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Do Positive Psychosocial Factors Predict Disease Progression in HIV-1? A Review of the Evidence

Gail H. Ironson, MD, PhD and H'sien Hayward, BA

From the Department of Psychology (G.H.I.), University of Miami, Coral Gables, Florida, and the Department of Psychology (H.H.), Harvard University, Cambridge, Massachusetts.

Abstract

Adding to a traditional stress perspective, behavioral medicine has been focusing increasingly on investigating the potential impact of positive psychosocial factors on disease course in HIV. Dispositional optimism, active coping, and spirituality show the most evidence for predicting slower disease progression, although the data are not entirely consistent. Findings for the role of social support are mixed, although indications are that it may be particularly helpful at later stages of illness. Many of the other constructs (positive affect, finding meaning, emotional expression/processing, openness, extraversion, conscientiousness, altruism, and self-efficacy) have only been examined in one or two studies; results are preliminary but suggestive of protective effects. Plausible behavioral and biological mechanisms are discussed (including health behaviors, neurohormones, and immune measures) as well as suggestions for clinicians, limitations, future directions, and a discussion of whether these constructs can be changed. In conclusion, investigating the importance and usefulness of positive psychosocial factors in predicting disease progression in HIV is in its beginning scientific stages and shows good initial evidence and future promise.

Keywords

optimism; coping; spirituality; positive psychology; meaning; HIV/AIDS; disease progression

INTRODUCTION

Despite the widespread popularity of books such as the “Power of Positive Thinking” (1), the research on psychosocial predictors in behavioral medicine has been focused on the negative predictors of disease outcomes such as stressful life events, depression, and avoidant coping (2,3). The field of behavioral medicine is now expanding to incorporate a new focus on positive factors that may contribute to health outcomes (4). This paper reviews what is known about these positive psychosocial factors and their relationship to longitudinal studies of disease progression in HIV. We define positive psychosocial factors broadly to include such diverse potentially helpful constructs as beliefs (optimism, finding meaning, spirituality), positive affect, behaviors (active coping, altruistic behaviors, expressing emotions with processing), personality dispositions (openness, extra-version, conscientiousness), and social support. Our coverage includes many of the commonly used constructs that are part of the positive psychology literature (5). To ensure a comprehensive review, we searched on the following keywords in PubMed: HIV and disease progression crossed with optimism, positive affect, coping, spirituality, meaning, personality, altruism, emotional expression, and social support.

Positive Psychosocial Factors and HIV Disease Progression

This review focuses on longitudinal studies. Although many of the studies were done before the advent of highly active antiretroviral therapy (HAART), we note studies done after the availability of these more effective medications. The largest study ($n = 773$ women) of positive psychosocial factors and HIV disease progression was performed partially during the HAART era (6). Investigators found that a composite of three positive psychological resources (positive affect, finding meaning, and positive or optimistic expectancy) was negatively related to mortality and immune system decline ($CD4^+$ cell counts) during a 5-year follow-up. Only 6% of those with all three of these resources died versus 17% of those with no such resources. Although this study did not examine the three constructs separately, other studies have.

Optimism has been examined as a predictor of HIV disease progression in five studies. The two largest of these, conducted when HAART was available, found a relationship between dispositional optimism (generalized positive expectancies regarding future outcomes) and slower disease progression (7,8). Milam et al. (7) studied a diverse group of 412 people with HIV (88% male) and found that those with moderate optimism had the highest $CD4^+$ cell counts 18 months later. Ironson et al. (8) found a linear relationship, with those highest in optimism having both less decline in $CD4^+$ cell counts and better suppression of viral load (VL) following a diverse group of 177 HIV infected people (65% male) during 2 years. Those low in optimism lost $CD4^+$ cells 1.55 times faster than those high in optimism. (It is possible that a linear relationship was found by Ironson and colleagues, and not Milam et al. because the latter group controlled for depression, whereas the Ironson group conceptualized and found support for depression as a mediator). A small older study of 31 HIV positive men with hemophilia found that having an optimist outlook (having more anticipated future activities) predicted lower mortality (9). Two other smaller studies before HAART, one in 74 gay men (10) and the other in 47 men (11), found no relationship between dispositional optimism and disease progression, although the latter study (11) found that optimistic explanatory style was related to a faster decline in $CD4^+$ cell counts during a 2-year follow-up. Although these findings are mixed, the larger and more recent studies showed a relationship between optimism and better health outcomes.

