Chapter #19

THE BENEFITS OF CONNECTING TO PEOPLE AND ACTIVITIES: IMPROVING WELLNESS OF CANCER SURVIVORS

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ABSTRACT

Cancer survivors often report increased mental health concerns as well as lowered physical and psychological well-being and average quality of life (QoL). Positive lifestyle variables, including social connectedness, leisure activity, and mindfulness practices are associated with increased QoL in cancer patients. Thus, our purpose was to examine overall how two modifiable factors, social connectivity, and productive leisure were associated with overall well-being. In this study, 388 cancer survivors completed an online questionnaire package that included a detailed demographic questionnaire with medical and online support and leisure activity questions. Additional measures were included to assess QoL, social connectedness, and mindfulness. Regression results indicated that increased QoL was predicted by increased self-acceptance and engagement in a variety of leisure activities, as well as lower family and romantic loneliness. Encouraging family and romantic support, as well as a variety of non-passive leisure activities, and normalizing negative emotions surrounding diagnosis and disease symptoms are all ways that overall QoL can be improved.

Keywords: cancer survivorship, quality of life, leisure satisfaction, social connectedness, mindfulness.

1. INTRODUCTION

As the second leading cause of death worldwide (WHO, 2021), the impact of cancer is felt in all countries and the "cancer experience" extends beyond diagnosis, treatment, and end-of-life care. Relative to individuals who have not had a cancer diagnosis, survivors report increased mental health concerns as well as lowered physical and psychological well-being (Langeveld, Grootenhuis, De Haan, & Van Den Bos, 2004). Health-related quality of life (QoL) encompasses overall physical (e.g., energy, fatigue, pain) and psychological functioning (e.g., emotional well-being), as well as general health perceptions (Hays & Morales, 2001). Over 80% of cancer patients report below-average QoL scores, with the lowest scores found in the general, physical, and psychological well-being domains compared to the familial, cognitive, and economic well-being domains (Nayak et al., 2017).

Productive leisure, mindfulness, and social connectedness are positive lifestyle variables associated with increased QoL in cancer survivors (Fangel, Panobianco, Kebbe, de Almeida, & de Oliveira Gozzo, 2013; Garland et al., 2017). Given that these factors are modifiable, targeted research could inform the development of programs aimed at increasing wellness via targeted changes in mindfulness, leisure activities, and connectivity. Leisure satisfaction encompasses how one perceives their leisure activities and choices (Beard & Ragheb, 1980); both satisfaction with leisure activities and frequency of participation are correlated with higher life satisfaction in the general population (Pressman et al., 2009). Due

to its debilitating consequences, cancer treatment and survivorship are negatively related to participation and satisfaction with leisure activities (Shipp, McKinstry, & Pearson, 2015), resulting in 34% decrease in physical activity three months post- treatment, and a 16% decrease in social activities (Lyons, Lambert, Balan, Hegel, & Bartels, 2013). According to Chun and colleagues (2016), the leisure satisfaction of survivors is stronger predictor of an increased sense of purpose than sheer number of leisure activities, lifetime trauma occurrence, and related demographic factors. Although some studies suggest that leisure activity declines with age (Frazier, Johnson, Gonzalez, & Kafka, 2002), recent studies suggest that the decline is more strongly related to physical health constraints rather than older age (Paggi, Jopp, & Hertzog, 2016) and, thus, research comparing the impact of the macro-level (frequency of leisure activities) versus micro-level (specific leisure activities) versus mid-level (categories of leisure activities) perspectives on individuals' QoL is needed (Nimrod & Shrira, 2016).

