Chapter 9

Crossover of Burnout among Health Care Professionals

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There is a growing interest in the psychosocial work environment of health care professionals (e.g., physicians, nurses) since they are at high risk for burnout. Take for example the work of intensive care nurses. Traditionally, they have heavy workloads and extensive responsibilities, they must care for unstable patients, do accurate routines, and react to extremely urgent matters (Erlen and Sereika, 1997), although their decision latitude is often insufficient to cope effectively with these demands (Sawatzky, 1996). Such working conditions form the breeding ground for job stress. According to the demand-control model (DCM; Karasek, 1979), jobs that combine high job demands with low job control evoke psychological and physical distress ('high strain' jobs). These working conditions eventually deplete nurses' emotional resources and may initiate the burnout syndrome (e.g., Bourbonnais, Comeau and Vézina, 1999; DeRijk, LeBlanc, Schaufeli and DeJonge, 1998).

While job stress perspectives like the DCM try to explain how strain and burnout originate in the work environment, the present chapter takes a different perspective by looking at the social nature of work. Specifically, we will discuss research showing that burnout and other work-related states may *transfer* among individuals at the workplace. The notion that burnout may cross over from one employee to another is not new. Several authors have used anecdotal evidence to argue that job-induced strain and burnout may transfer between colleagues (e.g., Cherniss, 1980; Edelwich and Brodsky, 1980; Schwartz and Will, 1953). We will describe recent, more systematic studies that have provided empirical evidence for this phenomenon.

Two streams of literature will be combined, namely research on *crossover* and *emotional contagion*. Crossover research has traditionally focused on the crossover of stress and strain from employees to their *partners* and vice versa. Emotional contagion research originated in the laboratory, and has been applied to the transference of burnout from employees to their *colleagues*. Thus crossover research focuses mainly on the dyads while emotional contagion research focuses mainly on the team. Before we discuss the phenomena of crossover and emotional contagion, we will first introduce the concept of burnout, since many crossover and contagion studies have used this state as the focal variable of interest.

Burnout

Burnout has been defined as a specific kind of occupational stress among human service professionals, as a result of the demanding and emotionally charged relationships between caregivers and their recipients (Maslach and Jackson, 1981; see also Demerouti and Bakker, this volume). Feelings of emotional exhaustion are generally considered a core symptom of the burnout syndrome (Shirom, 1989). In addition, two other central characteristics of burnout have been documented: the development of negative, cynical attitudes towards the recipients of one's service or care (depersonalization), and the tendency to believe that one is no longer effective in working with patients (reduced personal accomplishment) (Maslach and Jackson, 1981).

Recently, Bakker and Demerouti (2007a) have proposed the Job Demands – Resources model to explain how the combination of various types of (high) job demands and various types of (low) job resources may combine to produce burnout (see, e.g., Bakker, Demerouti and Euwema, 2005), also among health care professionals (Bakker, Demerouti, Taris, Schaufeli, and Schreurs, 2003; Demerouti and Bakker, this volume; Demerouti, Bakker, Nachreiner, and Schaufeli, 2001). Moreover, their psychological strain, including burnout, may also affect their spouses and their team members in a process of crossover or emotional contagion.

Research on the symptomatology of burnout has shown that the syndrome may manifest itself in various ways. Schaufeli and Enzmann (1998) counted more than one-hundred burnout symptoms in the literature, including such highly visible symptoms as hyperactivity, physical fatigue, and enhanced irritability. Moreover, researchers have identified several "social symptoms" of burnout, most notably negative or cynical attitudes toward clients and work (see Burisch, 1989, for an overview). Such negative attitudes may take the form of reduced empathy, cynicism, black humor, and stereotyping. Burnout symptoms expressed by health care professionals may therefore transfer to colleagues when they socialize with one another on the job or in informal meetings. In addition, professionals may communicate their burnout complaints to their intimate partners once they come home and talk about the stress they experience at work.

Crossover

Crossover is the term used to describe the interpersonal process that occurs when job stress or psychological strain (stress reactions) experienced by one person affect the level of strain of another person in the same social environment (Bolger, Delongis, Kessler, and Wethington, 1989). Some researchers have focused on the crossover of job stress from the individual to the spouse, others have examined the process whereby job stress of the individual affects the *strain* of the spouse, and yet others have studied how psychological strain of one partner affects the strain of the other (see Westman, 2001). Most studies have investigated and found the crossover of psychological strains such as anxiety (Westman, Etzion, and Horovitz, 2004a), burnout (e.g., Bakker and Schaufeli, 2000), distress (Barnett, Raudenbush, Brennan, Pleck, and Marshall, 1995), depression (Howe, Levy, and Caplan, 2004), adjustment (Takeuchi, Yun, and Teslu, 2002), work-family conflict (e.g., Hammer, Allen, and Grigsby, 1997; Westman and Etzion, 2005), and marital dissatisfaction (Westman, Vinokur, Hamilton, and Roziner, 2004). A few studies investigated crossover of health complaints and perceived health between partners (Gorgievski-Duijvesteijin, Giesen and Bakker, 2000; Westman, Keinan, Vinokur and Benyamini, in press). Some studies focused on unidirectional crossover from husbands to wives, whereas others looked for bi-directional crossover, from husbands to wives and from wives to husbands but detected only uni-directional crossover.

