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Original article

Norwegian regular general practitioners' participation in out-of-hours work

Summary

Background. Out-of-hours work is often perceived as burdensome and there is an inherent increased risk of making mistakes. The aim of the study was to examine regular general practitioners' (RGPs') experiences with and attitudes to out-of-hours work.

Material and methods. A questionnaire was sent to all RGPs in Norway. Participation in out-of-hours work was analysed against characteristics of the physician, their list and municipality.

Results. 2 913 RGPs responded (78 %). 50 % participated fully, 15 % partly, and 35 % did not participate in out-of-hours work. 28 % were formally exempted, and 13 % had a regular locum. Women and elderly RGPs participated less, as did RGPs in large and central municipalities. Out-of-hours cooperatives covering several municipalities reduced the amount of work, but did not increase the RGPs' participation rate. Patient list characteristics had little influence on the participation rate. 60 % of the RGPs tried to give away most of their duties, 16 % wanted more out-of-hours work than their regular duties and 16 % of those below 55 years who were still doing out-of-hours work wanted to continue after 55 years. RGPs in small and remote municipalities considered out-of-hours work more challenging, but less remunerating, and more often wanted to move from the municipality.

Interpretation. Many RGPs do not participate in out-of-hours work. As Norwegian RGPs constitute an aging cohort, this may become an increasing problem.

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Hogne Sandvik
hogne.sandvik@isf.uib.no
National Centre for Emergency Primary Health Care
Kalfarveien 31
5018 Bergen

Erik Zakariassen
National Centre for Emergency Primary Health Care
and
The Norwegian Air Ambulance
Drøbak

Steinar Hunskår
National Centre for Emergency Primary Health Care
and
Section for General Practice
Department of Public Health and Primary Health Care
University of Bergen

Out-of-hours (OOH) emergency service is meant to be an obligatory part of the regular general practitioner's (RGP) work. It comes in addition to ordinary work and is often seen as a burden (1). Working conditions can be difficult with an inherent risk of making mistakes (2–5). Every 10th supervision case for the Norwegian Board of Health concerns the OOH service (6). Collective agreements give RGPs the right to exemption from OOH work from the age of 60, if desired. Disease, pregnancy and weighty social reasons may also be valid grounds for exemption. The municipality may grant exemption when the doctor makes the request for personal reasons, and other doctors manage to take over the work. Doctors over the age of 55 merit special consideration (7).

We have recently studied which doctors receive reimbursement for OOH services (8). The survey, which was based on data from National Insurance Administration (NIA) registers, showed that doctors other than RGPs accounted for almost half of the total reimbursement and that more than a third of the RGPs had no income from OOH work. It is evident that many RGPs leave much of their emergency duty to others.

With an aging RGP corps it is to be expected that an increasing number of RGPs will withdraw from emergency work. Many smaller municipalities are vulnerable as they have few doctors to take on duties and relieve their colleagues. Measures are needed to make the rota system more robust. An intermunicipal OOH emergency service in a fixed location with a regular auxiliary staff has been strongly recommended (9).

There is little evidence-based knowledge about the OOH service in Norway. The National Centre for Emergency Primary Health Care has therefore conducted a questionnaire study of all Norwegian RGPs to survey their participation in OOH services and their attitudes to this work. When these variables are seen in relation to RGP, list and municipality characteristics, a knowledge base is generated that can prove useful for future planning of OOH care in Norway.

Material and method

The study was conducted in the period May 2006–February 2007. Information was retrieved for all RGPs (3 915) in the NIA's RGP overview (10). We excluded 83 nameless recordings and 28 duplicates and sent out the questionnaire to the remaining 3 804 doctors. 47 others were later excluded as their address was not known; they had either ceased to practise, were on leave, sick or had died. As a result, the number of potential respondents totalled 3 757. Two reminders were sent out.

