

Meaning in life, anxiety, depression, and general health among smoking cessation patients

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Abstract

Objective: Psychosocial factors play a widely recognized role in health and health care utilization. The present study investigated relations among meaning in life, depression, anxiety, and social support with self-reported general health. **Method:** Ninety-nine smoking cessation group patients were recruited to complete questionnaires during their third week of treatment. **Results:** Depression was the strongest predictor of perceived general health. However, the interaction of people's experience of meaning in life and their propensity to seek deeper meaning in their lives predicted

variance in perceived health above and beyond depression. Furthermore, propensity to seek meaning in life was the only psychosocial correlate of people's perceived social benefits of health care utilization. **Conclusion:** Psychosocial factors, particularly depression and the two primary dimensions of meaning in life (experiencing and seeking), were related to perceived health. Meaning in life thus emerges as a variable worth further scrutiny in the health of clinical populations.

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Introduction

Psychosocial factors play an important role in health maintenance and recovery [1,2]. Among the variables that appear to hold promise as predictors and concomitants of health is the family of constructs known as meaning in life [3,4]. This family includes the constructs of presence of meaning (POM) and search for meaning (SFM) in life. POM refers to people's comprehension of their life experiences along with a sense of overarching purpose they are working toward; SFM refers to the intensity and activity with which people are seeking to establish and/or augment the POM in their lives [5,6]. Both variables are theoretically important to

mental and physical health, but POM has received the most attention and appears to have the strongest relations.

Since Frankl's [7] initial observations that people with a sense of meaning in life were better able to cope physically and mentally with the privations of Nazi concentration camps, POM has been seen as having a major role in prompting and maintaining physical and mental health [3]. There is substantial empirical support for a positive link between POM and mental health, including depression and anxiety [8]. There is less support for a positive correlation between POM and physical health, although some support is emerging establishing positive links between POM and neuroendocrine, immunological, and cardiovascular markers of health [9,10], as well as health-related quality of life [11] and perceived health [12,13]. For example, POM appears to facilitate the recovery from knee replacement surgery [14] and reduces excessive autonomic nervous system response to emotional stress [15]. POM is negatively related to health-risk factors, including substance abuse [16,17]. Relations

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between SFM and mental health have been generally negative, and no research has looked at the link between SFM and physical health. People high in SFM may be expected to engage in less sustainable ways of feeling good [18], which we suspect includes excessively using or abusing substances, such as cigarettes. SFM may be a risk factor for poorer health.

However, recent research has shown that the interaction of POM and SFM has implications for happiness, with POM buffering the negative relation between SFM and happiness [19]. Thus, in the present study, we examined relations of POM and SFM, and their interaction, with mental and physical health indicators in a sample of individuals seeking treatment for substance abuse (cigarettes).

No previous research has examined the role of POM or SFM in the health of smokers. However, smokers provide a good group in which to investigate the connections between POM, SFM, mental health symptoms, and health care utilization. Smokers report higher levels of mental illness than the general population [20–22], and greater health care utilization [23,24]. Mental illness also appears associated with greater health care utilization [25,26]. It stands to reason that smokers would have greater health care costs due to the adverse effects of smoking on physical health (such as cardiovascular disease, pulmonary disease, and lung cancer). Higher levels of mental illness among smokers also may contribute directly to health care utilization, as smokers may seek alleviation of their symptoms. However, people suffering from mental health problems might also attempt to use the health care system to meet other needs. For example, depressed people have well-documented social deficits [27] and might seek to meet their social needs through their health care. Efforts to meet social needs via health care utilization could increase the service burden of the health care system, and having a better understanding of who is reporting this type of health care utilization might suggest remedies. Because of the strong links between smoking and mental illness, and the strong links between mental illness and meaning in life, it is compelling to examine whether meaning serves its hypothesized protective role in this population.

We conducted a cross-sectional study of participants in a free smoking cessation program, examining the interrelatedness of perceived physical health, symptoms of anxiety and depression, and reported utilization of health care (reported physician visits and emergency room visits) in the previous year. We also investigated social support, perceived meaning in life and SFM in life, and perceived social benefits from health care interactions, based on the hypothesis that smokers with less perceived meaning, significant searching for meaning, and less social support might view interactions with health care providers as venues for filling their existential and social needs and utilize health care more frequently as a result. Our hypotheses were as follows: (1) depression and anxiety would be positively, and POM would be negatively, correlated with number of physician and ER

visits, as well as perceived social benefits of health care utilization; (2) depression and anxiety would be negatively, and POM would be positively, correlated with perceived health; (3) POM would buffer the relation between SFM and perceived health, depression, and anxiety.

