



**Luftfartstilsynet**  
CIVIL AVIATION AUTHORITY - NORWAY

# NATIONWIDE SURVEY OF THE WORK ENVIRONMENT AMONG CREW MEMBERS IN NORWAY



Oslo  
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Foto: Avinor

# PREFACE

Civil aviation has undergone significant changes in recent years. From being an industry previously dominated by good working conditions, high salaries even with recreational opportunities we see, today, a business undergoing global change with increased competition and demands for profitability and efficiency. These changes have affected the personnel in aviation and their working environment.

In Norway debates, forums and news reports demonstrate that there is public interest regarding the working conditions for crew members in civil aviation. The media present their view, companies assess their own working environment, trade unions present their perspective and the aviation authorities oversee the work environment for all operators employing crew members out of bases in Norway. Despite these different sources of information, it is still unclear how the aviation sector is in comparison to other sectors and what crew members themselves, in general at the national level, think about their work environment.

Previous surveys of living conditions in Norway that included work environments at a national level and in several industries only comprised 13 pilots.

The rationale for this survey was to provide crew members with the opportunity to express themselves as to how they experience the working environment in the industry.

As an extension and supplement to previous

research, and to achieve a better basis for understanding how crew members experience their own work environment, the Civil Aviation Authority Norway conducted the first nationwide work environment survey of crew members based out of Norway.

Here we present the results of the work environment survey conducted in late fall 2015 among more than 2,500 crew members. All but one of the airlines with more than 10 crew members based out of Norway participated. The results are compared, as far as is possible, with other groups of employees in Norway.

Oslo, December 2017

Trond-Eirik Strand  
Manager Human Factor

# SUMMARY

Based on 2,578 responses, among 5,138 invitees, we obtained unique insight into how crew members based out of Norway perceive their work environment. Overall, we see that majority of employees in the industry have a challenging work environment compared to workers in other industries. It is the sector with large fixed wing companies that stand out in particular.

Results must be interpreted with caution as only half the total crew members responded, because there is a possibility of selection bias with those most committed being respondents. Yet it can be seen that the results in several areas are consistent with expectations that distinguish the various sectors. Altogether Civil Aviation Authority Norway's assessment is that the responses are representative. The response rate is equivalent to the national Survey of Living Conditions 2013 (53%) which herein is one of the datasets used as a reference for comparisons with other industries beyond aviation.

Overall, 34% of crew members and 21% of pilots responded that they plan to seek new jobs in the next few years. On the other hand, crew members showed above average responses compared to other industries that they more often told their friends that it was good to work at their current company.

Regarding the physical working environment, there is a large proportion of pilots and cabin crew in the fixed wing sector who report being somewhat or very troubled by sleep problems which they believe is partly or completely attributable to their current job. Cabin crew was characterized by a high percentage of neck and/or shoulder pain related to the current job: 22% indicating they were "somewhat" troubled and 18% "very" troubled. Pain in the lower back was reported at a higher frequency among cabin crew than the general population.

Overall, 39% of pilots and 59% of cabin crew who are in fixed-term employment reported that they have gone to work twice or more during the last 12 months even though they felt so ill that they should have stayed home.

In the survey, both pilots and cabin crew scored similarly or better than average compared with

other Nordic countries on question about being taken good care of by the employer. However the large fixed wing sector stand out negatively from among other sectors. On the other side, crew members in large fixed wing companies often experience bad relations between management and employees.

Crew members have strict flight time limitations. At the same time, we see from the responses that only 19% of pilots and 12% of cabin crew daily experience that they get adequate rest and relaxation between work days (without taking in to consideration sleep). This deviates from the national average of 71%. Overall, 37% of pilots and 46% of cabin crew in the large fixed wing sector often feel physically exhausted after ending their working period. Respectively 8% and 12% feel physically exhausted after each working day.

Furthermore, 15% of pilots responded that they rarely consider that they have the time to do the job in respect of the working environment in a safe way. In terms of the pilots' own assessment of the risk of being exposed to an accident at work, inland helicopter pilots had the worst score, where 7% specified high risk and 35% medium risk.

The results indicate that both the air carriers and the aviation authorities as well as employees and their representatives should continue to work together in the best way possible to ensure a good working environment.

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# METHOD

All 35 civil aviation companies with crew members based in Norway in fall 2014 were invited to participate in the survey. Of these, 26 companies accepted the invitation and provided email addresses for their crew members.

The survey to crew members was conducted using a web-based solution provided by Easy-Quest. All responders were automatically made anonymous by the system. The only language option was Norwegian.

Sector	Air carrier		Response rate (sector)
Large fixed wing			50%
	Scandinavian Airline System	Widerøe	
	Norwegian		
Small fixed wing			52%
	Airwing	Vestlandsfly	
	Benair	Bergen Air transport	
	Blom geomatic	Lufttransport	
	Pilot flyskole	TUIfly	
	Sundt air	Novair	
	Thomas Cook		
Offshore helicopter			46%
	Bristow	CHC Helicopter Service	
Inland helicopter			52%
	Airlift	Helitrans	
	European Helicopter Center	Noraviation	
	Fjellfly	Nordhelikopter	
	Fonnafly	Pegasus	
	Heliscan	Norsk luftambulanse	

*^Table 1: Overview of participating airline carriers and response rate by sector.*

An invitation to each crew members was distributed on November 17, 2015. Those who had not responded by December 1 were sent a reminder and the survey was closed on December 7, 2015.

A total of 2,651 of the 5,138 crew members invited to participate had replied when the survey was closed. Only fully completed surveys were included in the analyses. As stated in Table 1 the response rate was approximately 50% for all four sectors. By comparison, the response rate for the national Survey of Living Conditions in 2013 was 53%.

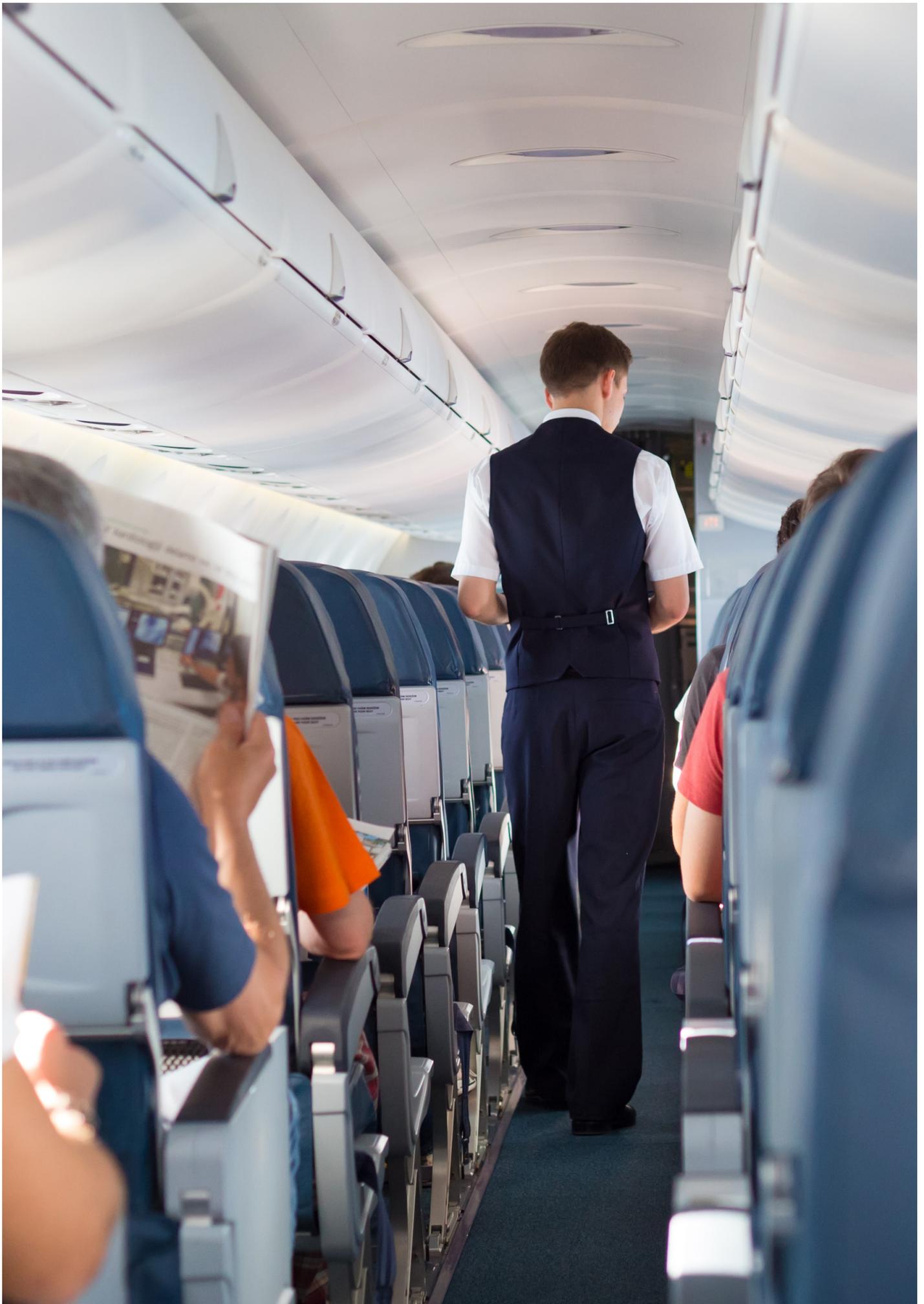
Essentially, validated questions from established national tools for the monitoring of the work environment were used. A total of 22 questions were included on the basis of 30 questions from the national Survey of Living Conditions, 7 exclusively from QPS Nordic, and the remaining 11 were compiled by the Civil Aviation Authority Norway. These last questions were primarily used for sorting by group and industry. Some questions from QPS Nordic and the Survey of Living Conditions were slightly modified to be industry-specific and it was emphasized that any modifications should have as little effect as possible on the actual content.

