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## PUBLIC HEALTH | RESEARCH ARTICLE

# Explaining variations in general practitioners' experiences of doing medically based assessments of work ability in disability benefit claims. A survey-based analysis

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**Abstract:** *Purpose:* Assessing patients' work ability is a task that many general practitioners consider challenging. Increase of mental and musculoskeletal disorders further complicate the assessments. The purpose of this paper is to explain variation between general practitioners related to how they experience the assessment of work ability in disability cases. *Methods:* Combining data from an original postal survey among all general practitioners in Norway ( $N = 1,466$ ; response rate = 32.5%) with characteristics of the municipality where they work, we use multilevel logistic regression to estimate the relationship between a set of dependent variables measuring how confident general practitioners feel when assessing patients' work ability in disability cases, physician-related characteristics and structural factors. *Results:* A main finding is that length of service explains most of the variation between general practitioners ( $B = 0.492 [0.015, 0.970]$ – $2.127 [1.457, 2.798]$ ); in most of the regressions, this variable turns out as positive and significant ( $p < 0.01$ ). The general practitioners' knowledge of possibilities of workplace adaptations in different occupations ( $B = 0.309 [0.026, 0.592]$ – $0.461 [0.154, 0.768]$ ), as well as the importance they assign to tasks related to sick-listing ( $B = 0.239 [0.003, 0.475]$ – $0.639 [0.336, 0.941]$ ),

### ABOUT THE AUTHORS

Roland Mandal and Karin Dyrstad are researchers at Department of Health Research in SINTEF Technology and Society, sited in Trondheim, Norway. Mandal's research interests include the functioning of welfare services, inclusion in working life, vocational rehabilitation programs, receipt of social security benefits, and cooperation between the labour, welfare and health services. Dyrstad's research interests include welfare politics, global health and development, and the provision of welfare services and health care. The research presented in the article in a fine manner embodies the research carried out by this research environment—through its interdisciplinary character, and due to its explicit focus on the professional and collaborative challenges that arise in the interfaces between the health and welfare services.

### PUBLIC INTEREST STATEMENT

With western countries experiencing high disability rates and future labour shortages in many industries, it is important to ensure that those who can work are given the opportunity to do so. In Norway, doctors have a responsibility to prevent the receipt of disability benefits and promote labour market inclusion. Partly this is ensured through medically based assessments of work ability—a task many doctors, however, consider as challenging. Analyzing answers from doctors in Norway, we find that length of service is the most important factor in explaining variations between doctors, in terms of how confident and reassured they are when doing these assessments. A better system of education and more practically oriented training in doing work ability assessments could be proper measures to strengthen the skills of doctors when it comes to making sound assessments of work ability. In turn, this could support labour market inclusion of various groups in society.

were also significantly associated with the general practitioners' experience of assessing work capacity. The structural variables in the model provided few significant results. *Conclusions:* Better education and training in doing work ability assessments could be a proper measure to increase general practitioners' confidence in doing these assessments in connection with disability benefit applications.

**Subjects:** Health & Illness; Mental Health; Disability; Sociology of Health and Illness; Healthcare Administration and Management; Health Education and Promotion

**Keywords:** disability benefit; work ability; medically based assessment; general practitioner (GP)

### 1. Introduction

The proportion of working age people outside the labour market as recipients of disability benefits is high in Norway. As of June 2016, there were 317,700 people receiving disability benefits, which amounted to 9.5% of the population aged 18–67 years (Ellingsen, 2016). At the same time, there has been an increase in the number and share of young recipients of disability benefits. In the 2nd quarter of 2016, 1.7% of the population aged 18–29, or almost 14,000 individuals, were recipients of disability benefits, almost a double since 2007.<sup>1</sup> Concurrently, mental and musculoskeletal disorders have become increasingly dominant as medical reasons for both sick leave and disability benefits. By the end of 2013, these two groups of medical diagnoses accounted for 63% of the disability cases.<sup>2</sup>

At the same time, ageing populations as well as future estimates of population development indicate a marked decrease in the share of the working age population in proportion to the total population in Western Europe (Colombo, Llena-Nozal, Mercier, & Tjadens, 2011). This development makes it increasingly important to increase the employment rate of those who do have a work ability, even if they are not able to have a fulltime job. General practitioners (GPs) play a key role in this context, as medical experts responsible for conducting medically based assessments of work ability in connection with sickness benefits and disability benefits. Moreover, GPs could be seen as suppliers of the medical information that founds the basis for the processing of applications for disability benefits (Brage, 2010; Pransky, Katz, Benjamin, & Himmelstein, 2002).

The medical certificate of work disability is the instrument that GPs in Norway use to assess the patient's functioning and work capacity. This certificate contains a wide range of judgments that the GP needs to make. The GP should describe how the patient's functional capacity in general is reduced due to illness and—if the patient is in paid work—describe the patient's work and the requirements for carrying out the work. The GP should also state whether and when the patient could be expected to return to his or her current job, which tasks the patient cannot perform in the current job, and the relationship between the medical condition and the working capacity. Moreover, the GP should assess whether the patient is able to perform other types of work, and if so, which considerations would have to be taken. Finally, the GP should also consider whether medical treatment would lead to an improved working capacity. In sum, the GPs are responsible for a wide range of assessments, several of which go far beyond pure medical considerations (Bränström et al., 2013).