Method

Procedures

The study described in this paper was conducted from August 2005 through January 2006 among patients in a free smoking cessation program for residents of the three-county area served by a large hospital. The program includes six sessions over a 3-week period and is run by a clinical psychologist. Participants receive free nicotine patches or bupropion to assist with smoking cessation, approximately 1 week prior to beginning classes. The primary purpose of the study was to investigate psychosocial factors as predictors of self-reported health care utilization. However, a secondary purpose was to investigate the interrelatedness of meaning in life, mental health, and general physical health. This paper describes the findings of the latter analyses.

The study comprised an anonymous, cross-sectional survey administered to adults at least 18 years of age at the beginning of the third smoking cessation class (1 week after the start of the program). This session was chosen because it was still early in the program and because there was time in the session to accommodate the administration of the survey instruments. The leader of the session (typically a graduate student in clinical psychology) informed class participants of the study and distributed surveys and a cover letter explaining the study. The cover letter asked those individuals who did not wish to participate to provide their age, gender, and race, and those who chose to participate were instructed in the letter to proceed to the next page and begin the survey. The questionnaire was self-administered and took approximately 10 min to complete. Exempt status for the study was granted by the hospital's institutional review board.

Measures

The questionnaire assessed demographic information, medical history, and self-reported number of physician and emergency room visits in the past 6 months [28]. Also included were two items designed for this study to assess propensity to view health care interactions as sources of social affirmation (e.g., "I enjoy going to see the doctor because ____: ... it gives me an opportunity to get out of the house; ... it gives me a chance to see people"; $r=.82$, $P<.001$).

Social support was measured using the ENRICH Social Support Instrument, which includes six items that assess the availability of others to provide emotional support, companionship, and practical assistance, plus an additional item

relating to marital status [29]. The scale was developed for and validated in a sample of heart disease patients. We used the six primary items from the scale ($\alpha=.93$ in the present sample), keeping marital status as a distinct variable, because previous research has shown that this item does not correlate strongly with the social support score ($r=.38$) [29].

Meaning in life was measured using the Meaning in Life Questionnaire, a 10-item survey that measures two constructs—POM (e.g., “I have a good sense of what makes my life meaningful”; $\alpha=.88$ in the present sample) and SFM (e.g., “I am searching for meaning in my life”; $\alpha=.93$ in the present sample). Scores range from 5 to 30 for each subscale; the two subscales have been shown to be relatively independent from one another; and the internal consistency, stability, and validity of each scale have been supported in numerous studies [5,19,30–33].

Anxiety and depressive symptoms were measured using the Hospital Anxiety and Depression Scale [34], which was initially validated for measuring symptoms of anxiety (seven items; $\alpha=.87$ in the present sample) and depression (seven items; $\alpha=.83$ in the present sample) in medical outpatients but has since been used in hundreds of studies in multiple settings [35].

Perceived general health was measured using one question: “In general, would you say your health is _____,” which was scored on a five-point scale (1 to 5) from *poor* to *excellent*.

Participants

Ninety-nine people (mean age=46.0 years; range=19 to 71 years) returned completed surveys, with no refusals (participants complete many surveys throughout the course of the smoking cessation program, so by the third session they are accustomed to being asked to complete questionnaires). Fifty-nine participants were female, 88 were European-American, and 60 were married or living with a partner. Ninety-six participants completed the anxiety and

depression scales, with 11.2% scoring above the recommended cutoff for moderate or severe depressive symptoms, and 19.1% scored above the cutoff for moderate or severe anxious symptoms.

Results

Scale means, standard deviations, and intercorrelations are presented in Table 1. Mean POM scores are consistent with previous research, but SFM scores are lower than published means for college samples [5]. Females were more anxious than males [$F(1, 95)=5.54, P<.05$], married patients reported more social support [$F(1, 94)=9.40, P<.005$], and older patients reported worse health ($r=-.23, P<.05$), with no other associations between demographics and study variables. People reporting poorer perceived health had visited physicians and emergency rooms more in the recent past; people with more depression and anxiety had visited physicians more (Table 1). Only perceived health and SFM were significantly correlated with social reasons for medical visits. Perceived health, depression, anxiety, and POM were intercorrelated with medium or larger effect sizes, and SFM was significantly related to anxiety.

