the Time Use Classification system developed by the Australian Bureau of Statistics. An easier adjustment was reported by former service members who participated in employment-related activities, domestic activities, voluntary work and care activities, and social and community interaction ($MD = -0.63$ to -0.45 , $d = .37$ to $.52$). Participation in employment-related activities, social and community interaction, and sport and outdoor activity was associated with better physical health ($MD = 3.20$ to 3.73 , $d = .34$ to $.40$). Participation in employment-related activities was also associated with better mental health ($MD = -3.75$, $d = .54$). This research indicates that participation in occupation is a factor that may be utilized with former service members to positively influence health and adjustment during military transitions. Given differences in participation and outcomes among different sub-groups, it is recommended that occupation-based programs be tailored to individual preferences and transition needs.

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What is the public significance of this article?—One hundred and ninety-eight former members of the Australian Defence Force completed an online survey asking about their health, adjustment to civilian life, and participation in meaningful activities. Various activities, including employment, domestic activities, voluntary work, sport and outdoor activities, and social and community interaction, were linked to better adjustment and physical and mental health outcomes. This research indicates that participation in meaningful activities may be utilized to positively influence health and adjustment following completion of military service. Given differences in participation and outcomes for different sub-groups, it is recommended that activity programs be tailored to individual preferences and transition needs.


Introduction

Adjustment is a complex social and psychological process that occurs in response to significant, life-changing events (Anderson, Goodman, & Schlossberg, 2011). The process

of adjusting to civilian life following completion of military service can be particularly challenging, with international research indicating that at least one in four former service members experience a difficult or very difficult adjustment (Elnitsky, Fisher, & Blevins, 2017; MacLean et al., 2014; Sayer et al., 2010). During the transition from military service, individuals often need to work through service-related psychological trauma and “extensive and multiple losses” relating to military culture and community, identity, and sense of purpose and meaning in life (Romaniuk & Kidd, 2018, p. 60). The presence of service-related conditions, including depression, anxiety, traumatic brain injury, chronic pain, substance misuse, and posttraumatic stress disorder can further impede adjustment during the transition process (Elnitsky et al., 2017; Stevelink et al., 2015; Van Hooff et al., 2018).

Existing research focuses almost exclusively on exploring the prevalence of service-related conditions and effectiveness of interventions underpinned by medical and/or biopsychosocial practice models. Commonly utilized interventions, including medication and

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trauma-focused psychotherapy for depression and post-traumatic stress disorder, appear to be moderately effective in reducing symptoms for one third to one half of individuals (Lee et al., 2016; Steenkamp, Litz, Hoge, & Marmar, 2015). However, interventions for trauma-related disorders may be ineffective if they fail to account for the impact of moral stressors, or inner moral conflict, on short- and long-term health and well-being (Grimell & Nilsson, 2020). Indeed, former service members have shown benefit from corrective life experience, and support to re-appraise the meaning of morally ambiguous events, such as violation of rules by self or others (Litz et al., 2009). In essence, clinically significant reductions in illness symptomology do not necessarily translate to enhanced social outcomes or enhanced quality of life (Lee et al., 2016; Ramchand, Rudavsky, Grant, Tanielian, & Jaycox, 2015; Steenkamp et al., 2015). New approaches that address complex sources of ill health and adjustment difficulties are therefore required to improve outcomes with transitioning service members.

Occupations are “the everyday activities that people do as individuals, in families and with communities to occupy time and bring meaning and purpose to life” (World Federation of Occupational Therapists, 2016). There is immense potential to enhance health, adjustment, and recovery from psychological trauma during the transition from military service through participation in everyday occupations (Carra, Hyett, Kenny, & Curtin, 2018). Indeed, participation in meaningful occupations may have restorative or therapeutic value, which is realized through interaction between individuals and their surrounding physical and social environment (Wilcock & Hocking, 2015). Participation in personally and socially meaningful occupations can enhance mental health and well-being by facilitating access to social resources and support (Kelly, Lamont, & Brunero, 2010; Leufstadius, Erlandsson, Björkman, & Eklund, 2008). Participation in personally and socially meaningful occupations can further enhance mental health and well-being by influencing identity (Asaba & Jackson, 2011) and sense of purpose and meaning in life (Eakman, 2013). The concept of identity may be particularly relevant when considering relationships between health and participation among transitioning service members given the challenges associated with integrating a military identity with a civilian identity after completion of military service (Binks & Cambridge, 2018; Romaniuk & Kidd, 2018; Zamorski & Britt, 2011).

