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Psychosocial Aspects of the Work of Female Call Center Operators in a Bank of São Paulo, Brazil

Aspectos Psicosociales del Trabajo de Operadoras en una Central Telefónica de un Banco en São Paulo, Brasil

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The objective of this study was to identify psychosocial aspects of the working conditions of female call center operators from a bank in São Paulo, Brazil. The aim was not only to identify these factors, but also to understand why they ocurred and how they were processed. The methods included Ergonomic Work Analysis, composed of systematic observations of work, interviews and document analysis. Self-administered questionnaires were responded by 109 call center operators, of which 96 (88.1%) were female, and 76 (70.4%) of them aged from 18 to 23 years. The psychosocial aspects identified in the working conditions of these female operators included: high quantitative and qualitative demands, with significant emotional, cognitive and physical loads; lack of control over work; the volume of information to be dealt with; contradictory demands from the enterprise for higher productivity based on average work time and service quality; difficult relationships with customers; pressure from queues during some periods; and the contrast between the monotony and complexity of the task.

El objetivo de este estudio fue identificar aspectos psicosociales del trabajo de operadoras en una central telefónica en un banco, en la ciudad de São Paulo, Brasil. Además de identificar dichos aspectos, el estudio apuntó también a comprender el proceso y las razones de su ocurrencia. El método utilizado fue el Análisis Ergonómico del Trabajo, que comprende la observación del trabajo, entrevistas y análisis documental. 109 encuestas fueron aplicadas, de las cuales 96 (88.1%) corresponden a mujeres y de ellas 76 (70.4%) tenían entre 18 y 23 años de edad. Los principales aspectos psicosociales identificados en el trabajo de las operadoras fueron: elevadas demandas cuantitativas y cualitativas, con alta carga cognitiva, emocional y física; falta de control sobre el trabajo; el volumen de información que ellas manipulan; dificultades para mantener la calidad y ejecutar el trabajo dentro del tiempo establecido como límite para la atención; gran número de llamadas en espera en determinados momentos; conflictos en las relaciones con los clientes; y el contraste entre la monotonía y complejidad de la tarea.

A general lack of agreement exists in defining *stress*. The concept was introduced in 1936 by Selye (1956), who characterized the nature of stress as a *Syndrome of General Adaptation*, composed of three phases: (a) alarm reaction, (b) adaptation phase, and (c) exhaustion phase. In this definition the inespecificity of the environmental demands and the importance of the intensity and duration of the pressure in relation to the answer of the organism remains implicit. For Selye, the word stress designated all the effects of factors that can act on the body. These agents are called stressors, given their capacity to produce stress.

Two Scandinavian teams coordinated by Marianne Frankenhaeuser and Lennart Levi currently analyze the neuroendocrinological process and its effects on health in association to work (work-stress). The studies emphasize the role of psychosocial factors the emotions in the nervous system.

The neuroendocrinological changes of the organism were developed for flight or fight reactions

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as a physical answer. In that sense, Frankenhaeuser (1989) stresses that the human being is not prepared for the existence of psychological demands in the modern society. The author designates as *happy stress* the situations in which the demands of the environment are in balance with the personal capacities to cope with difficult situations without harmful effects on health. On the other hand, *distress* is used to designate negative stress, that appears when there is no choice and a serious situation should be faced.

The neuroendocrinological approach of stress focuses on the components (stimulus-response) of the stress process. Stress is now more commonly accepted as relational in nature, involving a transaction between the individual and the environment. The cognitive theory of Lazarus and Folkman (1984) embraces two important interacting processes: appraisal and coping. The appraisal process refers to a perceived demand, which taxes or exceeds the physical or psychological resources of the individual. The coping process refers to cognitive or behavioral efforts to deal with, reduce or tolerate excess demand.

Frankenhaeuser and Gardell (1976) associated stress to the presence of quantitative and/or qualitative overload/underload. The quantitative load represents the amount of mental work per unit of time, while the qualitative load takes into account the complexity of the work and the possibility of application of the worker's capacities and experiences.

There is no consensus concerning the definition of psychosocial factors. To Levi (1988), in the context of stress at work, psychosocial stimuli originate in a social process within a social structure and affect the organism through the mediation of perception and experience. As examples of social structure the author mentions factories, schools, enterprises, communities and families. A social process is what is taking place in such structures, like work, education or care, for instance. The interaction between environmental opportunities and demands with individual needs, abilities, and expectations elicits reactions. When the result is aggravating, the organism reacts with various pathogenic mechanisms.