To elaborate, there are several studies exclusively showing *unidirectional* crossover effects (only from one spouse to the other but not vice versa), or no crossover at all. For instance, several studies have found unique effects of husbands' job stress on the well-being of their wives (Burke, Weir, and DuWors, 1980; Jackson and Maslach, 1982; Rook, Dooley, and Catalano 1991). These studies, however, did not distinguish between working and non-working wives and did not control for wives' levels of job or life stress. Other studies have investigated the impact of women's mere employment, but not their specific job stress, and found negative effects of wives' employment on their husbands' strain (Haynes, Eaker, and Feinleib, 1983; Rosenfield, 1992; Staines, Pottic, and Fudge, 1986). Note that these studies neither specified which element of wives' employment was responsible for the crossover, nor did they control for men's job stress levels. In a more elaborated study, Jones and Fletcher (1993) found transmission of husbands' job demands on wives such that males' job demands crossed over to females' anxiety and depression after controlling for females' job stress, particularly among men working in highly stressful jobs. They did not find such an effect from wives to husbands. Similarly, Westman, Etzion and Danon (2001) found crossover of burnout only from husbands to wives but not from wives to husbands. Finally, Westman, Vinokur, Hamilton, and Roziner (2004) demonstrated crossover of marital dissatisfaction from husbands to wives, but no crossover from wives to husbands in their study of Russian officers and their wives .

Several crossover studies have investigated bi-directional crossover processes and found evidence for *symmetric* crossover effects between partners; from husbands to wives and from wives to husbands (e.g., Barnett et al., 1995; Demerouti, Le Blanc, Bakker, and Schaufeli, 2005; Hammer et al., 1997; Hammer, Bauer, and Grandey, 2003; Westman and Etzion, 1995; Westman and Etzion, 2005; Westman and Vinokur, 1998). To illustrate, Westman and Etzion

(1995) demonstrated the crossover of burnout (i.e. physical, emotional and mental exhaustion) of a similar magnitude from army career officers to their spouses and vice versa, after controlling for their own and the partners' job demands and sense of control.

Hammer et al. (1997) found evidence for bi-directional crossover of work-to-family conflict from husbands to wives and vice versa, after controlling for own work salience, work schedule flexibility and family involvement. Furthermore, Westman and Vinokur (1998) found a direct crossover effect of depression from husbands to their spouses and vice versa after controlling for life events and social undermining. Tacheuchi, Yun and Teslu (2002) found bi-directional crossover of partner's general cross-cultural adjustment among expatriates. Westman, Keinan, Roziner, and Benyamini (in press) studying a large sample of Russian couples, found a bi-directional crossover of similar magnitude between spouses' health perceptions. Similarly, Westman and Etzion (2005) found a bidirectional crossover of work family conflict between air force women and their spouses.

In a recent study, Bakker, Demerouti, and Schaufeli (2005) tested the hypothesis that burnout and *work engagement* may cross over from husbands to wives and vice versa among couples working in a variety of occupations. The results provided evidence for the crossover of burnout (exhaustion and cynicism) and work engagement (vigor and dedication) among partners. The crossover relationships were significant and about equally strong for both partners, after controlling for important characteristics of the work and home environment.

The bi-directional crossover effect has also been supported in studies using a longitudinal design. For example, Barnett et al. (1995) demonstrated that changes in distress (i.e., anxiety and depression) of one partner were mirrored in the changes in distress of the other. Westman and Vinokur (1998) found bidirectional crossover of distress and Westman, Etzion, and Horovitz (2004), found bidirectional crossover of depression, and anxiety from husbands to wives and from wives to husbands using longitudinal designs.

Crossover in the Workplace

The study of crossover thus far has been limited mostly to the crossover of stress and strain between spouses. Westman (2001) has suggested adding crossover at the workplace to crossover research. As previous crossover research was based on the work-family interface, researchers have focused particularly on the family as the "victim" of the job incumbent's stress. However, when we base the crossover construct on role theory, we can broaden the scope of research and investigate the crossover of stress among role senders in the work environment. Moreover, in the latter case, we can broaden the conceptualization of the unit of study from dyads to the work team. This approach is consistent with Moos' (1984) theory that people are part of social systems and we need to understand them within these systems. Each member in the system is linked to other members and, presumably, change in one will affect change in others. Edelwich and Brodsky (1980) were the first to relate to the possibility of crossover of burnout at work: "If burnout only affected individuals in isolation, it would be far less important and far less devastating in its impact than it is. Burnout in Human Services Agencies is like an infection in hospitals; it gets around. It spreads from clients to staff, from

one staff member to another, and from staff back to clients. Perhaps it ought to be called staff infection." (p. 25).

Thus, a person's stress generated at the workplace may transmit to others in the work team. Individuals in the work team who share the same environment may start a crossover chain of stressors and strain among themselves whether the source of stress is in the family or at the workplace. The shared environment which is crucial to the crossover process characterizes workplaces where job incumbents work in close cooperation. Clearly, the study of crossover should be extended to the workplace.

Westman and Etzion (1999) conducted the first crossover field study in the workplace. They found a crossover of job-induced strain from school principals to teachers and vice versa. However, the findings relate to crossover between a manager and subordinates and not among the teachers. The next step is to investigate crossover among team members following Edelwich and Brodsky (1980) insight. This has been done in emotional contagion research.

