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# Reducing Caregiver Distress and Cardiovascular Risk: A Focus on Caregiver-Patient Relationship Quality

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## ABSTRACT

Spouses report elevated levels of distress upon assuming a caregiver role; this role and related distress might, ironically, increase the cardiovascular risk of spousal caregivers of patients with cardiovascular disease (CVD). Physiological, behavioural, and emotional factors experienced by caregivers can contribute to enhanced CVD risk. Despite an appreciation of these established associations few approaches have shown effectiveness in reducing a caregiver's stress. It is known that CVD can produce additional strain on a caregiver-patient relationship, in turn accentuating caregiver distress. Poor relationships are known to be a detriment to cardiovascular health and negatively influence behaviours affecting CVD risk and outcomes. In light of these findings, we argue in this nonsystematic narrative review that enhancing caregiver-patient relationship quality in secondary prevention programs might afford an appropriate and timely opportunity to

## RÉSUMÉ

Les conjoints de patients atteints d'une maladie cardiovasculaire (MCV) qui assument un rôle d'aidant se plaignent de niveaux de détresse élevés; ironiquement, le rôle de ces conjoints et la détresse qui y est associée peuvent augmenter leur risque cardiovasculaire. Des facteurs physiologiques, comportementaux et émotionnels peuvent contribuer à accroître ce risque. Même si ces liens sont établis et connus, peu d'approches se sont révélées efficaces pour réduire le stress chez les aidants. On sait que la MCV peut provoquer des tensions entre le patient et son conjoint aidant, ce qui accentue la détresse de ce dernier. Les problèmes relationnels sont nuisibles à la santé cardiovasculaire et peuvent modifier négativement les comportements, ce qui se répercute sur le risque de MCV et les résultats cliniques. À la lumière de ces observations, nous postulons dans notre synthèse méthodique non systématique que l'amélioration de la

Cardiovascular disease (CVD) is a leading cause of morbidity and mortality in Western nations. Optimal treatment requires medical and lifestyle management. Caregivers, defined as those who provide unpaid care to a loved one, contribute substantially to such management resulting in reduced hospitalization and medical costs, improved cardiovascular and mental health, and decreased morbidity and mortality. Caregivers are an invaluable, yet typically unseen, health care

resource. The economic contribution of caregivers' unpaid labour is estimated as CAD\$26 billion annually in Canada, and constitutes an enormous contribution to the Canadian health care system. Although many caregivers derive a sense of satisfaction and personal fulfilment when providing care to a family member, caregivers, ironically, are vulnerable to developing poor cardiovascular health.

## Caregiving Can Be Deleterious to Cardiovascular Health

Approximately 40% of caregivers report high caregiver burden (ie, psychological, emotional, physical, social, and financial stresses imposed by the caregiving role). Risk factors for caregiver distress include female sex, caregiver comorbidities such as anxiety and depression, effects of patient care on

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reduce caregiver distress and improve the cardiovascular health of the patient and their spousal caregiver. Evaluations of the effect of couples-based interventions on patient and caregiver CVD risk and health outcomes are required.

life activities such as employment, and limited social support. Caregivers report lower levels of subjective well-being and, paradoxically, caregivers report lower quality of life scores than patients during the latter's hospital admission. Patients with heart failure, for example, who experience frequent and unpredictable exacerbations of symptoms, contribute to a lower perceived sense of control and increased stress among their caregivers. Furthermore, distressed caregivers report high levels of symptoms of depression upon patient discharge and, for many caregivers of patients with chronic illnesses (46%), these symptoms persist 1 year later. Caregiver stress is independently associated with a twofold increase in risk of developing coronary heart disease among women (95% confidence interval [CI], 1.16-3.20) and a 23% increased risk of stroke. Strained caregivers who provide care to a spouse or parent are 2.64 times (95% CI, 1.50-4.65) and 2.55 times (95% CI, 1.02-6.37), respectively, more likely to die of CVD compared with caregivers reporting low or no strain.

Physiological, behavioural, and emotional factors contribute to caregivers' poor cardiovascular health. A doubling of the incidence of hypertension (95% CI, 1.17-4.49)—a "direct" risk factor—is seen among those who provide high-intensity caregiving (> 14 hours per week over 2 years). Caregiver stress is directly associated with the development of the metabolic syndrome. Furthermore, chronic stress brought on by a caregiving role increases caregivers' cardiovascular reactivity (ie, blood pressure, heart rate) and impaired endothelial function. As such, screening for and monitoring changes in CVD risk factors among distressed caregivers might be an important task for health care providers.<sup>1</sup>

Behavioural risk factors act indirectly to influence CVD risk. Caregivers are more likely to continue to smoke and less likely to be physically active than are individuals who provide no or low levels of care. Their diets tend to be high in saturated fat intake, which leads to greater body mass index. Caregivers spend less time engaging in self-care activities and report poor preventative health behaviours; they experience less or disordered sleep and show poor medication adherence. Evidence continues to accumulate linking caregiving with poor cardiovascular health, underscoring the need for tailored intervention strategies to minimize any potential decline in caregiver health status. Yet, little has been published on approaches that show effectiveness in reducing the physical and emotional burden of caregivers.

