Working Conditions in a Selected Sample of Call Centre Companies in Sweden

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Background. *Call centres (CCs) are among the most rapidly growing forms of workplaces in Sweden. The purpose of the study was to describe and compare working conditions between operators at internal and external CC companies and work tasks of different complexity.* **Method**. *A questionnaire was answered by 1 183 operators, 848 women and 335 men, from 28 different CCs. The questionnaire covered background factors, employment, working hours and remuneration, call logging and monitoring, duties, computer work and workplace design during the previous month.* **Results**. *Operators at external companies and operators with low-complexity work tasks were younger, more often employed by the hour and worked on a varying roster. They spent longer time on customer calls and had less varied tasks. Additional remuneration, call logging and monitoring were more common at external companies and among operators with low-complexity work tasks.* **Conclusion**. *The working conditions varied between internal and external CCs. There was also a variation in working conditions between work tasks of different complexity. There were aspects of supervision style and organization of work at CCs, especially at external ones and those with low-complexity tasks that could introduce stress and lack of well being among the staff.*

working conditions   call centre   questionnaire   computer work

1. INTRODUCTION

Call centres (CCs) are among the most rapidly growing forms of workplaces in Sweden. According to the state-run Invest in Sweden Agency (ISA), 60 000 people were employed in Swedish CCs in 2002[1], which means that ~1.5% of the working population in Sweden work at CC companies.

CCs are a relatively recent phenomenon made possible by the dissemination of telecommunications and information technologies. The term CC is usually associated with an independent company that uses telecommunications technology

[1] http://www.isa.se

to handle everything from advice, e.g., computer and mobile telephone support, to ticket booking and telemarketing. The broadest definition in the CC literature has been provided by Norling, "a call centre is any communications platform from which firms deliver services to customers via remote, real-time contact" [1] (p. 155). The number of independent CCs is rapidly increasing, as many companies are outsourcing their telephone services. To a greater or lesser extent their operations are similar to earlier businesses specializing in telephone exchange services, telemarketing, various kinds of customer services or information departments. The main new features are that operations on a larger scale are outsourced and are computerized.

One important distinction is between external and internal CCs. Freestanding external CCs provide customer services to client companies who have decided to outsource their customer service contacts. Internal CCs are departments or separate units within a mother company with another main core business who has decided to "outsource" the customer services, but to keep it within the company.

CC work is often seen as monotonous, repetitive and long-lasting constrained seated work. Lack of variety in work tasks, work postures and movements are well-known risk factors for mental stress and musculoskeletal disorders. Internal CCs have a potential for physical and mental variety in work tasks, as the employees in some cases can alternate between work at the CC and at the mother company. This has been the case, e.g., at CCs giving medical advice where nurses alternate between the CC and traditional clinical work. A similar situation is at hand in CCs handling information about medical drugs, where employees can alternate between this task and work at a pharmacy. Other examples are found at banks or insurance companies where the staff alternates between teleservice CC work and traditional customer or office work. Work tasks at external CCs can vary depending on the client company at the moment and the nature of its products and services. It may also be difficult for the staff at the external CC to feel affiliated to the client company who they are serving at

the moment and to get an understanding of their products and business concept. These parameters often differ between client companies.

Another distinction has to do with the complexity of the tasks performed. The tasks vary from simple ones, such as giving information about a telephone number or booking a ticket to a concert, to providing help with computer problems or financial advice. A possible advantage of the more complex tasks is that they may provide further professional development and involve more tasks besides working on the telephone and with the computer.

Telephone operator work has become progressively more computerized during recent decades. Changes such as automatic distribution of calls and technical performance control have resulted in a reduction in the variety of tasks performed by the operator, as well as increased repetitiveness and machine-regulation of the work. A typical CC operator is faced with the task of making or receiving telephone calls and simultaneously using computer equipment. Computer-telephone interactive tasks, as performed in CCs, are probably very special tasks to be studied, since in these jobs video display units are used interactively during telephone calls. This means that repetitive movements and prolonged static sitting postures occur in complex situations where communication skills, responsibility and efficiency are expected from operators while they work under time pressure, with ambitious goals and sometimes direct monitoring of performance.

A number of epidemiological studies have shown that the risk of developing disorders in the neck and upper extremities has increased due to work with computers [2, 3]. A workplace that is not ergonomically designed, e.g., with nonadjustable furniture, may entail unfavorable postures and increase the risk of musculoskeletal disorders [2]. Working technique with the computer, e.g., nonsupported arms, could influence the muscle load and muscle disorders in the neck/shoulder area [4, 5, 6]. Long duration of computer work [2, 7], time pressure and other unfavorable psychosocial conditions [8] have also been identified as risk factors.

Previously published studies concerning musculoskeletal disorders of workers in telecommunication jobs have referred to the complexity of these tasks [9, 10, 11, 12]. A Brazilian study found that discomfort in the upper extremities among employees was primarily associated with the degree of time pressure and the duration of the shift [10]. At the same time as the job has become more computerized there has been a tendency to intensively monitor individual worker productivity. A Swedish survey has reported on working conditions and employee health at one CC company. The study found that young operators with a short working career reported a high prevalence of musculoskeletal symptoms [13].

A variety of other problems have been noted at CCs, too, e.g., with the wage, feedback systems like computer monitoring of calls, working hours, inadequate opportunities for professional development and insufficient physical variation. Working conditions are likely to vary considerably between different types of CCs. It is important to survey different risks that may occur at an early stage, so that we can prevent these risks and promote a sustainable working environment.