Emotional Contagion

Emotional contagion has been defined as "The tendency to automatically mimic and synchronize facial expressions, vocalizations, postures, and movements with those of another person and, consequently, to converge emotionally" (Hatfield, Cacioppo, and Rapson, 1994; p.5). The emphasis in this definition is on non-conscious emotional contagion. Research has indeed shown that, in conversations, people 'automatically' mimic the facial expressions, voices, postures, and behaviors of others (Bavelas, Black, Lemery, and Mullett, 1987; Bernieri, Reznick, and Rosenthal, 1988), and that people's conscious experience may be shaped by such facial feedback (e.g., Laird, 1984).

There is, however, a second way in which people may 'catch' another's emotions. Contagion may also occur via a conscious cognitive process by 'tuning in' to the emotions of others. This will be the case when a person tries to imagine how they would feel in the position of another, and, as a consequence, experiences the same feelings. Thus, the realization that another person is happy or sad may trigger memories of the times we have felt that way, and these reveries may spark similar emotions (Hsee, Hatfield, Carlson, and Chemtob, 1990). Particularly the attitude of helping professionals to show empathic concern is likely to foster such a process of consciously 'tuning in' to others' emotions.

Regardless of why such contagion might occur, researchers from a wide range of disciplines have described phenomena that suggest that emotional contagion does exist (see Hatfield et al., 1994; and McIntosh, Druckman, and Zajonc, 1994, for overviews). Hsee and his colleagues (Hsee et al., 1990; Uchino, Hsee, Hatfield, Carlson, and Chemtob, 1991) documented convincing evidence for emotional contagion using controlled laboratory studies.

Recently, researchers have begun to investigate affective linkages between team members (e.g., Barsade, 2002; Totterdell, Kellet, Teuchmann, and Briner, 1998). Barsade (2002) in her experimental work demonstrated that emotional contagion does occur in groups and changes people's moods and serves as affective information: people are "walking mood inductors" continuously influencing the moods of others. Other researchers focused on

emotional contagion at the workplace viewing contagion as a reciprocal emotional reaction among employees who closely collaborate. Thus, in a field setting, Totterdell et al. (1998) found evidence that the moods of teams of nurses and accountants were related to each other even after controlling for shared work problems.

One may assume that the mechanisms involved in emotional contagion processes are comparable to those involved in burnout contagion processes. Moreover, there is also evidence for contagious depression, and depression is a syndrome that is related to burnout, most notably the emotional exhaustion dimension (Glass, McKnight and Valdimarsdottir, 1993.

Burnout Contagion

The first empirical indication for a socially induced burnout effect came from Rountree (1984), who investigated 186 task groups in 23 local settings of organizations. He found that 87.5% of employees with the highest scores on burnout worked in task groups in which at least 50% of the staff was in a similar advanced burnout phase. Low scoring, less burned-out employees showed a similar but less marked tendency to cluster. Rountree concluded that "...the affinity of work groups for extreme scores seems substantial" (p. 245). Thus, individuals with very high or very low burnout scores can often be found within one task group, suggesting the possibility that task group members "infect" each other with the burnout-"virus". After reviewing similar additional studies, Golembiewski, Munzenrider and Stevenson (1986, p. 184) concluded that: "Very high and very low scores on burnout tend to concentrate to a substantial degree." They added that "these findings suggest 'contagion' or 'resonance' effects" (p. 185).

However, this concentration of burnout in particular work groups may also be explained by a negative change in the working conditions, because burnout has been related to a wide range of detrimental behaviors. For example, Freudenberger (1974) observed that burned-out individuals do not perform efficiently, independently of how hard they try. Indeed, it has been found that they make more on-the-job mistakes, misuse work breaks, and have higher absenteeism rates (e.g., Bakker, Demerouti, De Boer, and Schaufeli, 2003b; Kahill, 1988). In a team, each of these behaviors may increase the workload of the other team members, as they will have to compensate for the inefficient or disruptive behaviors of their burned-out colleagues.

To rule out the third variable explanation, Bakker and his colleagues set up a series of studies including measures of working conditions, burnout and/or work engagement. Evidence for direct *and* indirect routes of socially induced burnout was found in a study that included nurses from eighty European intensive care units (Bakker, Le Blanc and Schaufeli, 1997; see also Bakker, Le Blanc and Schaufeli, 2005). In addition to a *direct* effect from unit burnout to individual nurses' burnout, unit burnout had an *indirect* effect through its influence on individual nurses' workload and job autonomy. More specifically, unit burnout had a positive influence on the workload reported by individual nurses, and a negative impact on their autonomy. These changed working conditions, in turn, had a significant impact on their experience of burnout. That is, workload had a positive, and job autonomy had a

negative influence on individual nurses' feelings of exhaustion, depersonalization (a specific form of cynicism), and reduced personal accomplishment (i.e., professional efficacy). This indirect influence of unit burnout on individual burnout can be explained by assuming that individual nurses had more work to do because of the impaired job performance of their burned-out colleagues. Conceptually similar findings have been reported by Bakker, Demerouti and Schaufeli (2003a) among a sample of employees of a large banking and insurance company. They showed that burnout at the team level is related to individual team members' burnout scores, both directly and indirectly – through its relationship with individual members' job demands, job control and perceived social support.