Cooper (1985) states that occupational stress is clearly related to organizational structure and climate, which include factors such as office politics, lack of effective consultation, lack of participation in the decision-making process and restrictions on behavior. Interpersonal relations at work are important predictors of occupational stress.

The term *psychosocial factors* is used as a catchall term to describe a very large number of factors; these factors vary from author to author. According to Niosh (1997) they fall within three separate domains: (a) factors associated with job and environment (eg. work organization factors, including various aspects of job content; organizational characteristics; interpersonal relationships at work; temporal aspects of the work and task; financial and economic aspects; community aspects), (b) factors associated with extra-work environment (eg. demands arising from roles outside of work), and (c) characteristics of the individual worker (eg. genetic factors; acquired aspects and dispositional factors).

According to Hoogendoorn (2000), psychosocial factors are related to four dimensions of work environment: the psychological demand, the decision authonomy of the salary, social support and recognition.

Kerr, Frank and Shannon (2001) state that *psychosocial factors* are usually defined as all those things not overtly related to the physical demands of work. The term psychosocial factors is viewed as opposed to biomechanical factors, but these authors use the term referring to a wide range of work environment factors that are believed to be associated with the onset of work-related musculoskeletal disorders, such as the control one has over the tasks of a job, the level of satisfaction with work, or the balance between the efforts and rewards associated with work.

According to Marmot and Wilkinson (1999), research on psychosocial work-related stress differs from traditional biomedical occupational research by the fact that stressors cannot be identified by direct physical or chemical measurements and therefore, theoretical concepts are needed to analyze the nature of work in order to identify particular stressful job characteristics. The authors mention two theoretical models: the demand-control model and the effort-reward imbalance.

For Karasek and Theorell (1990) the cause-effect relationship of stress ocurrs through a complex outline that involves the interaction of multiple systems. Stress represents an unbalance of the system as a whole, in particular of the control system, that includes a biological level, a psychoendocrinological level as well as a cognitive level and a level of the interpersonal function. For this reason, the model proposed by the authors involves a three-dimensional approach, covering: (a) demand/control, (b) strain/learning, and (c) social support. The higher the demands or the lower

the decision latitude imposed on the employee, the greater the stress-related health risk. The combination of both multiple or high demands and low decision latitude is most detrimental for the employee's health. Karasek's original hypothesis that excessive psychological demands interact with lack of decision latitude in generating increased risk of cardiovascular disease was supplemented by a second hypothesis which concerns the learning of new patterns of behavior and skills on the basis of psychosocial job experience. The active situation is associated with the development of a feeling of mastery, which inhibits the perception of strain during periods of overload, for instance. More recently, the original demand-control concept was modified to include social support at work as a third dimension.

The healthy situation of work allows the individual's development, alternating demands and rest periods in a dynamic interaction between man and environment. On the other hand, personality characteristics mediate the factors of stress of the environment and its symptoms. For example: tasks that involve a high degree of tension, if viewed as challenges or learning opportunities, tend not to be perceived as stressful. Finally, social support, involving the sociability inside the work place as well as the actions of the family and extra-work groups, acts as a protecting factor.

According to Marmot and Wilkinson (1999), Siegrist's model of effort-reward imbalance focuses more explicitly on the links between work tasks and labor market dynamics. The model maintains that the work-role defines a crucial link between self-regulatory individual needs and the social opportunity structure. Occupational status is associated with options of contributing and performing, of being rewarded or esteemed and of belonging to some significant group. Rewards are distributed by three transmitter systems: money, esteem and career opportunities, including job security. The model of effort-imbalance claims that the lack of reciprocity between costs and gains define a state of emotional distress which can lead to the arousal of the autonomic nervous system and associated strain reactions. Having a demanding but unstable job, achieving a high level of performance without being offered any promotion prospects, are examples of high cost-low gain conditions at work.

There is evidence that psychosocial factors at work may play an important role in contributing to the social gradient in ill health (Marmot & Wilkinson, 1999). In fact, psychosocial factors may represent generalized risk factors for work-related musculoskeletal disorders (Niosh, 1997).