Any reference in the results to the general workforce in Norway stems from the similar questions used for 8,283 people in the Survey of Living Conditions in 2013. For further details please refer to Appendix 1 and the Documentation Report Survey of Living Conditions and Working Environment in 2013 ([www.ssb.no/arbeid-og-lonn/artikler-og-publikasjoner/lev-ekarsundersokelsen-om-arbeidsmiljo-2013](http://www.ssb.no/arbeid-og-lonn/artikler-og-publikasjoner/lev-ekarsundersokelsen-om-arbeidsmiljo-2013))

Comparisons with QPS Nordic is done using the mean scores from the user manual published in 2001<sup>1</sup>. QPS Nordic is based on results from 2015 people in four Nordic countries and in various industries.

The Norwegian National Institute of Occupational Health contributed quality assurance for the design of the questions employed in the survey. A complete list of the questions and response options included in the survey can be found in Appendix 1.

<sup>1</sup>Brukerveiledning QPSNordic – Generelt spørreskjema for psykologiske og sosiale faktorer i arbeid. STAMI-rapport Årg. 1, nr. 2 (2001)

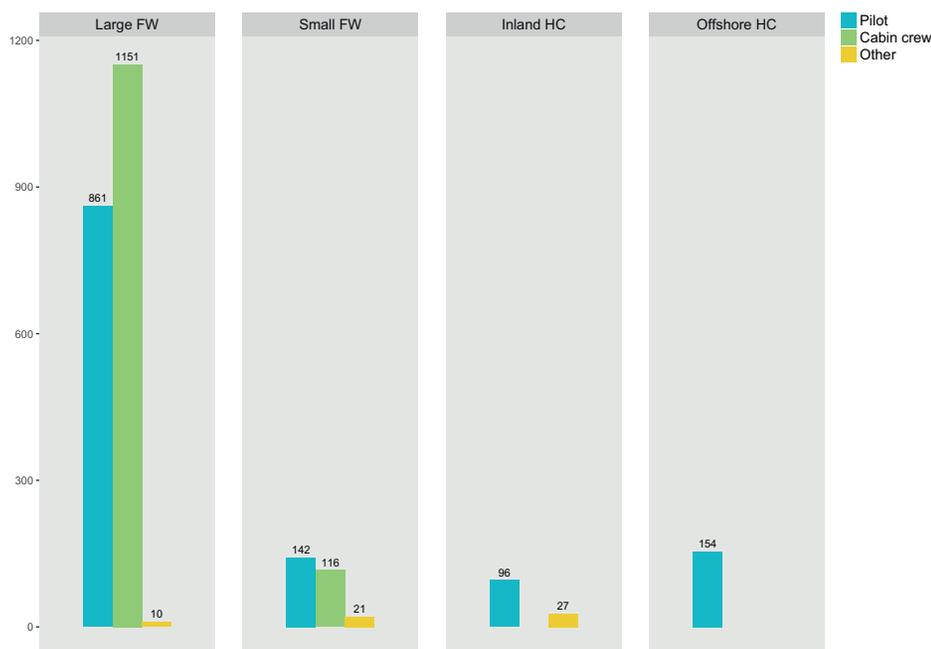


# RESULTS

## General

Of the 2,651 respondents, 2,578 completed the survey and it is these responses that are presented herein. Figure 1 shows the number of respondents by crew category in the various sectors.

time. Only 3% of the temporary employees have worked more than 10 years in the business.



<sup>^</sup>Figure 1: The number of respondents by sector and crew category.

The other group represents a total of 31 respondents for fixed wing companies and 27 for inland helicopter. Since the survey is only directed at crew members, the responses do, therefore, include crew members in administrative positions with air services as well as helicopter rescue personnel. Nearly half (1,235 - 48%) of the respondents have more than 10 years of service and of these, 497 (19% of the total) have been employed for 20 years or more.

A total of 548 people indicated that they work part-time. Among these the distribution was 167 (17%) pilots in fixed wing, 11 (4%) pilots offshore, 367 (29%) cabin crew in fixed wing and, 3 (11%) in the category other helicopters.

A total of 95 responded that they were temporarily employed which in total comprise 4% of the respondents (Table 2). Of these, 17% are working part-time at the air carrier. Of those with fixed-term employment 21% work part-

	Fixed-term employment (%)	Temporary employment (%)
<b>Form of association</b>		
Employee of air carrier	2215 (97)	59 (3)
Employed by staffing agency	180 (91)	18 (9)
Self employed	7 (64)	4 (36)
Other association	69 (83)	14 (17)
<b>Sector</b>		
Fixed wing	2213 (96)	83 (4)
Inland helicopter	110 (90)	12 (10)
Offshore helicopter	154 (100)	0 (0)

<sup>^</sup>Table 2: Number of respondents who have Fixed-term and temporary employment by form of association and sector.

A previous safety study for inland helicopters revealed that 67% of those who work for operators that primarily carry out aerial work/passenger flights also have paid work outside the air carrier<sup>2</sup>. Little was known about the extent of work outside the air carrier for other crew members, but Table 3 provides an overview of the distribution among those who responded.

Category	Work outside the air carrier
Pilots fixed wing	6%
Cabin crew fixed wing	11%
Other category fixed wing	23%
Pilots inland helicopter	25%
Pilots offshore helicopter	7%
Other category helicopter	30%

<sup>^</sup>Table 3: How many have work outside the air carrier.

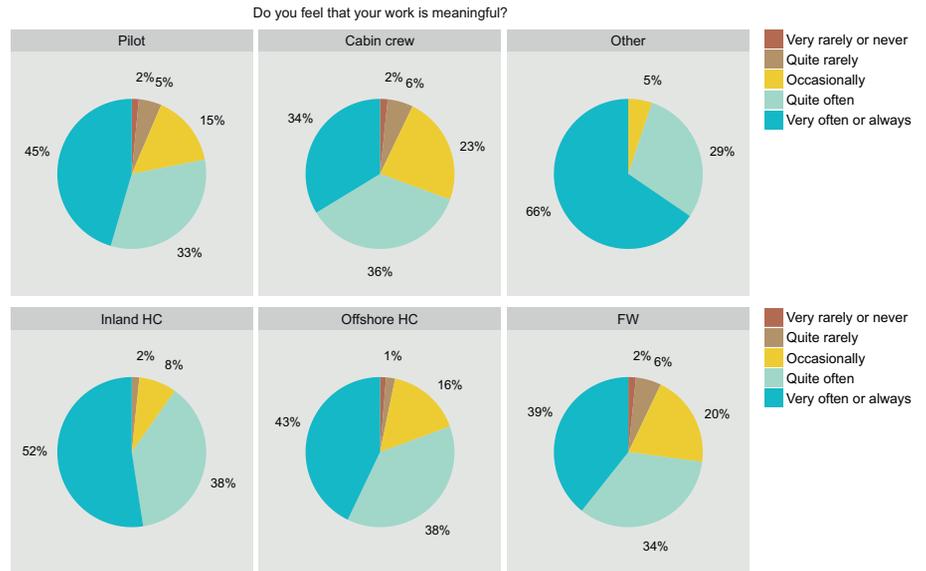
When asked whether they considered their

work to be meaningful, only a few pilots and cabin crew respond negatively ("quite rare" or "very seldom or never") (Figure 2). For the crew category other, none of the 58 respondents answered negatively.

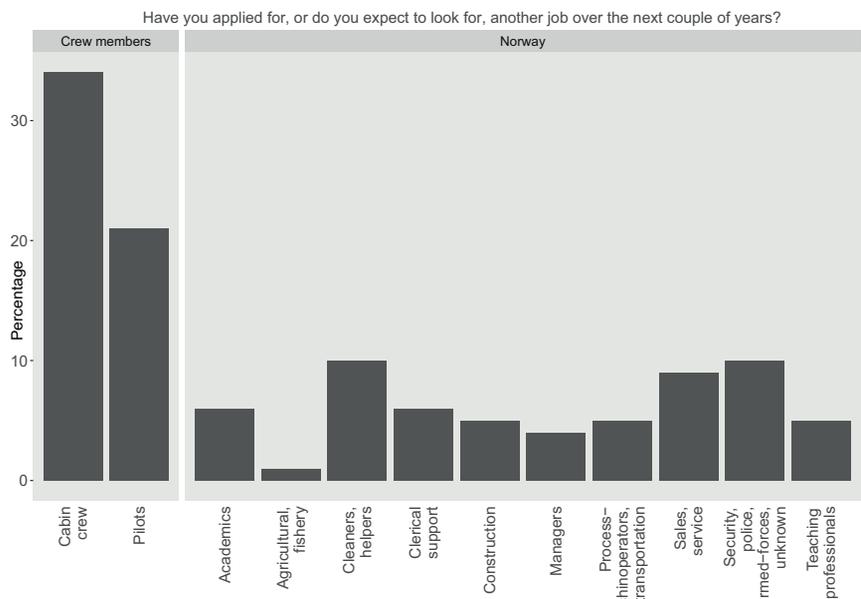
As to whether crew members were planning to look for a new job within the next few years, 21% of pilots and the category other as well as 34% of cabin crew responded "yes" (Figure 3). For crew members in both inland helicopters and fixed wing the corresponding figure was 28%, while it was lower for offshore at 17%. Compared to the national average of 6% for all occupations, these figures are high. The question does not consider whether the respondent is seeking a new job within the same industry or air carrier. For example, pilots could answer "yes" if they wish to seek promotion internally. The reason for the high proportion of cabin crew planning to look for a new job may be related to the fact that more young people are recruited with the attitude that it is for a shorter period of life. Nevertheless, the numbers differ so considerably from the rest of the workforce that it is worth further study.

