



The Continuous Working Patterns (CWP) Survey is a seven day diary completed by trained, regular UK Armed Forces personnel to record the number of hours spent at work, on call, on breaks and off duty. The aim of the survey is to measure the working patterns of trained, regular UK Armed Forces personnel for a full working week. In this report, the average number of hours personnel spend at work, on call and on duty per week are provided by Service, broad location and rank group.

Key points and trends

Hours worked and spent on duty (on duty comprises time spent at work, on breaks and on call)

- The average weekly hours worked by trained, regular UK Armed Forces personnel in 2016/17 was 44.7 hours – broadly similar to the average weekly hours worked in 2015/16 (of 44.9 hours).
- The average weekly hours spent on duty by UK Armed Forces personnel in 2016/17 was 63.4 hours – a decrease from the 64.4 hours spent on duty in 2015/16.
- In 2016/17, the Naval Service had the highest average weekly hours worked and spent on duty (at 48.7 hours and 75.2 hours respectively); followed by the RAF (who spent 43.0 hours at work and 61.6 hours on duty) and the Army (who spent 43.8 hours at work and 59.7 hours on duty).
- Officers worked longer hours and spent more time on duty on average than Ranks/Rates, whilst personnel serving on overseas Operations or at sea worked longer hours, and spent more time on call and on duty (on average) than personnel at all other locations.

Excessive hours worked (working 70 hours or more for the week surveyed)

- In 2016/17, 7% of UK Armed Forces personnel worked excessive hours. 16% of Naval Service personnel worked excessive hours compared to 5% of Army personnel and 2% of RAF personnel.

Unsociable hours worked (hours worked between 00:00 to 06:00 and 18:00 to 24:00 Monday to Friday, and any hours worked on Saturday and Sunday)

- UK Armed Forces personnel worked on average 6.6 hours per week during unsociable hours in 2016/17. Personnel in the Naval Service worked the highest number of unsociable hours on average (11.4 hours), followed by the RAF (5.5 hours) and the Army (5.2 hours).

Valid response rates

- A valid response refers to a returned questionnaire with at least one usable day within the seven day diary. The 2016/17 valid response rate for the UK Armed Forces was 21%.
- The RAF had the highest valid response rate (at 28%), followed by the Army (22%). The Naval Service had the lowest valid response rate at 15%.

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Background quality report: <https://www.gov.uk/government/collections/armed-forces-continuous-working-patterns-survey-index>

Would you like to be added to our **contact list**, so that we can inform you about updates to these statistics and consult you if we are thinking of making changes? You can subscribe to updates by emailing DefStrat-Stat-WDS-Pubs@mod.uk

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Reference tables, the back ground quality report and questionnaires for CWP 2016/17 are published as separate documents and can be found on the CWP webpage here:

<https://www.gov.uk/government/collections/armed-forces-continuous-working-patterns-survey-index>

As well as providing details of the working patterns of the UK Armed Forces and three single Services, the reference tables also provides details of the three single Service working patterns broken down by rank group and broad locations from the 2012/13 CWP survey to the 2016/17 CWP survey. This time series data is presented in a series of tables and graphs.

Introduction

This report gives the main results of the 2016/17 Continuous Working Patterns (CWP) Survey. The aim of the CWP survey is to describe the working patterns of trained, regular UK Armed Forces personnel for a full working week. Chief of Defence People (CDP) sponsors the survey under a remit from the Armed Forces Pay Review Body (AFPRB) to inform their work.

CWP questionnaires were distributed at a time of change for the MOD, including the announcement of the [Future Accommodation Model \(FAM\)](#), the [New Joiner Offer Project \(NJO\)](#) and the [Flexible Engagement System Project \(FES\)](#).

A total of 18,450 surveys were distributed. 3,796 of the returned surveys were considered valid, which equated to a response rate of 21%. In the previous survey conducted in 2015/16, the response rate was 24%.

In order to detect any statistical differences in working patterns between the current year and the previous year, a series of z-tests were conducted at the 95% confidence level. This is a fairly stringent level and means that there should be a less than 5% (5 in 100) chance that differences observed in the CWP results are not representative of the Armed Forces as a whole. This reduces the likelihood of wrongly concluding that there has been an actual change based on the survey results, which only cover a sample of the Armed Forces.

Where a statistical difference has been found, the following key has been used in the relevant cells:

- ▲ means that the 2016/17 figure is significantly higher than that reported in 2015/16.
- ▼ means that the 2016/17 figure is significantly lower than that reported in 2015/16.

For the Army and RAF, the CWP survey measures the working patterns of personnel deployed on overseas Operations. On the 27th October 2014, the UK Armed Forces ceased all combat Operations in Afghanistan and withdrew the last of its combat troops ([MOD Annual Report and Accounts 2014-2015](#)). The end of combat Operations in Afghanistan has led to a reduction in the number of personnel deployed on overseas Operations, which in turn has led to a decrease in the number of personnel deployed on overseas Operations being sampled to complete the CWP survey. Therefore, the Army and RAF figures for the location category overseas Operations should be treated with caution.

For the Army, the CWP survey measures the working patterns of personnel based in Germany. In 2013 the [Army Basing Programme \(ABP\)](#) was set up to implement the [Army Basing Plan](#) - to withdraw all Army units from Germany by 2020. This withdrawal of Army units from Germany may have had an impact on the working patterns of Army personnel still based in Germany and as such, figures for the location category Germany should be treated with caution.

Please see the [Background Quality Report](#) for full details of the survey methodology, analysis and data quality considerations.

Section 1: The UK Armed Forces picture

This part of the report looks at the working patterns of trained, regular UK Armed Forces personnel, by Service and rank group.

Section 1 is divided into the following sections:

- 1.1 2016/17 UK Armed Forces working patterns - with comparisons to the 2015/16 CWP survey
- 1.2 UK Armed Forces unsociable hours worked
- 1.3 UK Armed Forces excessive hours worked and spent on duty
- 1.4 Time series of the UK Armed Forces working patterns

1.1 2016/17 UK Armed Forces working patterns

This section of the report looks at the average weekly hours UK Armed Forces personnel spent at work, on call and on duty in 2016/17. On duty comprises time spent at work, on breaks and on call.

Figure 1: 2016/17 UK Armed Forces working patterns by Service and rank group

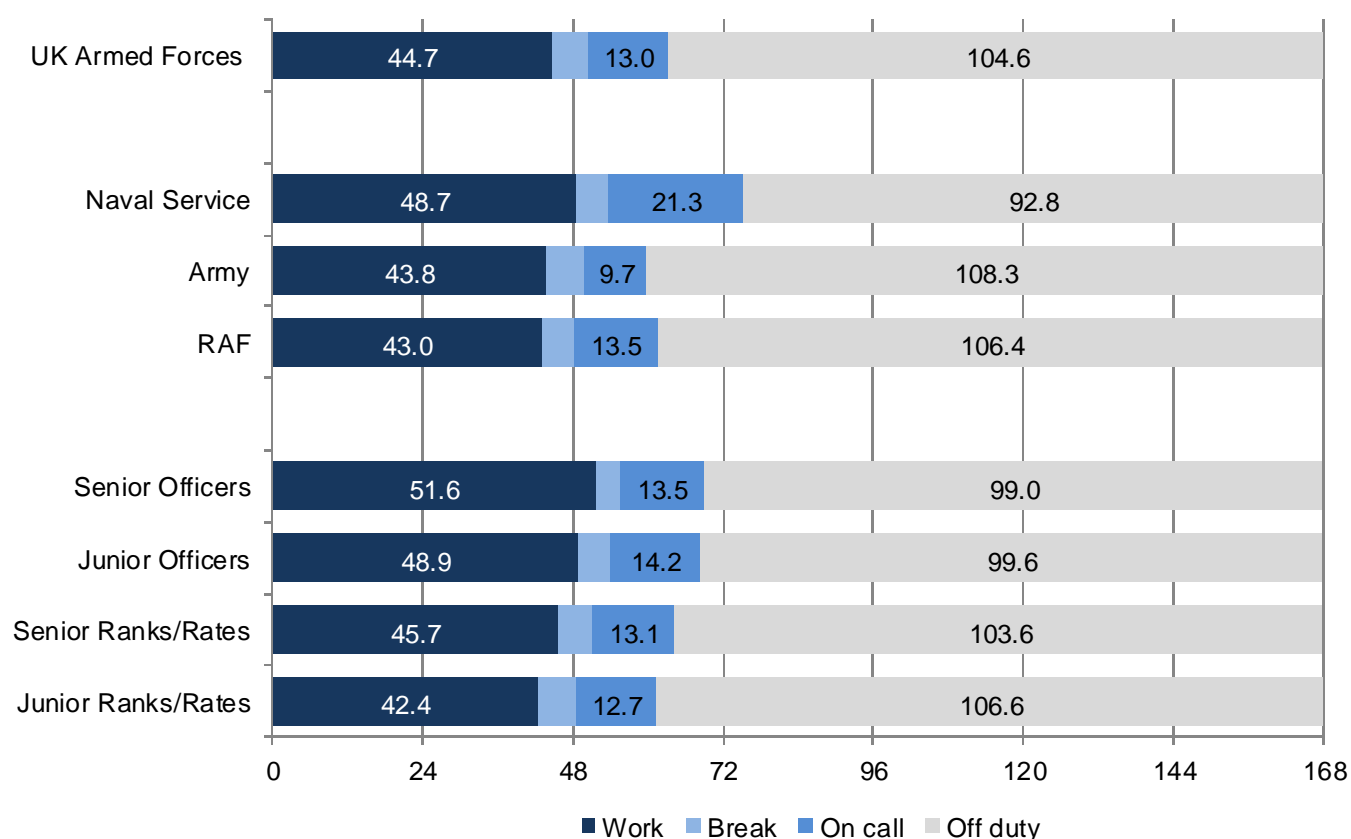


Figure 1 shows that on average, Naval Service personnel spent more time at work, on call and on duty in 2016/17 than Army and RAF personnel. This is driven by Naval Service personnel spending long hours at work and on call whilst at sea.

Officers spent more time on duty than Ranks/Rates in 2016/17. This is driven by Officers spending more time at work and on call than Ranks/Rates (Officers spent less time on breaks than Ranks/Rates).

1.1 2016/17 UK Armed Forces working patterns continued

Table 1: 2016/17 UK Armed Forces working patterns by Service and rank group, with comparisons to the 2015/16 CWP survey

	At work		On call		On duty		Data quality note Levels of precision are lower (wider confidence intervals) for the on call and on duty averages.
	2015/16	2016/17	2015/16	2016/17	2015/16	2016/17	
UK Armed Forces	44.9	44.7	12.8	13.0	64.4	63.4 ▼	Key: ▲ Significant increase from 2015/16 ▼ Significant decrease from 2015/16
Naval Service	48.9	48.7	16.3	21.3 ▲	70.9	75.2 ▲	
Army	43.7	43.8	11.0	9.7 ▼	62.5	59.7 ▼	
RAF	43.9	43.0 ▼	13.9	13.5	62.8	61.6	
Senior Officers	53.1	51.6 ▼	13.5	13.5	70.7	69.0 ▼	
Junior Officers	51.1	48.9 ▼	15.0	14.2	71.3	68.3 ▼	
Senior Ranks/Rates	45.9	45.7	12.2	13.1	63.6	64.3	
Junior Ranks/Rates	42.2	42.4	12.6	12.7	62.7	61.4	

UK Armed Forces

For the UK Armed Forces, the average weekly hours spent on duty decreased from 64.4 hours in 2015/16 to 63.4 hours in 2016/17.

Single Services

For Naval Service personnel in 2016/17, the average weekly hours spent on call and on duty increased by 5.0 hours and 4.3 hours respectively. These increases follow decreases in average weekly hours spent on call and on duty in 2015/16 (by 2.7 hours and 2.4 hours respectively).

For Army personnel, the average weekly hours spent on duty decreased by 2.9 hours in 2016/17. This decrease in duty hours was driven by a decrease in the average weekly hours spent on call (by 1.3 hours) in 2016/17 and follows an increase in duty hours in 2015/16 (by 1.6 hours).

For RAF personnel, the average weekly hours spent at work decreased from 43.9 hours in 2015/16 to 43.0 hours in 2016/17.