According to Niosh (1997), the link between work-related psychosocial factors and musculoskeletal disorders (MSDs) is complex and multifactorial. Personal and situational characteristics may lead to differences in the way workers exposed to the same job and work environment perceive and/or react to the situation. There are four plausible types of explanations suggested to account for associations between psychosocial factors and MSDs: (a) psychosocial demands may produce increased muscle tension and exacerbate task-related biomechanical strain, (b) psychosocial demands may affect awareness and reporting of musculoskeletal symptoms, and/or perceptions of their cause, (c) initial episodes of pain based on a physical insult may trigger a chronic nervous system dysfunction, physiological as well as psychological, which perpetuates a chronic pain process, and (d) changes in psychosocial demands may be associated with changes in physical demands and biomechanical stresses as a consequence, associations between psychosocial demands and MSDs occur through either a causal or effect-modifying relationship.

According to Couto, Nicoletti and Lech (1998), when the strain level becomes excessive, the individual starts to suffer and the main suffering area is the musculoskeletal system because when tense, the muscles receive a smaller supply of oxygen, they start to work in some anerobiose degree and start to have an internal production of lactic acid, substance known as irritating of the nervous terminations of pain. Therefore, when understanding and acting on stress in call centers it is possible to prevent illnesses related to stress, including musculoskeletal disorders.

Marmot and Wilkinson (1999) state that there have been profound changes in the nature of work in established market economies, which include fewer jobs defined by physical demands, and more by psychological and emotional demands; fewer jobs available in mass production, more in the service sector; and more jobs concerned with information processing due to computerization and automation. There has been an increasing participation of women in the labor market, an increase in job instability and structural unemployment. This is the scenario in which call centers appeared, changed, and are growing.

Call centers or centers of telephone attendance consist of any activity that uses telephones and computers with the objective of developing standardized and continuous actions of marketing

or to manage communication with clients, public, or government agencies. According to Toomingas, Hagman, Hansson, Isaksson, Kjellber and Norman (2001) there are in-house corporate call centers and independent call centers or outhouse call centers. The terminology is varied: Contact Service, Customer Service, Support Helpdesk, Customer Care Network and so on. Call centers are more and more common in companies of several activity branches: industry, trade, services, and financial.

Norman, Toomingas, Nilsson, Hagberg, and Tornqvist (2001) acknowledge that call centers are one of the most rapidly growing forms of workplaces in Sweeden, employing approximately 45,000 people. Toomingas, Hagman, Hansson, Isaksson, Kjellber, and Norman (2001) estimate that 5 million people are currently employed in call centers in the United States, and approximately 1.5 million in Europe.

In Brazil, according to the Telemarketing Union (2001), call centers have grown a rate of 30% in the last 20 years. Aproximately 284 thousand operators exist in the country and 120 thousand only in the state of São Paulo. There are also in-house and out-house call centers, but outsourcing is a major trend.

In spite of the growth of the number of centers of telephone attendance or call centers, a proportional modernization of the processes and organizational planning in these new work environments has not taken place. The result is an increase in turnovers, absenteeism and occupational illnesses.

Although scientific research (Hales, Sauter, Peterson, Fine, Putz-Anderson, & Schleifer, 1994; Smith, Carayo, Sanders, Lim, & LeGrande, 2001) concerning problems due to call centers has been undergone and there have been recommendations concerning the physical environment, furniture, and equipment of these, there is scarce study of the work organization and of the organizational context that allows a clear picture of the several stress factors that interact in call centers.

The objective of this study was to identify the specific psychosocial aspects of the work of women operators of telemarketing in the call center of a bank. The aim was not only to identify these factors, but also to understand why they happened and how they were expressed. Thus, it was important to learn about these aspects in the form of a process. In this study the psychosocial aspects considered were those associated with work organization (e.g., technology, time restraints); job content, organizational factors (e.g., human resources policies) and interpersonal relationships.

A gender focus was used for two reasons. First, because the majority of workers in this call center were women (more than 80%). In the second place, because according to Couto, Nicoletti, and Lech (1998) the prevalence of occurrences of musculoskeleal disorders among women is higher (3:1).

Method

Participants

The study was carried out in the call center of a multinational bank, located in the city of São Paulo, Brazil, where 181 telemarketing operators worked, of which 81% were women. 109 operators answered the questionnaire, of which 96 belonged to the feminine sex (88.1%).

The following positions existed in the section: 181 attendance operators, eight supervisors, supervised groups of 30 operators each, and one manager.

