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The link between value motives, value success, and well-being among people diagnosed with cancer

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Abstract

***Objective*: This study investigated the relationship between cancer patient's values and cancer related distress.**

***Method*: A total of 107 patients with cancer diagnoses completed an anonymous questionnaire.**

***Results*: Less self-regulating motivation for health values was significantly related to poorer well-being. Greater success at living one's values was significantly related to improved well-being and distress-related outcomes. Sex difference analysis suggested that success at friendship values was linked to less cancer-related distress among women, but not men, whereas success at romantic relationship values was linked to less distress among men, but not women.**

***Conclusion*: The results have important implications for values focused interventions, highlighting the importance of facilitating success at valued living and attending to sex differences among cancer patients.**

Keywords: values; motivation; cancer patients; oncology

Being diagnosed with cancer can be life altering, calling into question important existential issues such as mortality salience, identity dislocation, and value priority [1,2]. Research suggests that people coping with cancer experience significant psychological distress, emotional suffering, and decreased quality of life [3–6]. Approximately 30% of cancer sufferers develop clinically significant depression [7] and reviews estimate that the prevalence of depression may be more than double than that of the general population [8]. Adjustment problems, anxiety disorders, increased levels of suicidal ideation, pain, and fatigue are highly prevalent [5,9]. Further complicating matters, cancer patients' symptoms of distress may, in some contexts, interfere with treatment compliance and medical outcomes [10]. The emotional distress experienced by cancer sufferers has been termed the 'sixth vital sign' by researchers calling for a shift in the dominance of the medical model treatment of cancer, suggesting that greater emphasis should be placed on the emotional well-being of sufferers and on empirically validating psychological interventions [3,11].

Interestingly, not all research suggests that people with cancer experience deleterious psychological consequences. Research suggests that some people are able to maintain their sense of purpose, appreciation of life, and meaningful relationships [12]. The present paper examines the possibility that the people who adjust the best to cancer are those who pursue values for intrinsic reasons and are generally successful at putting their values into play.

What are values?

We employ a conceptualization of values adopted from Acceptance and Commitment Theory (ACT) [13], to ensure that our values research is closely related to empirically supported interventions [14]. ACT contends that values have a vital function in shaping behavior and are powerful motivational vehicles in adverse times. Values are conceptualized as qualities of ideal behavior, providing structure and coherence to life and guiding purposeful action [13]. Values are pervasive across contexts and time frames, and enable people to pursue what they care about most deeply in life [15–17].

ACT researchers propose nine comprehensive domains of valued living important for assessment including family, friends, and couple's relationships, work/career, education/personal growth, leisure, spirituality, community, and health [13]. ACT research suggests that engaging people more fully in authentically (e.g. intrinsically) directed valued living can enhance quality of life and

diminish physical and psychological pain [16,17]. It is important to note that engaging in valued living is not, by itself, sufficient for enhanced quality of life. Valued living may involve exposure to unpleasant private experience (e.g. feelings of inadequacy or uncertainty). Depending on the context, such exposure can be associated with increases either in valued living or in avoidance of valued living. Experiential avoidance involves attempting to reduce the form or frequency of aversive emotions and thoughts. If a person is highly experientially avoidant, he/she may sometimes avoid valued activities associated with distress. In a sense, valued activity and experiential acceptance are two sides of the same coin. One must often be willing to accept distress and negative self-evaluations in order to engage in valued activities [13]. The ACT practitioner, therefore, seeks to both increase values orientation and reduce experiential avoidance in the context of valued living [13,18–20].

Value motive, value success, and well-being

People may hold values for different reasons. The theory suggests that people vary in the extent valued behavior is driven by autonomous motives (e.g. done for fun or meaning) versus more controlled motives (e.g. done to avoid guilt or because others want you to do it) [21–24]. In ACT/behavioral theorizing, these two types of behavior are labeled 'tracking' and 'pliance', respectively [13,25]. Tracking is a form of rule-governed behavior under the control of natural consequences that result from rule following. In contrast, pliance is rule-governed behavior under the control of a socially mediated history of reinforcement for following the rule. To illustrate the distinction, consider someone who is following the rule/value, 'I need to have a healthy diet.' Tracking occurs if the person follows this rule because in the past following this rule led to having more energy. Pliance occurs if the person follows this rule in order to avoid social disapproval [13].