Various authors advocate for the importance of participation in meaningful and purposeful occupations during the transition to civilian life, both as

a facilitator and indicator of positive transition outcomes (Elnitsky et al., 2017; Pease, Billera, & Gerard, 2016; Resnik et al., 2012; Sherman, Larsen, & Borden, 2015). Occupations that have been reported to be beneficial for health and adjustment after completion of military service include paid (Thompson et al., 2013) and voluntary work (Nesbit & Reingold, 2011), social activities (Gorman, Scoglio, Smolinsky, Russo, & Drebing, 2018), physical exercise (Caddick & Smith, 2014), and art (Ramirez, Erlyana, & Guillaum, 2016). However, occupations that are important for health and adjustment from the perspectives of former service members have not yet been identified.

Knowledge about the types of occupations former service members are participating in to improve their health and adjustment during the transition from military service is needed to assist transition planning. This knowledge is also needed to support the development of effective and engaging occupation-based interventions with this population. Occupation-based interventions may target a range of health and adjustment issues, and involve, for instance, educating, coaching, and supporting former service members to identify and participate in personally meaningful occupations within their local communities. Occupation-based interventions may include the planning and delivery of structured therapy programs that utilize participation in meaningful occupations as the primary therapeutic modality.

Although people have a fundamental need to participate in meaningful occupations (Polatajko et al., 2013), occupation-based interventions must consider the unique values, interests, skills, and experiences of the individual and/or group involved (Hyett, Kenny, & Dickson-Swift, 2018). Skillful design and implementation of occupation-based interventions with populations who have experienced collective trauma is particularly important as these interventions must be tailored to the population’s trauma recovery needs (Carra et al., 2018). The aim of this study was to identify what occupations former Australian Defence Force members participate in during their transition for the purpose of improving their health and well-being. A secondary aim of the research was to identify if participation in various occupations was associated with better self-reported health and/or adjustment outcomes.

Methods

Participants

One transgender (0.5%), 33 female (16.7%), and 164 male (82.8%) former Australian Defence Force members participated in the research ($n = 198$). Most of the

Table 1. Characteristics of the participants (N = 198).

Characteristic	Frequency (n)	Percent
Age (years)		
20–29	7	3.5%
30–39	40	20.2%
40–49	40	20.2%
50–59	50	25.3%
>60	61	30.8%
Gender		
Male	164	82.8%
Female	33	16.7%
Transgender	1	0.5%
Relationship status		
Married/Interdependent relationship	156	78.8%
Divorced/Separated	19	9.6%
Widowed	1	0.5%
Single	22	11.1%
Geographic location		
Capital city/other metropolitan center (urban center population larger than 100,000)	119	60.1%
Regional area (urban center population 10,000–99,999)	56	28.3%
Rural area (urban center population less than 10,000)	23	11.6%
Branch of service		
Army	124	62.6%
Navy	36	18.2%
Air Force	31	15.7%
Army + Navy or Air Force	7	3.5%
Final rank		
Other Ranks/Junior Noncommissioned Officer	78	39.4%
Senior Noncommissioned Officer/Warrant Officer	54	27.3%
Junior Officer	28	14.1%
Senior Officer	38	19.2%
Length of service (years)		
<2	4	2%
2–10	62	31.3%
10–19	49	24.7%
20+	83	41.9%
Deployment type(s)		
Not deployed	40	20.2%
Operational service	68	34.3%
Peacetime service	22	11.1%
Operational + other	65	32.8%
Peacetime + humanitarian service	2	1%
No response	1	0.5%
Discharge type		
Voluntary	120	60.6%
Involuntary	13	6.6%
Medical	52	26.3%
End of a Continuous Full-time Service Contract	13	6.6%
Years post discharge		
0–1	26	13.1%
2–4	36	18.2%
4–6	15	7.6%
6–8	18	9.1%
8–10	15	7.6%
>10	88	44.4%

participants were deployed on combat, peacekeeping, and/or humanitarian service and completed 10 or more years of service with the Australian Army (Table 1). Mean Patient-Reported Outcomes Measurement Information System (PROMIS) Global Physical Health and Clinical Outcomes in Routine Evaluation (CORE-10) scores for the group were 43.06 ($n = 187$, $SD = 9.31$, range = 22.1–62.5) and 16.76 ($n = 184$, $SD = 6.97$, range = 2–36) respectively. Forty-seven participants

(23.3%) reported experiencing an easy or very easy adjustment, 54 (26.7%) reported neither a difficult nor easy adjustment, and 96 (57.5%) reported a difficult or very difficult adjustment.

