

The Centre for Military and Veterans' Health

Volume II

The Middle East Area of Operations (MEAO)

Health Study:

**Census Study Supplementary Tables
and Analytical Methods**

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**THE UNIVERSITY
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- This document contains additional tables and detailed methodological information, to supplement the data presented in the main report (Volume I).
- The relevant chapter of the main report, Volume I, is noted in brackets after each section heading in this volume.
- Table numbers are sequential across Volumes I and II, for example, Tables 4.1 to 4.20 appear in Chapter 4 of Volume I, while the tables in this volume which relate to Chapter 4 are numbered 4.21 to 4.46.

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Methods and measures (Chapter 2)

MEAO Census Study measures: description, source and scoring

An overview of the survey sections and scales and their provenance is presented here. A copy of the actual questionnaire is available in Volume III.

Part I: Brief Deployment History

Section / Scale Question No.	Description	Source	Scoring [Relevant Chapters]
MEAO Q. 1.1 - 1.4	For each deployment to Afghanistan and Iraq: <ul style="list-style-type: none"> - Operation - Year deployment started - No. times deployed in that year - Total time deployed (months); Three additional questions asked about pressure to deploy and whether deployed with parent unit.	Developed from previous DHSP studies and MEAO Preliminary Study; Australian Gulf War Veterans Health Study (AGWVHS) ¹ .	Number of deployments, total time deployed, and frequency of deployment can be calculated. The last 3 items on deployment circumstances were analysed individually. [Ch. 5]
Near North Area of Influence (NNAI) Q. 1.5	For each deployment to Solomon Islands, Bougainville, and East Timor: <ul style="list-style-type: none"> - Operation - Year deployment started - No. times deployed in that year - Total time deployed (months). 	Developed from previous Deployment Health Surveillance Program (DHSP) studies and MEAO Preliminary Study.	Number of deployments, total time deployed, and frequency of deployment, were calculated.
Other ADF deployments Q. 1.6	For each deployment by country: <ul style="list-style-type: none"> - Operation - Year deployment started - No. times deployed in that year - Total time deployed (months). 	“	“
Other work in the MEAO Q. 1.7	Other work in the Middle East in a role outside the ADF, for each country: <ul style="list-style-type: none"> - Company name - Year started - No. times worked in that location in that year - Total time worked in location (months). 	“	“

* Questions denoted “TBA” have not been used in the final report, but may be used in future analyses.

Part II: Health Questionnaire

Section / Scale Question No.	Description	Source	Scoring [Relevant Chapters]
<u>Section 1: Background details</u>			
Personal characteristics Q. 1.1 - 1.3	<ul style="list-style-type: none"> - Date questionnaire completed - Gender - Date of birth. 	Developed from previous DHSP studies and MEAO Preliminary Study.	PMKeyS data was used for analysis as it was available for the entire sample. [Ch. 3]
Relationship characteristics Q. 1.4 - 1.8	<ul style="list-style-type: none"> - Relationship status, current and one year ago. - Satisfaction with current relationship - Impact of military commitments on relationship and children. 	Developed from previous DHSP studies and MEAO Preliminary Study. Analysis categories are consistent with other Gulf War studies ^{2,3}	Relationship categories used: <ul style="list-style-type: none"> - Married / living with partner / long term relationship - Previously married, now divorced/ separated - Never married [Ch. 7]
Career characteristics Q. 1.9 - 1.13	<ul style="list-style-type: none"> - Educational qualifications - Hours per week in paid employment - ADF service: length, type, rank, current/ discharged - Total months spent on operational deployment in past 3 years. 	Developed from previous DHSP studies and MEAO Preliminary Study. Analysis categories are consistent with other Gulf War studies ³	Educational level categories used: <ul style="list-style-type: none"> - Up to Year 10 - Year 11/ 12 - Tertiary degree [Ch. 7 – as adjustment in analyses]
Ex-serving questions Q. 1.14 - 1.18	<ul style="list-style-type: none"> - Year of discharge - Whether discharged to Reserves - Current employment status and type - Any experience of unemployment and whether this was due to health. 	Developed from previous DHSP studies and MEAO Preliminary Study.	Items were analysed individually. TBA*
<u>Section 2: Recent health symptoms</u>			
Health Symptom Checklist (HSCL) Q. 2.1 - 2.67	Symptoms suffered in the last month, and severity (mild/ moderate/ severe) if suffered. Symptoms can be clustered according to specific disease patterns.	Adapted from AGWVHS ¹ , in turn adapted from KCL Gulf War Study ^{4,5} . Based on the Hopkins Symptom Checklist ⁶ . Categories for analysis were derived from the Rome III Diagnostic Criteria for Functional Gastrointestinal Disorders ^{7,8} and from other Gulf War studies ⁹ .	A simple count of present symptoms indicates the overall burden [Ch. 9]. Symptoms have also been grouped into categories for specific disease profiles: <ul style="list-style-type: none"> - <u>Gastrointestinal</u> (GI), comprising Oesophageal, Gastro duodenal, Nausea/ vomiting, Bowel, Abdominal pain, Miscellaneous. [Ch. 5] - <u>Chronic Multisymptom Illness</u> (CMI) comprising General fatigue, Cognitive abnormalities, Musculoskeletal pain. Depression and Anxiety measures from the PHQ (Q. 5.25 -5.56) were also included in the CMI profile. [Ch. 9] Any category was “present” if one or more symptoms in that category was suffered in the last month. A category was “severe”, if one or more symptoms in that category was reported as severe.

Section / Scale Question No.	Description	Source	Scoring [Relevant Chapters]
Mild Traumatic Brain Injury Screening Instrument (mTBI) Q. 2.68 - 2.71	Lifetime incidence of mTBI events and subsequent symptoms. There are 4 sections: 1. Events in lifetime (Blast, RPG, MVA, fragment/ bullet wound, fall) 2. Symptoms immediately post event (lost consciousness, dazed/ confused, not remembering event, concussion, head injury) 3. Problems commencing/ worsening post event (memory, balance, light sensitivity, irritability, headaches, sleep) 4. Symptoms in last week (as no.3).	Used at selected US military bases to screen for mTBI among returning Middle East service members, based on a tool developed by the US Defense and Veterans Brain Injury Center ¹⁰ . Also used AGWVHS ¹ .	At least one positive answer in each of the first three sections indicates lifetime exposure. A positive response in Section 4 indicates current morbidity. [Ch. 9]
Section 3: Current health			
Short Form 12 (SF-12) Q. 3.1 - 3.7	A generic measure of health status and quality of life. Enables scores to be calculated for general health, physical health, and mental function. The General Health item (GH1) can be used as a stand-alone measure of self-rated health.	A widely-used validated shorter form of the SF-36 from the Medical Outcomes Trust© ¹¹ .	The SF1 was dichotomised for most analyses (Excellent/ Very good/ Good) = "Good health"; (Fair/ Poor) = "Fair/ poor health". [Ch. 3 – 8] Physical Component Summary and Mental Health Component Summary scores were not used in the current analyses.
Self-rated health - 45 and Up Study (SRH) Q. 3.8 - 3.13	Asks participants to rate, in general, their overall health, quality of life, eyesight (with glasses or contact lenses), hearing, memory, and teeth and gums on a 5-point Likert scale (Excellent/ Very Good/ Good/ Fair / Poor).	45 and Up Study (a large Australian study of health and ageing) ¹² .	TBA*
Kessler 10 Plus (K10+) Q. 3.14 - 3.27	Widely used and validated general measure of psychological distress. Scores provide a measure of risk of mental health problems. The scales were designed to be sensitive around the threshold for the clinically significant range of the distribution of non-specific distress in an effort to maximise the ability to discriminate cases of serious mental illness from non-cases. Comparative Australian population data is available.	Developed by Kessler ¹³⁻¹⁵ . Used by Defence in Return to Australia Psychological Screen (RtAPS) and Post Operational Psychological Screen (POPS).	Standard epidemiological cut-offs were used: - Low to moderate risk: 10-29 - High risk: 30-50. [Ch. 3, 4, 6, 7, 9]

Section / Scale Question No.	Description	Source	Scoring [Relevant Chapters]
Coping ability Q. 3.28	A short measure of coping ability using one question with two sub-parts. Rates the extent participants agree with statements on ability to adapt to change and 'bounce back' from illness or hardship (Not at all/ Rarely/ Sometimes/ Often/ Nearly all the time).	Defence LASER study (unpublished)	Each item was analysed individually. [Ch. 7]
Medically Diagnosed Conditions Q. 3.29 – 3.51	A 23-item instrument identifying medical problems or conditions that have reportedly been diagnosed or treated by a doctor. The list was shortened to include only the most common medical conditions identified in AGWVHS and Solomon Islands Health Study.	Based on KCL questionnaire ^{4,5} , adapted for the AGWVHS ¹ .	Relevant conditions were analysed individually, e.g. Migraines as an outcome for combat exposures, Dermatitis for chemical exposures. [Ch. 4, 5]
<u>Section 4: Lifestyle behaviours</u>			
Cigarette smoking and tobacco use Q. 4.1 – 4.8	Participants were asked about smoking in the past year ('current smoking'), ever smoking at least 100 cigarettes ('ever smoking'), age when started smoking, how much is smoked and if they have tried quitting. Changes to level of smoking while on deployment were also recorded.	Developed for the Millennium Cohort Study ¹⁶ , plus two questions from KCL about smoking on deployment ^{4,5} .	Categories used [Ch. 3, 6, 8]: - Current smoker - Ex-smoker / Never smoker Whether respondent smoked on deployment was used as a standalone item. [Ch. 5]
Alcohol Use Disorders Identification Test (AUDIT) Q. 4.9 – 4.20	Quantifies current alcohol use and detects alcohol disorders. The scale was developed for the identification of currently active, hazardous and harmful alcohol consumption.	Used extensively in military research including the AGWVHS ¹ and Defence POPS. Original source ¹⁷ .	Standard epidemiological cut-offs were used: - Low to moderate risk: 0-19 - High risk: 20-40. [Ch. 3, 4, 6 – 9]
<u>Section 5: Life experiences</u>			
PTSD Check List (PCL) Q. 5.1 – 5.21	Post-traumatic stress symptoms. The PCL is a widely used, 17 item self-administered questionnaire for assessing symptoms of PTSD. The PCL-C to be used here is a civilian version of the instrument that can be referenced to any specific traumatic event (hence the C in the acronym). It has excellent test-retest reliability and internal consistency is very high.	Used extensively for population-based research and is also used by Defence. ¹⁸	Standard epidemiological cut-offs were used: - Low to moderate risk: 17-49 - High risk: 50-85. [Ch. 3 - 9]
Dimensions of Anger Reactions (DAR) Q. 5.22	Rates the frequency of feelings of anger (9 items) experienced in the last 4 weeks (None of the time/ A little of the time/ Some of the time/ Most of the time).	Items from the DAR ¹⁹⁻²¹ were also used in the Defence LASER study (unpublished).	TBA*

Section / Scale Question No.	Description	Source	Scoring [Relevant Chapters]
Additional anger items (AG21 subset) Q. 5.23 – 5.24	Frequency of actual/ threats of physical violence over the last month.	The AG21 is used by the US Military (unpublished).	TBA*
Patient Health Questionnaire (PHQ9) Depression module Q. 5.25 – 5.34	Depression is assessed by the Brief PHQ. The module has been validated against clinical diagnosis. Items evaluate the frequency of 9 DSM-IV criteria of major depression in the last two weeks (Not at all/ Several days/ More than half the days/ Nearly every day). If any of these were answered affirmatively, the final item recorded the level of difficulty in daily functioning on a 5 point scale.	Self-report version of the Primary Care Evaluation of Mental Disorders designed for use in primary care ²² . The PHQ manual is available online ²³	<u>Major Depression Syndrome</u> was indicated if the answer to either of the first 2 items (“Little interest / pleasure in doing things”; “Feeling down/ depressed/ hopeless”) was at least “More than half the days” AND if either: - 5 or more of the first 8 items were at least “More than half the days”, OR - 4 of the first 8 items were at least “more than half the days” AND if the final item (Difficulty with work/ home/ social activity) was affirmative. [Ch. 3, 4, 6 – 9]
Patient Health Questionnaire (PHQ) Anxiety Module Q. 5.35 – 5.56	This module has high sensitivity and specificity for detection of anxiety disorders in primary care and medical settings. - Fifteen items relate to <u>Panic syndrome</u> . If a panic attack has occurred in the last 4 weeks (Item 1), the next 3 items determine whether there have been previous attacks; whether attacks were sudden/ unexpected; and whether attacks were worrisome. 11 items then identify specific symptoms during the last bad attack. All items are dichotomous (No/ Yes). - Seven items relate to symptoms of <u>Other anxiety disorders</u> suffered in the last 4 weeks (Not at all/ Several days/ More than half the days).	Symptoms are classified according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) ²⁴ . However, these are classified as ‘syndromes’, rather than disorders, as a biological cause cannot be ruled out by screening alone. The PHQ manual is available online ²³	<u>Panic Syndrome</u> and <u>Other Anxiety Syndrome</u> were classified as follows: - A positive response to Items 2 – 4 AND at least 4 of the remaining 11 items identified <u>Panic syndrome</u> . - The criteria for <u>Other anxiety syndrome</u> was met when the response to Item 1 (“Feeling nervous/ on edge”) plus three or more other items was ‘More than half the days’. [Ch. 3, 4, 6 – 9]
Suicidality Q. 5.57 – 5.60	Four items relating to suicide ideation, planning and attempts in the previous 12 months: - felt life was not worth living - thought about committing suicide - made a suicide plan - attempted suicide.	The last 3 items map to the Composite International Diagnostic Interview (CIDI) ²⁵ and were used in the AIHW 2007 National Survey of Health ²⁶ . The additional item is from a 1974 UK prevalence study ²⁷ .	‘Yes’ to any item indicated suicide ideation, but only the last three items map to available Australian population data were reported. [Ch. 3, 4, 6, 7, 9]

<u>Section 6: Respiratory health</u>			
European Community Respiratory Health Survey (ECRHS) Q. 6.1 - 6.7	Comprises 7 dichotomous items (No/ Yes) for symptoms experienced in the past 12 months, and 2 further items conditional on a positive answer to Item 1. A single question is included on allergy and hay fever.	From the longer European Community Respiratory Health Survey, which is derived from the International Union against Tuberculosis and Lung Disease instrument ^{28, 29} . Asthma screening criteria have been described in other studies ³⁰ .	Each item was analysed individually. In addition, screening for asthma was based on a positive response to any of these items: - Attack of asthma in the last 12 months - Current medication for asthma - Woken by an attack of shortness of breath [Ch. 6]
<u>Section 7: Reproductive history</u>			
Reproductive History Q. 7.1 - 7.4	Participants were asked if they have ever had problems with fertility and if they have ever been pregnant or fathered a pregnancy. Details of each pregnancy include the outcome of the pregnancy, gestation, baby's gender and weight, and the occurrence of birth defects or cancer.	AGWVHS. ¹	The following were calculated for analysis: - Number of live births since the respondent's first MEAO deployment - Number of live births by gestational week - Number of stillbirths/ miscarriages since the respondent's first MEAO deployment. TBA*
<u>Section 8: Recreation and social activities</u>			
Recreation and Social Activities Q. 8.1 - 8.11	Current frequency of recreational and social activities, including veteran-related activities.	Adapted from an unpublished DVA instrument.	TBA*
<u>Section 9: Open ended questions</u>			
Evaluation Questions Q. 9.1 - 9.2	Participants were asked if they had any other important health concerns not addressed in the questionnaire, or if they would like to add any other comments.	N/A	Free text item.

Part III: Deployment to Afghanistan (Sections 8 - 14)

Section / Scale Question No.	Description	Source	Scoring [Relevant Chapters]
<u>Section 1/ 8: Deployment details</u>			
Characteristics of most recent deployment Q. 1.1 - 1.6 Q. 8.1 - 8.6	Geographic location and main duties, duty cycles, hours on duty, rank, service status.	Adapted from KCL Phase2 ^{4, 5} for ADF deployment locations, also used in AGWVHS ¹ .	Individual items were used. [Ch. 3 -7]
<u>Section 2/ 9: Chemical and environmental exposures</u>			
Hazard Checklist Q. 2.1 - 2.60 Q. 9.1 - 9.61	Frequency of exposure to hazards including airborne (e.g. dust, smoke), exhaust emissions/ fumes/ toxic industrial chemicals, noise, vector borne and communicable disease, animals, ionising and non-ionising radiation, combat, and perceived threats. The Afghanistan list has an extra question on clearing/ searching caves (from KCL phase 2 survey).	Heavily modified as a result of the MEAO preliminary Study. Original items sourced from: AGWVHS ¹ , Deployment Risk and Resilience Inventory (DRRI) ³¹ , KCL Phase 2 ^{4, 5} , and the Traumatic Stressors Exposure Scale ^{32, 33} from RtAPS.	Hazards were grouped according to type: - Combat [Ch. 4] - Chemical, biological} - Respiratory irritants} - Noise} - Local food and water}. [Ch. 5]
<u>Section 3/ 10: Work on deployment</u>			
Work characteristics Q. 3.1 - 3.8 Q. 10.1 - 10.8	Experience of and satisfaction with characteristics of working environment (e.g. match between work requirements and trade experience, work with local community, equipment, organisational support and communication).	Items 1, 2 and 7, 8 are from KCL Phase 2 ^{4, 5} , items 3-5 from the DRRI ³¹ , item 6 is new.	Individual items were used. TBA*
<u>Section 4/ 11: Health on deployment</u>			
Sick parade Q. 4.1 Q. 11.1	Details of attendance on sick parade while on deployment: - no. of times attended - reasons (from a list of 12) for attendance, and - the no. of days out of role in each case.	Developed from previous DHSP studies and MEAO Preliminary Study	Items relevant to particular exposures were analysed individually. In addition, the total number of days out of role was calculated. [Ch. 4, 6]
Diarrhoea or vomiting Q. 4.2 -4.4 Q. 11.2 - 11.4	Three questions about diarrhoea / vomiting suffered on deployment: - did it prevent conduct of duties - were IV fluids required - did it resolve on exiting MEAO.	"	Occurrence of diarrhoea / vomiting was used with relevant deployment hazards (food/ water). [Ch. 6]
Sleep issues Q. 4.5 - 4.9 Q. 11.5 - 11.9	Five items measure self-rated quality of sleep, satisfaction with sleep, and level of use of sleep medications.	Adapted from the Intergenerational Health Effects of Military Service Study ³⁴ .	TBA*

Section / Scale Question No.	Description	Source	Scoring [Relevant Chapters]
Caffeine and supplements Q. 4.10 - 4.11 Q. 11.10 - 11.11	Measures: - daily level of caffeine consumption, and - frequency of consumption of body building/ energy/ and weight loss supplements, while deployed, using a 5 point scale.	Adapted from Millennium Cohort Study ³⁵ .	Consumption levels for each substance were dichotomised (Never-low/ Moderate-high). [Ch. 8]
Military injury compensation Q. 4.12 - 4.13 Q. 11.12 - 11.13	Details of any previous, current or planned military injury compensation claims arising from deployment	New questions	TBA*
Health impacts Q. 4.14 - 4.15 Q. 11.14 - 11.15	Self-rated comparison between pre- and post-deployment health, also whether change is due to deployment.	Item 1 drawn from KCL Phase 1 ^{4,5} , item 2 is new.	TBA*
<u>Section 5/ 12: Other deployment experiences</u>			
Problems at home during deployment Q. 5.1-5.2 Q. 12.1-12.2	Asks whether there were family, financial or work problems at home during the deployment, also whether the spouse/ partner received sufficient support from the military.	KCL Phase 2 ^{4,5} .	TBA*
<u>Section 6/ 13: Post deployment experiences</u>			
Return to Australia Q. 6.1 - 6.6 Q. 13.1 - 13.6	Characteristics of return to Australia and satisfaction with these.	Item 1 and 4-6 are from KCL Phase 2 ^{4,5} , also used in AGWVHS ¹ . Items 2 and 3 are new.	TBA*
Re-adjustment issues Q. 6.7 - 6.13 Q. 13.7 - 13.13	Issues include: - Length of time taken to relax level of vigilance - Support for deployment from public, military, family and friends - Other issues, such as financial problems and impact on career.	Mainly drawn from KCL Phase 2 ^{4,5} , with one item from POPS. Also used in AGWVHS ¹ . Two new items were developed in-house.	Support for deployment items were analysed individually as exposures. [Ch. 7]
Relationship impacts Q. 6.14 - 6.15 Q. 13.14 - 13.15	Asks about relationship satisfaction in the weeks after return from deployment.	Intergenerational Health Effects questionnaire ³⁴ ; original questions from Brief Dyadic Adjustment Scale ^{36, 37} .	Items were analysed individually. [Ch. 7]

Section / Scale Question No.	Description	Source	Scoring [Relevant Chapters]
Reserve questions Q. 6.16 - 6.18 Q. 13.16 - 13.18	Ascertains whether the Reservist: - was in civilian employment at the time of call-up - returned to the same job - had problems upon return, such as loss of income/ career opportunity, or resentment from co-workers.	KCL Phase 2 ^{4, 5}	Items were analysed individually. [Ch. 7]
Section 7/ 14: Open ended questions			
Evaluation Questions Q. 7.1 Q. 14.1	Participants were asked if they had any other important concerns not addressed in the questionnaire, or if they would like to add any other comments.	N/A	Free text item.