An assessment of functional capacity has to be based on a combination of clinical findings, the GP's knowledge of the patients' jobs, and what the patients themselves communicate about their own health and work situation (Arrelöv et al., 2007; Reiso, Nygard, Brage, Gulbrandsen, & Tellnes, 2000). This task becomes particularly challenging in the absence of clear clinical findings, i.e. in cases where the patients report of symptoms that are difficult to verify objectively (Arrelöv et al., 2007; Mik-Meyer & Obling, 2012; Winde et al., 2012). The combination of tasks involved in sickness certification challenges the professionalism of the GP (Engblom, Alexanderson, & Rudebeck, 2011), and research has shown that GPs in general experience tasks related to assessment of work ability and employability

as difficult and time-consuming (Arrelöv et al., 2007; Dünner, Decrey, Burnard, & Pécouid, 2001; Gulbrandsen, Hofoss, Nylenna, Šaltytė-Benth, & Aasland, 2007; Kiessling & Arrelöv, 2012; Reiso et al., 2000; Steenbeek et al., 2011; Stigmar, Grahn, & Ekdahl, 2010; Winde et al., 2012; Ydreborg, Ekberg, & Nilsson, 2007). Arrelöv et al. (2007) found that 61.4% of the GPs in a sample—on a weekly basis—found it problematic to handle sickness certification, while 31.3% found it problematic on a monthly basis. Furthermore, 63.6% of the GPs reported that the task of assessing whether a patient’s functional capacity is reduced was very or rather problematic, while as much as 80.9% reported that assessing the degree to which reduced functional capacity limits a patient’s work ability was very or rather problematic. In a study of physicians’ challenges when handling sickness certification (Kiessling & Arrelöv, 2012), two out of seven categories of challenges were identified as “work-related”, namely “work capacity assessment” and “the patient’s workplace and the labour market”. A study of sickness certification practices in different clinical settings found that the majority of the participating GPs ( $N = 14,210$ ) reported it to be problematic to rate judgments on whether a patient’s functional capacity is reduced and the degree to which the reduced functional capacity limits a patient’s work capacity (Lindholm et al., 2010; see also Löfgren, Hagberg, Arrelöv, Ponzer, & Alexanderson, 2007). A study of psychiatrists’ work with sickness certification reported similar results; the majority of the participating psychiatrists experienced the tasks of assessing the level and duration of work incapacity, and the extent to which the reduced functional capacity limits the patient’s work ability, as problematic (Nilsson et al., 2012). Another study argues that sickness certification is a complex task because the physician’s role is to provide a social interpretation of a medical diagnosis, but without the required tools that would help them in estimating incapacity for work (Dünner et al., 2001). Cases in which patients suffer from more than one medical problem at once make it even more challenging to assess fitness for work (Dünner et al., 2001). Similar challenges in assessing readiness for work have been identified within the return to work-literature (e.g. Pransky et al., 2002). Also in a study focusing on adolescents applying for disability benefits, challenges related to work ability assessments were identified (Holwerda, Groothoff, de Boer, van der Klink, & Brouwer, 2013).

One reason that work ability assessment is perceived as challenging, is that GPs find it difficult to obtain in-depth knowledge of job tasks and workload in different occupations (Edlund & Dahlgren, 2002; Löfgren, Hagberg, & Alexanderson, 2010; Nilsing, Söderberg, Berterö, & Öberg, 2013). According to current legislation in Norway, such knowledge is required if a GP is to do a thorough assessment of their patients’ potential for work. However, the actual situation for most GPs is that they have many patients on their lists, which makes it difficult to acquire detailed knowledge of job tasks and adaptation opportunities in all the different occupations of their patients. Moreover, it should be noted that the medical education in Norway primarily has been aimed at diagnosing and treating health problems, and not on doing assessments of patients’ functional capacity (Official Norwegian Report [NOU], 2000).

Sickness certification and medically reasoned assessments of work capacity may also be a source of inner dilemma and conflict for GPs (cf. Gulbrandsen et al., 2007; Swartling, Hagberg, Alexanderson, & Wahlström, 2007; Winde et al., 2012). In particular, many GPs experience the sick leave situation as potentially tense since the interests of the patient have to be balanced against the role as a gatekeeper of economic benefits, which involves managing society’s resources in a responsible manner (see e.g. Arrelöv et al., 2007; Norrmén, Svärdsudd, & Andersson, 2006; Reiso et al., 2000; Wynne-Jones, Mallen, Main, & Dunn, 2010). Another study found that many doctors regard the task of assessing patients’ work ability as unattractive and not very meaningful (Halvorsen, Edwards, Aaraas, Aasland, & Kristiansen, 2013). Moreover, they found that follow up of persons certified unfit for work and preparing health certifications were two of the activities that GPs would like to spend less time on (Halvorsen et al., 2013; see also Swartling, Alexanderson, & Wahlstrom, 2008). In addition, health certification was considered as the least meaningful of the common activities in general practice by the GPs participating in the study (cf. Aarseth, Natvig, Engebretsen, & Lie, 2014; Johansen, Andersen, Mikkelsen, & Lynge, 2011). Moreover, a recent study found that GPs still take an overly paternalistic attitude toward patients in their assessment of potential disability claimants, failing to recognize them as agents with a co-responsibility (Aarseth, Natvig, Engebretsen, Maagerø,