Dispositional mindfulness involves "paying attention in a particular way: on purpose, in the present moment, and non-judgementally" (Kabat-Zinn, 1994, p. 4) and is associated with increased satisfaction with life, largely because mindfulness fosters more positive self-evaluations (Kong, Wang, & Zhao, 2014). Mindfulness-based interventions can improve several aspects of emotional well-being by reducing anxiety, depression, stress, and pain acceptance (Geiger et al., 2016). In cancer patients, dispositional mindfulness is associated with lower anxiety, depression, and posttraumatic stress disorder (Liu, Li, Zhang, Zhao, & Xu, 2021) and increased focus on favourable experiences, resulting in increased quality of life (QoL; Garland et al., 2017). Given the impact of mindfulness on overall psychological well-being and the efficacy of short programs, the training and implementation of mindfulness practices in survivors could be beneficial.

Social support describes the supportive ways in which people behave in a social context (Helgeson, 2003). Social connectedness is related to improved cancer outcomes, including decreased risk of cancer mortality and favourable prognosis (Garssen, 2004; Kroenke, Kubzansky, Schernhammer, Holmes, & Kawachi, 2006), with positive associations between perceived social support, physical health, and psychological well-being (Kahn, Hessling, & Russell, 2003). Social support is associated with reduced depressive symptoms (Sayal, Checkley, Rees, Jacobs, Harris, Papadopoulos, & Poon , 2002) as well as long term health benefits, including better immune functioning, physical mobility, lower blood pressure, and a faster recovery time from health problems (Hogan, Linden, & Najarian, 2002). In a comprehensive meta-analysis, Pinquart and Duberstein (2010) examined the effects of social support on cancer mortality and focused on the efficacy of interventions to increase social connectivity. In this meta-analysis, results indicated a positive association between mortality and perceptions of social support, the size of a support network, and marital status (individuals who are married had lower mortality), with an overall decrease in mortality of 12 – 25%. The links between social support and overall wellness coupled with the fact that survivors report moderate to moderately high loneliness levels, which increase with time since the initial diagnosis (Deckx, van den Akker, & Buntinx, 2014), suggest that focusing on the positive effects of social connectivity could elucidate strategies to decrease loneliness and ultimately increase social connectivity in survivors.

1.1. Purpose of the current study

Considering the high prevalence of cancer and its associated detrimental consequences, more research on improving survivors' QoL is needed. Given that modifiable factors can have a positive impact on both physical and psychological health, the primary purpose of this study was to examine how medical and social support, engagement in leisure activities, and

mindfulness practices improved the QoL in cancer survivors. A secondary goal of this study was to investigate whether leisure satisfaction, compared to types of leisure activities, would contribute more to survivors QoL.

2. METHOD

In total, 388 cancer survivors (M_{age} = 53.58, SD = 13.58) completed an online questionnaire package (73.9% females). The age of participants ranged from 16–89 years old (M_{age} = 54), and years since the diagnosis ranged from 0 to 37 years (M = 11.98 years). Overall, 33.6% of respondents had an initial diagnosis of cancer in stages 0–2, while 54.9% reported that their cancer was at stages 3–4 at diagnosis (11.5% did not know their stage). At the time of the study, 25.1% of survivors had experienced a cancer relapse, and 94.4% of participants reported having received cancer treatment.

