Chapter 4

JOB DESIGN AND EMOTIONAL EXHAUSTION IN HUMAN SERVICE JOBS**

Nicole Stab¹*, Winfried Hacker¹ and Pierre Sachse²
¹Technische Universität Dresden, Department of Psychology, Germany
²Universität Innsbruck, Department of Psychology, Austria

ABSTRACT

This chapter examines the relationships between work organization of hospital wards and mental workload of nurses, especially emotional exhaustion. For this purpose an observational, “objective” analysis of hospital ward organization is applied in order to avoid the limitations of self-reported questionnaires. The chapter examines by means of observation (five shifts per ward) which emotionally relevant characteristics of work organization of hospital wards (5 hospitals; 34 wards; 262 examined nurses) differ between wards. Based on six scales the wards can be classified concerning their quality of work organization (considering among other things ISO 6385 on Design of Work Systems). Objectively well designed wards and rather poorly designed ones significantly differ in nurses’ perceptions of work organization, their perceived strain, and their medium-term emotional exhaustion. Scales measuring patient-centred objective organizational characteristics correspond significantly stronger with emotional exhaustion than those measuring generic characteristics which describe any kind of job. The approach is thought to assist work (re-)design because the highest levels of the applied anchored scales describe the desirable optimal quality of the respective characteristics.

INTRODUCTION

Experimental and field research concerning the relationships between job content or context and emotions have a long tradition since the outstanding contributions of Kurt Lewin

* Corresponding author: Nicole Stab, stab@psychologie.tu-dresden.de.
** Professor Dr. Peter Richter dedicated on the occasion of his 70th birthday
and his co-workers (Lewin, Dembo, Festinger, & Sears, 1944). In this research the essential
relations between goal achievement and emotions were stressed. In more recent research the
role of goals is stressed again: "One of the most common ways of thinking about the causes
and consequences of emotion is in relation to individual’s goals." Extending this approach
“four basic categories of causes of positive and negative emotions at work were found: Those
relating ... to the work task itself; one’s personal situation and future; social relationships
with co-workers and live-managers; and relationships with the organization as a whole”
(Kiefer & Briner, 2006, pp. 196f). Accordingly, recent Philosophical Psychology stresses the
relationships between emotions and the processes of action generation as well as action
execution and control based on contribution of Cognitive Neuroscience (Zhu & Thagard,
2002).

In human service jobs interactions are a well-known source of emotions of service
workers as well as of their clients (Grandey & Diamond, 2010; Hochschild, 1990; Nerdinger,
2011; Zapf & Holz, 2006). There are several reasons: An interaction may produce
automatically empathic concern or even solitary behavior. Further, people attribute intentions
to their partners or clients. These attributions may or may not correspond with their actual
intentions. Nevertheless people evaluate the attributed intentions of clients and this evaluation
may result in emotions. Moreover in interactive human service job emotions show specific
roles: Emotions of the service workers are working means, if they influence emotions and
behaviors of clients (sentimental work). Simultaneously the emotions of the jobholders
themselves may be one of their objectives of work, if they try to suppress unwanted and to
produce desired emotions or emotional expression at least (emotional labor). The
conventional implicate and the organizational explicite display rules of emotions or emotional
expressions – for example service with a smile – determine these roles of emotions as
working tools and as objectives of working activities (Hochschild, 1990; Trougakos, Jackson,
& Biel, 2011).

Emotions are to be characterized by three features, (1) the experienced mental process, i.
e. the feeling as emotional impression, (2) the spontaneously or deliberately produced
emotional expression, and (3) the underlying physiological processes. Display rules require
the presentation of societal or organizational desired emotional expression. Here the essential
concept of emotional dissonance between the – by surface acting – produced emotional
expression and the actually experienced emotional impression comes in. Sustained emotional
dissonance may result in emotional exhaustion, a crucial factor of burnout (Kruml & Geddes,
2000; Leiter & Maslach, 2004; Zapf & Holz, 2006).

Emotional exhaustion is characterized by a couple of emotional items, mainly irritation,
anxiety, hurry, aversion, disgust and the impressions of being burnt out and mentally empty
(e. g., Maslach & Jackson, 1982). Emotional exhaustion corresponds with low intrinsic work
motivation (r = -.40, p = .001), missing work satisfaction (r = .52, p = .001) and high aversion
against clients (r = .48, p = .001) (Hacker & Reinhold, 1999).