Instruments

Ergonomic Work Analysis was performed, composed of global observations of the section, observations at the workstation, electronic monitoring from the supervisor's desk, individual and semi-structured group interviews with key-informers (manager, supervisors, representative of the training department) and with telemarketing operators, and document analysis.

The interviews with the manager and supervisors had the purpose of learning about the organizational structure of the bank, the objectives of the section, the positions and number of employees in each position, the workflow of the work process, the products and services offered by the bank, a description of the task of operators and supervisors, electronic monitoring, human resources policies and practices, and the most common critical incidents.

The interviews with the operators sought to obtain a description of the task and to learn their perceptions about: demands and restraints related to the workstation (furniture, equipment, instruments, system), work conditions[1], work organization[2], interpersonal relationships (colleagues, leaders, customers and other sections), human resources policies, the positive and negative aspects of the job, health risks, suggestions to improve work conditions, and the most common critical incidents.

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[1] We consider work conditions as physical conditions (noise, extreme temperatures, illumination, etc.), chemical conditions (gases, dusts, vapors, powders, etc.), biological conditions (pathogenic microorganisms), hygiene conditions, conditions of safety, and anthropometric conditions of the work station.

[2] For Dejours (1990) work organization is the division of work (division of tasks among the operators, partition, cadence, content of the task, that is to say, the prescribed operative way); and the employees' division (partition of responsibilities, hierarchy, command, control).

During document analysis the following documents were analyzed: manual of products and services offered by the bank, reports filled by the supervisors (electronic monitoring[3], performance appraisal, time out of attendance, customers' complaints) and organization charts of the bank.

The questionnaires answered voluntarily by the operators that were in activity, included the following aspects: demographic data, description of the task, perceived characteristics of the work (monotony, speed, control over work, support received from colleagues and leadership, learning possibility, what caused stress), perceived characteristics of the working conditions, and stress symptoms.

All participants signed a term of free consent and they participated voluntarily in the study.

Design and Procedure

The research design consisted mainly of a qualitative study, not representative in the statistical sense, but whose significance is reached through the diversification of the situations experienced by the operators prioritizing the choice of the subjects and situations that allowed an approach of the studied phenomenon. According to Minayo (1993) in qualitative research a smaller concern exists with generalization and a larger with deepening the understanding of a social group, organization, policy or representation, reason for which the sampling approach is not numeric (Minayo, 1993).

An Ergonomic Work Analysis of the work of telemarketing operators was done. Ergonomics is the knowledge regarding man in activity, in order to apply it to the conception of the tasks, instruments, machines and production systems (Laville, 1976).

The pure ergonomic occupational research tradition, according to Westlander (1996), considers the way in which equipment and people are adapted to each other at work. But there are also wider ergonomic approaches in which analyses are extended to take into account the work situation in which the equipment is employed: work organizational factors are taken in account, plus job content as well as a number of work organizational phenomena (such as personnel policies) which may be more peripheral, but still have decisive importance in terms of what is offered to the worker at his or her immediate work situation.

The French Ergonomics research is a wider ergonomic approach. It is more concerned with field studies and analyzes real work situations (as opposed to the prescribed work), using a technique known as Ergonomic Work Analysis. It takes into account people's variability and the diversity of the situations (Wisner, 1987). It also considers differences among tasks (everything that defines the work of each one, in a given structure: objectives to be reached, instructions, indicators of procedures, technical means, division of the tasks, temporary conditions, social conditions) and activity (it consists of the use of the body and intelligence to accomplish the tasks: search for information, decision making, action on commands, adoption of several postures, execution of efforts, displacements, communications with other people).

The study presented here was composed of three phases:

1. The starting point was to make the initial demand clear, coming from the training department, who reported high degrees of musculoskeletal disorders among the operators.
2. The following stage was the analysis of the task. Fialho and Santos (1995) consider three different task levels: the prescribed task (formal and official aspect of the work), induced or redefined task (workers' representation of the task, starting from the knowledge that he possesses of the several components of the system), up-to-date task (modification done by the worker in function of the singularities of the work situation). Data about these three levels of the task were obtained mainly by interviews and observations.
   The observations occurred at the operators' workstation, and were electronically monitored in order to obtain data about the average of attendances in the period of one and a half hour of observation, duration of the calls, number and type of information given in each connection, used screens, more common situations, critical incidents, communication need with colleagues, supervisor or other section, need of consultation of written material. After the observations the operators were asked to explain what they were doing, and what for, and to demonstrate some situations. We observed and interviewed ten operators chosen together with the manager and the supervisors taking in account: the time of service (older and newer), the age (younger and older), and the schedule of service (morning or afternoon). Recordings of monitoring of five operators were also heard at the table of one of the supervisors.
3. The third stage was the analysis of the activity, that is to say, the analysis of work behaviors. Postures, communications, and operative forms were analyzed. Systematic observations were accomplished with the same operators observed in the previous stage.

