Making sense of stress indicators: Managers' perceptions of a non-normative feedback intervention

Abstract

Purpose: To provide feedback to health care managers on stress indicators measured during a work week, and thus explore whether and how feedback of stress-indicating data was perceived and appraised as 'meaningful' by participating managers.

Design/methodology/approach: Stress indicators in 12 managers were measured during one work week, using two bio-measures and one self-assessment scale. This data was fed back in a structured interview session. The participants' narratives were analysed using conventional content analysis, as this method organizes qualitative data into conceptual classifications. This analytical approach was chosen since narration is a basic human means for making sense of situations and events.

Findings: The feedback sessions encouraged sensemaking of the stress indicators through a two-step appraisal process. The sessions triggered meaning-making of the participants' perceived and observed stress, but there were also obstacles to learning from the feedback. The initial appraisal contained reactions of surprise, questioning, confirmation, and displeasure. The further appraisal expressed a deepened understanding and a willingness to learn. In this phase, the participants viewed the feedback as more sensible, interesting, and personally relevant. The second phase followed the initial reactions; however, this phase did not occur among managers who found their feedback data inadequate for learning.

Research limitations/implications: This study was conducted on a small sample and analysed managers' perceptions of feedback at one point of time. Further analyses of feedback sessions

in other contexts with different subjects may extend or contradict the implications presented in this article.

Practical implications: Non-normative, interactive feedback interventions for sensemaking, learning, and behavioural change can be useful in practice. Key processes in making sense of stress indicators can aid stress management by increasing managers' awareness and supporting learning about their stress.

Originality/value: This study showed the value of sensemaking in the process of understanding and processing feedback data, mainly due to its learning potential. Feedback involving multiple data sources can aid remembrance of past behaviour and stimulate reflection. The non-normative dialogue approach seems important in this process, because it allows intentions to be formed by the recipients themselves. Thus, this feedback session design may aid individual managers' stress management.

Introduction

Many lower managers in public health care experience strain due to high stress exposure and time demands. It is clear from the current literature that health care managers experience high levels of stress and also that they find it difficult to communicate their stressful situation (Eklöf *et al*., 2010; Tengelin *et al*., 2011a). For instance, around 80% of the managers in a Swedish cohort reported needing to work overtime, taking work home with them, or lacking sufficient time for their work tasks (Eklöf *et al*., 2010). Managerial work is a time-consuming job including responsibility for the well-being of organizations and individuals; and as shown in a recent review, leadership is linked to individual well-being and safety in organizations in several ways (Kelloway and Barling, 2010). Leadership development can thus be a good way

to enhance occupational health (ibid). High psychological demands are part of managerial work, as well as high skill discretion and high decision latitude (e.g. Bernin and Theorell, 2001). Even though observation studies have shown that managers have individual operating freedom in their use of time (Arman *et al.*, 2009), research suggests that conflicting time and job demands are recurring issues. For instance, managers choose and use diverse leadership logics in order to master the demands imposed on them (Wikström and Dellve, 2009); and ethical stress may occur due to their conflicting legitimacy norms (Dellve and Wikstrom, 2009). The likely disruption of focus in work time is pinpointed by the multitude of job activities health care managers perform during a workday (Arman *et al.*, 2009). Regarding stress exposure on a more contextual level, working conditions in the human service sector often involve organizational-professional conflicts and unmet expectations that managers as well as employees have to cope with (Lait and Wallace, 2002). One stressor which particularly affects first-line managers is the demand to satisfy needs and requirements coming both from their employees and from managers higher up in the organization (Skagert *et al.*, 2008). In addition, nurse managers shoulder the responsibility for the sustainability of hospital organizations; retention and job satisfaction among nursing staff is related to aspects of the approach taken by their unit managers, for example visibility, accessibility, consultation, recognition, and support (Duffield *et al.*, 2011). This perceived fragmentation, contradictory principles, and sometimes unclear responsibilities contribute to managers' need for boundary-setting strategies for delimiting work. A recent study described health care managers' temporal, spatial, or mental boundary approaches and subsequent experiences of stress exposure and time use. The authors suggest that managers' acknowledgement of boundary-setting as a stress-related issue could start a constructive process of negotiating their stress, boundaries, and time commitment at work and in life (Tengelin *et al.*, 2011b). One important feature that may act as a stress buffer, often generating positive feelings for the

individual, is feedback (Jimmieson and Terry, 1999). Feedback regarding one's job is an important dimension of working life, since it can generate positive outcomes both for individuals' psychological resources and for their objective work conditions (Hackman and Oldham, 1975). In its most simple sense, feedback consists of information regarding an individual's past behaviour, in the form of a message, a source, and a recipient (Ilgen *et al*., 1979). In order for a feedback message to be of any practical value, the recipient has to be able to transform it into meaningful units by means of interpretation and evaluation (ibid). The concept of feedback interventions has been described as 'actions taken by external agents to provide information regarding some aspects of one's task performance' (Kluger and DeNisi, 1996, p. 255), usually with the intention of drawing attention to certain undesirable conditions in the working environment (Eklöf, 2004). Managers themselves have pointed out that feedback on perceived stress may be beneficial for their increased understanding and control of stress, strain, and time use (Wikstrom *et al*., 2011).