It adds perspective to investigate how people communicate about their working environment. Figure 4 shows the responses to question about whether respondents tell their friends that it's a good air carrier to work for. The mean for Norway based on QPS Nordic is 3.52. For pilots the score is 3.49 and for cabin crew 3.43. The group "other" scored 4.14. Answers are scored with 1 point for "totally disagree" 2 points for "partly disagree", etc., with "totally agree" receiving 5 points. The question is formulated to refer specifically to the air carrier where the daily work is actually done.

The survey enquired two factors related to how crew members experience that safety is assured in the context of their working environment. For the large fixed wing sector, 52% of pilots responded that they feel that they have "to a high degree" or "to a very high degree" time to execute their job in keeping with occupational health and safety (Figure 5). Similarly, it is the large fixed wing sector that clearly scores highest at the other end of the scale. A total



^Figure 2: Meaningful work.

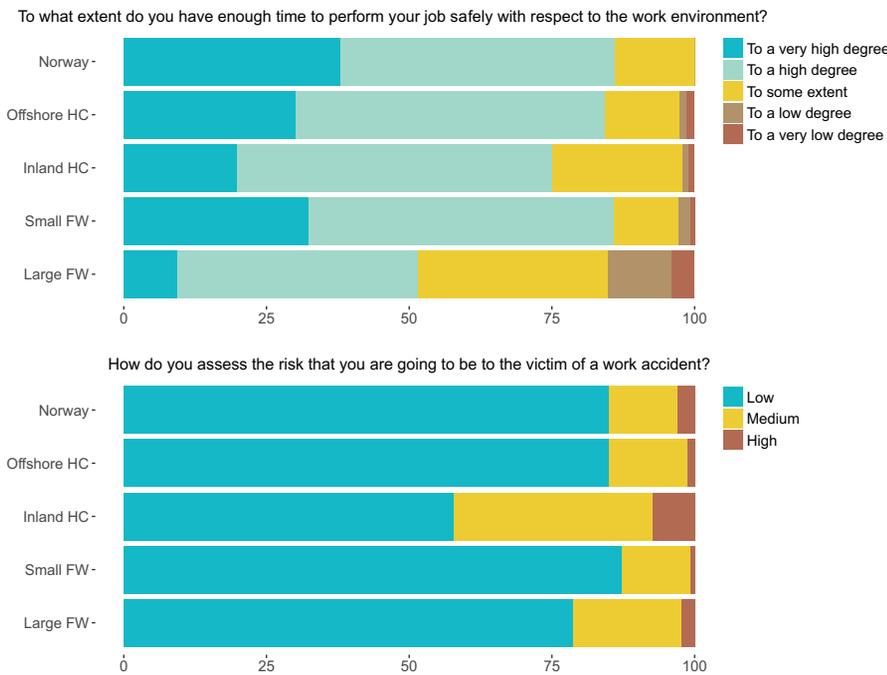


^Figure 3: Percentage of crew members who expect to look for other jobs over the course of the next few years compared to the national average.



^ Figure 4: Communicate positive about the air carrier they work for.

of 11% answered that they experience having time to execute the job in keeping with occupational health and safety to a "low degree" and 4% responded to a "very low degree".



^Figure 5: Questions related to safety (Pilots).

For other sectors a total of between 2- 3% responded that they have "to a low degree" or "to a very low degree" enough time to execute the safe job with regard to work environment. The questions are not related to aviation safety but rather crew members' experience of their own working environment. For comparison with the rest of the country, in the Survey of Living Conditions, among those who experience this issue applicable 71% responded that they rarely or never put other people's lives or health at risk.

When asked about the risk of being the victim of a work accident, including everything from less serious injuries such as simple burns or crush injuries to serious injuries in connection with an fatal accident, inland helicopter pilots stand out as those claiming to have a greater risk of experiencing a work accident than other pilots; 7% consider the risk "high" and 35% "medium" (Figure 5). Among workers in all industries, the average response rate for reporting "high" risk of work accidents is 3%, while the figure for farmers/fishermen and transport workers is 16% and 15% respectively.

In the aviation industry, there is a strong focus on reporting incidents and occurrences. There are several factors that are legally required to report while occurrences can also include

deviations from procedures and working conditions, and more. Factors that are reported can be of varying scope and severity.

In large fixed wing companies there is a relatively large proportion of pilots and cabin crew reporting that the immediate administrative management somewhat "rarely" or "very rarely" or "never" try to resolve the problem when they submit an occurrence report. This amounts to respectively 27% respondents in large fixed wing companies that report this compared with 9% or less in the other sectors. Because the general nature of the question, the type or severity of occurrences that is not resolved according to crew members responses are not known.

### Physical work environment

The physical work environment can be described as the sum of that which surrounds a place where a job is performed. It is of interest to both employers and employees that the work environment is designed/organized so that the work can be performed in the best possible way within the given financial and time constraints, without burdening the employee unnecessarily.

There is a certain variation of tasks and responsibilities between the various crew categories in civil aviation. While limited opportunity for ergonomic adjustments is general, pilots have physically more sedentary work than cabin crew. The latter is thus more prone to injuries caused by turbulence and other service related tasks. In addition, on long-haul flights crew members cross time zones in a relative short period of time.

Table 4 shows a subjective indication of health problems that respondents attribute in whole or in part to their job as a crew member. All crew members have been selected based on health requirements to ensure that they are physically fit to ensure passenger safety.

Overall regarding physical health problems, sleep disorders are those that stand out for pilots and cabin crew. Respectively 20% and 24% were "quite troubled" and 7% and 15% were "extremely troubled". This can be attributed to several factors such as, for example, shift work and irregular working hours within a shift. In addition, crossing time zones can cause sleeping difficulties for those operating such routes.

For cabin crew, pain in the neck and/or shoulder

Health problem	Not troubled	Slightly troubled	Somewhat troubled	Very troubled
<b>Pilots fixed wing</b>				
Pain in the lower back	45	33	15	7
Pain in the neck and/or shoulders	50	31	13	6
Pain in the elbow, forearm or hands	83	11	4	2
Pain in the hips, legs, knees or feet	69	19	9	3
Headache or migraine	65	26	6	2
Impaired hearing	69	21	8	2
Tinnitus	54	31	11	4
Nervousness, anxiety or restlessness	85	12	3	0
Despondency, depression	76	18	5	1
Sleep problems	33	40	20	7
<b>Helicopter pilots</b>				
Pain in the lower back	44	36	15	6
Pain in the neck and/or shoulders	45	34	15	6
Pain in the elbow, forearm or hands	88	7	3	2
Pain in the hips, legs, knees or feet	78	17	3	1
Headache or migraine	77	18	5	0
Impaired hearing	71	21	7	2
Tinnitus	54	29	13	4
Nervousness, anxiety or restlessness	90	8	2	0
Despondency, depression	86	11	3	0
Sleep problems	73	23	4	0
<b>Cabin crew</b>				
Pain in the lower back	45	33	15	7
Pain in the neck and/or shoulders	24	35	22	18
Pain in the elbow, forearm or hands	63	21	9	6
Pain in the hips, legs, knees or feet	69	19	9	3
Headache or migraine	65	27	6	2
Impaired hearing	65	22	9	3
Tinnitus	68	20	8	3
Nervousness, anxiety or restlessness	72	18	6	3
Despondency, depression	67	23	7	3
Sleep problems	24	38	24	15
<b>Norway - All occupations</b>				
Pain in the lower back	64	26	7	4
Pain in the neck and/or shoulders	59	27	10	4
Pain in the elbow, forearm or hands	81	13	4	2
Pain in the hips, legs, knees or feet	71	19	7	3
Headache or migraine	76	18	5	2
Impaired hearing or tinnitus	89	8	2	1
Nervousness, anxiety or restlessness	88	10	2	1
Despondency, depression	91	8	1	0
Sleep problems	71	20	6	3

^Table 4: Health problems experienced in the last month reported as completely or partly due to your current job. (percent).

is also characteristic, with 22% being “somewhat troubled” and 18% “very troubled”. In comparison, in figures for Norwegian workforce in general, 10% were “somewhat troubled” and 4% “very troubled”. This means that there is a greater proportion affected in the cabin crew group. Due to the fact that many of those working in the cabin do heavy lifting above head height; it is not unexpected that they report a higher frequency of neck and shoulders ailments.

