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Gender equality in sickness absence tolerance: Attitudes and norms of sickness absence are not different for men and women

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3 Gøril Kvamme Løset^{1*}, Harald Dale-Olsen^{2¶}, Tale Hellevik^{1¶}, Arne Mastekaasa^{3¶}, Tilmann von4 Soest^{4¶}, Kjersti Misje Østbakken^{2¶}

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6

7 ¹Norwegian Social Research (NOVA), Centre for Welfare and Labour Research, OsloMet – Oslo

8 Metropolitan University, Oslo, Norway

9 ²Institute for Social Research, Oslo, Norway10 ³Department of Sociology and Human Geography, Faculty of Social Sciences, University of

11 Oslo, Oslo, Norway

12 ⁴Department of Psychology, Faculty of Social Sciences, University of Oslo, Oslo, Norway

13

14

15 *Corresponding author

16 Email: gklos@oslomet.no

17

18 ¶These authors are listed in alphabetical order.

19

20 **Abstract**

21 Previous research offers limited understanding as to why sickness absence is higher among
22 women than among men, but attitudes and norms have been suggested as plausible explanations
23 of this gender gap. The purpose of the present study is to examine whether the gender gap in
24 sickness absence reflects gender differences in sickness absence attitudes or gendered norms of
25 sickness absence in society. The analyses are based on data from a factorial survey experiment
26 covering 1,800 male and female employed respondents in Norway in 2016. Each participant was
27 asked to evaluate whether sick leave would be reasonable in six unique, hypothetical sickness
28 absence scenarios (i.e. vignettes) in which occupation, gender and reason for sick leave varied.
29 Sick leave judgments were regressed on respondent gender and vignette gender using binary
30 logistic regressions across three cut points. Overall, we did not find a substantial gender
31 difference in either attitudes towards sickness absence or sickness absence norms. However,
32 further analyses indicated more tolerant social norms of sickness absence for employees in
33 gender-dominated occupations than for employees in gender-integrated occupations. This pattern
34 could be a result of the type of work attributed to these occupations rather than their gender
35 composition. Contrary to popular belief, we conclude that widely held attitudes and norms of
36 sickness absence are unlikely to be drivers of the gender gap in sickness absence. The results can
37 be useful for policies and interventions aimed at safeguarding gender equality in the labour
38 market.

39

40 Keywords: sickness absence, absenteeism, gender differences, attitudes, gender norms, factorial
41 survey

42

Introduction

43 Research has repeatedly shown substantial gender gaps in sickness absence from work.
44 For example, findings from a study examining 17 European countries showed higher sickness
45 absence among women in all countries. Women had, on average, more than a 30% higher
46 probability of being absent from work because of health complaints in any given week than men
47 [1]. Similar differences are found in the US [2] and Canada [3]. Hence, the difference in sickness
48 absence between men and women exists across different political regimes, social security
49 systems and sick-pay policies [1,4]. Despite decades of research attempting to explain this
50 gender difference, the phenomenon is not fully understood [5,6]. Knowledge about reasons for
51 the higher prevalence of absence among women than men is important, as sickness absence is
52 considered a substantial expense in Western economies [7]. Moreover, the gender gap in
53 sickness absence could also constitute a barrier for women in the labour market [8].

54 Past studies on gender differences in sickness absence have mainly focused on factors
55 that may cause women to have more health problems or be more susceptible to illness than men,
56 and health issues related to pregnancy do indeed seem to account for part of the gender gap [8,9].
57 However, other health-related explanations have received limited empirical support, with neither
58 heavier work/family loads among women than among men [10,11] nor differing work conditions
59 for women and men appearing to be of major importance for the gender difference [12,13]. Thus,
60 the gender gap in sickness absence remains largely unexplained [2,6].

61 The limited understanding of the gender difference in sickness absence warrants closer
62 examination of motivational and attitudinal factors, which have so far received less attention as
63 an explanation for this gender difference. A medical condition could make it impossible to attend
64 work, yet, more typically, the individual has some degree of choice [14]. Studies show that

65 tolerant attitudes towards work absence are actually related to higher likelihood of absenteeism
66 the previous year [15] and number of absence days from work the previous six months [16,17].
67 Sickness absence without certification from a physician (self-certified sickness absence) is
68 considered more sensitive to individual motivation, and less determined by health status, than is
69 physician-certified sickness absence [18]. Still, even physician-certified sickness absence seems
70 to be in part a matter of subjective decision-making, both by the patient and by the physician
71 [19,20]. A Norwegian study also shows that in the large majority of cases, if a patient asks for
72 sick leave, the physician will grant it [21].

73 Although the role of attitudinal factors in sickness absence behaviour is quite well
74 established, such factors may not be relevant for explaining specifically the gender differences in
75 this behaviour. However, higher sickness absence among women than among men would be
76 expected if one of the following conditions also holds; (1) that women have more tolerant
77 attitudes toward sickness absence than men, or (2) that the general attitudes (or social norms) in
78 the population, which both men and women face, are more accepting with regard to women's
79 sickness absence. Very few empirical studies have addressed this topic [2,6]. In the present study
80 we use Norwegian data from a large-scale factorial survey experiment in order to examine (a)
81 how women and men judge sickness absence in different contexts; (b) whether women and men
82 are judged differently when absent because of sickness in different contexts; and (c) whether
83 working in female- versus male-dominated occupations influences judgments of sickness
84 absence legitimacy.

85 The gender difference in sickness absence is similar to gender differences in other illness
86 behaviours, such as help-seeking and use of medical services [22–24]. A better understanding of
87 the role of attitudes and norms in connection with sickness absence may thus also contribute to

88 our understanding of the broader issue of gender differences in illness behaviour. From an
89 applied point of view, an improved comprehension of the mechanisms behind the gender gap in
90 sickness absence may be informative for policies and interventions aimed at safeguarding gender
91 equality in the labour market and reducing sickness absence.