This article describes a feedback session in which health care managers were given feedback on three kinds of stress-indicating data collected from them during a work week. The aim was to explore how feedback of stress indicators is perceived and whether this feedback is appraised as meaningful units. In analyzing our empirical material, we used the concept of sensemaking, which describes a cognitive structuring process carried out retrospectively in order to make sense of something odd or unfamiliar (Weick, 1995). 'Sensemaking' could be helpful in understanding the recipients' perceptions of meaning, and their feelings of order, clarity, and rationality related to the feedback. Knowledge regarding feedback perceptions may make it easier to design useful individual-level stress-management feedback interventions, and also add to the body of underlying theory.

Method

Participants

The participants consisted of 12 randomly-selected first-line managers from three divisions of a medium-sized hospital organization. The inclusion criteria were 1) managing a medical or surgical ward with inpatient care, 2) not working clinically, and 3) having held this position for at least one year. We obtained lists of wards and managers from the Human Resources department, and assigned a number to each eligible individual in the list. These numbers were written down on pieces of paper, and an external person was asked to draw lots five at a time from one division at a time. In this way, 22 individuals were step-wisely invited to participate in the study; 12 of them agreed to participate and completed the study. The reasons cited by those who chose not to participate were fear of extra workload (n = 9) and approaching retirement (n = 1). Due to the explorative character of the study and limitations related to the extensive data collection, we made no further inclusion of participants. The final group included ten women and two men aged 34–56. They were all registered nurses who had been working in their current managerial positions for 1–20 years, with 25–50 subordinates. All lived with a partner, and some but not all had children living at home.

In the letter inviting the managers to participate in this research project, the study was described as an intervention intended to help develop methods to support managers in their handling of stress and time pressure. Participation would mean that data regarding individual time use and stress was collected for a later feedback session. The potential participants were informed that they would be given feedback on the data collected at an agreed point in time,

but the design of the feedback session was not described in any way. If the invitation to participate was accepted, instructions for the data collection were given in a further email which described all other details of the study. Participants were sent an email 1-3 months after the data collection, inviting them to the feedback session and informing them that this session would be guided by two researchers and would consist of a dialogue around the previously collected data. The feedback was given 2-6 months after the data collection.

Data collection

The data was collected from the participants during one work week in March–June 2010. The researchers suggested the date of the week, but the managers were also able to propose a week themselves. The managers were asked not to make any special arrangements for this period of time, in order to ensure the measuring week was as 'ordinary' as possible. Three stress indicators were used to assess the managers' states of stress: one self-rating scale and two measures of acute autonomic responses. Their perceptions of stress and energy levels were measured with self-rated mood, while galvanic skin response and heart rate were used to measure emotional and physiological stress. Time-use data was also collected, but not analyzed, instead being used simply as a memory aid during the feedback session.

Self-ratings of stress and energy. Self-reported mood was measured with the Stress-Energy scale. This consists of twelve mood adjectives, six related to an energetic state of mind and six related to stress (Kjellberg and Iwanowski, 1989; Kjellberg and Wadman, 2002). Every adjective (e.g. tense, passive, calm) is rated on a six-point scale ranging from 'Not at all' to 'Very much'. The managers were instructed via email to fill out the scale by hand in the morning after arriving at work, before lunch, before going home, and in the evening at home

before going to bed (Wikstrom *et al.*, 2011). Each participant's ratings were charted on a diagram, which was printed and given to them to view during the session (figure 1).

[Insert figure 1 about here]

Emotional stress arousal. Emotional stress was measured via galvanic skin response assessed with the SenseWear armband (SenseWear Body Monitoring systems). This armband also measures activity level, which in the present study was mainly used to ensure that the peaks discussed were due to emotional arousal rather than to physical activity. The armband incorporates sensors, and is worn around the left upper arm. Participants were asked to put the armband on first thing on the Monday morning of the data collection week, and to continue wearing it as much as possible, including in the evenings and at night, until they finished work on Friday evening. Following this, the armband data was transferred to the AffectiveDiary software, which transformed the arousal data into figures on a timeline (figure 2) (Ståhl *et al.*, 2009). Each recorded hour was transformed into five shapes displayed in different colours and positions according to the user's recorded level of galvanic skin response and activity. In this system, purple represents the highest arousal, followed by red, yellow, and green. Blue represents the lowest arousal or the calmest situation. During the feedback session, a laptop computer was placed in front of the recipient to allow them to watch the shapes.

[Insert figure 2 about here]

Heart rate measurements. Heart rate was used as a measure of acute stress reactions, assessed using a PolarPro pulse watch around the wrist and a belt around the chest. Participants were

asked to start the watch when they began work on Monday morning and to stop it when they finished work on Friday evening. The measurements were transferred to the PolarPro software and presented as diagrams, one for each day during the work week. The diagrams were printed and given to the recipients to view during the session.

Time-use data (collected but not analyzed). Time use was measured by the same observer for all 12 participants (E.T.). This observer shadowed the manager for two work days during the week of the stress measurements, using a semi-structured computerized schedule to clock, categorize, and comment on every activity that was carried out, using categories such as participants in the activity, location of the activity, and time pressure of the activity. The time-use data was not used as a primary feedback source, but used during the feedback session to facilitate participants' recall of the observation week. When discussing a particular episode that had occurred during the observation week, the researcher could describe factors related to the episode, for example: "This Tuesday two of the nurses called in sick, so you spent twenty minutes on the phone first thing in the morning…"

The design of the feedback session

The feedback sessions were carried out during June, September, and October 2010. During each session, the two researchers guiding the session fed back the data from the three different stress-related measurements, without giving prescriptions about 'appropriate' or 'harmful' behaviour according to any previous norms or standards (which is the common principle of providing feedback). The sessions were carried out in conference rooms at the hospital where the participants worked. On arrival, the manager was asked to sit down in front of a computer screen, the purpose of the study was repeated, and the structure of the feedback session was described. The participant was then handed paper copies of their heart rate and stress-energy

diagrams so that they could freely comment and relate them to the AffectiveDiary representations on the computer screen. Each session lasted for at least 60 minutes, and was tape-recorded and later transcribed verbatim by external personnel. The structure of the sessions is described below.