The NIA's RGP overview contains information on sex, number of persons attributed to each RGP (list size) and number of vacant spaces on the list. In the questionnaire we asked about the doctor's age, satisfaction with list size, normal number of duty sessions and whether their municipality participated in intermunicipal cooperatives. We then asked the RGPs if they themselves participated in OOH work. RGPs with a reduced number of duties were asked for their percentage of normal OOH duties, and those not participating at all were asked at what age they had stopped. They were asked if they had a regular locum doctor to take on their OOH duties and if they had formal exemption from OOH work.

The RGP was then asked to express their view on 8 statements by marking to what extent they agreed with them on a scale of 5

Main message

- Only half of the RGPs participate fully in out-of-hours work
- Older and female doctors in central municipalities participate least
- Very few doctors wish to continue out-of-hours work after the age of 55
- Intermunicipal cooperatives do not increase OOH commitment

Table 1 The usual number of duty sessions per doctor per month (95 % CI) in municipalities with and without intermunicipal cooperation, by size of the municipality

	Intermunicipal cooperation	
Population	Yes	No
≤ 2 000	5.8 (5.0–6.6)	11.9 (8.8–15.8)
2 001–5 000	4.4 (4.1–4.7)	7.3 (6.8–7.8)
5 001–10 000	3.7 (3.4–4.0)	5.4 (5.2–5.7)
10 001–50 000	2.8 (2.7–3.0)	3.3 (3.0–3.5)
> 50 000	2.4 (2.1–2.6)	1.9 (1.7–2.1)
All	3.2 (3.1–3.4)	3.9 (3.7–4.1)

Table 2 Regular general practioners' participation in out-of-hours services, by sex and age

	Participation in out-of-hours services; % (95 % CI)					
Age	N	Fully	Partly	Not at all	N	Formally exempt
Women						
≤ 30	34	88 (73–97)	0	12 (3–27)	31	3 (0–17)
31–35	121	70 (62–78)	18 (11–25)	12 (6–17)	110	7 (3–14)
36–40	150	66 (58–74)	15 (9–20)	19 (13–26)	136	13 (8–19)
41–45	153	56 (48–63)	18 (12–24)	26 (19–33)	134	14 (8–20)
46–50	158	39 (32–47)	17 (11–23)	44 (36–51)	144	22 (15–28)
51–55	133	38 (30–47)	18 (12–25)	44 (35–52)	124	32 (24–41)
56–60	64	22 (13–34)	9 (4–19)	69 (56–80)	59	70 (56–81)
> 60	31	6 (1–21)	0	94 (79–99)	30	90 (74–98)
All	850	51 (47–54)	15 (13–18)	34 (31–37)	774	24 (21–27)
Men						
≤ 30	53	96 (87–100)	4 (0–13)	0	51	0
31–35	180	84 (79–89)	11 (6–18)	6 (3–10)	168	2 (0–5)
36–40	164	80 (74–86)	15 (9–20)	5 (3–10)	151	3 (1–7)
41–45	206	68 (62–74)	16 (11–21)	17 (11–22)	197	4 (2–8)
46–50	341	55 (50–60)	20 (16–25)	25 (20–30)	305	11 (7–14)
51–55	432	47 (43–52)	18 (15–22)	35 (30–39)	408	22 (18–26)
56–60	336	28 (23–33)	13 (9–16)	59 (54–64)	309	59 (53–64)
> 60	249	7 (4–11)	7 (4–11)	86 (82–91)	232	90 (86–94)
All	1 987	50 (48–52)	14 (13–16)	36 (34–38)	1 844	29 (27–31)

(completely agree, partly agree, neither agree nor disagree, partly disagree, completely disagree):

- I am happy to take on extra (OOH) duties in addition to those attributed to me
- After the age of 55 I will cease (have ceased) OOH duties
- After the age of 60 I will cease (have ceased) OOH duties
- I try to give away many OOH duties to others
- OOH service is well paid
- OOH service provides professional challenges
- A reasonable OOH workload is important for keeping doctors in the municipalities
- I want to move from my municipality

Two additional variables were retrieved from Statistics Norway (11): the municipality's population and its centrality. The centrality is defined as a municipality's geographical location in relation to a centre where there are important functions (central functions). The centrality is measured on a scale of 0–3 where 0 is the least and 3 the most central (12). The municipality's doctor density was calculated as the number of RGPs per 1 000 inhabitants.