* Questions denoted "TBA" have not been included in analyses for the final report, but may be used in future analyses.

References for measures:

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Dealing with missing data in the MEAO Census Study

No multiple imputation of missing values was used in the analyses presented. Mean scale scores (K10, PLC-C etc.) were calculated for those who responded to all items in each scale. If someone did not complete all items in a scale but it was still possible to determine that persons category (e.g. PCL-C <50), that person was assigned to that category for Tables and statistical models presented.

Weighting for non-response in the MEAO Census Study

During the data collection, it was noted that response rates varied by members rank, gender, Service and ADF employment status.

Some of these characteristics, such as rank or employment could change during the data collection process. Table i. describes the study response by ADF member characteristics at the end of the data collection phase.

Table i. Response rates at the end of data collection phase

	Population	Responded ¹ , n (%)
Overall	26915	14032 (52.1)
Gender		
Male	23945	12302 (51.6)
Female	2970	1730 (58.2)
Service		
Navy	6326	3150 (49.8)
Army	13377	6600 (49.3)
Air Force	7212	4282 (59.4)
Rank		
Commissioned Officer	6,784	4129 (60.8)
Non-Commissioned Officer	15441	8083 (52.3)
Other Ranks	4,690	1820 (38.8)
Employment at end of the data collection phase		
Active Regular	17208	10819 (62.3)
Active Reserve	3,514	1498 (42.6)
Inactive reserve/Ex-serving	6,193	1715 (27.7)

¹ Respondents are defined as of those invited to participate in the survey who Completed, or partially completed at least 13 % of the MEAO Census Questionnaire.

At the end of the data collection phase, while women were a smaller group (11.0% of the study population), they had a higher response (58.2%) compared to men (51.6%). ADF members who were lower ranked responded in fewer numbers to the survey compared to those that were of Officer ranks. Almost half of the MEAO census study population are members of the Australian Army (n=13377) with the remaining, made up of Navy (n=6326) and Air Force (n=7212) members. Response rates were almost 10% higher for Air force members, compared to the other services. Response rates were similar for Army and Navy.

Statistical estimates such as prevalence and means were weighted in the MEAO Census Study in order to make the statistics computed more representative of the population of MEAO veterans deployed between 2001 and 2009. This weighting method allowed researchers to deal with biases as a result of ADF members' propensity to respond to the survey. It enabled valid statistical estimates to be calculated that would be representative of the population of interest.

In the MEAO Census study results were weighted for non-response based on the response rates in the three Services (Navy, Army, RAAF), three employment groups (Active Regulars, Active Reserves and Ex-serving/Inactive Reserve), three Rank categories (Commissioned Officers, Non-Commissioned Officers, Other ranks) and among males and females. This resulted in 54 strata (3 x 3 x 3 x 2).

The weights were calculated to be the inverse of the response rate in each stratum. For example, if a response rate was comparatively lower in a particular subgroup, the data from that group was assigned a higher weight so that the results were representative of the full MEAO nominal roll invited to participate. The weights used are detailed in Table ii.

Table ii: Non-response Weights by ADF employment Status, Service, Rank, Gender

Employment	Service	Rank	Gender	Population	Respondents	Response rate, %	Non response weight
Active Regular	ARMY	Commissioned Officer	Male	1999	1250	62.5	1.6
			Female	209	145	69.4	1.44
		Non-Commissioned Officer	Male	4844	2593	53.5	1.87
			Female	358	229	64	1.56
		Other Ranks	Male	1202	402	33.4	2.99
			Female	33	13	39.4	2.54
	NAVY	Commissioned Officer	Male	794	547	68.9	1.45
			Female	136	96	70.6	1.42
		Non-Commissioned Officer	Male	1751	1017	58.1	1.72
			Female	296	179	60.5	1.65
		Other Ranks	Male	349	117	33.5	2.98
			Female	95	40	42.1	2.38
	RAAF	Commissioned Officer	Male	1352	887	65.6	1.52
			Female	231	153	66.2	1.51
		Non-Commissioned Officer	Male	2681	1725	64.3	1.55
			Female	469	311	66.3	1.51
		Other Ranks	Male	336	173	51.5	1.94
			Female	73	45	61.6	1.62
Active Reserve	ARMY	Commissioned Officer	Male	455	263	57.8	1.73
			Female	48	31	64.6	1.55
		Non-Commissioned Officer	Male	786	341	43.4	2.3
			Female	56	33	58.9	1.7
		Other Ranks	Male	279	88	31.5	3.17
			Female	14	4	28.6	3.5
	NAVY	Commissioned Officer	Male	220	134	60.9	1.64
			Female	48	33	68.8	1.45
		Non-Commissioned Officer	Male	549	269	49	2.04
			Female	114	64	56.1	1.78
		Other Ranks	Male	130	36	27.7	3.61
			Female	60	21	35	2.86
	RAAF	Commissioned Officer	Male	286	170	59.4	1.68
			Female	38	26	68.4	1.46
		Non-Commissioned Officer	Male	311	176	56.6	1.77
			Female	47	29	61.7	1.62
		Other Ranks	Male	58	19	32.8	3.05
			Female	15	9	60	1.67

Employment	Service	Rank	Gender	Population	Respondents	Response rate, %	Non response weight
Ex-serving/ Inactive Reserve	ARMY	Commissioned Officer	Male	446	227	50.9	1.96
			Female	47	19	40.4	2.47
		Non-Commissioned Officer	Male	1308	576	44	2.27
			Female	92	48	52.2	1.92
		Other Ranks	Male	1170	328	28	3.57
			Female	31	10	32.3	3.1
	NAVY	Commissioned Officer	Male	116	49	42.2	2.37
			Female	37	19	51.4	1.95
		Non-Commissioned Officer	Male	896	313	34.9	2.86
			Female	120	55	45.8	2.18
		Other Ranks	Male	501	119	23.8	4.21
			Female	114	34	29.8	3.35
	RAAF	Commissioned Officer	Male	271	108	39.9	2.51
			Female	51	22	43.1	2.32
		Non-Commissioned Officer	Male	668	311	46.6	2.15
			Female	95	45	47.4	2.11
		Other Ranks	Male	187	64	34.2	2.92
			Female	43	17	39.5	2.53

Medical Employment Classification (MEC, Chapter 3)

Initial analysis of MEC assessment data

The aim of the analysis was to investigate whether the high prevalence of poor mental health in ex-serving ADF members could be explained, at least in part, by medical discharge. Initially, a dataset containing 44 medical codes in PMKeyS was received from PMKeyS for all respondents who were classified as reserves or ex-serving members at study commencement. These codes were then classified into broad MEC categories.

A Brief Explanation of the Data

The MEC data obtained from PMKeyS contains historical records of medical assessments for each participant in this list. In the analysis below, we look at the medical assessment as close as possible to the start of the MEAO census study.

Those classified as MEC 1 are fully deployable, MEC 2, deployable with some employment restrictions, MEC 3, temporarily not deployable and MEC 4, not deployable at all. Medical codes classified with 0 correspond to other medical codes, not fitting into any of the 4 MEC categories described above. For analysis purposes, we are interested in the individuals “*fit to deploy*” condition based on their MEC. Hence MEC 1 and 2 are grouped together in the analysis to reflect this.

Responders with certain medical codes are more likely to discharge due to medical reasons, while others with different medical codes less so. The potential for discharge variable simply groups responders by their potential for medical discharge at a point in time, based on the medical code recorded in their medical assessment record. Note it does not mean that the responder will or has discharged as health can change over time. A summary of the potential for medical discharge and MEC variables described above is in Table iii.

Table iii: Summary of MEC category and Potential for Discharge

MEC	MEC used in analysis
1: Fully deployable	MEC 1 or 2: Fit for deployment
2: Deployable with some employment restrictions	
3: Temporarily not deployable	3: Temporarily not deployable
4: Not deployable at all	4: Not deployable at all
0: Other MEC	0: Other MEC

Potential for Discharge
Non-medical
Possible medical
Medical

For a full list of the medical codes and their descriptions available in this dataset, with corresponding MEC and potential for medical discharge classification, please refer to Table vi, at the end of this document.

Analysis of MEC (as close as possible) to the Start of the MEAO Census Study

Table iv: Reserve and Ex-serving at the start of the study by MEC closest to start of MEAO Census Study [N=3172]

	Reserves and Ex serving at the start of the study, n (col. %)			Total
	Active Reserve	Inactive Reserve	Ex-serving	
MEC 1 or 2: Fit for deployment	1177 (80.1)	970 (94.2)	447 (66.5)	2594 (81.8)
MEC 3: Temporarily not deployable	36 (2.5)	40 (3.9)	63 (9.4)	139 (4.4)
MEC 4: Not deployable at all	17 (1.2)	7 (0.7)	152 (22.6)	176 (5.5)
MEC 0: Other	240 (16.3)	13 (1.3)	10 (1.5)	263 (8.3)
Total	1470	1030	672	3172

Table v: PTSD Symptoms of Reserve and Ex-serving at the start of the study by MEC closest to start of MEAO Census Study [N=2977]

	PTSD Symptoms		Total
	PCL-C <50	PCL-C ≥50	
MEC 1 or 2: Fit for deployment	2266 (93.1)	167 (6.9)	2433 (81.7)
MEC 3: Temporarily not deployable	109 (83.2)	22 (16.8)	131 (4.4)
MEC 4: Not deployable at all	96 (60.0)	64 (40.0)	160 (5.4)
MEC 0: Other	242 (95.7)	11 (4.2)	253 (8.5)
Total	2713	264	2977

MEC Coverage

Using ADF employment category at the start of the MEAO Census Study

MEC coverage for Active Reserves¹ = $(1470/1498) \times 100 = 98.1\%$

MEC coverage for Inactive Reserves¹ = $(1030/1036) \times 100 = 99.4\%$

MEC coverage for Ex-Serving¹ = $(672/679) \times 100 = 99.0\%$

¹ ADF employment category at the start of the study

So we have MEC records for 98-99 per cent of MEAO census reservist¹ and ex-serving¹ responders.

[This MEC analysis is limited to responders to the MEAO census study who were believed to be reserves or ex-serving at the end of the study.]

Table vi: Medical codes from PMKeyS, categorised based on potential for medical discharge, and MEC category.

Medical Code	Description	Potential for discharge	MEC
J40	Holding - pending MECRB determination	Medical discharge	4
J41	Alternate Employment - MECRB assigned only	Medical discharge	4
J42	EmploySvceDiscretion-MECRB-Not fit deploy/field/sea/upto5yrs	Medical discharge	4
J43	Extended Transition - MECRB assigned only - up to 3 yrs	Medical discharge	4
J44	Extended NonEffective-MECRB-[Not fit for work]from 4-12mnths	Medical discharge	4
J51	NotEmploy/Medical Grds/Med Unfit/CanEmploy Until Termination	Medical discharge	4
J52	NotEmploy/MedGrds/NonEffective/NotEmploy UpToTermination	Medical discharge	4
TMU	To remain in unit&employed within medically advised constrnt	Medical discharge	4
4	Migration Med Class 4	Medical discharge	4
401	Unfit in the long term in current occupation	Medical discharge	4
402	Unfit for deployment/seagoing srv for long term in curr occu	Medical discharge	4
403	Non-effective on medical grounds for a period > 6 months	Medical discharge	4
AHD	Annual Health Declaration - Navy Reservists	Non-medical discharge	0
J11	Fully Employable & Deployable-No Restriction/No Requirement	Non-medical discharge	1
J12	Fully Employable & Deployable-No Restriction/Some Requiremnt	Non-medical discharge	1
J21	Restricted Deploymnt - Defined Limitations	Non-medical discharge	2
J22	Restricted Deploymnt-DefinedLimitatns...ReqMaterielSupport	Non-medical discharge	2
J23	RestrictDeploy-DefinedLimitatns...Materiel...MedOffrHlthSpt	Non-medical discharge	2
J29	Limited Deploy-MECRB-Def.Limits...Materiel...Role2EHlthSpt	Non-medical discharge	2
J33	Pregnancy - Non Deployable - Up to 24 months	Non-medical discharge	3
L27	Land-MECRB-Limit.Deploy-Limitd offensve/full combat defense	Non-medical discharge	2
L28	Land-MECRB-Limitd Deploymnt-combat defensive duties only	Non-medical discharge	2
M24	Maritime-Defined Limitatns &/or RequiredMaterielSupport	Non-medical discharge	2
M25	Maritime-Def.Limits...Materiel...Role1ClinicMgrHlthSpt	Non-medical discharge	2
M26	Maritime-FMO-Def.Limit...Materiel...NO,PA,MO Hlth Spt	Non-medical discharge	2
1	Medically fit without restriction	Non-medical discharge	1
2	Medically fit with restrictions	Non-medical discharge	2
201	Fit, Restricted Duties	Non-medical discharge	2
202	Fit, pharmaceutical/medical support required	Non-medical discharge	2
203	Fit, MED4 support or limited medical evacuation capability	Non-medical discharge	2
204	Fit, MED4 support or MO overseas	Non-medical discharge	2
205	Fit, MO support required	Non-medical discharge	2
206	Fit, malarious area restriction	Non-medical discharge	2
207	Fit, except in geographical areas as defined	Non-medical discharge	2
303	Pregnancy	Non-medical discharge	3
98	Ready. MEC Unknown, not ind. at time of data conversion.	Non-medical discharge	1or2
99	Not Rdy. MEC Unknown, not ind. at time of data conversion.	Non-medical discharge	3
J31	Rehabilitation - Not Deployable - Up to 12 months	Possible medical discharge	3
J32	Extended Rehabilitation-MECRB-NonDeploy - Up to 24 months	Possible medical discharge	3
J34	Temporarily Non-Effective [Not fit for work]-28 daysto4mths	Possible medical discharge	3
3	Migration Med Class 3	Possible medical discharge	3
301	Unfit medium term. Fit for other duties as defined	Possible medical discharge	3
302	Extended Rehabilitation	Possible medical discharge	3
304	Non-effective on medical grounds for 30 days to 6 months	Possible medical discharge	3

Trauma and combat exposures and health (Chapter 4)

Table 4.21: Frequency of combat exposures in Afghanistan and Iraq (weighted)

Combat exposure	Iraq (supporting areas) (N=5099)	In Iraq (N = 11487)	Afghanistan (supporting areas) (N = 4237)	In Afghanistan (N=4160)
	<i>n</i> ^a (%) ^b	<i>n</i> ^a (%) ^b	<i>n</i> ^a (%) ^b	<i>n</i> ^a (%) ^b
Clear / search buildings				
Never	2912 (98.1)	4910 (83.4)	2321 (98.4)	3098 (72.8)
Once	16 (0.6)	130 (2.3)	5 (0.3)	88 (2.3)
2-4 times	20 (0.8)	350 (6.4)	5 (0.3)	242 (6.1)
5-9 times	5 (0.2)	129 (2.4)	3 (0.2)	117 (3.1)
10+	11 (0.4)	294 (5.5)	19 (0.9)	564 (15.6)
Clear / search caves**				
Never	n/a	n/a	2351 (99.9)	3591 (85.9)
Once	n/a	n/a	1 (0.1)	105 (3.0)
2-4 times	n/a	n/a	0	197 (5.6)
5-9 times	n/a	n/a	0	50 (1.3)
10+	n/a	n/a	0	155 (4.3)
Come under small arms or anti-aircraft fire				
Never	2770 (93.3)	4363 (74.4)	2254 (95.8)	2723 (64.0)
Once	115 (3.9)	522 (9.1)	58 (2.4)	313 (7.9)
2-4 times	62 (2.1)	625 (11.0)	33 (1.5)	556 (14.7)
5-9 times	11 (0.4)	166 (3.1)	4 (0.1)	224 (6.3)
10+	7 (0.3)	140 (2.5)	5 (0.2)	267 (7.1)
Come under guided or directed mortar / artillery fire or missile attack				
Never	2813 (95.0)	4263 (73.2)	2297 (97.6)	3016 (72.5)
Once	92 (3.1)	286 (5.0)	26 (1.1)	226 (5.9)
2-4 times	34 (1.2)	466 (8.2)	21 (0.9)	375 (9.8)
5-9 times	9 (0.3)	274 (4.8)	5 (0.2)	186 (4.9)
10+	11 (0.4)	508 (8.8)	3 (0.1)	273 (6.9)
Experience in-direct fire (e.g. rocket attack)				
Never	2671 (90.2)	2827 (49.2)	2150 (91.8)	856 (20.7)
Once	156 (5.1)	405 (6.9)	88 (3.6)	421 (10.4)
2-4 times	96 (3.2)	860 (14.3)	81 (3.2)	955 (23.8)
5-9 times	20 (0.7)	559 (9.5)	23 (0.9)	606 (15.0)
10+	22 (0.8)	1179 (20.0)	13 (0.5)	1261 (30.0)
Fear you would encounter IED				
Never	2657 (89.0)	3311 (56.6)	2195 (92.9)	2004 (47.0)
Once	99 (3.5)	374 (6.3)	51 (2.2)	267 (6.5)
2-4 times	150 (5.3)	772 (13.1)	62 (2.8)	616 (14.9)
5-9 times	21 (0.8)	308 (5.3)	15 (0.7)	234 (5.8)
10+	38 (1.5)	1042 (18.8)	30 (1.3)	973 (25.8)
Experience an IED / EOD that detonated				
Never	2934 (99.0)	5099 (86.7)	2331 (99.0)	3011 (71.5)
Once	15 (0.5)	388 (7.0)	11 (0.5)	398 (10.0)
2-4 times	8 (0.3)	243 (4.5)	10 (0.4)	402 (10.7)
5-9 times	0	39 (0.7)	0	123 (3.4)
10+	4 (0.2)	60 (1.1)	2 (0.1)	162 (4.4)
Experience a suicide bombing				