The approach of emotion regulation in working processes and the approach of the entire
mental regulation of working tasks are merely integrated up to now. The process model of
emotion regulation (Gross, 1998a, b) hints at an integration: The distinction between response
focused emotion regulation and antecedent focused emotion regulation by means of proactive
cognitive attempts offers a possibility of an integration and, moreover, may become important
for the prevention of emotional exhaustion by job design.
So far emotion management on the job seems to be limited on employee-centered attempts. These are reappraised by deep acting as antecedent-focused emotion regulation, suppression of undesired emotion expression and the faking of a required expression by surface acting as response-focused emotion regulation (Grandey, 2000; Diefendorff, Croyle, & Gosserand, 2005; Zapf, 2002). However, this limitation does not apply: “Proactive attempts to manage affective experience, such as selecting some situations rather than others, can serve as antecedent (before the response happens) form of emotion regulation ...” (Isaacowitz & Blanchard-Fields, 2012, p. 4). Thus, emotion management turns to be a component of the more comprehensive self-control at work in favor of goal-oriented work behaviour (Baumeister, Vohs, & Tice, 2007; Schmidt & Neubach, 2010).

Recently, Grandey and Diamond (2010) discussed two perspectives which share the view that social interactions “are a critical job design feature” ... due to the “dramatic shift from a manufacturing to a service-based economy” ... “but have contradictory views about how they impact employee outcomes” (p. 338). These are the job design perspective and the emotional labor one. In order to bridge this gap, these authors discussed four dimensions of service behaviour (Grandey & Diamond, 2010; P. 339): “(1) Content and mode of communication, (2) temporal relationship, (3) interactional autonomy and (4) interactional complexity”.

Following Action Regulation Theory (Hacker, 2003; Leontjew, 1979; Lewin, 1926) we propose not to interpret interaction in the narrow sense of communication only, but also to consider which features of the entire cooperation or co-production of employees with clients may have impact on employee outcomes. Thus, one may widen the approach of antecedent focused emotion regulation by means of job (re-)design and by training of coping strategies. Thereby a preventive aspect may be added to emotion management (Figure 1).

Although, in the following paragraph, we will stress the impact of job design, especially of work organization on employee outcomes, it is important to mention the antecedent-focused role of personal strategies, too, which cope with emotional stress. This applies, especially shielding by detached concern (Lampert, 2011; Lief & Fox, 1963). Figures 2 and 3 illustrate the effect of this strategy for the prevention of emotional exhaustion of teachers and clinicians (Hacker & Looks, 2007).

![Figure 1. Enlarged strategies of emotion-integrating action regulation.](image-url)
Figure 2. Effect of emotion management: relationship between emotional exhaustion and shielding by detached concern (scales of BHD-system, N = 119 clinicians; Hacker & Looks, 2007, p. 205).

Figure 3. Effect of emotion management: relationship between emotional exhaustion and shielding by detached concern (scales of BHD-system, N = 139 teachers; Hacker & Looks, 2007, p. 208).

Obviously, besides job design the professional training of coping strategies may prevent emotional strain in human service jobs.

In the following paragraph we report on those features of work organization of hospital wards that are of interest for a preventive type of antecedent-focused emotion management by job design.
QUESTIONS

A considerable number of features which might describe organization of hospital wards is offered in international standards (DIN EN ISO 6385, 2004), in theoretical contributions (e.g., Humphrey, Nahrgang, & Morgeson, 2007), and field studies (Glaser, 2006; Glaser & Büssing, 1996). Therefore, we are first interested in into which scales these items maybe classified. Next, we are interested in whether different wards of various hospitals actually differ as to these scales. The third question is, whether the descriptions of work organization by work studies applying the analysis of documentations and the observation of task accomplishment correspond with work organization as it is perceived by the nurses. This question is important because the employee outcomes may be mediated by the subjective perceptions of the work situation (Dollard, La Montagne, Caulfield, Blewett, & Shaw, 2007; Figure 4). Our main interest is in whether there are significant differences between perceived work strain and perceived emotional exhaustion of nurses working on wards with differing observed work organization. If these differences actually exist, a further question arises: Will the differences in emotional exhaustion continue to exist if organizational covariables (type of hospitals and wards) and personal ones (e.g., age, gender) are controlled for? If so, finally, we will analyze which aspects of work organization mainly correspond with emotional exhaustion. Following our first paragraph we hypothesize that the highest correspondence will exist for features describing the immediate interactions with patients.