Behavioral theory suggests that tracking is more likely to lead to well-being than pliance [13,25]. Typically, tracking is appetitive in nature and involves moving toward something (i.e. reinforcement). In contrast, pliance tends to be under aversive control, because punishment for noncompliance tends to be more widely used than positive reinforcement in consequating the rule following [25]. Thus, pliance is often in the service of avoiding shame or disapproval. Another potential limitation of pliance is that it can lead people to be insensitive to external contingencies of reinforcement [21,25], as when people are so dominated by what other people want them to do that they cease to attend to the reinforcers in the present moment.

Using this behavioral theorizing, we would predict that tracking is more likely to promote well-being compared to pliance. Research provides empirical support for this view [26,27]. Specifically, doing things that are anticipated to bring fun or meaningfulness (tracking) is associated with enhanced positive effect, global well-being, life satisfaction [28–30], and vitality [31]. Tracking has also been associated with a number of other positive outcomes such as greater medication adherence, and better work and academic performance [16,20].

In contrast, doing things because of guilt or social pressure (pliance) is associated with greater longitudinal levels of negative affect, depression, neuroticism, psychosomatic health complaints, health center visits and less life satisfaction [32–36]. These findings imply that individual differences in tracking and pliance relate to distinct aspects of well-being.

Research also suggests that in addition to motive type, experiencing success at valued activity is a strong predictor of psychological well-being [34,35,37]. For example, research with college students has demonstrated that experiencing initial striving success can lead to an 'upward spiral' of subsequent striving attainment, having a cumulatively positive impact on level of adjustment [29].

However, not all striving success may be equally beneficial to men and women [36, 38–41]. Regarding cancer patients specifically, some research suggests that men are likely to utilize one confidante for support (often their partner), whereas women are more likely to make use of a wider network of confidantes in confiding about their cancer crisis [42].

Study

We examined the extent that value motive and value success across different domains related to well-being and distress among people diagnosed with cancer. Based on past gender-related research [43–47], we also hypothesized that men and women would differ in terms of the valued activity that would benefit them. Specially, greater success at friendship values was expected to correlate with higher well-being among women, whereas greater success at couple's values was expected to correlate with higher well being among men.

Method

Participants

A total of 107 patients diagnosed with cancer from a public hospital participated in the study (approximately 112 were approached). The median age (years) of participants was 62 (range: 18–83).

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The sample consisted of 50 males and 54 females (3 missing). Half of the participants (49%) were Australian born, 34% were not stated, and 8.4% were born in England. The majority were married (65%), 22% were not stated, and 6% were divorced.

Cancer type varied by site and gender (2% missing). Breast cancer was most predominant (31 female), followed by prostate cancer (15 males). Other major cancer types included haematology (8 male, 5 female), lung (6 men, 3 women), colorectal (4 men, 4 women, 1 missing), not stated (7 males, 1 female), skin (3 men, 4 women), pancreas (3 male, 1 female) and head and neck (1 male, 2 female).

The median length of time since receiving a diagnosis was 6 months (range: <1 month to 14 years). Sixty four percent of the participants (male = 25.8%; f = 38.2%) had been diagnosed with early stage cancers (localized disease). Thirty six percent (male = 20.2%; female = 14.6%) had been diagnosed with advanced (metastatic) disease. Most participants (74%) were undergoing treatment at the time of the study, which included radiotherapy (25%) and chemotherapy (24%), followed by a combination of the two (11%), palliative chemotherapy (9%) and palliative radiotherapy (4%).

Procedure

A researcher approached outpatients awaiting medical consultations in clinic waiting rooms and inpatients on the oncology ward. The researcher obtained informed consent and demographic and medical information from participants. Personally identifying information was not collected to ensure anonymity. Consenting participants had only 15 min to complete the questionnaires, after which the researcher returned and collected the package.

Measures

The Functional Assessment of Cancer Therapy Scale (FACT) [48]. This is a 27-item, widely used, reliable, well-validated, and specific measure of quality of life in cancer patients. It covers well-being in four central life domains: emotional ('I feel sad'), functional ('I am sleeping well'), physical ('I have nausea'), and social/family ('I feel close to my friends'). On a four-point scale ranging from 0 (not at all) to 4 (very much), participants indicate how true each statement has been for them during the past 7 days. In this study, 'emotional well-being' had an $\alpha = 0.83$, 'functional well-being' $\alpha = 0.84$, 'physical well-being' $\alpha = 0.85$, and 'social/family well-being' $\alpha = 0.78$.