The researchers first gave an overview of the recipient's work week according to the three data sources. An example of Stress-Energy feedback would be: "You usually start work in the morning with a low level of energy, but your energy increases as the day passes. You tend to leave work in a non-stressed mood with plenty of energy, except for Thursday." An example of emotional stress arousal feedback would be: "This week you were more emotionally aroused during the evenings and nights than you were during the working day." Finally, an example of heart rate data feedback would be: "Your pulse curve shows that you have a steady heart rate as long as you're at work, but you seem to reach high heart rate peaks after work hours."

The researchers then highlighted 3-5 episodes in the data. These were selected in advance according to the following criteria: a) a recurring pattern during the week, b) a sudden rise in stress, or c) a stable period without stress arousal. These patterns could be exemplified with data from any of the three sources. Each episode and its corresponding stress measurements were then described briefly by one of the researchers and the recipient was asked if they remembered the event (if not, time-use data from the observations was used to facilitate recall, as described above), how they had acted, how they had felt, how they viewed this situation, and whether they thought they could act differently the next time a similar situation occurred. Finally, the recipient was asked to reflect on the feedback situation itself and whether it had had any value to them. The aim of these interview questions was to facilitate

the recipients' efforts to make sense of their past actions (Gertsen and Søderberg, 2010). During the interview, the researchers strove to let the participants elaborate on what seemed to be central, important concerns for them in relation to the selected episodes.

Data analysis

Narrative responses were encouraged during the feedback session, since analysis of managers' explanatory narrative statements of actions, situations, and experiences enables researchers to explore how these experiences are made sensible in the organization (Llewellyn, 1999). This approach is further supported by narrative theorists who emphasize the human use of narration as a basic act of meaning-making; we were particularly interested in whether the feedback data could evoke recipients' narrations (e.g. Bruner, 1991; Polkinghorne, 1988). We considered conventional qualitative content analysis to be an appropriate method for analyzing the narrative data, being a means for examining language and communication use in order to inductively describe a phenomenon where existing theory is limited (Hsieh and Shannon, 2005). The principle of the method is to organize data into inductively derived categories through a process of coding and categorizing, and thus to identify central themes or patterns (ibid).

The procedure in this study was as follows. One of the researchers (E.T.) read all twelve feedback transcripts word by word several times to find statements that expressed the managers' perception of the feedback. This reading began as soon as the first interview had been transcribed. The aim was to find accounts that expressed the managers' perceptions and explanations of (1) the selected episodes focused on during the feedback, and (2) the experience of the feedback session as a whole. In order to derive analytical categories, this

researcher highlighted the exact words and passages from the transcripts that appeared to capture the managers' key thoughts (Hsieh and Shannon, 2005), and then discussed these statements with the other interventionist (L.D.). Labels for the identified themes were suggested by both researchers during these discussions, and used to create a preliminary coding scheme aimed at organizing the text into fewer content categories (Weber, 1990). Examples of the initial codes include e.g. *bad conscience over one's sleeping problems* and *showing hesitation towards the technique used during the session*. When using content analysis, it is essential to develop a coding scheme in order to ensure trustworthiness (Hsieh and Shannon, 2005). As each transcript was analyzed, the preliminary categories in the coding scheme were either confirmed or supplemented by the creation of a new one in order to refine and describe the data. As codes were added, they were grouped in clusters according to their theme, and given preliminary labels. In order to describe the data as well as possible, it was essential that the categories were exhaustive so that each analyzed statement fitted only one category. After analyzing the twelve transcripts, the two researchers reached consensus on two categories containing four sub-categories each. These were labelled, and quotations were selected to illustrate the analysis.

Results

Initial and further appraisal of the feedback data

The analysis showed that the feedback session was perceived in two phases. We conceptualized the initial phase as an initial appraisal, which described the participants' immediate reactions to the feedback and assessment of the feedback session. The initial appraisal contained surprise, questioning, confirmation, and displeasure. We identified four

11

categories describing various kinds of initial appraisals: *Allowing oneself to show surprise*, *Questioning of strategies*, *Verifying the fundamentals of being a manager*, and *Finding one's data inadequate for learning*. The second phase, which we conceptualized as further appraisal of the feedback, followed the initial reactions; however, this phase did not occur among managers who found their feedback data inadequate for learning. The further appraisal expressed a deepened understanding and a willingness to learn. In this phase, the participants viewed the feedback as more sensible, interesting, and personally relevant. We again identified four categories describing the various kinds of further appraisals: *Reinforcing manager confidence*, *Observing dual obligations related to work and private life*, *Revealing specific difficulties*, and *Standing out as the lonely struggler*. The further appraisal was expressed exclusively through narrative explanatory statements, whereas the initial appraisal consisted of less descriptive accounts. The categories are described below.