METHODS

We analyzed 34 wards (internal, surgical and ICU) of five hospitals with a total of 262 nurses (95% female; age: 39.0 ± 10 years).

Figure 4. Job design and employee outcomes: Hypothetical relationships.
Work organization was investigated by the analysis of relevant documentations, an interview with the head nurses, and direct observations following a guideline based on the DIN EN ISO 6385. These observations took place for each of the 34 care units during the entire shifts of five working days. Thus, 35 hours of observation per care unit took place.

The features of work organization perceived by the nurses and the corresponding reported mental strain are studied with an unstandardized questionnaire (Stab, 2011). Emotional exhaustion was measured with the relevant scale of a validated instrument, the BHD-Questionnaire (Cronbach’s alpha coefficient .82; Hacker & Reinhold, 1999). The correlation of this scale with the corresponding one of the German version of the Maslach Burnout Inventory (MBI-D, Büsingen & Perrar, 1992) is \( r = .79, p = .001 \).

The statistical data analysis is outlined below and was carried out with SPSS 17.0. The research has been approved by the ethics committees of the hospitals.

**Table 1. Factors of the work organization of care units. Diagonal: Cronbach’s alpha; intercorrelation of factors and their characteristics**

<table>
<thead>
<tr>
<th>No Scales / Factors</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Number of items</th>
<th>M ± SE</th>
<th>explained variance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Organization of nursing</td>
<td>.78</td>
<td>.32</td>
<td>.27</td>
<td>.36*</td>
<td>.52**</td>
<td>.08</td>
<td>9</td>
<td>1.29 ± 0.09</td>
<td>23.5</td>
</tr>
<tr>
<td>2. Organizational conditions of patient-friendliness</td>
<td>.79</td>
<td>.51*</td>
<td>.52**</td>
<td>.20</td>
<td>-.12</td>
<td>13</td>
<td></td>
<td>1.83 ± 0.06</td>
<td>14.8</td>
</tr>
<tr>
<td>3. Participative work organization</td>
<td>.84</td>
<td>.43*</td>
<td>.22</td>
<td>-.03</td>
<td>7</td>
<td></td>
<td>1.87 ± 0.06</td>
<td>7.9</td>
<td></td>
</tr>
<tr>
<td>4. Conditions of cooperation within the team</td>
<td>.85</td>
<td>.27</td>
<td>.01</td>
<td>10</td>
<td></td>
<td>1.95 ± 0.06</td>
<td>7.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Predictibility of tasks</td>
<td>.75</td>
<td>.22</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>1.78 ± 0.13</td>
<td>5.3</td>
<td></td>
</tr>
<tr>
<td>6. Availability of information</td>
<td></td>
<td>.65</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>2.18 ± 0.05</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td>M ± SE: Mean ± standard error</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>49</td>
<td>63.4</td>
<td></td>
</tr>
</tbody>
</table>

\( 0 = \) unfavourable organization; \( 3 = \) favourable organization.

\* \( p = .05; ** \( p = .01 \).

**RESULTS**

First, the relevance of a total of 88 items was evaluated by 27 head nurses and the reliability of the relevant items was tested. For the items remaining after the selection, a factor analysis showed six factors which describe the work organization of care units (Table 1). Both, interrater-reliability (.76..., .92 for two trained observers) as well as retest-reliability (.72..., .90) were sufficient for all scales.

The scales are suitable to identify differences within the observed work organization of the analyzed wards. For reasons of simplification, we categorized the 34 wards into three groups regarding the overall design of work organization based on the six scales. Seven units
are well-designed, nine are rather well-designed and 18 mediocre-designed regarding their work organization.

The nurses' perceptions of work organization correspond with the categorization based on observation (cf. Table 3).