The challenges of caregiving are particularly pronounced for a spouse, of which there are an estimated 650,000 in Canada alone. Spousal caregivers experience higher levels of depressive symptoms, physical and financial burden, relationship strain, and lower levels of positive psychological well-being than do adult children caregivers, for example. Differences might be explained by the near constant care that

relation entre le patient et le conjoint aidant dans le cadre de programmes de prévention secondaire pourrait être une occasion appropriée de réduire la détresse de l'aidant tout en améliorant sa santé cardiovasculaire et celle du patient. Des évaluations de l'effet des interventions auprès de couples de patient-aidant sur leur risque de MCV et les résultats cliniques sont nécessaires.

spousal caregivers provide. Furthermore, spousal caregivers share similar lifestyle factors as their CVD patient-partner yet often regard the cardiac patient's lifestyle changes as more critical than their own. Pressures on "cardiac" spousal caregivers are projected to rise in association with demographic shifts, increases in life expectancy, reductions in hospital stays, and the growing prevalence of CVD and associated risk factors. Despite these associations, few secondary prevention programs (eg, cardiac rehabilitation) involve spousal caregivers, representing an untapped resource for strengthening a patient's and a caregiver's cardiovascular health.

### Spousal Caregiver-Patient Relationship Quality and Spousal Cardiovascular Health

Decades of research have established that improved couple relationship quality (defined as warmth, support, and closeness vs hostility, conflict, and distance) leads to enhanced mental health, and emerging research continues to highlight the positive link between relationship quality and physical health. For example, partners in satisfying relationships are 3.2 times (95% CI, 1.42-3.77) more likely to be alive 15 years after coronary artery bypass grafting than those in unsatisfying relationships. Marital support also increases high-frequency heart rate variability (HF-HRV) and protects against metabolic syndrome, particularly in women. Indirectly, supportive spouses model heart-healthy behaviours such as consuming fruits and vegetables and engaging in physical exercise. Patients in well-adjusted relationships are more likely to adhere to medical prescriptions and have better attendance at cardiac rehabilitation. There is evidence that high-quality caregiver-patient relationships can reduce caregiver burden, distress, and depressive symptoms, allowing caregivers to better care for themselves and their spouse.<sup>2</sup>

Unfortunately, the onset of CVD can strain a couple's relationship. Patients in our cardiac rehabilitation setting frequently assert that CVD has affected the quality of their relationships. Such changes in relationship quality are precipitated by changing spousal roles, the dissipation of a sense of partnership, worsening sexual problems, and caregiver burden. The quality of a couple's relationship can affect the cardiovascular health of both partners through direct and indirect mechanisms. For example, hostility within a relationship is associated with an increased incidence or severity of hypertension,<sup>3</sup> reduced HF-HRV, elevated cortisol levels, and, alterations in immune function (eg, increased circulating inflammatory markers). This is problematic considering that reduced HF-HRV and elevated levels of cortisol and inflammation are precursors of atherosclerosis and cardiac mortality. Increased alcohol use or higher rates of smoking—indirect factors—frequently occur in association with relationship disputes. Couples who display high hostility secrete more

appetite-stimulating hormones and report poorer eating behaviours than do their less hostile peers. Overall, there are emerging data that spousal caregiver-patient relationships are subject to strain in response to chronic illness, such as CVD. In contrast, authentically supportive caregiver-patient relationships might prevent caregiver distress, which might ultimately reduce a caregiver's CVD risk. Although there is accumulating evidence that links enhanced relationship quality to surrogate end points, there is still little research that has investigated clinical outcomes (ie, morbidity, mortality) of relationship-enhancement approaches in caregiver-patient populations. There is thus a unique opportunity to further study and translate these preliminary understandings of caregiver stress and relationship quality into secondary prevention programming and to evaluate the effects of such interventions on caregivers' cardiovascular risk and comprehensive health outcomes.

### **Reducing Spousal Caregiver Stress by Improving Caregiver-Patient Relationship Quality**

Addressing relationship quality within secondary prevention programs might afford an opportunity to enhance a caregiver's and a cardiac patient's overall health. Unfortunately, fewer than 10% of CVD interventions for couples assess relationship quality. One couples-based intervention for patients with coronary artery disease and their partners<sup>4</sup> included components of couples' therapy (ie, communication skills) in a behavioural intervention and showed increases in physical activity, but gains were not maintained by distressed couples at the end of the intervention. A more targeted intervention for relationship quality is likely required. Healing Hearts Together is a relationship-enhancement and educational program for patients with CVD and their partners that has shown potential in enhancing relationship quality and mental health. On the basis of attachment theory, which states that close emotional bonds are essential when faced with a threat (eg, cardiac event), the aim of Healing Hearts Together is to increase emotional accessibility and responsiveness in couples facing CVD. The program guides couples through conversations in which they: (1) review information on heart health and attachment; (2) share their unique experiences with heart disease with partners and peers; and (3) learn to communicate clearly their need for connection and reassurance. This connection enhances couple satisfaction and problem solving (eg, CVD management). Recent proof of concept testing yielded statistically significant improvements in relationship quality, mental health, and select quality of life measures.<sup>5</sup> Satisfaction of the program, from the perspectives of patients and partners, was high (mean, 4.7/5). A controlled

evaluation of the effect of this program on CVD risk factors and outcomes is under way.

### **Summary**

Caregivers are essential for supporting patients with CVD but this role might threaten their mental and physical health and strain the couple relationship. The links between caregiver stress, relationship quality, and physiological and health behaviour factors involved in CVD risk and management are rapidly emerging. It is time to fully recognize the role of caregivers in patients' CVD management, particularly spousal caregivers. We contend that clinicians ought to screen and monitor changes in caregivers' health. Furthermore, it is necessary that future research investigate effective approaches to support and strengthen this potentially vulnerable population. Interventions to enhance caregiver-patient relationships in a rehabilitation setting might be an effective approach to reduce caregiver distress while improving caregiver and patient cardiovascular health.

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