2. AIM

The aim of the present study was to describe and compare working conditions between operators at internal and external CCs in Sweden and between work tasks of different complexity.

3. METHOD

3.1. Companies

In total, 38 CC companies, with at least 50 employees, were invited to participate in the study (Table 1). The companies were selected to represent different types of CCs: internal and

TABLE 1. Characteristics of Call Centres (CCs) and the Relative Frequency of Female (n = 848) and Male (n = 335) Operators at Different Types of Companies

Characteristic	Number of CCs	Women (%)	Men (%)
Location			
southern Sweden	7	24	10
central Sweden	12	44	36
northern Sweden	9	32	54
Size			
>150 000 inhabitants	6	21	14
50 000–150 000 inhabitants	11	45	28
<50 000 inhabitants	11	34	58
Type of company			
Internal	16	43	43
in a region with increasing population	10	57	37
in a region with decreasing population	3	24	39
in a region with stable population	3	19	24
External	12	57	57
in a region with increasing population	3	24	9
in a region with decreasing population	8	67	80
in a region with stable population	1	8	11
Owner			
Swedish public	14	33	44
Swedish private	9	42	27
International	5	25	29
Complexity of work task			
low	9	43	37
medium	12	31	31
high	7	26	32

external companies with tasks of a varying degree of complexity, companies located in large and small cities and in different parts of the country. Sixteen companies representing 28 different CC sites agreed to participate in the study. More internal companies were located in regions with an increasing population, whereas more external ones were located in regions with a decreasing population.

The sites surveyed had from 58 to over 800 employees. Three of the companies had centres with fewer than 100 employees, six 101–300, three 301–500 and one company had over 800 employees. From three companies this information is missing.

The level of task complexity at the CCs was categorized by an expert judgement done by the research team. Information about the main task or tasks and customers was collected through interviews with both the management and CC operators. Some tasks were identified as needing a high level of skill and knowledge (high complexity, level 3), e.g., giving economical advice, computer support, medical and pharmaceutical advice. Others were of low complexity (level 1), e.g., looking up telephone numbers or addresses, appointments for car check-ups and ticket booking. In between (medium complexity, level 2) one could find CCs giving customer support for telephone companies

or doing different sales activities. The expert judgements were later validated by comparing the categorization with information from the management about the minimum length of education needed for hiring, the length of on-site formal training, the length of practical training necessary to reach acceptable competence for the work and, finally, with the length of yearly further training. The correlation coefficient between the complexity level and an index of the four education and training length items was about .6.

3.2. Subjects

A total of 1802 operators, 1171 women and 631 men, 715 operators at internal CCs and 1087 operators at external ones, were identified from the payrolls of the 28 CCs. Of these, 271 were excluded due to sick leave, holiday, parental or other leave, or due to the fact that they had quit their employment, or were new employees (<1 month) or had no customer contacts. The remaining 1531 operators were invited to participate, and 1183 of those operators, 848 females (86%) and 335 males (61%) responded (response rate 77%). The response rate at internal and external CCs was the same (77%). The highest response rate was among operators with low-complexity work tasks (Table 2).

TABLE 2. Number of Call Centre Operators, Included and Responding to the Questionnaire

Operators	Total	%	Women	%	Men	%
Included (whole group)	1531	100	984	100	547	100
internal	661	43	401	41	260	48
external	870	57	583	59	287	52
low complexity	578	38	369	38	209	38
medium complexity	513	33	359	36	154	28
high complexity	440	29	256	26	184	34
Non-responders						
did not want to participate	108	7	74	8	34	6
did not answer	240	16	62	6	178	33
Responders (whole group)	1183	77	848	86	335	61
internal	510	77	365	91	145	56
external	673	77	483	83	190	66
low complexity	486	84	363	98	123	59
medium complexity	370	72	265	74	105	68
high complexity	327	74	220	86	107	58

TABLE 3. Prevalence (%) and Means of Background Variables Among Operators in the Total Sample, at Internal (int) and External (ext) Companies and at Companies With Different Task Complexity

Operators	Total ($n = 1 183$)	Low ($n = 486$)	Medium ($n = 370$)	High ($n = 327$)	Int–Ext	Low– Medium	Low– High	Medium– High
		Task Complexity			**Differences (95% CI)**			
Women (%)	72	75	72	67	0 (–5, 5)	3 (–3, 9)	**8 (2, 14)**	5 (–2, 12)
internal	72 ($n = 510$)	56 ($n = 87$)	81 ($n = 144$)	72 ($n = 279$)				
external	72 ($n = 673$)	79 ($n = 399$)	66 ($n = 226$)	42 ($n = 48$)				
Mean age (years) (range)	34 (17–66)	33 (17–62)	35 (19–66)	36 (20–61)	**6 (5, 7)**	–2 (–4, 0)	**–3 (–4, –1)**	–1 (–3, 1)
internal	38 (18–64)	37 (18–60)	41 (19–64)	36 (20–61)				
external	32 (17–66)	32 (17–62)	31 (19–66)	31 (21–43)				
College or higher education (%)	25	18	22	37	**10 (5, 15)**	–4 (–9, 1)	**–19 (–25, –13)**	**–15 (–22, –8)**
internal	30	16	19	38				
external	20	19	23	20				
Nicotine users (%)	38	43	36	34	**–14 (–19, –8)**	7 (0, 14)	**9 (2, 16)**	2 (–5, 9)
internal	30	37	29	29				
external	44	44	40	65				
Mean experience of present tasks (months) (range)	48 (1–486)	61 (1–396)	47 (1–486)	31 (1–310)	1 (–7, 9)	**14 (3, 25)**	**30 (20, 40)**	**16 (7, 25)**
internal	49 (1–486)	68 (1–152)	70 (1–486)	30 (3–310)				
external	48 (1–396)	58 (1–396)	29 (1–316)	34 (1–94)				
Mean total gainfully employed (months) (range)	180 (2–588)	172 (2–588)	190 (11–540)	180 (3–480)	**70 (54, 86)**	–18 (–38, 2)	–8 (–27, 11)	10 (–11, 31)
internal	218 (3–540)	203 (3–516)	256 (3–540)	240 (3–480)				
external	148 (2–588)	141 (2–588)	113 (2–480)	111 (2–360)				