The essential point is: For units with rather poor work organization the percentage of nurses with critical degrees of emotional exhaustion is more than twice the percentage of the wards with well-designed work organization (Figure 5).

However, we raised the question (paragraph 2.1) whether this difference continues to exist, if organizational covariables (e.g., type of hospitals) and personal ones (e.g., age) are controlled for. Since in this sample no significant differences between the nurses coping strategy of detached concern (cf. Figure 4) were identified, this item was not considered within the personal covariables. The significant relationship between emotional exhaustion on care units with differing observed working organization continues to exist even after the exclusion of possible organizational (characteristics of hospitals and wards) and personal (characteristics of personnel, e.g., age and gender) covariables by a regression analysis (backward). This is shown in detail in Table 2.

Furthermore, the relationship between observed work organization and emotional exhaustion is only partially mediated by the nurses' perceptions of job characteristics. Without considering a mediation the relationship between work organization on the wards and emotional exhaustion is $R^2 = .05$ (Beta = -.22 with $F = 12.0, p < .001$). Considering perceived job characteristics as mediating link results in $R^2 = .23$ ($F = 29.8, p < .000$) with Beta = -.44 ($p < .000$) for the perceived job characteristics and Beta = -.15 ($p < .05$) for the observed work organization of the wards as predictors of emotional exhaustion. Sobel's z-test indicated a significant partial mediation, $z = 2.46, p < .05$, but the bootstrapped 95% confidence interval of the indirect effect (.15) did not quite exclude zero [.04-.28].

![Figure 5. Percentages of nurses with different degrees of emotional exhaustion for three categories of work organization.](image)
Table 2. Prediction of emotional exhaustion by documented and observed work organization (hierarchical regression analysis / backward)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Step</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>Characteristics of hospitals (covariables)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of hospital</td>
<td>-06</td>
<td>-03</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Specialization</td>
<td>-03</td>
<td>-03</td>
<td>-03</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>-03</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>.12</td>
<td>.12</td>
<td>.12</td>
<td>.12</td>
<td>.12</td>
<td>.12</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-02</td>
<td>-02</td>
<td>-01</td>
<td>-01</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Tenure</td>
<td>.22</td>
<td>.22</td>
<td>.19</td>
<td>.19</td>
<td>.19</td>
<td>.13</td>
<td>.11</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Years on ward</td>
<td>-10</td>
<td>-10</td>
<td>-09</td>
<td>-09</td>
<td>-09</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Observed work organization</td>
<td>-.25</td>
<td>-.24*</td>
<td>-.24*</td>
<td>-.24*</td>
<td>-.24*</td>
<td>-.24*</td>
<td>-.23*</td>
<td>-.25*</td>
<td>-</td>
<td>observed work organization (independent variable)</td>
</tr>
<tr>
<td></td>
<td>R²</td>
<td>.10</td>
<td>.10</td>
<td>.10</td>
<td>.10</td>
<td>.09</td>
<td>.08</td>
<td>.06</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>R²corr</td>
<td>.01</td>
<td>.02</td>
<td>.03</td>
<td>.02</td>
<td>.05</td>
<td>.05</td>
<td>.05</td>
<td>.05</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

* p<.05.  - Excluded variables.

We thus take this as evidence for a weak mediation. That means the direct effect of observed ward organization on emotional exhaustion is an essential one. This is illustrated by Table 3 and Figure 6.

![Figure 6. Comparison of direct vs. mediated prediction of emotional exhaustion.](image)

Figure 6. Comparison of direct vs. mediated prediction of emotional exhaustion.

Table 3. Prediction of emotional exhaustion by observed work organization and task characteristics perceived by nurses

<table>
<thead>
<tr>
<th>Regression models</th>
<th>Beta</th>
<th>corr. R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Regression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed ward organization – Emotional Exhaustion</td>
<td>-.22*</td>
<td>.05</td>
</tr>
<tr>
<td>Observed ward organization – Perceived task characteristics</td>
<td>.19*</td>
<td>.03</td>
</tr>
<tr>
<td>Mediated Regression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed ward organization – Emotional Exhaustion</td>
<td>-.15*</td>
<td>.05</td>
</tr>
<tr>
<td>Perceived task characteristics – Emotional Exhaustion</td>
<td>-.44**</td>
<td>.23</td>
</tr>
</tbody>
</table>

* p<.05; ** p<.01; *** p<.001.