Combat exposure	Iraq (supporting areas) (N=5099)	In Iraq (N = 11487)	Afghanistan (supporting areas) (N = 4237)	In Afghanistan (N=4160)
	<i>n</i> ^a (%) ^b	<i>n</i> ^a (%) ^b	<i>n</i> ^a (%) ^b	<i>n</i> ^a (%) ^b
Never	2939 (99.2)	5493 (94.0)	2328 (99.1)	3569 (86.6)
Once	22 (0.7)	249 (4.3)	17 (0.7)	414 (10.4)
2-4 times	1 (0.03)	75 (1.3)	3 (0.1)	95 (2.5)
5-9 times	0	9 (0.1)	1 (0.1)	12 (0.3)
10+	2 (0.1)	12 (0.3)	1 (0.03)	12 (0.3)
Landmine strike				
Never	2939 (99.7)	5724 (98.3)	2345 (99.8)	3776 (91.4)
Once	6 (0.2)	71 (1.3)	3 (0.1)	171 (4.7)
2-4 times	1 (0.03)	18 (0.3)	1 (0.1)	102 (2.8)
5-9 times	0	1 (0.02)	0 (0)	19 (0.5)
10+	0	5 (0.1)	1 (0.03)	25 (0.6)
Encounter small arms fire from an unknown enemy combatant				
Never	2882 (97.4)	4505 (76.7)	2305 (97.9)	2882 (67.6)
Once	33 (1.2)	570 (10.0)	25 (1.2)	369 (9.6)
2-4 times	31 (1.1)	541 (9.6)	15 (0.7)	517 (14.0)
5-9 times	1 (0.04)	97 (1.8)	2 (0.1)	137 (3.6)
10+	6 (0.2)	105 (1.9)	4 (0.2)	190 (5.1)
Discharge your weapon in direct combat				
Never	2950 (99.4)	5607 (95.7)	2345 (99.8)	3468 (82.8)
Once	3 (0.1)	117 (2.1)	3 (0.1)	156 (4.2)
2-4 times	5 (0.2)	73 (1.4)	1 (0.1)	238 (6.5)
5-9 times	5 (0.2)	18 (0.3)	0	83 (2.3)
10+	1 (0.02)	25 (0.5)	0	154 (4.2)
Threatening situation unable to respond				
Never	2915 (98.5)	4977 (83.8)	2258 (95.2)	3527 (84.7)
Once	30 (1.0)	435 (7.9)	72 (3.5)	226 (5.9)
2-4 times	10 (0.4)	306 (5.8)	19 (1.1)	235 (6.5)
5-9 times	3 (0.1)	53 (1.0)	2 (0.2)	46 (1.3)
10+	1 (0.04)	67 (1.4)	0 (0)	58 (1.5)
Go on combat patrols or missions				
Never	2585 (87.5)	3624 (60.7)	2072 (87.6)	2224 (51.3)
Once	101 (3.5)	198 (3.4)	46 (2.0)	188 (4.5)
2-4 times	76 (2.7)	416 (7.1)	54 (2.5)	368 (9.0)
5-9 times	29 (1.0)	280 (4.9)	35 (1.7)	200 (5.2)
10+	161 (5.3)	1293 (24.0)	148 (6.3)	1117 (30.1)
Participate in support convoys				
Never	2461 (82.6)	3159 (53.3)	2060 (87.0)	2144 (50.0)
Once	122 (4.4)	286 (4.8)	49 (2.1)	232 (5.8)
2-4 times	193 (6.9)	768 (12.8)	115 (5.0)	606 (14.8)
5-9 times	49 (1.7)	357 (6.2)	46 (2.2)	271 (7.1)
10+	123 (4.3)	1228 (22.9)	83 (3.8)	836 (22.2)
Concerned about unauthorised discharge of weapon				
Never	2525 (85.1)	3794 (65.2)	2078 (88.0)	2824 (68.2)
Once	108 (3.7)	356 (6.5)	70 (3.1)	254 (6.4)
2-4 times	168 (6.1)	786 (13.6)	111 (4.8)	507 (12.7)
5-9 times	42 (1.5)	201 (3.4)	23 (1.1)	126 (3.2)

Combat exposure	Iraq (supporting areas) (N=5099)	In Iraq (N = 11487)	Afghanistan (supporting areas) (N = 4237)	In Afghanistan (N=4160)
	<i>n</i> ^a (%) ^b	<i>n</i> ^a (%) ^b	<i>n</i> ^a (%) ^b	<i>n</i> ^a (%) ^b
10+	102 (3.6)	655 (11.3)	70 (3.1)	380 (9.4)
In danger of being killed				
Never	2512 (84.9)	3820 (65.2)	2066 (87.6)	2328 (54.7)
Once	106 (3.7)	354 (6.2)	84 (3.8)	205 (5.1)
2-4 times	148 (5.2)	548 (9.7)	78 (3.3)	483 (12.2)
5-9 times	30 (1.0)	179 (3.1)	24 (1.2)	199 (5.3)
10+	147 (5.1)	881 (15.9)	99 (4.1)	867 (22.6)
In danger of being injured				
Never	2478 (83.5)	3665 (62.6)	2038 (86.5)	2223 (52.2)
Once	105 (3.8)	388 (6.6)	89 (3.9)	222 (5.5)
2-4 times	159 (5.6)	596 (10.5)	97 (4.1)	510 (12.8)
5-9 times	33 (1.2)	195 (3.4)	20 (1.0)	197 (5.2)
10+	172 (6.0)	933 (16.8)	107 (4.4)	930 (24.2)
Handle dead bodies				
Never	2864 (97.3)	5333 (91.8)	2299 (97.9)	3352 (81.4)
Once	37 (1.4)	196 (3.5)	27 (1.2)	258 (6.7)
2-4 times	32 (1.1)	161 (2.9)	20 (0.8)	315 (8.0)
5-9 times	4 (0.1)	44 (0.7)	3 (0.1)	85 (2.2)
10+	4 (0.1)	65 (1.1)	1 (0.04)	75 (1.8)
See dead bodies				
Never	2669 (90.4)	4286 (73.0)	2197 (93.7)	2513 (60.0)
Once	116 (4.2)	532 (9.4)	75 (3.1)	437 (11.3)
2-4 times	108 (3.7)	613 (10.9)	55 (2.4)	712 (18.2)
5-9 times	18 (0.7)	148 (2.7)	12 (0.5)	218 (5.5)
10+	29 (1.0)	220 (3.9)	9 (0.4)	203 (5.0)
Hear of close friend or co-worker injured or killed				
Never	2632 (89.1)	4237 (72.6)	2182 (92.9)	2134 (49.8)
Once	226 (8.0)	792 (13.9)	110 (4.7)	797 (20.2)
2-4 times	69 (2.5)	649 (11.5)	46 (1.9)	868 (22.4)
5-9 times	6 (0.2)	74 (1.3)	7 (0.3)	209 (5.5)
10+	6 (0.2)	44 (0.7)	5 (0.2)	81 (2.1)
Present when a close friend or co- worker injured or killed				
Never	2899 (98.4)	5325 (91.6)	2309 (98.5)	3392 (81.4)
Once	36 (1.3)	323 (5.9)	24 (1.2)	406 (10.8)
2-4 times	6 (0.2)	119 (2.3)	6 (0.3)	236 (6.4)
5-9 times	1 (0.03)	6 (0.1)	0	31 (0.8)
10+	1 (0.04)	7 (0.1)	0	21 (0.5)
Witness to human degradation and misery on a large scale				
Never	2891 (98.3)	5181 (89.2)	2294 (97.6)	3580 (86.9)
Once	16 (0.6)	177 (3.0)	21 (0.9)	103 (2.7)
2-4 times	17 (0.6)	227 (4.0)	27 (1.2)	178 (4.6)
5-9 times	2 (0.1)	56 (0.9)	2 (0.1)	44 (1.1)
10+	12 (0.5)	158 (2.9)	3 (0.2)	177 (4.7)
Hear of a loved one injured or killed				
Never	2865 (97.2)	5518 (95.1)	2279 (96.9)	3830 (93.6)
Once	71 (2.4)	221 (3.9)	63 (2.6)	188 (4.7)
2-4 times	9 (0.3)	45 (0.8)	9 (0.4)	54 (1.5)

Combat exposure	Iraq (supporting areas) (N=5099)	In Iraq (N = 11487)	Afghanistan (supporting areas) (N = 4237)	In Afghanistan (N=4160)
	<i>n^a</i> (%) ^b	<i>n^a</i> (%) ^b	<i>n^a</i> (%) ^b	<i>n^a</i> (%) ^b
5-9 times	0	6 (0.1)	0	8 (0.2)
10+	2 (0.1)	9 (0.1)	2 (0.1)	3 (0.1)
Present when a loved one was injured or killed				
Never	2938 (99.9)	5776 (9.5)	2342 (99.8)	4027 (98.6)
Once	3 (0.1)	19 (0.3)	2 (0.1)	41 (1.0)
2-4 times	0	6 (0.1)	1 (0.1)	11 (0.3)
5-9 times	0	1 (0.03)	0	3 (0.1)
10+	0	0	0	0
Action or inaction resulted in serious injury				
Never	2878 (98.0)	5593 (96.6)	2337 (99.2)	3824 (93.6)
Once	19 (0.6)	84 (1.5)	11 (0.5)	69 (1.8)
2-4 times	16 (0.6)	67 (1.2)	2 (0.1)	77 (2.0)
5-9 times	5 (0.2)	13 (0.2)	2 (0.1)	32 (0.8)
10+	19 (0.6)	31 (0.5)	3 (0.1)	77 (1.8)
Action or inaction resulted in death				
Never	2889 (98.1)	5590 (96.6)	2320 (99.1)	3824 (93.7)
Once	19 (0.6)	89 (1.5)	12 (0.5)	80 (2.1)
2-4 times	12 (0.4)	66 (1.2)	4 (0.2)	69 (1.7)
5-9 times	5 (0.2)	14 (0.2)	2 (0.1)	34 (0.9)
10+	20 (0.7)	29 (0.5)	3 (0.1)	71 (1.7)

* Missing data vary for each question

** Please note that this question is only relevant to Afghanistan deployments

a Unweighted totals

b Estimated prevalences, weighted for non-response

Supporting areas outside of Iraq and Afghanistan

Specific types of traumatic experiences and PTSD

Fewer types of traumatic experiences were associated with PTSD for participants deployed to supporting areas of Iraq and Afghanistan (Table 4.22), compared with those deployed to areas within Iraq and Afghanistan (main report). The experience of 'coming under fire' and 'being in a threatening situation and unable to respond' were common across all areas of deployment and were statistically significantly associated with PTSD symptoms. Because a very low number of participants in supporting areas of Iraq and Afghanistan reported 'discharging own weapon', the percentage of participants with this experience and PTSD is high and an odds ratio was not able to be computed.

Table 4.22: Association between traumatic experiences in supporting areas outside Iraq and Afghanistan and PTSD symptoms, as measured by the PCL-C

PTSD (PCL-C ≥50)						
Traumatic Experiences	OR (95% CI) ^c	<i>p</i> -value	% ^b Iraq (supporting)	% ^b Afghanistan (supporting)	<i>p</i> -value	OR (95% CI) ^c
Potential for exposure (N ^a =2958) (N ^a =2347)						
No	1 (Reference)		0.9		2.3	1 (Reference)
Yes	2.84 (1.49, 5.41)	0.001	4.8		5.5	0.132 1.39 (0.91, 2.12)
Coming under fire						
No	1 (Reference)		1.5		2.5	1 (Reference)
Yes	1.95 (1.03, 3.70)	0.038	6.4		7.7	<0.001 3.00 (1.97, 4.56)
In danger being injured or killed						
No	1 (Reference)		1.4		2.4	1 (Reference)
Yes	1.26 (0.68, 2.33)	0.472	6.2		7.9	<0.001 2.34 (1.51, 3.62)
Casualties close to you						
No	1(Reference)		1.7		3.0	1(Reference)
Yes	1.88 (0.98, 3.63)	0.063	7.1		6.1	0.381 1.23 (0.78, 1.94)
Handling/seeing dead bodies						
No	1 (Reference)		1.8		2.9	1 (Reference)
Yes	1.67 (0.82, 3.44)	0.164	7.6		7.3	0.132 1.51 (0.89, 2.57)
Threatening situation unable to respond						
No	1 (Reference)		2.1		2.9	1 (Reference)
Yes	3.26 (1.32, 8.05)	0.012	21.2		9.9	0.012 2.17 (1.21, 3.89)
Witness human degradation and misery						
No	1 (Reference)		2.0		3.2	1 (Reference)
Yes	2.18 (0.71, 6.73)	0.182	18.6		7.2	0.963 0.98 (0.41, 2.30)
Discharging own weapon						
No	1 (Reference)		2.2		3.1	
Yes	1.47 (0.43, 5.05)	0.541	26.6		80.2	-
Own actions resulted in death or injury						
No	1 (Reference)		2.1		3.2	1 (Reference)
Yes	2.71 (1.20, 6.14)	0.022	12.4		7.5	0.261 0.55 (0.19, 1.56)

a Unweighted totals


















b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, gender and other factor categories in the model

Specific types of traumatic experiences and psychological distress

For participants from supporting areas outside of Afghanistan, no reported traumatic experiences were associated with high psychological distress (Table 4.23). Two traumatic experiences were statistically significantly associated with psychological distress for participants from supporting areas outside of Iraq. The number of participants who reported discharging a weapon was too small for a reliable comparison to be performed.

Table 4.23: Association between traumatic experiences from supporting areas outside Iraq and Afghanistan and psychological distress (K10)

	Psychological Distress (K10 ≥ 30)					
Traumatic Experiences	OR (95% CI) ^c	p- value	% ^b Iraq (supporting)	Afghanistan % ^b (supporting)	p- value	OR (95% CI) ^c
Potential for exposure	(N ^a =2958) (N ^a =2345)					
No	1 (Reference)		1.8		2.0	1 (Reference)
Yes	1.42 (0.84, 2.38)	0.186	3.7		5.0	0.071 1.82 (0.96, 3.45)
Coming under fire						
No	1 (Reference)		1.9		2.5	1 (Reference)
Yes	2.19 (1.21, 3.96)	0.012	5.3		5.3	0.472 1.30 (0.64, 2.64)
In danger being injured or killed						
No	1 (Reference)		1.9		2.4	1 (Reference)
Yes	1.48 (0.81, 2.69)	0.218	5.2		5.5	0.732 1.15 (0.53, 2.49)
Casualties close to you						
No	1(Reference)		2.1		2.6	1(Reference)
Yes	1.43 (0.75, 2.71)	0.284	5.0		6.1	0.664 1.19 (0.56, 2.51)
Handling/seeing dead bodies						
No	1 (Reference)		2.1		2.5	1 (Reference)
Yes	1.23 (0.59, 2.57)	0.573	5.3		7.9	0.071 2.07 (0.95, 4.52)
Threatening situation unable to respond						
No	1 (Reference)		2.3		2.6	1 (Reference)
Yes	3.01 (1.07, 8.51)	0.043	15.8		8.4	0.472 1.43 (0.55, 3.76)
Witness human degradation and misery						
No	1 (Reference)		2.3		2.8	1 (Reference)
Yes	2.42 (0.77, 7.66)	0.133	12.1		9.7	0.181 2.47(0.65, 9.39)
Discharging own weapon						
No	1 (Reference)		2.5		2.8	
Yes	0.51 (0.07, 3.65)	0.528	11.1		57.5	-
Own actions resulted in death or injury						
No	1 (Reference)		2.4		2.9	1 (Reference)
Yes	1.71 (0.63, 4.59)	0.293	6.9		8.0	0.743 0.79 (0.19, 3.25)

a Unweighted totals



















b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, gender and other factor categories in the model

Specific types of traumatic experiences and alcohol misuse

Very few types of traumatic experiences were found to be associated with alcohol misuse (scores on AUDIT ≥ 20) across the deployment locations (Table 4.24). The types of traumatic experiences that were statistically significantly associated with alcohol misuse were different between the supporting areas outside Iraq and Afghanistan.

Table 4.24: Association between traumatic experiences from supporting areas outside Iraq and Afghanistan and alcohol misuse (AUDIT)

Alcohol misuse (AUDIT ≥ 20)							
Traumatic Experiences	OR (95% CI) ^c	<i>p</i> -value	% ^b Iraq (supporting)		% ^b Afghanistan (supporting)		OR (95% CI) ^c
(N ^a =2961) (N ^a =2347)							
No	1 (Reference)		0.8		1.9		1 (Reference)
Yes	2.04 (1.03, 4.02)	0.041	2.8		2.6	0.500	0.78 (0.37, 1.63)
Coming under fire							
No	1 (Reference)		1.1		1.9		1 (Reference)
Yes	2.08 (1.06, 4.08)	0.032	3.7		3.2	0.413	1.51 (0.57, 3.99)
In danger being injured or killed							
No	1 (Reference)		1.1		1.7		1 (Reference)
Yes	1.34 (0.60, 2.98)	0.471	3.2		4.2	0.182	1.64 (0.80, 3.38)
Casualties close to you							
No	1(Reference)		1.2		1.7		1(Reference)
Yes	1.47 (0.67, 3.23)	0.332	3.8		5.4	0.008	2.68 (1.29, 5.56)
Handling/seeing dead bodies							
No	1 (Reference)		1.4		1.9		1 (Reference)
Yes	0.45 (0.15, 1.33)	0.151	2.5		4.6	0.162	1.88 (0.78, 4.54)
Threatening situation unable to respond							
No	1 (Reference)		1.4		1.8		1 (Reference)
Yes	2.33 (0.66, 8.25)	0.190	10.1		7.3	0.413	1.58 (0.53, 4.69)
Witness human degradation and misery							
No	1 (Reference)		1.4		2.0		1 (Reference)
Yes	2.54 (0.58, 11.15)	0.221	10.2		4.6	0.421	0.54 (0.12, 2.39)
Discharging own weapon							
No	1 (Reference)		1.4		1.9		
Yes	1.37 (0.19, 9.72)	0.752	17.0		57.5	-	
Own actions resulted in death or injury							
No	1 (Reference)		1.4		2.0		1 (Reference)
Yes	3.83 (1.30, 11.27)	0.011	8.9		7.5	0.860	1.14 (0.27, 4.77)

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, gender and other factor categories in the model

Specific types of traumatic experiences: depression and anxiety

Iraq (PHQ)

Table 4.25: Major depressive syndrome measured by PHQ for members deployed to Iraq (N=5915)

Exposure (Iraq)	No Major Depressive Syndrome n ^a (%) ^b	Major Depressive Syndrome n ^a (%) ^b	OR (95%CI) ^c	p-value
Potential for exposure				
No	1718 (97.4)	40 (2.6)	1 (Reference)	
Yes	3670 (94.4)	191 (5.6)	1.79 (1.21, 2.65)	0.004
Coming under fire				
No	2164 (96.2)	75 (3.8)	1 (Reference)	
Yes	3212 (94.7)	156 (5.3)	0.79 (0.51, 1.21)	0.280
In danger of being injured or killed				
No	3313 (96.8)	96 (3.2)	1 (Reference)	
Yes	2058 (93.3)	131 (6.7)	1.45 (1.06, 1.97)	0.019
Casualties close to you				
No	3742 (96.4)	117 (3.6)	1 (Reference)	
Yes	1604 (93.0)	112 (7.0)	1.39 (1.02, 1.88)	0.035
Handling/seeing dead bodies				
No	3975 (96.1)	139 (3.9)	1 (Reference)	
Yes	1411 (93.5)	90 (6.5)	0.99 (0.70, 1.40)	0.956
Threatening situation unable to respond				
No	4671 (96.4)	158 (3.6)	1 (Reference)	
Yes	757 (89.8)	74 (10.2)	2.15 (1.54, 3.00)	<0.001
Witness to human degradation and misery				
No	4849 (96.0)	175 (4.0)	1 (Reference)	
Yes	547 (90.1)	53 (9.9)	1.84 (1.30, 2.61)	0.001
Discharging own weapon				
No	5216 (95.4)	218 (4.6)	1 (Reference)	
Yes	213 (93.9)	14 (6.1)	0.55 (0.29, 1.04)	0.064
Own actions resulted in death or injury				
No	5128 (95.6)	210 (4.4)	1 (Reference)	
Yes	228 (91.5)	18 (8.5)	1.27 (0.76, 2.12)	0.368

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.26: Panic syndrome criteria as measured by PHQ for members deployed to Iraq (N=5915)

Exposure (Iraq)	No Panic Syndrome Criteria n ^a (%) ^b	Panic Syndrome Criteria n ^a (%) ^b	OR (95%CI) ^c	p-value
Potential for exposure				
No	1761 (98.0)	34 (2.0)	1 (Reference)	
Yes	3754 (94.7)	192 (5.3)	1.72 (1.12, 2.65)	0.014
Coming under fire				
No	2234 (97.3)	55 (2.7)	1 (Reference)	
Yes	3265 (94.6)	172 (5.4)	1.33 (0.85, 2.07)	0.208
In danger of being injured or killed				
No	3404 (97.4)	82 (2.6)	1 (Reference)	
Yes	2091 (93.2)	142 (6.8)	1.37 (0.99, 1.90)	0.061
Casualties close to you				
No	3839 (97.0)	108 (3.0)	1 (Reference)	
Yes	1631 (92.8)	118 (7.2)	1.43 (1.05, 1.95)	0.022
Handling/seeing dead bodies				
No	4097 (96.8)	122 (3.2)	1 (Reference)	
Yes	1412 (92.6)	105 (7.4)	1.14 (0.81, 1.59)	0.464
Threatening situation unable to respond				
No	4802 (97.1)	137 (2.9)	1 (Reference)	
Yes	752 (88.4)	91 (11.6)	3.14 (2.32, 4.25)	<0.001
Witness to human degradation and misery				
No	4970 (96.4)	168 (3.6)	1 (Reference)	
Yes	553 (89.9)	58 (10.1)	1.43 (1.02, 2.00)	0.037
Discharging own weapon				
No	5352 (96.1)	202 (3.9)	1 (Reference)	
Yes	204 (87.2)	26 (12.8)	1.85 (1.16, 2.97)	0.010
Own actions resulted in death or injury				
No	5249 (95.8)	209 (4.2)	1 (Reference)	
Yes	230 (92.8)	16 (7.2)	0.71 (0.41, 1.23)	0.220