Notes. 95% CI—95% confidence interval; bold figures indicate significant differences.

There was a high proportion of women in the CC group (Table 3). The proportion of women was significantly higher at CCs with low-complexity work tasks than at CCs with high-complexity work tasks.

The mean age of the study group was 34 years (range 17–66). The women were somewhat older than the men (mean age 36 years, range 17–66; and 31, range 18–64, respectively). Operators at external CCs were significantly younger than operators at internal companies. Subjects with low-complexity work tasks were younger than those with high-complexity ones.

A fourth of the operators had college or higher education. The educational level was significantly higher at internal CCs and among operators with high-complexity work tasks.

Nearly 40% were nicotine users. There was a significantly higher proportion of nicotine users at external companies and among operators with low- compared with high-complexity work tasks.

The operators had, on average, 4 years of experience of their present tasks. Generally, the lower the level of task complexity, the higher the experience among the operators. On average, the operators had a total of 15 years of gainful employment. Operators at external companies had significantly shorter experience of employment.

3.3. Questionnaire

A questionnaire covering background, employment, working hours and remuneration, call logging and monitoring, duties, computer work and workplace design during the past month was used. The complete version of the questionnaire can be found at the website of the Swedish Work Environment Authority[2].

The questionnaire had been tested for reliability [14]. The questionnaire took ~35–40 min to complete and was answered during working time. The questionnaire was put in an envelope and sent back to the project group, or was collected later if it was filled in at the company. Two reminder rounds were made.

Two indices were constructed as means of the answers to the group of questions about the comfort of the working environment: (a) a comfort index about noise, lighting and air quality (5 questions, Cronbach's α = .77), and (b) a comfort index about furniture and equipment (9 questions, Cronbach's α = .87) [14]. A 5-step response scale was used for the included items, from *very dissatisfied* to *very satisfied*. Higher index values indicate more dissatisfaction with both comfort indices.

4. STATISTICAL ANALYSES

Prevalence and mean values of exposure conditions were calculated for the studied groups. Differences in proportions values with 95% confidence interval (95% CI) [15], between internal and external CCs, and between groups of different complexity in work tasks were calculated. The data were calculated in SPSS version 11.5 for Windows.

Cronbach's α was used to analyse the internal consistency of the constructed indices.

5. RESULTS

5.1. Terms of Employment

About 70% of the operators worked full-time and were permanently employed (Table 4). There were significantly more full-time, permanently employed operators at internal companies and companies with higher-complexity work tasks.

About 11% of the operators were employed by the hour. There were significantly more hourly employees at external CCs and among those with low-complexity tasks.

More than half of the operators worked traditional office hours. This was significantly more common at internal companies and among operators with higher-complexity work tasks.

About 40% of the operators worked on a varying roster. It was significantly more common to work on a varying roster at external companies and among operators with lower-complexity work tasks.

Most operators were members of a union. There were significantly more operators with lower-complexity work tasks who were members of a union.

In all, 61% of the operators were satisfied with their working hours, while nearly 20% wanted fewer hours and 10% wanted more. There were small differences between internal and external CCs. Fifty-one percent of the operators with medium-complexity work tasks were dissatisfied with their working hours and 25% of them wanted to work fewer hours.

5.2. Salary and Additional Remuneration

The average full-time gross salary was 16 457 SEK/month (~2 100 USD[3] or ~1 750 EUR[4]). The average salary at internal CCs was 17 617 SEK/month and at external ones 15 410 SEK/month.

The average salary among operators with low-complexity work tasks was 13 832 SEK/month.

TABLE 4. The Relative Frequency (%) of Operators With Different Employment Conditions in the Total Sample, at Internal (int) and External (ext) Companies and at Companies With Different Task Complexity