Positive Affect

Another construct included in the positive resources composite, positive affect (6) predicted lower mortality in 407 HIV-infected men studied for 3 years before the HAART era (12). It is noteworthy that positive affect even predicted mortality after adjusting for the effects of negative affect. The same group has pilot data on 17 recently diagnosed men showing that positive affect predicts a better response to the initiation of antiretroviral therapy (13).

Finding meaning

The last of the positive resources composite constructs, finding meaning (6) has been studied by Bower et al. (14) in 40 gay men after an AIDS-related loss (most often the death of a partner). Those who were able to discover meaning in the loss (assessed by interviews) had a slower loss of $CD4^+$ cell counts and lower mortality over 2 to 3 years. This finding held even after controlling for depression, antiretroviral therapy (Zidovudine), and health behaviors.

Positive Coping

Studies have investigated potentially positive aspects of coping responses (e.g., active coping, problem solving, acceptance) and HIV disease progression. In an older study of 51 men, Mulder et al. (15) found those who used active coping (together with low denial) had fewer symptoms at 1-year follow-up. Similarly, Vassend and Eskild (16) found that planful problem solving predicted slower time to AIDS or AIDS-related mortality in 63 men followed for an average

of 47 months, after controlling for CD4⁺ cell counts, age, education, distress, and health behaviors. In a more recent study during the HAART era, Ironson et al. (8) found that proactive behavior predicted slower decline in CD4⁺ cell counts and better control of VL in a diverse sample of 177 people followed for 2 years.

Another aspect of coping—*acceptance*—predicted longer time to AIDS-related complex (ARC) (symptoms of HIV less severe than clinical AIDS symptoms) or AIDS diagnosis in 143 gay or bisexual men followed for up to 30 months (17). In contrast, Reed et al. (10) found that “realistic acceptance” predicted faster HIV disease progression in 74 gay men; however, acceptance seemed to measure fatalism (e.g., “I prepare myself for the worst”).

Spirituality

Spirituality may be viewed as another type of coping. Men and women with HIV studied during the HAART era who endorsed more spirituality after their HIV diagnosis had a slower decline in CD4⁺ cell counts and better control of VL over 4 years (18). Fitzpatrick et al. (19) followed 901 HIV infected persons for 1 year and found that participation in spiritual activities (e.g., prayer, meditation, affirmations, visualizations) predicted reduced risk of dying, but only in those not on HAART. Another HAART era study found significantly lower mortality over 3 to 5 years for those with HIV who had a spiritual transformation (20). Furthermore, the spiritual belief that “God is merciful” was protective of health over time, whereas the belief that “God is judgmental and punishing and is going to judge me harshly some day” was associated with a faster deterioration of CD4⁺ cells and poorer control of the HIV virus (21). Thus, view of God may be either helpful or harmful, depending on the nature of that belief.

Another related construct *posttraumatic growth* (e.g., positive changes in appreciation of life, spirituality, life priorities, relationships, and self-reliance) (22,23) did *not* predict HIV disease progression in a sample of 412 during the HAART era (24); however, it did predict higher CD4 counts among Hispanics and those low in optimism. The two items measuring religiousness partially accounted for this finding, as the association dropped to nonsignificance ($p = .07$) when these items were removed.