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.27: Other anxiety syndrome criteria as measured by PHQ for members deployed to Iraq (N=5292)

Exposure (Iraq)	No anxiety Criteria	Other anxiety Criteria	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
Potential for exposure				
No	1691 (98.1)	26 (1.9)	1 (Reference)	0.017
Yes	3482 (96.6)	107 (3.4)	1.90 (1.12, 3.21)	
Coming under fire				
No	2110 (97.6)	41 (2.4)	1 (Reference)	0.496
Yes	3052 (96.9)	89 (3.1)	1.20 (0.71, 2.01)	
In danger of being injured or killed				
No	3242 (97.8)	61 (2.2)	1 (Reference)	0.381
Yes	1922 (96.2)	68 (3.8)	1.20 (0.80, 1.79)	
Casualties close to you				
No	3653 (97.7)	69 (2.3)	1 (Reference)	0.024
Yes	1483 (95.8)	61 (4.2)	1.61 (1.07, 2.44)	
Handling/seeing dead bodies				
No	3877 (97.7)	79 (2.3)	1 (Reference)	0.256
Yes	1299 (95.7)	53 (4.3)	1.26 (0.85, 1.88)	
Threatening situation unable to respond				
No	4547 (97.7)	93 (2.3)	1 (Reference)	0.002
Yes	666 (93.8)	39 (6.2)	1.94 (1.29, 2.93)	
Witness to human degradation and misery				
No	4684 (97.2)	115 (2.8)	1 (Reference)	0.459
Yes	503 (96.4)	17 (3.6)	0.82 (0.48, 1.40)	
Discharging own weapon				
No	5028 (97.3)	121 (2.7)	1 (Reference)	0.106
Yes	185 (92.6)	13 (7.4)	1.69 (0.89, 3.20)	
Own actions resulted in death or injury				
No	4943 (97.2)	124 (2.8)	1 (Reference)	0.830
Yes	200 (95.2)	8 (4.8)	1.08 (0.52, 2.26)	

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.28: Major depressive syndrome as measured by PHQ for members deployed to supporting areas outside Iraq (N=3012)

Exposure (Iraq)	No Major Depressive Syndrome	Major Depressive Syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
Potential for exposure				
No	1799 (98.2)	31 (1.8)	1 (Reference)	0.297
Yes	996 (96.3)	36 (3.7)	1.33 (0.78, 2.27)	
Coming under fire				
No	2304 (98.3)	39 (1.7)	1 (Reference)	0.001
Yes	454 (93.8)	26 (6.2)	2.71 (1.55, 4.73)	
In danger of being injured or killed				
No	2295 (97.8)	47 (2.2)	1 (Reference)	0.195
Yes	506 (96.1)	19 (3.9)	0.64 (0.33, 1.26)	
Casualties close to you				
No	2435 (97.8)	51 (2.2)	1 (Reference)	0.636
Yes	342 (95.6)	14 (4.4)	0.84 (0.41, 1.73)	
Handling/seeing dead bodies				
No	2523 (97.9)	51 (2.1)	1 (Reference)	0.162
Yes	266 (94.0)	16 (6.0)	1.57 (0.83, 2.97)	
Threatening situation unable to respond				
No	2779 (97.7)	62 (2.3)	1 (Reference)	0.282
Yes	38 (86.8)	5 (13.2)	1.85 (0.60, 5.69)	
Witness to human degradation and misery				
No	2760 (97.8)	59 (2.2)	1(Reference)	<0.001
Yes	38 (81.6)	8 (18.4)	6.77 (2.66, 17.24)	
Discharging own weapon				
No	2809 (97.6)	65 (2.4)	1 (Reference)	0.756
Yes	12 (81.3)	2 (18.7)	1.29 (0.26, 6.25)	
Own actions resulted in death or injury				
No	2735 (97.7)	60 (2.3)	1 (Reference)	<0.001
Yes	55 (85.1)	7 (14.9)	5.32 (2.35, 12.07)	

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.29: Panic syndrome criteria as measured by PHQ for members deployed to supporting areas outside Iraq (N=3012)

Exposure (Iraq)	No Panic Syndrome Criteria <i>n</i> ^a (%) ^b	Panic Syndrome Criteria <i>n</i> ^a (%) ^b	OR (95%CI) ^c	<i>p</i> -value
Potential for exposure				
No	1834 (98.5)	24 (1.5)	1 (Reference)	
Yes	1026 (96.6)	33 (3.4)	1.53 (0.84, 2.78)	0.163
Coming under fire				
No	2348 (98.3)	38 (1.7)	1 (Reference)	
Yes	474 (95.9)	17 (4.1)	1.87 (0.97, 3.60)	0.062
In danger of being injured or killed				
No	2348 (98.4)	35 (1.6)	1 (Reference)	
Yes	516 (95.5)	22 (4.5)	1.65 (0.86, 3.15)	0.132
Casualties close to you				
No	2488 (98.2)	41 (1.8)	1 (Reference)	
Yes	353 (95.8)	13 (4.2)	1.21 (0.58, 2.52)	0.608
Handling/seeing dead bodies				
No	2570 (97.9)	49 (2.1)	1 (Reference)	
Yes	283 (96.9)	8 (3.1)	0.84 (0.36, 1.94)	0.676
Threatening situation unable to respond				
No	2841 (97.9)	56 (2.1)	1 (Reference)	
Yes	41 (94.5)	2 (5.5)	0.86 (0.21, 3.57)	0.832
Witness to human degradation and misery				
No	2821 (98.0)	52 (2.0)	1 (Reference)	
Yes	42 (89.6)	4 (10.4)	3.68 (1.26, 10.74)	0.017
Discharging own weapon				
No	2874 (97.9)	57 (2.1)	1 (Reference)	
Yes	13 (88.9)	1 (11.1)	1.50 (0.27, 8.34)	0.645
Own actions resulted in death or injury				
No	2795 (98.0)	53 (2.0)	1 (Reference)	
Yes	59 (91.7)	4 (8.3)	2.53 (0.94, 6.79)	0.066

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.30: Other anxiety syndrome as measured by PHQ for members deployed to supporting areas outside Iraq (N=3012)

Exposure (Iraq)	No anxiety Criteria	Other anxiety Criteria	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
Potential for exposure				
No	1770 (99.0)	17 (1.0)	1 (Reference)	0.990
Yes	961 (98.0)	18 (2.0)	1.00 (0.47, 2.10)	
Coming under fire				
No	2260 (99.1)	21 (0.9)	1 (Reference)	0.120
Yes	437 (96.5)	14 (3.5)	1.93 (0.84, 4.40)	
In danger of being injured or killed				
No	2269 (99.1)	20 (0.9)	1 (Reference)	0.225
Yes	466 (96.7)	15 (3.3)	1.66 (0.73, 3.77)	
Casualties close to you				
No	2382 (98.9)	26 (1.1)	1 (Reference)	0.946
Yes	331 (97.4)	8 (2.6)	1.03 (0.40, 2.69)	
Handling/seeing dead bodies				
No	2460 (98.9)	26 (1.1)	1 (Reference)	0.073
Yes	262 (96.1)	9 (3.9)	2.18 (0.93, 5.10)	
Threatening situation unable to respond				
No	2720 (98.7)	33 (1.3)	1 (Reference)	0.840
Yes	34 (93.0)	2 (7.0)	0.82 (0.13, 5.41)	
Witness to human degradation and misery				
No	2697 (98.8)	32 (1.2)	1 (Reference)	0.306
Yes	36 (90.9)	3 (9.1)	2.36 (0.46, 12.21)	
Discharging own weapon				
No	2746 (98.8)	32 (1.2)	1 (Reference)	0.013
Yes	11 (76.0)	3 (24.0)	6.43 (1.48, 27.89)	
Own actions resulted in death or injury				
No	2672 (98.8)	31 (1.2)	1 (Reference)	0.003
Yes	53 (91.2)	4 (8.8)	3.43 (1.51, 7.81)	

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Afghanistan (PHQ)

Table 4.31: Major depressive syndrome as measured by PHQ for members deployed to Afghanistan (N=3873)

Exposure (Afghanistan)	No Major Depressive Syndrome	Major Depressive Syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
Potential for exposure				
No	1114 (98.8)	12 (1.2)	1 (Reference)	
Yes	2748 (96.5)	92 (3.5)	1.48 (0.76, 2.91)	0.249
Coming under fire				
No	592 (99.1)	4 (0.9)	1 (Reference)	
Yes	3281 (96.8)	99 (3.2)	2.09 (0.79, 5.56)	0.140
In danger of being injured or killed				
No	2043 (98.3)	31 (1.7)	1 (Reference)	
Yes	1809 (96.0)	73 (4.0)	0.96 (0.57, 1.62)	0.880
Casualties close to you				
No	1936 (98.4)	29 (1.6)	1 (Reference)	
Yes	1902 (96.1)	73 (3.9)	1.51 (0.89, 2.58)	0.126
Handling/seeing dead bodies				
No	2359 (98.6)	33 (1.4)	1 (Reference)	
Yes	1494 (95.1)	70 (4.9)	2.15 (1.31, 3.53)	0.002
Threatening situation unable to respond				
No	3354 (97.9)	66 (2.1)	1 (Reference)	
Yes	512 (93.0)	38 (7.0)	1.90 (1.17, 3.09)	0.010
Witness to human degradation and misery				
No	3398 (97.9)	68 (2.1)	1 (Reference)	
Yes	458 (92.5)	35 (7.5)	2.51 (1.59, 3.96)	<0.001
Discharging own weapon				
No	3282 (97.5)	78 (2.5)	1 (Reference)	
Yes	588 (95.2)	27 (4.8)	0.76 (0.46, 1.25)	0.277
Own actions resulted in death or injury				
No	3558 (97.4)	84 (2.6)	1 (Reference)	
Yes	282 (94.1)	18 (5.9)	1.51 (0.89, 2.55)	0.124

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.32: Panic syndrome criteria as measured by PHQ for members deployed to Afghanistan (N=4160)

Exposure (Afghanistan)	No Panic Syndrome Criteria <i>n</i> ^a (%) ^b	Panic Syndrome Criteria <i>n</i> ^a (%) ^b	OR (95%CI) ^c	<i>p</i> -value
Potential for exposure				
No	1128 (98.3)	17 (1.7)	1 (Reference)	
Yes	2814 (96.6)	91 (3.4)	0.87 (0.47, 1.61)	0.648
Coming under fire				
No	596 (97.6)	14 (2.4)	1 (Reference)	
Yes	3355 (97.0)	94 (3.0)	0.82 (0.44, 1.56)	0.549
In danger of being injured or killed				
No	2091 (98.5)	30 (1.5)	1 (Reference)	
Yes	1839 (95.6)	78 (4.4)	1.70 (1.06, 2.73)	0.027
Casualties close to you				
No	1972 (98.0)	38 (2.0)	1 (Reference)	
Yes	1946 (96.2)	69 (3.8)	1.00 (0.66, 1.53)	0.991
Handling/seeing dead bodies				
No	2407 (98.5)	38 (1.5)	1 (Reference)	
Yes	1522 (95.0)	70 (5.0)	1.85 (1.15, 2.98)	0.012
Threatening situation unable to respond				
No	3429 (97.9)	69 (2.1)	1 (Reference)	
Yes	518 (92.3)	39 (7.7)	2.35 (1.47, 3.77)	<0.001
Witness to human degradation and misery				
No	3482 (97.9)	69 (2.1)	1 (Reference)	
Yes	454 (91.4)	39 (8.6)	2.75 (1.79, 4.23)	<0.001
Discharging own weapon				
No	3359 (97.6)	79 (2.4)	1 (Reference)	
Yes	593 (94.4)	30 (5.6)	1.08 (0.66, 1.76)	0.761
Own actions resulted in death or injury				
No	3639 (97.5)	86 (2.5)	1 (Reference)	
Yes	283 (93.5)	19 (6.5)	1.31 (0.74, 2.30)	0.355

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.33: Other anxiety syndrome as measured by PHQ for members deployed to Afghanistan (N=4160)

Exposure (Afghanistan)	No anxiety Criteria	Other anxiety Criteria	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
Potential for exposure				
No	1091 (99.3)	7 (0.7)	1 (Reference)	0.006
Yes	2665 (97.7)	59 (2.3)	3.04 (1.38, 6.67)	
Coming under fire				
No	571 (99.0)	4 (1.0)	1 (Reference)	0.097
Yes	3194 (98.0)	62 (2.0)	2.06 (0.88, 4.81)	
In danger of being injured or killed				
No	2005 (98.6)	25 (1.4)	1 (Reference)	0.267
Yes	1740 (97.7)	40 (2.3)	0.70 (0.37, 1.32)	
Casualties close to you				
No	1896 (98.5)	26 (1.5)	1 (Reference)	0.899
Yes	1842 (97.8)	39 (2.2)	0.97 (0.57, 1.63)	
Handling/seeing dead bodies				
No	2320 (98.9)	25 (1.1)	1 (Reference)	0.062
Yes	1426 (97.1)	40 (2.9)	1.67 (0.98, 2.87)	
Threatening situation unable to respond				
No	3275 (98.5)	48 (1.5)	1 (Reference)	0.128
Yes	488 (96.6)	17 (3.4)	1.65 (0.87, 3.16)	
Witness to human degradation and misery				
No	3323 (98.3)	52 (1.7)	1 (Reference)	0.306
Yes	428 (97.0)	14 (3.0)	1.39 (0.74, 2.64)	
Discharging own weapon				
No	3205 (98.3)	51 (1.7)	1 (Reference)	0.881
Yes	560 (97.1)	15 (2.9)	1.05 (0.54, 2.05)	
Own actions resulted in death or injury				
No	3480 (98.5)	51 (1.5)	1 (Reference)	0.022
Yes	259 (95.5)	11 (4.5)	2.36 (1.13, 4.92)	

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.34: Major depressive syndrome as measured by PHQ for members deployed to areas outside Afghanistan (N=2530)

Exposure (Afghanistan)	No Major Depressive Syndrome	Major Depressive Syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
Potential for exposure				
No	1549 (97.4)	37 (2.6)	1 (Reference)	0.567
Yes	651 (95.5)	27 (4.5)	1.22 (0.62, 2.37)	
Coming under fire				
No	1907 (97.0)	53 (3.0)	1 (Reference)	0.589
Yes	279 (95.0)	12 (5.0)	1.23 (0.59, 2.56)	
In danger of being injured or killed				
No	1878 (97.3)	48 (2.7)	1 (Reference)	0.436
Yes	335 (94.2)	17 (5.8)	1.36 (0.63, 2.98)	
Casualties close to you				
No	1965 (97.0)	53 (3.0)	1 (Reference)	0.895
Yes	215 (94.6)	12 (5.4)	0.95 (0.44, 2.07)	
Handling/seeing dead bodies				
No	2050 (97.1)	55 (2.9)	1 (Reference)	0.193
Yes	161 (93.5)	10 (6.5)	1.71 (0.76, 3.84)	
Threatening situation unable to respond				
No	2138 (97.1)	60 (2.9)	1 (Reference)	0.603
Yes	87 (91.6)	5 (8.4)	1.33 (0.45, 3.93)	
Witness to human degradation and misery				
No	2171 (97.0)	62 (3.0)	1 (Reference)	0.328
Yes	48 (90.7)	3 (9.3)	1.98 (0.50, 7.79)	
Discharging own weapon				
No	2219 (96.9)	63 (3.1)	1 (Reference)	0.049
Yes	2 (43.8)	2 (56.2)	12.11 (1.01, 145.11)	
Own actions resulted in death or injury				
No	2182 (96.8)	64 (3.2)	1 (Reference)	0.551
Yes	23 (92.5)	1 (7.5)	0.59 (0.11, 3.29)	

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.35: Panic syndrome criteria as measured by PHQ for members deployed to areas outside Afghanistan (N=2530)

Exposure (Afghanistan)	No Panic Syndrome Criteria <i>n</i> ^a (%) ^b	Panic Syndrome Criteria <i>n</i> ^a (%) ^b	OR (95%CI) ^c	<i>p</i> -value
Potential for exposure				
No	1597 (98.5)	23 (1.5)	1 (Reference)	
Yes	670 (96.1)	23 (3.9)	1.59 (0.83, 3.07)	0.164
Coming under fire				
No	1969 (98.2)	32 (1.8)	1 (Reference)	
Yes	285 (94.4)	14 (5.6)	2.33 (1.10, 4.94)	0.028
In danger of being injured or killed				
No	1943 (98.3)	31 (1.7)	1 (Reference)	
Yes	340 (95.0)	15 (5.0)	1.33 (0.63, 2.80)	0.461
Casualties close to you				
No	2024 (98.0)	37 (2.0)	1 (Reference)	
Yes	222 (95.4)	9 (4.6)	1.39 (0.61, 3.15)	0.432
Handling/seeing dead bodies				
No	2113 (97.9)	40 (2.1)	1 (Reference)	
Yes	168 (95.8)	6 (4.2)	0.90 (0.31, 2.65)	0.848
Threatening situation unable to respond				
No	2208 (98.2)	38 (1.8)	1 (Reference)	
Yes	85 (90.2)	8 (9.8)	3.15 (1.24, 7.96)	0.016
Witness to human degradation and misery				
No	2239 (97.9)	44 (2.1)	1 (Reference)	
Yes	50 (94.6)	2 (5.4)	1.17 (0.28, 4.91)	0.832
Discharging own weapon				
No	2289 (97.9)	44 (2.1)	1 (Reference)	
Yes	2 (42.5)	2 (57.5)	20.29 (3.31, 124.46)	0.001
Own actions resulted in death or injury				
No	2253 (97.8)	45 (2.2)	1 (Reference)	
Yes	22 (92.2)	1 (7.8)	1.57 (0.46, 5.29)	0.471

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.36: Other anxiety syndrome as measured by PHQ for members deployed to areas outside Afghanistan (N=2530)

Exposure (Afghanistan)	No anxiety Criteria	Other anxiety Criteria	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
Potential for exposure				
No	1529 (99.0)	14 (1.0)	1 (Reference)	0.530
Yes	625 (96.9)	18 (3.1)	1.21 (0.66, 2.22)	
Coming under fire				
No	1871 (98.6)	23 (1.4)	1 (Reference)	0.506
Yes	271 (96.3)	9 (3.7)	1.28 (0.62, 2.65)	
In danger of being injured or killed				
No	1856 (98.7)	21 (1.3)	1 (Reference)	0.515
Yes	312 (96.5)	10 (3.5)	1.25 (0.64, 2.43)	
Casualties close to you				
No	1928 (98.6)	24 (1.4)	1 (Reference)	0.291
Yes	205 (95.8)	8 (4.2)	1.59 (0.67, 3.75)	
Handling/seeing dead bodies				
No	2007 (98.6)	26 (1.4)	1 (Reference)	0.530
Yes	158 (95.8)	6 (4.2)	1.29 (0.58, 2.89)	
Threatening situation unable to respond				
No	2108 (98.6)	27 (1.4)	1 (Reference)	0.017
Yes	70 (91.7)	5 (8.3)	3.39 (1.25, 9.24)	
Witness to human degradation and misery				
No	2127 (98.5)	30 (1.5)	1 (Reference)	0.533
Yes	46 (94.8)	2 (5.2)	1.35 (0.53, 3.48)	
Discharging own weapon				
No	2176 (98.5)	30 (1.5)	1 (Reference)	-
Yes	1 (26.0)	2 (74.0)	-	
Own actions resulted in death or injury				
No	2138 (98.5)	30 (1.5)	1 (Reference)	0.001
Yes	22 (88.9)	2 (11.1)	5.34 (2.02, 14.09)	

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Repeated exposure to trauma: mental and general health

Iraq

Participants who deployed to Iraq and reported one or more combat exposures were found to have statistically significantly greater major depressive syndrome, panic, and anxiety syndromes.