	Task Complexity				Differences (95% CI)			
Operators	Total (n = 1 183)	Low (n = 486)	Medium (n = 370)	High (n = 327)	Int–Ext	Low–Medium	Low–High	Medium–High
Full-time permanently employed (%)	73	61	73	90	**16 (11, 21)**	**−12 (−18, −6)**	**−29 (−34, −24)**	**−17 (−22, −11)**
internal	82 (n = 510)	71 (n = 87)	72 (n = 144)	90 (n = 279)				
external	66 (n = 673)	59 (n = 399)	74 (n = 226)	94 (n = 48)				
Part-time permanently employed (%)	11	15	7	8	−1 (−4, 2)	**8 (4, 12)**	**7 (3, 11)**	−1 (−5, 3)
internal	10	16	7	9				
external	11	14	6	2				
Employed by the hour (%)	11	24	2	2	**−14 (−17, −11)**	**22 (18, 26)**	**22 (18, 26)**	0 (−2, 2)
internal	3	12	1	1				
external	17	26	1	4				
Working traditional office hours (%)	60	47	61	74	**10 (4, 16)**	**−14 (−21, −8)**	**−26 (−34, −21)**	**−13 (−20, −6)**
internal	66	20	71	76				
external	56	54	52	53				
Usually working evenings or night-time (%)	6	6	10	2	−2 (−5, 1)	−4 (−8, 0)	**4 (2, 7)**	**8 (5, 12)**
internal	5	3	15	1				
external	7	6	6	6				
Working on a varying roster (%)	34	47	31	25	**−13 (−18, −8)**	**16 (9, 22)**	**22 (15, 28)**	6 (−1, 13)
internal	29	73	15	23				
external	42	41	45	35				
Union membership (%)	84	85	88	79	−4 (−8, 0)	−3 (−8, 1)	**6 (1, 11)**	**9 (4, 15)**
internal	82	86	85	76				
external	86	84	89	88				

Notes. 95% CI—95% confidence interval; bold figures indicate significant differences.

Operators with medium-complexity work tasks had, on average, 15 471 SEK/month and operators with high-complexity work tasks had, on average, 17 432 SEK/month.

More than half of the operators had received additional remuneration during the previous 12 months (Table 5). The most common type of remuneration was prizes (44%), money (41%) and praise (36%). This was significantly more common at external companies and was most common of all among operators with medium-complexity work tasks at external CCs. A significantly lower proportion of operators

with high-complexity work tasks had received additional remuneration.

It was less common to receive some kind of disadvantage, e.g., due to low productivity. Only 16% of the operators had received some disadvantage during the previous 12 months. The most common disadvantage was to receive criticism from the manager or colleagues (10%) or not to receive the improvements in working conditions that were expected (5%). This was significantly more common among operators at external CCs and among operators with medium-complexity work tasks compared to others.

TABLE 5. Prevalence (%) of Any Additional Remuneration or Some Kind of Disadvantage Received During the Past 12 Months, in the Total Sample, at Internal (int) and External (ext) Companies and at Companies With Different Task Complexity

Operators	Total (*n* = 1 183)	Task Complexity			Differences (95% CI)			
		Low (*n* = 486)	Medium (*n* = 370)	High (*n* = 327)	Int–Ext	Low–Medium	Low–High	Medium–High
Received any additional remuneration (%)	63	67	73	44	**−23** (−28, −17)	−6 (−12, 0)	**23** (16, 30)	**29** (22, 36)
internal	50 (*n* = 510)	40 (*n* = 87)	70 (*n* = 144)	42 (*n* = 279)				
external	73 (*n* = 673)	73 (*n* = 399)	75 (*n* = 226)	57 (*n* = 48)				
Received some kind of disadvantage (%)	16	13	23	13	**−5** (−9, −1)	**−10** (−15, −5)	0 (−4, 5)	**10** (4, 16)
internal	13	16	15	11				
external	18	12	28	19				

Notes. 95% CI—95% confidence interval; bold figures indicate significant differences.

TABLE 6. Prevalence (%) of Different Work Tasks and their Mean Duration for Operators in the Total Sample, at Internal (int) and External (ext) Companies and at Companies With Different Task Complexity

Operators	Total (*n* = 1 183)	Task Complexity			Differences (95% CI)			
		Low (*n* = 486)	Medium (*n* = 370)	High (*n* = 327)	Int–Ext	Low–Medium	Low–High	Medium–High
Customer calls (%)	100	100	100	100	0	0	0	0
internal	100 (*n* = 510)	100 (*n* = 87)	100 (*n* = 144)	100 (*n* = 279)				
external	100 (*n* = 673)	100 (*n* = 399)	100 (*n* = 226)	100 (*n* = 48)				
Average time (min/day)	319	358	299	285	**−49** (−66, −32)	**59** (39, 79)	**73** (52, 94)	14 (−7, 35)
internal	292	379	278	272				
external	341	354	312	370				
Administration (%)	78	58	90	87	**20** (16, 24)	**−32** (−37, −27)	**−29** (−34, −23)	3 (−2, 8)
internal	89	62	99	90				
external	69	57	84	68				
Average time (min/day)	109	63	130	140	**50** (38, 62)	**−67** (−80, −54)	**−77** (−90, −64)	−10 (−26, 6)
internal	136	48	160	146				
external	86	66	112	99				
Others (meetings, training) (%)	62	43	70	79	**13** (8, 18)	**−27** (−33, −21)	**−36** (−42, −30)	**−9** (−15, −2)
internal	69	19	66	85				
external	56	48	72	42				
Average time (min/day)	47	34	45	65	**15** (6, 24)	**−11** (−20, −2)	**−31** (−42, −20)	**−20** (−31, −9)
internal	55	22	46	68				
external	40	37	45	44				

Notes. 95% CI—95% confidence interval; bold figures indicate significant differences.

5.3. Work Tasks and Work Quantity

The operators worked with customer calls, on average, 5 hrs per day (Table 6). At external companies the duration of customer calls was, on average, significantly longer. However, operators with work tasks of low complexity at internal companies worked longest with customer calls. Operators with work tasks of low complexity spent significantly more time with customer calls then the others.