UK Armed Forces rank groups

For Senior Officers, there were decreases in the average weekly hours spent at work (by 1.5 hours) and on duty (by 1.7 hours) in 2016/17. These decreases were driven by decreases in average weekly hours spent at work and on duty by Senior Officers in the Army in 2016/17

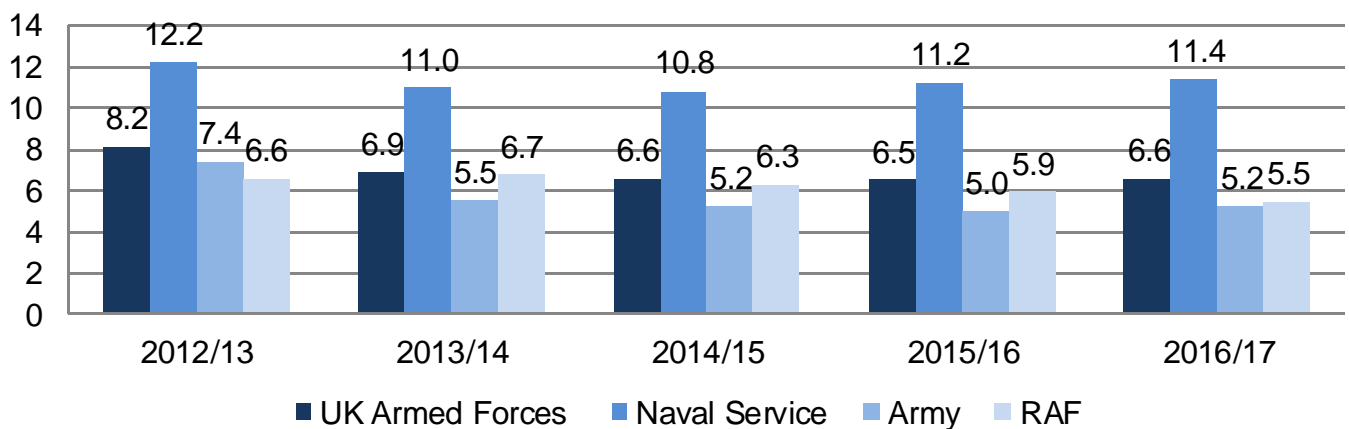
For Junior Officers in the UK Armed Forces, there were decreases in the average weekly hours spent at work (by 2.2 hours) and on duty (by 3.0 hours) in 2016/17. These decreases were driven by decreases in average weekly hours spent at work and on duty by Junior Officers in the Naval Service and the Army in 2016/17. These decreases in average weekly hours spent at work and on duty in 2016/17 also follow increases in hours spent at work and on duty in 2015/16 (by 1.3 hours and 3.3 hours respectively).

1.2 UK Armed Forces unsociable hours worked

This section looks at the average number of unsociable hours worked per week for trained, regular, UK Armed Forces personnel. Unsociable hours are:

- Any hours worked between 00:00 and 06:00, Monday and Friday
- Any hours worked between 18:00 and 24:00, Monday and Friday
- Any hours worked on Saturday and Sunday

Figure 2: UK Armed Forces unsociable hours worked by Service



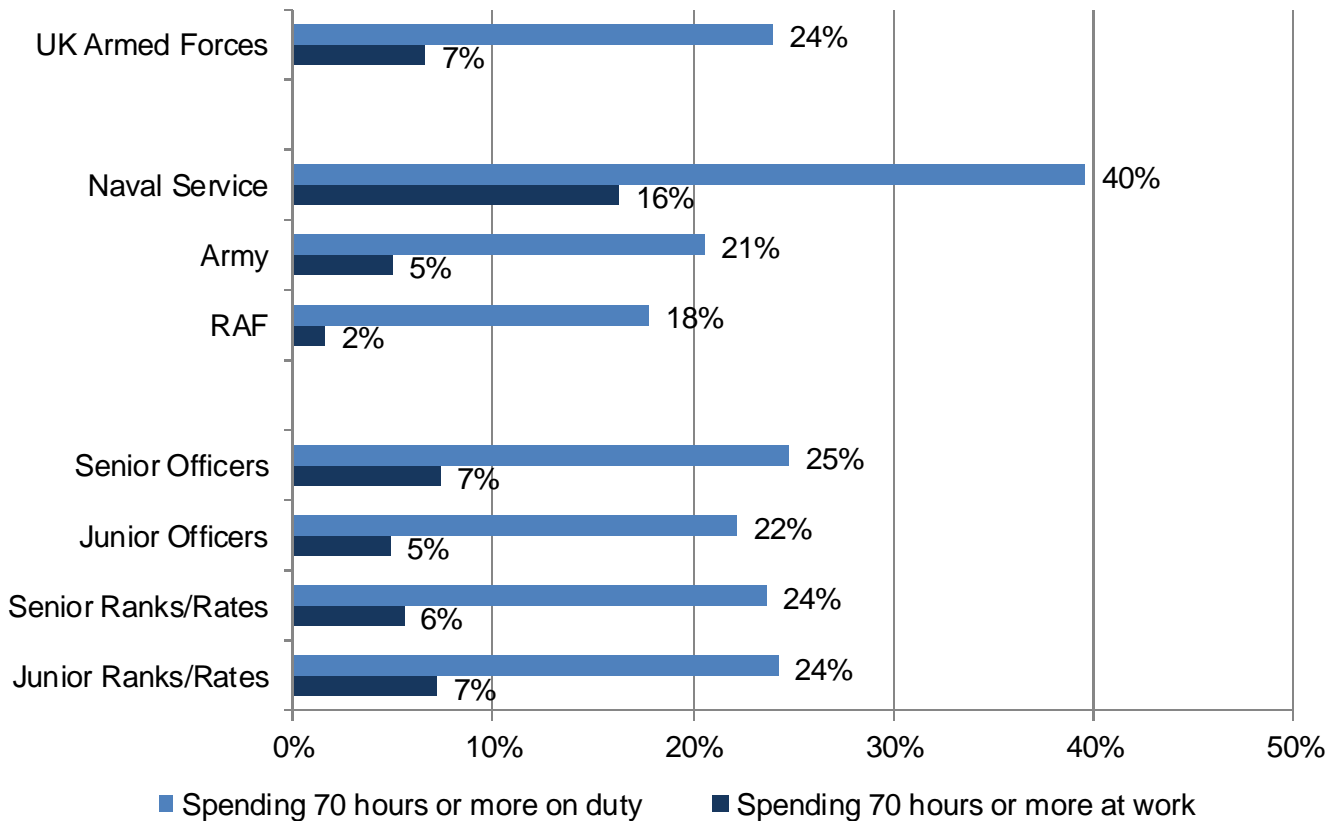
In each of the last five years, Naval Service personnel have on average worked the highest number of unsociable hours per week. This is driven by Naval Service personnel on ships who spend long hours at work during unsociable hours.

The average number of unsociable hours worked during the week surveyed in 2016/17 are broadly similar to 2015/16, for the UK Armed Forces and each single Service.

1.3 UK Armed Forces excessive hours worked and spent on duty

Section 1.3 is based on the 2,098 UK Armed Forces personnel for whom a full week's data was available.

Figure 3: Proportion of UK Armed Forces personnel spending 70 hours or more at work and on duty for the week surveyed



A member of the UK Armed Forces who worked 70 hours or more during the week surveyed is regarded as having worked excessive hours. In 2016/17, 7% of UK Armed Forces personnel worked excessive hours - broadly similar to the 8% of UK Armed Forces personnel who worked excessive hours in the 2015/16 CWP survey.

For each single Service, the proportions of personnel working excessive hours in 2016/17 are broadly similar to the proportions of personnel working excessive hours in the 2015/16 CWP survey. Similar to the previous years, a larger proportion of Naval Service personnel (16%) worked excessive hours compared to Army (5%) and RAF (2%) personnel. This is driven by the large proportion of sea based Naval Service personnel who work excessive hours.

Data quality note

Because the proportions provided in Figure 3 are based on a smaller number of respondents than the other tables and graphs in the UK Armed Forces chapter, levels of precision are likely to be lower (wider confidence intervals). Therefore, Figure 3 is only an indication of the working week of UK Armed Forces personnel.

On duty comprises time spent at work, on breaks and on call. 24% of UK Armed Forces personnel spent 70 hours or more on duty during the week surveyed in 2016/17 - broadly similar to the 25% of personnel who spent 70 hours or more on duty in the 2015/16 CWP survey.

A larger proportion of Naval Service personnel (40%) spent 70 hours or more on duty than Army (21%) and RAF (18%) personnel.

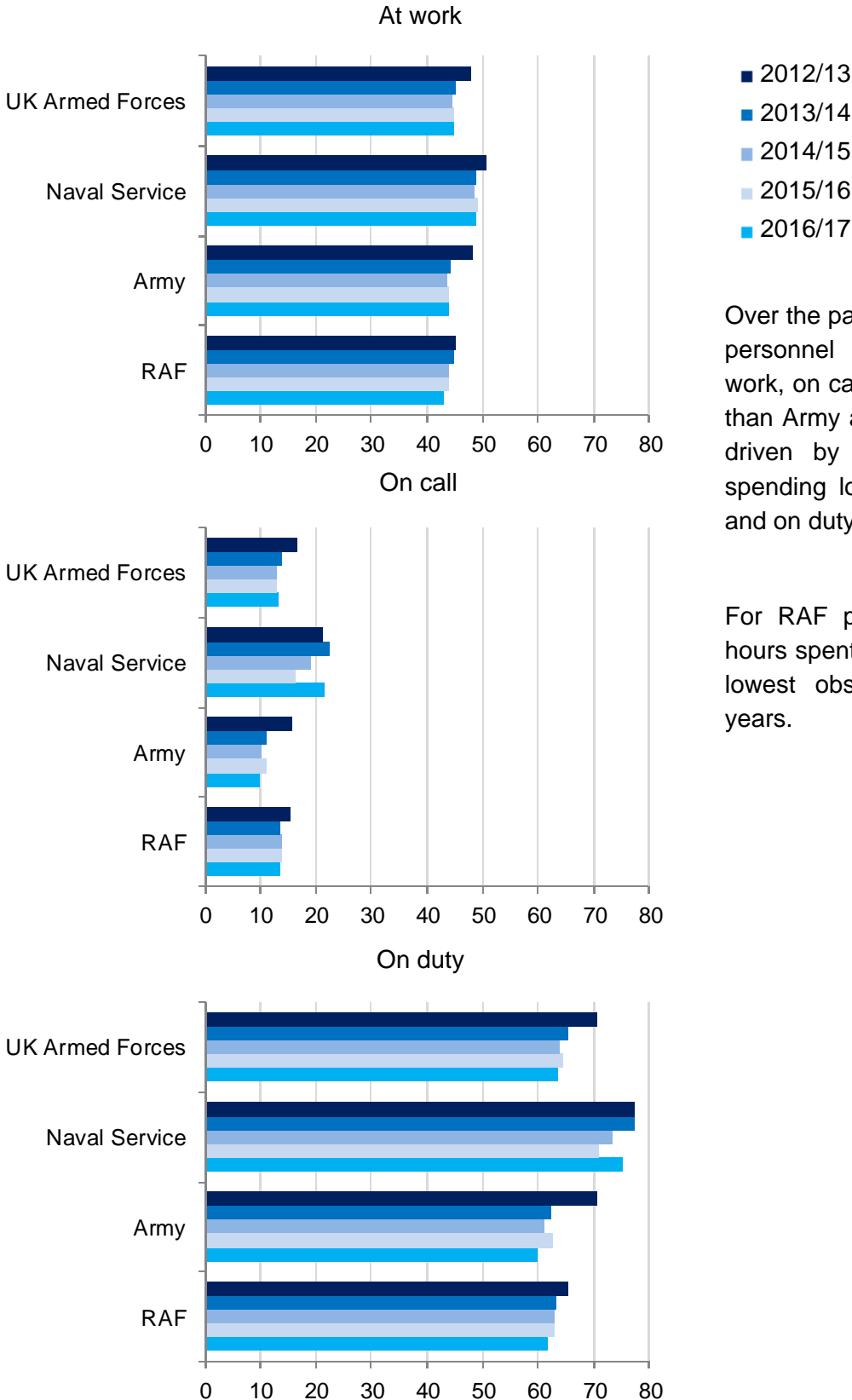
1.4 Time series of the UK Armed Forces working patterns

In section 1.4, UK Armed Forces working patterns from 2012/13 to 2016/17 are shown.

Like section 1.1 and 1.2, section 1.4 uses all valid responses.

On duty comprises time spent at work, on breaks and on call.

Figure 4: Average weekly hours spent at work, on call and on duty by Service

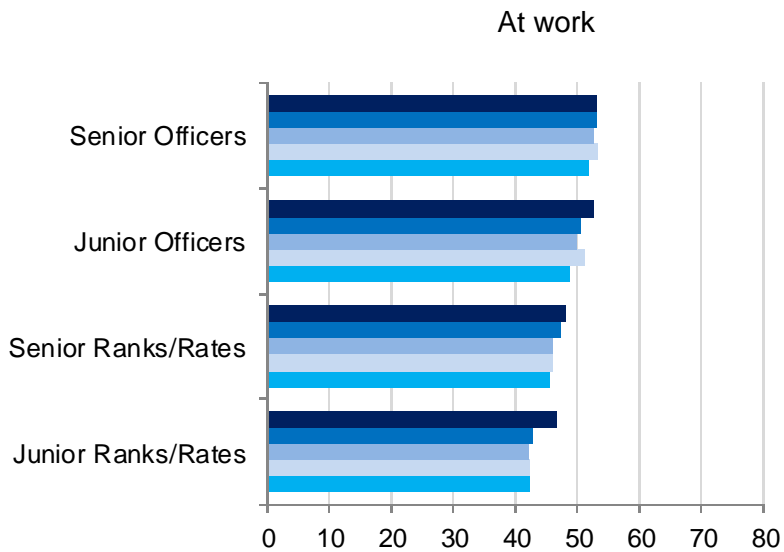


Over the past five years, Naval Service personnel have spent more time at work, on call and on duty (on average) than Army and RAF personnel. This is driven by Naval Service personnel spending long hours at work, on call and on duty whilst at sea.