After validation of the data obtained with the manager, supervisors and operator an intervention took place, which will not be reported in this article, although the initial recommendations are presented.

In the total 24 visits to the section that took place, with an average length of 6 hours, in different schedules (morning or late) for the collection of the data, 25 interviews were performed with key informers and operators. These interviews were semi-structured, that is, consisting of a check list which was followed with some flexibility. A content analysis of the interviews was performed.

The application of the questionnaire took place in the work place, during the period of the observations. The average time for completing the questionnaires was of twenty minutes. The analysis of the questionnaires begun with the codification and typing of the data. Analysis of the data encompassed a descriptive analysis, including simple frequencies and percentages of the main aspects.

Results

Demographic Data

Of the total 109 operators who answered the questionnaire, 96 (88.1%) were women, being 76 (70.4%) in the age group of 18 to 23 years, configuring a prevalence of an extremely young feminine population. Of the group of operators, 19.6% had children. Regarding time in the job,

[3] Electronic performance monitoring is defined by Ota (1987) as "the computerized collection, storage, analysis and reporting of information about employees' activities" (p. 3).

30.5% of the operators had worked for less than 1 year and 54.3% had from 1 to 2 years of work (see Table 1).

The Central of Attendance

The average attendance was of 60,000 calls daily. The objective of the section was to remove the customer of the bank agency. It was a central of receptive attendance and of crossed sale.

Human Resources Policies

1. The profile of the position of operator demanded: diction; to be studying at the university level; age of 18 to 25 years; the person could not be timid. It also existed recruiting of some females between 30 and 45 years. The demand of abilities for sales started to exist some months before the beginning of the research.
2. The wage was of 150 dollars plus commission (for sales), they also received tickets (for food); aid nursery existed for children up to 7 years of age.
3. The training of the telemarketing operators lasted 2 months and had the following stages: initial observation of the attendance (3 days), a theoretical training (screens, products and services) during one month, 4 hours a day in class room and 2 hours a day accompanying connections of another operator, and later guided attendance. After that initial training they still received training about quality attendance, prevention in the use of voice, prevention of musculoskeletal disorders and sales techniques.
4. A performance appraisal ocurred monthly and took into account: (a) the performance during attendance (obtained by means of electronic monitoring). For each attendance monitored the following aspects were observed: cordiality, clearing doubts whenever asked by the client, language and vocabulary, objectivity, following the scripts contained in the screens, showing knowledge for the services demanded. Each of these items received zero to ten points; (b) the time spent out of the workstation also called block time: within the standard time (thirty

Table 1
Distribution of Telemarketing Operators According to Gender, Age Group, Presence of Children and Time in the Function

Characteristic	*N*	%
Sex (n = 109)		
Masculine	13	11.9
Feminine	96	88.1
Age group (n =108)		
18-23 years	76	70.4
24-29 years	16	14.8
30-34 years	4	3.7
> 35 years	12	11.1
Presence of Children (n = 107)		
With children	21	19.6
Without children	86	80.4
Time in the Function (n =105)		
< 1 year	32	30.5
1 - 2 years	57	54.3
3 - 4 years	10	9.5
> or = 5 years	6	5.7

minutes of pause), the operator received ten points, for every ten minutes above the standard time, the operator lost five points; (c) sales rate; (d) the medium time of attendance or expedition time (2 minutes for each attendance) also called productivity: if the operator never surpassed this time, he/she received ten points. For every ten seconds exceeding this time he/she lost five points; (e) the absences and the delays: received marks from zero to ten points; (f) mistakes: if the mistake did not lead to losses for the bank the operator lost five points, if the bank perceived losses the operator lost ten points; and (g) the consequences of the performance appraisal could be dismissal (when bad) or transfers (some of them with promotion) for other sections of the bank (when good).