Almost 80% of the operators had administrative work, on average, 2 hrs per day. There was significantly more administrative work at internal companies. Operators with low-complexity work tasks at external companies had the least administrative work. Operators with high-complexity work tasks had significantly longer time for administration work than the others.

More than half of the operators had time for meetings and training; on average, this was less than one hour per day. Operators at internal CCs had significantly more time for this than operators at external ones, although operators with low-complexity work tasks at internal companies had the least time of all for this. There was significant longer time for meetings and training for operators with high-complexity work tasks compared with medium- and low-complexity tasks.

On average, operators spent 80% of the working day sitting. Almost all operators, 93% at internal companies and 97% at external companies, spent more than half of a typical working day sitting. In this respect there were no significant differences between the complexity groups.

Operators took, on average, 106 calls per day (Table 7). At external CCs they took, on average, significantly more calls per day compared with operators at internal CCs, and operators with low-complexity work tasks took significantly more calls per day compared with operators with medium- and high-complexity tasks.

The length of a call was, on average, 4 min 23 s. Operators with high-complexity work tasks at external companies took the longest calls, on average, 8 min. However, on average, calls at external CCs were significantly shorter. Operators with low-complexity work tasks had the shortest calls.

More than half of the operators thought that the number of calls they received or made was just right or too few, while one fifth thought that they had too many calls. Operators with low-complexity work tasks at internal CCs were those who reported that they received too many calls. Fourteen percent of the operators reported that there had been a conflict between the number and the length of the calls. A significantly higher proportion of operators with medium- compared with low-complexity work tasks reported this.

It was most common to deal with incoming calls (79%), with no marked difference between internal and external companies (82 and 76%, respectively). Incoming calls were most common among operators with low-complexity work tasks at internal CC companies (100%).

TABLE 7. The Mean Number and Length of Calls, in the Total Sample, at Internal (int) and External (ext) Companies and at Companies With Different Task Complexity

Operators	Total ($n = 1183$)	Task Complexity			Differences (95% CI)			
		Low ($n = 486$)	Medium ($n = 370$)	High ($n = 327$)	Int–Ext	Low–Medium	Low–High	Medium–High
Mean number of calls/day	106	184	52	58	**−85** (−98, −72)	**132** (116, 148)	**126** (110, 142)	−6 (−23, 11)
internal	58	92	33	61				
external	143	203	64	35				
Mean length of calls (s)	263	183	298	341	**85** (46, 124)	**−115** (−157, −73)	**−158** (−205, −111)	−43 (−96, 10)
internal	312	194	319	289				
external	227	160	243	473				

Notes. 95% CI—95% confidence interval; bold figures indicate significant differences.

On average, operators dealt with 10 e-mails per day, with no marked difference between internal and external CCs (11 and 9 per day, respectively). Operators with medium-complexity work tasks dealt with significantly more e-mails compared with operators whose work tasks were of low and high complexity. Operators with high-complexity work tasks at external companies dealt with most e-mails (18 per day).

5.4. Call Logging and Monitoring

Most operators reported that call logging occurred at their workplace (Table 8). This was significantly more common at external companies.

The most common reaction to call logging was that the operators felt controlled (46%), but also that it was a way of showing how they performed (43%). About one fourth of the operators experienced stress because of call logging. This was significantly more common at external companies and among operators with medium- compared to high-complexity tasks.

More than 50% of the operators reported that calls were monitored (Table 9). Monitoring was significantly more common at external CCs than at internal ones. It was significantly more common among operators with low- and medium-complexity work tasks compared with those with high-complexity ones.

The most common reactions to monitoring was that it was a way to show the quality of their service (42%) and a way of improving their calls (41%), but there were also feelings of being controlled (21%) and feelings of stress (22%). Those reactions were significantly more common at external companies with high-complexity work tasks.

Call logging emphasizes quantity, whereas monitoring focuses on quality. These easily cause conflict, as was experienced by 15% of the operators.

TABLE 8. Prevalence (%) of Call Logging and Opinions About That, in the Total Sample, at Internal (int) and External (ext) Companies and at Companies With Different Task Complexity

Operators	Total ($n = 1\,183$)	Task Complexity			Differences (95% CI)			
		Low ($n = 486$)	Medium ($n = 370$)	High ($n = 327$)	Int–Ext	Low– Medium	Low– High	Medium– High
Occurrence of call logging	84	85	86	81	**–8** **(–12, –4)**	–1 (–6, 4)	4 (–1, 9)	5 (–1, 10)
internal	78 ($n = 510$)	93 ($n = 87$)	71 ($n = 144$)	80 ($n = 279$)				
external	86 ($n = 673$)	83 ($n = 399$)	95 ($n = 226$)	85 ($n = 48$)				
Reactions to call logging: work more efficiently	30	38	23	22	**–22** **(–27, –17)**	**15** **(9, 21)**	**16** **(10, 22)**	1 (–5, 7)
internal	17	22	8	20				
external	39	43	33	39				
A way of showing what my performance is	43	49	39	37	**–24** **(–30, –19)**	**10** **(3, 17)**	**12** **(5, 19)**	2 (–5, 9)
internal	29	32	22	33				
external	53	54	50	65				
Feeling of being controlled	46	44	53	43	–1 (–7, 5)	**–9** **(–16, –2)**	1 (–6, 8)	**10** **(2, 17)**
internal	46	65	43	43				
external	47	41	60	43				
Feeling of stress	26	26	32	20	**–10** **(–15, –5)**	–6 (–12, 0)	6 (0, 12)	**12** **(6, 18)**
internal	20	32	15	20				
external	30	25	42	20				

Notes. 95% CI—95% confidence interval; bold figures indicate significant differences.