The online questionnaire package included a demographic questionnaire with questions about medical support (e.g., "Looking back on all of your treatment, how often did you feel like you could talk to your doctors (or nurses) about any concerns related to your treatment?"). Leisure engagement was measured by asking participants to indicate (yes, no) if they participated in 13 different types of leisure activities. Activities were categorized as stimulating (board games/cards, crafts/hobbies, religion), passive (television and computer based, including social media and shopping), physical (exercise, travelling), and social (socializing at home and in public). A total score was calculated to assess overall engagement. The **Quality of Life of Cancer Patients Questionnaire** (QLQ-C30; Aaronson et al., 1993) includes functional subscales (Physical, Role, Cognitive, Emotional, Social, and Financial; α = .69 to .91), symptom subscales (Fatigue, Pain, and Nausea and Vomiting; α = .62 to .82), and a Global Health and Quality of Life subscale (α = .83). The 30-item questionnaire uses a 4-point Likert scale ranging from 1 (*not at all*) to 4 (*very much*), with higher scores indicating better functioning. The short form of the **Social and Emotional Loneliness Scale for Adults** (SELSA-S; DiTommaso et al., 2004) includes three subscales: Social (α = .86), Romantic (α = .89), and Family (α = .89) loneliness. The 15-item questionnaire uses a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). A higher score represents high levels of emotional and social loneliness. The **Adolescent and Adult Mindfulness Scale** (AAMS; Droutman, Golub, Oganesyan, & Read, 2018) includes four subscales: Attention and Awareness (AAMS: AA; α = .85), Self-Acceptant (AAMS: SA; α = .83), Non-Judgemental (AAMS: NJ; α = .76), and Non-Reactive (AAMS: NR; α = .84). The 19-item questionnaire uses a 5-point Likert scale ranging from 1 (*never true*) to 5 (*always true*), with higher scores indicating increased mindfulness. The **Leisure Satisfaction Scale** (LSS; Coyle et al., 1994) includes 5 items measured on a 5-point Likert scale from 1 (*very dissatisfied*) to 5 (*very satisfied*), with higher total scores indicating greater satisfaction (α = .86).

3. RESULTS AND DISCUSSION

Nolte et al. (2019) collected data from over 15,000 individuals (416 individuals reported a current cancer diagnosis) from Europe, Canada, and the United States to determine normative data for the QLQ-C30. The QoL scores in the current study were lower than those reported by Nolte et al. (66.10 vs. 56.61; see Table 1) and slightly lower than the QoL in a sample of individuals in remission or cured (Van Leeuwen et al., 2018). QoL of our participants did not improve in the years after initial cancer diagnosis, $F(3,221)$= 1.96,

p = .121. Further, time since diagnosis did not affect overall leisure engagement, medical support, and social connectedness, except for family loneliness, $F(3, 225) = 4.36$, $p = .005$, in which higher loneliness was reported by individuals who were more than five years post diagnosis.

Table 1.
Mean/Standard Deviation on Relevant Variables as a Function of Years Since Diagnosis.

Variable	Overall	< 2 years	2–5 years	5–10 years	> 10 years
QLC–C30 summary	56.61/23.84	52.01/20.79	55.76/25.78	58.11/26.24	63.96/18.85
Leisure engagement	8.18/2.58	7.99/2.62	8.07/2.62	8.39/2.53	8.55/2.51
AAMS: AA	3.24/0.89	3.12/0.84	3.22/0.94	3.38/0.76	3.29/0.93
AAMS: NR	2.44/1.01	2.47/1.01	2.45/1.06	2.41/0.91	2.43/1.02
AAMS: NJ	3.37/0.92	3.35/0.87	3.40/0.91	3.12/0.84	3.53/1.03
AAMS: SA	3.58/1.01	3.56/1.02	3.52/0.99	3.59/0.91	3.74/1.13
SELSA: Family	12.92/7.61	11.23/6.80	12.09/7.53	14.08/7.52	16.37/8.06
SELSA: Romantic	16.94/9.05	15.61/8.71	16.39/9.19	18.08/8.73	19.18/9.31
SELSA: Social	14.78/7.26	13.33/7.18	14.84/7.10	15.35/7.23	16.21/7.71
Medical support	2.62/0.92	2.71/0.80	2.68/0.98	2.59/0.90	2.41/0.96
Age	53.06/13.79				

Note. QLC–C30 = Quality of Life of Cancer Patients Questionnaire; AAMS = Adolescent and Adult Mindfulness Scale; AA = Attention and Awareness; NR = Adolescent and Adult Mindfulness Scale: Non-Reactive; NJ = Non-Judgemental; SA = Self-Acceptant; SELSA = Social and Emotional Loneliness Scale for Adults–Short form.