5. A career plan did not exist.

The Operator's Work

The operator was expected to open 4 accounts monthly, sell products whenever there was not a queue of clients, and follow the prescribed monthly medium time of attendance. The work day was of 6 hours, with one break of 30 minutes.

The attendance was of 90 to 150 calls per day. The established goal was a medium of 2 minutes of expedition time, that is the time taken to receive the customers' inquiry, seek the correct information in the data base, and communicate this information to the customer. The medium time of each connection varied from 1 minute to 3 minutes, depending on the number of information or requested procedures and on the offering or not of some product. In 70% of the connections the clients asked for information about the balance in the account and/or different types of financial investments; 60% of the connections lasted from 0 to 135 seconds.

Peaks of connections ocurred on Mondays and Fridays, in the first fortnight, at the end of the month, on days before and after holidays, in the expiration of bills, in the morning and at the end of the afternoon. During these peaks a queue or line of clients existed the whole time.

The workers remained seated 95% of the time. 95% of the time the operators typed and answered telephone calls.

At work there was a demand for short and long term memory; for example, to remind information of previous screens, to memorize information on new procedures and products, on customers' complaints. There was also a need for concentrated attention. Responsibility was essential, a small mistake could cause customers to upset, leading the bank to losses and demanding a series of corrective actions.

Psychosocial Factors

This study identified as main stress factors the following aspects:

1. *The speed in the attendance came into conflict with the quality of attendance.* The impossibility of answering phone calls with the quality demanded by the bank considering the medium time established for the attendance (expedition time). Each customer could demand up to 10 operations/information per call; the operators created some operative strategies to shorten the time of attendance, like directing the customer to being more objective (interpreting what he/she said), asking: "something else?", and so on. Another strategy was to drop the connection, when it was taking too long.
2. *The constantly changing amount of information concerning products and services of the bank that needed to be known.* During work the operators had doubts on products and services. Given the demands of speed while attending, there was no time to seek the information in the manual and they ended up consulting the colleagues and/or the supervisors. Frequently the supervisor was not available when the operators called in order to clear doubts while assisting customers, forcing them to leave the workstation in order to obtain information. The customers were sometimes better informed than the operators because the information on new products arrived to customers before they did the central of attendance. The information frequently changed, and operators didn't receive a copy of the alterations in procedures and products of the bank, so they had to read quickly, sign and return the report to the supervisors. Training did not ocurr as often as necessary. The only opportunities to obtain knowledge and to discuss the new procedures were the monthly meetings with the supervisor.
3. *The prohibition to write during work-time for safety reasons.* This increased the possibility of making mistakes and caused an excessive use of short term memory. The main information which the operators wished to write were:

number of documents or other data which should be needed in the next screens (in order to avoid having to go back many screens in order to get the information, and in this way lose time); information which needed to be checked with other department and then be given to the client; as well as the time out of workstation, as a form of control, in order to avoid surpassing the standard time.

4. *The customers' queue led to extra time, intensification of the work, maintenance of the same postures and strain.*
5. *The repetitiveness of the task in contrast with the complexity of the task.* Although the task had repetitive characteristics (the cycle and the time of attendance had a short duration) it was a complex task demanding a constant construction of the problems treated. So it can be described as a task with high quantitative demands at the same time as high qualitative demands.
6. *The lack of control over the work.* The operators had to follow the rules strictly (schedules, postures, procedures) including standardized scripts, which means that the operators had to say exactly what was written in the screens, for all the customers, independent of the customer or the situation.
7. *Unpleasant or threatening treatment by customers.* Clients could act as a source of pleasure in the work, of esteem, of valuing of the operators' work, but could also act as a source of mental suffering. The customers could show aggressiveness and/or sexual harassment. They sometimes were displeased with the bank, and the most easily available person was the operator, sometimes the only person that they could reach. These difficult relationships with customers could be the result of: scripts that were difficult for the customers to understand, the out of date data about the account, the slow system, the necessary time to access the screens, the information on products of the bank arriving to the customers prior than to the call center operators, the constant attempt of selling bank products whenever the customer called. The need to wait for attendance also irritated the customers.
8. *The environment as a perceived source of stress.* The noise diminished the attention and made work more difficult. The noise was of 80 decibels due to the acoustics of the room and equipment problems (headsets). There was also interference of a radio station in the workstations close to the window.