& Lie, 2016). Studies like these indicate that there is still a potential for improvement of how GPs assess the functional capacity of their patients.

Over the past decade, several legislative changes have been introduced in Norway in order to strengthen physicians' responsibility to reduce sickness absence, disability, and absenteeism. Also other European countries, such as Sweden, Denmark, the Netherlands and the UK, have taken steps to shift the focus from the patients' health-related limitations to their functional abilities (Brage, 2010). Means to achieve this have been a clarification of the role of the GP as well as more stringent quality requirements of the work capacity assessment (Brage, 2010).

### **1.1. Objective**

The objective of this article is to explain variations in GPs' experiences with doing medically based assessments of work ability in connection with disability benefit applications. Moreover, we seek to identify the factors that influence GPs' opportunities to issue informed medical assessments of function level and employability. Due to a lack of previous research on assessing work capacity in conjunction with disability benefits, we assume that factors that have been identified as relevant in explaining variations in GPs' sick-listing practice will also be relevant in explaining variations in their experiences of assessing work capacity in disability cases. However, there is reason to believe that making a medically reasoned assessment of work capacity for a disability benefit claim is a more demanding exercise than doing such assessments in relation to sickness absence. Disability benefit is a permanent benefit, where the "terms of need" should be considered in a much stricter and more exhaustive way than a period of sickness benefits. In this way, the role as a gatekeeper for a costly economic benefit should carry more weight. On the other hand, there is more at stake for the patient, potentially creating a more serious dilemma for the GP.

### **1.2. Hypotheses**

Based on the review of literature of GPs' experience of assessing work capacity for sickness absence, we assume that how confident GPs are when doing these assessments will vary with physician-related characteristics as well as structural characteristics of the municipality where the GP works (and his/her patients live). In particular, we assume that the GPs' gender, length of service, patient volume and specialization are associated with their experience of assessing work capacity. Halvorsen et al. (2013), for instance, found that GPs' preferences for time spent on different preventive health care services were associated with the size of their patient lists. In addition, we expect that length of service, i.e. the number of years working as general practitioner, should improve their experience of doing work capacity assessments. More seniority should be associated with accumulated experience as well as an increased likelihood that they have received regular training in doing work ability assessments (cf. Steenbeek et al., 2011). This is in line with Pransky et al. (2002), who hypothesized that physicians with more training and experience in assessing work disability would demonstrate better knowledge and skills on the same issues. Specialization in general medicine was included to test whether GPs specialized in general medicine are more comfortable with doing assessments of work ability than their colleagues without specialization. The purpose of a specialization in general medicine is to strengthen the physician's knowledge of diagnostics and methods of patient treatment, and to train physicians in good physician-patient communication.

Secondly, we expect that characteristics of the local labour market should influence the GPs' assessment of available job opportunities, and hence, indirectly also their assessment of the work capacity. Previous research has shown that when controlling for physician and patient-related characteristics, local structural factors are relevant in explaining variations in the number and length of sickness certificates (Arrelöv, Borgquist, & Svärdsudd, 2005). Our expectation is that GPs in small communities, characterized by a limited labour market, will have an experience of assessing work ability that is different from GPs working in larger municipalities, characterized by a more heterogeneous labour market. Similarly, level of unemployment probably captures characteristics of both the population (education level, work experience and degree of job mobility) and the labour market (heterogeneous versus homogeneous). In addition, some municipalities have higher shares of

inhabitants who receive a disability pension, suggesting possible contagion effects or a local culture of a more lenient practice of work capacity assessment.

## 2. Materials and methods

The main data source is a postal survey, conducted in November 2012–January 2013 among all registered GPs in Norway. As of 1 October 2012, there were 4,949 GPs in Norway with a reimbursement agreement, and the Health Economics Administration through the Ministry of Labour provided postal addresses for all these. The Norwegian Social Science Data Services (project No. 27830) approved the data collection. Of the initial population of GPs, 1,466 GPs chose to participate, 432 respondents replied that they no longer worked as GPs, and a number of questionnaires were returned with unknown addressee. This yielded a net response rate of 32.5%.