92 **Gender differences in sickness absence attitudes and norms**

93 Attitudes towards sickness absence might differ between men and women because widely
94 held gender stereotypes in society shape different expectations of when sickness absence is
95 acceptable and when it is not [2]. For example, traditional female stereotypes of being weak and
96 dependent [25,26] may legitimate sickness absence for women to a larger degree than for men,
97 while traditional male role characteristics, such as competitiveness and independence [25,26],
98 may make men less prone to accept sickness absence. Moreover, by virtue of their typical role as
99 primary caregivers, women may be more motivated than men by the concern that a health
100 problem threatens the fulfilment of caregiving duties. Such concerns may also make sickness
101 absence more legitimate for women than men. A previous study suggests that controlled for
102 gender, high levels of stereotypical male traits are related to reduced sickness absence risk,
103 whereas stereotypical female traits tend to be associated with increased sickness absence risk
104 [27]. The societal expectations and the practices of typical female role characteristics are also
105 argued to be more health oriented than typical male characteristics [28]. Thus, there are several
106 reasons to believe that there may be gender differences in sickness absence norms.

107 When considering research on attitudes towards work absence in general (without a
108 specific focus on sickness-related absence), two previous studies suggest that women view
109 absence from work as more legitimate than men do. The first study was based on survey data
110 from 444 Canadian business school graduates [16], while the second study comprised cross-

111 cultural survey data from 1,535 respondents distributed in nine nations [17]. The two studies
112 used the same scale to assess the respondents' general perception of absenteeism as a legitimate
113 work behaviour with some of the items tapping into the view of absence as inevitable,
114 understandable and punishable. Both studies found women to be more forgiving of work absence
115 than men. Yet, when reasons for work absence were stated, women and men did not differ in
116 work absence tolerance [17].

117 We identified two studies that examined social acceptability of sickness absence for
118 women and men. Patton and Johns [2] analysed 167 articles on female absenteeism published in
119 *The New York Times* over a 100-year period and concluded that gendered work absence norms
120 do exist on a societal level. More specifically, the study indicated higher acceptance of sickness
121 absence for women than for men based on general stereotypes related to women's double
122 workload of domestic duties and paid work, women's frailer health and women's lower work
123 commitment. However, a second study by Patton [29] based on factorial survey data from 454
124 managers and professionals did not find differences in judgments of work absence due to illness
125 based on absentee gender.

126 Only one previous study has examined gender differences in leniency towards sickness
127 absence. By linking survey data from 226 health care workers to employer records on sickness
128 absence, a Norwegian study found no significant differences between women and men in their
129 attitudes towards sickness absence [30]. However, the study is limited by examining a rather
130 specific group of employees in a female dominated profession (health care workers) and by
131 employing a rather complex measure of attitudes that blends attitudes of shirking from work with
132 attitudes towards more legitimate work absence due to sickness. Large scale studies using a

133 representative sample and providing more detailed information about gender differences by
134 using well-defined measures of attitudes towards sickness absence are therefore needed.

135 In conclusion, previous research on gender differences in sickness absence attitudes and
136 norms is limited and the results are mixed. The few available studies indicate that women may
137 view sickness-related work absence differently from men and that the social acceptance of
138 sickness absence may differ by gender. Given the large gender gap, we expect more tolerant
139 sickness absence attitudes among women than among men as well as higher social acceptance of
140 women's sick leave than men's:

141 Hypothesis 1: Women have more tolerant attitudes towards sickness absence than
142 men and thus judge sickness absence as reasonable more often than men do.

143 Hypothesis 2: Social norms of sickness absence favour women – that is, both men and
144 women have more tolerant attitudes towards women being absent from work because of
145 sickness than towards men being absent because of sickness.

146 **Differences in sickness absence norms by occupational gender** 147 **composition**

148 Several studies consider occupation to be an integrated component of gender stereotypes
149 and suggest that occupational information evokes associations with gender roles and gender-
150 stereotypical traits of the employee [31–34]. For example, employees in male-dominated
151 occupations are considered to have stronger leadership skills, while employees in female-
152 dominated occupations are viewed as more socially sensitive, regardless of employee gender
153 [33]. People also seem to draw conclusions about a person's occupation according to gender
154 roles or gender-stereotypical trait information [32,35]. The judgment of an occupation as gender
155 stereotyped is also repeatedly shown to reflect the statistical proportion of men and women in

156 occupations [31,36]. Moreover, cross-national data from 41 countries confirm that the five most
157 female-dominated occupations in the world – which include kindergarten teaching, nursing and
158 secretarial work – typically involve socially sensitive and care-related tasks and are seldom
159 characterised by leadership responsibilities [37].

160 In sum, the research literature implies that gender-dominated occupations are associated
161 with gender roles and stereotypes. Accordingly, gendered occupations may prompt gender-
162 stereotypical associations that influence the legitimisation of sickness absence. Given previous
163 arguments about how female gender roles seem more compatible with sickness absence than
164 male gender roles, we suggest that sickness absence acceptance may be greater for female-
165 dominated occupations, which are typically associated with female gender roles.

166 So far, sickness absence norms in relation to gendered occupations have not been tested,
167 but several studies suggest a tendency of higher sickness absence rates in female-dominated
168 occupations or workplaces [38,39]. This tendency could imply that sickness absence norms are
169 more lenient in cases of female-dominated occupations compared to male-dominated or gender-
170 integrated occupations, particularly because past research indicates that female-dominated
171 occupations are not unhealthier than male-dominated occupations are [12,13]. We posit the
172 following hypothesis:

173 Hypothesis 3: Employees face more tolerant social norms of sickness absence in female-
174 dominated than in male-dominated or gender-integrated occupations.

175 **The national context**

176 Norway, adhering to the Nordic welfare model, is characterised by high participation of
177 women in education and the workforce, as well as by shared housework and childcare [40,41].
178 However, despite Norway being a gender-equal welfare state, Norway's labour market remains

179 remarkably gender segregated and women have substantially higher sickness absence than men
180 [13,41–43]. The gender difference in sickness absence is mainly evident for physician-certified
181 sickness absence. In 2017, women had, on average, 72% higher physician-certified sickness
182 absence than men, compared with 33% higher self-certified sickness absence than men [42,43].
183 The present study therefore concentrates on the evaluation of longer sickness absences that may
184 qualify for physician-certification.