Table 4.37: Association between repeated exposure to traumatic experiences in Iraq and major depressive, panic and anxiety syndrome, as measured by the PHQ (N=5915)

Traumatic exposures scale	No major depressive syndrome	Major depressive syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	1018 (97.7)	21 (2.3)	1 (Reference)	
1-5	1198 (96.0)	42 (4.0)	2.14 (1.29, 3.55)	0.003
6-15	1242 (96.1)	46 (3.9)	2.54 (1.52, 4.24)	<0.001
16-90	1710 (93.0)	115 (7.0)	5.26 (3.15, 8.81)	<0.001
Traumatic exposures scale	No panic syndrome	Panic syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	1037 (98.1)	20 (1.9)	1 (Reference)	
1-5	1245 (97.2)	29 (2.8)	1.79 (1.04, 3.06)	0.034
6-15	1281 (97.4)	33 (2.6)	2.09 (1.22, 3.58)	0.008
16-90	1721 (92.2)	138 (7.8)	7.95 (4.77, 13.24)	<0.001
Traumatic exposures scale	No anxiety syndrome	Other anxiety syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	995 (98.3)	13 (1.7)	1 (Reference)	
1-5	1182 (97.5)	25 (2.5)	2.06 (1.07, 3.96)	0.030
6-15	1206 (97.5)	28 (2.5)	2.90 (1.49, 5.61)	0.002
16-90	1571 (96.0)	60 (4.0)	6.03 (3.10, 11.7)	<0.001

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.38: Association between repeated exposure to traumatic experiences in supporting areas of Iraq and general health (N=3012)

Traumatic exposures scale	Good/very good/excellent health	Fair or poor general health	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	1180 (91.5)	108 (8.5)	1 (Reference)	
1-5	834 (87.0)	116 (13.0)	1.67 (1.30, 2.14)	<0.001
6-15	346 (81.0)	77 (19.0)	2.56 (1.91, 3.42)	<0.001
16-90	76 (76.7)	22 (23.3)	3.40 (2.10, 5.51)	<0.001
Traumatic exposures scale	Good/very good/excellent health	Fair or poor general health	OR adjusted for PCL-C (95%CI) ^d	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	1180 (91.5)	108 (8.5)	1 (Reference)	
1-5	834 (87.0)	116 (13.0)	1.62 (1.26, 2.09)	<0.001
6-15	346 (81.0)	77 (19.0)	2.26 (1.68, 3.04)	<0.001
16-90	76 (76.7)	22 (23.3)	1.98 (1.11, 3.56)	0.022

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

d Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, gender, and PCL-C

Afghanistan

Participants who deployed to Afghanistan and reported having six or more traumatic experiences were statistically significantly more likely to have panic syndrome and other anxiety syndrome. Participants who reported having 16 or more traumatic experiences were statistically significantly more likely to have major depressive disorder. Overall, as the reported frequency of traumatic experiences increased, so did the odds of reporting mental health symptoms.

Table 4.39: Associations between repeated exposure to traumatic experiences in Afghanistan and major depressive, panic, and anxiety syndrome (PHQ) (N=4160)

Traumatic exposures scale	No major depressive syndrome	Major depressive syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	243 (99.3)	1 (0.7)	1 (Reference)	
1-5	856 (99.1)	7 (0.9)	1.40 (0.19, 10.43)	0.741
6-15	1063 (97.8)	23 (2.2)	3.94 (0.58, 26.67)	0.159
16-90	1579 (95.4)	72 (4.6)	10.33 (1.57, 67.78)	0.015
Traumatic exposures scale	No panic syndrome	Panic syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	243 (98.9)	2 (1.1)	1 (Reference)	
1-5	884 (99.1)	8 (0.9)	1.00 (0.40, 2.51)	0.993
6-15	1080 (97.2)	30 (2.8)	3.26 (1.52, 6.98)	0.002
16-90	1608 (95.7)	67 (4.3)	6.26 (2.96, 13.22)	<0.001
Traumatic exposures scale	No anxiety syndrome	Anxiety syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	235 (99.2)	1 (0.8)	1 (Reference)	
1-5	857 (99.3)	5 (0.7)	1.12 (0.47, 2.66)	0.805
6-15	1026 (98.2)	18 (1.8)	3.04 (1.85, 5.01)	<0.001
16-90	1515 (97.4)	40 (2.6)	5.60 (3.57, 8.79)	<0.001

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.40: Associations between repeated exposure to traumatic experiences in supporting areas outside Afghanistan and general health (N=2530)

Traumatic exposures scale	Good/very good/excellent health	Fair or poor general health	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	1031 (89.4)	107 (10.6)	1 (Reference)	
1-5	597 (87.8)	76 (12.2)	1.17 (0.86, 1.60)	0.322
6-15	227 (83.4)	43 (16.6)	1.56 (1.06, 2.30)	0.025
16-90	53 (80.7)	12 (19.3)	1.79 (0.86, 3.71)	0.119
Traumatic exposures scale	Good/very good/excellent health	Fair or poor general health	OR adjusted for PCL-C (95%CI) ^d	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	1031 (89.4)	107 (10.6)	1 (Reference)	
1-5	597 (87.8)	76 (12.2)	1.09 (0.79, 1.50)	0.588
6-15	227 (83.4)	43 (16.6)	1.25 (0.83, 1.89)	0.286
16-90	53 (80.7)	12 (19.3)	0.91 (0.36, 2.32)	0.838

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

d Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, gender, and PCL-C

The effect of different types of traumatic experiences on mental and general health

Iraq

Table 4.41: Association between number of different types of traumatic experiences in Iraq and PTSD (PCL-C), psychological distress (K10), and alcohol misuse (AUDIT). (N=5915)

Traumatic exposures types	No PTSD (PCL-C<50)	PTSD (PCL-C≥50)	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	1045 (98.3)	16 (1.7)	1 (Reference)	
1-2	1832 (97.0)	51 (3.0)	2.37 (1.43, 3.94)	0.001
3-4	1505 (95.2)	69 (4.8)	4.95 (2.96, 8.26)	<0.001
5-9	929 (83.9)	156 (16.1)	20.81 (12.47, 34.73)	<0.001
Traumatic exposures types	No psychological distress (K10<30)	Psychological distress (K10≥30)	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	1045 (98.0)	19 (2.0)	1 (Reference)	
1-2	1823 (96.3)	62 (3.7)	2.53 (1.55, 4.12)	<0.001
3-4	1510 (95.7)	60 (4.3)	3.73 (2.18, 6.37)	<0.001
5-9	977 (88.8)	108 (11.2)	11.35 (6.69, 19.27)	<0.001
Traumatic exposures types	Alcohol misuse (AUDIT<20)	Alcohol misuse (AUDIT≥20)	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	1052 (98.7)	11 (1.3)	1 (Reference)	
1-2	1853 (98.1)	29 (1.9)	1.89 (0.98, 3.63)	0.057
3-4	1536 (97.3)	34 (2.7)	3.21 (1.62, 6.37)	0.001
5-9	1018 (93.2)	65 (6.8)	8.13 (4.12, 16.04)	<0.001

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.42: Association between numbers of different types of traumatic experiences in Iraq and major depressive, panic, and anxiety syndrome as measured by the PHQ (N=5915)

Traumatic exposure types	No major depressive syndrome	Major depressive syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	1018 (97.7)	21 (2.3)	1 (Reference)	
1-2	1769 (96.3)	58 (3.7)	2.10 (1.29, 3.42)	0.003
3-4	1467 (96.0)	58 (4.0)	2.78 (1.66, 4.67)	<0.001
5-9	970 (90.5)	90 (9.5)	7.34 (4.36, 12.34)	<0.001
Traumatic exposure types	No panic syndrome	Panic syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	1037 (98.1)	20 (1.9)	1 (Reference)	
1-2	1835 (97.8)	37 (2.2)	1.53 (0.91, 2.56)	0.109
3-4	1506 (96.0)	59 (4.0)	3.47 (2.08, 5.79)	<0.001
5-9	963 (89.5)	107 (10.5)	11.10 (6.64, 18.53)	<0.001
Traumatic exposure types	No anxiety syndrome	Anxiety syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	995 (98.3)	13 (1.7)	1 (Reference)	
1-2	1747 (97.7)	35 (2.3)	2.06 (1.11, 3.83)	0.023
3-4	1410 (97.3)	35 (2.7)	3.49 (1.80, 6.76)	<0.001
5-9	863 (94.6)	45 (5.4)	8.02 (4.01, 16.03)	<0.001

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.43: Association between number of different types of traumatic experiences in Iraq and general health (N=5915)

Traumatic exposure types	Good/very good/ excellent health	Fair or poor general health	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	931 (87.4)	133 (12.6)	1 (Reference)	
1-2	1618 (85.1)	265 (14.9)	1.42 (1.15, 1.76)	0.001
3-4	1342 (84.5)	227 (15.5)	1.73 (1.36, 2.21)	<0.001
5-9	829 (74.7)	256 (25.3)	3.31 (2.57, 4.27)	<0.001
Traumatic exposure types	Good/very good/ excellent health	Fair or poor general health	OR adjusted for PCL-C (95%CI) ^d	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	931 (87.4)	133 (12.6)	1 (Reference)	
1-2	1618 (85.1)	265 (14.9)	1.29 (1.04, 1.61)	0.021
3-4	1342 (84.5)	227 (15.5)	1.45 (1.13, 1.86)	0.004
5-9	829 (74.7)	256 (25.3)	2.04 (1.56, 2.67)	<0.001

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

d Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, gender, and PCL-C

Afghanistan

Table 4.44: Associations between number of different types of traumatic experiences in Afghanistan and PTSD (PCL-C), psychological distress (K10), and alcohol misuse (AUDIT) (N=4160)

Traumatic exposure types	No PTSD (PCL-C<50)	PTSD (PCL-C ≥50)	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	246 (98.7)	3 (1.3)	1 (Reference)	
1-2	1274 (98.4)	17 (1.6)	1.49 (0.47, 4.72)	0.501
3-4	1175 (96.6)	40 (3.4)	3.11 (1.02, 9.47)	0.046
5-9	1148 (91.8)	93 (8.2)	9.07 (3.03, 27.14)	<0.001
Traumatic exposure types	No psychological distress (K10<30)	Psychological distress (K10≥30)	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	244 (97.7)	5 (2.3)	1 (Reference)	
1-2	1272 (98.5)	18 (1.5)	0.83 (0.28, 2.47)	0.738
3-4	1170 (96.6)	42 (3.4)	2.06 (0.79, 5.39)	0.139
5-9	1171 (93.5)	71 (6.5)	4.50 (1.74, 11.64)	0.002
Traumatic exposure types	No alcohol misuse (AUDIT<20)	Alcohol misuse (AUDIT≥20)	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	247 (98.8)	2 (1.2)	1 (Reference)	
1-2	1280 (99.1)	10 (0.9)	0.73 (0.20, 2.71)	0.640
3-4	1195 (98.3)	18 (1.7)	1.21 (0.36, 4.12)	0.759
5-9	1197 (95.9)	45 (4.1)	2.62 (0.81, 8.46)	0.107

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.45: Associations between number of different types of traumatic experiences in Afghanistan and major depressive, panic, and anxiety syndrome, as measured by the PHQ (N=4160)

Traumatic exposure types	No major depressive syndrome	Major depressive syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	242 (99.3)	1 (0.7)	1 (Reference)	
1-2	1242 (99.1)	10 (0.9)	1.46 (0.20, 10.40)	0.706
3-4	1146 (97.0)	33 (3.0)	5.48 (0.81, 36.86)	0.081
5-9	1161 (95.2)	56 (4.8)	11.64 (1.75, 77.59)	0.011
Traumatic exposure types	No panic syndrome	Panic syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	242 (98.9)	2 (1.1)	1 (Reference)	
1-2	1264 (98.4)	20 (1.6)	1.74 (0.82, 3.72)	0.150
3-4	1185 (98.1)	24 (1.9)	2.22 (1.03, 4.80)	0.043
5-9	1172 (94.6)	60 (5.4)	8.09 (3.87, 16.91)	<0.001
Traumatic exposure types	No anxiety syndrome	Anxiety syndrome	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	234 (99.2)	1 (0.8)	1 (Reference)	
1-2	1223 (99.1)	11 (0.9)	1.56 (0.84, 2.87)	0.158
3-4	1115 (97.8)	25 (2.2)	4.06 (2.58, 6.38)	<0.001
5-9	1111 (97.5)	28 (2.5)	5.36 (3.28, 8.77)	<0.001

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

Table 4.46: Association between number of different types of traumatic experiences in Afghanistan and general health (N=3997)

Traumatic exposure types	Good/very good/ excellent health	Fair or poor general health	OR (95%CI) ^c	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	230 (91.3)	19 (8.7)	1 (Reference)	
1-2	1168 (90.0)	123 (10.0)	1.34 (0.83, 2.17)	0.235
3-4	1038 (85.3)	175 (14.7)	2.11 (1.31, 3.40)	0.002
5-9	1066 (85.3)	178 (14.7)	2.25 (1.39, 3.67)	0.001
Traumatic exposure types	Good/very good/ excellent health	Fair or poor general health	OR adjusted for PCL-C (95%CI) ^d	p-value
	n ^a (%) ^b	n ^a (%) ^b		
0	230 (91.3)	19 (8.7)	1 (Reference)	
1-2	1168 (90.0)	123 (10.0)	1.31 (0.80, 2.15)	0.280
3-4	1038 (85.3)	175 (14.7)	1.94 (1.19, 3.18)	0.008
5-9	1066 (85.3)	178 (14.7)	1.66 (1.01, 2.74)	0.047

a Unweighted totals

b Estimated prevalences, weighted for non-response

c Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, and gender

d Estimated odds ratios, weighted for non-response and adjusted for age, rank, Service, gender, and PCL-C

Environmental exposures (Chapter 6)

Respiratory exposures

Table 6.12: Frequencies for self-reported exposure to respiratory irritants among ADF personnel deployed in Iraq and Afghanistan and to supporting areas

Exposure	Iraq		Afghanistan	
	Out (N=3012) n (%) ^a	In (N=5915) n (%) ^a	In (N=4160) n (%) ^a	Out (N=2530) n (%) ^a
Smoke from fires/waste incineration/oil fire				
Never	2114 (70.9)	2408 (41.1)	912 (20.9)	1811 (76.3)
Once	243 (8.2)	402 (6.9)	212 (5.0)	135 (5.5)
2-4 times	343 (11.7)	1056 (17.9)	751 (17.9)	232 (9.6)
5-9 times	95 (3.2)	496 (8.4)	383 (9.6)	58 (2.3)
10+	173 (6.1)	1470 (25.7)	1858 (46.6)	145 (6.3)
Dust storms				
Never	281 (9.4)	702 (12.7)	415 (9.9)	621 (27.8)
Once	275 (9.0)	428 (7.4)	255 (6.1)	254 (10.7)
2-4 times	1110 (37.0)	1749 (29.7)	1172 (28.3)	807 (32.8)
5-9 times	600 (20.0)	1099 (18.1)	762 (18.6)	292 (11.9)
10+	721 (24.5)	1889 (32.1)	1521 (37.1)	409 (16.8)
Inhalation of fine dust or fibres				
Never	845 (27.9)	1806 (31.3)	552 (12.8)	1154 (50.5)
Once	113 (3.7)	215 (3.8)	98 (2.4)	74 (3.1)
2-4 times	466 (15.8)	861 (14.4)	557 (13.2)	322 (13.0)
5-9 times	243 (8.4)	515 (8.5)	386 (9.2)	139 (5.8)
10+	1306 (44.2)	2433 (42.0)	2522 (62.5)	680 (27.6)
Others' cigarette smoke				
Never	1702 (56.9)	2518 (41.8)	1595 (37.1)	1457 (61.1)
Once	70 (2.4)	120 (2.1)	110 (2.7)	68 (2.7)
2-4 times	364 (12.3)	787 (13.0)	552 (13.2)	251 (10.4)
5-9 times	182 (6.1)	448 (7.6)	281 (6.9)	107 (4.6)
10+	665 (22.4)	1985 (35.6)	1579 (40.0)	492 (21.2)
Diesel exhaust				
Never	851 (28.5)	987 (16.5)	523 (12.0)	728 (30.4)
Once	86 (2.8)	117 (2.0)	79 (1.9)	79 (3.5)
2-4 times	430 (14.4)	804 (13.1)	536 (12.4)	349 (14.2)
5-9 times	262 (9.0)	501 (8.1)	377 (8.9)	180 (7.6)
10+	1341 (45.3)	3449 (60.3)	2605 (64.9)	1038 (44.4)
Aviation/marine/automotive fuels				
Never	1045 (34.9)	1874 (31.0)	1343 (31.5)	885 (36.8)
Once	98 (3.4)	183 (3.1)	128 (3.1)	73 (3.3)
2-4 times	341 (11.6)	907 (15.3)	652 (15.9)	282 (11.8)
5-9 times	206 (7.0)	508 (8.6)	396 (9.7)	151 (6.4)
10+	1290 (43.2)	2380 (42.0)	1592 (39.7)	974 (41.8)
Aircraft fumes				
Never	504 (17.2)	1344 (23.3)	690 (16.9)	641 (28.0)
Once	91 (3.1)	202 (3.6)	153 (3.9)	76 (3.2)
2-4 times	419 (14.3)	1403 (23.9)	998 (24.5)	324 (13.7)
5-9 times	262 (8.9)	766 (12.9)	563 (13.9)	187 (7.7)
10+	1697 (56.5)	2139 (36.3)	1711 (40.8)	1137 (47.4)
Toxic industrial chemicals				
Never	2255 (75.8)	3802 (64.5)	2770 (66.3)	1835 (76.6)
Once	111 (3.9)	251 (4.4)	186 (4.7)	83 (3.5)
2-4 times	222 (7.6)	695 (12.3)	504 (13.1)	169 (7.6)
5-9 times	106 (3.6)	295 (5.1)	188 (4.8)	61 (2.8)
10+	265 (9.1)	749 (13.8)	433 (11.1)	208 (9.5)

Exposure	Iraq		Afghanistan	
	Out (N=3012) n (%) ^a	In (N=5915) n (%) ^a	In (N=4160) n (%) ^a	Out (N=2530) n (%) ^a
Solvents				
Never	2003 (66.8)	2925 (47.7)	2351 (55.0)	1506 (61.3)
Once	120 (4.1)	282 (5.0)	200 (5.0)	106 (4.5)
2-4 times	388 (13.3)	1131 (19.6)	679 (17.3)	321 (14.1)
5-9 times	137 (4.6)	451 (8.1)	267 (6.9)	120 (5.2)
10+	318 (11.2)	1042 (19.6)	603 (15.8)	313 (14.9)
Living area sprayed/fogged with chemicals				
Never	2458 (82.5)	3851 (66.3)	2642 (63.8)	2125 (90.2)
Once	117 (4.1)	276 (4.7)	242 (6.1)	67 (2.8)
2-4 times	191 (6.6)	645 (10.9)	555 (13.8)	86 (3.6)
5-9 times	55 (1.9)	280 (4.9)	196 (4.9)	23 (0.9)
10+	140 (4.9)	772 (13.1)	457 (11.4)	59 (2.5)

a unweighted totals, weighted proportions, proportions may not add up to 100 due to rounding, and categories may not sum up to the total due to missing information

Table 6.13: Association between respiratory exposures and self-reported asthma-like symptoms, as measured by the ECHRS, for those deployed in Iraq and in Afghanistan

Exposure	Asthma-like symptoms (ECHRS)					
	In Iraq (N = 5677)			In Afghanistan (N = 3975)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Smoke and dust						
Minimal	122 (7.7)	1 (Reference)	-	35 (6.9)	1 (Reference)	-
Low	119 (10.8)	1.52 (1.19, 1.95)	0.001	61 (8.7)	1.25 (0.83, 1.90)	0.286
Moderate	125 (11.3)	1.76 (1.35, 2.29)	<0.001	68 (6.9)	0.94 (0.62, 1.42)	0.758
High	239 (14.4)	2.43 (1.87, 3.15)	<0.001	221 (12.3)	1.61 (1.10, 2.34)	0.013
Fumes and fuels						
Minimal	67 (6.6)	1 (Reference)	-	39 (6.7)	1 (Reference)	-
Low	138 (10.3)	1.54 (1.16, 2.04)	0.003	89 (9.1)	1.23 (0.84, 1.78)	0.286
Moderate	190 (10.7)	1.49 (1.13, 1.97)	0.005	106 (8.0)	1.03 (0.71, 1.49)	0.884
High	217 (15.6)	2.32 (1.77, 3.05)	<0.001	149 (13.7)	1.73 (1.20, 2.48)	0.003
Chemicals						
None	136 (7.0)	1 (Reference)	-	107 (6.4)	1 (Reference)	-
Minimal	22 (10.9)	1.59 (1.03, 2.46)	0.036	16 (11.0)	1.68 (0.99, 2.85)	0.057
Moderate	113 (10.8)	1.46 (1.15, 1.87)	0.002	67 (10.8)	1.59 (1.16, 2.17)	0.004
High	326 (14.1)	1.97 (1.60, 2.41)	<0.001	183 (12.2)	1.80 (1.40, 2.31)	<0.001

Weighted for non-response and adjusted for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF), current smoker (yes, no) and exposure to others' cigarette smoking on deployment (yes, no).