The correlations between the QLQ-C30 summary score and its subscales (Physical, Emotional, Role, Cognitive, Social, and Financial Functioning), as well as leisure engagement, medical support, and AAMS subscales (Self-Acceptant, Non-Judgemental, Non-Reactive) were statistically significant (see Table 2). There were statistically significant positive correlations between all QLC-C30 subscales, except for Financial Functioning, wherein the correlations were statistically significant but negative. Further, years since diagnosis was only significantly and positively associated with family loneliness ($r = .24$, $p < .001$). Greater perceived medical support was significantly related to higher QoL and its components, higher levels of leisure engagement, two AAMS subscales (Non-Reactive and Self-Acceptant), and all SELSA subscales. Although medical support and leisure engagement is scarcely researched, these findings highlight the impact of improved communication with healthcare professionals and about the importance of leisure activities and engagement on improving QoL. Further, the Non-Reactive and Self Acceptant components of the AAMS reflect an individual's ability to practice self-compassion and acceptance of both positive and negative thoughts and feelings without trying to change them or label them as wrong or invalid. All these components are individually related to improve QOL.

Table 2.
Correlations between Mindfulness, Leisure Engagement and Satisfaction, and Social Connectivity.

Variable	QLC-C30: Global Health Score	QLC-C30: Physical Functioning	QLC-C30: Emotional Functioning	QLC-C30: Role Functioning	QLC-C30: Cognitive Functioning	QLC-C30: Social Functioning	QLC-C30: Financial Functioning
Leisure engagement	.31**	.30**	.25**	.22**	.24**	.26**	-.30**
Leisure satisfaction	.51**	.27**	.51**	.28**	.42**	.31**	-.29**
AAMS: AA	.05	-.08	-.06	-.11	-.07	-.08	.06
AAMS:NR	.04	.04	-.38**	-.06*	-37**	.00	-.00
AAMS: NJ	.04	.00	.20**	.07	.18**	-.00	.01
AAMS: SA	.31**	.19**	.51**	.19**	.38**	.24**	-.20**
SELSA: Family	-.37**	-.27**	-.39**	-.24*	-.34**	-.30**	.32**
SELSA: Romantic	-.14**	-.05	-.19**	-.06	-.12**	-.07	.14**
SELSA: Social	-.36**	-.24*	-.37*.	-.20**	-.32**	-.25**	.29**
Medical support	.22**	.16**	.24**	.13*	.20**	.16**	-.18**
Years since diagnosis	.08	-.02	-.09	.03	-.04	-.02	-.05

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*p < .05. ** p < .01.

On average, survivors participated in 8.59 (*SD* = 2.32) leisure activities. Overall, 10.3% of the participants reported engaging in stimulating leisure activities (*n* = 40), 24.5% participated in passive leisure activities (*n* = 95), 44.6% reported engaging in physical leisure activities (*n* = 173), and 8.8% reported participating in social leisure activities (*n* = 34).

Correlations between categories of leisure activities and leisure satisfaction, QoL, social connectedness, and age are presented in Table 3. Overall, increased engagement in stimulating, physical, and social activities was associated with higher QoL and leisure satisfaction as well as lower loneliness. It is interesting to note that age was associated with lower physical and social engagement.

Table 3.
Significant Differences According to Categories of Leisure Activity in QoL, Social Connectedness, and Age.

Variable	Stimulating	Passive	Physical	Social
QLC-C30 Global Health	.280***	.089	.338***	.300***
LSS	.362***	.065	.286**	.328***
SELSA: Family	-.188**	-.048	-.256***	-.302***
SELSA: Romantic	-.263**	-.072	-.191**	-.294***
SELSA: Social	-.314***	-.106	-.237***	-.419***
Age	.034	-.065	-.125*	-.148*

Note. QLC–C30 = Quality of Life of Cancer Patients Questionnaire; LSS = Leisure Satisfaction Scale; SELSA = Social and Emotional Loneliness Scale for Adults–Short Form. *$p < .05$. ** $p < .01$. *** $p < .001$.