185 Norwegian employees may receive sickness absence compensation for up to one year.
186 The employee's own declaration (self-certification) that the absence is due to sickness is
187 sufficient for the first few days (either three or eight in most firms); for longer absence periods,
188 certification from a physician is required. The level of compensation is 100% up to a ceiling, and
189 the public sector and many private sector firms offer full compensation even for higher earnings.
190 The generous sick-pay scheme in Norway could provide more opportunities for non-financial
191 factors to affect sickness absence than less favourable sick-pay schemes in other countries,
192 making Norway an interesting case for studying gender differences in sickness absence attitudes
193 and norms. Moreover, due to high levels of sickness absence, the costs of illegitimate
194 absenteeism – that is, abuse of the generous sick-pay scheme – is more of an expressed concern
195 in Norway than the costs of presenteeism – that is, employees going to work when sick, infecting
196 colleagues and causing productivity loss.

197 **Methods**

198 To examine whether or not men and women judge sickness absence differently, and
199 whether or not men and women are judged differently when it comes to sickness absence, we
200 conducted a factorial survey experiment in spring 2016, administered by the market research
201 firm Kantar TNS.

202 **Procedure and participants**

203 The study sample was drawn from a general-purpose, web-based panel established and
204 managed by Kantar TNS. The Kantar panel consists of approximately 45,000 participants over
205 the age of 15 who have been recruited to join the panel after participating in surveys conducted
206 by the market research firm. Panel participants are usually invited to partake in one or two
207 surveys a month. Participation in the panel is voluntary, but survey participation earns points that
208 can be converted into selected gift items or gift vouchers, or donated to charity. Upon panel
209 registration, participants provide background information about themselves to facilitate the
210 selection process of participants for future surveys. In the present study, employment was a
211 prerequisite for participation. Accordingly, 26,450 of the panel participants were eligible to
212 partake in the survey.

213 The study questionnaire was sent by email to a random sample of 3,700 eligible panel
214 participants (stratified by gender). In all, 59% of the invited participants opened the form (n =
215 2,176). Of these, 66 persons did not complete the form, while 310 persons met a “closed door”
216 (i.e. all vignette alternatives were already answered when they opened the form). This
217 recruitment approach ensured that exactly 1,800 respondents (900 women and 900 men)
218 answered a form. The Data Protection Official for Research at The Norwegian Social Science
219 Data Services approved the study. Moreover, the data file made available to the research group
220 by Kantar TNS was without any kind of personal identifiers, and thus fully anonymous.

221 **The factorial survey approach**

222 The factorial experimental method is particularly suitable for identifying individuals’
223 decision or evaluation principles [44]. The respondents are presented with descriptions of
224 hypothetical scenarios (so-called vignettes), resembling real-life decision-making situations, and

225 then asked to make a judgment. Across the vignettes, different factors are experimentally varied
226 in order to estimate the impact of these multi-dimensional stimuli on the evaluation of the
227 dependent variable.

228 In our survey, each vignette describes an employee, either male or female, in a specific
229 occupation and with a specific health issue, and the respondents are asked to judge the
230 reasonableness of sick leave in the situation. More precisely, the respondents are informed that
231 the vignette-person has already been at home for three days of self-certified sickness absence but
232 now thinks they need more time before returning to work. The respondents are then asked
233 whether they think it is reasonable for the vignette-person to receive a physician-certified sick
234 leave in the situation, with response categories “completely unreasonable” (1), “fairly
235 unreasonable” (2), “fairly reasonable” (3), and “completely reasonable” (4), in addition to “don’t
236 know” (see Appendix for the introductory text and a vignette example).

237 Our main dimension of interest is gender. In order to ensure that our findings in relation
238 to gender differences (or lack thereof) in attitudes and/or social norms are not limited to a small
239 number of scenarios, we included as many as 90 occupations and 30 diagnoses in the vignettes.
240 To emphasise, we are not interested in the effects of a particular occupation or particular
241 diagnosis, but in the effects of gender across a large number of situations. However, it is possible
242 to combine the occupations and diagnoses into overall dimensions and test the effects of these –
243 for example the importance of gender composition of an occupation. We selected occupations
244 from the Norwegian State Register of Employers and Employees that represented different levels
245 of female-dominated, male-dominated and gender-balanced occupations, as well as high-,
246 middle- and low-status occupations [45]. For the diagnoses we used the Norwegian Labour and
247 Welfare Administration’s statistics to choose examples among the most common diagnostic

248 categories for sickness certification in Norway (i.e. mental illnesses, musculoskeletal disorders,
249 headaches and dizziness, contagious respiratory illnesses and pregnancy complications). We also
250 included some vignettes with examples of work- and family-related socio-psychological
251 problems (i.e. work conflict, care responsibility for family members) instead of medical
252 diagnoses (13% of the total number of vignettes). Vignette diagnoses concerning pregnancy
253 complications were also included in the study design among female vignette-persons (7% of the
254 total number of vignettes), because sickness absence tolerance due to such complications are
255 planned to be examined as part of another publication. These vignettes were excluded from the
256 present study because such vignettes could not be gender balanced.

257 To avoid the risk of fatigue, boredom or unwanted methodological effects such as
258 response heuristics [44], we decided that each respondent would not have to judge more than six
259 vignettes. With 90 occupations, 30 diagnoses and 2 genders, the total number of possible unique
260 vignettes (the vignette universe) is 5,400 ($90 \times 30 \times 2$). Our data set includes all of these
261 vignettes, divided into 900 questionnaires ($5,400 / 6 = 900$) in the following manner:

- 262 - The 2,700 exhaustive combinations of occupation and diagnosis were combined six and
263 six into 450 questionnaires, in such a way that no questionnaire would contain the same
264 diagnosis or the same occupation.
- 265 - Three of the vignettes in each questionnaire were randomly assigned female gender and
266 three male gender (except where there was a pregnancy diagnosis included and the
267 vignette person naturally had to be female).
- 268 - The order in which the six vignettes (and thus also specific diagnoses, occupations or
269 genders) were presented within the individual questionnaire was random.

270 - For each of the 450 questionnaires we created a mirror image with reverse gender
271 distribution for the six vignettes.