For RAF personnel, average weekly hours spent at work in 2016/17 are the lowest observed over the last five years.

1.4 Time series of the UK Armed Forces working patterns continued

Figure 5: Average weekly hours spent at work, on call and on duty by rank group

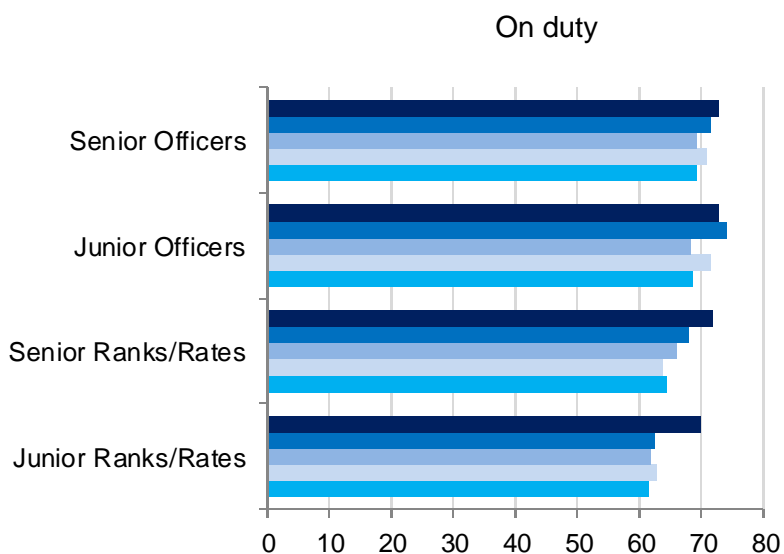


Officers have spent more time at work and on duty (on average) than Ranks/Rates - this Officer/Rank difference has been observed since the 2007/08 CWP survey.



For Senior Officers and Junior Officers, the average weekly hours spent at work in 2016/17 are the lowest observed over the last five years.

Average weekly hours spent on call in 2016/17 are broadly similar to 2015/16 for all rank groups.



Section 2: The Naval Service picture

This part of the report looks at the working patterns of trained, regular Naval Service personnel in more depth. The Naval Service comprises of the Royal Navy (including Queen Alexandra's Royal Naval Nursing Service) and the Royal Marines combined.

Section 2 is divided into the following sections:

- 2.1 2016/17 Naval Service working patterns - with comparisons to the 2015/16 CWP survey
- 2.2 Naval Service excessive hours worked and spent on duty
- 2.3 Time series of Naval Service working patterns

2.1 2016/17 Naval Service working patterns

This section of the report looks at the average weekly hours Naval Service personnel spent at work, on call and on duty in 2016/17. On duty comprises time spent at work, on breaks and on call.

Figure 6: 2016/17 Naval Service working patterns by location and rank group

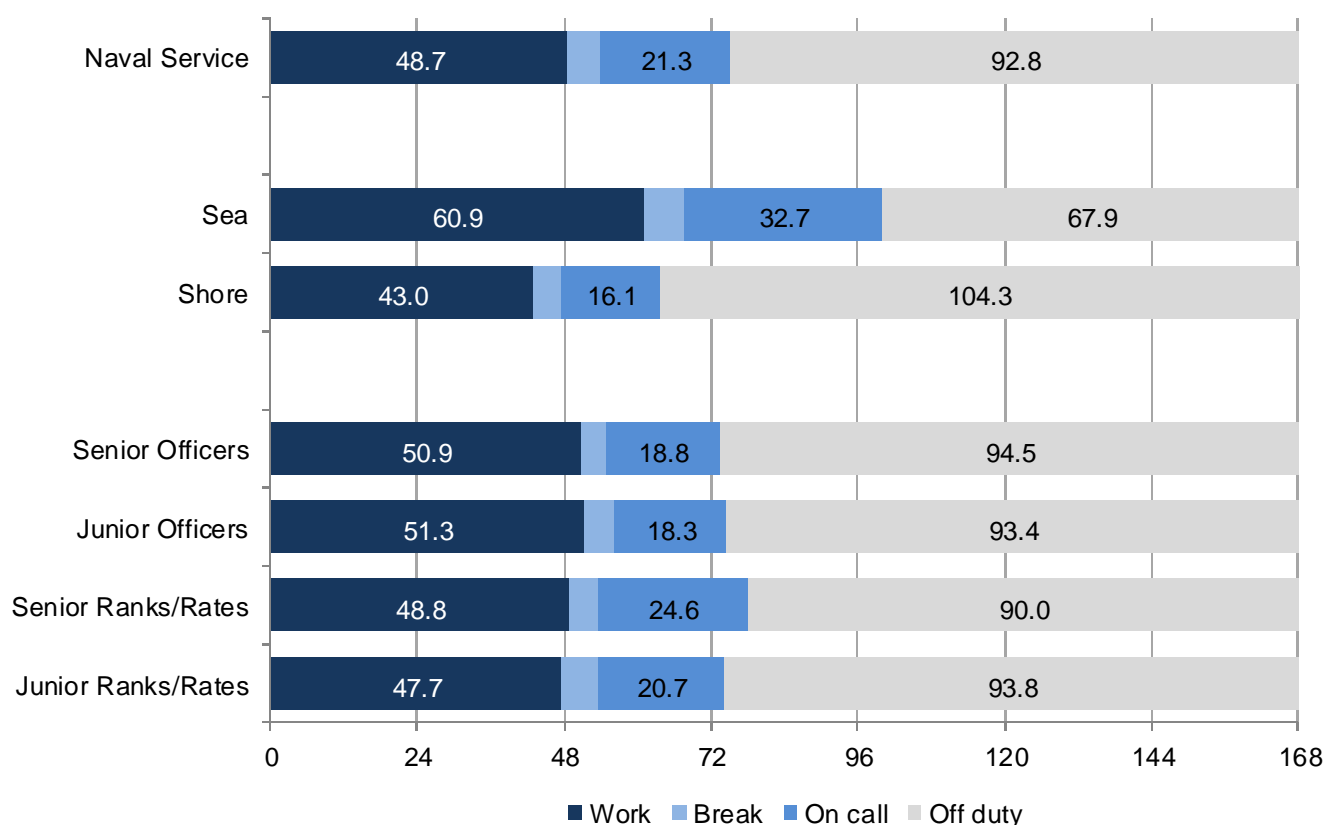


Figure 6 shows that on average, sea based personnel spent more time at work, on call and on duty than shore based personnel in 2016/17. This is something we have seen since the 2007/08 CWP survey.

Senior Ranks/Rates spent more time on duty than all other rank groups in 2016/17, whereas in 2015/16 they spent less time on duty than any other rank group. This shift was mainly driven by a large increase in hours on call for Senior Ranks/Rates.

2.1 2016/17 Naval Service working patterns continued

Table 2: 2016/17 Naval Service working patterns by location and rank group, with comparisons to the 2015/16 CWP survey

	At work		On call		On duty	
	2015/16	2016/17	2015/16		2015/16	2016/17
Naval Service	48.9	48.7	16.3	21.3 ▲	70.9	75.2 ▲
Sea	62.2	60.9	25.2	32.7 ▲	94.5	100.1 ▲
Shore	42.9	43.0	12.3	16.1 ▲	60.2	63.7 ▲
Senior Officers	51.9	50.9	17.7	18.8	73.4	73.4
Junior Officers	53.7	51.3 ▼	20.5	18.3	78.9	74.5 ▼
Senior Ranks/Rates	46.8	48.8 ▲	16.1	24.6 ▲	67.5	78.0 ▲
Junior Ranks/Rates	48.6	47.7	15.5	20.7 ▲	70.8	74.2 ▲

Data quality note

Levels of precision are lower (wider confidence intervals) for the on call and on duty averages and the at work average for sea based personnel.

Key:

- ▲ Significant increase from 2015/16
- ▼ Significant decrease from 2015/16

Naval Service

For trained, regular Naval Service personnel, the average weekly hours spent on call and on duty increased by 5.0 hours and 4.3 hours respectively in 2016/17. These increases in hours spent on call and on duty in 2016/17 follow decreases in 2014/15 and 2015/16 and are similar to hours spent on call and on duty in 2012/13 and 2013/14.

Naval Service locations

For sea based Naval Service personnel, the average weekly hours spent on duty increased by 5.7 hours in 2016/17. This increase in duty hours is driven by an increase in hours spent on call (by 7.5 hours) in 2016/17. These increases in hours spent on call and on duty in 2016/17 follow decreases in 2015/16.

In 2016/17, increases have been observed in hours spent on call and on duty for shore based personnel. On call hours increased by 3.8 hours and on duty by 3.5 hours. These figures are the highest observed over the last five years.

Naval Service rank groups

For Junior Officers, there were decreases in average weekly hours spent on duty (by 4.4 hours) and at work (by 2.4 hours) in 2016/17. This contradicts the increases in hours spent at work and on duty witnessed in 2015/16.

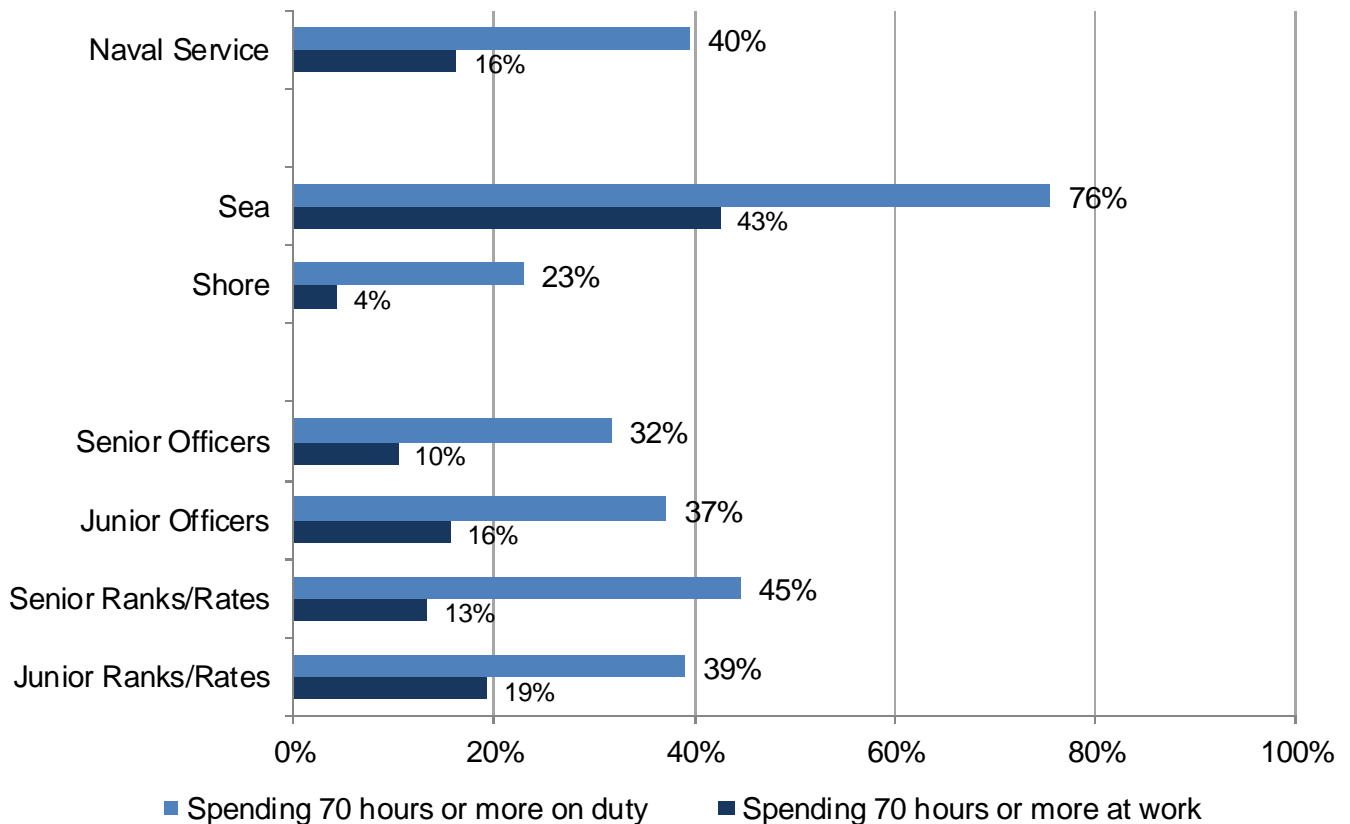
The decrease in weekly hours spent on duty by Junior Officers is supported by a decrease in the proportion of personnel who spent 70 hours or more on duty during the week surveyed, from 46% in the 2015/16 CWP survey to 37% in the 2016/17 CWP survey.