The percentage of crew members indicating that noise is perceived to have a negative effect on health during their daily work is 82% for fixed wing, 92% for offshore helicopter and 73% for inland helicopter. The corresponding numbers for those who stated that vibrations are felt to have a negative effect on their health is 34%, 88% and 55% respectively for the various sectors.

All crew members were asked how the crossing of time zones affects their health. For fixed wing, 11% of pilots and 24% of cabin crew responded that crossing time zones impacts their health, while respectively 15% and 18% indicated that they are not adversely affected. The remaining 74% and 57% stated that it was not applicable. This means that 41% of pilots and 57% of cabin crew on long haul flights with crossing of time zones perceive a negative effect.

Since about 2013 several air carriers have adjusted the working hours for crew members so that they work longer shifts. Norsk flygerforbund (The Norwegian Airline Pilots Federation)

has, on several occasions, stated that crew members experience a high workload. This is supported by the responses from crew members as to whether they feel exhausted after finishing the working day or duty period (Figures 6 and 7).

Crew members in small fixed wing companies are those who indicate the lowest proportion of often being exhausted after the end of a working day. While pilots in small fixed wing companies responded similar to the average for the Norwegian workforce in general. Pilots in the other sectors reported more frequently being physically or mentally exhausted after a day's work. A total of 9% of pilots in offshore helicopter, 11% of cabin crew in large fixed wing and 8% of pilots in fixed wing report that they feel physically exhausted daily (Figure 6).

In comparison to Norwegian workforce in general the corresponding number was that 6% feel physically exhausted daily after finishing the working day. Similarly, 9% of transport workers and 13% of cleaning staff in various industries in Norway responded that daily they experience physical exhaustion. In comparison with the national Survey on Living Conditions, there is a slightly higher proportion of crew members in the survey that indicate that they are physically or mentally exhausted in comparison with the average for other occupations in Norway after finishing a working day. This is despite regulations for working time that limit work hours to help ensure that crew members perform the job safely.

A relatively large proportion of crew members report that they often feel physically or mentally exhausted after finishing the duty period (Figure 7). As many as 37% of pilots and 46% of cabin crew members responded this was the case being physically exhausted and 30% and 28% mentally exhausted, respectively.

When asked whether crew members experience adequate rest and relaxation between working days, it can be seen, that responses by pilots in small fixed wing, inland helicopter and offshore helicopter companies are fairly at level with other occupational groups (Table 5). On the other hand, in comparison, for both pilots and cabin crew in large fixed wing companies as well as for cabin crew in small fixed wing companies, a very low proportion indicate that they daily experience having adequate rest between working days.

Figure 8 shows how crew members themselves

Figure 6: Physically or mentally exhausted after finishing the working day.

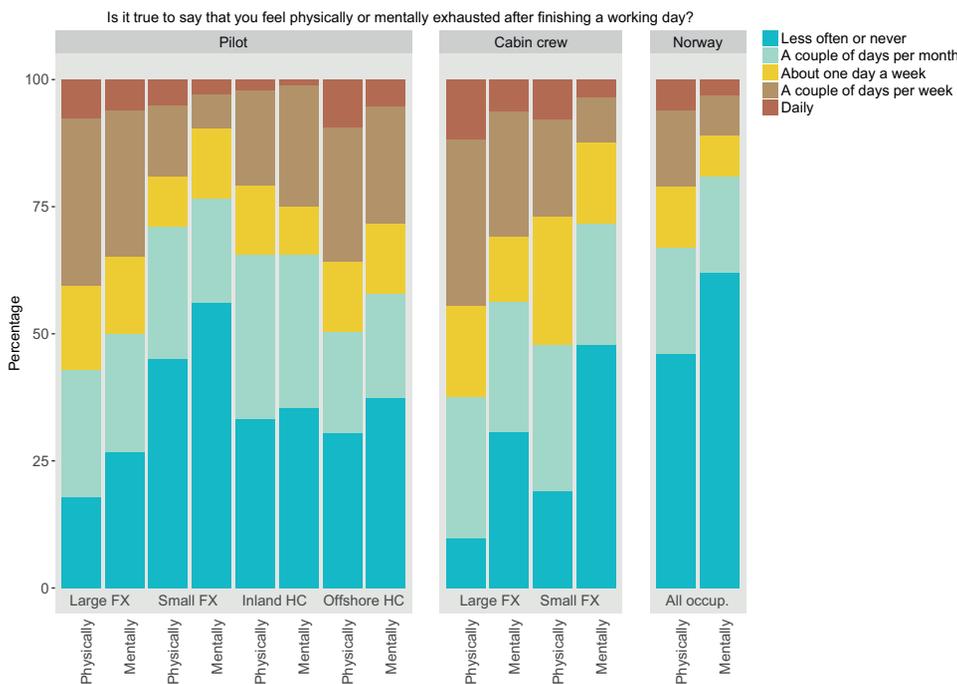
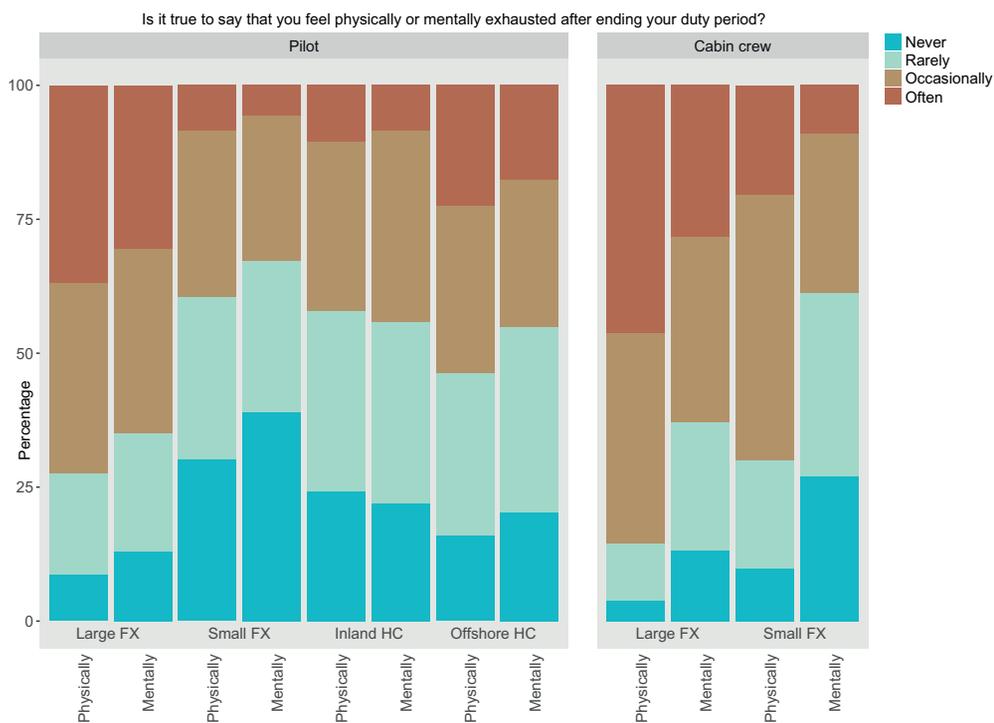