An initial appraisal: Assessing the feedback information

Allowing oneself to show surprise

During the feedback sessions, the managers expressed curiosity and interest in their feedback data. The following quotation gives an example of how they reacted when their self-rated mood did not correspond to the emotional stress arousal measurement. In the episode discussed, the manager remembered being emotionally upset at the time even though this was not shown in the feedback data.

> Interviewer: Are you surprised that you weren't purple there, at four o'clock?
> Manager: Yeah, I did feel very upset then, but it doesn't show! Perhaps it doesn't necessarily…
> correspond? […] No, I don't seem affected at all!

When the participants reflected on their actions during the observation week, they had expectations for their stress patterns that were not always visible in the feedback data. Some

of them perceived this with curiosity, and interpreted it as new knowledge about their physiological stress reactions:

> Well, it's pretty obvious that when I'm feeling stressed, my body doesn't necessarily react in the same way! That's kind of strange. And the other way around too, it might be that when my body shows a stress reaction, I might not perceive it as something remarkable.

This sub-category describes the managers' initial feedback appraisal of surprise and interest. They were unprepared for what they saw in the data, and said that the feedback told them something new and unexpected.

Questioning one's strategies

There were also some critical reactions during the initial appraisal phase. The feedback session triggered long-term outlooks among the managers and sometimes pessimistic reflections about their future resources.

> Manager: You can really ask yourself that. Is this the way it should be? Should it be that I arrive at work every day and get stressed in the afternoon? It strikes me now, as we sit here and talk, that you can ask yourself if you get used to [these ways of working]. This feedback looks "good" to me, because it shows what I expected to see. But does it really show something good?
> Interviewer: Every afternoon during this week, we see a rise in self-rated stress.
> Manager: Yeah, and I'm aware of that. It's terrible, really. I have to learn how to scale back and acknowledge that I'm currently living in a way that's not good for my health…

The feedback data led the participants to question their strategies, and appeared to make them reflect on their stress-related behaviours and strategies more than they had done previously.

> I need to put up some more boundaries. And really consider whether I should participate in something or not. [The observation] made me very aware of how things are, and how available I am most of the time. […] That's kind of a problem I have, I suppose. That I should make clear what it is I should do. And in fact, this is what I have started doing afterwards.

This sub-category shows how in their initial appraisal the managers used the feedback as a trigger for awareness of their strategies at work. The feedback encouraged a change of

behaviour that the participants themselves considered essential for maintaining their health and continuing to function.

Verifying the fundamentals of being a manager

Some of the participants' initial reactions appeared to verify their core conceptions of their work values as managers. Patterns and episodes in the feedback data were immediately interpreted as confirmation of 'manager reactions'. One example of this was a meeting which the recipient had self-rated as stressful, during which the AffectiveDiary indicated an emotional stress arousal.

> There was a person there in the corner who said hello to me and I guess I said hello to her. And then later it hit me that I had hired her as a summer holiday stand-in. That was kind of embarrassing… when I sat there during the meeting it hit me that, oh my god, it's her. Devastating! Really, that's a major mistake; you're not allowed to do something like that! You need to know who you have hired, and what they look like, and you need to be friendly and smiling to them…

This sub-category shows how the participants in their initial appraisal saw the feedback as confirming important values in their work as managers.

Finding one's data inadequate for learning

Some of the managers expressed displeasure with the feedback data, saying that it was difficult to understand. This was particularly apparent among those who were already uncomfortable with using computer systems.

> I had to struggle to understand these figures, to be honest with you. For example, what can you say about this shape? […] When we started using our new scheduling system, it took some time for me to understand it. So here… the green shape there tells me that I'm getting warmer? And this blue one, am I cooling off, then?

Those who had expected a different kind of feedback found the feedback session to be disappointing on the whole. Some of them were more eager to receive a subjective evaluation

from the observer (E.T.) than to be given a demonstration of their stress indicators, and they made less effort to understand the data.

> Honestly, I had some trouble understanding this whole thing… […] I think that this feedback is good, but I would also like to hear your opinion of me, and whether this feedback data sort of corresponds to your picture of me during those two days? That, I think, would really give me more.

This sub-category shows how some of the recipients in their initial appraisal considered the feedback inadequate for learning about their stress.

Further appraisal: Understanding of the feedback session

Reinforcing manager confidence

During the second phase of reflections regarding the feedback data, the managers pointed out the resources available to them in handling stress in their work. Getting a good night's sleep was one example of a recovery strategy. Helping out clinically was another act that helped to buffer stressful situations. Their ability to identify such resources exemplified their successful approach to their managerial work. Describing their commitment to their patients, clinical work, and subordinates was a way for the managers to understand their feedback reactions.

> […] it is really appreciated. A pair of extra hands in the clinical work during morning hours is really needed, and then I have to set aside my own work, it's piling up at my desk instead. But that's a priority for me right now because I believe it's important. Both for me and for the ward.

The managers often mentioned their family members when they reflected on the episodes under discussion. Stability in private life was essential for handling their work as a manager, and a satisfying balance between the domains of work and private life constituted a frame for understanding their feedback data.

> This is how I feel I have to lead my life to be able to cope with this job. And it doesn't burden me. I see it as the choice I've made, and it suits me fine […]

Self-awareness was another type of resource that the managers reflected on, triggered by the physiological feedback data. The data could remind participants of their bodily reactions during stressful episodes and confirm their memories, strengthening them in their self-knowledge.

> This gives me a confirmation of my own reactions, which are not really a secret to me, but unless they are shown in such an objective manner I don't really reflect on them. But I do recognize the pattern. In my body I mean, I sense the pattern.