Senior and Junior Ranks/Rates witnessed an increase in average weekly hours spent on duty in 2016/17 by 10.5 and 3.5 hours respectively. For both rank groups this was driven by increases in hours spent on call (8.5 and 5.2 hours respectively). However, Senior Ranks/Rates also had an increase in hours spent at work in 2016/17 (by 2.1 hours).

2.2 Naval Service excessive hours worked and spent on duty

Section 2.2 is based on the 587 Naval Service personnel for whom a full week's data was available.

Figure 7: Proportion of Naval Service personnel spending 70 hours or more at work and on duty for the week surveyed



A member of the UK Armed Forces who worked 70 hours or more during the week surveyed is regarded as having worked excessive hours. Of Naval Service personnel 16% worked excessive hours in 2016/17, broadly similar to the 18% who worked excessive hours in the 2015/16 CWP survey.

A larger proportion of sea based personnel worked excessive hours compared to shore based personnel, similar to previous years.

Across rank groups, Junior Ranks/Rates and Junior Officers had a larger proportion of personnel working excessive hours than Senior Ranks/Rates and Senior Officers, as seen in previous years.

On duty comprises time spent at work, on breaks and on call. 40% of Naval Service personnel spent 70 hours or more on duty during the week surveyed - broadly similar to the 38% who spent 70 hours or more on duty in the 2015/16 CWP survey.

A larger proportion of sea based personnel spent 70 hours or more on duty in the week surveyed than shore based personnel, similar to previous years.

Senior Ranks/Rates had the highest proportion of personnel that spent more than 70 hours on duty compared to all other rank groups.

Data quality note

Because the proportions provided in figure 7 are based on a smaller number of respondents than the other tables and graphs in the Naval Service chapter, levels of precision are likely to be lower (wider confidence intervals). Therefore, figure 7 is only an indication of the working week of Naval Service personnel.

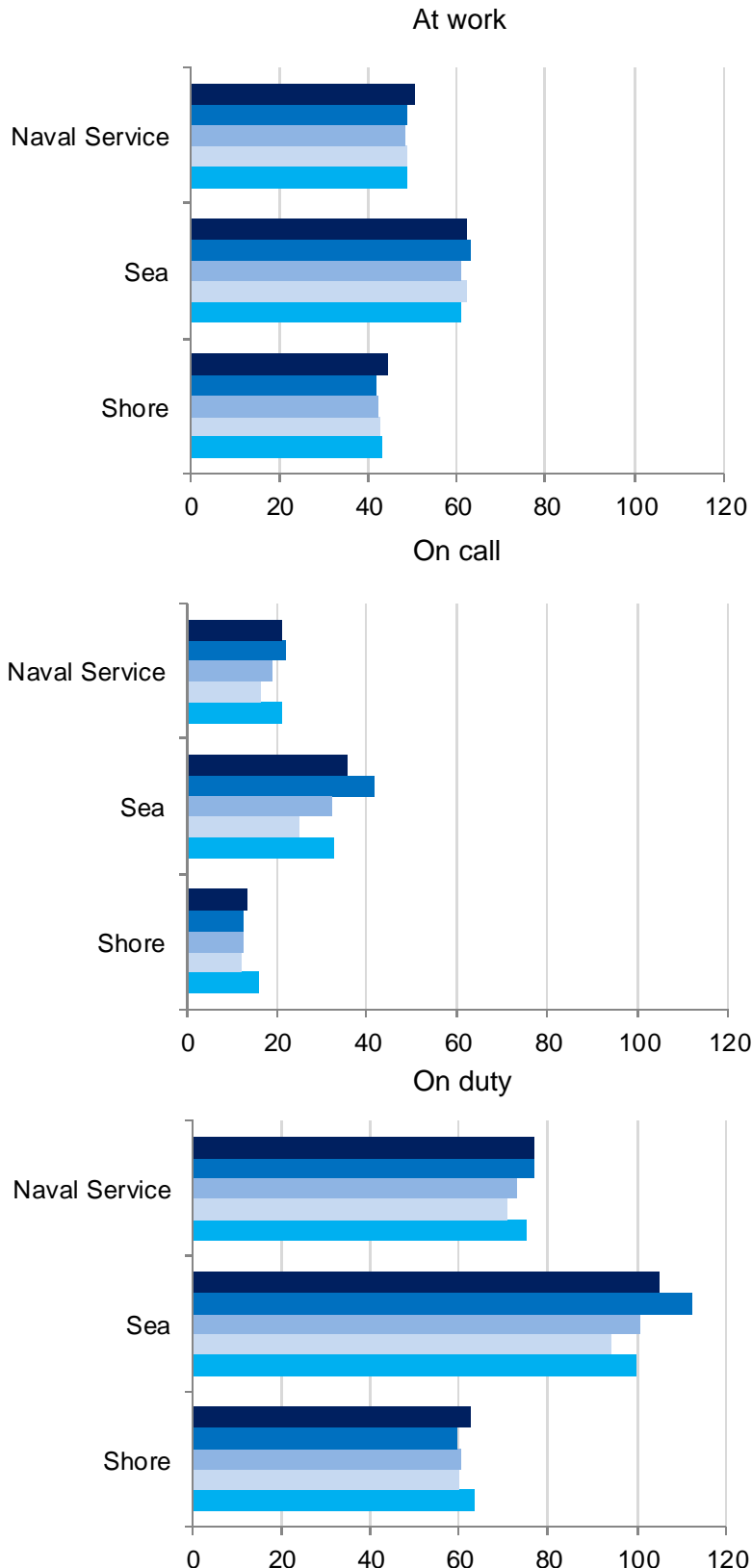
2.3 Time series of Naval Service working patterns

In section 2.3, Naval Service working patterns from 2012/13 to 2016/17 are shown.

Like section 2.1, section 2.3 uses all valid responses.

On duty comprises time spent at work, on breaks and on call.

Figure 8: Naval Service average weekly hours spent at work, on call and on duty by location



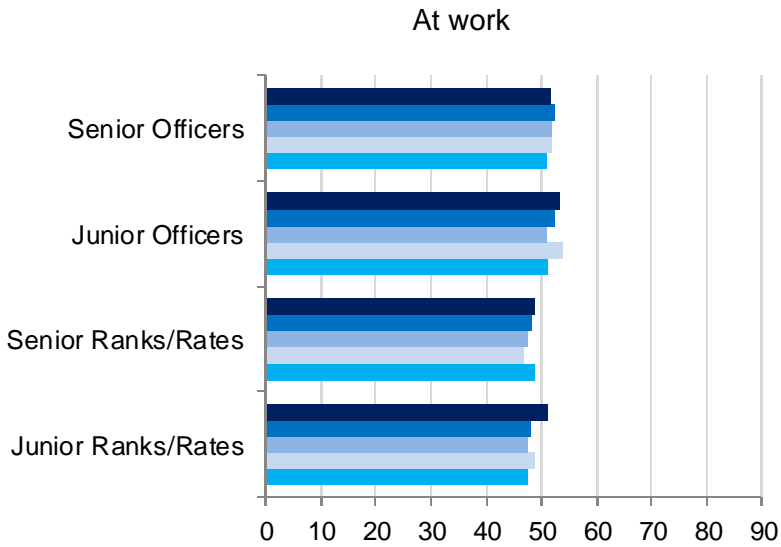
Over the last five years, sea based personnel have (on average) spent more time at work, on call and on duty than shore based personnel.

Hours spent at work has remained relatively stable over the last five years for both sea and shore based personnel.

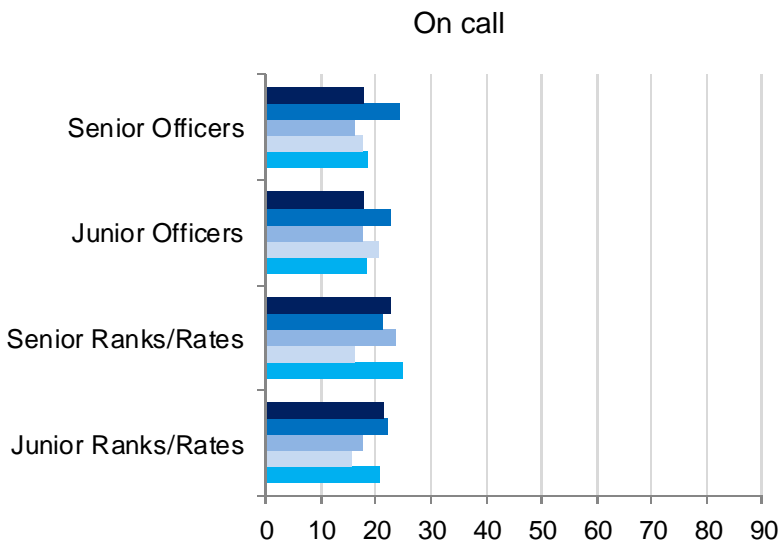
Between 2015/16 and 2016/17, hours spent on call and on duty have increased for both sea and shore based personnel. For shore based personnel, hours spent on call are the highest observed over the last five years.

2.3 Time series of Naval Service working patterns continued

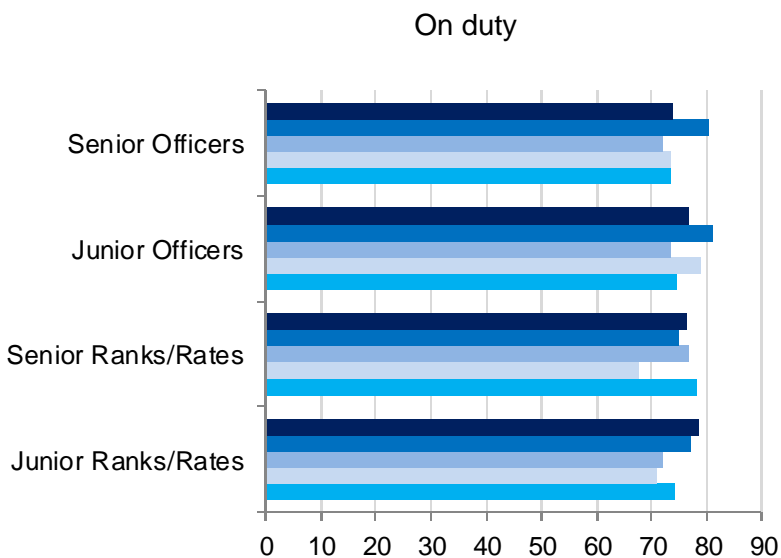
Figure 9: Naval Service average weekly hours spent at work, on call and on duty by rank group



Since the 2007/08 CWP survey Officers have spent more time at work (on average) than Ranks/Rates.



Average weekly hours spent on call has increased in 2016/17 for both Senior and Junior Ranks/Rates. This increase is observed for both Sea and Shore based personnel.



The average weekly hours spent on call has fluctuated over the past five years for all rank groups. There is much more variation in time spent on call but it is also more strongly linked to location, as can be seen in Figure 8. This suggests that average hours on call by rank group may be influenced by the proportion of those personnel at sea and shore based locations.

Although there were increases in hours spent on call and on duty in 2016/17 for Senior Ranks/Rates, Figure 9 shows that time spent on call and on duty have returned to levels seen in 2014/15.

Section 3: The Army picture

This part of the report looks at the working patterns of trained, regular Army personnel in more depth.