### 2.1. Dependent variables

To measure the GPs' experience of assessing work ability in disability claims, the survey included six different statements that the respondents were asked to consider. The statements constitute the dependent variables of our study, and were based on previous research on GPs and their role in connection with sickness absence and work ability assessments. The statements were phrased as follows:

1. I feel confident with the medical assessments I do in connection with disability applications
2. I find it difficult to assess functional capacity in connection with disability applications (reversed)
3. Assessing medical aspects of disability is particularly difficult in cases involving mental diagnoses (reversed)
4. Patients who have concluded that disability is an option, are difficult to motivate to further investigation of functional ability (reversed)
5. The patients have an opinion of their own disability that diverges from my opinion (reversed)
6. When I fill out a medical certificate of work disability I recommend a disability degree

The statements capture different aspects of the task of doing work ability assessments. While the first three variables measure the GPs' *level of confidence* when doing assessments of work ability, two variables probe into the *doctor-patient relationship*. The last outcome variable captures how far GPs actually go when they consider their patients' work ability, i.e. their self-reported *lenience* in their practice.

The variables were recoded into a set of dichotomous variables where a value of 1 corresponds to "yes, always" and "often", while "sometimes," "rarely" and "no, never" were merged into 0. To make the interpretation of the coefficients more intuitive, the negatively loaded statements were reversed, so that 1 corresponds to a more positive experience.

### 2.2. Independent variables

The first group of independent variables in the model was the physician-related variables. To measure *Length of service as a GP*, we use a question from the survey about numbers of years of experience as a GP, with six answer categories (less than one year, 1–5 years, 6–10 years, 11–20 years, 21–30 years, or more than 30 years). *Patient volume* is an adjusted variable, where the GP's reported number of patients was divided by the self-reported number of days in clinical practice. *Specialization in general medicine* was measured as a dichotomous variable which takes the value of 1 if the GP reported to have a specialization in general medicine; otherwise 0. In addition, we included a control variable for gender, *Male*. Finally, two questions capture the GP's self-reported confidence in his or her knowledge about adaptation opportunities in the workplace, and the importance he or she assigns to sick-listing as part of the job as a GP. Hence, *Knowledge about adaptation opportunities* takes the value of 1 if the GP responded yes to the statement "I have knowledge about the adaptation

opportunities that exist in most occupations”; otherwise 0. *Sick leave tasks important part of my job* takes the value of 1 if the GP answered yes to the statement “I consider sick leave tasks an important part of my job”; otherwise 0.

The second group of independent variables was taken from the Municipality-State-Reporting Data Base, produced by Statistics Norway, and were linked to the GP data by using municipality number. To take into account that there may be a time lag before such structural factors influence the GPs’ judgments of work ability in individual cases, municipal data were from 2010. The structural variables consisted of local population size (grouped), the proportion of disability pensioners, and the proportion of unemployed inhabitants. Although some of the same underlying causes could at least partly explain unemployment level and the ratio of disability benefit recipients, initial bivariate correlations showed no strong correlation between the two. Hence, both were included in the analysis. The sample of GPs worked in 283 different municipalities (of about 430 in 2010), all of which were included in the analysis.

### 2.3. Statistical method

Since GPs practice in different municipalities, variations in municipality-level factors like population composition, labour market and geographical conditions, could potentially interfere with the relationship between physician-related factors and the outcome variables. In other words, there is a possibility that some of the variation in GPs’ experiences with doing work ability assessments is explained by municipality level characteristics. Hence, we assume a two-level model where GPs are nested within the municipality where they work. This controls for potential dependence between GPs working within the same municipality, and allows us to include characteristics of GPs and municipalities in the same model.

As our dependent variables are binary, we estimated a set of logistic regression models, thereby modelling the probability that the dependent variables take the value of 1 as a function of GP and municipality characteristics.<sup>3</sup> The intra-class correlation coefficient  $\rho$  measures the share of variance found at the municipality level. “Don’t know” responses were treated as missing and deleted listwise. The significance level was set at 0.05. We used Stata statistical software version 14.2 for the statistical analyses.

### 3. Results

Table 1 shows the representativeness of our sample compared to the total population of GPs based on gender, age, municipality size and size of patient lists, measured at the same time.

Table 1 shows that 64.9 % of the GPs in the sample were males and 35.1 % females. The corresponding percentages in the population were 62.4 and 37.6, which gives a small overrepresentation of male GPs. There is also a slight overrepresentation of older GPs, with the exception of those aged 70 years and older. The response rate among the GPs vary little with municipality size, but it is lower among GPs working in the smallest municipalities (less than 5,000 inhabitants and between 5,000–9,999 inhabitants). Finally, we see that the average number of patients in the sample and the population is relatively similar, although the number is slightly higher in our sample (on average 47 patients more). Overall, we consider the representativeness of the sample to be satisfactory.