This sub-category describes the feedback session as an identifier of capabilities, resources, and strengths in the managers' work.

Observing dual obligations related to work and private life

Another way that the managers could understand their feedback data was in terms of unwanted patterns in their daily lives, such as a lack of recovery after the end of the working day. They described their efforts to prioritize, and reflected on the obligations they had in their private lives.

> Interviewer: Looks like you change your state of arousal when you exchange your working environment for your home.
>
> Manager: Yeah, I guess it's the cooking and everything around the kids… […] One of them has a disability. So, I have stuff that occupies me at home, no doubt about that… which is my situation at work, too. I can imagine that is part of what stresses me. Interesting!

The participants described their managerial work as a challenging obligation in their lives, but not the most challenging. They felt they could blame themselves for not having better ways of coping with the balance between the two domains, and they understood the feedback as giving guidance for alternative strategies.

> Those times, when the figure turned red at work, I really should have unwound at home during the evening. But it's really difficult to control such things when you have small children. It's the part of life you can't really control, even though I should be able to do something for myself…

> there's also the dilemma that now when I only work daytimes, I have no time for myself.
>
> Before, when I worked evenings too, I could have my own time during the week.

This sub-category shows how in the further appraisal, the participants used the feedback as an identifier of dual work obligations and the difficulties associated with this. Issues of work-life balance came as no surprise, but considering them in the context of physiological stress-indicators gave a new perspective. The feedback received meaning through aspects outside of formal working hours.

Revealing specific difficulties

The participants' further appraisal and understanding of their feedback included the expression of sensitive, personal issues that could negatively affect their work. These issues provided justification of the episodes and patterns discussed during the session. Sleeping trouble was one example.

> Manager: When I'm about to leave for the day, I have to make sure that I've done everything I should. All the "must-dos", sort of. So that I have things under control. And then it's often, when I'm brushing my teeth or something, that I start to think about: "Well, what was it really that I should have done today?" And sometimes, before I go to bed, I look at my calendar to check whether I have a meeting in the morning, or something else that will mean I have to rush. And of course, if I do that and it says something specific there, I might start to think about it during the night. Maybe I should avoid doing that. I often say, "Well I thought about that last night", to the others at work…
>
> Interviewer: And after such a night, your figure is green the entire period from morning to lunch.
>
> Manager: Yeah [laughs].

Vulnerability in interacting with subordinates was another issue that served to explain stress patterns in the feedback data. Managers described how stress peaks before meetings or encounters corresponded to their preparing for arguments or discussions.

> I'm committed in the sense that I want them [encounters] to be good, and I'm concerned about whether the subordinate takes it the wrong way and whether it ends up in discussions afterwards. Or whether they get sad or upset or something… I mean, it's in order to prevent those things that I try to prepare for a meeting as well as I can.

This sub-category shows how in their further appraisal, the managers used the feedback as an identifier of specific personal difficulties which had an impact on stress in their work. The session increased their understanding of their stress patterns since it gave them opportunity to describe sensitive issues in their work.

Standing out as the lonely struggler

Another way that the managers understood the feedback in the further appraisal phase was to focus on the frustrations and issues that were out of their control. Stress-related patterns in the feedback were understood as showing how the managers stood out as the 'lonely strugglers' in their surroundings, having to cope with retrogressive managerial colleagues or unreasonable organizational demands. The feedback data could be understood as the result of their own effectiveness compared to their colleagues' sluggishness.

> Manager: I do think it's rather tiresome to attend these management team meetings. I feel an enormous frustration regarding these meetings… I belong to a group of ward managers where I feel that I'm on a different level from everyone else. I've talked to my own manager about this. It would be so much fun working with ward managers that I felt equal with. I recently attended a meeting with the staffing group of the whole hospital. There's one person from each hospital area in that group. Imagine if I could work with them [instead]…
>
> Interviewer: Is it commitment that you don't feel from the others?
>
> Manager: Yeah, commitment, and all this with being visionary and having a will to change things, sort of. In that, I feel pretty lonely.

Statements concerning work overload also contributed to the description of the lonely struggler. Stress patterns in the feedback data were understood as the result of the demands that had to be handled.

> Manager: When I first started at this job, we were two colleagues in a ward twice as big as this. And we helped each other out. In that ward we had three team leaders and one section leader to help. Then the management of the medical reception was included in my work. I was supposed to have a section leader there, but now I'm alone in all of this. There is no one else; they cut back on the posts. So there is no one else who can deal with all these staffing issues.

This final sub-category in the further appraisal shows how the managers used the feedback to point out the frustrating external conditions in their work, and how the feedback data could be understood as a consequence of struggling alone with these conditions.

Discussion

The aim of this study was to explore whether and how feedback of stress data could be perceived and appraised as meaningful by participating managers. The results showed ways in which the session could trigger meaning-making of their perceived and observed stress. It was not our theoretical intention to frame the analysis in terms of managers' coping processes, but the analysis showed a two-step interpretation of their feedback that resembled the concepts of coping appraisal theory (Lazarus and Folkman, 1984). We saw that narrative statements about previous stress-related experiences and events can be stimulated during a feedback session based on dialogue and multiple feedback sources. This can trigger the identification and learning of existing and alternative strategies to deal with stress.