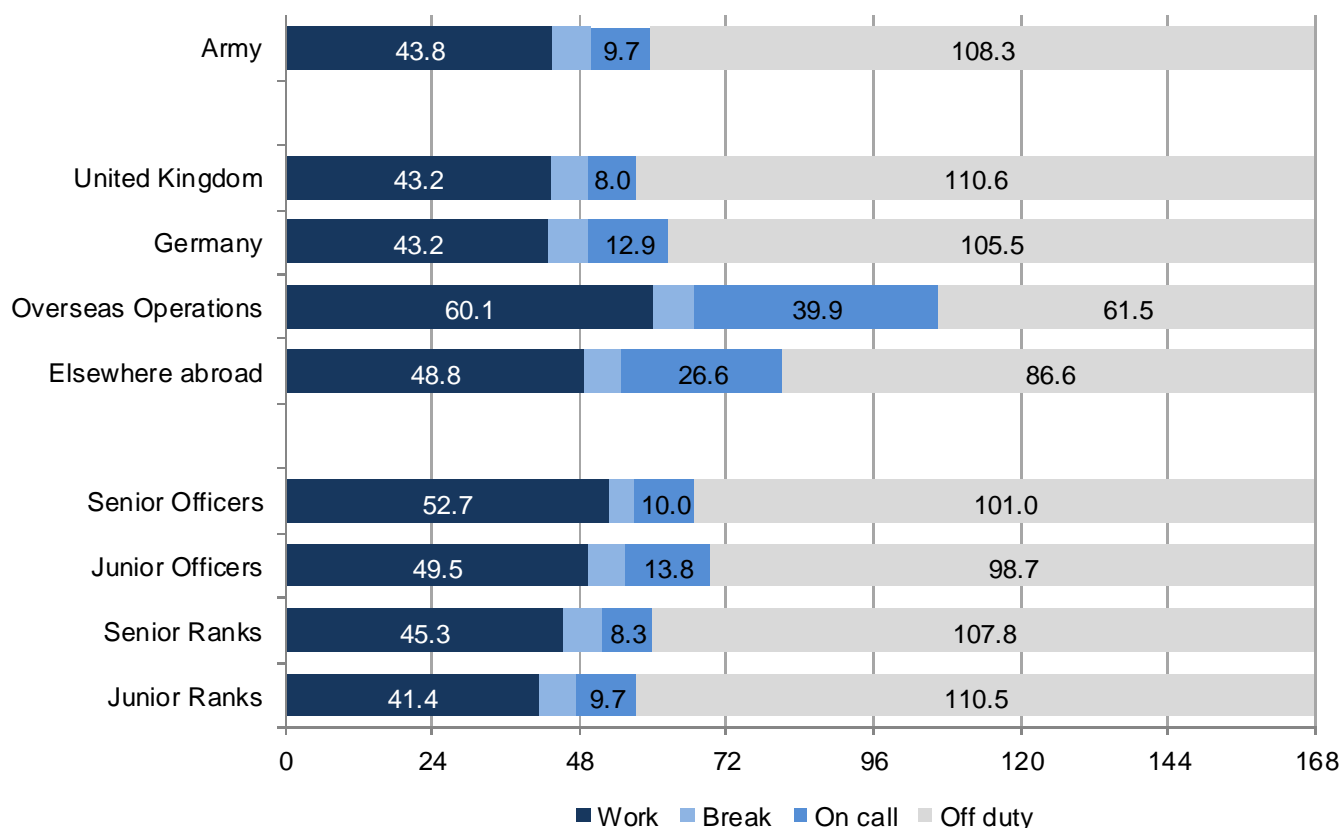
Section 3 is divided into the following sections:

- 3.1 2016/17 Army working patterns - with comparisons to the 2015/16 CWP survey
- 3.2 Army excessive hours worked and spent on duty
- 3.3 Time series of Army working patterns

3.1 2016/17 Army working patterns

This section of the report looks at the average weekly hours Army personnel spent at work, on call and on duty in 2016/17. On duty comprises time spent at work, on breaks and on call.

Figure 10: 2016/17 Army working patterns by location and rank group



In 2016/17 Army personnel deployed on overseas Operations spent more time at work, on call and on duty (on average) than Army personnel at any other location. This is something we have seen since the 2007/08 CWP survey when the location category 'elsewhere' was separated into 'overseas Operations' and 'elsewhere abroad'. It is also to be expected as personnel deployed on overseas Operations are working in a more intense environment than personnel at other locations.

Compared to other locations, Army personnel in the United Kingdom and Germany spent the least amount of time at work, Army personnel in the United Kingdom also spent the least amount of time on call and on duty (on average).

Army Officers spent more time at work, on call and on duty (on average) than Army Ranks in 2016/17.

3.1 2016/17 Army working patterns continued

Table 3: 2016/17 Army working patterns by location and rank group, with comparisons to the 2015/16 CWP survey

	At work		On call		On duty	
	2015/16	2016/17	2015/16	2016/17	2015/16	2016/17
Army	43.7	43.8	11.0	9.7 ▼	62.5	59.7 ▼
United Kingdom	42.9	43.2	9.8	8.0 ▼	60.6	57.4 ▼
Germany	46.3	43.2 ▼	11.3	12.9	65.2	62.5
Overseas Operations	53.8	60.1 ▲	49.3	39.9 ▼	111.6	106.6
Elsewhere abroad	51.1	48.8 ▼	20.2	26.6 ▲	77.7	81.3 ▲
Senior Officers	54.7	52.7 ▼	11.2	10.0	70.5	67.0 ▼
Junior Officers	52.9	49.5 ▼	13.5	13.8	72.4	69.3 ▼
Senior Ranks	46.2	45.3	10.9	8.3 ▼	63.3	60.1 ▼
Junior Ranks	40.4	41.4	10.8	9.7	60.1	57.4 ▼

Data quality note

Levels of precision are lower (wider confidence intervals) for the on call and on duty averages, and the at work average for personnel deployed on overseas Operations.

Key:

- ▲ Significant increase from 2015/16
- ▼ Significant decrease from 2015/16

Army

For the Army, the average weekly hours spent on call and on duty decreased in 2016/17 (by 1.3 hours and 2.9 hours respectively) - this follows an increase in hours spent on duty in 2015/16 (by 1.6 hours).

Army locations

For Army personnel deployed on overseas Operations, in 2016/17 the average weekly hours spent at work increased by 6.2 hours whilst the average weekly hours spent on call decreased by 9.4 hours. On the 27th October 2014, the UK Armed Forces ceased all combat Operations in Afghanistan and withdrew the last of its combat troops ([MOD Annual Report and Accounts 2014-2015](#)). The end of combat Operations in Afghanistan has led to a reduction in the number of personnel deployed on overseas Operations, which in turn has led to a decrease in the number of personnel deployed on overseas Operations being sampled to complete the CWP survey. Therefore, figures for the location category overseas Operations should be treated with caution.

For Army personnel based in Germany, there was a decrease in average weekly hours spent at work in 2016/17 (by 3.2 hours) - this follows an increase in hours worked (of 1.9 hours) in 2015/16. In 2013 the [Army Basing Programme \(ABP\)](#) was set up to implement the [Army Basing Plan](#) - to withdraw all Army units from Germany by 2020. This withdrawal of Army units from Germany may have had an impact on the working patterns of Army personnel still based in Germany, as such, figures for this location category should be treated with caution.

In 2016/17, for Army personnel elsewhere abroad the average weekly hours spent at work decreased by 2.3 hours - this follows an increase in hours worked (by 2.3 hours) in 2015/16. Whilst the average weekly hours spent on call and on duty in 2016/17 increased (by 6.4 hours and 3.6 hours respectively).

For Army personnel in the UK, the average weekly hours spent on call and on duty decreased by 1.8 hours and 3.2 hours respectively in 2016/17- this follows an increase in hours spent on duty (by 2.4 hours) in 2015/16.

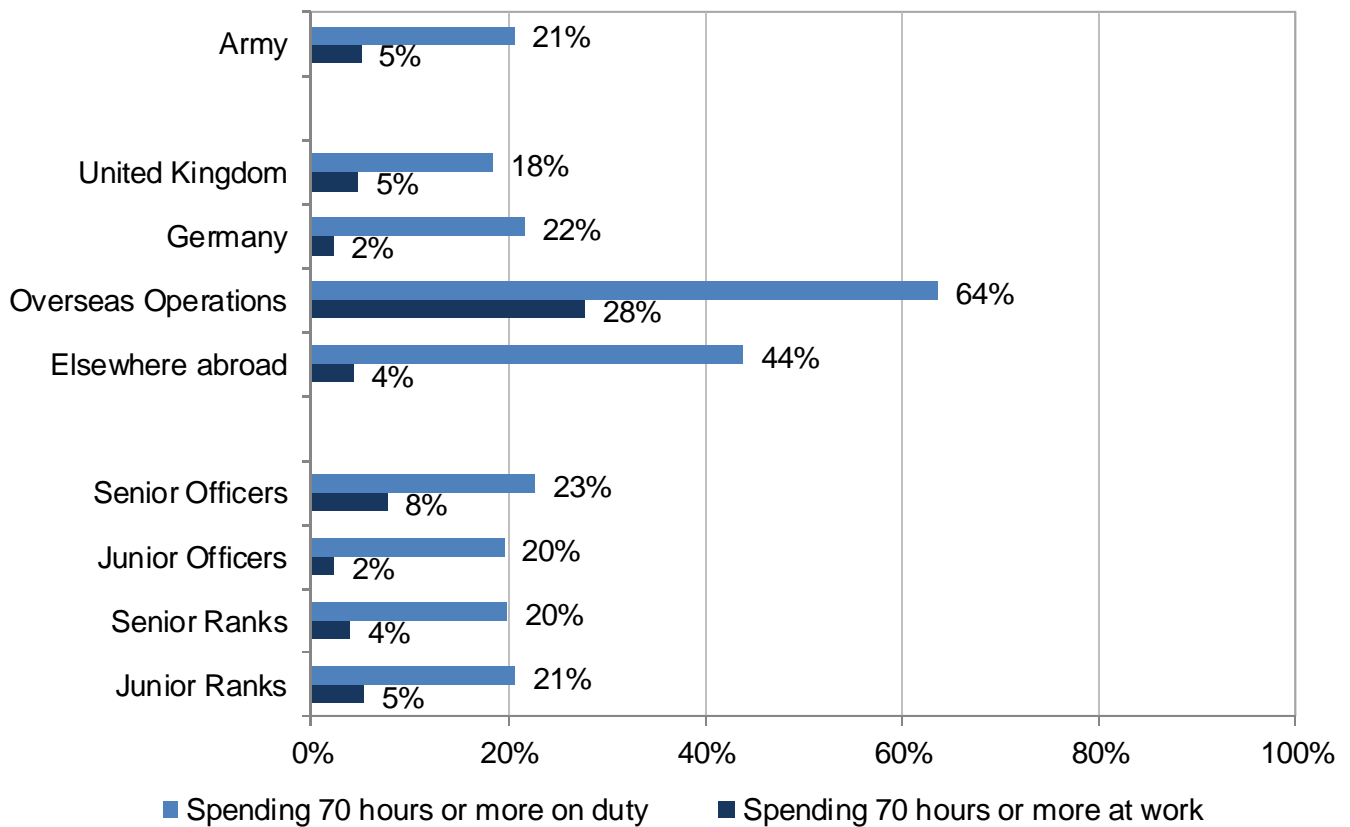
Army rank groups

There were decreases in hours spent on duty in 2016/17 for all rank groups in the Army. For Senior and Junior Officers, these decreases in on duty hours were driven by decreases in hours spent at work in 2016/17 (by 2.0 hours and 3.4 hours respectively). For Senior Ranks, this decrease was driven by a decrease in hours spent on call in 2016/17 (by 2.6 hours).

3.2 Army excessive hours worked and spent on duty

Section 3.2 is based on the 891 Army personnel for whom a full week's data was available.

Figure 11: Proportion of Army personnel spending 70 hours or more at work and on duty for the week surveyed



A member of the UK Armed Forces who worked 70 hours or more during the week surveyed is regarded as having worked excessive hours. In 2016/17, 5% of Army personnel worked excessive hours - broadly similar to the 6% of Army personnel who worked excessive hours in the 2015/16 CWP survey.

A larger proportion of Army personnel on overseas Operations (28%) worked excessive hours than Army personnel at any other location.

Senior Officers had the highest proportion of personnel working excessive hours (8%), whilst Junior Officers had the lowest proportion of personnel working excessive hours (2%).

On duty comprises time spent at work, on breaks and on call. In 2016/17, 21% of Army personnel spent 70 hours or more on duty during the week surveyed - broadly similar to the 23% of Army personnel who spent 70 hours or more on duty in the 2015/16 CWP survey.

A larger proportion of Army personnel deployed on overseas Operations (64%) spent 70 hours or more on duty than Army personnel at any other location, this is followed by Army personnel based elsewhere abroad (44%).

Across rank groups, Senior Officers had a larger proportion of personnel spending 70 hours or more on duty (23%) than any other rank group.

Data quality note

Because the proportions provided in Figure 11 are based on a smaller number of respondents than the other tables and graphs in the Army chapter, levels of precision are likely to be lower (wider confidence intervals). Therefore, Figure 11 is only an indication of the working week of Army personnel.