TABLE 9. Prevalence (%) of Monitoring and Different Opinions About That, in the Total Sample, at Internal (int) and External (ext) Companies and at Companies With Different Task Complexity

Operators	Total (*n* = 1 183)	Task Complexity			Differences (95% CI)			
		Low (*n* = 486)	Medium (*n* = 370)	High (*n* = 327)	Int–Ext	Low–Medium	Low–High	Medium–High
Occurrence of monitoring	57	65	62	38	**−19** (**−25, −13**)	3 (−3, 10)	**27** (**20, 34**)	**24** (**17, 31**)
internal	44 (*n* = 510)	92 (*n* = 87)	30 (*n* = 144)	36 (*n* = 279)				
external	63 (*n* = 673)	56 (*n* = 399)	80 (*n* = 226)	42 (*n* = 48)				
Reactions about monitoring: a way of improving my calls	41	46	41	32	**−21** (**−26, −16**)	5 (−2, 12)	**14** (**7, 21**)	**9** (**2, 16**)
internal	29	48	8	33				
external	50	46	62	25				
A way of showing the quality of my service	42	48	44	32	**−20** (**−26, −14**)	4 (−3, 11)	**16** (**9, 23**)	**12** (**5, 19**)
internal	31	60	10	32				
external	51	46	65	29				
Feeling of being controlled	21	25	24	10	**−6** (**−10, −1**)	1 (−5, 7)	**15** (**10, 20**)	**14** (**8, 19**)
internal	17	44	15	10				
external	23	21	30	10				
Feeling of stress	22	27	24	11	**−14** (**−18, −10**)	3 (−3, 9)	**16** (**11, 21**)	**13** (**8, 19**)
internal	14	33	10	10				
external	28	26	34	15				

Notes. 95% CI—95% confidence interval; bold figures indicate significant differences.

TABLE 10. The Mean Value of the 2 Comfort Indices, in Total Sample, at Internal (int) and External (ext) Companies and at Companies With Different Task Complexity

Operators	Total (*n* = 1 183)	Task Complexity			Differences (95% CI)			
		Low (*n* = 486)	Medium (*n* = 370)	High (*n* = 327)	Int–Ext	Low–Medium	Low–High	Medium–High
Comfort index: noise, lighting and air quality*	3.0	2.8	3.2	2.9	0 (−0.12, 0.12)	**−0.4** (**−0.54, −0.26**)	−0.1 (−0.24–0.04)	**0.3** (**0.15, 0.45**)
internal	3.0 (*n* = 510)	2.8 (*n* = 87)	3.1 (*n* = 144)	2.9 (*n* = 279)				
external	3.0 (*n* = 673)	2.8 (*n* = 399)	3.3 (*n* = 226)	2.8 (*n* = 48)				
Comfort index: furniture and equipment*	2.5	2.5	2.6	2.4	−0.1 (−0.21, 0.01)	−0.1 (−0.23, 0.04)	0.1 (−0.04, 0.24)	**0.2** (**0.05, 0.35**)
internal	2.4	2.6	2.4	2.4				
external	2.5	2.4	2.7	2.4				

Notes. 95% CI—95% confidence interval; bold figures indicate significant differences. *—mean value on a scale of 1–5, a high value indicates more dissatisfaction with the comfort.

5.5. Comfort

The workplaces were most commonly located in open office landscapes. The operators were more dissatisfied with noise, lighting and indoor air than with furniture and equipment (Table 10). Those with medium-complexity work tasks experienced significantly lower comfort compared with operators with high-complexity work tasks.

6. DISCUSSION

The main objectives of this study were to describe and compare working conditions between internal and external CCs and between work tasks of different complexity. At external CCs and among CCs with low-complexity work task the general trend was that fewer operators had college or higher education, and more operators were employed by the hour and worked on a varying roster. There were differences in full-time gross salary. Operators at external CCs had lower salaries compared with operators at internal CCs. Also, operators with low-complexity work tasks reported lower salaries compared with operators with high-complexity work tasks. Operators at external CCs also worked, on average, longer time with customer calls and had less time for administration, meetings and training and handled a higher number of calls during the day.

It was more common among operators at external CCs and with medium-complexity work tasks to receive additional remuneration or some kind of disadvantage due to low productivity.

In this study, there were more external companies situated in regions with decreasing population. The expansion of CCs can have a positive impact on many rural communities because new jobs are created. However, problems with, e.g., with wage, control and feedback systems like computer tracking of work and monitoring of calls, and working hours have also been pointed out in earlier studies [16, 17, 18].

Our study confirmed some of the earlier observations that CC employees were mainly women [19, 20]. The overall composition of the CC workforce seems remarkably consistent within countries and across international boundaries. For example, in German CCs women comprise 60–70% of the workforce [21]. Similarly, 70% of CC workers in Ireland are female [22] and in Canada women make up 70–72% of agents [23].