The feedback session was an unconventional one, in that it did not provide normative answers to how the feedback 'should' be interpreted by the recipients; it was left to the managers to

make sense of the feedback and give it meaning. Sensemaking, as in the creation of a framework in order to structure and understand ambiguous experiences from the past, is triggered by situations in need of explanations (Weick, 1995) and can occur through narrations or narrative strategies (e.g. Czarniawska, 2004; Gertsen and Søderberg, 2010; Patriotta and Brown, 2011). The feedback session triggered a need for explanation among the managers, and their sensemaking is described in our analysis. The managers spoke about issues of strength and weakness as being relevant for their understanding and handling of future stress. Individuals' feelings of order, clarity, and rationality are important goals of sensemaking (Weick, 1995). Our study shows that a feedback intervention can trigger such feelings, and that acts of narration and sensemaking can reveal the foundations for these feelings. The managers' efforts to make the feedback sensible were influenced by both the form and the content of the session. The three different data sources that were fed back probably facilitated better remembrance of the described episodes than single data sources would have. If a participant found one of the data sources to be inadequate or difficult to understand, then another source could be used as well or instead. We considered it important to facilitate the participants' remembrance of their experiences during the session, because retrospection provides the opportunity for sensemaking (Weick, 1995). Further, the combination of biofeedback and self-rating feedback was a complementary one which provided a coherent view of the episodes discussed, showing how physical and psychological perceptions could correspond. For some recipients this came as a surprise, whereas others saw it as confirmation of what they already knew about their stress reactions, indicating in both cases an awareness of their stress-related behaviour. The physiological feedback could aid the recall of how stress was experienced physically during these episodes. Experiencing bodily memories from previously recorded biodata can increase the understanding and sensemaking of one's previous stress-related experiences (Ståhl et al., 2009). The managers in this study

showed examples of acknowledging bodily memories of the episodes discussed, which appeared to aid their sensemaking.

Our non-normative presentation of feedback data in dialogue form facilitated the managers' own interpretations of the data as either positive or negative. There are indications that recipients are more inclined to accept positive than negative feedback (Ilgen *et al.*, 1979). However, negative feedback can be used constructively when reflection on it is facilitated. Assessment feedback perceived as inconsistent with recipients' self-perceptions has been shown to trigger reflective responses and processes to a greater extent than positive feedback, and discussing and reflecting on feedback (whether positive or negative) to have a greater influence on the recipients' subsequent actions for learning and change in comparison to merely receiving the feedback data (Sargeant *et al.*, 2009). Reflection that makes individuals question their assessed performance is thus a means by which feedback is accepted, assimilated, and used (ibid). Our study showed a number of examples of reflective, questioning responses to feedback. In the sub-category of Dual obligations related to work and private life, the recipients made sense of their stress by excusing themselves for not leading well-balanced lives despite their awareness of the problem; while one response in the sub-category of *Questioning one's strategies* described managers' sense of absurdity in getting used to increased everyday stress levels.

The matter of internalizing feedback is a central concern for its usefulness. Before it can be productively used, the recipients need to interpret and construct their own meaning from the feedback given (Nicol and Macfarlane-Dick, 2006). For instance, it has been observed that feedback derived from the self is more relied on than feedback from others such as supervisors or co-workers (Greller and Herold, 1975). Good feedback practice can encourage self-regulated learning, which is another process where the self is relied on; it is a constructive process in which the learners themselves actively set goals for their performance (Pintrich and

Zusho, 2002). Internally generated feedback is essential in processes of self-regulated learning, which derives from individuals' subjective comparisons of their current state against their desired goals (Nicol and Macfarlane-Dick, 2006). In order to interpret feedback so it can be used to influence goal setting and performance, the recipients need opportunities to discuss it (e.g. Higgins *et al*., 2001; Sargeant *et al*., 2009). This suggests that the dialogue form of our feedback session could aid further use of the feedback. Our feedback avoided specifying what was 'right' or 'wrong', which facilitated the managers' own sensemaking during the further appraisal. This may stimulate the identification of one's present stress-management strategies and learning of alternative ones. The most effective stress-management interventions are those that encourage individuals to actively take charge of their thoughts, emotions, and behaviour; passive measures such as relaxation training have shown less effect (Richardson and Rothstein, 2008). This supports our design of giving feedback in a way that encourages individuals to identify for themselves their stress patterns and potential alternative strategies. The sub-category of *Revealing specific difficulties*, for instance, showed examples of the managers' questioning of their current behaviour. This may be the beginning of a self-regulated learning process, which can be an important component in understanding the effectiveness of feedback interventions.

Implications

This study introduces a feedback method that can help individuals to deepen their understanding of their own stress. It contributes to intervention practice by outlining the design of an individual-level feedback intervention that can be used for stress management. The initial reactions to the feedback were surprise, questioning, verification, and scepticism, while further sensemaking covered manager confidence, work-life imbalance, confessions of shortcomings, and lonely struggling. These descriptions can increase understanding of how stress-related experiences are given meaning, and can thus be helpful in encouraging

sensemaking when giving feedback of stress data. The effect of the intervention regarding health- and stress-related behaviour through the suggested mechanism of sensemaking and self-regulated learning should be explored in further studies. Similarly, the importance and effect of multi-source data and interacting feedback interventionists for sensemaking, learning, and changed health behaviour should be tested further with a quantitative approach.