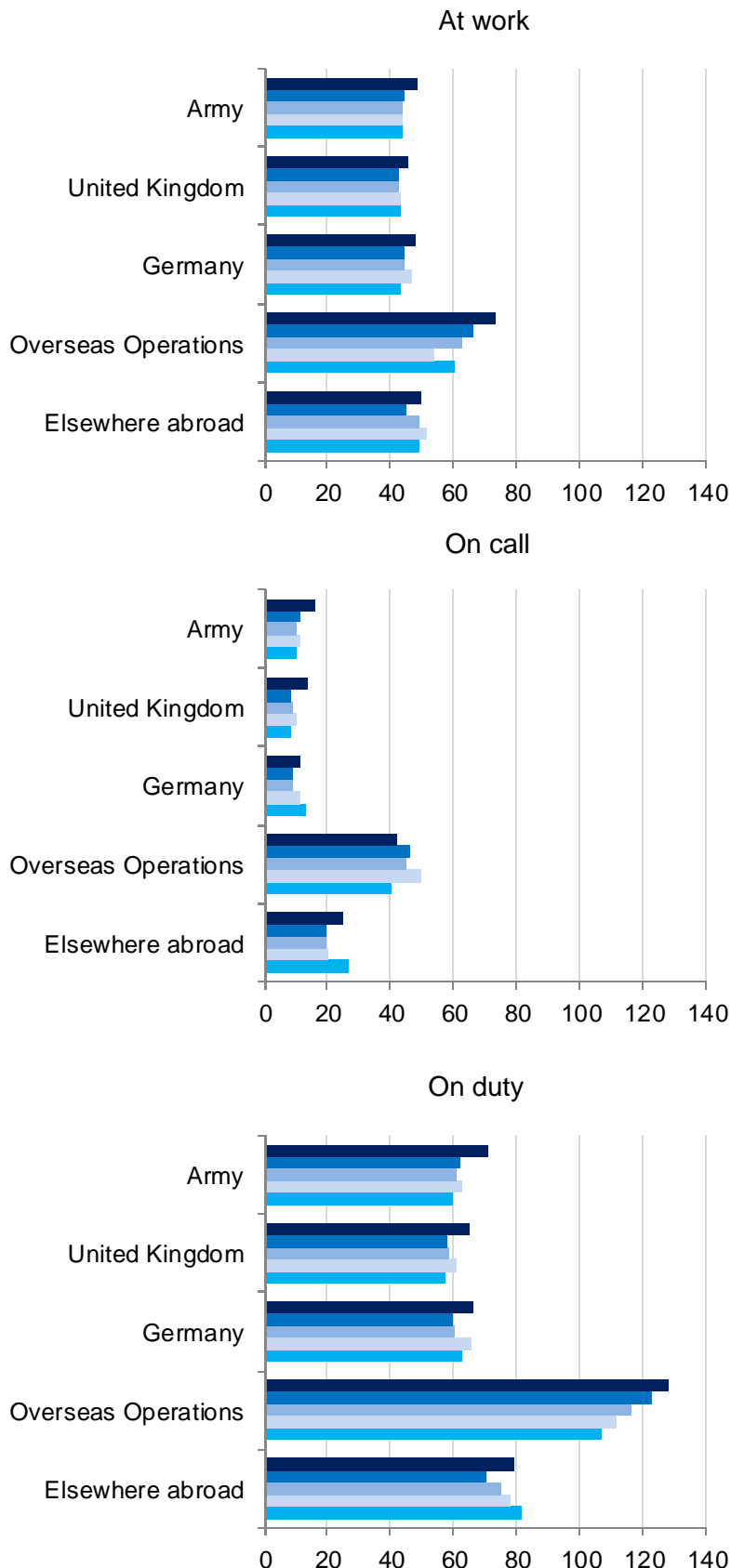
3.3 Time series of Army working patterns

In section 3.3, Army working patterns from 2012/13 to 2016/17 are shown.

Like section 3.1, section 3.3 uses all valid responses.

On duty comprises time spent at work, on breaks and on call.

Figure 12: Army average weekly hours spent at work, on call and on duty by location



Over the last five years, personnel on overseas Operations have (on average) spent more time at work, on call and on duty than personnel at any other location. This is something we have seen since the 2007/08 CWP survey when the location category 'elsewhere' was separated into 'overseas Operations' and 'elsewhere abroad'.

For Army personnel based Elsewhere abroad, there have been increases in average weekly hours spent on call and on duty in 2016/17 - and these values are similar to those observed in the 2012/13 CWP survey.

3.3 Time series of Army working patterns continued

Figure 13: Army average weekly hours spent at work, on call and on duty by rank group

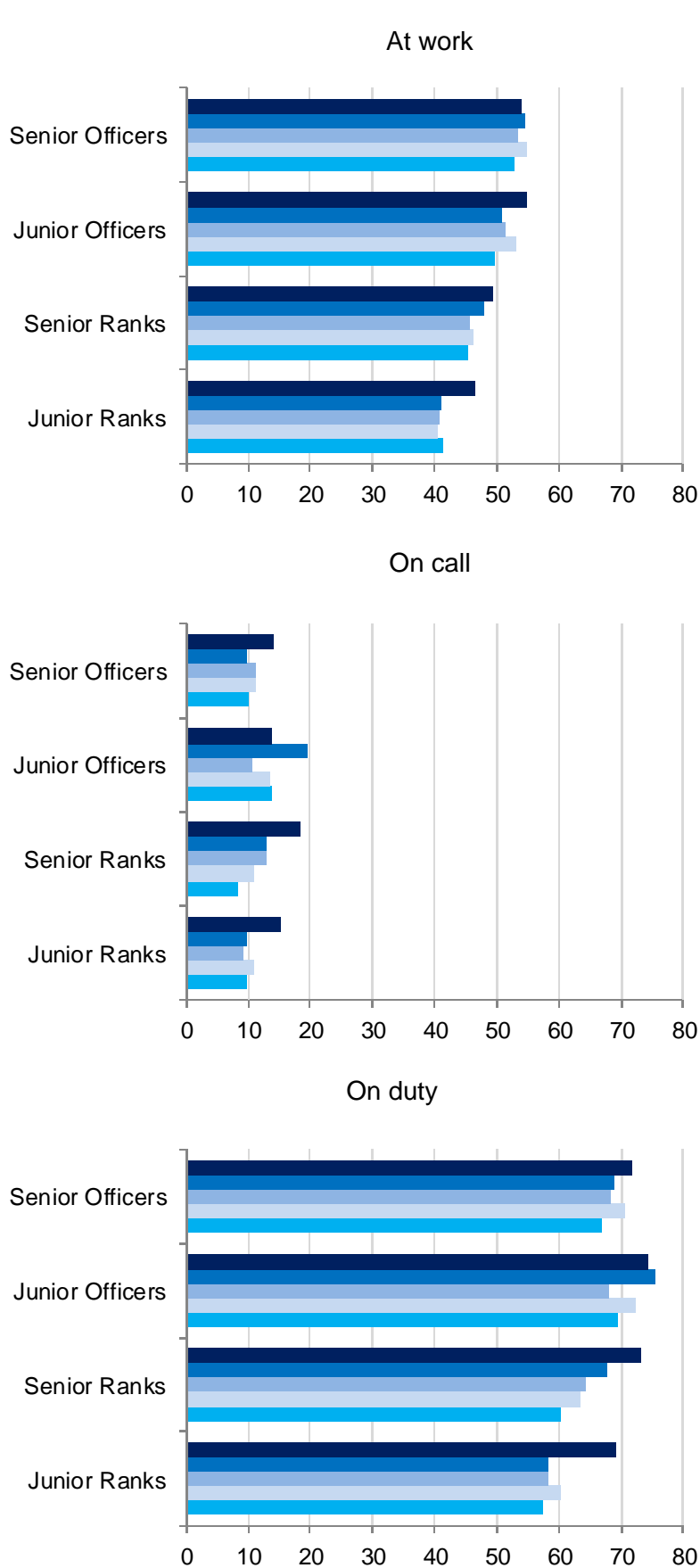


Figure 13 shows that over the last five years, Officers spent more time at work and on duty (on average) than Ranks - with the exception of 2012/13 when Senior Ranks spent more time on duty than Senior Officers.

The average weekly hours spent on call has fluctuated over the past five years for all rank groups. There is much more variation in time spent on call but it is also more strongly linked to location, as can be seen in Figure 12 on page 18. This suggests that average hours on call by rank group may be influenced by the proportion of those personnel at each broad location.

There were decreases in average weekly hours spent on call and on duty in 2016/17 for Senior Ranks. As a result of these decreases, average weekly hours spent on call and on duty for Senior Ranks in 2016/17 are the lowest observed over the last five years.

Average weekly hours worked in 2016/17 were the lowest observed over the last five years for Junior Officers.

Section 4: The RAF picture

This part of the report looks at the working patterns of trained, regular RAF personnel in more depth.

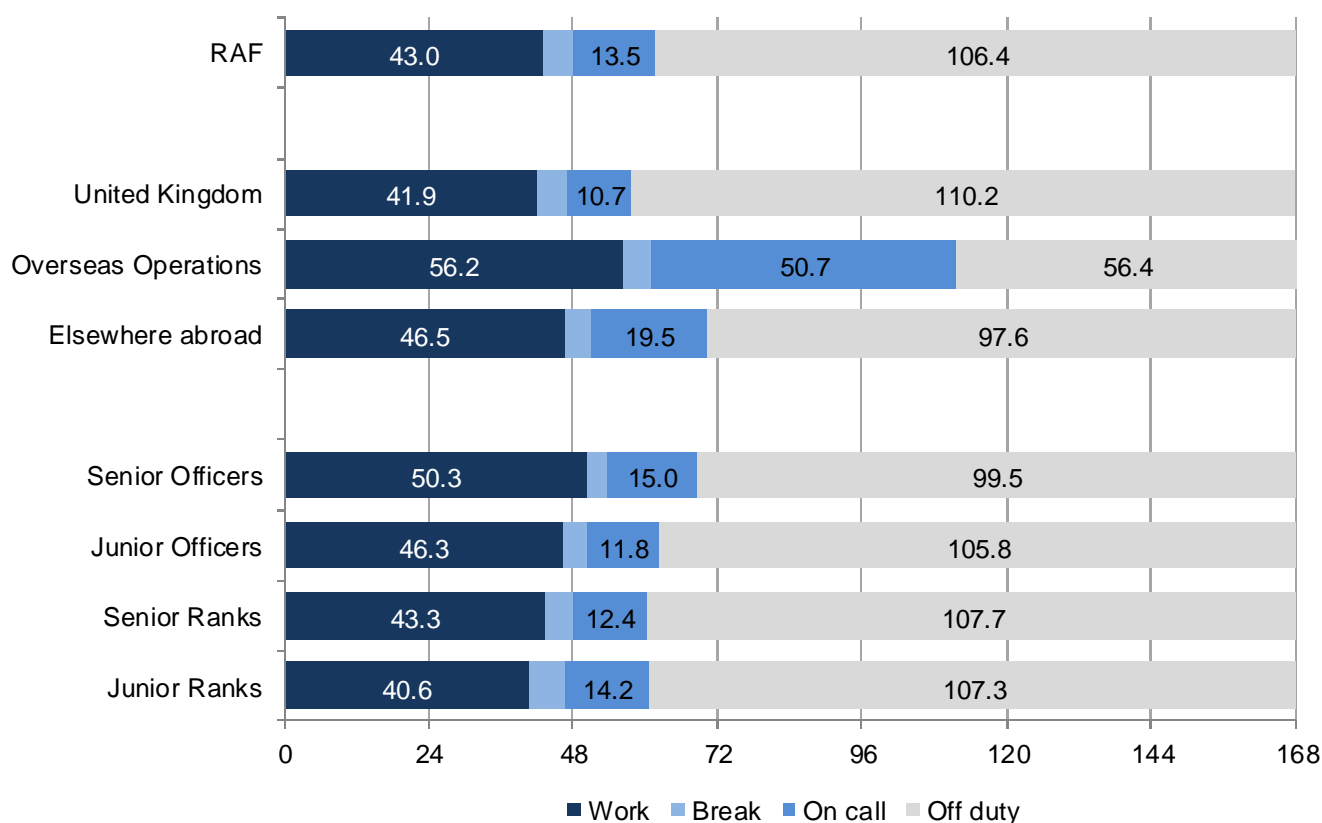
Section 4 is divided into the following sections:

- 4.1 2016/17 RAF working patterns - with comparisons to the 2015/16 CWP survey
- 4.2 RAF excessive hours worked and spent on duty
- 4.3 Time series of RAF working patterns

4.1 2016/17 RAF working patterns

This section of the report looks at the average weekly hours RAF personnel spent at work, on call and on duty in 2016/17. On duty comprises time spent at work, on breaks and on call.

Figure 14: 2016/17 RAF working patterns by location and rank group



On average, RAF personnel deployed on overseas Operations spent more time at work, on call and on duty than RAF personnel at any other location in 2016/17. This is something we have seen since the 2007/08 survey when the location category 'elsewhere' was separated into 'overseas Operations' and 'elsewhere abroad'. It is also to be expected as personnel deployed on overseas Operations are working in a more intense environment than personnel at other locations.

With regards to rank groups, Officers spent more time on duty than Ranks. This is driven by Officers spending more time at work than Ranks.

Senior Officers spent more time on call than any other rank group, whilst Junior Officers spent the least amount of time on call.

4.1 2016/17 RAF working patterns continued

Table 4: 2016/17 RAF working patterns by location and rank group, with comparisons to the 2015/16 CWP survey

	At work		On call		On duty	
	2015/16	2016/17	2015/16	2016/17	2015/16	2016/17
RAF	43.9	43.0 ▼	13.9	13.5	62.8	61.6
United Kingdom	43.2	41.9 ▼	12.2	10.7	60.5	57.8 ▼
Overseas Operations	58.8	56.2	39.9	50.7 ▲	103.9	111.7 ▲
Elsewhere abroad	44.5	46.5 ▲	20.2	19.5	67.7	70.4
Senior Officers	51.3	50.3	13.9	15.0	68.5	68.5
Junior Officers	46.2	46.3	13.5	11.8	64.0	62.1
Senior Ranks	44.5	43.3	11.6	12.4	60.5	60.3
Junior Ranks	41.6	40.6	15.2	14.2	62.6	60.7

Data quality note

Levels of precision are lower (wider confidence intervals) for the on call and on duty averages, and the at work average for personnel deployed on overseas Operations.