Initial analyses of empty models without explanatory variables showed that 0–5.56 % of the variance in the dependent variables was found on the municipality level. The largest share of explained variance at the municipality level was found for the dependent variable that measures lenience in the GP’s practice. Low share of the variance found at the municipality level implies that it is less likely that municipality characteristics will have a statistically significant effect, as the GPs’ experience seems to be largely independent of the municipality where they work. However, for ease of comparison, we proceeded with hierarchical models for all six dependent variables, even if some of the initial

**Table 1. Representativeness of sample. Proportion in population compared with proportion in sample (per cent)**

Variable		Population (%)	Sample (%)	Difference (pp)
Gender	Male	62.4	64.9	2.5
	Female	37.6	35.1	-2.5
Age	< 30 years/ ≤ 30 years	1.5	1.9	0.4
	30-39/31-40	26	27.0	1.0
	40-54/41-50	37.2	20.6	-16.6
	55-66/51-60	21.7	31.4	9.7
	-/61-70	-	18.4	-
	≥ 67/ ≥ 71 years	2.6	0.7	-1.9
Number of patients per list (mean)		1,164	1,211	47
Local population size	≤ 4,999 inhabitants	10.8	10.0	-0.7
	5,000-9,999	14.9	13.1	-1.9
	10,000-19,999	16.3	16.9	0.6
	20,000-49,999	23.0	24.6	1.6
	≥ 50,000	35.0	35.4	0.4
N		4,279	1,435	

Note: pp = percentage point. Information on gender, age, and average number of patients in the population of GPs is from 31 December 2012 and was collected from the Directorate of Health's statistics on GPs in Norway. Note that the age intervals reported by the Directorate of Health differs somewhat from the age intervals in the survey, which limits comparability particularly for the middle categories.

Source: Official statistics from the Directorate of Health, "General practitioners 2012. Main numbers", Table 1, by Per Øivind Gaardsrud, <https://helsedirektoratet.no/statistikk-og-analyse/fastlegestatistikk#fastlegestatistikk-2012> [Accessed 1 November 2016].

models showed that there was no variance on the municipality level. Table 2 reports the results from the logistic regression models, in terms of regression coefficients and 95% confidence intervals. Coefficients show changes in the dependent variables (*L*) when *X*-variables change with one unit of measure, controlled for other independent variables. Confidence intervals (CI) indicate the values that the true population parameter is likely to be within. Finally, *p*-values signify the probability that an estimated coefficient could be true, given that the null hypothesis of no correlation between two variables is true. A low *p*-value thus means that we can reject the null hypothesis stating that there is no correlation between two variables.

In all the models, length of service stands out in terms of positive and significant ( $p < 0.01$ ) coefficients, ranging from 0.492 [0.015, 0.970] to 2.127 [1.457, 2.798]. Both vis-à-vis the dependent variables measuring degree of confidence and the variables capturing the doctor-patient relationship, GPs with several years of experience report of a more positive experience of doing medically based assessments of work ability compared to the GPs in the reference category (0-5 years' experience). Thus, number of years working as a GP seems to be positively associated with the GPs' experiences with doing these assessments. Additional analyses with different reference categories indicate that the main difference is between GPs with more than 10 years of experience, and those with less than 10 years of experience. The effect of having 6-10 years of experience is significantly different from five years or less in four of the regression analyses. In two of them, related to level of confidence, the association is positive and significant at the 0.01-level ("I feel confident with the medical assessments I do in connection with disability applications" ( $B = 1.262$  [0.750, 1.773]) and "I find it difficult to assess functional capacity in connection with disability applications (reversed)" ( $B = 0.852$  [0.415, 1.289])). Further, we see that the more experienced GPs also have a significantly higher tendency to agree more with the statement that they recommend a disability degree. Possible explanations for these results are considered in the discussion section.

**Table 2. Empirical results based on mixed-effect logistic regression. Logistic regression coefficients, 95% confidence intervals (CI) and p-values**