Limitations

This is an explorative qualitative investigation from which statistical generalizations cannot be made. The contribution of the study lies in the novelty and further application of the results. The transferability of qualitative findings may be termed conceptual generalization, and depends on the sampling procedure of study participants (Mays and Pope, 2000). The randomization of participants from different areas of care within the current hospital covered different cases, and hence avoided bias in a particular direction; this makes our conceptual findings transferable to similar occupational settings in which stress is a central concern. Generalizability is also determined by the fit of the topic or the comparability of the problem (Morse, 1999), suggesting that the results of this study can be applied in other settings where similar topics and problems are of interest.

The time interval between data collection and feedback session was 2-6 months, which could have weakened the recipients' memory of the episodes. However, sensemaking is a subjective process and therefore not dependent on a 'correct' remembrance of the past experiences. How these memories are perceived and interpreted is more important than how well the events are remembered.

Conclusions

We suggest that sensemaking is an important part of understanding and processing feedback data, mainly due to its learning potential. Feedback involving multiple data sources can aid remembrance of past behaviour and stimulate reflection. The non-normative dialogue approach seems important in this process, because it allows intentions to be formed by the recipients themselves. Providing non-normative feedback on stress indicators may initiate key processes of sensemaking among the recipients that can aid their stress management by increasing awareness and supporting learning about their stress.

References

Arman, R., Dellve, L., Wikström, E., and Törnström, L. (2009), "What health care managers do: Applying Mintzberg's structured observation method", *Journal of Nursing Management*, Vol. 17 No. 6, pp. 718-729.

Bernin, P., and Theorell, T. (2001), "Demand-control-support among female and male managers in eight Swedish companies", *Stress and Health*, Vol. 17 No. 4, pp. 231-243.

Bruner, J. (1991), "The narrative construction of reality", *Critical Inquiry*, Vol. 18 No 1, pp. 1-21.

Czarniawska, B. (2004), *Narratives in social science research*, London, Sage Publications Ltd.

Dellve, L., and Wikstrom, E. (2009), "Managing complex workplace stress in health care organizations: Leaders' perceived legitimacy conflicts", *Journal of Nursing Management*, Vol 17 No. 8, pp. 931-941.

Duffield, C. M., Roche, M. A., Blay, N., and Stasa, H. (2011), "Nursing unit managers, staff retention and the work environment", *Journal of Clinical Nursing*, Vol 20 No 1-2, pp 23-33.

Eklöf, M. (2004), *Interventions for safe and healthy work*, Doctoral dissertation, University of Gothenburg, Department of Occupational Medicine.

Eklöf, M., Pousette, A., Dellve, L., Skagert, K., and Ahlborg Jr, G. (2010), *Gothenburg Manager Stress Inventory*, Institute of stress medicine, Gothenburg.

Gertsen, M., and Søderberg, A. (2010), "Expatriate stories about cultural encounters – A narrative approach to cultural learning processes in multinational companies", *Scandinavian Journal of Management*, Vol 26 No 3, pp. 248-257.

Greller, M., and Herold, D. (1975), "Sources of feedback: A preliminary investigation", *Organizational Behavior and Human Performance*, Vol 13 No 2, pp. 244-256.

Hackman, J., and Oldham, G. (1975), "Development of the job diagnostic survey", *Journal of Applied Psychology*, Vol 60 No 2, pp. 159-170.

Higgins, R., Hartley, P., and Skelton, A. (2001), "Getting the message across: The problem of communicating assessment feedback", *Teaching in Higher Education*, Vol 6 No 2, pp. 269-274.

Hsieh, H. F., and Shannon, S. E. (2005), "Three approaches to qualitative content analysis", *Qualitative Health Research*, Vol 15 No 9, pp. 1277-1288.

Ilgen, D., Fisher, C., and Taylor, M. (1979), "Consequences of individual feedback on behavior in organizations", *Journal of Applied Psychology*, Vol 64 No 4, pp. 349-371.

Jimmieson, N., and Terry, D. (1999), "The moderating role of task characteristics in determining responses to a stressful work simulation", *Journal of Organizational Behavior*, Vol 20 No 5, pp. 709-736.

Kelloway, E., and Barling, J. (2010), "Leadership development as an intervention in occupational health psychology", Work & Stress, Vol 24 No 3, pp. 260 - 279.

Kjellberg, A., & Iwanowski, S. (1989), *Stress-energiformuläret: utveckling av en metod för skattning av sinnesstämning i arbetet* [The Stress-Energy survey: Developing a method for assessing mood at work], Arbetsmiljöinstitutet, Stockholm.

Kjellberg, A., & Wadman, C. (2002), *Subjektiv stress och dess samband med psykosociala förhållanden och besvär. En prövning av stress-energimodellen* [Subjective stress and its associations with psychosocial conditions and complaints. Testing the Stress-Energy model], Arbetslivsinstitutet, Stockholm.

Kluger, A. N., and DeNisi, A. S. (1996), "Effects of feedback intervention on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory", *Psychological Bulletin*, Vol 119 No 2, pp. 254-284.

Lait, J., and Wallace, J. E. (2002), "Stress at work. A study of organizational-professional conflict and unmet expectations", *Industrial Relations*, Vol 57 No 3, pp. 463-487.

Lazarus, R. S., and Folkman, S. (1984), *Stress, appraisal, and coping*, Springer, New York.

Llewellyn, S. (1999), "Narratives in accounting and management research", *Accounting, Auditing & Accountability Journal*, Vol 12 No 2, pp. 220-237.

Mays, N., and Pope, C. (2000), "Assessing quality in qualitative research", *British Medical Journal*, Vol 320 No 7226, pp. 50-52.