To assess the incremental contributions of these variables to perceived health, we used multiple linear regression. The only significant contributors were age and depression, which were inversely related (Table 2). Social support was marginally, but inversely, related when other variables were accounted for, suggesting that positive relations between social support and perceived health may be suppressed by the effects of depression, anxiety, or meaning in life.

Finally, we assessed whether the interaction of POM and SFM was related to mental and physical health. Following established guidelines for regression-based moderator analyses [36,37], we entered centered POM and SFM scores in Step 1, and an interaction term created from their product in

Table 1
Descriptive scale statistics and correlations

	Mean	S.D.	Presence of meaning	Search for meaning	Perceived health	Anxiety	Depression	Social support	MD Visits	ER Visits	Social benefits from utilization
Presence of meaning	25.9	7.0	(.88)								
Search for meaning	22.3	8.6	-.20 ⁺	(.93)							
Perceived health	3.1	.94	.36***	-.07	–						
Anxiety	8.7	3.9	-.43***	.38***	-.39***	(.87)					
Depression	6.6	3.0	-.60***	.21*	-.59***	.58***	(.83)				
Social support	23.8	6.5	.41***	-.09	.14	-.36***	-.54***	(.93)			
Physician (MD) visits	3.6	6.9	-.08	.07	-.26*	.33***	.40***	-.17 ⁺	–		
Emergency room (ER) visits	0.3	0.7	-.04	-.04	-.22*	.10	.12	-.02	.29**	–	
Social benefits from utilization	6.1	2.5	-.16	.26**	-.22*	.11	-.01	.08	.13	-.01	(.82)

N=99. Numbers in parentheses are alpha coefficients.

⁺ $P<.10$.

* $P<.05$.

** $P<.01$.

*** $P<.001$.

Table 2
Regression predicting health ratings

	<i>b</i>	SE _{<i>b</i>}	95% CI	β	sr ²	Adjusted R ²
						.33 ***
Age	-.015	.006	-.03 to -.00	-.222 *	-.215	
POM	.003	.014	-.02 to .03	.028	.021	
SFM	.006	.009	-.01 to .03	.060	.055	
Anxiety	-.035	.021	-.08 to .01	-.190	-.142	
Depression	-.111	.027	-.17 to -.06	-.520 ***	-.346	
Social support	-.027	.014	-.06 to .00	-.198 ⁺	-.163	

N=99. sr²=semi-partial correlation.

⁺ P<.10.
* P<.05.
*** P<.001.

Step 2, with perceived health, anxiety, and depression as dependent variables. The interaction of POM and SFM was significantly related to perceived health and anxiety, and marginally related to depression.

Next, because age was a significant correlate of health and gender was a significant correlate of anxiety (Table 2), we reran the interaction analyses controlling for these socio-demographic correlates. Results from the final forms of all regression are presented in Table 3. Accounting for age did not change the significance of the interaction of POM and SFM scores in predicting perceived general health (Table 3). Likewise, accounting for gender did not change the

Table 3
Interaction of POM and SFM controlling for relevant sociodemographic variables

	<i>b</i>	SE _{<i>b</i>}	95% CI	β	sr ²	R ² Change
<i>DV=Perceived health</i>						
Step 1						.17 ***
Age	-.012	.007	-.03 to .00	-.162 ⁺	-.161	
POM	.295	.089	.12 to .47	.315 ***	.307	
SFM	.000	.088	-.17 to .18	.000	.000	
Step 2						.07 ***
POM*SFM	.216	.074	.07 to .36	.276 **	.272	
<i>DV=Anxiety</i>						
Step 1						.31 ***
Sex	-1.490	.800	-3.08 to .10	-.159 ⁺	-.155	
POM	-1.466	.394	-2.25 to .68	-.319 ***	-.310	
SFM	1.389	.393	.61 to 2.17	.301 ***	.294	
Step 2						.09 **
POM*SFM	-1.189	.331	-1.85 to -.53	-.309 ***	-.299	
<i>DV=Depression</i>						
Step 1						.37 ***
POM	-2.354	.350	-3.05 to -1.66	-.573 ***	-.557	
SFM	.280	.348	-.41 to .97	.068	.067	
Step 2						.02 ⁺
POM*SFM	-.542	.288	-1.12 to .03	-.156 ⁺	-.155	

N=99.
⁺ P<.10.
* P<.05.
** P<.01.
*** P<.001.