Bakker, Van Emmerik and Euwema (2006) investigated the crossover of burnout and *work engagement* among Dutch constabulary officers. On the basis of theories on crossover and emotional contagion, they hypothesized that both types of work-related feelings and attitudes may transfer from teams to individual team members. The results of multilevel analyses confirmed this crossover phenomenon by showing that team level burnout and work engagement were related to individual team members' burnout (i.e., exhaustion, cynicism and reduced professional efficacy) and work engagement (vigor, dedication, and absorption), after controlling for individual members' job demands and resources.

A Closer Look at the Crossover Process

Hatfield et al. (1994) have argued that there are several circumstances under which people should be especially likely to catch others' emotions. Emotional contagion is particularly likely, for example, if individuals pay close attention to others, and if they construe themselves as interrelated to others rather than as independent and unique. Given the increased models of teamwork in modern organizations, it is likely that employees indeed experience higher levels of interdependence, and therefore are more sensitive to the emotional states of their colleagues. Furthermore, a number of studies have shown that there exist stable individual differences in people's susceptibility to emotional stimuli (Doherty, Orimoto, Singelis, Hatfield and Hebb, 1995; Stiff, Dillard, Somera, Kim, and Sleight, 1988), and that these individual differences are good predictors of the extent to which people catch positive and negative emotions from others. What are the conditions under which the crossover of burnout among health care professionals is most likely?

Empathy. Westman and Vinokur (1998) have argued that empathy can be a moderator of the crossover process. Literally, the root meaning of the word empathy is "feeling into". Starcevic and Piontek (1997) define empathy as interpersonal communication that is predominantly emotional in nature. It involves the ability to be affected by the other's affective state, as well as to be able to read in oneself what that affect has been. Similarly, Lazarus (1991) defined empathy as "sharing another's feelings by placing oneself psychologically in that person's circumstances" (p. 287). The core relational theme for empathy would have to involve a sharing of another person's emotional state, distressed or otherwise. Accordingly, strain in one partner produces an empathic reaction in the other that increases his or her own strain, by way of what may be called *empathic identification*. Social learning theorists (e.g., Bandura, 1969; Stotland, 1969) support this view, and have explained

the transmission of emotions as a conscious processing of information. They suggested that individuals imagine how they would feel in the position of another – empathic identification – and thus come to experience and share the other's feelings. Eckenrode and Gore (1981) suggested that the effect of one's strain on the spouse's distress might be the result of empathy as expressed in reports such as "We feel their pain is our own" (p. 771).

Bakker and Demerouti (2007b) tested Westman and Vinokur's (1998) hypothesis that empathy moderates the crossover of work engagement – the direct opposite of burnout. They reasoned that empathy may best be considered as a set of related constructs including both emotional and non-emotional components (cf. Davis, 1980, 1983; Deutsch and Madle, 1975). One empathy component in their study was perspective taking, that is "the spontaneous tendency of a person to adopt the psychological perspective of other people – to entertain the point of view of others" (Davis, 1983, p. 169). This component clearly refers to the non-emotional or cognitive type of empathy. The second component of interest was empathic concern, which refers to "an individual's tendency to experience feelings of warmth, compassion, and concern for others" (p. 169). Thus, in contrast to perspective taking, empathic concern is clearly an indicator of emotional responsivity. Bakker and Demerouti (2007b) collected data among Dutch working couples. As hypothesized, results clearly showed that perspective taking (but not empathic concern) moderated the relationship between women's and men's work engagement. The crossover of engagement was strongest when men were characterized by high (vs. low) levels of perspective taking.

Susceptibility. Bakker, Schaufeli, Sixma, and Bosveld (2001) observed that general practitioners' individual susceptibility to emotional contagion was positively related to burnout. That is, they were most vulnerable to catching the negative emotions expressed by their patients, such as fear, anxiety, depressed mood, and worry. Interestingly, and in line with Hatfield et al.'s (1994) predictions, susceptibility to the emotions of others particularly showed a relationship with burnout when doctors reported many colleagues with burnout symptoms. That is, practitioners who perceived burnout complaints among their colleagues *and* who were susceptible to the emotions expressed by their colleagues reported the highest emotional exhaustion scores. A similar finding was reported by Bakker and Schaufeli (2000), who found that teachers who were most vulnerable to the emotions and negative attitudes expressed by their colleagues were most likely to become burned-out.

Frequency of exchanging views. In their study among teachers, Bakker and Schaufeli (2000) also found that teachers who frequently talked with their burned-out colleagues about problematic students had the highest probability of catching the negative attitudes expressed by their colleagues. In repeatedly trying to understand the problems their colleagues were facing, teachers presumably had to tune in to the negative attitudes expressed by their colleagues (about themselves as well as about students). This creates a condition under which central or systematic processing of information is likely to occur (Petty and Cacioppo, 1986; Stroebe, 1999). The result is negative attitude change, particularly when the burned out colleague (the 'source') has evidence or strong arguments to bolster their frustration and uncaring attitudes.

Similarity with the source. Classic social comparison theory regards uncertainty as the main motive for social comparison activity (Festinger, 1954; Schachter, 1959). Festinger argued that when objective sources of information for self-evaluation are lacking, people

would turn to others in their environment. Schachter (1959) stated that when individuals feel uncertain about the appropriateness of their emotions, they tend to reduce this uncertainty by socially comparing and by adjusting their emotional reactions to those of others. Indeed, Groenestijn, Buunk and Schaufeli (1992) found that nurses who perceived burnout complaints among their colleagues and who felt a strong need for social comparison were more susceptible to burnout compared to those who had a low need for social comparison.