272 Each of the 900 unique questionnaire forms was answered by both a female and a male
273 employee, giving us 1,800 respondents and 10,800 vignettes to analyse. The questionnaires were
274 randomly assigned to respondents within the female and male sample. Since the sample of
275 female and male respondents answered the exact same 900 forms, gender differences in sickness
276 absence attitudes could not be influenced by order effects for the vignettes. Similarly, since each
277 questionnaire had a mirror image with reverse gender distribution for the six vignettes, order
278 effects cannot be the explanation for differences relating to gender of the vignette person (and
279 gender differences in social norms). The data are fully available under Supporting information
280 (S1 File).

281 **Statistical analysis**

282 Our four-level dependent variable is most appropriately considered as an ordinal scale,
283 and ordinal logistic regression would seem like a reasonable method. This model assumes,
284 however, that the effect of the explanatory variable is identical irrespective of the cut point (e.g.
285 whether it is set between categories one and two or between categories three and four; the so-
286 called parallel regression or proportional odds assumption). The validity of this assumption can
287 be evaluated by estimating three binary logistic regressions, one for each possible
288 dichotomisation of the four-category variable, and then testing the null hypothesis that each of
289 the coefficients are identical across the three regressions. As shown below, this hypothesis is
290 rejected in the present case, and we therefore present the full set of binary logistic regressions.
291 Since the respondent judges several vignettes, the measurements from each respondent have
292 correlated error terms. Consequently, we employ robust standard errors that take clustering into

293 account [46]. To ensure the experimental condition of the survey (i.e. an equal number of men
294 and women featured in the vignettes), vignettes describing pregnancy-related diagnostic
295 categories ($n = 720$) are excluded from all analyses.

296 **Results**

297 **Descriptive statistics**

298 The final sample consisted of 1,800 gainfully employed respondents, with 50% women (n
299 $= 900$) and an average age of 47 years ($SD = 14$; range 18–83). In all, 48.8% of the respondents
300 had college or university education, and 69.1% were living with a partner at the time of the
301 interview. Furthermore, 58.8% of the women and 45.3% of the men reported to have had at least
302 one sickness absence spell during the previous 12 months, yielding a 13.5 percentage-point
303 gender gap in self-reported sickness absence.

304 The 10,080 vignettes constituted the analytical units in our analyses (sick leave
305 judgments). Overall, respondents were quite accepting of sickness absence in the situations
306 described; on average, 27.6% found sickness absence to be “perfectly reasonable”, 40.4% found
307 it “fairly reasonable”, 20.8% found it “fairly unreasonable”, and only 7.0% answered “perfectly
308 unreasonable”. Vignettes with the response “don’t know” constituted 4.2% ($n = 428$) of the
309 vignettes and were excluded from the regression analyses.

310 Sick leave judgments varied considerably across vignette occupations; the percentage
311 answering (“perfectly” or “fairly”) “reasonable” ranged from 50.0 to 84.8, and the percentage
312 with (“perfectly” or “fairly”) “unreasonable” ratings varied from 13.4 to 46.4. Table 1 shows the
313 ten occupations with highest “reasonable” ratings and the ten occupations with highest
314 “unreasonable” ratings. The list of occupations with high acceptance of sickness absence
315 included health-related work (nurse, hospital doctor) as well as other occupations where mistakes

316 might have fatal consequences (truck driver, air traffic controller) and which involve potentially
 317 heavy manual work (sawmill production worker, firefighter). The list of occupations with low
 318 acceptance of sickness absence included typical office work, but also jobs with extensive
 319 customer contact (interpreter, bank customer service representative).

Table 1. The ten occupations where sickness absence was rated most frequently as “perfectly or fairly reasonable” and most frequently as “perfectly or fairly unreasonable”.

Sick leave judgments of vignette occupation			
Perfectly or fairly reasonable	%	Perfectly or fairly unreasonable	%
Sawmill production worker	84.8	Telephone salesperson	46.4
Assistant air traffic controller	80.4	Interpreter	38.1
Plumber	78.6	Accountant	36.9
Truck driver	78.4	Bank customer service representative	36.9
Auxiliary nurse	78.2	Professor	35.4
Nurse	77.7	Head librarian	35.1
Firefighter	75.9	Civil engineer in the oil industry	35.1
Kitchen help	75.9	Journalist	34.2
Hospital doctor	75.7	Gardener	34.2
Scaffold builder	75.5	Administrative officer	34.2

320

321 **Gender differences in sick leave judgments**

322 Turning to gender comparisons, Fig 1 shows the distribution of sick leave judgments by
 323 respondent gender. As displayed, men’s and women’s ratings were very similar, but there
 324 seemed to be a small tendency for men’s ratings to be more polarised than women’s, particularly
 325 regarding the “perfectly unreasonable” category. Women also came across as slightly more
 326 indecisive in their sick leave judgments than men were, illustrated by a 1.3 percentage-point
 327 gender difference in “don’t know” responses. Fig 2 presents the distribution of sick leave
 328 judgments by male and female vignette person. As shown, the respondents’ sick leave judgments

329 were even more similar between male and female vignettes, indicating that sick leave judgments
 330 did not depend on vignette gender.

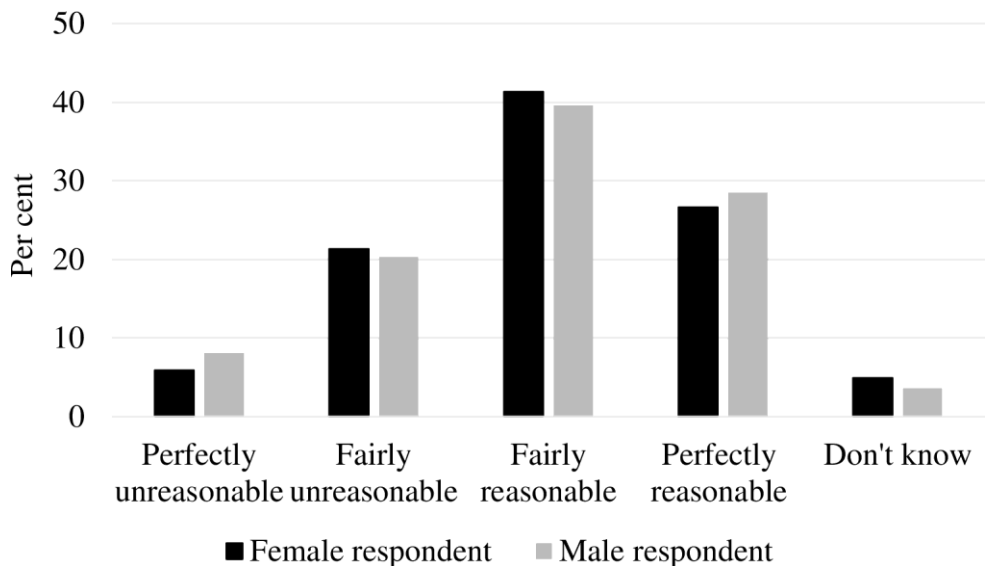


Fig 1. Distribution of sick leave judgments by respondent gender (%).