Procedure

A cross-sectional survey design was implemented between April 2019 and August 2019 to obtain information about participants' demographic and service history, health, adjustment to civilian life, and perceptions regarding participation in occupations that promoted positive health and well-being. Participants were eligible to participate in the research if they had completed service with any branch of the Australian Defence Force as a permanent member or member of the reserves on a full-time continuous service contract and were discharged from service on or after January 1, 2004.

Participants were recruited through advertising material placed on social media and websites by the researchers and ex-service organizations from throughout Australia. Consent to participate in the study was implied through submission of an anonymous questionnaire. Participants were able to access the participant information statement and online questionnaire via a link to Qualtrics Survey Software. Ethical approval for the study was obtained from the La Trobe University Human Research Ethics Committee [HEC19072].

Data collection

The online questionnaire included 10 items relating to demographic characteristics and service history, and validated tools to assess health and adjustment to civilian life. The final section of the questionnaire asked participants to identify up to five occupations they were participating in to improve their health and well-being during their transition. The prompt used in this section of the questionnaire was, "Please describe up to 5 work, leisure, or self-care activities that you are currently completing that have a positive effect on your physical and/or emotional health and well-being." An open-ended qualitative format was selected for this component of the research as time use surveys that utilize pre-defined categories can prevent individualized responses and collection of data about occupations that may be perceived as less socially acceptable (Hunt & McKay, 2015).

Measures

Adjustment

Adjustment to civilian life was assessed by a single item ("In general, how has the adjustment to civilian life been

since you completed full-time service with the Australian Defence Force?”). This item is rated from 1 to 5, with 1 representing a very easy adjustment and 5 representing a very difficult adjustment. Although the reliability and validity of this item is yet to be established, a version of this item was included in a large-scale Canadian study, with results from this item being correlated with related constructs including life stress (Adjusted Odds Ratio [AOR] = 0.13), and self-reported physical (AOR = 0.53) and mental health and well-being (AOR = 0.23) (Hachey, Sudom, Sweet, MacLean, & VanTil, 2016).

Physical health

The PROMIS Global Physical Health scale (Version 1.2) is a self-report questionnaire that measures physical health, physical function, pain, and fatigue. Physical health, physical function, and fatigue items were scored using a 5-category response scale, and pain was scored using a 10-category response scale. Raw scores for each of the participants were converted to standardized T-scores ($M = 50$, $SD = 10$) using the online HealthMeasures scoring service (<https://www.healthmeasures.net>). PROMIS Global Physical Health scores are interpreted using the following categories: Excellent (> 58), Very Good (50–58), Good (42–50), Fair (35–42), and Poor (< 35) with good internal consistency (reliability coefficient = 0.81) and concurrent validity with other measures of physical health, including the EuroQual five dimensional (EQ-5D) questionnaire ($r = 0.76$) (Hays, Bjorner, Revicki, Spritzer, & Cella, 2009).

Mental health

The CORE-10 is a 10 item non-diagnostic self-report questionnaire that was used as a measure of current psychological distress. In this questionnaire, respondents are asked to rate how often in the last week they have experienced each item, with examples including “I have felt despairing or hopeless,” “I have felt panic or terror,” and “I have had difficulty getting asleep or staying asleep.” Scoring of the CORE-10 is completed by summing at least 9 of the items, dividing this number by the number of questions completed, and then multiplying by 10 to obtain a clinical score. Scores of 10 or below are considered to be in the non-clinical range; scores of 11–14 indicate mild distress, 15–19 moderate distress, 20–24 moderate-to-severe distress, and 25–40 severe distress (Connell & Barkham, 2007). The CORE-10 has excellent internal consistency (reliability coefficient = .90), as well as concurrent validity with other well-known measures of depression and psychological distress, including the Beck Depression Inventory-II

($r = .76$) and Brief Symptom Inventory (BSI) ($r = .75$) (Barkham et al., 2013).

Data analysis

Demographic and service characteristics, such as age, gender, and geographic location, were described using frequency analyses (Table 1). Descriptive statistics were conducted for PROMIS Global Physical Health, CORE-10, and adjustment scores and reported as mean, standard deviation (SD), and range.

Occupations described by the participants were coded using the numerical Time Use Classification system developed by the Australian Bureau of Statistics (2006). For instance, “running,” “cycling,” and “exercising” were coded “913” (Exercise (excluding walking)). Frequency of participation in at least one type of occupation within each category listed in the Time Use Classification system was calculated. As most of the participants (89.08%) described participating in recreation and leisure activities, frequency of participation was also calculated for subcategories including sport and outdoor activity, games/hobbies/arts/crafts, reading, audio-visual media, and other free time to provide additional detail about the participants’ usual occupations (Table 2).