In addition, an important assumption in Festinger's (1954) theory is that others who are similar will be preferred for comparison, because information about similar others is most informative for self-evaluation (see also Tesser, 1988; Tesser, Millar and Moore, 1988). Keinan, Sadeh and Rosen (2003) investigated the attitudes and reactions to media coverage of terrorist acts. They suggested that the experience of stress responses in reaction to media coverage stems from identification with the victims of violence, and this identification is related to the degree of similarity between the media consumer and the victim: The greater the number of shared characteristics, the greater the probability of identifying with the victim.

Bakker, Westman and Schaufeli (2007) tested this hypothesis in the context of burnout crossover among a sample of soldiers. The participants were randomly exposed to a videotape of a burned-out or an engaged colleague who was either similar in profession and status (soldier), or who had a considerably higher status (squadron leader). The results confirmed the crossover of burnout from the stimulus soldier to the group. In addition, a significant interaction effect for cynicism revealed that the crossover of burnout was moderated by similarity with the stimulus person. Soldiers were particularly susceptible to the negative attitudes endorsed by those who were similar in rank.

Avenues for Future Research

So far, the crossover of employee well-being has been studied exclusively in field studies or in the laboratory, using between-subjects designs. An innovation would be to study crossover among health care professionals using a within-subjects design in which respondents are followed closely during their working day, for instance by asking them to keep an electronic diary (Van Eerde, Holman, and Totterdell, 2005). In doing so, crossover might be studied from a slightly broader perspective of emotional labor (Hochschild, 1983). Furthermore, the reviewed crossover literature shows only one experiment in crossover research (Bakker et al., 2007). The methodological gap in crossover research should be filled by using experimental designs employed in a natural field setting.

Another way to gain more insight into the crossover process is conducting qualitative studies. Long interviews with physicians and nurses in specified teams will shed light on the crossover process. It is especially important among team members as it will show who initiates the process and what are the mechanisms involved.

Another aim is to move beyond self-report measures conventionally used in crossover research. Such self-reports have been the only method of assessing the extent to which emotions cross over between partners. However, emotional experiences are well documented to affect cognitive processes, so that negative affect leads to poor task performance (e.g., Mandler, 1993), whereas positive affect holds beneficial effects for cognitive processes (e.g.,

Isen, 1999). Such effects of negative vs. positive emotions have been substantiated with many cognitive processes including attention, creative thinking, and memory (for a review see Isen, 1999). Future research should include objective measures of cognitive tasks alongside traditional self-report measures, under the rationale that negative crossover can be indicated by decreased cognitive performance and positive crossover can be indicated by enhanced cognitive performance. If we think of a laboratory experiment, we can have negative and positive stimulus persons talking to a team of nurses. We assume that the team that is confronted with the negative stimulus will show negative crossover and the other team will exhibit positive crossover. In addition to collecting data on burnout/work engagement and negative affectivity, researchers could provide the nurses with cognitive tasks (e.g. creativity task adapted from the *Torrance Tests of Creative Thinking* (Torrance, 1984) where participants are asked to list as many uses as they can think of for an ordinary object.

Several mediating and moderating variables have been identified in the crossover process: empathy, susceptibility to crossover, frequency of interactions, conflictual interactions, and similarity. Some of these suggested variables and processes should be investigated more thoroughly and additional processes should be identified. Traditionally, emotional labor has been studied in relation to customers or clients (Heuven and Bakker, 2003), but linking it to our notion of emotional contagion would open the possibility to study how employees manage the emotions of other employees they are working with.

Another interesting avenue for research would be to investigate the relative impact of negative and positive emotional contagion. So far, the contagious nature of burnout and work engagement has been studied separately. Only two exceptions exists in which both are studied simultaneously; one of these studies was on working couples (Bakker, Demerouti, and Schaufeli, 2005; Bakker, Van Emmerik, and Euwema, 2006). Westman (2001) maintains that if the crossover process operates via empathy, one would expect to find not only negative crossover but positive crossover as well. Thus, empathy could just as easily involve the sharing of another's positive emotions and the conditions that bring them about. Thus, positive events and emotions may also cross over to the partner and team members and have a positive impact on their well-being.

So it remains to be seen if the effect of negative emotions on burnout levels of team members is equally strong as the effect of positive emotions on engagement. Based on arguments from evolutionary psychology, one could argue that negative contagion effects might be stronger than positive effects because the former have greater survival value compared to the latter (Fredrickson, 1998). That is, negative emotions signal danger, damage or threat and thus a potential assault on one's mental integrity. Hence, they have greater immediate relevance for survival than positive emotions that broaden one's scope and initiate learning and development (Frederickson, 2001). The investigation of positive crossover can add to theoretical thinking and broaden the current boundaries of crossover models.

General Conclusions

The review of the literature shows that burnout is a risk factor for health care professionals because their job is characterized by high demands and low resources.

Furthermore we demonstrated that burnout is contagious and doctors and nurses transfer their burnout and other psychological strains to their team members with whom they interact. As health care professionals are characterized by high empathy and frequent interactions between team members, the process of crossover is more intense in their case. This process leads to burned-out teams. Crossover of burnout among team members is detrimental in any profession. However, crossover of burnout in health care professions can create an additional hazard except for psychological and physiological price, namely, errors in judgment and mistreatment of patients. Therefore serious measures should be taken to combat burnout and stop this vicious cycle, to decrease burnout by augmenting resources and dealing with demands. The next step is to develop engagement, enhancing positive team atmosphere and facilitate positive crossover.