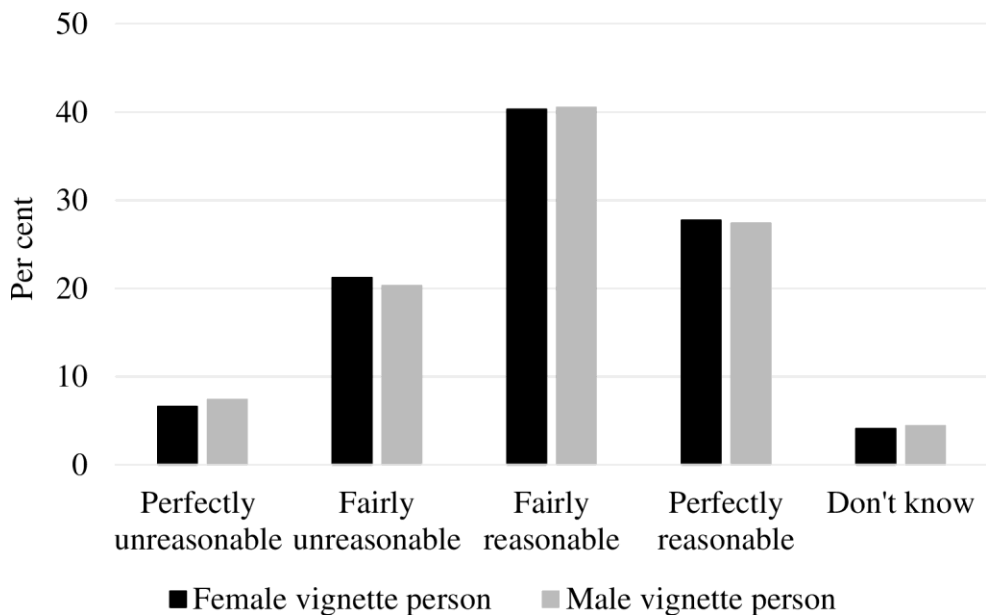


Fig 2. Distribution of sick leave judgments by vignette gender (%).

332 We tested hypotheses 1 and 2 by regressing sick leave judgments simultaneously on
 333 respondent gender and vignette gender. When conducting separate analyses for the three possible
 334 cut points on the vignette responses to test the proportional odds assumption of the ordinal
 335 logistic model (Table 2), this assumption was clearly rejected ($\chi^2 = 18.56$, $df = 4$, $p = .001$). In
 336 the following, we therefore present results from binary logistic regressions for each cut point.

Table 2. Logistic regression results with sick leave judgments regressed on respondent gender and vignette gender, with and without an interaction term. Separate analyses for alternative cut points on the dependent variable.

	Responses 2-4 vs. Response 1	Responses 3-4 vs. Responses 1-2	Response 4 vs. Responses 1-3
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Model 1			
Respondent gender	1.39** (1.14-1.70)	1.04 (0.93-1.17)	0.93 (0.81-1.07)
Vignette gender	1.13 (0.98-1.31)	1.00 (0.92-1.08)	1.01 (0.94-1.09)
Constant	10.27** (8.87-11.89)	2.40** (2.19-2.64)	0.42** (0.37-0.46)
Model 2			
Respondent gender	1.40** (1.10-1.78)	1.08 (0.94-1.25)	0.96 (0.82-1.13)
Vignette gender	1.14 (0.94-1.38)	1.04 (0.93-1.15)	1.05 (0.95-1.16)
Resp. gender x Vign. gender	0.99 (0.74-1.32)	0.93 (0.79-1.09)	0.93 (0.80-1.09)
Constant	10.25** (8.75-11.99)	2.36** (2.14-2.60)	0.41** (0.37-0.46)

Response 1 = “perfectly unreasonable”; Response 2 = “fairly unreasonable”; Response 3 = “fairly reasonable”; Response 4 = “perfectly reasonable”. Vignettes with pregnancy-related diagnoses and “don’t know” responses are excluded. Number of vignettes: 9,652; number of respondents: 1,790. Gender is coded as male = 0 and female = 1. * $p < .05$; ** $p < .01$.

337
 338 As shown in Table 2, only one cut-point analysis yielded a significant gender difference.
 339 Women had, compared to men, 39% higher odds of rating the vignettes as “fairly unreasonable”,
 340 “fairly reasonable” or “perfectly reasonable” than “perfectly unreasonable” (Responses 2–4
 341 versus Response 1) than men ($p < .01$). This finding confirms the observation from Fig 1

342 suggesting that female respondents were less likely to use the “perfectly unreasonable” category,
343 thereby displaying slightly more tolerant or less strict attitudes towards sickness absence than
344 male respondents. However, this result is only partly supporting Hypothesis 1. When examining
345 the effects of vignette gender, none of the results across all three cut points on the dependent
346 variable revealed a significant difference in sick leave judgments according to vignette gender (p
347 $> .05$). The results substantiate the similarities in judgments observed in Fig 2; thus, Hypothesis
348 2 was not supported. Adding an interaction term of the respondents’ gender and the vignettes’
349 gender (Model 2) did not reveal a gender difference in the likelihood of judging sickness absence
350 differently depending on the vignette gender at any cut point ($p > .05$).