	Level of confidence			GP – patient relation			Lenience
	<i>I feel confident with the medical assessments I do in connection with disability applications</i>	<i>I find it difficult to assess functional capacity in connection with disability applications (reversed)</i>	<i>Assessing medical aspects of disability is particularly difficult in cases involving mental diagnoses (reversed)</i>	<i>Patients who have concluded that disability is an option, are difficult to motivate to further investigation of functional ability (reversed)</i>	<i>Patients have an opinion of their own disability that diverges from mine (reversed)</i>	<i>When I fill out a medical certificate of work disability I recommend a disability degree</i>	
Male	-0.161 [-0.479, 0.158]	-0.025 [-0.295, 0.244]	0.224 [-0.043, 0.491]	-0.254* [-0.506, -0.002]	-0.421** [-0.728, -0.114]	-0.110 [-0.357, 0.136]	
Patient volume	-0.000 [-0.002, 0.002]	-0.001 [-0.002, 0.001]	-0.000 [-0.002, 0.001]	-0.001 [-0.003, 0.000]	-0.003** [-0.005, -0.002]	-0.001 [-0.002, 0.000]	
Specialization in general medicine	0.061 [-0.378, 0.500]	-0.128 [-0.506, 0.250]	-0.036 [-0.406, 0.333]	-0.224 [-0.570, 0.123]	0.119 [-0.286, 0.523]	0.133 [-0.205, 0.471]	
Length of service as a GP	6-10 years	1.262** [0.750, 1.773]	0.852** [0.415, 1.289]	0.523* [0.074, 0.972]	0.492* [0.015, 0.970]	0.388 [-0.040, 0.815]	
	11-20 years	1.638** [1.100, 2.176]	1.571** [1.102, 2.040]	0.801** [0.329, 1.272]	0.676** [0.233, 1.119]	0.737** [0.311, 1.163]	
	21-30 years	1.976** [1.398, 2.554]	1.600** [1.125, 2.075]	0.907** [0.431, 1.382]	0.799** [0.350, 1.248]	1.261** [0.732, 1.791]	
> 30 years	2.127** [1.457, 2.798]	1.616** [1.092, 2.139]	0.556* [0.044, 1.068]	0.753** [0.272, 1.235]	1.110** [0.541, 1.678]	0.749** [0.284, 1.214]	
Knowledge of adaptation opportunities	0.461** [0.154, 0.768]	0.189 [-0.069, 0.446]	0.002 [-0.247, 0.250]	0.439** [0.199, 0.680]	0.309* [0.026, 0.592]	0.131 [-0.103, 0.365]	
Sick leave tasks important part of my job	0.639** [0.336, 0.941]	0.535** [0.280, 0.791]	0.042 [-0.210, 0.294]	0.235 [-0.010, 0.480]	0.550** [0.269, 0.831]	0.239* [0.003, 0.475]	
Population size	5,000-9,999	-0.786* [-1.459, -0.113]	-0.246 [-0.798, 0.306]	0.419 [-0.104, 0.941]	-0.038 [-0.521, 0.445]	-0.041 [-0.539, 0.456]	
	10,000-19,999	-0.914** [-1.568, -0.261]	-0.417 [-0.946, 0.113]	-0.015 [-0.538, 0.508]	-0.296 [-0.771, 0.180]	-0.228 [-0.718, 0.262]	
	20,000-49,999	-0.758* [-1.428, -0.088]	-0.463 [-0.993, 0.067]	0.033 [-0.492, 0.557]	-0.112 [-0.579, 0.355]	0.031 [-0.567, 0.629]	
≥ 50,000	-0.345 [-1.083, 0.394]	-0.273 [-0.854, 0.308]	0.139 [-0.442, 0.720]	0.203 [-0.307, 0.714]	-0.034 [-0.697, 0.629]	0.402 [-0.177, 0.980]	
Disability rate (%)	0.012 [-0.065, 0.089]	-0.008 [-0.067, 0.052]	-0.069* [-0.135, -0.002]	0.021 [-0.033, 0.076]	-0.010 [-0.080, 0.060]	0.008 [-0.056, 0.072]	
Unemployment rate (%)	0.216 [-0.115, 0.547]	0.174 [-0.082, 0.429]	-0.116 [-0.398, 0.166]	-0.204 [-0.435, 0.028]	-0.096 [-0.409, 0.217]	-0.227 [-0.505, 0.051]	
Intercept	-0.198 [-1.305, 0.908]	-0.238 [-1.154, 0.679]	-0.695 [-1.620, 0.229]	-0.562 [-1.419, 0.296]	1.748** [0.718, 2.778]	-0.169 [-1.068, 0.729]	
N <sub>1</sub>	1,355	1,345	1,348	1,345	1,353	1,348	
N <sub>2</sub>	274	275	275	275	274	274	

Notes: "Reversed" indicates that items were reversed for ease of comparison, so that 1 corresponds to a more positive experience.

\*p < 0.05.

\*\*p < 0.01.

In addition, we see that the GPs' responses to the two attitude questions (knowledge about adaptation opportunities; sick leave tasks important part of job) have statistically significant associations in some of the models. This particularly applies to the statement on the importance of GPs being responsible for sick leave. In four of six models, this variable yields significant positive coefficients, ranging from  $B = 0.239$  [0.003, 0.475] which was significant the 0.05-level to  $B = 0.639$  [0.336, 0.941] which was significant the 0.01-level. Hence, our assumption that the GPs' attitudes to their role in the sick leave process will be positively associated with their experiences with doing assessments of work ability in disability cases is to some extent confirmed. The same to a certain extent applies to the statement concerning knowledge of adaptation opportunities in different occupations, which results in positive significant coefficients in three of the models.

Overall, gender seems to have little effect on the variations in the GPs' experience of the disability assessment. Gender is not significantly related to confidence in doing work ability assessment or lenience in practice. However, male GPs has a significantly higher propensity to think that the patients usually have an opinion of their functional ability that does not coincide with the doctor's opinion ( $B = -0.421$  [-0.728, -0.114], significant the 0.01-level). Likewise, male GPs are significantly more likely to think that patients who intend to apply for disability benefits are difficult to motivate for further testing of work ability ( $B = -0.254$  [-0.506, -0.002], which was significant the 0.05-level).