Morse, J. M. (1999), "Qualitative generalizability", *Qualitative Health Research*, Vol 9 No 1, pp. 5-6.

Nicol, D. J., and Macfarlane-Dick, D. (2006), "Formative assessment and self-regulated learning: A model and seven principles of good feedback practice", *Studies in Higher Education*, Vol 31 No 2, pp. 199-218.

Patriotta, G., and Brown, A. D. (2011), "Sensemaking, metaphors and performance evaluation", *Scandinavian Journal of Management*, Vol 27 No 1, pp. 34-43.

Pintrich, P. R., and Zusho, A. (2002), "The development of academic self-regulation: The role of cognitive and motivational factors", in A. Wigfield and J. S. Eccles (Eds.), *Development of achievement motivation*, Academic Press, San Diego, pp. 249-284.

Polkinghorne, D. (1988), *Narrative knowing and the human sciences,* State University of New York Press, Albany, NY.

Richardson, K. M., and Rothstein, H. R. (2008), "Effects of occupational stress management intervention programs: A meta-analysis", *Journal of Occupational Health Psychology*, Vol 13 No 1, pp. 69-93.

Sargeant, J., Mann, K., van der Vleuten, C., and Metsemakers, J. (2009), "Reflection: A link between receiving and using assessment feedback", *Advances in Health Sciences Education*, Vol 14 No 3, pp. 399-410.

Skagert, K., Dellve, L., Eklöf, M., Ljung, T., Pousette, A., and Ahlborg Jr, G. (2008), "Leaders' strategies for dealing with own and their subordinates' stress in public human service organisations", *Applied Ergonomics*, Vol 39 No 6, pp. 803-811.

Ståhl, A., Höök, K., Svensson, M., Taylor, A., and Combetto, M. (2009), "Experiencing the affective diary", *Personal and Ubiquitous Computing*, Vol 13 No 5, pp. 365-378.

Tengelin, E., Kihlman, A., Eklöf, M., and Dellve, L. (2011*). Chefskap i sjukvårdsmiljö: Avgränsning och kommunikation av egen stress* [Health care managerial work: Limiting and communicating one's own stress], Arbete och Hälsa, Vol 45 No 1, University of Gothenburg, Gothenburg.

Tengelin, E., Arman, R., Wikstrom, E., and Dellve, L. (2011), "Regulating time commitments in healthcare organizations – managers' boundary approaches at work and in life", *Journal of Health Organization and Management*, Vol 25 No 5, pp. 578-599.

Weber, R. P. (1990), *Basic content analysis,* Sage Publications Inc., California.

Weick, K. (1995), *Sensemaking in organizations*, Sage Publications Inc., California.

Wikstrom, E., Dellve, L., Tengelin, E., and Arman, R. (2011), *Chefers tidsanvändning och stress i sjukvården* [Health care managers' time-use and stress], Västra Götaland Region, Gothenburg.

Wikström, E., and Dellve, L. (2009), "Contemporary leadership in healthcare organizations: Fragmented or concurrent leadership and desired support", *Journal of Health Organization and Management*, Vol 23 No 4, pp. 411-428.
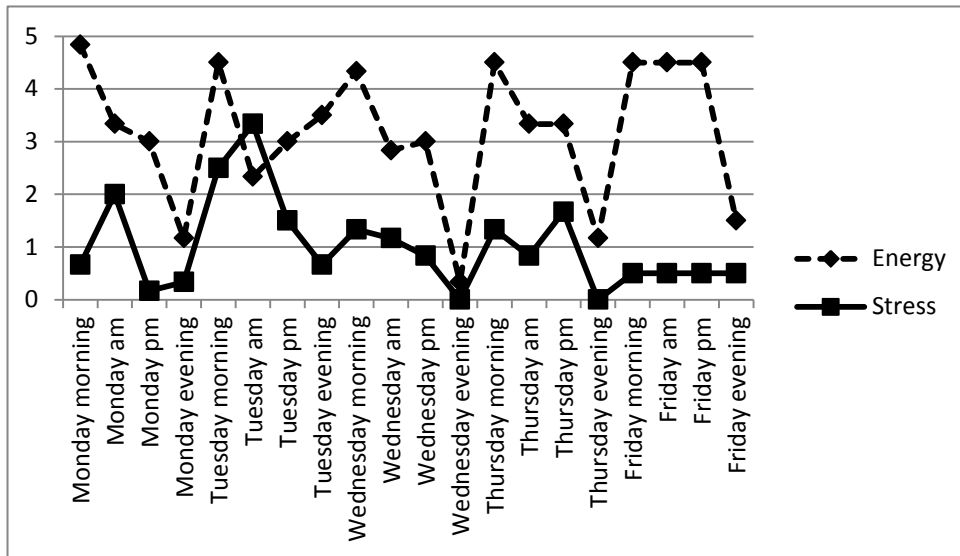
Figures

Figure 1. Example of a diagram derived from the self-ratings using the Stress-Energy scale

that was fed back to one of the managers. During the feedback session, Tuesday noon was

chosen as one episode of interest, because it showed a stressful situation where stress was

rated higher than energy. The recurrent pattern from Wednesday to Friday was also

highlighted because it suggested a recurrent approach to everyday work.

Figure 2. Example of one hour of the representations in the AffectiveDiary software, as fed back to one of the managers. The colour of the shape is determined by the participant's level of arousal, while its posture is determined by their level of activity.