Not only are most employees in many CCs women, but also many of them are relatively young. In our study, the mean age among the employees in the CC group was relatively low,

34 years, but there was a wide age range and the very young, under 25, were not in the majority. In the UK, one study suggested that 69% of the workforce were under 35 [24]. Similarly, in Germany, the average age of CC employees is 30 [21].

The share of operators with college or higher education was 25%, higher among operators at internal than at external companies. In the Swedish population as a whole, about 26% had college or higher education and in the two age groups that dominated in this study, 25–34 and 35–44 years, the percentage with college or higher education was 37 and 32%, respectively [25].

6.1. Terms of Employment and Union Membership

Most operators had full-time work, usually in traditional office hours. This study cannot confirm earlier results that CC operators have mainly insecure and inconvenient working conditions [26]. In this study, operators with medium-complexity work tasks were those who were most dissatisfied with their working hours and those who wanted fewer hours. This could indicate that working 8 hrs a day at a CC may be too long for some operators because of the high intensity of work, few opportunities for variation in the work task and demands that are put on operators.

A rather large number of operators in the study belonged to a trade union (84%). In working life, in general, the corresponding figure at the end of the 1990s was, on average, 80% [27].

6.2. Salary and Additional Remuneration

CC operators' salary has been described as low [28, 29]. This study could not be confirmed this. The average full-time salary was higher compared to the salary that the union considers be the minimum. The average monthly salary among operators in this study was 16457 SEK compared to 14320 SEK that the union set as the minimum[5].

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[5] Personal communication with a representative of the Salaried Employees Union in Sweden (November 2004).

In our study it was common for operators to receive some kind of extra remuneration. This could lead to operators increasing their working speed to try to earn more. Too much focus on remuneration may also affect the atmosphere among the operators and have a negative impact on solidarity at the company.

6.3. Work Tasks and Work Quantity

The work content and quantity of phone calls at CCs varies with the complexity of the phone calls, as was shown in this study. Low-complexity work tasks lead to less variation in work content and a higher quantity of calls. Operators sit in front of the computer with constrained and highly repetitive work tasks most of the day, which entails both physical and mental low variation. Almost all operators reported that they spent more than half of their working time sitting. Other studies have shown that long periods of sitting may lead to musculoskeletal disorders [2, 3, 7, 30, 31].

Holman and Fernie examined the impact of job design characteristics and human resource management practices on job satisfaction [32]. They found that intrinsic job satisfaction—satisfaction with features of the job that relate to the nature and quality of the work itself—was higher for employees who had greater control over the timing and methods of their work, were engaged in a wide variety of tasks and who had more extensive opportunities to solve customer-related problems. Furthermore, significantly higher job satisfaction was reported among employees who possessed and utilized more extensive levels of product knowledge.

Several studies have shown the importance of mental demands in working conditions [33, 34]. There are concerns about monotonous work with lack of stimulation and opportunities for development. Others have emphasized that even low-complexity CC work may entail high mental demands on the operator because of the constant attention required, often in combination with high qualitative and quantitative demands [35].

In the light of the dominance of women in low-complexity work tasks, there is an obvious risk of a "women's trap", where women get routine

work tasks and not ones that involve professional development [36, 37].

6.4. Call Logging and Monitoring

Supervision and control of employees has often been discussed as a special stressor among CC operators [16, 17, 18, 38, 39]. In our study call logging was reported by 84% and monitoring by 57% of operators. Both call logging and monitoring were most commonly reported at external CCs and at CCs with medium- and low-complexity work tasks, respectively. Many operators considered both call logging and monitoring to be a good way of showing how they performed. Many considered monitoring a good way of showing the quality of their services and a way of improving their calls. The other side of call logging and monitoring was that many reported stress and feeling they were controlled. In our study the prevalence of feeling controlled and stressed in relation to call logging and monitoring among operators with medium-complexity work tasks at external CCs was markedly higher compared with internal CCs. The opposite was shown among operators with low-complexity tasks. Call logging emphasizes the quantity, and monitoring the quality. The quantity and quality of phone calls could easily result in a conflict as attention to quantity may cause operators to sacrifice the quality of their work [40, 41]. The use of monitoring at CCs for training purposes instead of punishment has been considered in some studies [42]. Likewise, it is emphasized that the manager's supportive attitude is important in this context. Monitoring can lead to a reduction in contact between employees and their supervisors, and their coworkers [38, 43].

6.5. Comfort

The operators were somewhat dissatisfied with their working conditions, especially with noise, lighting and air quality, in addition to furniture and computer equipment. The problem of noise could be caused by the fact that the operators usually worked in an open office landscape. Many people dealing with customer calls worked in the same room. When operators sit close to

one another there is a risk of disturbance and problems can easily arise if there is no noise screening or noise reduction. Several studies have pointed out that people in open office landscapes disturb one another [44, 45]. CC operators need to be comfortable during the long, unbroken periods they spend at their workstations, so optimal environmental conditions are needed. Since it is common at CCs that operator do not have their one workplace but have to take any available one, the furniture and equipment have to be easily adjustable to individual operators.

The combination of nonoptimal physical and psychosocial working conditions may increase the risk of developing musculoskeletal disorders [2, 8, 46, 47]. It has also been shown in other studies that a combination of bad work organization, especially regarding work content and distribution of work tasks, and work with computers can lead to pain in different body regions [2, 10, 48]. Musculoskeletal disorders are relatively common among telecommunication workers who use video display terminals [11, 49]. Many CC operators report fatigue associated with a lot of high-intensity work [50]. It is the relatively inexpensive nature of CC services, together with increasing expectations of faster service among customers that has led to the emergence of CCs as an answer to an enormous communication challenge.