Independent samples t-tests were conducted to compare health and adjustment scores for participants who reported participating in at least one type of occupation within each category to participants who did not report participating. Results are included for categories in which at least 20% of the participants described participating in at least one type of occupation listed by the Australian Bureau of Statistics (2006). Statistical significance was accepted at an alpha value of $< .05$. Cohen’s d was calculated to indicate the size of any effect, with the magnitude of effect determined as small ($d < 0.2$), medium ($d = 0.2$ – 0.8), and large ($d > 0.8$).

Frequency analyses were performed to determine demographic and service characteristics of participants who identified completing each of the occupations that were significantly associated with better health or adjustment outcomes. Participation has been calculated and reported as a proportion of the participating sample and as a proportion of each demographic/service category. Additional independent samples t-tests were conducted to compare health and adjustment scores for participants in each of the different service and demographic categories.

Data were analyzed using SPSS Software (Version 24) for Windows. Missing data from incomplete survey responses were excluded from analyses on a case-by-case basis to maximize the number of participants (n)

Table 2. Mean health status and ease of adjustment for groups who reported participating, or did not report participating, in various occupations.

Category	Adjustment			Physical health			Mental health		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Personal care activities									
Participation	31	3.68	1.14	31	41.74	9.52	31	18.97	6.69
Nonparticipation	166	3.33	1.22	156	43.33	9.27	153	16.31	6.97
Employment-related activities									
Participation	54	3.00	1.13	54	45.72	9.08	54	14.11	5.50
Nonparticipation	143	3.52	1.215	133	41.98	9.21	130	17.86	7.24
Education activities									
Participation	4	3.75	1.50	4	48.98	11.36	4	19.50	9.33
Nonparticipation	193	3.37	1.21	183	42.93	9.25	180	16.70	6.94
Domestic activities									
Participation	73	3.10	1.31	73	44.67	8.45	73	15.56	6.72
Nonparticipation	124	3.55	1.12	114	42.04	9.72	111	17.55	7.05
Child care activities									
Participation	12	4.00	1.04	12	38.65	8.26	12	20.67	7.19
Nonparticipation	185	3.34	1.21	175	43.37	9.32	172	16.79	6.90
Purchasing goods and services									
Participation	3	4.33	1.16	3	41.97	7.25	3	17.67	11.72
Nonparticipation	194	3.37	1.21	184	43.08	9.35	181	16.75	6.92
Voluntary work and care activities									
Participation	38	2.87	1.23	38	43.56	8.03	38	15.45	7.05
Nonparticipation	159	3.50	1.18	149	42.94	9.63	146	17.10	6.94
Social and community interaction									
Participation	53	2.96	1.18	53	45.57	9.55	53	15.40	6.43
Nonparticipation	144	3.53	1.19	134	42.07	9.05	131	17.31	7.13
Recreation and leisure									
Participation	155	3.35	1.26	155	43.37	9.38	155	16.57	7.00
Nonparticipation	42	3.48	1.04	32	41.57	8.92	29	17.79	6.84
Sport and outdoor activity									
Participation	108	3.32	1.25	108	44.41	9.32	108	16.31	6.94
Nonparticipation	89	3.45	1.17	79	41.22	9.03	76	17.41	7.01
Games/hobbies/arts/crafts									
Participation	55	3.31	1.27	55	43.85	7.68	55	16.07	6.84
Nonparticipation	142	3.41	1.19	132	42.73	9.91	129	17.05	7.03
Reading									
Participation	31	3.61	1.26	31	41.38	10.29	31	18.19	7.34
Nonparticipation	166	3.34	1.20	156	43.40	9.10	153	16.47	6.88
Audiovisual media									
Participation	80	3.35	1.21	80	43.29	9.28	80	17.00	6.76
Nonparticipation	117	3.40	1.22	107	42.90	9.37	104	16.58	7.17
Other free time									
Participation	21	3.29	1.27	21	44.97	10.71	21	15.76	6.75
Nonparticipation	176	3.39	1.21	166	42.82	9.12	163	16.89	7.01

included in each of the analyses. Data are presented as mean difference (*MD*) and 95% confidence interval (95% *CI*).