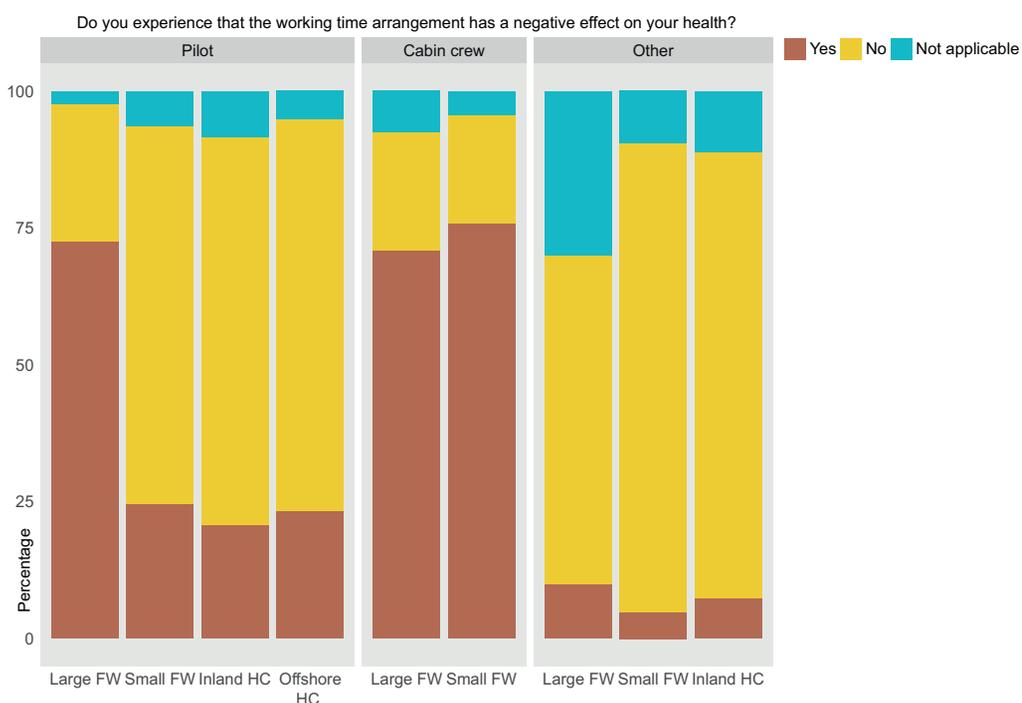
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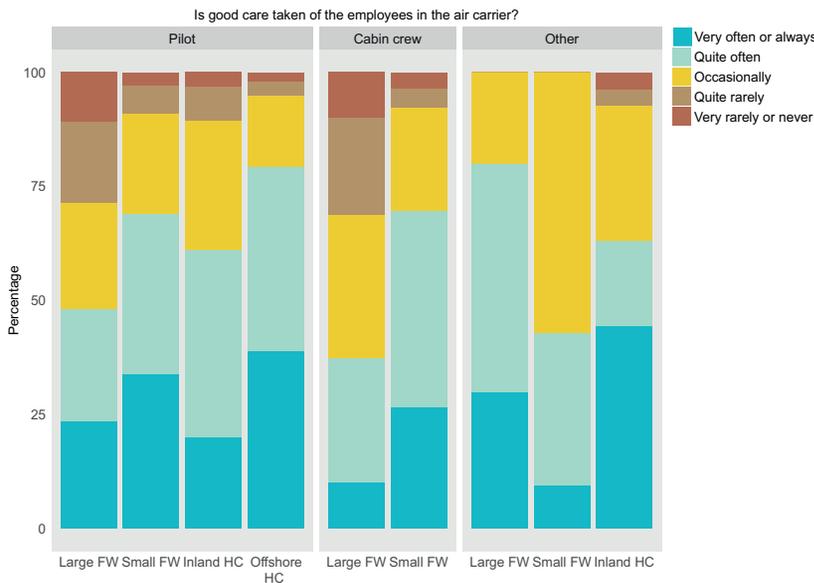
^Figure 7: Physically or mentally exhausted after finishing duty period.

	Large FX		Small FX		Inland HC	Offshore HC	Norway
	Pilot	Cabin crew	Pilot	Cabin crew	Pilot	Pilot	All occupations
<b>Less often or never</b>	10	15	1	5	3	2	8
<b>A couple of times a month</b>	20	24	5	24	5	2	4
<b>About once a week</b>	37	36	11	40	26	25	5
<b>A couple of times a week</b>	15	12	7	18	6	5	13
<b>Daily</b>	19	12	75	13	59	66	71

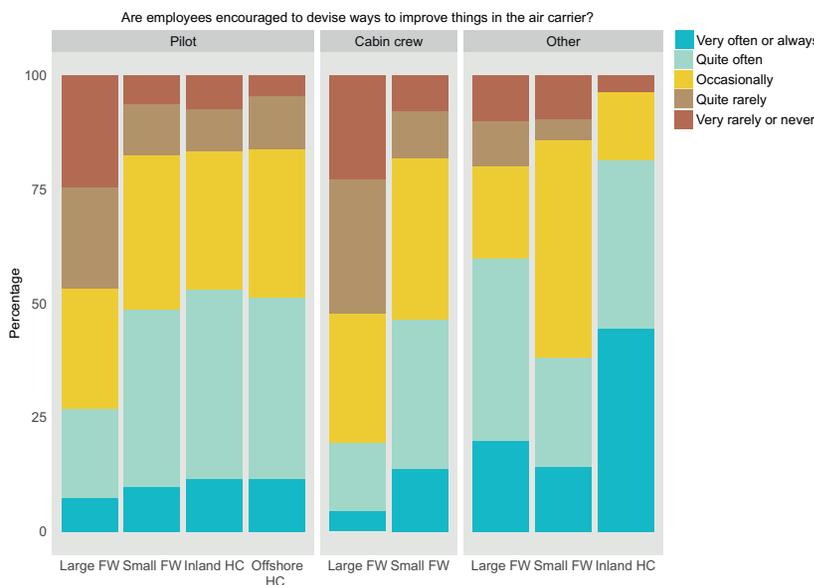
^Table 5: Response distribution for experiencing adequate rest and relaxation between working days, excluding sleep.



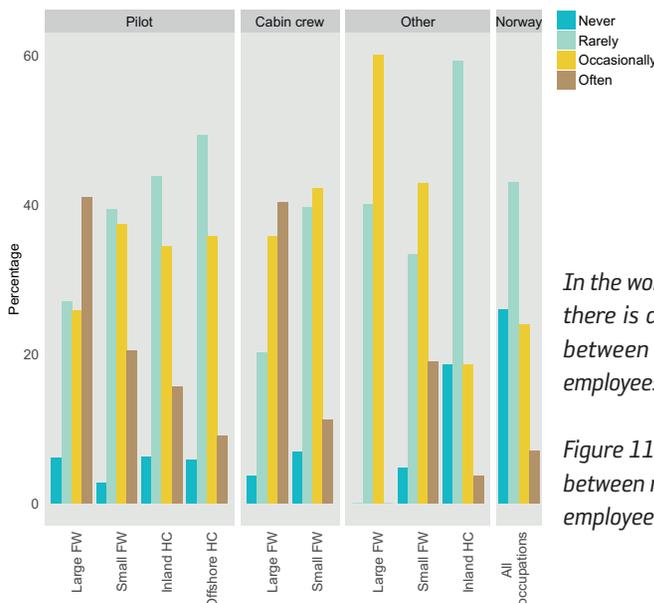
^Figure 8: Working time arrangement and perceived effect on health.



^Figure 9: Experience of being taken care of by the carrier.



^Figure 10: Encouraged to improve things.



*In the workplace, do you feel there is a poor relationship between management and employees?*

Figure 11: Relationship between management and employees.

experience that the working time arrangement has a negative effect on health. Among fixed wing companies there is a significant proportion, close to 75% who believe that the working time arrangement has a negative effect on health. As QPS Nordic and the national Survey of Living Conditions do not include the same questions, there is no basis to make a comparison with Norwegian workforce in general.

### Psychosocial work environment

Social, interpersonal and organizational conditions that affect employability, health and welfare make up the psychosocial work environment. Organizational factors deal with how the tasks are organized. This can be routines, responsibilities and requirements for the individual. The concept of a psychosocial working environment is used as an umbrella term for several factors concerned with the work situation and working conditions. The psychological factors are concerned with perceptions and interpretations of work-related relationships, while social factors relate to the influence that social context and interpersonal factors have on people.

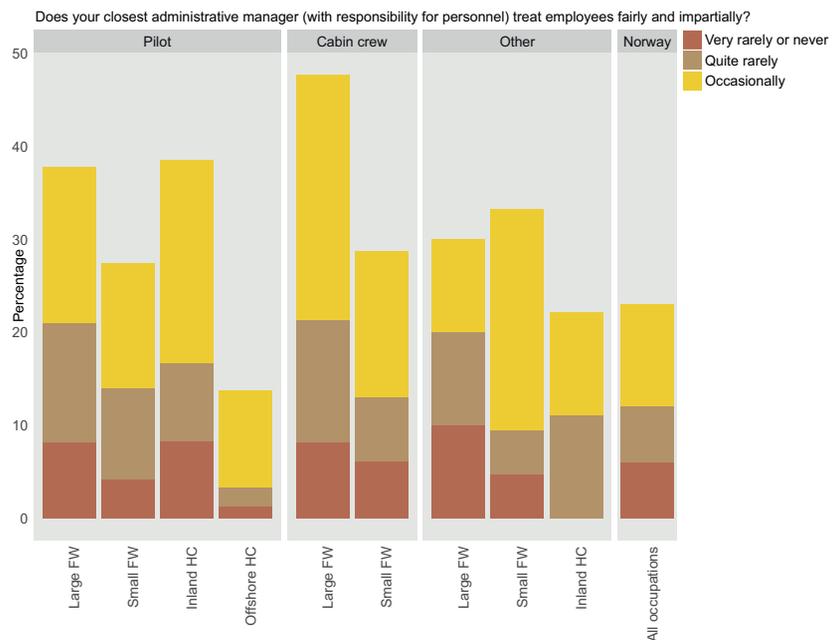
The QPS Nordic reference survey, based on responses among employees in various sectors in the Nordic countries, shows a mean score of 3.18 to question about whether employees are taken care of in their operation and of 3.37 as to whether employees are encouraged to devise ways to improve things in the workplace. Feedback from crew members on these questions are reproduced in Figures 9 and 10. The as to whether employees are looked after is 3.51 for pilots, 3.14 for cabin crew and 3.83 for the group other, so both pilots and other score higher - meaning they give more positive feedback - than the average employee in all occupations for the Nordic countries (3.18).

In terms of whether employees are encouraged to devise ways to improve things at whole, the mean score for pilots is 2.87, for cabin crew 2.57 and for other 3.74. Consequently, it is only the latter group that has more favorable results compared to the Nordic average at (3.37).

For the major airlines it is manifest that there are many employees per manager. Unlike a traditional administrative profession in an office, crew members are often traveling and are not co-located with their closest managers. This implies greater distance between employees and managers and hence makes it harder to create good relationships between the groups.