References

Bakker, A.B., and Demerouti, E. (2007a). The Job Demands-Resources model: State of the art. *Journal of Managerial Psychology, 22,* 309-328.

Bakker, A.B., and Demerouti, E. (2007b). *The crossover of work engagement: A closer look at the role of empathy*. Manuscript submitted for publication.

Bakker, A.B., Demerouti, E., and Euwema, M.C. (2005). Job resources buffer the impact of job demands on burnout. *Journal of Occupational Health Psychology, 10,* 170-180.

Bakker, A.B., Demerouti, E., and Schaufeli, W.B. (2003a). The socially induced burnout model. In S.P. Shohov (Ed.), *Advances in Psychology Research* (Vol. 25; p. 13-30). New York: Nova Science Publishers.

Bakker, A.B., Demerouti, E., and Schaufeli, W.B. (2005). Crossover of burnout and work engagement among working couples. *Human Relations, 58,* 661-689.

Bakker, A.B., Demerouti, E., De Boer, E., and Schaufeli, W.B. (2003b). Job demands and job resources as predictors of absence duration and frequency. *Journal of Vocational Behavior, 62*, 341-356.

Bakker, A.B., Demerouti, E., Taris, T., Schaufeli, W.B., and Schreurs, P. (2003). A multi-group analysis of the Job Demands - Resources model in four home care organizations. *International Journal of Stress Management, 10,* 16-38.

Bakker, A.B., Le Blanc, P.M., and Schaufeli, W.B. (1997). *Burnout contagion among nurses who work at intensive care units*. Paper presented at the fifth European conference on organizational psychology and health care, Utrecht, The Netherlands.

Bakker, A.B., Le Blanc, P.M., and Schaufeli, W.B. (2005). Burnout contagion among nurses who work at intensive care units. *Journal of Advanced Nursing, 51,* 276-287.

Bakker, A.B., and Schaufeli, W.B. (2000). Burnout contagion processes among teachers. *Journal of Applied Social Psychology, 30*, 2289-2308.

Bakker, A.B., Schaufeli, W.B., Sixma, H., and Bosveld, W. (2001). Burnout contagion among general practitioners. *Journal of Social and Clinical Psychology, 20*, 82-98.

Bakker, A.B., Van Emmerik, IJ.H., and Euwema, M.C. (2006). Crossover of burnout and engagement in work teams. *Work and Occupations, 33,* 464-489.

Bakker, A.B., Westman, M., and Schaufeli, W.B. (2007). Crossover of burnout: An experimental design. *European Journal of Work and Organizational Psychology, 16*, 220-239.

Bandura, A. (1969). *Principles of behavior modification*. New York: Holt, Rinehart, and Winston.

Barnett, R, C., Raudenbush, S.W., Brennan, R. T., Pleck, J. H., and Marshall, N. L. (1995). Changes in job and marital experience and change in psychological distress: A longitudinal study of dual-earner couples. *Journal of Personality and Social Psychology, 69,* 839-850.

Barsade, S. (2002). The ripple effect: emotional contagion and its influence on group behavior. *Administrative Science Quarterly*, 47, 644-677.

Bavelas, J.B., Black, A., Lemery, C.R., and Mullett, J. (1987). Motor mimicry as primitive empathy. In N. Eisenberg and J. Strayer (Eds.), *Empathy and its development* (pp. 317-338). New York: Cambridge University Press.

Bernieri, F.J., Reznick, J.S., and Rosenthal, R. (1988). Synchrony, pseudosynchrony, and dissynchrony: Measuring the entrainment process in mother-infant interactions. *Journal of Personality and Social Psychology, 54,* 1242-1253.

Bolger, N., DeLongis, A., Kessler, R., and Wethington, E. (1989). The contagion of stress across multiple roles. *Journal of Marriage and the Family*, *51*, 175-183.

Burisch, M. (1989). *Das burnout-syndrom: Theorie der inneren Erschöpfung* [The burnout syndrome: A theory of inner exhaustion]. Berlin: Springer-Verlag.

Bourbonnais, R., Comeau, M., and Vézina, M. (1999). Job strain and evolution of mental health among nurses. *Journal of Occupational Health Psychology, 4,* 95-107.

Burke, R. J., Weir, T., and DuWors, R. E. (1980). Work demands on administrators and spouse well-being. *Human Relations*, *33*, 253-278.

Cherniss, C. (1980). *Professional burnout in human service organizations.* New York: Praeger.

Davis, M.H. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology, 10,* 85.

Davis, M.H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44,* 113-126.

Demerouti, E., and Bakker, A.B. (2008 – this volume). The Oldenburg Burnout Inventory: A good alternative to measure burnout (and engagement). In J. Halbesleben (Ed.). *xxxx*. Nova Sciences.

Demerouti, E., Bakker, A.B., Nachreiner, F., and Schaufeli, W.B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology, 86*, 499-512.

Demerouti, E., Le Blanc, P., Bakker, A.B., and Schaufeli, W.B. (2005). The costs of 'working through' sickness: A three-wave study on presenteeism. *Manuscript submitted for publication*.

Deutsch, F., and Madle, R. (1975). Empathy: Historic and current conceptualizations, measurement, and a cognitive theoretical perspective. *Human Development, 18,* 267-287.