Results

One hundred and seventy-four of the participants identified at least one occupation that they were participating in to improve their health and well-being during their transition. Occupations identified by the participants included: (1) personal care activities (17.82%), (2)

employment-related activities (31.21%), (3) education activities (2.30%), (4) domestic activities (42.20%), (5) childcare activities (6.90%), (6) purchasing goods and services (1.73%), (7) voluntary work and care activities (21.84%), (8) social and community interaction (30.64%), and (9) recreation and leisure (89.60%). Recreation and leisure activities were coded to sub-categories: (1) sport and outdoor activity (62.07%), (2) games/hobbies/arts/crafts (31.61%), (3) reading (17.82%), (4) audiovisual media (46.24%), and (5) other free time (12.07%) (Table 2).

Most of the participants reported participating in recreation and leisure activities to improve their health and well-being. Commonly, occupations within the subcategory of sport and outdoor activity included sport- and exercise-based activities, such as walking, cycling, swimming, and attending gym, and outdoor activities, such as hiking, hunting, sight-seeing, and fishing. Occupations categorized as games/hobbies/arts/crafts included art-based occupations such as writing, painting, and drawing; shed-based hobbies, such as building scale models and restoring cars; video/online gaming; and traditional games such as chess and cards. Many of the participants also described reading (particularly military fiction or military history books) and use of audiovisual media, which included watching or listening to music, radio, or television, and using the internet. Occupations such as relaxing, resting, thinking, and interacting with pets were categorized as “other free time.”

Categories of work-related occupations included employment-related activities, education activities, domestic activities, childcare activities, and voluntary work and care activities. Participants reporting occupations within the employment category described participating in full- or part-time roles, with many continuing with Defence as a reservist or in civilian roles, or working in related professions, such as aviation. Domestic activities named by the participants included gardening; cooking; cleaning; pet and animal care; maintaining cars, boats, caravans, or bikes; and home maintenance and repairs. Childcare activities included physical care of children; provision of transportation; playing, reading or talking with a child; and visiting a childcare establishment or school. Within the voluntary work and care occupations category, participants described caring for family members, helping others in the community, or volunteering with local emergency services and/or ex-service organizations. Social and community interaction activities identified by participants included attendance at organized social events, visiting entertainment and cultural venues, and spending time with family and friends. Personal care activities included eating and drinking (at home, or at another location), sleeping, resting due to illness, attending appointments, and completing health practices such as meditating or reading self-help books.

Mean adjustment, physical health, and mental health scores for participants who did, and did not, report engaging in at least one occupation type within each category are available in [Table 2](#). An easier adjustment was reported by former service members who participated in, compared to those who did not participate in, employment-related activities ($MD = -0.52$; 95%

CI = -0.900 to -0.149 , $d = 0.43$), domestic activities (-0.45 ; -0.80 to -0.104 , $d = 0.37$), voluntary work and care activities (-0.63 ; -1.06 to -0.21 , $d = 0.52$), and social and community interaction (-0.57 ; -0.95 to -0.20 to, $d = 0.47$). Better physical health (as measured by the PROMIS Global Physical Health Scale) was reported by former service members who participated in, compared to those who did not participate in, employment-related activities (3.73 ; 0.81 to 6.66 , $d = 0.40$), social and community interaction (3.50 ; 0.56 to 6.45 , $d = 0.38$), and sport and outdoor activity (3.20 ; 0.51 to 5.88 , $d = .34$). Better mental health (as measured by the CORE-10) was reported by former service members who participated in, compared to those who did not participate in, employment-related activities (-3.75 ; -5.91 to -1.58 , $d = 0.54$). Mean differences in adjustment, physical health and mental health as well as effect sizes for participants who participated in each category of occupation compared to those who did not participate are available in Supplementary Table 1.

The youngest (20–29 years) and oldest (> 60 years) age categories appeared to have the lowest employment participation rates. The highest employment participation rates were amongst those with a voluntary discharge or completing a full-time service contract, and participants who were discharged 2–4 years previously. Participation in employment-related activities was associated with better adjustment for older participants (40+ years), rank of Junior Officer or lower, deployment on operational service, and 0–1 year post discharge. Participation in employment-related activities was associated with better physical health for participants aged 30–39 years, males, deployment on operational service, rank lower than Junior Officer, and 0–8 years post discharge. Participation in employment-related activities was associated with better mental health for participants aged 30–49 years, males, deployment on operational service, voluntary discharge, rank of Junior Officer or lower, and 0–1 year post discharge (Supplementary Table 2).

Participants who were aged >60 years, reported an involuntary discharge, or were discharged more than 4 years previously had the highest participation rates in domestic activities.