Key:

- ▲ Significant increase from 2015/16
- ▼ Significant decrease from 2015/16

RAF

For RAF personnel, the average hours worked per week decreased from 43.9 hours in 2015/16 to 43.0 hours in 2016/17.

RAF locations

For RAF personnel deployed on overseas Operations, the average weekly hours spent on duty increased by 7.8 hours in 2016/17. This increase in duty hours was driven by an increase in hours spent on call (by 10.8 hours) in 2016/17. These increases in hours spent on call and on duty in 2016/17 follow decreases in hours spent on call and on duty in 2015/16 (by 12.0 hours and 22.0 hours respectively).

On the 27th October 2014, the UK Armed Forces ceased all combat Operations in Afghanistan and withdrew the last of its combat troops ([MOD Annual Report and Accounts 2014-2015](#)). The end of combat Operations in Afghanistan has led to a reduction in the number of personnel deployed on overseas Operations, which in turn has led to a decrease in the number of personnel deployed on overseas Operations being sampled to complete the CWP survey. Therefore, figures for the location category overseas Operations should be treated with caution.

For RAF personnel based in the United Kingdom, the average weekly hours spent on duty in 2016/17 decreased by 2.7 hours. This decrease in duty hours was driven by a decrease in average hours worked per week in 2016/17 (by 1.3 hours). This decrease in average weekly hours worked in 2016/17 follows an increase in average weekly hours worked (by 0.9 hours) in 2015/16

For RAF personnel based elsewhere abroad, the average weekly hours spent at work in 2016/17 increased by 2.0 hours.

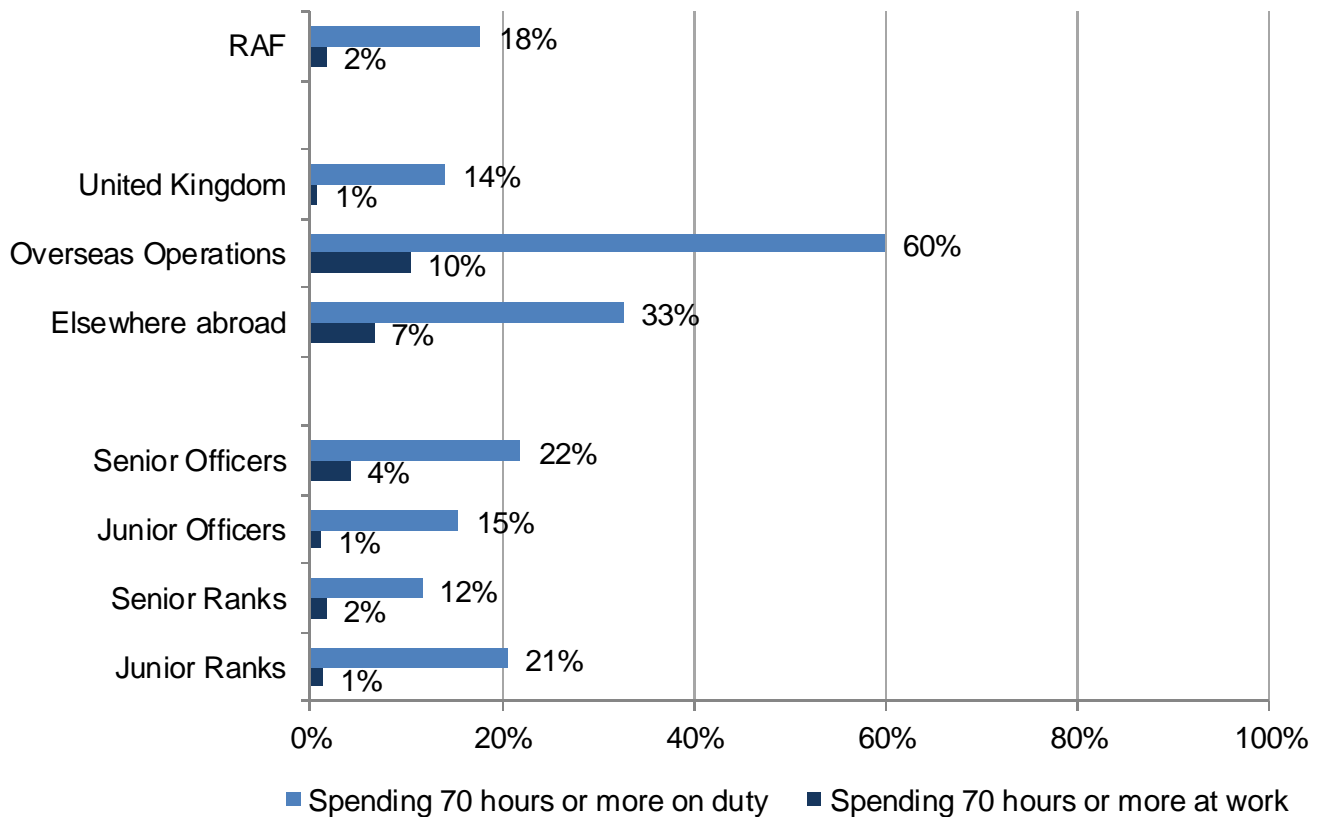
RAF rank groups

Significance tests were performed on the data for all four RAF rank groups and the 2016/17 averages were found to be broadly similar to the 2015/16 averages.

4.2 RAF excessive hours worked and spent on duty

Section 4.2 is based on the 620 RAF personnel for whom a full week's data was available.

Figure 15: Proportion of RAF personnel spending 70 hours or more at work and on duty for the week surveyed



A member of the UK Armed Forces who worked 70 hours or more during the week surveyed is regarded as having worked excessive hours. In 2016/17, 2% of RAF personnel worked excessive hours, broadly similar to the 3% of RAF personnel who worked excessive hours in the 2015/16 CWP survey.

A larger proportion of RAF personnel on overseas Operations worked excessive hours (10%), compared to RAF personnel at any other location, this is followed by RAF personnel based elsewhere abroad (7%).

Across rank groups, Senior Officers had the largest proportion of personnel working excessive hours (4%).

On duty comprises time spent at work, on breaks and on call. In 2016/17, 18% of RAF personnel spent 70 hours or more on duty during the week surveyed - broadly similar to the 20% of RAF personnel who spent 70 hours or more on duty in the 2015/16 CWP survey.

A larger proportion of RAF personnel deployed on overseas Operations (60%) spent 70 hours or more on duty during the week surveyed than RAF personnel at any other location, this is followed by RAF personnel based elsewhere abroad (33%).

Across rank groups, Senior Officers and Junior Ranks had the largest proportion of personnel spending 70 hours or more on duty (22% and 21% respectively). Senior Ranks had the smallest proportion of personnel spending 70 hours or more on duty (12%).

Data quality note

Because the proportions provided in Figure 15 are based on a smaller number of respondents than the other tables and graphs in the RAF chapter, levels of precision are likely to be lower (wider confidence intervals). Therefore, Figure 15 is only an indication of the working week of RAF personnel.

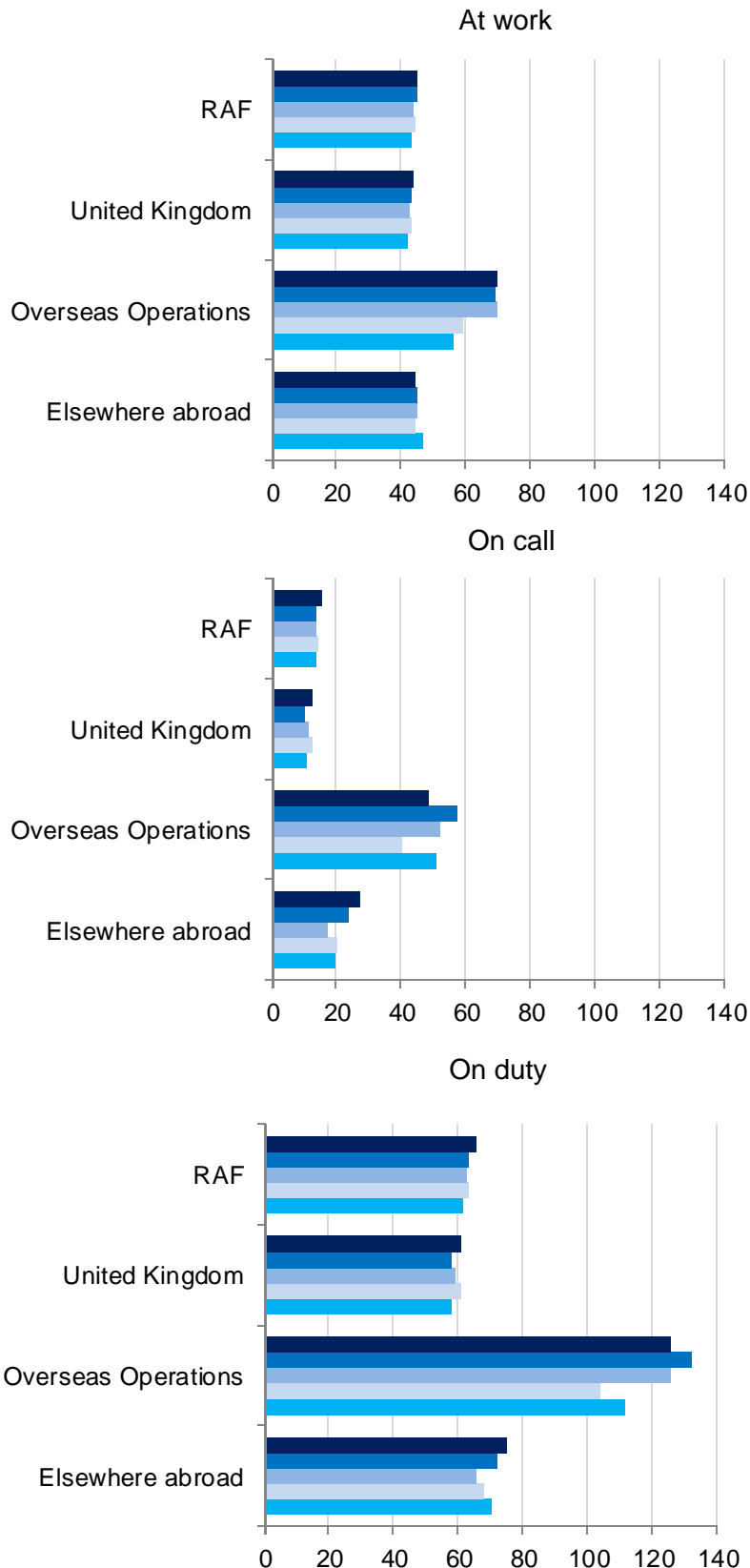
4.3 Time series of RAF working patterns

In section 4.3, RAF working patterns from 2012/13 to 2016/17 are shown.

Like section 4.1, section 4.3 uses all valid responses.

On duty comprises time spent at work, on breaks and on call.

Figure 16: RAF average weekly hours spent at work, on call and on duty by location

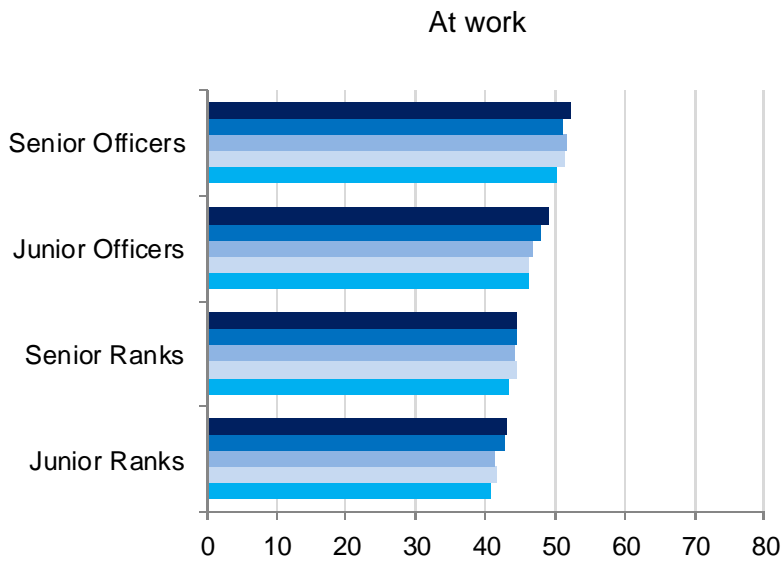


In 2016/17, the average weekly hours worked by all RAF personnel are the lowest observed over the last five years.

Over the last five years, RAF personnel on overseas Operations have (on average) spent more time at work, on call and on duty than RAF personnel at any other location. This is something we have seen since the 2007/08 CWP survey when the location category 'elsewhere' was separated into 'overseas Operations' and 'elsewhere abroad'.