Doherty, R.W., Orimoto, L., Singelis, T.M., Hatfield, E., and Hebb, J. (1995). Emotional contagion: Gender and occupational differences. *Psychology of Women Quarterly, 19*, 355-371.

Eckenrode, J., and Gore, S. (1981). Stressful events and social support: The significance of context. In B. Gottlieb (Ed.), *Social networks and social support* (pp. 43-68). Beverly Hills, CA: Sage.

Edelwich, J., and Brodsky, A. (1980). *Burnout: Stages of disillusionment in the helping professions.* New York: Human Sciences Press.

Erlen, J.A. and Sereika, S.M. (1997). Critical care nurses, ethical decision-making and stress. *Journal of Advanced Nursing, 26,* 953-961.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7,* 117-140.

Fredrickson, B.L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56*, 218-226.

Fredrickson, B.L. (1998). What good are positive emotions? *Review of General Psychology, 2*, 300-319.

Freudenberger, H.J. (1974). Staff burn-out. *Journal of Social Issues, 30,* 159-166.

Glass, D.C., McKnight, D., and Valdimarsdottir, H. (1993). Depression, burnout, and perceptions of control in hospital nurses. *Journal of Consulting and Clinical Psychology, 61,* 147-155.

Golembiewski, R.T., Munzenrider, R.F., and Stevenson, J.G. (1986). *Stress in organizations: Towards a phase model of burnout.* New York: Praeger.

Gorgievski-Duijvesteijin, M. J., Giesen, C, W., and Bakker, A, B.(2000). Financial problems and health complaints among farm couples: Results of a 10-yr follow-up study**.** *Journal of Occupational Health Psychology. 5,* 359-373.

Groenestijn, E., Buunk, B.P., and Schaufeli, W.B. (1992). Het besmettingsgevaar bij burnout: De rol van sociale vergelijkingsprocessen [The danger of burnout contagion: The role of social comparison processes]. In R.W. Meertens, A.P. Buunk, P.A.M. van Lange, and B. Verplanken (Eds.), *Sociale psychologie and beïnvloeding van intermenselijke en gezondheidsproblemen (*pp. 88-103). The Hague, The Netherlands: VUGA.

Hammer, L. B., Allen, E., and Grigsby, T. D. (1997). Work-family conflict in dual-earner couples: Within individual and crossover effects of work and family. *Journal of Vocational Behavior, 50*, 185-203.

Hammer, L. B., Bauer, T., and Grandey, A. (2003). Work-family conflict and work-related withdrawal behaviors. *Journal of Business and Psych*ology, *17*, 419-436.

Howe, G., Levy, M., and Caplan, R. (2004). Job loss and depressive symptoms in couples: Common stressors, stress transmission, or relationship disruption? *Journal of Family Psychology, 18*, 639-650.

Hatfield, E., Cacioppo, J.T., and Rapson, R.L. (1994). *Emotional contagion.* New York: Cambridge University Press.

Haynes, S.G., Eaker, E. D., and Feinleib, M. (1983). Spouse behavior and coronary heart disease in men: Prospective results from the Framingham heart study. *American Journal of Epidemiology, 118*, 1-22.

Heuven, E., and Bakker, A.B. (2003). Emotional dissonance and burnout among cabin attendants. *European Journal of Work and Organizational Psychology, 12,* 81-100.

Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology, 6*, 307-324.

Hochschild, A.R. (1983). *The managed heart. Commercialization of human feeling.* Berkeley, CA: University of California Press.

Hsee, C.K., Hatfield, E., Carlson, J.G., and Chemtob, C. (1990). The effect of power on susceptibility to emotional contagion. *Cognition and Emotion, 4,* 327-340.

Isen, A. M. (1999). Positive affect. In T. Dagleish and M. Power (Eds.), *Handbook of cognition and emotion* (pp. 521 – 539). Sussex, England: Wiley.

Jackson, S. E., and Maslach, C. (1982). After-effects of job-related stress: Families as victims. *Journal of Occupational Behavior*, *3*, 63-77.

Kahill, S. (1988). Symptoms of professional burnout: A review of the empirical evidence. *Canadian Psychology, 29*, 284-297.

Karasek, R.A. (1979). Job demands, job decision latitude, and mental strain: Implications for job design. *Administrative Science Quarterly, 24,* 285-308.

Keinan, G., and Sadeh, A., and Rosen, S. (2003). Attitudes and reaction to media coverage on terrorist acts. *Journal of Community Psychology, 31,* 149-168.

Laird, J.D. (1984). The real role of facial response in the experience of emotion: A reply to Tourangeau and Ellsworth, and others. *Journal of Personality and Social Psychology, 47,* 909-917.

Lazarus, R.S. (1991). *Emotion and adaptation.* New York: Oxford.

Mandler, G. (1993). Thought, memory and learning: Effects of emotional stress. In: L. Goldberger and S. Breznitz (Eds.), *Handbook of stress* (pp. 40-55). New York: The Free Press.

Maslach, C. and Jackson, S.E. (1981). The measurement of experienced burnout. *Journal of Occupational Behavior*, *2*, 99-113.

McIntosh, D.N., Druckman, D., and Zajonc, R.B. (1994). Socially induced affect. In D. Druckman and R.A. Bjork (Eds.), *Learning, remembering, believing: Enhancing human performance* (pp. 251-276). Washington, DC: National Academy Press.