A hierarchical multiple regression was conducted to examine factors that predict QoL. Demographic (age, sex) and disease variables (years since diagnosis, relapse) were entered in Block 1; medical support and loneliness (family, social, and romantic) were entered in Block 2; mindfulness subscales, leisure engagement, and leisure satisfaction were entered Block 3; and an interaction term (productive leisure; engagement x satisfaction) was entered in Block 4. The interaction term was computed to determine if leisure satisfaction moderated the relationship between leisure engagement and QoL. The overall model was statistically significant, $F(15, 190) = 8.55$, $p < .001$, and accounted for 65.0% of the variability. Block 1 demographic variables were not statistically significant. Block 2 explained a unique 17.3% of the variance, $F_{change}(4, 182) = 9.79$, $p < .001$, with family loneliness ($p = .010$) and romantic loneliness ($p = .016$) contributing to the model. Block 3 accounted for an additional 22.5% of the variability, $F_{change}(6, 176) = 11.42$, $p < .001$, with AAMS–Self-Acceptant ($p = .013$) and leisure satisfaction ($p = .005$) contributing significantly to the model. The Block 4 interaction term was not statistically significant; however, the main effect of leisure engagement was statistically significant ($p = .015$). Thus, survivors who reported lower family and romantic loneliness, as well as greater self-acceptance, leisure satisfaction, and leisure engagement experienced higher overall QoL.

As the result of medical and treatment advances, many individuals will survive a cancer diagnosis and, at some point after treatment, return to everyday activities. Researchers have traditionally focused primarily on the impact of cancer during diagnosis and treatment, with the goal for many survivors to get through treatment to return to a "normal" life, with "normal" activities. Although some psychological and emotional consequences of diagnosis and treatment are not as immediately significant, their importance for survivors increases in the months and years after diagnosis. QoL measures generally assess global functioning,

current symptoms, and overall physical, emotional, and cognitive functioning but often exclude other lifestyle factors that are not directly related to cancer. Thus, our purpose was to examine how modifiable lifestyle factors influenced quality of life in cancer survivors.

In this study, disease characteristics, including the time since diagnosis and relapse, did not significantly contribute to overall QoL; however, individuals who were more than five years post diagnosis reported higher family loneliness. Age, rather than cancer, likely underlies this finding; as years since diagnosis increase, so does age, and older age is associated with loss of family (CDCP, 2021). Further, QLQ-C30 scores of current participants were significantly lower than previous studies (Van Leeuwen et al., 2018), likely because some of the current participants were newly diagnosed and not yet through their treatment. Although physical symptoms and functioning might improve in the years after treatment, education and programs focused on social and emotional functioning could improve overall QoL. This research also highlights that the impact of family and romantic support extends beyond disease characteristics in survivors. Survivors who have a strong support network, that includes their family and romantic partners, reported better physical and mental health functioning.

At the correlational level, increased mindfulness (apart from acting with awareness) was associated with higher QoL. Further, in regression analyses, the self-acceptance component of mindfulness predicted overall quality of life, which lends insight into how different aspects of mindfulness can influence a patient's QoL. These results are in line with Best and colleagues (2019) who reported that aspects of mindfulness that focus on an awareness of bodily experiences might increase positive and negative physical experiences. In the current study, self-acceptance, a mindfulness subscale focused on acceptance of personal emotions, predicted higher QoL. Individuals who label their emotions "wrong" or think that they "shouldn't be feeling this way" have low levels of self-acceptance and lower QoL. These results replicate Garland et al. (2017) and indicate that being able to accept your own emotions, even if they are negative, is associated with more positive outcomes.