Participation in domestic activities was associated with better adjustment for males, deployment on operational or peacetime service, and voluntary discharge. Participation in domestic activities was associated with better physical health for participants aged 50–59 years, males, rank of Junior Officer or lower, and > 10 years post discharge (Supplementary Table 3). Higher rates of participation in voluntary work and care activities were reported among participants who were aged > 60 years, had a final rank of Senior Officer, and had completed

peacetime service. The lowest participation rates were among those with a medical discharge. Participation in domestic activities was associated with better adjustment for participants aged 40–49 years, males, rank of Other of Junior Noncommissioned Officer, deployment on operational and one other type of service, voluntary discharge, and time since discharge of 8–10 years. Participation in domestic activities was associated with better physical health for voluntary discharge, and final rank of Junior Officer. Participation in domestic activities was associated with better mental health for time since discharge > 10 years (Supplementary Table 4).

Participants who were aged > 60 years reported higher rates of participation in social and community interaction. Lower participation rates were reported among participants who were deployed on operational service, discharged 2–4 years previously, and reported a medical or involuntary discharge. Participation in social and community interaction was associated with better adjustment for participants aged > 60 years, final rank of Senior Officer, voluntary discharge, and 2–4 years post discharge. Participation in social and community interaction was associated with better physical health for participants aged > 60 years, males, and voluntary discharge. Participation in social and community interaction was associated with better mental health for participants aged > 60 years, and final rank of Senior Officer (Supplementary Table 5).

Rates of participation in sport and outdoor activities were approximately one in two across all demographic and service categories, however for participants who completed peacetime service or were discharged < 1 year previously the rate was two in three. Participation in sport and outdoor activities was associated with better adjustment for participants who completed operational and at least one other type of service. Participation in sport and outdoor activities was associated with better physical health for males, completion of operational and at least one other type of service, voluntary discharge, and 0–1 year post discharge (Supplementary Table 6).

Discussion

The primary aim of this research was to identify occupations that former members of the Australian Defence Force participate in during the transition from military service for the purpose of improving their health and wellbeing. A secondary aim was to identify any association of these occupations on self-reported health and adjustment outcomes. Occupations commonly reported by the participants included leisure and recreation, employment-related activities, domestic activities, and

social and community interaction. Participation in employment-related activities was associated with an easier adjustment and better physical and mental health outcomes. Social and community interaction was associated with an easier adjustment and better physical health. Domestic activities and voluntary work and care activities were also associated with an easier adjustment, and participation in sport and outdoor activity was associated with better physical health.

A wide range of personally and socially meaningful occupations have the potential to influence health, adjustment, and well-being during transitions such as the transition from military service to civilian life (Wilcock & Hocking, 2015). Participants in this study most frequently reported participating in leisure- or recreation-based occupations to improve their health and well-being during the transition period. Leisure and recreation-based occupations are usually completed voluntarily during free or uncommitted time and reflect individual's preferences, interests, lifestyle, and skills (Squire, Ramsey, & Dunford, 2017). Individuals are often motivated to participate in leisure- and recreation-based occupations as these occupations involve personal choice and in contrast to work-related occupations, the focus is on the experience of participating (for example, painting in an art class) rather than the outcome (the artwork) (Squire et al., 2017). While data were not collected regarding the participants' perceived personal and social identity, it is likely that participants' chosen occupations reflected both social and environmental opportunities for participation and their current sense of identity while transitioning from a military to civilian identity (Binks & Cambridge, 2018; Wilcock & Hocking, 2015).

Former service members' participation in leisure- and recreation-based occupations has been extensively investigated; however, most of the research in this area focuses on participation in structured leisure and recreation-based rehabilitation programs (Bennett, Piatt, & Van Puymbroeck, 2017; Caddick & Smith, 2014; Davis-Berman, Berman, & Berman, 2018; Smith, 2016). The present study is unique in that many of the participants identified leisure- and recreation-based occupations that were most likely performed outside of structured rehabilitation programs, such as fishing, reading, cycling, listening to music, spending time in nature, walking, surfing the internet, relaxing, drawing, and making art.