Table 6.14: Association between respiratory exposures and doctor-diagnosed asthma for those deployed in Iraq and in Afghanistan

Exposure	Doctor-diagnosed asthma					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Smoke and dust						
Minimal	50 (2.9)	1 Reference	-	10 (2.0)	1 Reference	-
Low	46 (4.0)	1.55 (1.04, 2.33)	0.033	10 (1.3)	0.67 (0.28, 1.61)	0.374
Moderate	33 (3.0)	1.38 (0.85, 2.22)	0.192	18 (1.9)	0.98 (0.39, 2.48)	0.972
High	62 (3.8)	1.94 (1.18, 3.19)	0.009	30 (1.6)	0.66 (0.23, 1.88)	0.438
Fumes and fuels						
Minimal	27 (2.7)	1 Reference	-	11 (2.0)	1 Reference	-
Low	45 (3.2)	1.10 (0.68, 1.78)	0.700	10 (1.0)	0.65 (0.25, 1.66)	0.364
Moderate	53 (2.8)	0.80 (0.47, 1.35)	0.396	20 (1.5)	0.93 (0.34, 2.55)	0.893
High	67 (4.9)	1.19 (0.68, 2.07)	0.544	27 (2.4)	1.44 (0.51, 4.07)	0.492
Chemicals						
None	52 (2.5)	1 Reference	-	25 (1.6)	1 Reference	-
Minimal	6 (3.2)	1.32 (0.60, 2.90)	0.497	1 (0.5)	0.30 (0.06, 1.61)	0.162
Moderate	31 (2.7)	0.97 (0.63, 1.49)	0.895	9 (1.3)	0.80 (0.37, 1.71)	0.561
High	101 (4.4)	1.55 (1.03, 2.32)	0.035	32 (2.1)	1.09 (0.56, 2.14)	0.798

Weighted for non-response and adjusted for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF), current smoker (yes, no) and exposure to others' cigarette smoking on deployment (yes, no).

Table 6.15: Association between respiratory exposures and doctor-diagnosed bronchitis for those deployed in Iraq and in Afghanistan

Exposure	Doctor-diagnosed bronchitis					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Smoke and dust						
Minimal	42 (3.0)	1 Reference	-	9 (1.8)	1 Reference	-
Low	39 (3.2)	1.09 (0.70, 1.71)	0.700	15 (2.2)	0.83 (0.39, 1.76)	0.619
Moderate	47 (4.0)	1.40 (0.88, 2.22)	0.155	17 (1.8)	0.63 (0.27, 1.43)	0.267
High	91 (5.2)	1.75 (1.07, 2.85)	0.025	44 (2.3)	0.66 (0.30, 1.43)	0.289
Fumes and fuels						
Minimal	23 (2.5)	1 Reference	-	6 (1.0)	1 Reference	-
Low	49 (3.7)	1.16 (0.67, 1.99)	0.599	25 (2.3)	3.24 (1.33, 7.90)	0.010
Moderate	69 (3.7)	0.95 (0.54, 1.69)	0.868	26 (1.9)	2.97 (1.16, 7.59)	0.023
High	81 (5.5)	1.33 (0.71, 2.49)	0.382	30 (2.9)	4.01 (1.49, 10.83)	0.006
Chemicals						
None	51 (2.5)	1 Reference	-	27 (1.7)	1 Reference	-
Minimal	9 (4.1)	1.42 (0.69, 2.92)	0.346	5 (3.4)	1.80 (0.71, 4.55)	0.213
Moderate	38 (3.6)	1.16 (0.76, 1.78)	0.488	14 (2.2)	1.08 (0.56, 2.10)	0.813
High	117 (5.0)	1.55 (1.02, 2.34)	0.040	39 (2.5)	1.11 (0.62, 2.00)	0.730

Weighted for non-response and adjusted for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF), current smoker (yes, no) and exposure to others' cigarette smoking on deployment (yes, no).

Table 6.16: Association between respiratory exposures and doctor-diagnosed sinus problems for those deployed in Iraq and in Afghanistan

Exposure	Doctor-diagnosed sinus problems					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Smoke and dust						
Minimal	154 (9.9)	1 Reference	-	31 (5.7)	1 Reference	-
Low	137 (11.7)	1.22 (0.95, 1.57)	0.122	50 (7.2)	1.14 (0.73, 1.78)	0.577
Moderate	146 (12.6)	1.34 (1.03, 1.76)	0.031	68 (7.0)	0.98 (0.62, 1.54)	0.924
High	225 (12.8)	1.42 (1.07, 1.90)	0.017	154 (8.1)	1.01 (0.64, 1.60)	0.973
Fumes and fuels						
Minimal	85 (8.4)	1 Reference	-	28 (4.5)	1 Reference	-
Low	153 (11.2)	1.26 (0.95, 1.68)	0.114	64 (6.3)	1.50 (0.96, 2.34)	0.077
Moderate	210 (11.2)	1.24 (0.92, 1.67)	0.152	96 (7.1)	1.82 (1.13, 2.91)	0.014
High	221 (15.2)	1.61 (1.17, 2.23)	0.004	113 (10.2)	2.67 (1.61, 4.41)	<0.001
Chemicals						
None	178 (9.0)	1 Reference	-	112 (6.6)	1 Reference	-
Minimal	25 (10.8)	1.15 (0.76, 1.76)	0.506	11 (6.2)	0.87 (0.49, 1.53)	0.617
Moderate	129 (12.5)	1.35 (1.07, 1.70)	0.010	48 (6.8)	0.91 (0.64, 1.28)	0.580
High	322 (13.4)	1.29 (1.04, 1.61)	0.020	130 (8.7)	1.02 (0.75, 1.39)	0.913

Weighted for non-response and adjusted for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF), current smoker (yes, no) and exposure to others' cigarette smoking on deployment (yes, no).

Table 6.17: Association between respiratory exposures and doctor-diagnosed hay fever for those deployed in Iraq and in Afghanistan

Exposure	Doctor-diagnosed hay fever					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Smoke and dust						
Minimal	169 (10.1)	1 Reference	-	26 (4.9)	1 Reference	-
Low	157 (13.1)	1.35 (1.07, 1.70)	0.010	53 (7.5)	1.30 (0.79, 2.15)	0.308
Moderate	143 (12.2)	1.32 (1.01, 1.71)	0.039	73 (7.4)	1.16 (0.69, 1.96)	0.583
High	245 (14.0)	1.63 (1.23, 2.16)	0.001	139 (7.1)	1.02 (0.60, 1.74)	0.933
Fumes and fuels						
Minimal	91 (8.4)	1 Reference	-	28 (4.5)	1 Reference	-
Low	167 (11.3)	1.23 (0.94, 1.60)	0.129	67 (6.2)	1.58 (0.97, 2.58)	0.066
Moderate	236 (12.7)	1.29 (0.97, 1.70)	0.076	96 (7.2)	1.84 (1.10, 3.07)	0.021
High	229 (16.0)	1.45 (1.08, 1.95)	0.014	101 (8.7)	2.16 (1.25, 3.72)	0.006
Chemicals						
None	195 (9.6)	1 Reference	-	100 (5.5)	1 Reference	-
Minimal	24 (11.1)	1.08 (0.70, 1.66)	0.726	8 (5.0)	0.90 (0.45, 1.79)	0.754
Moderate	138 (12.3)	1.15 (0.92, 1.43)	0.215	52 (7.8)	1.42 (1.01, 2.00)	0.042
High	359 (15.0)	1.24 (1.01, 1.53)	0.038	126 (8.3)	1.47 (1.09, 1.97)	0.011

Weighted for non-response and adjusted for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF), current smoker (yes, no) and exposure to others' cigarette smoking on deployment (yes, no).

Hazardous materials exposures

Table 6.18: Association between exposure to hazardous materials and self-rated general health, as measured by the SF-1, for those deployed in Iraq and in Afghanistan

Exposure	General health					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Non-ionising radiation						
Never	288 (14.2)	1 (Reference)		158 (11.7)	1 (Reference)	
1-9 times	159 (16.5)	1.14 (0.93, 1.40)	0.209	92 (14.3)	1.21 (0.92, 1.58)	0.168
10 or more times	460 (18.6)	1.25 (1.06, 1.46)	0.007	260 (13.4)	1.11 (0.89, 1.37)	0.359
Contact with chemical or biological weapons						
Never	863 (16.3)	1 (Reference)		490 (12.7)	1 (Reference)	
At least once	42 (27.7)	1.52 (1.07, 2.17)	0.020	19 (26.8)	1.57 (0.89, 2.76)	0.117
Contact with depleted uranium shell casings						
Never	775 (15.5)	1 (Reference)		488 (12.9)	1 (Reference)	
At least once	126 (27.7)	1.63 (1.30, 2.04)	<0.001	21 (16.0)	0.96 (0.59, 1.57)	0.870
Exposed to ionising radiation or radioactive materials						
Never	790 (15.7)	1 (Reference)		451 (12.5)	1 (Reference)	
At least once	101 (25.9)	1.53 (1.20, 1.94)	<0.001	54 (18.5)	1.38 (1.02, 1.88)	0.039
Use of NBC suit (not for training)						
Never	858 (16.2)	1 (Reference)		499 (12.8)	1 (Reference)	
At least once	49 (26.2)	1.53 (1.11, 2.11)	0.010	8 (57.0)	3.60 (1.21, 10.72)	0.022

Weighted for non-response and adjusted for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF) and PCL-C.

Table 6.19: Association between exposures to hazardous materials and PTSD, as measured by the PCL-C, for those deployed in Iraq and in Afghanistan

Exposure	PTSD symptoms (PCL-C≥50)					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Non-ionising radiation						
Never	70 (3.7)	1 (Reference)		37 (2.8)	1 (Reference)	
1-9 times	50 (5.7)	1.26 (0.86, 1.83)	0.233	25 (4.6)	1.12 (0.68, 1.85)	0.649
10 or more times	181 (7.6)	1.45 (1.06, 1.98)	0.021	94 (5.3)	1.05 (0.72, 1.53)	0.795
Contact with chemical or biological weapons						
Never	279 (5.6)	1 (Reference)		144 (4.1)	1 (Reference)	
At least once	22 (15.3)	1.61 (1.00, 2.58)	0.050	13 (17.6)	3.02 (1.63, 5.58)	<0.001
Contact with depleted uranium shell casings						
Never	231 (4.9)	1 (Reference)		142 (4.1)	1 (Reference)	
At least once	67 (15.3)	2.03 (1.52, 2.71)	<0.001	13 (10.9)	2.05 (1.13, 3.71)	0.018
Exposed to ionising radiation or radioactive materials						
Never	246 (5.2)	1 (Reference)		132 (4.0)	1 (Reference)	
At least once	48 (12.8)	1.62 (1.17, 2.26)	0.004	23 (8.0)	1.54 (0.98, 2.41)	0.059
Use of NBC suit (not for training)						
Never	285 (5.8)	1 (Reference)		151 (4.2)	1 (Reference)	
At least once	19 (10.4)	1.43 (0.88, 2.32)	0.150	6 (37.7)	7.49 (2.35, 23.86)	<0.001

Weighted for non-response and adjusted for all terms in the table and for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF) and level of combat exposure (based on quartiles of score from scale items)

Table 6.20: Association between exposures to hazardous materials and doctor-diagnosed PTSD for those deployed in Iraq and in Afghanistan

Exposure	Doctor-diagnosed PTSD					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Non-ionising radiation						
Never	110 (5.7)	1 (Reference)		49 (3.7)	1 (Reference)	
1-9 times	86 (9.5)	1.35 (1.00, 1.81)	0.050	37 (5.9)	1.17 (0.76, 1.80)	0.464
10 or more times	213 (9.0)	1.09 (0.84, 1.40)	0.529	115 (6.6)	1.10 (0.78, 1.55)	0.578
Contact with chemical or biological weapons						
Never	385 (7.7)	1 (Reference)		193 (5.4)	1 (Reference)	
At least once	22 (13.8)	1.01 (0.65, 1.56)	0.976	9 (12.3)	1.55 (0.79, 3.01)	0.201
Contact with depleted uranium shell casings						
Never	331 (7.0)	1 (Reference)		182 (5.2)	1 (Reference)	
At least once	72 (16.4)	1.49 (1.13, 1.95)	0.005	17 (13.6)	1.96 (1.17, 3.29)	0.011
Exposed to ionising radiation or radioactive materials						
Never	337 (7.2)	1 (Reference)		172 (5.1)	1 (Reference)	
At least once	64 (16.5)	1.60 (1.20, 2.12)	0.001	25 (9.0)	1.46 (0.96, 2.22)	0.077
Use of NBC suit (not for training)						
Never	374 (7.5)	1 (Reference)		197 (5.4)	1 (Reference)	
At least once	36 (18.7)	2.28 (1.57, 3.33)	<0.001	5 (34.9)	5.32 (1.82, 15.56)	0.002

Weighted for non-response and adjusted for all terms in the table and for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF) and level of combat exposure (based on quartiles of score from scale items)

Table 6.21: Association between exposures to hazardous materials and migraines for those deployed in Iraq and in Afghanistan

Exposure	Doctor-diagnosed migraines					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Non-ionising radiation						
Never	157 (7.4)	1 (Reference)		154 (3.8)	1 (Reference)	
1-9 times	66 (6.8)	1.06 (0.81, 1.41)	0.667	24 (3.4)	1.04 (0.66, 1.64)	0.875
10 or more times	205 (8.2)	1.42 (1.15, 1.74)	0.001	70 (3.6)	1.12 (0.78, 1.59)	0.550
Contact with chemical or biological weapons						
Never	407 (7.6)	1 (Reference)		147 (3.7)	1 (Reference)	
At least once	22 (13.8)	2.12 (1.39, 3.24)	<0.001	3 (3.8)	1.06 (0.36, 3.10)	0.913
Contact with depleted uranium shell casings						
Never	376 (7.4)	1 (Reference)		141 (3.6)	1 (Reference)	
At least once	52 (11.5)	1.91 (1.42, 2.56)	<0.001	8 (5.6)	1.69 (0.87, 3.27)	0.122
Exposed to ionising radiation or radioactive materials						
Never	388 (7.6)	1 (Reference)		142 (3.8)	1 (Reference)	
At least once	37 (9.5)	1.39 (1.00, 1.94)	0.051	6 (1.8)	0.49 (0.23, 1.05)	0.065
Use of NBC suit (not for training)						
Never	405 (7.5)	1 (Reference)		148 (3.6)	1 (Reference)	
At least once	23 (12.6)	1.69 (1.12, 2.56)	0.013	3 (19.4)	4.64 (1.31, 16.50)	0.018

Weighted for non-response and adjusted for all terms in the table and for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, and Service (Navy, Army, RAAF).

Table 6.22: Association between exposures to hazardous materials and doctor-diagnosed hearing loss for those deployed in Iraq and in Afghanistan

Exposure	Doctor-diagnosed hearing loss					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Non-ionising radiation						
Never	231 (11.3)	1 (Reference)		131 (9.5)	1 (Reference)	
1-9 times	178 (17.9)	1.34 (1.09, 1.65)	0.005	86 (13.0)	1.31 (0.78, 2.21)	0.306
10 or more times	461 (18.1)	1.29 (1.08, 1.54)	0.005	279 (14.5)	1.88 (1.27, 2.78)	0.002
Contact with chemical or biological weapons						
Never	829 (15.3)	1 (Reference)		479 (12.3)	1 (Reference)	
At least once	41 (27.5)	1.27 (0.90, 1.78)	0.171	17 (24.6)	1.35 (0.54, 3.35)	0.517
Contact with depleted uranium shell casings						
Never	736 (14.4)	1 (Reference)		463 (12.1)	1 (Reference)	
At least once	129 (28.2)	1.72 (1.38, 2.14)	<0.001	34 (27.0)	1.92 (1.03, 3.61)	0.042
Exposed to ionising radiation or radioactive materials						
Never	762 (14.9)	1 (Reference)		435 (11.9)	1 (Reference)	
At least once	97 (23.8)	1.33 (1.05, 1.68)	0.018	57 (19.5)	1.65 (0.95, 2.87)	0.077
Use of NBC suit (not for training)						
Never	815 (15.1)	1 (Reference)		490 (12.5)	1 (Reference)	
At least once	56 (30.2)	1.70 (1.24, 2.31)	<0.001	5 (30.2)	2.72 (0.55, 13.40)	0.219

Weighted for non-response and adjusted for all terms in the table and for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender and Service (Navy, Army, RAAF), close to loud noises without hearing protection and exposure to noise for extended periods of time without hearing protection.

Table 6.23: Association between exposures to hazardous materials and ringing in ears for those deployed in Iraq and in Afghanistan

Exposure	Ringing in ears					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Non-ionising radiation						
Never	534 (25.4)	1 (Reference)		315 (23.2)	1 (Reference)	
1-9 times	343 (35.2)	1.31 (1.11, 1.54)	0.001	220 (32.8)	1.58 (1.10, 2.27)	0.013
10 or more times	978 (38.9)	1.44 (1.27, 1.64)	<0.001	679 (36.2)	1.65 (1.24, 2.20)	<0.001
Contact with chemical or biological weapons						
Never	1779 (33.0)	1 (Reference)		1178 (30.9)	1 (Reference)	
At least once	74 (49.2)	1.24 (0.91, 1.69)	0.176	32 (44.6)	2.16 (1.07, 4.33)	0.031
Contact with depleted uranium shell casings						
Never	1614 (31.7)	1 (Reference)		1148 (30.7)	1 (Reference)	
At least once	234 (50.8)	1.62 (1.34, 1.96)	<0.001	61 (45.8)	1.35 (0.76, 2.42)	0.309
Exposed to ionising radiation or radioactive materials						
Never	1652 (32.3)	1 (Reference)		1084 (30.3)	1 (Reference)	
At least once	185 (46.8)	1.33 (1.09, 1.62)	0.005	119 (42.7)	1.33 (0.84, 2.11)	0.223
Use of NBC suit (not for training)						
Never	1781 (33.2)	1 (Reference)		1203 (31.1)	1 (Reference)	
At least once	81 (41.1)	0.95 (0.72, 1.25)	0.706	8 (55.6)	1.23 (0.27, 5.61)	0.793

Weighted for non-response and adjusted for all terms in the table and for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender and Service (Navy, Army, RAAF), close to loud noises without hearing protection and exposure to noise for extended periods of time without hearing protection.