351 We also conducted additional age-stratified analyses to examine whether sick leave
352 judgments varied across different age groups. For this purpose, we included two dummy
353 variables in the regression equation to contrast the age groups 35-60 and 61-83 years,
354 respectively, with the youngest participants (age 18-34 years). Moreover, we included interaction
355 terms of both age group indicators with both respondent gender and vignette gender, and tested
356 the null hypothesis that all coefficients for the interaction terms were jointly zero (i.e. that all
357 gender coefficients were identical across age groups). This was done separately for each of the
358 three cut-point specific regressions. The results showed that the null hypothesis could not be
359 rejected (Responses 2-4 vs. Response 1: $\chi^2 = 6.73$, $df = 4$, $p = 0.151$; Responses 1-2 vs.
360 Responses 3-4: $\chi^2 = 0.88$, $df = 4$, $p = 0.928$; Response 4 vs. Responses 1-3 $\chi^2 = 2.95$, $df = 4$, $p =$
361 0.566).

362 Hypothesis 3 was tested by conducting binary logistic regression analyses of sick leave
363 judgments on the proportion of women in the vignette occupation, with control for respondent
364 gender and vignette gender. As shown in Table 3, all three separate analyses for alternative cut

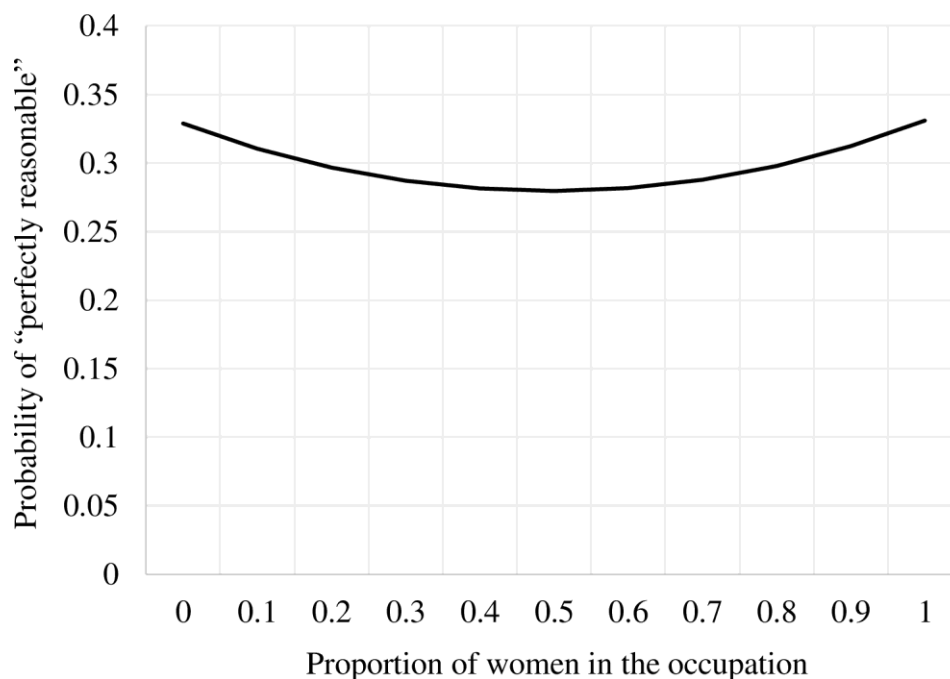
365 points on sick leave judgments showed a negative relationship between proportion of women in
366 the vignette occupation and favourable judgments. However, to consider non-linearity, a squared
367 term of the proportion of women in the vignette occupation was also included in the analyses.
368 The results suggest a U-shaped relationship between more favourable sick leave judgments and
369 the proportion of women in the vignette occupations for all three cut-point analyses. Fig 3
370 illustrates this finding by the plotting of probabilities for one of the cut points: “perfectly
371 reasonable” as a function of the proportion of women in the occupation. As shown, both male-
372 dominated and female-dominated occupations evoked a higher likelihood for lenient sick leave
373 judgments than gender-integrated occupations, irrespective of vignette gender. The plot also
374 suggests that employees in fully gender-integrated occupations are judged in the least lenient
375 manner and employees in fully gender-dominated occupations are judged in the most lenient
376 manner. Hence, these findings only partially support Hypothesis 3, because employees in both
377 male- and female-dominated occupations seem to be judged in a similarly favourable manner
378 compared to employees in gender-integrated occupations. Finally, we rerun all analyses without
379 including the 1,440 vignettes that did not strictly concern medical diagnoses (i.e. work- and
380 family-related socio-psychological problems), but these analyses did not change the study results
381 considerably.

Table 3. Logistic regression results with sick leave judgments regressed on respondent gender, vignette gender and proportion of women in the vignette occupation. Separate analyses for alternative cut points on the dependent variable.

	Responses 2-4 vs. Response 1	Responses 3-4 vs. Responses 1-2	Response 4 vs. Responses 1-3
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Respondent gender	1.39** (1.14-1.70)	1.04 (0.93-1.17)	0.93 (0.81-1.06)
Vignette gender	1.14 (0.98-1.31)	1.00 (0.92-1.08)	1.01 (0.94-1.09)
Prop. women	0.35* (0.13-0.92)	0.25** (0.14-0.43)	0.39** (0.23-0.65)
Prop. women squared	2.57* (1.01-6.52)	3.53** (2.07-6.01)	2.59** (1.57-4.25)
Constant	12.60** (9.81-16.17)	3.16** (2.73-3.66)	0.49** (0.42-0.56)

Response 1 = “perfectly unreasonable”; Response 2 = “fairly unreasonable”; Response 3 = “fairly reasonable”; Response 4 = “perfectly reasonable”. Vignettes with pregnancy-related diagnoses and “don’t know” responses are excluded. Number of vignettes: 9,652; number of respondents: 1,790. Gender is coded as male = 0 and female = 1. * $p < .05$; ** $p < .01$.

382



383

384 **Fig 3. Probability of complete agreement (“perfectly reasonable”) that sick leave is**385 **reasonable as a function of the proportion of women in the occupation. Controlled for**

386 respondent gender and vignette gender. Numbers based on the analysis results from cut off
387 “Response 4 versus Responses 1–3”.