Although researchers typically examine the influence of leisure by focusing on leisure satisfaction as a predictor of health, we examined how the type of leisure activities, leisure engagement, leisure satisfaction, and productive leisure impacted overall QoL and social connectedness. In the current study, greater social connectedness was associated with increased engagement in stimulating, physical, and social activities. Survivors who participated in non-passive leisure activities had significantly higher QoL, which replicates Chun and colleagues (2016) and extends results on the impacts of physical activity on QoL in the general population (Anokye, Trueman, Green, Pavey, & Taylor, 2012). Further, because leisure engagement is not activity dependent but focuses on whether an individual engages in a variety of leisure activities, there are benefits of participating in different types of activities. In addition, although current findings indicated that leisure satisfaction did not moderate the relationship between leisure engagement and QoL, leisure satisfaction had a statistically significant positive effect on QoL. Further, the current results replicated research that has shown the positive impacts of leisure activities and mindfulness on overall QoL in cancer patients (Fangel et al., 2013; Garland et al., 2017), but takes it a step further and examines which aspects had the greatest impact.

Loneliness negatively impacts cancer outcomes (Garssen, 2004; Kroenke et al., 2006) and, therefore, we examined the effects of family, social, and romantic loneliness. All three aspects of loneliness were significantly correlated to the overall QoL scores; however, only family loneliness and romantic loneliness were significant predictors in the regression model. It is possible that given the age of the survivors ($M_{age} = 53.54$) and the fact that 62.5% were currently in a romantic relationship, the measurement of "family" may include one's

romantic partner. Previous research supports that higher family support in patients with chronic illness improves medical compliance, which may improve overall health (Mongan & Fajar, 2017). Although medical support was positively associated with QoL, it was not a statistically significant predictor of QoL. Medical support questions in this study focused on whether participants were satisfied with their involvement in their treatment choices and how much they felt their medical team listened to their concerns. It is possible that when patients feel comfortable with their practitioners and understand their medical treatment, their treatment compliance and satisfaction with disease outcomes increases. Current literature supports that a positive patient-clinician relationship improves medical compliance in cancer patients, however the questions included in this study may not have fully captured this phenomenon (Chou et al., 2017).

Finally, our results indicated that older individuals were less likely to engage in physical and social activities, which was associated with both higher QoL and social connectedness. The importance of physical activity on quality of life and life satisfaction in older individuals' replicates Rejeski and Mihalko (2001) and Maher and colleagues (2015), who found that engaging in physical activity facilitated the pursuit of goals and increased self-efficacy, which in turn improved life satisfaction in older adults. Therefore, therapeutic interventions designed to improve survivors' QoL and social connectedness should focus on increasing participation in physical and social leisure activities that older patients enjoy, rather than focusing on stimulating and passive activities.

3.1. Limitations and future research directions

Although self-report data is easier to administer and to obtain a large sample size, this method of data collection has limitations and biases which include social desirability bias and introspective inaccuracy. A small number of our sample did not know all details of their diagnosis (e.g., cancer stage). Further, the term "cancer survivor" is poorly defined and, for some, it may include individuals actively living with cancer. Future studies should clearly define the term "cancer survivor" according to their desired sample. Additionally, the lower self-reported QoL scores reported by survivors illustrate the importance of investigating the mitigating factors that could improve overall well-being. The current findings, specifically that survivors who reported less family and romantic loneliness, as well as greater self-acceptance, leisure satisfaction and leisure engagement experienced higher overall QoL, serve as a direction for future research. Subsequent studies should further expand on the factors decreasing family and romantic loneliness and increasing physical and social leisure activities in cancer patients. More research further comparing specific physical leisure activities, versus other types of activities, in other positive outcome measures in survivors, such as disease prognosis is needed.

4. CONCLUSION

This study further examined the relationship between QoL in survivors and focused on modifiable lifestyle variables that could improve QoL and functioning. Factors such as family and romantic support, acceptance of one's positive and negative feelings and satisfaction with one's leisure activities are significantly associated with higher levels of QoL. These findings are useful in the hands of health care practitioners who are interacting with patients during cancer diagnosis and treatment. Encouraging family and romantic support, participation in a variety of physically possible leisure activities, and normalizing negative emotions surrounding diagnosis and disease symptoms are all ways that overall QoL can be improved.

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