



## Dyadic planning of health-behavior change after prostatectomy: A randomized-controlled planning intervention

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### ABSTRACT

In this study, we investigated the role of dyadic planning for health-behavior change. Dyadic planning refers to planning health-behavior change together with a partner. We assumed that dyadic planning would affect the implementation of regular pelvic-floor exercise (PFE), with other indicators of social exchange and self-regulation strategies serving as mediators.

In a randomized-controlled trial at a German University Medical Center, 112 prostatectomy-patients with partners were randomly assigned to a dyadic PFE-planning condition or one of three active control conditions. Questionnaire data were assessed at multiple time points within six months post-surgery, measuring self-reported dyadic PFE-planning and pelvic-floor exercise as primary outcomes and social exchange (support, control) and a self-regulation strategy (action control) as mediating mechanisms.

There were no specific intervention effects with regard to dyadic PFE-planning or pelvic-floor exercise, as two active control groups also showed increases in either of these variables. However, results suggested that patients instructed to plan dyadically still benefited from self-reported dyadic PFE-planning regarding pelvic-floor exercise. Cross-sectionally, received negative control from partners was negatively related with PFE only in control groups and individual action control mediated between self-reported dyadic PFE-planning and PFE for participants instructed to plan PFE dyadically. Longitudinally, action control mediated between self-reported dyadic PFE-planning and pelvic-floor exercise for all groups.

Findings provide support for further investigation of dyadic planning in health-behavior change with short-term mediating effects of behavior-specific social exchange and long-term mediating effects of better self-regulation.

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### Introduction

Recovery from diseases or treatment sequelae often requires changes in health-related behavior. In this paper we investigate the implementation of regular pelvic-floor exercise in patients who receive radical prostatectomy and face urinary incontinence. We evaluate effects of a new dyadic planning intervention and its potential mechanisms in the process of behavior change, specifically engaging in regular pelvic-floor exercise.

#### Facilitating health-behavior change by planning

Despite best intentions, individuals often fail to implement a new health-related behavior. This so-called intention-behavior-gap

(Sheeran, 2002) has been shown for frequently performed behavior like physical activity (Sniehotta, Scholz, & Schwarzer, 2005) and singular actions like cancer-screening (Orbell & Sheeran, 1998).

To bridge the intention-behavior-gap, additional self-regulatory strategies can be fostered (Schwarzer, Luszczynska, Ziegelmann, Scholz, & Sniehotta, 2008). Self-regulation strategies facilitate behavior-change through preparatory acts (e.g., planning), and monitoring or regulating behavior (e.g., action control). *Planning* prepares action, specifying when, where, and how to implement the new behavior (Gollwitzer, 1999; Leventhal, Singer, & Jones, 1965). A meta-analysis revealed that planning has reliable effects for many goal domains, with medium effect-sizes in the health-behavior domain (Gollwitzer & Sheeran, 2006). By enhancing accessibility of specified opportunities, planning helps to initiate goal-pursuit (cf. Gollwitzer, 1999).

Planning interventions typically invite participants to form plans on their own, for instance, in a computer-assisted fashion

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(Ziegelmann, Lippke, & Schwarzer, 2006) or by using planning sheets (Sniehotta, Nagy, et al., 2006; Sniehotta, Scholz, et al., 2006). This earlier work on planning interventions showed that planning competences and health behavior can be increased. However, the effectiveness of planning interventions may be further qualified by factors like intentional strength (Scholz, Schüz, Ziegelmann, Lippke, & Schwarzer, 2008) or self-efficacy beliefs (Luszczynska & Haynes, 2009), the intervention commitment (Prestwich, Ayres, & Lawton, 2008), or the continued use of planning strategies after the intervention (Luszczynska, 2006). To learn more about conditions in which planning interventions are most efficient, we must consider further moderators, but also investigate mediators that translate effects of planning interventions into behavior change.

#### *Dyadic planning and additional mediators in health-behavior change*

Research on individuals' planning focuses on its benefits for the self-regulation of behavior. However, there is comparatively little evidence on the role of close others in planning health-behavior change (for an exception, see Prestwich et al., 2005). As married individuals often try to and succeed in co-regulating their partner's health behavior (Lewis & Butterfield, 2007), in this study, an extension of individual planning to the level of the dyad is examined. *Dyadic planning* refers to creating *together with a partner* plans on when, where, and how the individual target person will implement a new behavior. In contrast to Prestwich et al. (2005) conceptualization of collaborative implementation intentions, where both partners jointly planned *and* enacted the behavior, dyadic planning entails that plans be enacted individually, because joint action might compromise goal achievement for instance, when the partner breaks the arrangement. Prestwich et al. (2005) showed that collaborative planning and enactment of breast self-examination were more efficacious than individual planning and individual breast self-examination. Authors explained this benefit by facilitated plan recall, with partners serving as memory aids; however, authors failed to test this proposed mechanism. We assume that dyadic planning facilitates health-behavior change by the same mechanisms applying to individual planning (Sniehotta, 2009). Furthermore, dyadic planning should yield additional beneficial effects by triggering other social exchange processes that were shown to aid change of health-relevant behavior, including social support from partners (Franks et al., 2006), or by buffering social-exchange effects that might impede successful behavior change, such as negative social control by partners (Lewis & Butterfield, 2007).