Data are presented as frequency distributions and mean values with 95 % confidence intervals (CIs). Statistically significant differences ($p < 0.05$) between two groups occur when the point estimate for one group lies outside the CI for the other group. In the analyses, full and reduced duty sessions were put in the same group; likewise complete and partial agreement (and disagreement) with the 8 statements. Also, a logistic regression analysis was done where the outcome variable was whether or not RGPs participate in OOH services.

Results

2 913 RGPs (78 %) responded. Doctors with long lists (≥ 1 800) were somewhat underrepresented (69 % replied), and doctors with full lists seemed to respond slightly more often than doctors with open lists (80 % versus 75 %). There were no significant differences in the response rate regarding sex, centrality, population or GP density. The doctors' mean age was 48 (95 % CI: 48–48) years; 45 (44–45) years for women and 50 (49–50) years for men. The average list size was 1 196 (1 181–1 210); 1 106 (1 083–1 129) for female RGPs and 1 235 (1 217–1 252) for male RGPs. 47 % (45–49 %) of the lists were open. 83 % (81–84 %) of the doctors were content with their list size; 8 % (7–9 %) wanted more patients and 9 % (8–11 %) wanted fewer.

64 % (63–66 %) replied that their municipality participated in intermunicipal cooperatives and they reported that the normal OOH workload was 3.4 (3.3–3.6) duty sessions per month. Municipalities that participated in intermunicipal cooperatives had less OOH workload than those who did not and the difference was most obvious in the smaller municipalities (tab 1).

50 % (48–52 %) of the doctors participated fully in OOH work; 15 % (13–16 %) participated to some extent; and 35 % (34–37 %) did not participate at all. Sex and age distribution is shown in table 2. Those who participated to some extent worked 37 % (34–39 %) of the normal OOH workload. The average age for ceasing OOH work completely was 50 (49–50) years. 28 % (26–29 %) of the doctors were formally exempted from OOH service, and 13 % (11–14 %) had a regular locum doctor to take their sessions.

Descriptive analyses show decreasing participation in OOH work with increasing age and list size (and full lists) and increasing municipal centrality and population. There is also greater OOH participation in areas with high RGP density. Doctors who want more patients on their list take on more duty sessions. Doctors who want fewer patients participate less often than those who are content with their list size (tab 3).

Multivariate analyses show that female and older doctors participate less in OOH work and confirm that increasing population and greater centrality are associated with lower OOH participation. In this analysis, list characteristics and RGP density do not seem to matter. Doctors who want fewer patients on their list participate less often in OOH work than doctors who are content with their list size or think they have too few patients (tab 3).

We also did a regression analysis where we only included doctors who either participated fully in OOH work or did not participate at all (doctors participating partly were excluded). This analysis gave the same conclusions.

In a third regression analysis the municipal OOH workload was included as an additional explanatory variable. In municipalities where the OOH workload was at least 3 duty sessions per month, doctors participated more frequently than in those with a lighter workload (odds ratio 1.36; 1.07–1.74). Due to insufficient response on this variable, it was left out of the main analysis.

Only 16 % (14–17 %) of the OOH doctors were willing to take on extra duty sessions in addition to the ones already allocated to them and 60 % (58–62 %) tried to give away many of their sessions. Only 16 % (14–18 %) of the OOH doctors under the age of 55 wanted to continue with OOH work after the age of 55, and 10 % (8–11 %) after the age of 60.

Most doctors (73 %; 71–75 %) felt that OOH work is professionally challenging, but only 28 % (26–30 %) saw it as well paid. Doctors in sparsely populated, outlying areas found OOH work more challenging and worse paid than doctors in larger more central districts (tab 4).