For the question regarding relationship between management and employees, the responses are shown in Figure 11. Results reveals that large fixed wing stands out particularly as negative, with a high percentage reporting that they feel there is a poor relationship between employees and management. This percentage differs significantly from the national average shown by Norway in the graph.

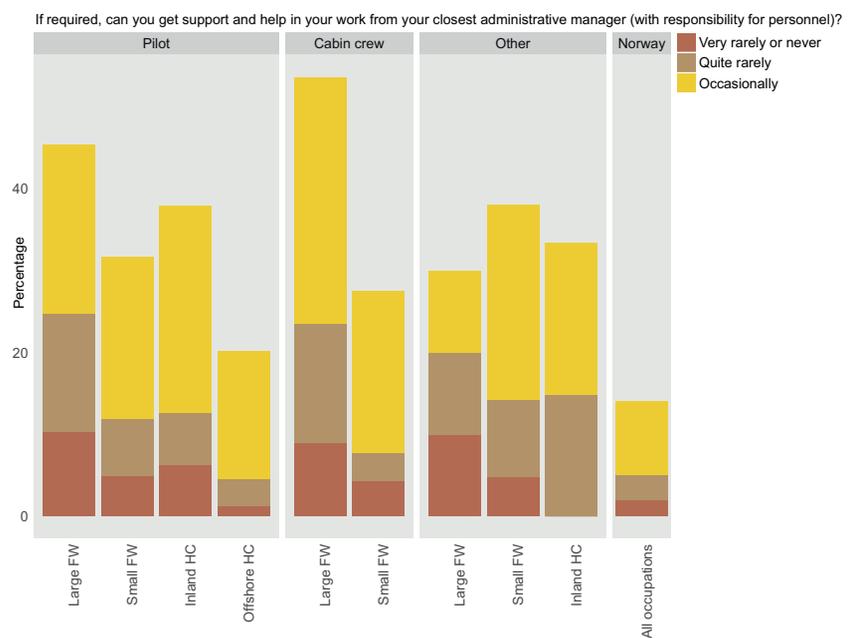
Taking into consideration that the response rate to the survey was mediocre at around 50% and if all those that did not respond had responded positively to this question, the group that responds negatively, i.e., the group that often experience a poor relationship between management and employees, purely theoretically, would have as a minimum a score of 20%. This is still well above the national average of 7% according to responses in the national Survey of Living Conditions.



^Figure 12: Fair and impartially treatment of employees.

Newer studies from National Institute of Occupational Health (STAMI) indicate that social support from the closest manager and equitable leadership has a protective effect against mental distress<sup>3</sup>. In addition, equitable leadership has a protective effect against pains in the lower back. Little supportive leadership is reported to be a risk factor for neck and shoulder pain. In 2013, almost 10% of respondents in the national survey answered that they experience little supportive leadership at work. Little supportive leadership is more commonly experienced among those in employment who have less education.

Pilots in the offshore helicopter sector report that they feel that their manager treats employees fairly and impartially, to a greater degree than the national average for all occupations (Figure 12). On the other hand, crew members in large fixed wing companies and helicopter pilots in inland companies report that treatment by the closest manager is considerably less fair and impartial.

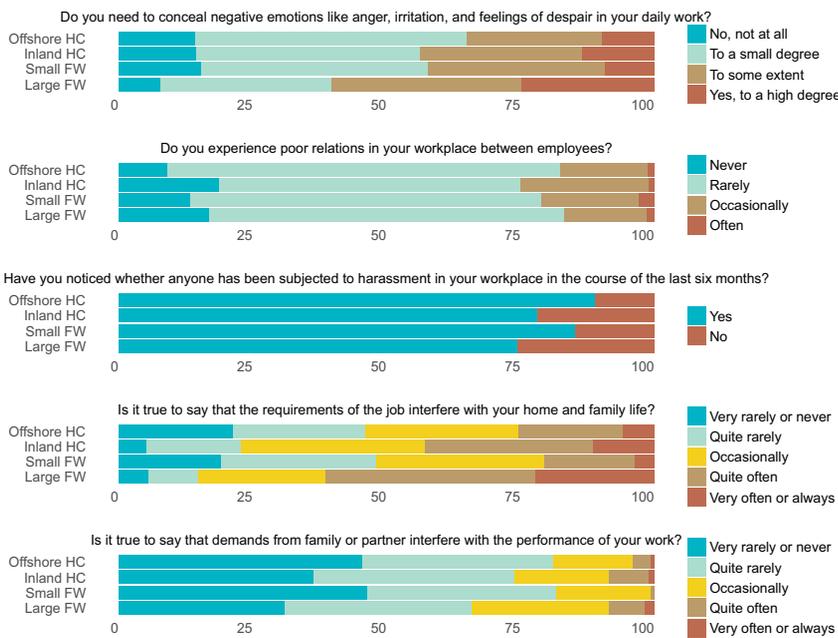


^Figure 13: Supportive leadership.

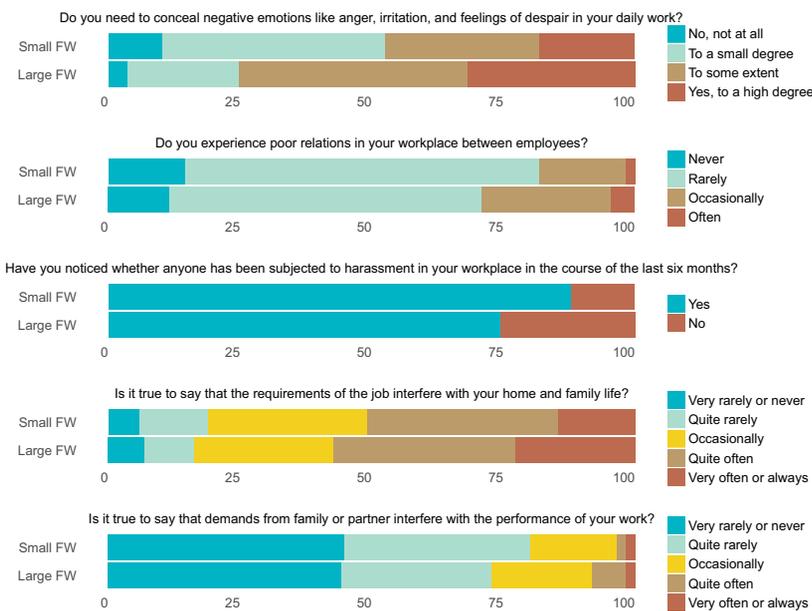
Similar responses are evident in feedback concerning support and assistance from the closest manager (Figure 13). But for pilots in offshore helicopter companies and cabin crew in small fixed wing companies, there is a relatively high proportion of crew members that do not feel they get support and help in their work. It is employees in large fixed wing companies that stand out in particular with 24% showing a response of 'rarely' (includes both "quite rarely" and "very rarely or never").

<sup>3</sup>Faktabok om arbeidsmiljø og helse 2015 – Status og utviklingstrekk. STAMI-rapport Årg 16, nr 3 (2015).

Figure 14: Various psychosocial factors related to working conditions.



^Pilots.



^Cabin crew.

The needs of employers and their family can be difficult to reconcile. According to the STAMI Factbook 2015<sup>4</sup>, one in five employed in agriculture, forestry and fishing as well as in legal, social science and care professions state that the job interferes with life at home. The feeling that the requirements of the job spills into private life is more prevalent among occupational groups characterized by long working weeks and working at times that are easy to reconcile with home and family life

Figure 14 displays various psychosocial factors such as works influence on mood, relationship among employees and requirements and interference between work-home and vice versa.

Responses from large fixed wing companies show the highest scores (pilots 25% and cabin crew 30%) relating to the need to conceal negative emotions like anger, irritation and feelings of despair. The corresponding numbers for all occupations in Norway is 13% (Survey of Living Conditions 2013). Pilots, as a group, are comparable to employees in service occupations (sales occupations, customer service occupations, occupations in the provision of personal service), care professions (nurses, nursing and care workers) as well as those in security, such as police, customs and the military, all showing a score between 21 - 30% for this response group.