Table 6.24: Association between exposures to hazardous materials and self-reported asthma-like symptoms, as measured by the ECHRS, for those deployed in Iraq and in Afghanistan

Exposure	Asthma-like symptoms (ECHRS)					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Non-ionising radiation						
Never	208 (10.1)	1 (Reference)		109 (7.9)	1 (Reference)	
1-9 times	93 (9.9)	0.92 (0.72, 1.18)	0.502	77 (11.4)	1.41 (1.05, 1.89)	0.023
10 or more times	309 (12.3)	1.21 (1.00, 1.45)	0.046	198 (10.4)	1.31 (1.03, 1.67)	0.029
Contact with chemical or biological weapons						
Never	573 (10.8)	1 (Reference)		371 (9.6)	1 (Reference)	
At least once	36 (23.0)	2.19 (1.53, 3.14)	<0.001	12 (16.3)	1.56 (0.88, 2.78)	0.130
Contact with depleted uranium shell casings						
Never	515 (10.2)	1 (Reference)		356 (9.3)	1 (Reference)	
At least once	92 (20.2)	2.07 (1.62, 2.63)	<0.001	24 (18.0)	1.93 (1.25, 2.98)	0.003
Exposed to ionising radiation or radioactive materials						
Never	522 (10.4)	1 (Reference)		335 (9.2)	1 (Reference)	
At least once	76 (19.0)	1.89 (1.47, 2.43)	<0.001	47 (16.0)	1.85 (1.35, 2.54)	<0.001
Use of NBC suit (not for training)						
Never	578 (10.9)	1 (Reference)		382 (9.7)	1 (Reference)	
At least once	35 (17.7)	1.61 (1.14, 2.28)	0.007	3 (23.9)	2.71 (0.82, 8.95)	0.103

Weighted for non-response and adjusted for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF), current smoker (yes, no) and exposure to others' cigarette smoking on deployment (never, ever)

Local food and water exposures

Table 6.25: Gastrointestinal outcomes on and after deployment in Iraq and Afghanistan and to supporting areas

Symptoms	Iraq		Afghanistan	
	Out (N=3012)	In (N=5915)	In (N=4160)	Out (N=2530)
	n (%) ^a	n (%) ^a	n (%) ^a	n (%) ^a
Sick parade: Diarrhoea/Vomiting				
Yes	297 (10.4)	822 (15.4)	943 (25.2)	222 (9.4)
Doctor diagnosed bowel disorder since returning from MEAO				
Yes	295 (10.1)	673 (11.9)	335 (8.3)	242 (10.0)
Oesophageal symptoms				
Any	118 (4.1)	292 (5.3)	187 (4.8)	112 (4.8)
Severe	16 (0.6)	40 (0.8)	10 (0.2)	18 (0.8)
Gastroduodenal symptoms				
Any	1010 (34.3)	2213 (38.7)	1365 (33.8)	892 (36.1)
Severe	51 (1.9)	158 (3.1)	78 (2.1)	49 (2.2)
Nausea and vomiting symptoms				
Any	210 (7.3)	536 (9.6)	281 (7.1)	188 (7.8)
Severe	13 (0.4)	26 (0.5)	14 (0.4)	7 (0.3)
Bowel symptoms				
Any	956 (32.8)	2212 (38.9)	1388 (34.2)	858 (35.1)
Severe	63 (2.2)	151 (2.8)	102 (2.7)	51 (2.2)
Abdominal pain symptoms				
Any	357 (12.2)	835 (14.7)	517 (12.8)	335 (13.7)
Severe	18 (0.6)	52 (0.9)	32 (0.8)	14 (0.6)
Weight change				
Any	515 (17.6)	1283 (22.8)	853 (21.5)	461 (18.9)
Severe	44 (1.5)	160 (3.1)	82 (2.1)	41 (1.8)

^a unweighted totals, and weighted proportions

Table 6.26: Severity of gastrointestinal outcomes on deployment to MEAO

Symptoms	Iraq		Afghanistan	
	Out (N=3012) n (%)	In (N=5915) n (%)	In (N=4160) n (%)	Out (N=2530) n (%)
Did symptoms of diarrhoea prevent you carrying out your duties?				
Yes	244 (26.5)	735 (32.0)	983 (45.0)	205 (26.0)
Did you need intravenous fluids (a drip) as a result of diarrhoea and/or vomiting?				
Yes	51 (5.6)	203 (8.7)	287 (13.6)	38 (4.9)
Did the symptoms of diarrhoea or vomiting resolve when you exited the MEAO?				
Yes	430 (48.4)	1183 (52.9)	1426 (67.0)	339 (45.8)
No	44 (51.6)	1031 (47.1)	700 (33.0)	372 (54.2)

Table 6.27: Association between exposures to local food and water and admission to sick bay for diarrhoea/vomiting for those deployed in Iraq and in Afghanistan

Exposure	Diarrhoea / vomiting					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Drank from local taps or wells						
Never	677 (14.1)	1 (Reference)	-	816 (24.0)	1 (Reference)	-
At least once	145 (28.1)	2.41 (1.99, 2.93)	<0.001	123 (37.2)	1.76 (1.40, 2.20)	<0.001
Ate local food						
Never	221 (10.8)	1 (Reference)	-	339 (19.3)	1 (Reference)	-
Once	55 (18.4)	1.68 (1.24, 2.27)	0.001	61 (23.4)	1.17 (0.88, 1.55)	0.280
2-4 times	184 (17.3)	1.69 (1.39, 2.05)	<0.001	198 (27.9)	1.47 (1.22, 1.78)	<0.001
5-9 times	102 (19.3)	2.07 (1.63, 2.64)	<0.001	116 (31.9)	1.69 (1.33, 2.13)	<0.001
10+ times	260 (19.2)	2.17 (1.80, 2.62)	<0.001	225 (34.1)	1.93 (1.60, 2.33)	<0.001

Weighted for non-response and adjusted for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF).

Table 6.28: Association between exposures to local food and water and doctor-diagnosed bowel disorder for those deployed in Iraq and in Afghanistan

Exposure	Doctor-diagnosed bowel disorder					
	In Iraq (N = 5831)			In Afghanistan (N = 4082)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Drank from local taps or wells						
Never	564 (11.1)	1 (Reference)	-	292 (8.0)	1 (Reference)	-
At least once	106 (19.7)	1.98 (1.61, 2.45)	<0.001	39 (11.6)	1.60 (1.14, 2.24)	0.006
Ate local food						
Never	233 (10.4)	1 (Reference)	-	165 (8.9)	1 (Reference)	-
Once	42 (14.0)	1.40 (1.01, 1.94)	0.043	22 (8.1)	0.97 (0.63, 1.50)	0.905
2-4 times	125 (11.0)	1.10 (0.89, 1.36)	0.388	47 (6.3)	0.74 (0.54, 1.01)	0.058
5-9 times	69 (12.6)	1.30 (1.01, 1.70)	0.047	35 (8.8)	1.09 (0.76, 1.56)	0.632
10 + times	199 (14.5)	1.54 (1.27, 1.86)	<0.001	63 (8.9)	1.10 (0.82, 1.47)	0.521

Weighted for non-response and adjusted for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF).

Table 6.29: Frequency of doctor-diagnosed bowel disorder on return in those who attended sick parade for diarrhoea/vomiting on deployment for those in Iraq (N = 2789) and in Afghanistan (N = 3860)

Doctor-diagnosed bowel disorder since return	No sick parade for diarrhoea/vomiting on deployment		Sick parade for diarrhoea/vomiting on deployment	
	n (%) ^a		n (%) ^a	
Iraq	218/2494 (9.0)		58/295 (20.3)	
Afghanistan	195/2929 (6.9)		114/931 (12.1)	

^a unweighted totals, weighted proportions, proportions may not add up to 100 due to rounding, and categories may not sum up to the total due to missing information

Noise exposures

Table 6.30: Frequencies for self-reported exposure to noise hazards for ADF personnel deployed in Iraq and Afghanistan and to supporting areas

Exposure	Iraq		Afghanistan	
	Out	In	In	Out
	(N=3012)	(N=5915)	(N=4160)	(N=2530)
	<i>n (%)</i> ^a	<i>n (%)</i> ^a	<i>n (%)</i> ^a	<i>n (%)</i> ^a
Close to loud noises without hearing protection (e.g., explosions, weapons fire.				
Never	1804 (61.0)	2047 (34.2)	957 (21.8)	1620 (67.2)
Once	130 (4.3)	308 (5.2)	209 (4.9)	90 (3.8)
2-4 times	6256 (12.4)	1216 (20.8)	786 (19.1)	266 (12.0)
5-9 times	129 (4.5)	555 (9.6)	476 (12.1)	108 (4.7)
10+	502 (17.8)	1698 (30.2)	1666 (42.0)	275 (12.3)
Exposed to loud noises for extended periods of time without hearing protection (e.g., machinery, aircraft operations				
Never	1661 (54.6)	2484 (41.0)	1416 (33.1)	1452 (59.7)
Once	104 (3.3)	296 (5.0)	224 (5.6)	72 (3.2)
2-4 times	357 (12.2)	930 (16.2)	746 (18.4)	257 (11.3)
5-9 times	157 (5.4)	456 (7.8)	301 (7.6)	101 (4.5)
10+	700 (24.4)	1667 (30.0)	1417 (35.3)	485 (21.2)

a unweighted totals, weighted proportions, proportions may not add up to 100 due to rounding, and categories may not sum up to the total due to missing information

Table 6.31: Association between exposures to noise and hearing loss for those in Iraq and in Afghanistan

Exposure	Doctor-diagnosed hearing loss					
	In Iraq			In Afghanistan		
	<i>n (%)</i>	OR (95%CI)	<i>p</i> -value	<i>n (%)</i>	OR (95%CI)	<i>p</i> -value
Close to loud noise without hearing protection						
Never	163 (8.4)	1 (Reference)	-	62 (6.5)	1 (Reference)	-
Once	35 (11.5)	1.47 (1.02, 2.11)	0.038	21 (10.1)	1.42 (0.89, 2.27)	0.142
2 to 4 times	180 (15.3)	1.63 (1.31, 2.04)	<0.001	78 (10.2)	1.38 (0.97, 1.96)	0.075
5 to 9 times	100 (18.7)	1.64 (1.25, 2.16)	0.001	59 (12.7)	1.68 (1.14, 2.48)	0.009
10 or more times	393 (23.9)	2.06 (1.65, 2.56)	<0.001	274 (17.0)	2.10 (1.52, 2.90)	<0.001
Exposed to loud noise for extended periods of time without hearing protection						
Never	183 (7.6)	1 (Reference)		94 (6.5)	1 (Reference)	
Once	46 (16.0)	1.77 (1.27, 2.47)	0.001	30 (13.4)	2.09 (1.39, 3.16)	0.001
2 to 4 times	148 (16.3)	1.82 (1.44, 2.29)	<0.001	83 (11.8)	1.63 (1.19, 2.24)	0.003
5 to 9 times	115 (25.5)	2.90 (2.25, 3.74)	<0.001	44 (16.0)	2.06 (1.39, 3.06)	0.001
10 or more times	376 (23.4)	2.72 (2.22, 3.33)	<0.001	245 (17.8)	2.26 (1.71, 3.00)	<0.001

Weighted for non-response and adjusted for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF).

Table 6.32: Association between exposures to noise and increased sensitivity to noise for those deployed in Iraq and in Afghanistan

Exposure	Increased sensitivity to noise					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Close to loud noises without hearing protection						
Never	223 (11.3)	1 (Reference)	-	96 (10.4)	1 (Reference)	-
Once	35 (12.3)	1.02 (0.71, 1.46)	0.922	38 (18.4)	1.92 (1.30, 2.82)	<0.001
2-4 times	231 (19.6)	1.48 (1.22, 1.81)	<0.001	142 (19.4)	1.97 (1.49, 2.61)	<0.001
5-9 times	134 (24.3)	1.57 (1.23, 2.00)	<0.001	92 (19.5)	1.97 (1.42, 2.72)	<0.001
10+ times	488 (30.0)	1.92 (1.59, 2.33)	<0.001	395 (25.0)	2.22 (1.68, 2.92)	<0.001
Exposed to loud noise for extended periods of time without hearing protection						
Never	270 (11.3)	1 (Reference)	-	165 (12.4)	1 (Reference)	-
Once	59 (20.4)	1.58 (1.17, 2.13)	0.003	42 (19.8)	1.37 (0.96, 1.97)	0.086
2-4 times	185 (20.6)	1.56 (1.27, 1.92)	<0.001	142 (19.2)	1.37 (1.07, 1.76)	0.013
5-9 times	142 (32.0)	2.52 (1.99, 3.19)	<0.001	59 (20.2)	1.37 (0.97, 1.92)	0.072
10+ times	461 (28.3)	2.17 (1.80, 2.60)	<0.001	355 (26.6)	1.95 (1.54, 2.48)	<0.001

Weighted for non-response and adjusted for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF).

Table 6.33: Association between exposures to noise and ringing in ears for those deployed in Iraq and in Afghanistan

Exposure	Ringing in ears					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Close to loud noises without hearing protection						
Never	441 (22.5)	1 (Reference)	-	158 (16.9)	1 (Reference)	-
Once	77 (24.4)	1.06 (0.82, 1.39)	0.656	62 (31.2)	2.21 (1.60, 3.05)	<0.001
2-4 times	402 (34.3)	1.56 (1.33, 1.83)	<0.001	233 (31.5)	2.15 (1.71, 2.71)	<0.001
5-9 times	204 (38.2)	1.54 (1.25, 1.91)	<0.001	149 (32.2)	1.99 (1.52, 2.59)	<0.001
10+ times	735 (45.4)	1.89 (1.59, 2.23)	<0.001	608 (38.4)	2.38 (1.90, 2.98)	<0.001
Exposed to loud noise for extended periods of time without hearing protection						
Never	528 (21.7)	1 (Reference)	-	284 (21.0)	1 (Reference)	-
Once	106 (37.1)	1.71 (1.33, 2.21)	<0.001	67 (31.2)	1.29 (0.96, 1.73)	0.094
2-4 times	309 (34.5)	1.48 (1.25, 1.75)	<0.001	227 (31.0)	1.28 (1.04, 1.57)	0.020
5-9 times	206 (45.6)	2.15 (1.74, 2.65)	<0.001	114 (40.5)	1.89 (1.44, 2.47)	<0.001
10+ times	711 (45.2)	2.13 (1.82, 2.48)	<0.001	519 (39.0)	1.70 (1.40, 2.08)	<0.001

Weighted for non-response and adjusted for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF).

Table 6.34: Association between exposures to noise and loss of balance for those deployed in Iraq and in Afghanistan

Exposure	Loss of balance					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Close to loud noise without hearing protection						
Never	121 (6.4)	1 (Reference)	-	37 (3.9)	1 (Reference)	-
Once	17 (6.3)	0.96 (0.59, 1.55)	0.863	10 (5.1)	1.22 (0.63, 2.36)	0.565
2 to 4 times	115 (10.1)	1.43 (1.09, 1.87)	0.010	57 (8.0)	1.90 (1.25, 2.89)	0.003
5 to 9 times	64 (12.2)	1.72 (1.24, 2.39)	0.001	37 (7.6)	1.67 (1.04, 2.67)	0.032
10 or more times	220 (13.9)	1.57 (1.22, 2.03)	0.001	170 (11.1)	2.50 (1.69, 3.71)	<0.001
Exposed to loud noise for extended periods of time without hearing protection						
Never	137 (5.9)	1 (Reference)	-	61 (4.5)	1 (Reference)	-
Once	27 (9.7)	1.43 (0.94, 2.17)	0.093	19 (8.9)	1.61 (0.96, 2.70)	0.070
2 to 4 times	96 (11.4)	1.74 (1.32, 2.31)	<0.001	63 (9.0)	1.72 (1.19, 2.46)	0.004
5 to 9 times	53 (11.9)	1.64 (1.17, 2.30)	0.004	30 (11.0)	1.93 (1.21, 3.09)	0.006
10 or more times	232 (15.0)	2.25 (1.77, 2.85)	<0.001	141 (10.8)	1.62 (1.15, 2.27)	0.005

Weighted for non-response and adjusted for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF).

Table 6.35: Association between exposures to noise and compensation for hearing loss for those deployed in Iraq and in Afghanistan

Exposure	Previous, current or planned compensation for hearing loss					
	In Iraq (N = 5915)			In Afghanistan (N = 4160)		
	n (%)	OR (95%CI)	p-value	n (%)	OR (95%CI)	p-value
Close to loud noise without hearing protection						
Never	125 (6.2)	1 (Reference)	-	30 (3.1)	1 (Reference)	-
Once	23 (7.5)	1.14 (0.75, 1.73)	0.552	16 (7.6)	2.29 (1.30, 4.03)	0.004
2 to 4 times	149 (12.6)	1.60 (1.25, 2.05)	<0.001	81 (10.5)	2.62 (1.73, 3.96)	<0.001
5 to 9 times	78 (14.8)	1.50 (1.10, 2.04)	0.010	71 (14.9)	2.53 (2.30, 5.40)	<0.001
10 or more times	362 (21.7)	2.20 (1.72, 2.81)	<0.001	317 (19.0)	3.62 (2.45, 5.36)	<0.001
Exposed to loud noise for extended periods of time without hearing protection						
Never	132 (5.3)	1 (Reference)	-	61 (4.3)	1 (Reference)	-
Once	43 (14.5)	2.38 (1.68, 3.38)	<0.001	23 (10.2)	1.90 (1.20, 3.01)	0.007
2 to 4 times	129 (13.9)	2.17 (1.69, 2.78)	<0.001	95 (12.9)	2.20 (1.60, 3.03)	<0.001
5 to 9 times	93 (20.5)	3.12 (2.35, 4.13)	<0.001	48 (15.9)	2.58 (1.75, 3.80)	<0.001
10 or more times	342 (21.1)	3.16 (2.51, 3.98)	<0.001	285 (20.3)	3.61 (2.65, 4.91)	<0.001

Weighted for non-response and adjusted for age (18-24, 25-34, 35-44, 45+), rank (Non-commissioned officer, Commissioned Officer, Other ranks), gender, Service (Navy, Army, RAAF).

Unit cohesion scale by deployment location (Chapter 7)

Analysis on Unit Cohesion

Unit cohesion is a deployment specific measure, hence is captured separately for deployments to Iraq and Afghanistan. Current results show a consistency in which better unit cohesion is associated with better health (or reduces the odds of poorer health). This association is consistent across all five individual unit cohesion items and across deployment locations. This provides a strong rationale to summarize the unit cohesion items into a single scale.

Creating the Unit Cohesion scale

Responses to unit cohesion items range from strongly agree to strongly disagree. To create the unit cohesion scale, values were assigned to each response option:

1: Strongly Agree, 2: Agree, 3: Neither Agree nor Disagree, 4: Disagree, 5: Strongly Disagree

Each participant's responses to unit cohesion items were summed to form a total unit cohesion score. Total scores range from 5 to 25 where higher scores represent lower unit cohesion.

The Unit cohesion score was then categorised into 3 levels:

- High Unit cohesion (Unit cohesion score of between 5 and 9)
- Moderate Unit cohesion (Unit cohesion score of between 10 and 15)
- Low Unit cohesion (Unit cohesion score of between 16 and 25)

The cut-points for the unit cohesion score was chosen before analysis (*'a priori'*) based on the natural "humps" and "throughs" of the unit cohesion score distribution.

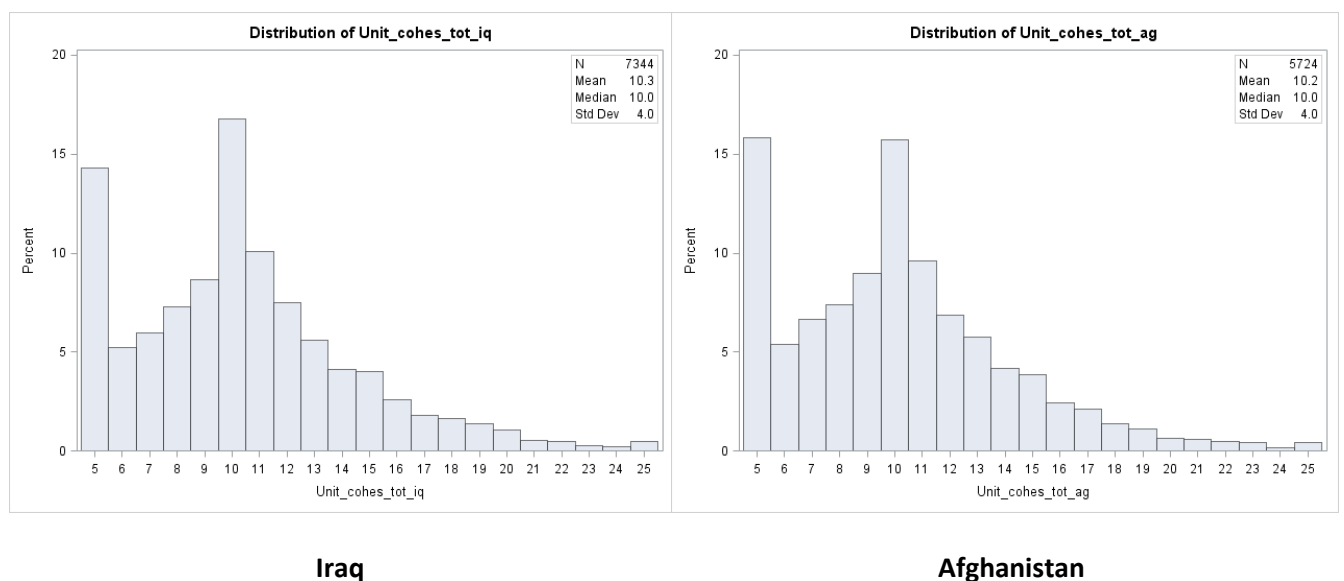


Figure7.1: Histogram of unit cohesion score distributions for deployment to Iraq and Afghanistan

Dealing with item non-response

Missing values were dealt with using methods consistent with how the MEAO Census Study deals with missing values on the PCL-C and K10. The number of missing items and the total unit cohesion score based on the non-missing items is used to estimate the level of unit cohesion.