The workstations (cabins and desks) were new, with adjustable height, but as they were shared with operators of other shifts, when arriving the operators didn't find the workstations in order, losing approximately 10 minutes to arrange them. The chairs were adaptable, but there were broken chairs, so the operators had to "chase" a chair in good conditions.

The equipment presented various problems. For instance, the red button " to catch" calls was far from the reach zone leading to hiperextension of the arm and of the hand. The system sometimes was not operative, in those cases it was necessary to ask for the customer to call later.

Table 2 presents workers' perception related to some aspects of the work: (a) 45.3% of the operators referred that work was always or most of the time very fast and 25.3% half of the time, (b) 48.4% referred that work caused strain/worry occasionally, 27.4% always or most of the time and 20.0% half of the time, and (c) 38.5% referred they could decide very little about how to work and 19.8% a little.

As can be seen in Table 2, 72.9% were satisfied with the colleagues' support and 69.8% were satisfied with the supervisors' support.

Table 3 shows, in relation to the stress symptoms in the last week, that 13.6% of the operators presented insomnia above the usual; 62.1% constantly felt tense; 15.6% felt unable to face their problems; and 17.9% felt more depressed than usual.

The following recommendations were discussed with the manager, supervisors and operators:

1. Acquisition of sufficient and better quality headsets.
2. Update of screens and scripts, making them more objective.
3. Negotiation with the Department of Marketing that the information on new products of the Bank be informed to the Central of Attendance before its release to the customers.
4. A copy of changes in the procedures or products given to each operator.
5. Improvement of work conditions in general (noise, illumination, temperature, etc).
6. Acquisition of sufficient chairs.
7. Request that operators maintain the workstation in good conditions of use at the end of the work day.
8. Review of the supervisors' attributions and

Table 2
Perceived Characteristics of the Work Identified by Operators of Telemarketing of a Call Center in a Bank Located in São Paulo

Perceived characteristics of the work	*N*	%
Is your work very fast? (n = 95)		
never	2	2.1
occasionally	26	27.4
half of the time	24	25.3
always or most of the time	43	45.3
Does your work causes stress/worry? (n = 95)		
never	4	4.2
occasionally	46	48.4
half of the time	19	20.0
always or most of the time	26	27.4
Can you decide about how to conduct the work? (n = 96)		
a lot	3	3.1
plenty	16	16.7
reasonable	21	21.9
a little	19	19.8
very little	37	38.5
Are you satisfied with the support you receive from the colleagues? (n = 96)		
a lot	16	16.7
satisfied	54	56.2
more or less	24	25.0
unsatisfied	2	2.1
very unsatisfied	-	-
Are you satisfied with the support you receive from the supervisor? (n = 96)		
a lot	22	22.9
satisfied	45	46.9
more or less	24	25.0
unsatisfied	4	4.2
very unsatisfied	1	1.0

administration form, including training on leadership.

9. Attempt of canceling the prohibition to write while in the workstation.
10. The creation of more accessible forms of obtaining information and to propitiate more frequent training of modernization on products and services to the operators.
11. Establishment of short and frequent breaks.

Discussion

In this study, we observed women's prevalence in the activity of telemarketing operators, which was also observed by Punnett and Bergqvist (1999), showing that sexual division of work reserves for women tasks considered monotonous and repetitive.

In the call center studied high quantitative and qualitative demands at work were observed. There were high demands on emotional, cognitive, and physical load (fixed and static postures). The female call center operators reported small possibilities to influence their work. This combination of high demands and low control over work is a stress situation and can increase the risk of musculoskeletal disorders (Theorell, 1996).

The cognitive load identified in this study was related with high demands of attention, memory, responsibility, and the amount of information to be dealt with. Hoekstra, Hurrell and Swanson (1995) studied two call centers of insurance companies, and established that 92% of the operators frequently felt

Table 3
Distribution of Symptoms of Stress Among Telemarketing Operators, in Relation to Presence of Symptoms in the Last Week

In the last week:	*N*	%
Have you had insomnia due to concerns? (n = 95)		
No or a little	67	70.5
As always	15	15.8
Plus than the usual	12	12.6
Much more than the usual	1	1.1
Have you felt constantly tense? (n = 95)		
No or a little	36	37.9
As always	40	42.1
Plus than the usual	16	16.8
Much more than the usual	3	3.2
Have you felt capable of facing your problems? (n = 96)		
No or a little	15	15.6
As always	76	79.2
Plus than the usual	4	4.2
Much more than the usual	1	1.0
Have you felt unhappy or depressed? (n = 95)		
No or a little	64	67.4
As always	14	14.7
Plus than the usual	16	16.8
Much more than the usual	1	1.1
Have you lost trust in yourself? (n = 95)		
No or a little	79	83.2
As always	7	7.4
Plus than the usual	7	7.4
Much more than the usual	2	2.1

mentally exhausted by the end of the working day.