388 **Discussion**

389 The main purpose of this study was to examine potential gender differences in attitudes
390 and norms of sickness absence. Altogether, the analyses did not support such differences.
391 Overall, women and men judged sickness absence similarly, even though one of the analyses
392 suggested that women consider sickness absence as “perfectly unreasonable” less frequently than
393 men. Furthermore, we did not find evidence of sickness absence norms favouring women – that
394 is, men and women were not judged differently when absent because of sickness. However, the
395 occupational gender composition was associated with the respondents’ sick leave judgments,
396 suggesting that, regardless of gender, employees in both male- and female-dominated
397 occupations faced more tolerant norms of sickness absence than employees in gender-integrated
398 occupations.

399 **Strengths and limitations**

400 Since few gender differences were found in the present study, we must discuss whether
401 limitations of the study design could have contributed to the lack of association. One limitation is
402 that the study sample comprises individuals who are willing to participate in surveys on a regular
403 basis and thus may not be representative of the general Norwegian population. Nevertheless,
404 there is no obvious reason why people who frequently participate in surveys, or who in other
405 ways do not perfectly reflect the average Norwegian, should have either stronger or weaker
406 gender-biased attitudes concerning sickness absence legitimacy.

407 Another limitation is that attitudes (and norms) are hypothetical constructs that are
408 difficult to measure [47]. Although the elaborated situational descriptions in survey vignettes

409 improves the possibilities of stimuli standardisation (i.e. less abstract, vague and indirect
410 questioning) and reduces the likelihood of responses being influenced by social desirability bias
411 compared to traditional survey questions [44,48], it is not a given that respondents' judgments
412 are generalisable to real life. On the one hand, the scenarios could have been too specific,
413 thereby restricting the influence of gender norms on sick leave judgments. For example, with
414 scenarios that only indicate a diagnosis (i.e. that lack symptom description), there might be more
415 leeway for judgments to be influenced by gender differences in health focus and the challenges
416 that a health problem may cause. On the other hand, one might also argue that the scenarios were
417 not specific enough – that simply describing sick leave scenarios is not sufficiently specific to
418 reflect the actual norms that individuals face in real-life situations, potentially weakening the
419 effect of societal sickness-absence expectations on respondents' judgments. Still, our careful
420 efforts to create sick leave scenarios that represent the most common diagnostic categories for
421 sickness certification, a wide range of occupations and our experimental condition should
422 strengthen the credibility of the scenarios and the generalisability of judgments. In this respect,
423 the data set is also uniquely comprehensive and innovative compared to previous studies in the
424 field. We also acknowledge the possibility of complex interplays between personal
425 characteristics not assessed in this study and vignette characteristics. For example, the
426 relationship between vignette occupation and sick leave judgments may vary according to
427 respondents' own occupation. However, respondents' occupation was not assessed in the present
428 study.

429 A further limitation is that the analyses are restricted to the Norwegian labour market.
430 This is not an obvious explanation for our findings, however, since gender differences in
431 sickness absence are greater in Norway than in most other countries. Nevertheless, only future

432 research can provide information on whether our findings are generalisable to other samples and
433 countries with different sick leave policies and labour market characteristics.

434 **Equally tolerant sickness absence attitudes among women and men**

435 Our first hypothesis predicting that women judge sickness absence as reasonable more
436 often than men was not supported overall. Although one of the analyses suggests that women are
437 slightly less likely to exclude completely the legitimacy of sickness absence in some instances,
438 we cannot conclude that women generally have more tolerant attitudes than men. Therefore, our
439 results imply that women and men actually judge sickness absence similarly. The results are
440 partly in disagreement with those of two previous studies that used the same measure of work
441 absence legitimacy and showed that women generally had a broader tolerance of absence from
442 work than men [16,17]. However, the measure applied in these two studies did not include
443 attitudes towards different reasons for work absence. Nonetheless, when Addae and colleagues
444 [17] additionally measured views of absence legitimacy using work absence scenarios that also
445 stated reason for work absence, men and women, in line with our results, did not differ in work
446 absence tolerance. Still, illness was not included as a reason for work absence in their scenarios.
447 The present study is therefore the first to measure gender differences in sickness absence
448 attitudes using sickness absence scenarios and a comprehensive population-based sample. Thus,
449 the present study provides solid support for the notion that gender differences in sickness
450 absence attitudes are small and may therefore be of minor importance in explaining the gender
451 gap in sickness absence.

452 **Women and men face similar sickness absence norms**

453 Our second hypothesis postulated that people have more tolerant attitudes to women's
454 sickness absence than to men's. As no difference in the evaluation of men's and women's

455 sickness absence was found, this hypothesis was not supported either. The results correspond to
456 those of Patton [29], which also found no differences in judgments of work absence based on
457 absentee gender in an American study sample. However, the present study results seem to
458 diverge from those of another American study that examined gendered work absence norms.
459 From their analysis of newspaper content, Patton and Johns [2] concluded that work absence
460 norms are legitimising work absence for women because of common stereotypes such as
461 women's weaker health and greater loads of domestic and paid work compared to men. The
462 different result may reflect temporal differences as Patton and Johns' analyses covered a long
463 historical period and only six observations (newspaper articles) were post-year 2000. In addition,
464 the methodological differences are substantial because, while we measured attitudes and norms
465 as they may affect the behaviour of specific individuals in concrete situations, Patton and Johns
466 dealt with more general ideas and attitudes found in the public discourse.

467 **Favourable sickness absence norms for gender-dominated** 468 **occupations**

469 The third hypothesis, predicting that employees face more tolerant norms of sickness
470 absence in female-dominated occupations than in male-dominated or gender-integrated
471 occupations was partly supported in the present study. Our findings are consistent with the idea
472 that sickness absence norms are "gendered", but only if this means that sickness absence norms
473 are more lenient in both female- and male-dominated occupations than in gender-integrated
474 occupations. The similarity in judgments between male- and female-dominated occupations,
475 irrespective of employee gender, implies that we cannot conclude that favourable sickness
476 absence norms for gender-dominated occupations are influenced by gender stereotypes or their
477 gender balance per se.

