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Future Orientation and Health-Related Quality of Life in Primary Care: Vitality as a Mediator

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ABSTRACT

Purpose: Temporal perspective, including views about future goals, may influence motivational processes related to health. An adaptive sense of future orientation is linked to better health, but little research has examined potential underlying factors, such as vitality.

Method: In a sample of 101 primary care patients, we examined whether belief in the changeability of the future was related to mental and physical energization and, in turn, to health related quality of life. Participants were working, uninsured primary care patients, who completed self-report measures of future orientation, vitality, and health related quality of life.

Results: Mediation models, covarying age, sex and race/ethnicity, indicated that vitality significantly mediated the association between future orientation and the outcomes of general health, mental health, social functioning, bodily pain, and role limitations due to emotional and physical reasons. Vitality exerted an indirect only effect on the relation between future orientation and physical functioning.

Conclusions: Our findings suggest that adaptive beliefs about the future may promote, or allow access to, physical and mental energy and, in turn, may result in better mental and physical health functioning. Individual-level and public health interventions designed to promote future orientation and vitality may beneficially influence quality of life and well-being.

Future Orientation and Health-Related Quality of Life in Primary Care: Vitality as a Mediator

Introduction

Increasing attention is being given to patient-centered outcomes, such as health-related quality of life (HRQL), as a way to assess health. For the first time, the Department of Health and Human Services (DHHS, 2010) Healthy People Initiative (2020) placed a special emphasis on understanding and improving HRQL, particularly among people suffering health disparities (DHHS, 2010). A multidimensional concept, HRQL involves physical, mental, and social functioning and well-being (Hays & Morales, 2001). Functional components include estimates of how much physical and emotional health impair ability to perform basic care routines, vocational requirements and social activities. The well-being component of HRQL reflects subjective assessment of mood, level of energy, and pain severity (Testa & Simonson, 1996).

HRQL is influenced strongly by cognitive, emotional and behavioral factors. One such factor, future orientation, or a person's expectations about and actions related to the changeability of their future for the better (Hirsch et al., 2006), is related to better mental and physical health (Desmyter & De Raedt, 2012). Similarly, vitality, operationalized as a positive energy state and subjective experience of feeling alive, is beneficially associated with health (Ryan & Frederick, 1997; Swencionis et al., 2013). A robust contributor to well-being, vitality is related to beneficial immune and anti-viral responses and better HRQL (Fredrickson et al., 2013; Ryan, Huta, & Deci, 2008), perhaps via vitality-related mental energization and behavioral activation. Subjective vitality, however, may be dependent on psychological factors, such as future orientation (Ryan & Frederick, 1997). Theoretically, goal-oriented behaviors focus on resolution of past, present or future stressors to attain a targeted outcome (Schwarzer & Taubert, 2002); having an adaptive view of the changeability of the future may facilitate these processes.

Perhaps, with greater self-belief about ability to alter one's future beneficially, comes greater access to, levels of, and ability to implement the energization inherent in vitality. Clinically, future orientation and vitality may be a critical linkage to be targeted and bolstered in individual-level and public health approaches to improving HRQL; yet, no published data has assessed this premise.

In a sample of primary care patients, we examined vitality as a mediator of the association between future orientation and HRQL indicators including: social functioning, physical functioning, bodily pain, mental health, general health, and role limitations due to physical and emotional problems. We hypothesized that greater levels of future orientation would be associated with more vitality and better HRQL, and that vitality would be related to better HRQL. We also hypothesized that greater vitality would mediate the association between future orientation and better HRQL.

Method

Participants. Our sample (n = 101) in this Institutional Review Board-approved study was recruited from a rural primary care clinic serving working, uninsured patients, and were primarily female (n=71; 71%) and White (n=94; 93%), with a mean age of 42.18 (SD = 12.83). Seventy-five percent (n=75) of our sample reported earning less than $20,000 USD annually, and only 25% (n = 25) had obtained a college degree. Participants completed informed consent and self-report surveys, receiving $15.00 compensation upon completion.