The Distress Thermometer [49–51]. This is a routinely used rapid screening tool for measuring cancer-related distress. It is a brief measure that provides information about the extent of distress patients experience and areas of need that may be addressed in an intervention. Distress is rated from '0' (no distress) to '10' (extreme distress) over the past week. In this study, we asked participants to rate distress at their best over the past week and at their worst over the past week. Participants then indicate ('yes' or 'no') whether six practical problems (e.g. transport, childcare) and six emotional problems (sadness, fear) have caused distress over the past week. To reduce analysis, we formed a total distress score based on the highly correlated distress variables (rate distress at best/worst last week; $r = 0.50$).

The Acceptance and Avoidance Questionnaire-II (AAQ-II) [52]. This is a 10-item, well-validated measure of degree of experiential avoidance ('I'm afraid of my feelings'; 'It's ok if I remember something unpleasant (reversed)'). It has been found to correlate significantly with measures of depression, anxiety, trauma, quality of life, and general psychopathology [52]. Items are rated on a seven-point scale of '1' (never true) to '7' (always true). The internal consistency was acceptable, $\alpha = 0.86$.

The Personal Values Questionnaire (PVQ) [32]. This asks people to briefly describe their values across nine possible domains (family, friends, couples relationships, work, education, leisure, spirituality, community, and health). The PVQ is based closely on an extensively used and well-validated measure of personal strivings [26–29,31]. Prior evidence suggests that the PVQ has criterion-related validity. For example, people endorsing greater autonomous motivation experience greater positive affect, mindfulness, psychological flexibility, social support, and less guilt. In contrast, controlled motivation is associated with greater hostility and less psychological flexibility and mindfulness [32,53]. Other research suggests that ratings of autonomy on the PVQ increase with age, as would be predicted by theory [33]. Consistent with the notion that the PVQ is sensitive to gender differences, Kashdan *et al*. reported that women endorse greater intrinsic motivation (tracking) for friendship and family values, but not for romantic relationship values [34].

Participants rated the extent to which they pursue each personally relevant value for different motives—controlled (pliance) through to autonomous (tracking), on a five-point scale, '1' (not at all) to '5' (entirely). Specifically, participants were asked to rate the extent that they held a particular value for external/social reasons ('I value this because somebody else wants me to'); introjected reason ('I value this because I would feel ashamed, guilty, or anxious if I didn't'); identified reason ('I value this because I view it as important, whether or not others agree'. 'Although this value may have been taught to me by others, now it is my own heartfelt value'); vital reasons ('I value this because doing these things makes my life better, more meaningful,

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and/or more vital'); and fun reasons ('I value this because I experience fun and enjoyment when I am engaged in the value'). Thus, participants sometimes held values for both controlled and autonomous reasons. Participants then rated their value success, commitment, importance, and desire to improve for each personally relevant domain.

Results

Preliminary analysis

Means (standard error) for the motive types were first computed and no significant differences emerged. Mean levels of controlled motives were consistently low (range: $M = 1.4$–2.1) and mean levels of autonomous motives were relatively high (range: $M = 3.8$–4.6) across value domains. The highest mean level of success was for family values ($M = 3.9$, SE = 0.10), followed by friendship ($M = 3.9$, SE = 0.13), and then couple's ($M = 3.9$, SE = 0.17).

The means (standard deviation) for the well-being measures were then calculated. Mean levels of avoidance (scale range = 1–7) were relatively low ($M = 2.8$, SD = 1.2). The highest mean level of cancer related well-being (scale range = 0–4), was in the social/family domain ($M = 3.4$, SD = 0.73), and mean cancer-related well-being was lowest in the physical domain ($M = 1.2$, SD = 0.93). Mean levels of cancer related distress were relatively low *at best* ($M = 1.9$, SD = 2.13), and mean levels of distress (*scale range* = 0–10) achieved only medium levels ($M = 4.8$, SD = 3.20) *at worst*.