Moos, R. (1984). Context and coping: Toward a unifying conceptual framework. *American Journal of Community Psychology*, *12*, 5-25.

Petty, R.E., and Cacioppo, J.T. (1986). The elaboration likelihood model of persuasion. In: L. Berkowitz (Ed). *Advances in experimental social psychology* (Vol. 19; pp. 124-205). Orlando, FL: Academic Press.

Rook, S. K., Dooley, D., and Catalano, R. (1991). Stress transmission: The effects of husbands' job stressors on emotional health of their wives. *Journal of Marriage and the Family*, *53*, 165-177.

Rosenfield, S. (1992). The cost of sharing: Wives employment and husbands' mental health. *Journal of Health and Social Behavior*, *33*, 213-225.

Rountree, B.H. (1984). Psychological burnout in task groups. *Journal of Health and Human Resources Administration, 7,* 235-248.

Sawatzky. J.V. (1996). Stress in critical care nurses: Actual and perceived. *Heart and Lung, 25,* 409-417.

Schachter, S. (1959). *The psychology of affiliation.* Palo Alto, CA: Stanford University Press.

Schaufeli, W.B. (2005). The future of occupational health psychology. *Applied Psychology: An International Review, 53,* 502-517.

Schaufeli, W.B., and Enzmann, D. (1998). *The burnout companion to research and practice: A critical analysis.* London: Taylor and Francis.

Schwartz, M.S., and Will, G.T. (1953). Low morale and mutual withdrawal on a hospital ward. *Psychiatry, 16,* 337-353.

Shirom, A. (1989). Burnout in work organizations. In C. L. Cooper and I. Robertson (eds.) *International Review of Industrial and Organizational Psychology* (pp. 26-48), Wiley, New York.

Staines, G. L., Pottic, K. G., Fudge, D. A. (1985). The effects of wives' employment on husbands' job and life satisfaction. *Psychology of Women Quarterly*, *9*, 190-201

Starcevic, V., and Piontek, C.M. (1997). Empathic understanding revisited: Conceptualization, controversies, and limitations. *American Journal of Psychotherapy, 51,* 317-328.

Stiff, J.B., Dillard, J.P., Somera, L., Kim, H., and Sleight, C. (1988). Empathy, communication, and prosocial behavior. *Communication Monographs, 55,* 198-213.

Stotland, E. (1969). Exploratory investigations of empathy. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (vol. 4, pp. 271-314). New York: Academic Press.

Stroebe, W. (1999). The return of the one-track mind. *Psychological Inquiry, 10*, 173-176.

Takeuchi, R., Yun, S., and Teslu, P. T. (2002). An examination of crossover and spillover effects of spouse and expatriate cross-cultural adjustment on expatriate outcomes. *Journal of Applied Psychology*, *85*, 655-666.

Tesser, A. (1988).Towards a self-evaluation maintenance model of social behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Volume 21; pp. 181-227). San Diego: Academic Press.

Tesser, A., Millar, M., and Moore, J. (1988). Some affective consequences of social comparison and reflection processes: The pain and pleasure of being close. *Journal of Personality and Social Psychology, 54,* 49-61.

Torrance, E. P., and Ball, O. E. (1984). *Torrance Tests of Creative Thinking (revised) Manual.* Bensenville: Scholastic Testing Service Inc.

Totterdell, P., S. Kellet, K. Teuchmann, and R. B. Briner (1998). Evidence of mood linkage in work groups. *Journal of Personality and Social Psychology, 74,* 1504-1515.

Uchino, B., Hsee, C.K., Hatfield, E., Carlson, J.G., and Chemtob, C. (1991). *The effect of expectations on susceptibility to emotional contagion.* Unpublished manuscript, University of Hawaii.

Van Eerde, W., Holman, D., and Totterdell, P. (2005). Editorial: Diary studies in work psychology. *Journal of Occupational and Organizational Psychology, 78,* 151-154.

Westman, M. (2001). Stress and strain crossover. *Human Relations*, *54*, 557-591.

Westman, M., and Etzion, D. (1995). Crossover of stress, strain and resources from one spouse to another. *Journal of Organizational Behavior, 16,* 169-181.

Westman, M., and Etzion, D. (1999). The crossover of strain from school principals to teachers and vice versa. *Journal of Occupational Health Psychology*, *4*, 269-278.

Westman, M., and Etzion, D. (2005). The crossover of work-family conflict from one spouse to the other. *Journal of Applied Social Psychology. 35*, 1936-1957.

Westman, M, Etzion, D., and Danon, E. (2001). Job insecurity and crossover of burnout in married couples. *Journal of Organizational Behavior, 22*, 467-481.

Westman, M., Etzion, D., and Horovitz, S. (2004). The toll of unemployment does not stop with the unemployed. *Human Relations, 57*, 823-844.

Westman, M. Keinan, G., and Roziner, R., and Benyamini (in press). The crossover of perceived health between couples: A theoretical model. *Journal of Occupational Health Psychology*.

Westman, M., and Vinokur, A. (1998). Unraveling the relationship of distress levels within couples: Common stressors, emphatic reactions, or crossover via social interactions? *Human Relations, 51,* 137-156.

Westman, M., Vinokur, A., Hamilton, L., and Roziner, I. (2004). Crossover of marital dissatisfaction during military downsizing among Russian army officers and their spouses. *Journal of Applied Psychology, 89*, 769-779.