6.6. Differences Between External and Internal CCs, and CCs With Tasks of Different Level of Complexity

The results from this study quite clearly show that there were significant differences between external and internal CCs, and between CCs with tasks of different level of complexity regarding the organization and contents of work. Operators at external and low-complexity CCs reported that they spent more time with customer calls than operators at internal or high-complexity CCs. Their number of calls per day was also higher and the average call was shorter. Operators at internal or high-complexity CCs spent more time with administrative work or staff meetings. Work at external CCs or where tasks were of low-complexity seemed to be more short-cycled,

repetitive and uniform than work at internal CCs or where tasks were more complex. Moreover, operators at internal or high-complexity CCs had more time for other work tasks than customer calls and administration, such as meetings and training which was an opportunity for the operators to improve their professional competence, than operators at external or low-complexity CCs. Call logging and monitoring were reported to be more frequent at external CCs than at internal ones. They were also more stressful and annoying for operators at external CCs.

Freestanding external CCs provide customer services to client companies who have decided to outsource their customer service contacts. External CCs make business of this phenomenon but have to compete for clients with other external CCs on an open market. The cost per call is quite often the most important issue in this tough competition. This might easily lead to an emphasis on the quantity of the production, i.e., many short customer calls. This necessitates strict monitoring and follow-up of the production results, e.g., the number and length of taken calls, not only on a company level, but quite often also on an individual level.

Motivation could be a problem at external and lower-complexity CCs. This might be one explanation why extra remuneration was more common at external and medium-complexity companies.

Internal CCs provide services to the customers of the mother company adding value to its products or services. One of the reasons for not outsourcing customer services to an external CC might be that the company is extra keen on their quality and wants to keep closer control over them, making sure that everybody involved shares the same identity, values and norms. This might lead to an emphasis on quality, not only in customer contacts, but also in physical and psychosocial working conditions.

The clear pattern of more strictly controlled, short-cycled and monotonous work at external CCs and CCs where the tasks were of low complexity was thus in accordance with the description of the nature of the business and

the organization of work at external versus internal CCs and at CCs with low- versus high-complexity tasks.

6.7. Limitations of the Study

This study was cross-sectional and only showed working conditions at a single point in time. It is difficult to make a comment about the stability of these working conditions. During the time that this study took place, we learned that this was an industry undergoing rapid changes. This could also have affected the results in the sense that it is important when the questions were asked. We could not visit a company if conditions in it were strained, because answering the questionnaire and measurements at the workplace took the operators' and the company's time. Therefore, one way to complement this study would be to follow a number of operators over time.

The selection of CC companies is an uncertain factor in this. They were not randomly chosen and therefore it is uncertain if the companies were representative for the Swedish CC industry. There could be reasons to suspect that companies with strained conditions, e.g., companies with a high workload, those undergoing reorganization, experiencing problems with personnel or other unsolved problems, could not or did not want to participate in this study. This could mean that these results describe CCs with more favourable conditions.

Another problem is that in selecting CCs, just five characteristics were considered: internal–external CC, task complexity, ownership, location and incoming–outgoing calls. There are other characteristics that may be of importance and might have affected the results in a subcategory. The medium-complexity group had the lowest response rate. It could be a coincidence that we obtained few CCs in one subcategory and that one of them had a group with very special characteristics. The deviating results among external CCs with medium-complexity tasks may have such an explanation and further studies are needed to verify this. To bring more knowledge about this group, we suggest that further studies are done, e.g., following a change in the organization, to see how this group has been affected by the change and if there are other variables in the working environment that could have contributed to these results.

The questions in the questionnaire have been tested for test–retest reliability [14]. Thirty-six questions (80%) in this study, of a total of 45, were classified as having fair-to-good or higher reliability. Eight questions (18%) were classified as having poor reliability: types of work tasks and the average time for those (two questions for each), the average time for customer calls, mean length of calls, number of e-mails dealt with during the day and time the operator sat during the day. The results of these questions should be interpreted with care.

Both indices, comfort of (a) noise, lighting and air quality, and (b) furniture and equipment, were classified as having satisfactory internal consistency ($\alpha \geq .7$). Index a was classified as having poor test–retest reliability and index b was classified as having fair-to-good test–retest reliability. The first index includes questions that are affected by changes in the environment attenuating the test–retest correlations. This means that there is a great probability that we get different results about comfort of noise, lighting and air quality, depending on when we ask these questions.

7. SUMMARY AND CONCLUSIONS

CC work in the studied Swedish companies was mainly full-time work on permanent positions following normal office hours and union agreements on the level of (minimum) salary. Most of the workdays were spent seated, taking customer calls. The possibilities for variation in work tasks were limited. Performance was most often strictly logged (quantity) and monitored (quality) on an individual basis.

Working conditions did, however, vary between internal and external CC companies and with the level of complexity of customer support tasks. These findings indicate that there are ways to improve working conditions. Operators at CCs with high-complexity tasks were more satisfied with their working conditions than those with less complex tasks.

There are aspects of supervision style and organization of work at CCs, especially at external CCs and those with low-complexity tasks, that could introduce stress and lack of well being among the staff.

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