Productive or work-related occupations were described by many of the participants. Productive occupations are completed for the purpose of creating, generating, or providing services or commodities and extend beyond paid employment to include other necessary or chosen occupations such as parenting and

completion of voluntary work (Taylor & Kielhofner, 2017). There is considerable focus on supporting former service members' participation in education or employment as a key component of transition (Barry, Whiteman, & MacDermid Wadsworth, 2014; Robertson, Miles, & Mallen, 2014). However, 42.20% of the participants in this study indicated they were participating in domestic activities such as cooking, gardening, and maintaining their homes to improve their health and well-being as compared to 31.21% who reported participating in employment- or education-related activities. A smaller although substantial number of participants also indicated they were participating in voluntary work and care activities (21.84%), childcare activities (6.90%), and purchasing of goods and services (1.73%). These results suggest that activities other than education and paid employment might present a meaningful option for improving individual health and well-being where barriers to education and employment exist, such as the presence of serious mental illness.

Social and community interaction was frequently reported as a means for improving health and well-being during the transition period, with activities ranging from spending time with family and friends to going out for coffee or attending organized social events. This finding is not surprising given well established links between social and community interaction, social support, health, and adjustment during the transition from military service (MacLean et al., 2014; Ramchand et al., 2015; Thompson et al., 2019). Comparatively, fewer participants (17.82%) reported participating in personal care activities such as sleeping, resting due to illness, attending appointments, and completing health practices such as meditating or reading self-help books.

Various occupations including employment, domestic activities, social and community interaction, and voluntary work and care activities were associated with an easier adjustment to civilian life. The finding that employment and social and community interaction positively influenced adjustment is consistent with other research exploring personal and social factors that are associated with military transitions (Hachey et al., 2016; MacLean et al., 2014; Sayer et al., 2011). However, it is worth noting that only around one-third of the participants reported involvement in employment-related activities, possibly reflecting the myriad difficulties experienced by former service members in finding meaningful employment, particularly in the context of physical and/or mental illness (Robertson et al., 2014; Stern, 2017).

Previous research has indicated that participation in voluntary work and care activities can positively influence adjustment among transitioning service members,

with participation being linked to social norms, practical/leadership skills, and a sense of nostalgia for time spent in service (Mobbs & Bonanno, 2018; Nesbit & Reingold, 2011). Reported benefits of voluntary work and care activities include: (1) social connectedness, (2) construction of a civilian identity that reflects a coherent life narrative and integration of service experiences into former service members' views of themselves and the surrounding world, and (3) increased sense of purpose and meaning in life (Ahern et al., 2015; Kranke, Weiss, Heslin, & Dobalian, 2017; Matthieu, Lawrence, & Robertson-Blackmore, 2017; Mobbs & Bonanno, 2018; Sayer, Carlson, & Frazier, 2014).

The finding that participation in domestic activities was associated with post-military adjustment may be explained by the importance of daily structure and routine after completion of military service (Zamorski & Britt, 2011) and a need to establish a home base that provides refuge and a sense of emotional security following exposure to military-related traumatic events (Atherton, 2009). However, further research is required to explore relationships between participation in domestic activities and adjustment to civilian life and understand any specific benefits to health and adjustment during transition.

Employment, social and community interaction, and sport and outdoor activity were associated with better physical health with approximately equivalent effect sizes (0.40, 0.38, and 0.34, respectively). The findings are consistent with other studies exploring the influence of sport and outdoor activity, employment, and social and community interaction on physical health and well-being among former service members with and without physical health conditions. For example, in a survey of 3151 former members of the Canadian Forces, employment and increased social support were significantly related to better physical health outcomes (Thompson et al., 2013).

An extensive body of research supports the benefits of physical activity, sport, and outdoor occupations such as kayaking, mountain climbing, and fishing for physical health and well-being (Bennett et al., 2017; Burke & Utley, 2013; Caddick & Smith, 2014; Scherer, Gade, & Yancosek, 2013). However, as Kelsall et al. (2018) suggest, relationships between employment, social and community interaction, and physical health found in this study may be partly explained by the individual's discharge status. Individuals who received a medical discharge were potentially less able to participate in physical occupations for health reasons.

Participation in employment-related activities was associated with better mental health where participation in other occupations, such as leisure and recreation, was

not. Employment has previously been shown to be related to better mental health during the transition from military service (Adler et al., 2011; Thompson et al., 2013; Zivin et al., 2012). Of interest in relation to this finding is the number of participants who described ongoing employment with Defence as a reservist, or employment in military-related roles (such as aviation). This finding supports previous research which found that ongoing employment with the Australian Defence Force as an active or inactive reservist was associated with improved mental well-being and reduced suicidal ideation during transition (Van Hooff et al., 2018).