478 The U-shaped association between sick leave judgments and occupational gender
479 composition corresponds with studies showing that sickness absence rates are higher in both
480 strongly male- and strongly female-dominated occupations than in gender-integrated occupations
481 [1,49]. Sickness absence rates also seem to decrease with higher job level (i.e. level of autonomy
482 and authority in the job) for both men and women in gender-dominated occupations, while this
483 pattern is less obvious in gender-integrated occupations [50]. Higher sickness absence rates in
484 strongly gender-dominated occupations may partly reflect their generally greater incompatibility
485 with performing work tasks while having a health issue compared to gender-integrated
486 occupations. Likewise, more lenient sick leave judgments for highly gender-dominated
487 occupations in the present study could be the result of the type of job tasks that respondents
488 associate with these occupations. In other words, the typically heavier manual work and less
489 autonomy and flexibility of these occupations might be judged as more compatible with sickness
490 absenteeism and less compatible with sickness presenteeism than more gender-integrated
491 occupations such as office or managerial positions.

492 **General discussion**

493 In view of the substantial gender gap in sickness absence and the common notion that
494 women typically deal with double workloads of domestic and paid work, it is surprising that
495 sickness absence norms do not seem to favour women at all. As noted above, there is also a
496 widespread assumption in broader research on illness behaviour that gender differences in such
497 behaviours are to a considerable extent an outcome of gendered attitudes and norms [28,51].
498 Nevertheless, not all research on illness behaviour supports this idea. For instance, Hunt and
499 colleagues [52] found that among those known to have either headache or back pain symptoms,
500 only small if any gender difference in consultations was found. One interpretation of this finding

501 is that men and women differ primarily in their propensity to define, or not to define, something
502 as a health problem; if a condition is defined as a health issue, the norms and attitudes may be
503 similar for men and women.

504 A further possibility is that norms and attitudes have changed over time. Although gender
505 stereotypes might generally not have kept up with the rapid increase of women in the workforce
506 in recent decades, the increasing gender equality in workforce participation may have
507 contributed to men and women having similar sickness absence attitudes today. Additionally,
508 studies suggest that women overall do not have a lower commitment to work or lower work ethic
509 than men [53,54], which may also explain the lack of gendered sickness absence attitudes in the
510 present study. Moreover, the marked focus on the gender gap in the Norwegian public discourse
511 over the last two decades might have altered sickness absence norms, resulting in lower tolerance
512 for female sickness absence in later years, thereby cancelling any prior gender difference in such
513 norms.

514 Future studies may profit from exploring whether gendered attitudes and norms of
515 sickness absence exist in crucial groups. For example, stricter guidelines for physicians
516 certifying sick leave are related to reduced sickness absence [19]; thus, general practitioners have
517 a participatory role in the sickness absence rate and could possibly contribute to the gender gap
518 in sickness absence. Also, factorial surveys examining sickness absence attitudes in other
519 samples and countries are needed to establish the generalisability of the study results.

520 The limited understanding of the gender gap could be problematic. The higher sickness
521 absenteeism among women may result in gender discrimination in the workplace and in
522 employers' hiring practices, since such absence is often associated with increased costs and work
523 disruption [55]. Sickness absence is also linked to reduced income and career opportunities and

524 to disability and unemployment for the individual [56,57]. We consider the lack of gendered
525 attitudes and norms of sickness absence found in the present study to be an important
526 contribution to the field. Notably, our study does not support the popular belief that women have
527 higher sickness absence than men because of commonly gendered attitudes and norms in society.
528 Hence, the study results do not indicate that low work engagement and work morale among
529 women explain the gender gap in sickness absence.

530 **Conclusions**

531 Insufficient explanations for the gender gap in sickness absence has raised speculation
532 that gendered attitudes or norms promote female sickness absence. The higher sickness absence
533 among women than among men, and speculation as to what is causing this gender gap, could
534 harm gender equality in the labour market. It is therefore in the interests of society to explain the
535 mechanisms underlying the gender difference in sickness absence. Moreover, knowledge about
536 factors that may cause sickness absence might prove useful for reducing sickness absence rates
537 for both men and women. The present study results suggest that societal attitudes and norms of
538 sickness absence are unlikely to be important factors driving the gender gap. Accordingly, the
539 results are informative for policies and interventions aimed at reducing the gender gap in
540 sickness absence, since poor work morale or work engagement do not seem to shed light on the
541 gender gap. Future research may benefit from examining whether similar results will be obtained
542 in other countries with varying levels of gender equality in the labour force. Moreover, research
543 on whether gendered norms of sickness absence exist in important groups of societal interest,
544 such as among physicians who certify sick leave, may provide a better understanding of potential
545 sources of gender differences in sickness absence.

546

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550 the initial phase of the study.

551 **Supporting information**

552 **S1 File. Full vignette dataset.xlsx**

553 The file contains an Excel sheet with data tabulated under the tabs: “Data on the vignette
554 level” and “Variable names and labels”. All 10,800 vignettes are included in this file.

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747 **Appendix**

748 **Introductory text for the vignettes**

749 The respondents were met with the following introductory text before being presented the
750 six vignettes:

751 In this survey, we want to know what you think is a reasonable cause for sick leave. We
752 describe six different situations, in which a person has been home for three days of self-
753 certified sick leave, but where the person thinks he/she needs more time before he/she
754 returns to work. We ask you to evaluate, for each situation, whether you think it is
755 *reasonable that the person receives a physician-certified sick leave in this situation.*

756 **Vignette example**

757 A full vignette example is displayed below:

758 Frank works as a scaffold builder. He is afflicted by a stiff and painful neck and pain in
759 both shoulders. The pain is not very strong, but present as a more or less constant ache.
760 He notices a tendency of improvement when he can take it easy, while the pain is
761 aggravated by stress. Frank has been at home for three days of self-certified sickness
762 absence, but thinks that he needs more time before he returns to work. How reasonable or
763 unreasonable do you think it is that Frank receives a physician-certified sick leave in this
764 situation?

765 Each vignette was rated by four graded response categories; “perfectly unreasonable” (1),
766 “fairly unreasonable” (2), “fairly reasonable” (3), and “perfectly reasonable” (4), in addition to
767 “don’t know” (5).