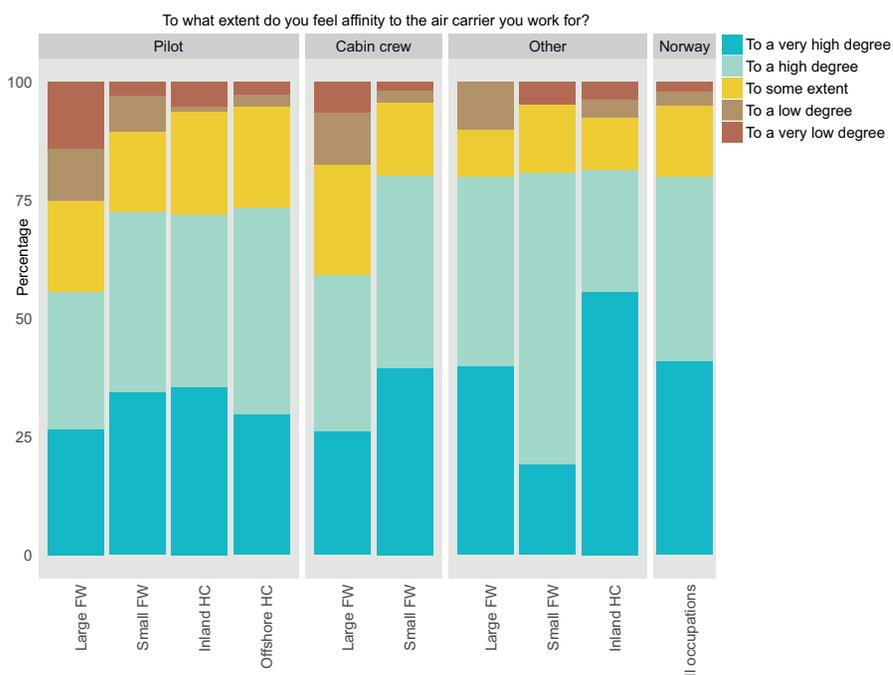
In terms of the experience of a poor relationship between employees, the response rate for "often" or "sometimes" - pilots 20-25% and cabin crew 25-30% - corresponds to the level in other occupations (approximately 22% on average, with a dispersion of 17-26% in the roughest classification of occupations (Survey of Living Conditions 2013 Statistics Norway).

In General, 13% of Norwegian workers responded that requirements at work often or always interfere with home and family life (source Statistics Norway). In comparison, managers and farmers/fishermen are at the higher end of the scale with 21% and 22% respectively. For pilots, there is variation between the different sectors, but in any case many of them consistently feel that home/family life is often disrupted by the demands of the job, from approx. 20% rising to approx. 60%. Few crew members respond seldom that demands from family interfere with work.

The Fact book about the Working Environment

<sup>4</sup>Faktabok om arbeidsmiljø og helse 2015 - Status og utviklingstrekk. STAMI-rapport Årg. 16, nr. 3 (2015)

and Health in Norway 2011<sup>5</sup> concluded that belonging in the workplace hinges on the extent that an individual feels attachment to or can identify with the organization. This can be seen from whether employees wish to stay with the organization, the extent to which they accept and support the organization's values and goals and whether they are willing to make an effort to reach the goals. With this background, crew members were also asked about the extent to which they feel affinity to the air carrier they work for (Figure 15). Compared with other industries in Norway, personnel from large fixed wing companies stand out in that they far more frequently respond that they feel "low" or "very low" affinity to the air carrier they are working for. In this group, 25% of pilots and 18% of crew members respond negatively compared with 5% for all occupations in other industries.

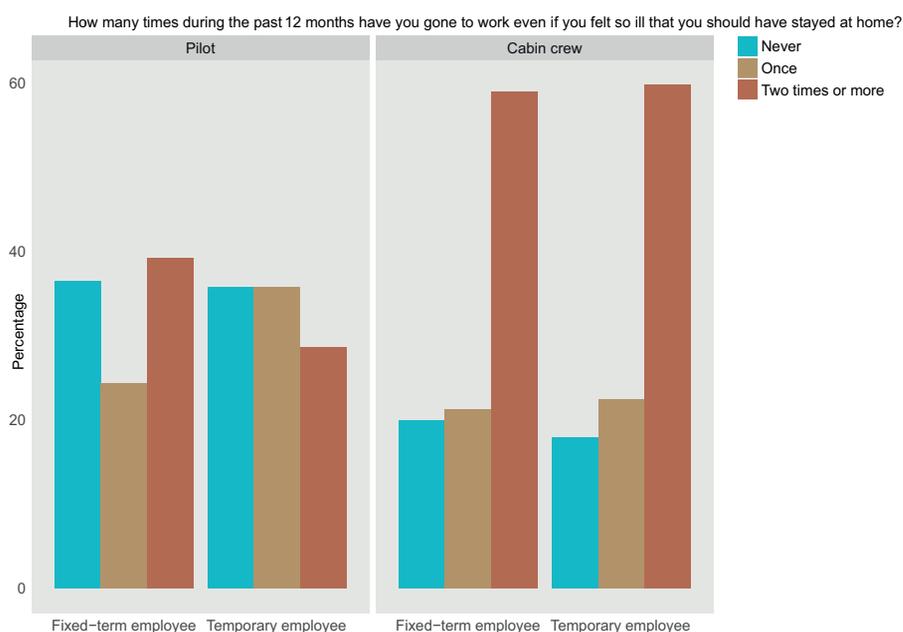


^Figure 15: Affinity to air carrier.

### Administrative issues

Health conditions for crew members are strictly regulated in civil aviation for the sake of passenger security. Crew members have a duty to inform when they are unfit for flying when they are aware that their health or performance is impaired in such a way that it can make them unsuitable for performing their safety duties. Figure 16 reveals, however, that among both pilots and cabin crew a large proportion reports going to work when they meant they were so ill that they should have stayed at home. The survey does not include follow-up questions to explain any background to this.

It is the air carriers responsibility to have in place systems that offer crew members the opportunity to report as 'not fit for flight' when they consider themselves unable to perform their duties in a safe manner. In general, it should be acceptable and facilitated for all crew members to report themselves unfit when required. Further details for the various sectors and the distribution of reporting as unfit among various employee categories are shown in table 6. We observe a significantly higher level of reporting unfit among pilots in the helicopter sector in comparison with pilots in the fixed wing sector.



^Figure 16: Working despite reduced health.

	Large FW	Small FW	Inland HC	Offshore HC
<b>Pilots</b>	23	28	42	43
<b>Cabin crew member</b>	23	9	-	-
<b>Other</b>	20	24	19	-

^Table 6: Percentage of crew members who have responded "yes" to reporting unfit in the last year.

<sup>5</sup>Faktabok om arbeidsmiljø og helse 2011 - Status og utviklingstrekk. STAMI-rapport Årg. 12, nr. 7 (2011)

based on direct or indirect employment at air carrier. For two-party employment relationship (direct employment) 24% reported themselves 'not fit for flight' in the course of the last 12 months, whereas the corresponding number for those with a three-party employment relationship (indirect employment) was 27%.

In small fixed wing companies and the offshore helicopter sector crew members more often have access to the work schedule at least one month before the flight service. The same also applies to the category 'Other' in all sectors (see table 7). The results are somewhat unexpected because small fixed wing companies often have greater variety in terms of type of assignment as opposed to large fixed wing companies that establish their schedule of routes in good time.

It is common in airline industry that crew members often have irregular working hours with long working days and short ground stops. For many, breaks are often taken on board the aircraft when the schedule allows and there is limited flexibility for crew members to have their own impact on breaks and working time.

are more favorable with a high degree of flexibility and low level of workload in relation to breaks.

As mentioned earlier, crew members are by nature often travelling and that daily contact with management is therefore generally less in major aviation companies compared to other industries. Information flow between the parties must therefore be handled to a greater extent through other means of communication. Crew members, in the vast majority of functions, check in with the home base before each departure. Figure 17 shows, however, that crew members indicate, to a greater extent than other occupational groups in Norway, that they do not receive information about important decisions, changes or future schedules in good time.

The Civil Aviation Authority Norway is aware that almost half of Norwegian air carriers are affiliated with an occupational health service (OHS). In addition, other arrangements are in place for expertise on enhancing the working environment or health care personnel. Most crew members are not aware that they are free to contact the OHS (table 8).

There is a requirement in the Norwegian Working Environment Act for all businesses employing more than 50 people to have a work environment committee (WEC), and most employees are aware that the air carrier has a HSE representative or equivalent function. Through working environment oversight performed at air carriers, the Civil Aviation Authority Norway has confirmed that where a WEC is present in all companies where required by law. For smaller air carriers, most have chosen an alternative solution, corresponding to a WEC, to deal with cases related to the work environment.

The responses show that crew members are not less enlightened than other workers in Norway in terms of whether the business has a safety representatives or WEC. In terms of how well respondents think the WEC functions, 40% of employees in fixed wing companies responded "well" or "very well", while the corresponding percentage for inland helicopter is 46% and 52% for offshore helicopter.

Table 7: Scheduling of work.

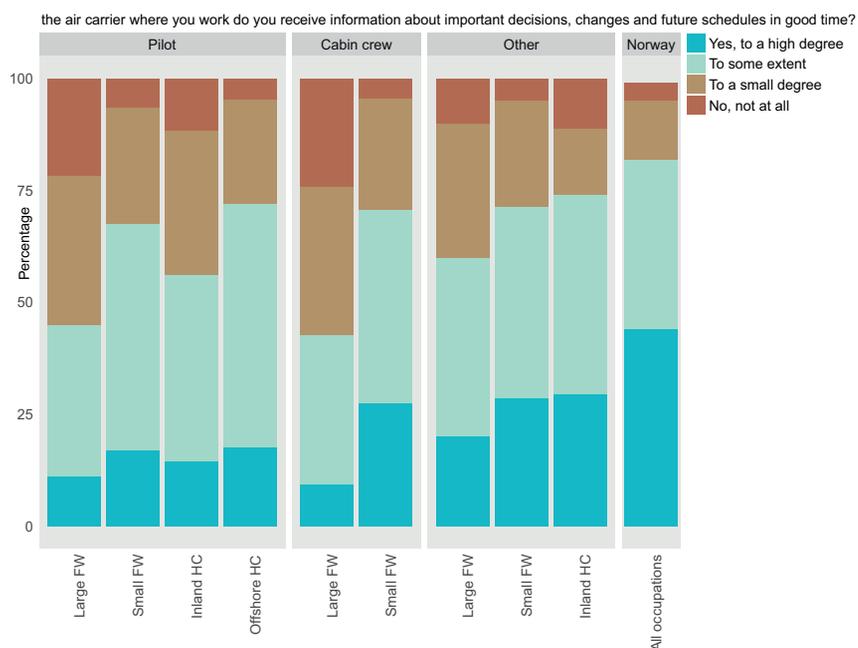
\*Relate to reference responses from all other occupations based on the Survey of Living Conditions 2013, Statistics Norway.