#### *Dyadic planning and other social exchange processes*

Social exchange processes refer to interpersonal interactions that influence the recipient's behavior, emotions, and cognitions. Received social support refers to emotional or instrumental assistance from close others (e.g., spouses) that may help a recipient endure times of stress or achieve behavioral goals (Knoll, Schulz, Schwarzer, & Rosemeier, 2006; Luszczynska, Sarkar, & Knoll, 2007). Previous studies investigating social support have shown that persons increased health-relevant behaviors, such as physical activity, when behavior was supported by their partners (Thrasher, Campbell, & Oates, 2004). However, intervention studies aiming at enhancement of health behavior-specific social support provided inconsistent results (Glass, 2000), suggesting further moderators or additional social mechanisms triggered by the interventions.

Previous findings show that health-related social control is an ongoing experience in couples (Lewis & Rook, 1999). Social control refers to strategies that aim at influencing or regulating another person's behavior (Lewis & Rook, 1999). Positive control strategies,

like persuasion or expressing positive emotions, are conceptually hard to delineate from social support in that they may be indirectly supportive by rewarding desired behavior. Positive control strategies positively predict health-enhancing behavior (Lewis & Rook, 1999). On the other side, with negative social control behaviors, like nagging or withdrawing affection, close others try to pressure a target person into a desired behavior change. It is usually inefficient (Lewis & Rook, 1999) or counterproductive (Tucker, Orlando, Elliott, & Klein, 2006).

Dyadic planning is assumed to be strongly associated with these social exchange processes. Partner involvement in planning might foster partners' social support provision by directing partners' attention to the new behavior (Dunkel-Schetter & Skokan, 1990). This in turn might facilitate health-behavior change when target persons are committed to their goals (Brunstein, Dangelmayer, & Schultheiss, 1996). Dyadic planning might also increase partners' negative control attempts when the target person's effort invested is not sufficient. Nevertheless, involving partners into the behavior-change process, rather than excluding them, might reduce negative impact of these control attempts due to common knowledge of the behavior-change process.

#### *Dyadic planning and self-regulatory processes*

Self-regulatory processes facilitate behavior initiation and maintenance by preparing (e.g., planning) and controlling (e.g., action control) performance. Previous studies have shown that the association of individual planning and behavior was mediated by action control (Sniehotta et al., 2005). Action control comprises three facets: awareness of own standards, self-monitoring, and regulatory effort (Sniehotta, Nagy et al., 2006). The facet of action control that may be directly facilitated by planning is awareness of behavior standards. By forming a plan, persons set standards for future behavior. Two further facets of action control, self-monitoring and regulatory efforts, support the successful implementation of the planned behavior by detection and reduction of discrepancies between plans (i.e., behavioral standards) and behavior (Carver & Scheier, 2002). Like individual planning, dyadic planning should also be related to action control. Just like individual plans, dyadically formed plans should serve as planned standards and regulation guidance (Sniehotta et al., 2005). The better the plans fit into the individual's life, the better the individual's behavior regulation. As all dyadically formed plans are subject to partners' scrutiny, it is assumed that dyadic planning supports this fit and thus promotes action control.

#### *Pelvic-floor exercise in prostatectomy-patients*

The health behavior focused on in the present study was pelvic-floor exercise following radical prostatectomy. Radical prostatectomy (RPE), in which the entire prostate gland is surgically removed, is one standard treatment for localized prostate cancer (Roumeguere et al., 2003). When laparoscopic techniques (LRPE) are used, only small surgical incisions are needed and surgical trauma is kept at a minimum (Roumeguere et al., 2003). However, as in open surgery, patients receiving LRPE are also faced with a number of potential sequelae of the operation. These include erectile dysfunction and urinary incontinence. Incontinence sets in immediately post-surgery and recedes within the first 12 months in most patients (Basillote, Ahlering, Skarecky, Lee, & Clayman, 2004). Although findings about the efficiency of pelvic-floor exercise (PFE) after RPE are inconsistent (Hunter, Moore, & Glazener, 2007), patients are recommended to implement PFE in order to support recovery from incontinence. There are no general recommendations concerning the frequency and intensity of PFE. However, several exercise units each day should strengthen the outer pelvic-

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