4.3 Time series of RAF working patterns continued

Figure 17: RAF average weekly hours spent at work, on call and on duty by rank group

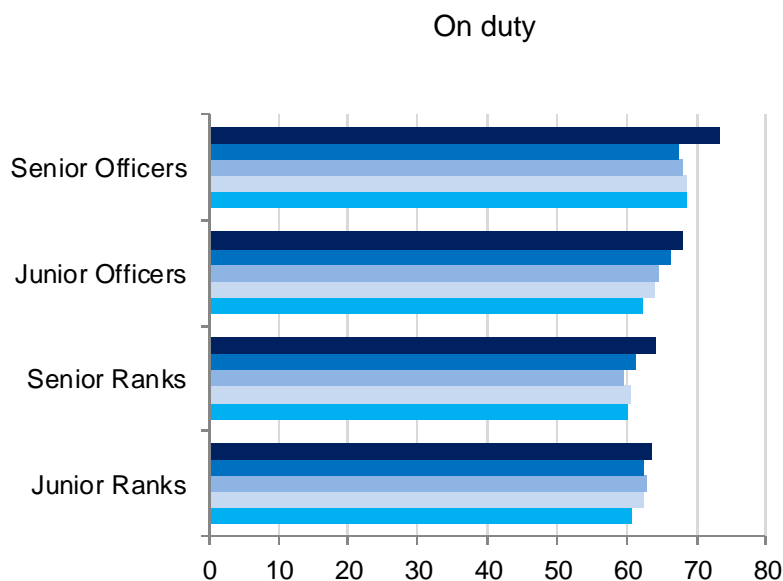


■ 2012/13
■ 2013/14
■ 2014/15
■ 2015/16
■ 2016/17

For all RAF rank groups, the average weekly hours spent at work, on call and on duty in 2016/17 are broadly similar to 2015/16.



Over the last five years, Officers have spent more time at work and on duty (on average) than Ranks. This Officer / Rank difference has been observed since the 2007/08 CWP survey, with the exception of 2010/11, when Senior Ranks spent more time on call and on duty than Junior Officers.



The average weekly hours spent on call has fluctuated over the past five years for all rank groups. There is much more variation in time spent on call but it is also more strongly linked to location, as can be seen in Figure 16 on page 23. This suggests that average hours on call by rank group may be influenced by the proportion of those personnel at each broad location.

Methodology

The questionnaire

CWP is a paper survey. Half the personnel in the sample were sent a CWP questionnaire in September 2016. The remaining half was sent a CWP questionnaire in February 2017. Data collection ran from September 2016 to April 2017.

The CWP questionnaire includes a 7 day diary; each day is divided into four periods of 6 hours. Respondents were asked to indicate time spent at 'work', 'on breaks', 'on call' and 'off duty' for each of these periods. Personnel were provided with guidance on how different activities should be recorded.

The survey is confidential rather than anonymous. An individual's unique Service number is used to allow responses to be linked to demographic data held on the Joint Personnel Administration System. Personally identifiable data are only available to a small group of civilian researchers working on the analysis and report production.

The sample and respondents

The target population was regular members of the UK Armed Forces who were full time, trained strength. It excluded untrained personnel, those on long term absence, Special Forces, Gurkhas, reservists and personnel ranked above OF6. There were a number of other minor exclusions arising from the practicalities of running the survey e.g. those with invalid address data. Address data for personnel in the sample were obtained from the Joint Personnel Administration System (JPA).

A 'valid response' refers to a returned questionnaire with at least one usable day within the seven day diary. The 2016/17 response rates can be seen in Table 5 below:

Table 5: Valid response rates by Service 2016/17

	Sample size	Valid responses	Valid response rate
UK Armed Forces	18,450	3,796	21%
Naval Service	7,638	1,177	15%
Army	7,018	1,553	22%
RAF	3,794	1,066	28%

The total CWP sample consisted of 18,450 personnel. A stratified simple random sampling process was used to select the sample. Stratification was by Service (Naval Service, Army and RAF), rank group (Senior Officers, Junior Officers, Senior Ranks/Rates and Junior Ranks/Rates) and broad location. For the Naval Service the locations were at sea and shore, for the Army the locations were United Kingdom, Germany, overseas Operations, and elsewhere abroad, and for the RAF, the locations were United Kingdom, overseas Operations and elsewhere abroad.

The sample was designed to provide sufficient responses to yield estimates with a margin of error of +/- 0.50 hours for each single Service average weekly hours worked. This was met for the RAF, who had a margin or error of +/- 0.47 hours, but not for the Naval Service (who had a margin of error of +/- 0.69 hours) or the Army (who had a margin or error of +/- 0.58 hours).

For the UK Armed Forces and the three single Services, levels of precision were lower (wider confidence intervals) for on duty and on call averages.

Methodology (continued)

For the Army and RAF, the CWP survey measures the working patterns of personnel deployed on overseas Operations. On the 27th October 2014, the UK Armed Forces ceased all combat Operations in Afghanistan and withdrew the last of its combat troops ([MOD Annual Report and Accounts 2014-2015](#)). The end of combat Operations in Afghanistan has led to a reduction in the number of personnel deployed on overseas Operations, which in turn has led to a decrease in the number of personnel deployed on overseas Operations being sampled to complete the CWP survey. Table 6 below shows how the number of returned and valid CWP questionnaires has declined for personnel on overseas Operations since 2013/14. Therefore, Army and RAF figures for the location category overseas Operations should be treated with caution.

Table 6: Number of personnel deployed on overseas Operations returning a valid CWP questionnaire, broken down by Service

	2013/14	2014/15	2015/16	2016/17
Army	545	164	109	143
RAF	325	199	144	189
Total	870	363	253	332

It should also be noted that because of the decrease in number of valid CWP surveys from Army and RAF personnel on overseas Operations, the confidence intervals for the average weekly hours at work, on call and on duty for this group are wider than personnel based at any other location.

Weighting the data

Due to the sample design and the differences in prevalence of non-response between Service, rank group and broad location, the distribution of characteristics among CWP respondents does not reflect the distribution of the trained, regular UK Armed Forces population. Therefore, responses have been weighted by Service, rank group and broad location in order to correct for the bias caused by over or under representation.

The weights are calculated simply by:

$$\frac{\text{Population size of strata (p)}}{\text{Number of responses within strata (r)}}$$

Weighting in this way assumes missing data are missing at random (MAR) only within strata. This means we assume that within strata, the working patterns of non-respondents do not differ (on average) to the working patterns of respondents.

If those who did not respond have different working patterns to those who did, then the observations in this report will not be representative of the working patterns of trained, regular UK Armed Forces, rather, the observations would only represent the working patterns of the responding population.

Non-response that is directly related to individual working patterns will lead to bias within these survey results. For example, those busiest and hence working longer hours may be less likely to complete the survey.

Methodology (continued)

Analysis

The automated data cleaning rules are set out below:

1. If a respondent has recorded they are on annual leave or sick leave but has also filled in some hours, we ignore the hours and assume the leave marker is true.
2. For Monday to Friday, if a respondent has recorded they are on duty but has not filled out any hours in the boxes, we change the leave marker to show them as being on annual leave. Anyone on annual leave will not be used in the calculations, as we are only interested in people who were working a 'normal' week, with no annual leave.
3. On Saturday and Sunday, if a respondent has recorded they are on duty but has not filled out any hours in the boxes, we change the leave marker to show them as being on weekend leave (we feel that this is a reasonable assumption to make).
4. On Saturday and Sunday, if a respondent has recorded they are on weekend leave we make sure they have 24 hours off duty recorded for that day.
5. If a respondent has recorded they were on weekend leave from Monday to Friday (not a valid option on the questionnaire), we change the leave code to show annual leave.
6. If the total hours for a day add up to between 23 and 25 hours then we allow that day in the calculations without cleansing. We see this as an acceptable margin of error. Any totals that fall outside this margin will not be used in the calculations.

Many personnel returned questionnaires which included leave days or days that had to be discarded because of inconsistent or missing data. If analysis was restricted to only those questionnaires that cover a full working week, results would be based on much less data and confidence intervals would be considerably wider. The methodology used is based upon a 'notional' week made up of the average Monday, the average Tuesday, ..., the average Sunday.

Therefore, by calculating the average working hours separately for each day, as much of the data as possible is used.

Statistical comparisons

In order to detect any statistical differences in working patterns between the current year and the previous year, a series of z-tests were conducted at the 95% confidence level. This is a fairly stringent level and means that there should be a less than 5% (5 in 100) chance that differences observed in the CWP results are not representative of the Armed Forces as a whole. This reduces the likelihood of wrongly concluding that there has been an actual change based on the survey results, which only cover a sample of the Armed Forces.

If a statistical difference is found it means that the difference between years is unlikely to be the result of random variation and is therefore indicative of a genuine change in hours spent at 'work', 'on duty' or 'on call' between 2015/16 and 2016/17. It does not mean that the change is necessarily large or substantively "important".

It is important to note that the absence of a statistically significant difference between years does not necessarily mean that no difference is expected to exist between populations. Simply that, given the number of respondents, the detected difference is too small for us to be confident that a difference of this size could not have arisen due to chance variation in the survey process.

Glossary

Armed Forces Pay Review Body (AFPRB) Provides independent advice to the Prime Minister and the Secretary of State for Defence on pay and changes for members of the Naval, Military and Air Forces of the Crown.

Breaks Are meal breaks during periods of work.

Excessive hours Refers to a working week of 70 hours or more.

Joint Personnel Administration (JPA) Is the system used by the Armed Forces to deal with matters of pay, leave and other personal administrative tasks.

Junior Officers Armed Forces personnel with a NATO Rank of OF1 to OF2.

Junior Ranks/Rates Armed Forces personnel with a NATO Rank of OR1 to OR4.

Missing at random (MAR) Statistical theory that states those who did not respond to a question do not differ from those who did respond.

MOD Ministry of Defence.

NATO North Atlantic Treaty Organisation.

Naval Service Comprises the Royal Navy (including Queen Alexandra's Royal Naval Nursing Service) and the Royal Marines combined.

Non-response Refers either to a person who although sampled and sent a questionnaire did not provide details of their working patterns, or to a respondent who did not complete a question.

Off duty Not at work, on breaks or on call.

Officers In the CWP survey, this refers to Officers with a NATO Rank of OF1 to OF6.

On call Includes all time when available as necessary, including all time away at sea, time spent on exercise (including periods of stand down) and fully kitted for immediate call out.

On duty All time spent at work, on breaks and on call.

Ranks/Rates Ranks are members of the Royal Marines, Army and RAF who are not Officers. The equivalent group in the Royal Navy are known as 'Ratings'.

RAF Royal Air Force.

RM Royal Marines.

RN Royal Navy.

Glossary (continued)

Senior Officers Armed Forces personnel with a NATO Rank of OF3 to OF6.

Senior Ranks/Rates Armed Forces personnel with a NATO Rank of OR6 to OR9.

Single Services Naval Service, Army and RAF.

Statistically significant Refers to the result of a statistical test in which there is evidence of a change in average weekly hours spent at work, on call or on duty between the 2015/16 survey and the 2016/17 survey.

Statistical tests Refers to those tests which are carried out to see if any evidence exists for a change in working patterns between the 2015/16 survey and the 2016/17 survey.

Trained strength Trained strength comprises military personnel who have completed Phase 1 and Phase 2 training:

- Phase 1 training includes all new entry training to provide basic military skills
- Phase 2 training includes initial individual specialisation, sub-specialisation and technical training following Phase 1 training prior to joining the trained strength.

Unsociable hours Are any hours worked between 00:00 and 06:00 Monday to Friday, any hours worked between 18:00 and 24:00 Monday to Friday, and any hours worked on Saturday and Sunday.

Work Includes all time spent on core activities, secondary duties, compulsory fitness training, organised sports and representational activities, but excludes breaks.

Weighting Refers to weights that are applied to the respondent data set (by Service, rank group and broad location) in order to make the data more representative of the population of interest.

z-test Statistical tests based on a standardised distribution which allows comparison between years for populations of different sizes.

Further information

Rounding

Where rounding has been used, totals and sub-totals have been rounded separately and so may not equal the sums of their rounded parts.

Revisions

There are no regular planned revisions of this Bulletin. Amendments to figures for earlier years may be identified during the annual compilation of this Bulletin. This will be addressed in one of two ways:

- i. Where the number of figures updated in a table is small, figures will be updated and those which have been revised will be identified with the symbol "r". An explanation for the revision will be given in the footnotes to the table.
- ii. Where the number of figures updated in a table is substantial, the revisions to the table, together with the reason for the revisions, will be identified in the commentary at the beginning of the relevant chapter / section, and in the commentary above affected tables. Revisions will not be identified by the symbol "r" since where there are a large number of revisions in a table this could make them more difficult to read.

Occasionally updated figures will be provided to the editor during the course of the year. Since this Bulletin is published electronically, it is possible to revise figures during the course of the year. However to ensure continuity and consistency, figures will only be adjusted during the year where it is likely to substantially affect interpretation and use of the figures.

Contact us

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