\*\*Includes quite often and very often or always.

\*\*\*For the most part is defined as those who have answered "Almost all the time" or "About 3/4 of the time."

	Pilot	Cabincrew	Other	All Occupations Norway*
<b>Percentage that often get access to the work schedule at least one month before the flight service.**</b>				
Large fixed wing	30	42	78	
Small fixed wing	76	66	95	
Offshore helicopter	75			
Inland helicopter	46		78	
<b>Percentage that can, for the most part, decide when they will take a break from work.***</b>				
Large fixed wing	5	7	60	
Small fixed wing	39	8	52	
Offshore helicopter	13			
Inland helicopter	47		44	
Norway	13	7	50	66
<b>Percentage that has so much to do that meal breaks must be omitted on a daily basis.</b>				
Large fixed wing	25	14	0	
Small fixed wing	8	11	0	
Offshore helicopter	6			
Inland helicopters	7		4	
Norway	20	14	2	7

Feedback in the survey shows that pilots generally have greater flexibility to choose breaks than cabin crew, but meal breaks often have to be omitted due to workloads, see table 7. For the "other" crew member category, conditions



^Figure 17: Information in due time regarding air carriers business.

	Yes (%)	No (%)	Don't know (%)
<b>Are you able to contact the occupational health service without going through your closest administrative manager?</b>			
Fixed wing	1374 (60)	95 (4)	832 (36)
Offshore helicopter	111 (72)	5 (3)	38 (25)
Inland helicopter	36 (29)	12 (10)	75 (61)
Norway*	- (71)	- (8)	- (22)
<b>Does the operation have safety delegate or HSE representative?</b>			
Fixed wing	2128 (92)	22 (1)	151 (7)
Offshore helicopter	150 (97)	2 (1)	2 (1)
Inland helicopter	106 (86)	4 (3)	13 (11)
Norway*	- (82)	- (13)	- (5)
<b>Does the operation have safety delegate or HSE representative?</b>			
Fixed wing	1425 (62)	73 (3)	803 (35)
Offshore helicopter	126 (82)	5 (3)	23 (15)
Inland helicopter	59 (48)	25 (20)	39 (32)
Norway*	- (58)	- (29)	- (12)

^Table 8: Questions about the working environment and occupational health services by sector.

\*The the national average presented is an estimate.

# APPENDIX 1: LIST OF QUESTIONS IN SURVEY

\*LT = Civil Aviation Authority - Norway, LK = Survey of Living Conditions 2013

#	Question	Response options	Source*
1	What is your job function?	Cabin crew Pilot Other	LT
2	What is your form of association?	Employed directly by airline operator Employed by staffing agency Self employed Other employment contract	LT
3	Are you a fixed-term or temporary employee?	Fixed-term Temporary	LT
4	Do you work full time or part time?	Full time Part time	LT
5	How long have you worked for this air carrier?	0-10 years 10-20 years 20+	LT
6	Do you have other work outside the air carrier?	Yes No	LT
6b	How many hours a week do you work in your additional work?	0-15 hours 15-25 hours 25+ hours	LT
7	Is good care taken of the employees in the air carrier?	Very rarely or never Quite rarely Occasionally Quite often Very often or always	QPS103
8	Are employees encouraged to devise ways to improve things in the air carrier?	Very rarely or never Quite rarely Occasionally Quite often Very often or always	QPS98
9	In the air carrier where you work do you receive information about important decisions, changes and future schedules in good time?	Yes, to a high degree To some extent To a small degree No, not at all	LK-SpInform
10	Do you need to conceal negative emotions like anger, irritation, and feelings of despair in your daily work?	Yes, to a high degree To some extent To a small degree No, not at all	LK-NFR13c
11	Is it true to say that the workload is so high that you have to miss meal breaks?	Daily A couple of days a week Once a week A couple of days a month Rarely or never	LK-Sp47f
12	Can you decide when you want to take breaks from work duties?	Almost all the time About 3/4 of the time Half of the time About 1/4 of the time Rarely or never	LK-Sp47a
13	Do you feel that your work is meaningful?	Very rarely or never Quite rarely Occasionally Quite often Very often or always	QPS28

14	Does your closest administrative manager (with responsibility for personnel) treat employees fairly and impartially?	Very rarely or never Quite rarely Occasionally Quite often Very often or always	QPS90
15	If required, can you get support and help in your work from your closest administrative manager (with responsibility for personnel)?	Very rarely or never Quite rarely Occasionally Quite often Very often or always	QPS73
16	To what extent do you have enough time to perform your job in a safe with respect to the work environmental?	To a very high degree To high degree To some extent To a low degree To a very low degree	LK- Sp47b2
17	When you submit an occurrence report, does your closest administrative manager (with responsibility for personnel) attempt to solve the problem?	Very rarely or never Quite rarely Occasionally Quite often Very often or always	QPS87
18	Do you experience poor relations in your workplace between management and employees?	Often Occasionally Rarely Never	LK- Sp51a
19	Do you experience poor relations in your workplace between employees?	Often Occasionally Rarely Never	LK- Sp51b
20	Have you noticed whether anyone has been subjected to harassment in your workplace in the course of the last six months?	No Yes	QPS81
21	Can you access your work schedule at least a month before the flight duty.	Meget sjelden eller aldri Av og til Nokså sjelden Av og til Nokså ofte Meget ofte eller alltid	[QPS54]
22	Is it true to say that the requirements of the job interfere with your home and family life?	Very rarely or never Quite rarely Occasionally Quite often Very often or always	QPS105
23	Is it true to say that demands from family or partner interfere with the performance of your work?	Very rarely or never Quite rarely Occasionally Quite often Very often or always	QPS106
24	Does the company have a safety delegate or HSE representative?	Yes No Don't know	LK- kad3be
25	Does the company have a working environment committee or other committee that takes care of issues concerning the work environment?	Yes No Don't know	LK- SpArbUtv
26	How well do you think the working environment committee function?	Very good Good Neither good nor bad Bad Very poor	LK- SpArbUtv2

27	Are you able to contact the occupational health service without going through your closest administrative manager (with responsibility for personnel)?	Yes No Don't know	LK- Sp61c
28	How many times during the past 12 months have you have gone to work even if you felt so ill that you should have stayed at home?	Four times or more Two to three times Once Never Have not been sick for last 12 months	LK- Sp63d
29	Have you over the last 12 months reported yourself "not fit for flight"?	No Yes	LT
30	To what extent during the last month have you had any of the following problems that could partly or completely be attributable to your current job? Pain in the lower back Pain in the neck and/or shoulders Pain in the elbows, forearms or hands Pain in the hips, legs, knees or feet Headache or migraine Impaired hearing (so that it is difficult to follow a conversation with several participants) Tinnitus Nervousness, anxiety or restlessness Despondency, depression Sleep problems	Not troubled A little troubled Quite troubled Very troubled	LK- Sp64a Sp66a2 Sp67a Sp68a Sp70e Sp71a Sp72a Sp72a2
31	In your daily work are you exposed to noise or vibrations that you perceive as negative for your health? [Noise and vibration separate]	Yes No Don't know	LT
32	Is it true to say that you feel physically or mentally exhausted after finishing a working day? [Physical and mental separately]	Daily A couple of days per week About one day a week A couple of days per month Less often or never	LK- Sliten1 Sliten_a
33	Is it true to say that you feel physically or mentally exhausted after ending your duty period? [Physical and mental separately]	Often Occasionally Rarely Never	LK- Sp69b
34	Discounting sleep, do you think that you get sufficient rest and relaxation between working days?	Daily About once a week A couple of days a week A couple of times per month Less often or never	LK- Sliten4
35	Do you experience that the working time arrangement has a negative effect on your health?	Yes No Not applicable	LT
36	Do you feel that the crossing of time zones affects your health?	Yes No Not applicable	LT
37	How do you assess the risk that you are going to be to the victim of a work accident?	High Medium Low	LK- Sp43a
38	To what extent do you feel affinity to the air carrier you work for?	To a very high degree To a high degree To some degree To a low degree To a very low degree	LK- SpTilhor



39	Have you applied for, or do you expect to look for, another job over the next couple of years?	No Yes Don't know	LK-Sp20
40	I tell my friends that this is a good air carrier to work for.	Totally disagree Partially disagree Neither agree nor disagree Partially agree Totally agree	QPS109



**Luftfartstilsynet**  
CIVIL AVIATION AUTHORITY - NORWAY



**Luftfartstilsynet**

Sjøgata 45-47  
8006 BODØ

**Mailbox:**

Postboks 243  
8001 BODØ  
NORWAY