We explored the relationship between demographic variables and values. Concerning stage of cancer (early versus late), we found few significant differences. Late stage patients were less likely to value friends/social relationships for vital reasons ($M = 3.73$, SD = 1.3) than early stage ($M = 4.5$, SD = 3.7), $F(1,59) = 9.8$, $p < 0.01$. In addition, late stage patients were more committed to family values ($M = 4.7$, $SD = 0.67$) compared to early stage ($M = 4.28$, SD = 0.79), $f\ (1,\ 81) = 5.03$. However, despite greater commitment, late stage patients were not more successful at living their family values, $p > 0.1$. There was also an approximately equal relationship between family commitment and success within early stage ($r = 0.69$, $p < 0.01$) and late stage ($r = .50$, $p < 0.01$) participants, with the difference between correlations being nonsignificant, $z = 1.2$, $p > 0.1$. Similar analysis revealed no differences in relationship between commitment and well-being within the early and late stage groups. There was only one relationship with age, with older participants reporting more success at living their health-related values, $r = 0.29$, $p = 0.01$. There were no significant relationships involving marital status and the values measure.

Table 1 presents the intercorrelations between different value domains. Generally, there were moderate-to-strong correlations, suggesting that higher success on one domain was associated with higher success at the other. Interestingly, male success at couple values (above diagonal) was correlated with family and recreation success, whereas female success at couple values was not correlated with value success in any domain.

We also explored the relationships between value motives, importance, commitment, and success. In general, the significant relationships involved importance and commitment, rather than motives. The level of importance and commitment to a value was, respectively, related to family success ($r_{imp} = 0.33$; $r_{com} = 0.68$), social success ($r_{imp} = 0.25$; $r_{com} = 0.45$), health success ($r_{imp} = 0.30$; $r_{com} = 0.37$), leisure success ($r_{imp} = 0.27$; $r_{com} = 0.46$), and romantic/couple success ($r_{imp} = 0.55$; $r_{com} = 0.62$). We found that value motive was related to romantic value success, and that this relationship differed by gender. Males were more successful at romantic values if they did not feel external social pressure ($r = -0.49$) or guilt ($r = -0.51$), whereas women were more successful at romantic values if they experienced a sense of meaning and vitality from living those values ($r = -0.46$).

Motive type and well-being

It was hypothesized that autonomously motivated values would correlate with less distress, higher acceptance, and better cancer specific well-being and that the reverse would be true for controlled motivation. In the health domain, higher introjection was associated with high avoidance ($r = 0.39$), lower physical well-being ($r = -0.25$), lower emotional well-being ($r = -0.27$), higher distress concerning practical problems ($r = .30$), and higher distress concerning emotional problems ($r = 0.30$).

Table 1. Interrelation of success ratings across different value domains within males (above diagonal) and females (below diagonal)

Success at	Family	Social	Couple	Health	Recreation
Family relationships	1.00	0.67*	0.49	0.40**	0.55**
Social relationships	0.69*	1.00	0.28	0.44**	0.14
Couple/romantic relationships	0.17	0.27	1.00	0.00	0.47^
Health/physical well-being	0.36**	0.15	0.31	1.00	0.53
Recreation/leisure/sports	0.81*	0.62*	0.13	0.48**	1.00

*$p < 0.01$, **$p < 0.05$, ^$p < 0.05$ (one tailed).

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Controlled motivation (pliance) was also significantly correlated with poorer coping (i.e. greater avoidance) in three other value domains (family, $r = 0.24$; friends, $r = 0.24$, significant at the 0.05 level; and leisure, $r = 0.40$, significant at the 0.01 level). There were no other consistently significant correlations between controlled motivation and well-being, distress, or coping style in the remaining domains. Regarding autonomous value motivation (tracking), no consistently significant correlations emerged with well-being, distress, or coping style outcomes.

Commitment, improvement, importance, success, and well-being

As hypothesized, greater success at valued living was significantly related to better well-being, better coping, and less distress (Table 2). Greater success at family values, in particular, was highly and consistently correlated with better coping, enhanced well-being, and less distress. Of particular note is that greater success at family values was significantly related to enhanced cancer-specific physical well-being, whereas success at health values was not.