In this study, training took two months and this was considered by operators a short time considering the complexity of the task. A study of call centers in Great Britain found that call centers usually train their own new employees for 2-6 weeks, after which employees are taught to work independently (Austin Knight & Calcom Group, 1997).

There was a conflict between serving a customer well and keeping call-time down, similar to the findings of DiTecco, Cwitco, Arsenault, and André (1992) who found that this conflict contributed in a very large extent to operators' feelings of stress.

Difficulties in the relationship with customer were found in this study, similar to those found by Hoekstra, Hurrell, and Swanson (1995), who observed that 96% of the operators perceived hostility and customers' abuses. Wisner (1994) highlights that the perceived difficulties in the relationship with the customers should not be underestimated, for they increase the necessary mental effort and, sometimes, the anxiety caused by uncertainty.

In this research the break was of 30 minutes, however Kopardekar and Mital (1994), analyzing the effect of different break outlines in the fatigue and performance at work for operators of telephone aid, recommend the adoption of breaks of 10 minutes after 60 minutes of work. This recommendation is consistent with the findings of Ferreira, Conceição, and Saldiva (1997) in Brazil. These authors analyzed the factors associated with the incidence of musculoskeletal disorders in operators of a bank call center, and verified that time pressure increased the

incidence and breaks of 10 minutes after 50 minutes of work, decreased the number of cases.

A young group of operators, age wise, was observed in this research which is in agreement with the high motivation and visual demands of the work. Wisner (1987) states that young workers are found in jobs with high demands. A study of call centers in Great Britain found that operators and managers were young, usually under 35, and they worked at the call center for only a short time (less than two years) (Austin Knight & Calcom Group, 1997).

Problems with furniture and equipment were found in this study and the combination of non-optimal physical and psychosocial working conditions could increase the risk for the development of musculoskeletal disorders (Bergqvist, Wolgast, Nilsson, & Voss, 1995; Bongers, Winter, Kompier, & Hildebrant, 1993). The workstations were bought recently, but it was an isolated action without an integrated project for the improvement of the environment. And without making comprehensive changes to the work design and work environment, these problems were extremely difficult to solve.

Sznelwar and Zidan (2000) made the following recommendations with respect to the improvement of working conditions in call centers: changes in the system (hardware as well as softwares); changes in the criteria for productivity and quality, valuing more problem solution than the rapidity of the calls and the quantity of calls; substituting electronic monitoring for self performance appraisal; eliminating the need to follow scripts strictly; improving training. These sets of recommendations are very similar to the ones given in this study. The recommendations proposed in this study included measures to increase control over the work of operators, improvement of environmental conditions, equipment and work station as well as aspects of the work organization through the establishment of realistic goals of time and attendance quality, and improvements of the systems and of the relationships among the sections. This group of recommendations follows with the proposals of the World Health Organization (WHO, 1989) and the International Labour Organization (ILO, 1989) to minimize the psychosocial factors of the operators of video display terminals.

Although a methodological discussion was not this study's aim, nonetheless this is an important issue. Dewe (1989) encourages us to investigate what we can achieve from different methodologies. In this study Ergonomic Work Analysis was used, as well as interviews, questionnaires, observations and document analysis. The use of these different methodologies enabled us a better understanding of the organization, work conditions, working organization and processes, content of the work as well as of the operators' perceptions and meanings.

Denzin (1978) has pointed out that different techniques have varying strengths and weaknesses. While interviews are appropriate for understanding personal meanings, they may be less useful for studying everyday actions and organizational structures since speech is not an appropriate measure of behavior (Light, 1979). He suggested that a direct observation enables the most accurate understanding of everyday actions and organizational functions. Questionnaires can be tailored to specific working environment. Thus, according to Handy (1988), the varying strengths of different techniques, which are commonly seen as a regrettable source of error, may become a source of insight and a way of integrating explanations at the level of organization function and structure with explanations at the level of personal meanings.

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