Contrary to our expectations, patient volume has little effect on the dependent variables. The exception is model 5, "patients have an opinion of their own disability that diverges from mine", but the effect is small. Surprisingly, whether the GPs were specialists in general practice generated no significant results. One possible explanation for this is that specialization or not also depends on length of service; i.e. the more experienced GPs are also more likely to have a specialization. When we removed the set of dummy variables measuring length of service, specialization had a strong, positive, statistically significant association with all but one of the dependent variables (i.e. model 4 "Patients who have concluded that disability is an option, are difficult to motivate further investigation of functional ability").

Also contrary to our expectations, municipality characteristics have little impact on the GPs' experience of work capacity assessment. The exception is model 1 ("I feel confident with the medical assessments I do in connection with disability applications"), where GPs in *medium-sized* municipalities are significantly less likely to agree with the statement. Finally, we see that neither disability rate nor unemployment are associated with any of the outcome variables.

#### 4. Discussion

More than ten years ago, Wahlström and Alexanderson (2004) pointed out that there was nearly a complete lack of studies on the interventions used by physicians in conjunction with sick leave, how work ability was assessed, and how physicians collaborated with other actors. This statement has been repeated several times in recent years (Arrelöv et al., 2007; Bränström et al., 2013; Norrmén et al., 2006; G. Wynne-Jones, C.D. Mallen, C. J. Main, & K. M. Dunn, 2010). The lack of research-based knowledge of GPs' experiences of assessing work ability is even more pronounced when it comes to disability benefits; to our knowledge, no study exists that explicitly addresses the GPs' experiences with assessing work ability in relation to disability benefits.

The analysis indicates that physician-related factors are more important than structural factors in explaining variations among GPs concerning their experiences with doing assessments of work ability. However, few of the characteristics highlighted by the sick leave research turned out to have statistically significant effect on the GPs' experience of work capacity assessment for disability benefit claims. The most important determinant of self-reported confidence and experience of the GP-patient relationship seems to be practical experience, understood as the number of years working as a GP. This result is consistent with much of the research on GPs' sick-listing practices, which has identified differences between younger and older physicians (see Löfgren, Silén, & Alexanderson, 2011; Norrmén et al., 2006; Swartling et al., 2007). One study even mentions a "grandpa effect" to

highlight that older doctors are more liberal in their sick-listing practices than their younger colleagues (Reiso et al., 2000). The task of doing medically based assessments of work capacity involves complex judgments, often with no definitive answers, and this may be easier to acknowledge after many years working as a general practitioner. Overall, the association between length of service is weaker for the measures of the GP-patient relation, in particular model 4 (“patients who have concluded that disability is an option, are difficult to motivate for further investigation of functional ability”).

Interestingly, our expectations that specialization should be beneficial to the GPs’ self-reported level of confidence, or affect the quality of the doctor-patient relationship found no support. This non-finding can at least partly be explained as a methodological artefact, since whether or not a GP is a specialist is closely related to length of service; i.e. GPs with more than 10 years of experience are also likely to be specialists. In addition, specialization in general medicine primarily is intended towards strengthening the physician’s knowledge of diseases and health problems, while knowledge of different occupations—which is important in order to be able to conduct proper assessments of work capacity—are not part of such a specialist education (cf. NOU, 2000).

Implicitly, the GPs’ view of the doctor-patient relationship and the task of assessing work capacity also relate to the question of how well the current medical certificate is tailored to the symptoms and diseases that GPs face in their daily practice. Despite the requirements for assessing work ability and the relationship between health condition and work ability, there is little doubt that the medical certificate is still heavily oriented towards medical issues. Symptoms and diseases should be classified according to medical classification systems, and the medical history of the patient—including symptoms, treatment and results from clinical consultations—should be thoroughly described. Moreover, the certificate builds on the premise that most patients will fit into a standardized classification system for disease. However, a challenge with a biomedical disease model is that it does not sufficiently recognize individual capabilities and resources or social aspects (Da Silva & Solli, 2012). Moreover, the current medical certificate is inadequate for the assessments that the physician is expected to conduct in connection with applications for disability benefits, since the format and language of the certificate undermines the ability to achieve good assessments of how the disease affects work ability (Aarseth et al., 2014; Engblom et al., 2011; Krohne & Brage, 2007). The gap between the certificate’s requirements for clinical medical evidence and the GP’s opportunities of finding such evidence may be particularly large when the diagnosis falls within the categories of mental and musculoskeletal disorders (von Knorring, Sundberg, Löfgren, & Alexanderson, 2008). GPs with a patient population where these types of disorders are dominant might experience greater challenges in filling out the medical certificate. More experienced GPs will also have more experience handling this gap.

Patient volume was not associated with self-reported confidence or lenience in practice; however, higher volume was negatively and significantly associated with the probability to think that patients in general have an opinion of their own disability that matches the opinion of the GP (model 5). Our findings further indicated that GPs who are positive to the task of sick-listing, also report of a more positive experience of doing work ability assessments in connection with disability benefit applications, than GPs who do not consider sick leave tasks to be an important part of their job. There is a considerable overlap between the assessments that GPs do in relation to sickness absence and disability benefits, and since the medical certificate is identical, the practical experience a GP acquires from sick-listing should be beneficial for the assessments of work ability conducted for disability benefit applications, and vice versa.