Thus, the crucial question remains to be answered, which of the individual factors of observed work organization of the care units decisively correspond with emotional exhaustion.
Again neither the organizational nor the personal covariables significantly predict emotional exhaustion. A significant prediction is actually offered – as was hypothesized in paragraph 1 – only by those organizational variables which determine the conditions of immediate interactions with the patients. These are scale 1 “Organization of nursing” and scale 2 “Organizational conditions of patient-friendliness”. Examples of relevant items for scale 1 are the division of labor (task identity) as to the patient-centered interactive tasks or the number of patients per nurse. Relevant items for scale 2 for example are the allocation of patients to their rooms, the introduction of patients, the nurses’ advice to the doctor during rounds, the consultation of experts in the case of patients’ crises and the possibility of giving psychosocial care to the patients. This is demonstrated in Table 4.

**DISCUSSION**

Bridging the gap between the “contradictory views” of job design and of emotional labor (Grandey & Diamond, 2010, p. 338) indeed offers promising approaches. There are features of job design, in our case especially of work organization, which significantly correspond with negative emotionality, emotion work and emotional exhaustion of employees. Thus, job design maybe an antecedent-focused preventive strategy of emotion management.

For this reason it is important to realize: The task features differ regarding their relationships with emotional responses, including emotional exhaustion. At least in interactive human service jobs the essential impact of directly client-centered task features seems to be more important than generic task characteristics (e.g., variety or autonomy) which describe object-centred tasks, too.

**Table 4. Prediction of emotional exhaustion by individual factors (scales) of observed work organization (hierarchical regression analysis / backward)**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Step 1</th>
<th>Step 2</th>
<th>... 4</th>
<th>... 8</th>
<th>... 10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of hospital</td>
<td>.34</td>
<td>.33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialization</td>
<td>-.10</td>
<td>-.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>-.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>.08</td>
<td>.08</td>
<td>.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.06</td>
<td>.08</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenure</td>
<td>.25</td>
<td>.27</td>
<td>.26</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years on ward</td>
<td>-.05</td>
<td>-.05</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scale 1</td>
<td>-.12</td>
<td>-.12</td>
<td>-.26</td>
<td>-.23</td>
<td>-.23*</td>
<td>-.23*</td>
<td>-.22*</td>
</tr>
<tr>
<td>Scale 2</td>
<td>-.33</td>
<td>-.32</td>
<td>-.28</td>
<td>-.29</td>
<td>-.26*</td>
<td>-.25*</td>
<td>-.25*</td>
</tr>
<tr>
<td>Scale 3</td>
<td>-.08</td>
<td>-.06</td>
<td>-.04</td>
<td>-.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scale 4</td>
<td>-.19</td>
<td>-.16</td>
<td>-.09</td>
<td>-.06</td>
<td>-.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scale 5</td>
<td>.00</td>
<td>.00</td>
<td>.05</td>
<td>-.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scale 6</td>
<td>.40</td>
<td>.39</td>
<td>.15</td>
<td>-.06</td>
<td>-.04</td>
<td>-.04</td>
<td></td>
</tr>
<tr>
<td>R²corr</td>
<td>.02</td>
<td>.04</td>
<td>.04</td>
<td>.06</td>
<td>.08</td>
<td>.09</td>
<td>.10</td>
</tr>
</tbody>
</table>

* p<.05.
- Excluded variables.
Since, however, the possibilities to re-design tasks in human service jobs with emotionally stressing requirements are limited – especially in nursing – the professional training of preventive coping strategies is indispensable. "The Revised Empathic Communication Model of Burnout" (Miller, Birkholt, Scott, & Stage, 1995) describes the necessary content of this training: Emotional contagion corresponds with the risk of depersonalization and emotional exhaustion, whereas for detached empathic concern this risk is low.

Thus, emotion management in a service-based economy should not be reduced on reappraisal of feelings or suppression and faking of emotional expressions. Rather, job design and professional training should be essential measures to reduce mental including emotional work load in human service jobs, too.

REFERENCES