75 % (73–76 %) of the respondents believed that OOH workload is an important factor for doctor stability in a municipality. Only 6 % (5–7 %) wished to move from their municipality. Doctors in remote areas were more likely to want to move than doctors in larger, more central places (tab 4).

Table 3 Regular general practioners' participation in out-of-hours duty. The odds ratio for OOH commitment is based on logistical regression where all the variables are included as adjustment factors in the analysis. See the method description for a definition of the term «centrality»

	N	Number who participate in out-of-hours duty	Proportion who participate in out-of-hours duty (%) (95 % CI)	Odds ratio for participation in out-of-hours duty (95 % CI)
Sex of doctor				
Man	1 987	1 274	64 (62–66)	1
Woman	850	559	66 (63–69)	0.52 (0.42–0.66)
Doctor's age (years)				
< 30	49	48	98 (89–100)	4.33 (0.57–32.63)
30–39	584	527	90 (88–93)	1
40–49	795	603	76 (73–79)	0.37 (0.27–0.53)
50–59	1 042	595	57 (54–60)	0.14 (0.10–0.20)
> 59	336	46	14 (10–17)	0.01 (0.00–0.01)
List length				
< 1 000	877	627	72 (69–75)	1
1 000–1 399	1 160	760	66 (63–68)	1.20 (0.94–1.54)
1 400–1 799	624	352	56 (53–60)	0.98 (0.72–1.33)
≥ 1 800	176	94	53 (46–61)	0.85 (0.54–1.34)
List capacity				
Open list	1 338	894	67 (64–69)	1
Full list	1 499	939	63 (60–65)	1.15 (0.94–1.41)
Satisfied with list size				
Yes	2 293	1 498	65 (63–67)	1
No, wants more patients	224	167	75 (69–80)	1.45 (0.95–2.21)
No, wants fewer patients	263	147	56 (50–62)	0.64 (0.47–0.89)
Centrality				
0	456	388	85 (82–88)	1
1	226	171	76 (70–81)	0.93 (0.52–1.65)
2	708	483	68 (65–72)	0.72 (0.44–1.19)
3	1 447	791	55 (52–57)	0.49 (0.31–0.79)
Size of population				
≤ 2 000	96	89	93 (86–97)	2.17 (0.81–5.84)
2 001–5 000	348	289	83 (79–87)	1
5 001–10 000	417	305	73 (69–77)	0.61 (0.39–0.96)
10 001–50 000	1 052	692	66 (63–69)	0.67 (0.43–1.04)
> 50 000	924	458	50 (46–53)	0.43 (0.23–0.78)
RGP density (per 1 000 inhabitants)				
< 0.8	1 026	627	61 (58–64)	1
0.8–0.9	1 086	634	58 (55–61)	1.13 (0.91–1.41)
> 0.9	723	570	79 (76–82)	1.12 (0.80–1.57)
Intermunicipal OOH cooperatives				
Yes	1 758	1 165	66 (64–69)	1
No	968	625	65 (62–68)	0.95 (0.78–1.16)

OOH – out-of-hours

Discussion

Strong points in this study are its high response rate and that the material represents the target population reasonably well. Doctors with the longest lists are somewhat underrepresented, but they comprise a relatively small part of the total material. The average list size is the same in this material as among all Norwegian RGPs (13). There was a greater tendency for doctors with full lists to respond than for those with open lists, but the difference was small. We do not know the age of the doctors who did not respond, but the average age in our material is the same as that of all Norwegian RGPs (13). We also do not know the OOH participation rate for the doctors who did not respond, but the participation rate in this study was the same as that previously found in data from the National Insurance Administration (8). We therefore consider the material presented here to be representative for Norwegian RGPs.

Many of the background variables in this study are mutually dependent upon each other. This means that several results, which appear to be significant in the descriptive analyses, loose significance or disappear when corrected for mutual dependence in the multivariate analyses. On the other hand, new significant relations can emerge in multivariate analyses, for example, the correlation between the doctor's sex and OOH commitment.