The analysis found that male GPs did not significantly differ from their female counterpart in their self-reported confidence or lenience, but reported of a significantly poorer patient relation. These findings should be seen in relation to previous studies of GPs' sick-listing practice, which report of partially contradictory effects (Englund & Svärdsudd, 2000; G. Wynne-Jones, C. Mallen, C. Main, & K. Dunn, 2010) or no difference between female and male GPs' sick-listing practice (i.e. Bränström et al., 2013; Norrmén et al., 2006).

Finally, contrary to our expectations, we did not find that municipality characteristics were associated with the GPs' self-reported confidence, patient relation, or lenience. The exception is population size, which was negatively associated with our dependent variable in model 1 ("I feel confident with the medical assessments I do in connection with disability applications"). Moreover, GPs in *medium-sized* municipalities were significantly less likely to agree with the statement. Overall, however, the results showed that a very small variance in the GPs' experience of assessing work ability could be explained by municipality level characteristics. The implication of this is that characteristics of the GPs themselves, and possibly, of the patients on their list, define their experience of the work ability assessment.

### 5. Limitations

An inherent limitation in the use of cross-sectional data is that statistical correlations in the material should not be treated as causal relationship. This is particularly true for variables measuring values and attitudes. However, for variables like length of service and gender, a claim of reverse causality make limited sense.

The study is based on self-reported experience of assessing work capacity. A second limitation relates to the lack of data on actual practice among the GPs in the sample, e.g. it cannot be ruled out that the GPs who in the survey reported of a more lenient practice, actually adhere to a stricter assessment of work capacity. In addition, it is likely that characteristics of the patients on the GPs' lists influence the GPs' experience of assessing work capacity, and that such characteristics would indeed prove more important than the characteristics of the municipality where the GPs work.

### 6. Conclusion

A main finding in this study is that length of service is associated with a higher confidence in assessing work capacity for disability benefit claims, a better patient relation, and a more lenient practice. The main difference was found between GPs with more than ten years of experience, and those with less than ten years of experience. In addition, the GPs' self-reported knowledge of workplace adaptations, as well as the importance they assign the task of sick-listing, were significantly associated with their experience of assessing work capacity among potential disability claimants. Specialization in general practice was not significantly related to the GPs' experience of assessing work capacity. One possible interpretation of this is that the difficulty in assessing work capacity is more due to lack of knowledge of workplace adaptation, rather than lack of medical knowledge or experience per se. Finally, structural characteristics provided few significant results.

Since practical experience can only be achieved over time, a better system of education and more practically oriented training in doing work ability assessments could be a proper measure to increase GPs' skills and confidence in doing such assessments (cf. Brage, 2010; G. Wynne-Jones, C. Mallen, C. Main, & K. Dunn, 2010; Roope, Parker, & Turner, 2009; Wainwright, Wainwright, Keogh, & Eccleston, 2015). This could facilitate more optimal assessments of work ability among people with various health problems. Moreover, one might envision that rehabilitation and occupational physicians could be given a more prominent role when it comes to training of GPs (cf. Anema et al., 2006; Pransky et al., 2002). More training in doing assessments of employability (with experienced occupational and rehabilitation doctors in a leading role), the development of better guidelines, as well as closer cooperation between GPs and the Labour and welfare administration are all measures that could strengthen the GPs abilities to conduct sound assessments of work ability.

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### Competing Interests

The authors declare no competing interest.

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### Notes

1. Source: The Norwegian Labour and Welfare Administration (NAV) <https://www.nav.no/no/NAV+og+samfunn/Statistikk/AAP+nedsatt+arbeidsevne+og+uforetrygd++statistikk/Tabeller/mottakere-av-uf%C3%B8retrygd-etter-kj%C3%B8nn-og-alder.pr.30.06.2007-2016.antall>. [Accessed 19 October 2016].
2. Source: Statistics from NAV, see <https://www.nav.no/no/NAV+og+samfunn/Statistikk/AAP+nedsatt+arbeidsevne+og+uforetrygd++statistikk/Tabeller/mottakere-av-uf%C3%B8retrygd-etter-hoveddiagnose-prim%C3%A6rdiagnose-alder-og-kj%C3%B8nn.pr.31.12.2013.kvinne>. [Accessed 19 October 2016].
3. As a robustness check, we also treated the original Likert scale items as quasi-continuous and used hierarchical ordinary least square (OLS) regression. This alternative specification produced some minor changes in the results, but did not alter the main findings. Simple (non-hierarchical) OLS and logit regressions yielded approximately the same results as the hierarchical models.

### Corrigendum

This article was originally published with errors. This version has been corrected. Please see Corrigendum (<https://doi.org/10.1080/2331205X.2017.1380745>).

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