Measures. The Future Orientation Scale (Edelstein et al., 2009; Hirsch et al., 2006), a 6-item measure, assessed ability to consider a possible future, and includes items such as, "No matter how badly I feel, I know it will not last." Respondents indicate the importance of each item for dealing with stressors using a 6-point Likert-type scale, ranging from 1 (extremely

unimportant) to 5 (extremely important); higher scores reflect greater adaptive future orientation. Strong psychometric support exists for the scale in clinical samples (Chang et al., 2013; Hirsch et al., 2007). In the present sample, Cronbach's alpha was .87.

The 6-item Subjective Vitality Scale (SVS) (Ryan & Frederick, 1997) assessed vitality. Items such as "I feel alive and vital" are rated on a 7-point Likert scale from 1 (Not at all true) to 7 (Very True); higher scores indicate greater vitality. The SVS has excellent psychometric properties in adult and primary care samples (Rouse, Ntoumanis, Duda, Jolly, & Williams, 2011). In this study, Cronbach's alpha was .93.

HRQL was measured with the Short-Form-36 Health Survey (SF-36v2) (Ware, 2008), which assesses physical and social functioning, role limitations due to physical and emotional problems, bodily pain, vitality, mental health and general health. Each subscale has a different number of items, ranging from 2 to 10, and most are scored on a 5-point Likert scale; the vitality subscale was not used as it was assessed by the SVS. The psychometric properties of the SF-36v2 are well-established in medical samples (Razvi, Ingoe, McMillan, & Weaver, 2005). In this sample, internal consistency ranged from .83 - .95.

Statistical analyses. Bivariate correlations assessed the independence of, and association between, predictor variables. Mediation analyses were conducted, covarying age, sex and race/ethnicity. Using the PROCESS macro, with 5,000 bootstrapped samples, allows for analysis of indirect effects without requiring direct effects (Hayes, 2013). Mediation analyses can produce: full mediation, where an initial association between X and Y subsequently fully operates through Z; partial mediation, where an initial association between X and Y remains, yet also operates through Z; and, an indirect only effect, where X and Y are associated, but only through Z, and an initial X to Y association is not observed.

Results

Future orientation was positively correlated with vitality and with all subscales of HRQL, except physical functioning. Vitality was positively related to all subscales of HRQL. All subscales of the SF-36v2 were positively associated (See Table 1).

Mediation analyses revealed that vitality fully mediated the association between future orientation and the following HRQL subscales: social functioning, role limitations due to physical and emotional problems, bodily pain, mental health and general health. Future orientation only shared an indirect link with physical functioning via vitality physical functioning (See Table 2).

Discussion

Supporting hypotheses, future orientation and vitality were beneficially related to one another and to HRQL in a sample of primary care patients. Further, the effects of future orientation on physical and psychosocial functioning appear to be explained, in part, by vitality.

Our findings suggest that the ability to envision future selves and goals, specifically a changeable future, may promote or allow access to a store of mental and physical energization that, in turn, is linked to an array of adaptive health outcomes. Our findings support the idea that cognitive-emotional characteristics contribute to goal-directed behaviors (Eccles & Wigfield, 2002); in this case, the motivational process is related to better HRQL.

Interestingly, the pattern of findings for physical functioning differed from other aspects of HRQL. Future orientation was not related to physical functioning at the bivariate level, and only indirectly via vitality in mediation analyses. Despite its beneficial association with markers of health, simply having a positive belief about the future is not a panacea and may be

insufficient to exert a positive effect in the context of illness or functional impairment (Hirsch, Walker, Chang, & Lyness, 2012). What may be more essential is the extent to which beliefs about a changeable future become translational, and are applied toward goal-oriented volition that results in adaptive health behaviors (Visser & Hirsch, 2014). Of note, we found that future orientation was related to overall subjective health, a robust marker of objective health (Jylha, 2009), and that vitality mediated this association.