Regarding our exploratory questions as to the extent to which commitment, improvement, and importance of values related to distress and well-being, we conducted further correlational analyses. Greater commitment to family values was significantly correlated with all three outcomes of interest (functional well-being, $r = 0.34$, emotional well-being, $r = -0.29$, and social/family well-being, $r = 0.41$; less avoidance, $r = -0.46$, and distress at best, $r = -0.31$, correlations significant at the 0.01 level). Desire to improve progress at valued living was significantly associated with poorer cancer specific well-being in the family, social, leisure, and health value domains. Value importance was unrelated to well-being outcomes.

Sex differences in value success and well-being

To explore the hypotheses that greater success at friendship values would correlate with better coping, well-being, and less distress for women, and, that greater success at couple's values would correlate more significantly with better coping and less distress among men, Pearson correlations were computed as a function of sex (see bottom, Table 2). As hypothesized, greater success at couple's values significantly correlated with better emotional well-being and coping for males, but was unrelated to distress levels. In contrast, greater success at friendship values significantly correlated with enhanced well-being, better coping, and less distress for females.

Regression analysis

Our final analysis examined the extent that avoidance and values success predicted unique variance in well-being and distress, when controlling for the other 'independent' variables (e.g. different domains of values success and avoidance) and for relevant demographic variables. Given our gender hypotheses and the gender effects reported above, we examined relationships within gender. We could not enter all variables simultaneously, given our sample size. Consequently, we utilized a forward selection procedure, which involves entering the most significant variable into the model first, and then examining the next most significant variable, until no more variables make a significant contribution to the model. We used an α of 0.01 for entry to reduce the problem of Type I error. Finally, to reduce problems of listwise deletion, we utilized expected likelihood imputation to replace missing values. This method tends to produce unbiased estimates [54].

Table 3 presents the results of the regression. Avoidance was a key predictor for both males and females for distress and other aspects of well-being. Success at friendships was an important predicting of global functioning and social functioning among females but not males. In contrast, success at health and at recreation and sport was a significant predictor for males but not females. Success at romantic relationships was associated

Table 2. Correlation between success in different valued domains, avoidance, well-being, and distress

	Experiential avoidance	Physical well-being	Social/family well-being	Emotional well-being	Functional well-being	Distress
Family	−0.46*	0.35*	32*	0.50*	0.46*	−0.34*
Leisure	−0.45**	0.52*	0.19	0.45*	0.70*	−0.43*
Health	−0.22	0.18	0.32*	0.34*	0.34	−0.26**
Spirituality	−0.28	0.30	0.60*	0.37**	0.44**	−0.16
Couple						
Males	−0.62*	0.36	0.24	0.51**	0.42^	−0.37
Females	−0.07	−0.21	0.30	−0.17	−0.08	0.00
Friendship						
Males	−0.27	0.21	0.32	0.10	0.29	−0.03
Females	−0.59*	0.24	0.44*	0.46*	0.56*	−0.32^

*$p < 0.01$, **$p < 0.05$, ^$p < 0.05$ (one-tailed).

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Table 3. Set of variables that predict unique variance (β) in each psychological health variable as determined by forward regression analyses

Well-being	Best model	R^2
Males		
Physical well-being	Success recreation and sport (0.61)	0.37
Emotional well-being	Avoidance (−0.69), success health (0.31)	0.64
Global functioning	Success recreation and sport (0.45), avoid (−0.41)	0.60
Social functioning	Avoidance (−0.46)	0.22
Distress	Avoidance (0.58)	0.34
Females		
Physical well-being	Avoidance (−0.42)	0.18
Emotional well-being	Avoidance (−0.73), success romantic relationship (−0.26)	0.54
Global functioning	Success at friendships (0.60)	0.37
Social functioning	Success at friendships (0.45)	0.20
Distress	Avoidance (0.64)	0.41

$N = 49$ for males and 53 for females.

with less emotional well-being among females, when controlling for the other significant variable (avoidance).

Discussion

This study examined the potential role of valued living in coping and cancer-related distress. Our hypotheses were largely supported. Experiential avoidance appeared to be incompatible (negatively correlated) with valued living. Greater success at valued living was generally correlated with less cancer-related distress, improved well-being, and less avoidant coping. The effect of success in friendship and couple domains differed for males and females. Specifically, success at couple's values correlated with enhanced coping and better well-being in males but not females, whereas success at friendship values correlated with less distress, better well-being, and better coping in females but not males.