For example, if a participant answered 4 out of 5 unit cohesion items and has a total score of 4, he/she is slotted into the high unit cohesion category (if this participant strongly agreed with the missing item, he/she would have a total score of 5; and if he/she strongly disagreed with the missing item, the participant would have a total score of 9).

Strategy used in analysis for creating the Overall Unit Cohesion score

The year and country of the most recent deployment to the MEAO is used to determine which deployment unit cohesion score is selected to create the overall unit cohesion scale. If a participant was most recently deployed to Afghanistan, then the Afghanistan unit cohesion score is used for the overall unit cohesion scale, and vice versa. As a rule, if a participant deploys to both Iraq and Afghanistan in the same year, and this is their most recent deployment to the MEAO, then the deployment to Iraq is selected as the default as the Australian mission to Iraq is over, and the Iraq questionnaire is the first section of the deployment questionnaire which may have a better completion rate.

Analysis notes

Where the cell sizes are too small for a valid adjusted logistic regression analysis, the crude odds ratio is presented instead.

Unit cohesion by individual items (Raw analysis)

Table 7.36: Unit Cohesion and PTSD symptoms by Deployment location (N=12 943)

	Iraq PCL C≥ 50 (n=320, 3.76%)		Afghanistan PCL C≥ 50 (n=235, 3.21%)	
	n (%)	OR (95 % CI)	n (%)	OR (95 % CI)
Perceived Sense of Comradeship in the unit				
Strongly Agree	78 (2.3)	0.27 (0.19,0.39) ^(a)	80 (2.9)	0.29 (0.19,0.46) ^(a)
Agree	109 (3.7)		56 (2.6)	
Neutral	46 (6.7)	0.65 (0.42,1.01) ^(b)	23 (4.4)	0.49 (0.27,0.88) ^(b)
Disagree	27 (11.1)		16 (8.4)	
Strongly Disagree	12 (9.8)	1.00 (Baseline) ^(c)	8 (9.4)	1.00 (Baseline) ^(c)
Perceived availability of confidant in the unit				
Strongly Agree	63 (2.2)	0.20 (0.15,0.26) ^(a)	56 (2.5)	0.25 (0.18,0.36) ^(a)
Agree	92 (2.9)		60 (2.4)	
Neutral	40 (5.3)	0.40 (0.27,0.60) ^(b)	23 (4.3)	0.44 (0.26,0.75) ^(b)
Disagree	47 (10.9)		25 (7.5)	
Strongly Disagree	30 (13.0)	1.00 (Baseline) ^(c)	19 (12.5)	1.00 (Baseline) ^(c)
Perceived interest in participant from unit leader				
Strongly Agree	40 (1.8)	0.21 (0.16,0.27) ^(a)	50 (2.6)	0.34 (0.24,0.47) ^(a)
Agree	79 (2.6)		50 (2.3)	
Neutral	45 (3.9)	0.38 (0.27,0.53) ^(b)	30 (3.6)	0.51 (0.32,0.80) ^(b)
Disagree	55 (8.6)		24 (4.7)	
Strongly Disagree	51 (13.6)	1.00 (Baseline) ^(c)	29 (10.8)	1.00 (Baseline) ^(c)
Perceived knowledge of happenings within the unit				
Strongly Agree	39 (1.9)	0.25 (0.19,0.33) ^(a)	48 (2.7)	0.37 (0.26,0.53) ^(a)
Agree	94 (2.9)		55 (2.3)	
Neutral	60 (5.5)	0.58 (0.41,0.81) ^(a)	33 (4.2)	0.64 (0.41,1.01) ^(a)
Disagree	49 (8.0)		24 (4.5)	
Strongly Disagree	30 (11.6)	1.00 (Baseline) ^(c)	23 (10.7)	1.00 (Baseline) ^(c)
Perceived quality of communication with Australian forces outside the unit				
Strongly Agree	33 (2.0)	0.32 (0.24,0.42) ^(a)	41 (2.7)	0.49 (0.34,0.72) ^(a)
Agree	88 (3.1)		55 (2.4)	
Neutral	67 (3.8)	0.50 (0.36,0.69) ^(b)	44 (3.4)	0.66 (0.42,1.01) ^(b)
Disagree	45 (6.6)		16 (3.0)	
Strongly Disagree	38 (10.0)	1.00 (Baseline) ^(c)	25 (9.6)	1.00 (Baseline) ^(c)

For analysis purposes Unit Cohesion categories

- (a) Strongly Agree and Agree collapsed to Agree ;
- (b) Neither Agree nor Disagree renamed Neutral ;
- (c) Strongly Disagree and Disagree collapsed to Disagree ;

Table 7.37: Unit Cohesion and Major Depressive Syndrome by Deployment location (N=12 943)

	Iraq Major Depressive Syndrome (n=465, 5.55%)		Afghanistan Major Depressive Syndrome (n=348, 4.8%)	
	n (%)	OR (95 % CI)	n (%)	OR (95 % CI)
Perceived Sense of Comradeship in the unit				
Strongly Agree	128 (3.8)	0.22 (0.16,0.29) ^(a)	108 (3.9)	0.31 (0.21,0.46) ^(a)
Agree	147 (4.9)		93 (4.3)	
Neutral	66 (9.7)	0.48 (0.34,0.69) ^(b)	37 (7.1)	0.57 (0.35,0.93) ^(b)
Disagree	43 (17.6)		21 (11.1)	
Strongly Disagree	25 (20.3)	1.00 (Baseline) ^(c)	12 (14.0)	1.00 (Baseline) ^(c)
Perceived availability of confidant in the unit				
Strongly Agree	104 (3.7)	0.24 (0.19, 0.31) ^(a)	73 (3.2)	0.24 (0.18, 0.32) ^(a)
Agree	144 (4.6)		97 (4.0)	
Neutral	57 (7.5)	0.43 (0.31,0.61) ^(b)	35 (6.5)	0.44 (0.29,0.68) ^(b)
Disagree	58 (13.5)		42 (12.7)	
Strongly Disagree	46 (19.9)	1.00 (Baseline) ^(c)	24 (15.7)	1.00 (Baseline) ^(c)
Perceived interest in participant from unit leader				
Strongly Agree	70 (3.2)	0.23 (0.18,0.28) ^(a)	61 (3.2)	0.28 (0.21,0.37) ^(a)
Agree	117 (3.9)		72 (3.2)	
Neutral	77 (6.7)	0.44 (0.33,0.58) ^(b)	56 (6.7)	0.61 (0.43,0.87) ^(b)
Disagree	80 (12.5)		42 (8.3)	
Strongly Disagree	65 (17.3)	1.00 (Baseline) ^(c)	40 (14.9)	1.00 (Baseline) ^(c)
Perceived knowledge of happenings within the unit				
Strongly Agree	54 (2.6)	0.24 (0.19,0.30) ^(a)	62 (3.5)	0.34 (0.25,0.46) ^(a)
Agree	151 (4.6)		89 (3.6)	
Neutral	81 (7.4)	0.48 (0.36,0.64) ^(b)	46 (5.8)	0.57 (0.39,0.83) ^(b)
Disagree	76 (12.4)		44 (8.4)	
Strongly Disagree	46 (17.8)	1.00 (Baseline) ^(c)	29 (13.4)	1.00 (Baseline) ^(c)
Perceived quality of communication with Australian forces outside the unit				
Strongly Agree	46 (2.7)	0.29 (0.23,0.37) ^(a)	60 (4.2)	0.46 (0.34,0.63) ^(a)
Agree	122 (4.2)		88 (3.9)	
Neutral	118 (6.7)	0.54 (0.42,0.70) ^(b)	56 (4.4)	0.51 (0.35,0.73) ^(b)
Disagree	70 (10.3)		32 (6.0)	
Strongly Disagree	50 (13.2)	1.00 (Baseline) ^(c)	34 (13.1)	1.00 (Baseline) ^(c)

For analysis purposes Unit Cohesion categories

- (a) Strongly Agree and Agree collapsed to Agree ;
- (b) Neither Agree nor Disagree renamed Neutral ;
- (c) Strongly Disagree and Disagree collapsed to Disagree ;

Table 7.38: Unit Cohesion and psychological distress by Deployment location (N=12 943)

	Iraq Major Depressive Syndrome (n=465, 5.55%)		Afghanistan Major Depressive Syndrome (n=348, 4.8%)	
	n (%)	OR (95 % CI)	n (%)	OR (95 % CI)
Perceived Sense of Comradeship in the unit				
Strongly Agree	66 (2.0)	0.25 (0.17,0.36) ^(a)	68 (2.4)	0.26 (0.16,0.41) ^(a)
Agree	94 (3.2)		44 (2.0)	
Neutral	44 (6.4)	0.61 (0.39,0.96) ^(b)	25 (4.8)	0.61 (0.34,1.08) ^(b)
Disagree	24 (9.8)		14 (7.4)	
Strongly Disagree	13 (10.6)	1.00 (Baseline) ^(c)	8 (9.3)	1.00 (Baseline) ^(c)
Perceived availability of confidant in the unit				
Strongly Agree	48 (1.7)	0.23 (0.17,0.31) ^(a)	48 (2.1)	0.27 (0.18,0.40) ^(a)
Agree	91 (2.9)		56 (2.3)	
Neutral	38 (5.0)	0.45 (0.32,0.72) ^(b)	18 (3.3)	0.45 (0.26,0.79) ^(b)
Disagree	33 (7.7)		22 (6.6)	
Strongly Disagree	31 (13.4)	1.00 (Baseline) ^(c)	15 (9.8)	1.00 (Baseline) ^(c)
Perceived interest in participant from unit leader				
Strongly Agree	31 (1.4)	0.21 (0.16,0.28) ^(a)	35 (1.8)	0.27 (0.19,0.38) ^(a)
Agree	77 (2.6)		43 (1.9)	
Neutral	39 (3.4)	0.35 (0.24,0.50) ^(b)	30 (3.6)	0.53 (0.33,0.83) ^(b)
Disagree	51 (8.0)		26 (5.5)	
Strongly Disagree	42 (11.2)	1.00 (Baseline) ^(c)	25 (9.9)	1.00 (Baseline) ^(c)
Perceived knowledge of happenings within the unit				
Strongly Agree	29 (1.4)	0.22 (0.16,0.29) ^(a)	32 (1.8)	0.33 (0.23,0.47) ^(a)
Agree	83 (2.5)		56 (2.3)	
Neutral	54 (5.0)	0.51 (0.36,0.72) ^(b)	25 (3.2)	0.52 (0.32,0.85) ^(b)
Disagree	44 (7.2)		24 (4.6)	
Strongly Disagree	30 (11.6)	1.00 (Baseline) ^(c)	22 (10.2)	1.00 (Baseline) ^(c)
Perceived quality of communication with Australian forces outside the unit				
Strongly Agree	30 (1.8)	0.38 (0.28,0.51) ^(a)	30 (2.1)	0.42 (0.29,0.61) ^(a)
Agree	79 (2.8)		51 (2.3)	
Neutral	71 (4.0)	0.65 (0.47,0.91) ^(b)	36 (2.8)	0.57 (0.37,0.89) ^(b)
Disagree	32 (4.7)		14 (2.6)	
Strongly Disagree	29 (7.6)	1.00 (Baseline) ^(c)	26 (10.0)	1.00 (Baseline) ^(c)

For analysis purposes Unit Cohesion categories

- (a) Strongly Agree and Agree collapsed to Agree ;
- (b) Neither Agree nor Disagree renamed Neutral ;
- (c) Strongly Disagree and Disagree collapsed to Disagree ;

Unit cohesion scale by deployment location

Table 7.39: Summary statistics on unit cohesion by deployment location

Summary Statistics	Overall: Unit cohesion Score	Iraq: Unit cohesion Score	Afghanistan: Unit cohesion Score
n(missing)	10113(2830)	7344 (1989)	5724 (2278)
Mean (std Dev)	10.25(4.03)	10.34(4.01)	10.15(4.00)
Min ,Max	5,25	5,25	5,25

Table 7.40: Unit cohesion during Iraq deployments by measures of mental and general health

Measures of Mental and General Health	Level of Unit Cohesion			χ^2	df	p-value
	High	Moderate	Low			
N = 7344						
Overall	3051 (41.4)	3541(48.1)	773(10.5)	1777.5	2	<0.0001
PTSD symptoms						
PCL-C \geq 50	45(1.5)	100(2.8)	7.3(9.5)	136.9	2	<0.0001
PCL-C < 50	3002(98.5)	3436(97.2)	699(90.5)			
OR (95 % CI) ^a	0.16(0.11,0.24) ^{***}	0.33(0.23,0.45) ^{***}	1(ref)			
Psychological distress						
K10 \geq 30	115 (3.7)	257 (7.3)	151 (19.6)	233.2	2	<0.0001
K10 < 30	2933 (96.2)	3279 (92.7)	620(80.4)			
OR(95 %CI) ^a	0.18(0.14,0.24) ^{***}	0.36(0.29,0.45) ^{***}	1(ref)			
Major Depressive Syndrome						
Meets Criteria	83 (2.7)	197 (5.6)	126 (16.3)	218.6	2	<0.0001
Does not meet Criteria	2963 (97.3)	3334 (94.4)	645 (83.7)			
OR (95% CI) ^a	0.16(0.12,0.21) ^{***}	0.33(0.26,0.42) ^{***}	1(ref)			

*p-value <.05, **p-value <.01, ***p-value<.001

^a Adjusted for age, gender, rank, Service, participant type (currently serving, active reservists or ex-serving/inactive reservist), education level and relationship status.

Table 7.41: Unit cohesion during Afghanistan deployment by measures of mental and general health

Measures of Mental and General Health	Level of Unit Cohesion			χ^2	df	p-value
	High	Moderate	Low			
N = 5748						
Overall	2543 (44.2)	2641(46.0)	564(9.8)	1433.5	2	<0.0001
PTSD symptoms						
PCL-C \geq 50	50(2.0)	68(2.6)	35(6.2)	32.1	2	<0.0001
PCL-C < 50	2492(98.0)	2570(97.4)	529(93.8)			
OR (95 % CI) ^a	0.30 (0.19,0.47)***	0.38(0.25,0.59)***	1(ref)			
Psychological distress						
K10 \geq 30	108 (4.3)	149 (5.7)	83(14.7)	91.2	2	<0.0001
K10 < 30	2429 (95.7)	2487 (94.4)	481(85.3)			
OR(95 %CI) ^a	0.27(0.20,0.37)***	0.35(0.26,0.47)***	1(ref)			
Major Depressive Syndrome						
Meets Criteria	82 (3.2)	118 (4.5)	69 (12.3)	84.6	2	<0.0001
Does not meet Criteria	2459 (96.8)	2518 (95.5)	494 (87.7)			
OR (95% CI) ^a	0.23(0.16,0.33)***	0.33(0.24,0.45)***	1(ref)			

*p-value <.05, **p-value <.01, ***p-value<.001

a Adjusted for age, gender, rank, Service, participant type (currently serving, active reservists or ex-serving/inactive reservist), education level and relationship status.

Overall Unit cohesion

Table 7.42: Overall Unit cohesion by measures of mental and general health

Measures of Mental and General Health	Level of Unit Cohesion			χ^2	df	p-value
	High	Moderate	Low			
N = 10146						
Overall	4376 (43.1)	4725(46.6)	1045(10.3)	2440.3	2	<0.0001
PTSD symptoms						
PCL-C \geq 50	77(1.8)	122(2.6)	78(7.5)	104.0	2	<0.0001
PCL-C < 50	4294(98.2)	4595(97.4)	966(92.5)			
OR (95 % CI) ^a	0.24 (0.17,0.33)***	0.36(0.27,0.49)***	1(ref)			
Psychological distress						
K10 \geq 30	169 (3.9)	316 (6.7)	172(16.5)	221.8	2	<0.0001
K10 < 30	4199 (96.1)	4400 (93.3)	871(83.5)			
OR(95 %CI) ^a	0.23(0.18,0.29)***	0.40(0.33,0.50)***	1(ref)			
Major Depressive Syndrome						
Meets Criteria	125 (2.9)	240 (5.1)	147 (14.1)	220.9	2	<0.0001
Does not meet Criteria	4244(97.1)	4472 (94.9)	897 (85.9)			
OR (95% CI) ^a	0.19(0.15,0.24)***	0.35(0.28,0.44)***	1(ref)			

*p-value <.05, **p-value <.01, ***p-value<.001

a Adjusted for age, gender, rank, Service, participant type (currently serving, active reservists or ex-serving/inactive reservist), most recent deployment location to the MEAO, education level and relationship status.

Patterns of Somatic Symptoms (Chapter 9)

Table 9.10: Factor analysis of self-reported symptoms for participants who deployed to Iraq

Iraq 4 factor Oblique	Factor			
	Psychological	Psychosomatic	Digestive	Muscles/joints
Feeling unrefreshed after sleep	0.80			
Feeling distant or cut off from others	0.77			
Irritability / outbursts of anger	0.74			
Sleeping difficulties	0.74			
Loss of concentration	0.69			
Avoiding doing things or situations	0.68			
Fatigue	0.68			
Feeling jumpy / easily startled	0.64			
Forgetfulness	0.63			
Difficulty finding the right word	0.57			
Distressing dreams	0.53			
Loss of interest in sex	0.53			
Increased sensitivity to noise	0.42			
Problems with sexual functioning	0.37			
Headaches	0.36			
Loss of, or decrease in appetite	0.32			
Unable to breathe deeply enough		0.62		
Feeling short of breath at rest		0.61		
Faster breathing than normal		0.61		
Wheezing		0.44		
Feeling disorientated		0.44		
Loss of balance or co-ordination		0.43		
Shaking		0.42		
Difficulty speaking		0.41		
Rapid heartbeat	0.31	0.40		
Feeling feverish		0.40		
Double vision		0.39		
Tender or painful swelling		0.37		
Lump in throat		0.32		
Persistent cough		0.30		
Changeable bowel function			0.73	
Diarrhoea			0.66	
Stomach cramps			0.66	
Constipation			0.56	
Feeling that your bowel movement is not finished			0.52	
Stomach bloating			0.48	
Flatulence or burping			0.46	
Nausea		0.31	0.43	
Indigestion			0.40	
Vomiting			0.36	
Joint stiffness				0.70
Pain, without swelling or redness, in several joints				0.62
General muscle aches or pains				0.56
Numbness in fingers / toes				0.54
Tingling in legs and toes				0.50
Tingling in fingers and arms				0.47
Lower back pain				0.46
Ringing in ears				0.32

Table 9.11: Factor analysis of self-reported symptoms for participants who deployed to Afghanistan

	Factor			
Afghanistan 4 factor Oblique	Psychological	Psychosomatic	Digestive	Muscles/joints
Feeling unrefreshed after sleep	0.78			
Irritability / outbursts of anger	0.77			
Sleeping difficulties	0.73			
Feeling distant or cut off from others	0.71			
Fatigue	0.68			
Loss of concentration	0.64			
Forgetfulness	0.63			
Avoiding doing things or situations	0.61			
Feeling jumpy / easily startled	0.60			
Difficulty finding the right word	0.58			
Distressing dreams	0.48			
Loss of interest in sex	0.47			
Increased sensitivity to noise	0.40			
Headaches	0.36			
Ringing in ears	0.30			
Unintended weight gain	0.30			
Feeling short of breath at rest		0.66		
Faster breathing than normal		0.65		
Unable to breathe deeply enough		0.60		
Nausea		0.51	0.36	
Feeling disorientated		0.50		
Rapid heartbeat	0.33	0.45		
Loss of balance or co-ordination		0.42		
Dizziness/ Fainting		0.42		
Shaking		0.42		
Difficulty speaking		0.40		
Dry mouth		0.34		
Feeling feverish		0.34		
Wheezing		0.34		
Vomiting		0.32	0.32	
Double vision		0.30		
Chest pain		0.30		
Changeable bowel function			0.70	
Diarrhoea			0.64	
Stomach cramps			0.62	
Feeling that your bowel movement is not finished			0.53	
Constipation			0.51	
Stomach bloating			0.48	
Flatulence or burping			0.46	
Indigestion			0.41	
Joint stiffness				0.71
Pain, without swelling or redness, in several joints				0.64
Numbness in fingers / toes				0.56
General muscle aches or pains				0.55
Tingling in legs and toes				0.52
Tingling in fingers and arms				0.49
Lower back pain				0.40



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