Our findings provide insight into a critical linkage between future-oriented cognitive-emotional processing and self-reported HRQL, and offer several points of intervention. Therapeutic strategies focused on promoting future orientation, or which promote vitality directly, may result in better interpersonal, intrapersonal, and physical health. Motivational Interviewing or Cognitive-Behavioral Therapy interventions, which perhaps encourage identification of future possible selves and feasible, meaningful goals could be delivered by a behavioral health consultant or trained clinic staff, or may be self-guided via homework assignments or online activities (Vilhauer et al., 2012). Psychosocially, vitality might be promoted via mindfulness, and by satisfaction of basic psychological needs (e.g., autonomy, competence and relatedness) (Ryan & Frederick, 1997).

Although, this study has numerous strengths, including use of a primary care sample, our findings must be considered in the context of minor limitations. We used cross-sectional data, which precludes examining causality, and our medical sample was largely comprised of White women; as such, bidirectionality and reduced generalizability are a risk. It may be that individuals with better HRQL have a stronger belief that the future is changeable and also have more vitality. Although these alternative models may be tested, the models in this study are based on well-established theory and findings indicating that cognitive-emotional forces, such as

future orientation, affect motivational and behavioral processes. However, our study should be replicated prospectively, in diverse clinical and community samples, to confirm our hypotheses.

In sum, future orientation was related to vitality and, in turn, to better HRQL in a sample of primary care patients. A belief in the changeability of the future may promote or allow access to mental and physical energy and consequent improvements in mental, physical and social well-being. Rigorous prospective research is needed to determine causal relations between variables. However, our findings represent a first step toward understanding linkages between temporal perspective, motivational processes, and quality of life.

Table 1: Bivariate correlations of study variables

	Future Orientation	Vitality	Physical Functioning	Social Functioning	Role Limitation: Physical	Role Limitation: Emotional	Bodily Pain	Mental Health	General Health
Future Orientation	-	.52**	.09	.37**	.28**	.24*	.26**	.43**	.27**
Vitality	.52**	-	.26*	.52**	.44**	.53**	.51**	.74**	.59**
Physical Functioning	.09	.26**	-	.51**	.79**	.44**	.67**	.30**	.54**
Social Functioning	.37**	.52**	.51**	-	.66**	.78**	.56**	.69**	.43**
Role Limitation: Physical	.28**	.44**	.79**	.66**	-	.65**	.69**	.46**	.66**
Role Limitation: Emotional	.24**	.53**	.44**	.78**	.65**	-	.49**	.70**	.48**
Bodily Pain	.26**	.51**	.67**	.56**	.69**	.49**	-	.46**	.60**
Mental Health	.43**	.74**	.30**	.69**	.46**	.70**	.46**	-	.50**
General Health	.27**	.59**	.54**	.43**	.66**	.48**	.60**	.50**	-

Note: *p<.05; **p<.01; ***p<.001

Table 2: Mediation coefficients for study outcome variables

		Physical Functioning	General Health	Bodily Pain	Mental Health	Social Functioning	Role Limits: Emotional	Role Limits: Physical
a		.84***	.84***	.84***	.84***	.84***	.84***	.84***
b		2.17**	4.02***	3.50***	5.64***	3.69***	4.53***	2.87***
c		1.49	3.10**	3.26**	5.83***	4.80***	3.21*	3.67***
c’		-.33	-.29	.31	1.07	1.68	-.60	1.24
Total Indirect Effect: Point Estimate (95% CI)		1.83 (.64 – 3.45)	3.39 (2.01 – 5.20)	2.95 (1.74 – 4.61)	4.76 (2.98 – 6.78)	3.12 (1.65 – 4.91)	3.82 (1.95 – 5.92)	2.42 (1.20 – 4.08)
Model R^2		.21***	.38***	.33***	.61***	.35***	.33***	.34***

Note: p<.05*, p<.01**, p<.001***; a, b, c, and c' represent unstandardized regression coefficients: a = direct effect of future orientation on vitality; b = direct effect of vitality on health-related quality of life (HRQL) outcomes (SF36v2 subscales); c = total effect (overall effect of future orientation on HRQL, without accounting for vitality interference); c’ = direct effect (overall effect of future orientation on vitality when accounting for vitality [ab]; ab = total indirect effect (future orientation affects HRQL subscales through vitality); CI = bias corrected and accelerated 95% confidence interval with 5,000 bootstrap samples.

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