Our hypotheses concerning value motivation were only partially supported. There were few relationships between well-being and autonomous motives (e.g. doing something because it is fun) or extrinsic motives (doing something because others tell you to). The most reliable relationships involved introjected motives (doing something out of guilt or shame). Introjected motivation correlated with poorer well-being, higher avoidant coping, and greater experience of distress. This is consistent with the literature reporting that controlled forms of motivation are deleterious to psychological well-being [55]. Interestingly, we found this relationship to be most pronounced for health values. It suggests that some patients pursue health values to avoid self-imposed recriminations, not out of an intrinsic belief that to do so will improve their health. The cancer literature suggests that guilt and shame reactions in cancer patients are common [56,57], and may be influenced by culturally imposed ideas about the meaning of cancer, socially desirable responses to cancer (i.e. 'putting up the good fight' or 'staying positive') and beliefs about the importance of health restoration as a precondition for well-being [10]. Patients may feel that they need to pursue socially advocated health values in order to receive the social approval and support they require to cope [58,59] or to avoid the shame associated with burdening family or society [6].

Cancer patients could also be motivated to avoid self-imposed anxiety that is perpetuated by culturally stigmatized notions that cancer is painful and incurable [60]. Research suggests that stigma can contribute to sufferers blaming themselves for developing cancer by denying the onset of their symptoms, delaying medical treatment or engaging in behavior strongly related to cancer, such as smoking [60–62]. Indeed, greater levels of self-blame have been related to more mood disturbance and poorer quality of life in breast cancer patients [62]. The findings suggest that cancer patients may benefit from interventions that explore the motivation behind their health values to reduce self-blame and shame and address unhelpful beliefs about cancer related stigma.

Our finding that greater success at valued living positively correlated with psychological well-being is consistent with previous research [26,38,39,63] including Lundgren *et al.*'s finding that improvements in value success was associated with well-being and quality of life among those with epilepsy [64]. Interestingly, family values were consistently more related to well-being and adaptive coping than success at health values. This finding suggests that if the patient rates this domain as highly important, then an intervention might seek to bolster access to social support sources, by addressing relationship problems through family therapy.

The sex differences we observed in this study are consistent with previous research, which suggests that women value and utilize broader friendship networks over more personal relationships, whereas men tend to value interpersonal relationships more strongly as sources of social support [43,44]. These findings imply that psychological interventions attempting to enhance relationship values may be most effective when taking sex differences into account [65–68]. For example, bolstering success at partner/romantic relationships may be useful for males, whereas fortifying success in wider social/friendship networks, potentially involving group therapy, may be more useful for females. One way to bolster male success at romantic relationship values may be to undermine the extent these values are due to social pressure or guilt. Our findings indicate that males who felt

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pressured to hold romantic relationship values were less successful at those values.

Finally, regression analyses suggested that both experiential avoidance and value success predicted unique variance in cancer-related well-being. This is consistent with ACT theorizing, which suggests that avoidance and valued living are two related, but separable processes [14,15]. Interventions should probably target both processes. Indeed, activating valued living might bring up substantial distress, which, in turn, can lead to increased distress avoidance. Thus, as suggested by ACT, distress acceptance can be practiced and indeed justified in the context of activating valued living. For example, a patient with cancer may have stopped interacting with her grandchildren, because she feels distressed at the children seeing her as sick. An intervention can help the patient to reengage with her grandchildren, if that is what she wishes to do, and to be willing to have the distress that occurs with that reengagement.

There are a number of important limitations to consider when interpreting this data. The correlational nature of the study prevents us from making causal conclusions. Future longitudinal and experimental research is needed to establish which aspects of valued living are causally related to well-being outcomes. In addition, social desirability might have influenced participants reporting of low levels of controlled motives and high levels of autonomous motives. More subtle, indirect measures may be needed to more accurately assess the degree of autonomy and control. Furthermore, because of the heterogeneous sample, it was not possible to test whether outcomes varied depending on cancer site. Research suggests that this factor may influence well-being in cancer patients [69]. Given that the majority of participants in our study had breast or prostate cancer, future research is required to establish the applicability of these findings to other cancer populations.

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