Nearly two of three doctors replied that their municipality participated in intermunicipal cooperatives; an organisation form which clearly led to a reduction in OOH duty sessions, particularly in the smallest municipalities. Yet there is nothing to signify that intermunicipal cooperatives causes RGPs to take on more OOH duty sessions. This is similar to the situation in Great Britain. Several studies suggest that larger OOH cooperatives reduce the number of duty sessions for the individual doctor (14–17), yet only 10 % of English GPs chose to continue to take on OOH work after they were allowed to opt out (18). Poor salary arrangements have probably also contributed to this development (19).

However, intermunicipal cooperatives have their advantages. They are more robust

Table 4 Proportion of RGPs who agree with statements that out-of-hours work is professionally challenging and well paid and proportion who want to move, by type of municipality. See the method description for a definition of the term «centrality»

	Out-of-hours work is professionally challenging		Out-of-hours work is well paid		I want to move from the municipality	
	N	Proportion in agreement (%) (95 % CI)	N	Proportion in agreement (%) (95 % CI)	N	Proportion in agreement (%) (95 % CI)
Centrality						
0	436	84 (81–88)	429	18 (14–21)	436	13 (10–16)
1	204	75 (69–81)	204	20 (14–25)	210	8 (5–13)
2	625	69 (65–72)	619	30 (27–34)	639	5 (3–7)
3	1 212	70 (68–73)	1 193	32 (29–35)	1 283	4 (3–5)
Size of population						
≤ 2 000	94	81 (71–88)	92	25 (17–35)	94	13 (7–21)
2 001–5 000	333	80 (75–84)	327	19 (15–23)	330	14 (10–18)
5 001–10 000	379	79 (75–83)	374	21 (17–25)	386	9 (6–12)
10 001–50 000	919	72 (69–75)	913	29 (26–32)	946	4 (3–6)
> 50 000	752	67 (64–70)	739	35 (32–39)	812	2 (1–4)
All	2 477	73 (71–75)	2 445	28 (26–30)	2 568	6 (5–7)

because more doctors are available to share the duty sessions, and it is easier for older RGPs to withdraw from the on-call duty rota without causing the OOH service to collapse. In addition, intermunicipal cooperatives can provide better working conditions (equipment and staff) and thus offer a better quality of the services (9).

This study confirms that female RGPs and older RGPs participate less in OOH work than others (8). Women opt out of the system sooner than their male colleagues and are more often formally exempted from duty. There is however a marked number of RGPs under the age of 55, both women and men, who do not participate in OOH work even if they are not formally exempted. Many of these clearly have regular locum doctors to take their sessions.

Descriptive analyses suggest that OOH commitment decreases with increasing list sizes and full lists. There is less commitment among doctors who want shorter lists and the reverse for those wanting longer lists. There is also rather more participation in OOH work in areas well served with a high RGP density. These findings suggest that doctors with more than enough to do during normal working hours decline from participation in OOH service. Perhaps there would be more OOH commitment if the RGP density increased and doctor workload decreased (20). The statistical correlations are weakened when corrected for mutual dependence among the explanatory variables. One should be wary of drawing too firm conclusions from these results.

The link between OOH commitment and the municipality's size and centrality is more robust. There is a clear tendency for lower OOH participation in large, central municipalities than in sparsely populated outlying ones, and this is the case even when one takes into consideration the fact that doctors in larger municipalities are older and have longer lists. One important reason for these differences is presumably that doctors in central municipalities have more opportunities to hand over their duty sessions to other doctors. It is also possible that doctors in outlying municipalities feel a greater responsibility for preventing their small, vulnerable OOH service from collapsing. They experience greater professional challenges in their OOH work than doctors in large municipalities, but are less satisfied with their payment. This is probably one important reason for the high number of doctors that want to move from outlying municipalities.

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