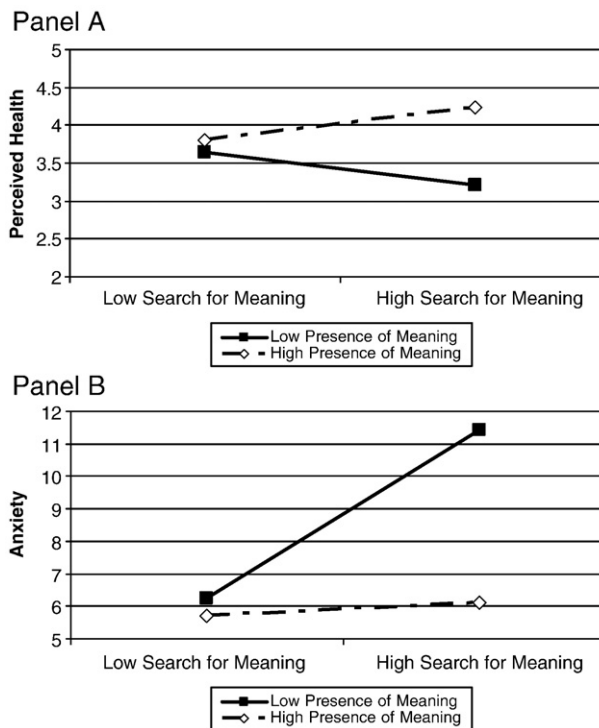


Fig. 1. Interaction of POM and SFM in relation to health (Panel A) and anxiety (Panel B).

significance of the interaction of POM and SFM scores in predicting anxiety (Table 3). People higher in SFM generally reported worse health and greater anxiety (Fig. 1). However, high SFM people who also felt life was meaningful (high POM) did not show this pattern. They reported no more anxiety than low SFM people did and reported somewhat better health.

Discussion

The present study sought to examine links between anxiety, depression, meaning in life, and perceived health among smoking cessation patients. Like previous research, we found that those who reported greater anxiety and depression and lesser POM reported worse health. However, when all predicting variables were considered in multivariate analyses, only depression and social support predicted perceived health. Depression and anxiety were also related to higher numbers of physician visits.

We also provided the first assessment of the relation between SFM and perceived health. We had anticipated that SFM might play a notable role in the perceived health of smokers. In fact, there was not a significant linear correlation between SFM and perceived health. However, the interaction between SFM and POM was significant. Elsewhere, we have argued that POM and SFM need not be considered in isolation and that their interaction may provide unique insights into human health and quality of life [5,19,33]. The

present results support this hypothesis in that POM and SFM interacted to predict health and anxiety above and beyond depression scores [38]. POM seemed to buffer the deleterious relation between SFM and health and anxiety. In some ways, this reinforces the importance of having a sense of meaning for overall health. On the other hand, people both searching for meaning and lacking a sense of meaning reported the worst health and anxiety, pointing to the increased predictive power provided by SFM.

It is intriguing that SFM was the only significant psychological correlate of enjoying health care encounters for social reasons [39]. Previous research and theory suggest that people with substance-related difficulties may be searching for meaning more than other people [17] or even find pursuing drugs as an unhealthy but vital source of meaning [40]. It is not known whether the same is true for tobacco users. Research is needed to clarify the role of SFM in tobacco addiction and its association with attitudes and behaviors relating to health care utilization in smokers. We anticipate that people searching for meaning may inadequately meet their social needs and, hence, seek social contact in maladaptive ways (e.g., social reasons for health care utilization). Given the need to control health care costs in the United States, additional research on the impact of perceived social benefits from health care encounters on utilization patterns may be warranted. If SFM drives unnecessary health care utilization, targeted social/psychological support interventions may play a role in efforts at cost containment.

The present research was limited by its cross-sectional design, and future research should incorporate longitudinal designs. Few studies [41] have examined whether pretreatment meaning in life assessments predict treatment outcome, and whether treatment increases POM and decreases SFM. Such studies are needed. Carrying out these investigations in samples of smoking patients, as well as illegal-drug treatment patients, would enable a more complete test of the potential connection between SFM and substance abuse. Evidence is mounting of the important role existential factors play in supporting health through significant challenges (e.g., cancer [41]). It is also critical to investigate ways of helping people enhance their perceptions of meaning in life. Little research has been conducted along these lines, and, to the best of our knowledge, no well-controlled trials have been conducted. Developing knowledge of how to positively influence people's perceived meaning in life would give clinicians additional tools they could use to impact the health of their patients. The present results further highlight the need for more research in this area.

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