In contrast to research that supports the benefit of sport and outdoor activities for mental health and well-being among former service members, sport and outdoor activities were not found to be associated with mental health outcomes in the present study. Following a review of 11 studies, Caddick and Smith (2014) concluded that sport and physical exercise can enhance mental well-being among former service members by reducing symptoms of depression, anxiety, and posttraumatic stress disorder; increasing exposure to nature; and enhancing identity, affect, self-efficacy, motivation, and quality of life. Further research is therefore required to identify and understand the benefits of sport and outdoor occupations from the perspectives of transitioning service members. The role of social and community interaction in shaping mental health outcomes also requires further exploration, with social support and sense of community belonging being associated with better mental health and adjustment after completion of military service in several studies (Elnitsky et al., 2017; Gorman et al., 2018; MacLean et al., 2014; Thompson et al., 2013; Vogt et al., 2011).

Analyses performed to identify the characteristics of participants who engaged in occupations that were related to better health or adjustment outcomes indicate that programs may need to be tailored to individual's preferences and needs during the transition process. Factors such as age, gender, deployment status, final rank, discharge type, and time since discharge might have a small influence on participation outcomes. The effectiveness of occupation-based programs may therefore be enhanced through programming based on a comprehensive assessment of individual and community needs. For example, former service members who have voluntarily discharged less than 12 months prior to attending a program appear to benefit from sport and outdoor activities and could be prioritized within these types of programs. There might also be an argument to provide further support to maintain participation in sport and outdoor activities 12 months after discharge

given an apparent reduction in the rate of participation after this period.

Similarly, employment programs could prioritize former service members aged 30–39 years who have been deployed on operational service given the positive physical and mental health benefits indicated in the present research. Several frameworks, including the Community-Centered Practice Framework, exist to guide the design and implementation of effective occupation-based programs and these could be used to ensure programs best utilize local resources and address barriers to participation (Hyett et al., 2018). Given the complexities associated with transitioning from military service and likelihood of physical injuries and/or collective trauma within former service member groups, the use of a structured framework may be critical to meeting the health and trauma-recovery needs of this population (Carra et al., 2018).

The strengths of this study include the range of outcomes considered (physical health, mental health, and adjustment to civilian life), and the use of open-ended questions to identify occupations that are important for health and adjustment from the perspectives of transitioning service members. The research contributes new knowledge about relationships between participation in various occupations, health, and adjustment during the transition period, which may be used during transition planning to assist with early identification and referral of individuals who are likely to benefit from vocational or other rehabilitation services. Effective and timely intervention with sub-populations who are at higher risk of adverse outcomes, including homelessness, unemployment, suicide, and physical and mental health disorders, should be a high priority for services that enhance participation in meaningful occupations. However, due to the relatively small sample size, use of self-report information for health, adjustment, and participation, and cross-sectional nature of the study, causality cannot be determined. In particular, the small sample of female participants in this research might interfere with female gender being identified as a factor contributing to improved transition. Therefore, longitudinal research exploring outcomes with larger samples of female participants is required given no significant results were found for this sub-group of participants.

Further, it is possible that individuals with a positive self-schema over-reported their participation in occupations where individuals with a negative (depressive) self-schema under-reported their participation (Kreuter & Moltner, 2014). Other social and psychological factors such as socioeconomic status, coping style, level of motivation, and locus of control, may also be important

moderating factors and should be considered in future research. Relationships between identity, health, and participation in meaningful occupations also warrant investigation given strong links between these concepts established in previous research (Brewin, Garnett, & Andrews, 2011; Haynie & Shepherd, 2011; Kranke et al., 2017). Designs that incorporate multiple types and sources of data (such as data from former service members and their spouses) may be useful in yielding rich information about former service members' experiences of participating in various occupations, and the factors that influence related health and adjustment outcomes.

In conclusion, participants in this study identified a range of occupations they were completing to improve their health and adjustment during the transition from military service. Employment related activities were found to influence adjustment, physical health, and mental health, highlighting the importance of employment for this population. Sport and outdoor occupations are also likely to be important, with positive relationships being found between sport and outdoor occupations, adjustment, and physical health. The finding that participation in social and community interaction, voluntary work and care activities, and domestic activities on health or adjustment outcomes is less supported by research and warrants further investigation. Given prevailing issues with current treatment approaches with this population, there is immense potential to expand and develop the use of occupation-based transition support programs through this type of research. Given potential differences in participation and outcomes according to demographic and service characteristics, it is likely that occupation-based programs need to be tailored to the individual needs of former service members during the transition process.

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Data availability statement

The authors confirm that the data supporting the findings of this study are available within the article and its supplementary materials.

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