Emotional Expression

A few studies have addressed the question of whether emotional expression is beneficial for the health of people with HIV. Our group (25,26) found that, although emotional expression (during writing about a trauma) was beneficial for CD4⁺ count and VL, depth processing (emotional/cognitive processing) was even better. People whose essays about trauma showed evidence of positive cognitive appraisal change, experiential involvement, self-esteem enhancement, and adaptive coping strategies had better preservation of CD4⁺ cell counts and better control of the HIV virus. Emotional/cognitive processing mediated the relationship between emotional expression and the maintenance of healthy disease progression markers over 2 years in a diverse sample of 130 people (a subset of the 177) (27). These findings are consistent with a study demonstrating that Temoshok’s Type C construct (inexpression of emotions and decreased recognition of needs and feelings) predicted a faster 1-year disease progression in 185 HIV asymptomatic people with compromised immune systems (28). In addition, Cole et al. (29) demonstrated that those concealing their homosexual identity had a worse course of HIV. Emotional expression needs to be carefully defined however, because venting (expressing emotional distress) has been associated with greater increase in HIV-related symptoms in 65 men living with HIV/AIDS (30). As noted in the study by Bower et al. (14), meaning may be one of the mechanisms by which processing works. Thus, it seems that expressing emotions is good, processing is better, venting in isolation may be harmful, and that processing toward meaning may be the most beneficial for HIV health status.

Personality

Only a few studies have examined the relationship of personality characteristics and HIV disease progression. The Ironson group considered the Five Factor model (openness, conscientiousness, extraversion, agreeableness, and neuroticism) developed by Costa and McCrae (31,32) in studying HIV infected persons during the HAART era. They found that conscientiousness predicted increase in CD4⁺ cell counts and decrease in VL change over 1 year ($n = 131$) (33); extraversion, openness, and conscientiousness were associated with slower disease progression over 4 years ($n = 104$) (34). Those with profiles of engagement (high on both openness and extraversion) fared better than those described as “homebodies” (low on openness and extraversion) (34). However, Thornton et al. (17) found no relationship between personality and time to ARC or AIDS in following 143 men for a median of 20 months. Possibly contributing to diverging results between these studies may be that Thornton et al. (17) used a different measure of personality (Eysenck), did not test openness or conscientiousness, and completed their study before the availability of HAART. In addition, Ironson et al. restricted their sample to the mid-range of illness.

Altruism, which may also be considered an aspect of personality, has been found to predict better control of HIV VL (35). Volunteering to help others with HIV, caring for others, and giving to charities (controlling for income) have all been associated with slower disease progression (35).

Self-efficacy

Self-efficacy is another positive psychosocial construct that may be associated with better disease outcome. Increases in AIDS self-efficacy and adherence self-efficacy during 3 months of a cognitive behavioral intervention trial ($n = 56$ women) were significantly related to decreases in VL (36). Self-efficacy concerning cognitive behavioral skills was significantly associated with decreases in distress over time. In another study, practicing relaxation significantly predicted a lower likelihood of progressing to AIDS and lower mortality over a 2-year period (37).

Social Support

In contrast to the other positive psychosocial factors reviewed, social support is one of the most widely researched predictors of health in HIV and other illnesses. Five HIV studies have reported social support to be a predictor of better health; six have failed to find a significant association, including one that found a negative association (38). Most studies were done before the availability of HAART. The largest study ($n = 414$) showed that larger network sizes predicted longer survival during 5 years among those with AIDS, but not among other men in the study (39). In the longest study done to date, Leserman et al. (40–42) found that higher cumulative social support predicted less rapid progression to AIDS or to an AIDS clinical condition in 96 men followed for up to 9 years. At 7.5 years, 24% of those above the median on social support progressed to AIDS compared with 49% below the median (41). Solano et al. (43), in a sample of 100 men and women, found less social support at baseline was associated with more symptoms 1 year later among those with CD4⁺ cell counts of <400. Ashton et al. (30) also found that higher social support predicted less increase in HIV symptoms over 12 months in a mixed group of 65 men and women studied in the HAART era. Finally, Theorell et al. (44), in a small study of 37 men, showed that low social support at entry was associated with a faster decline in CD4⁺ cell counts after 5 years.

In contrast, six studies reported no significant social support predictors of HIV health outcomes (two of these showed a trend in the expected direction, one showed a trend and one showed a significant effect in the opposite direction, and two showed no trends). The largest of these studies ($n = 205$ men) showed no association between social support (e.g., loneliness) and

progression to AIDS or mortality during a 3-year follow-up, but in contrast to expectation, loneliness was associated with an *increase* in CD4⁺ counts (38). Ironson et al. (27) also found no significant association between social support and changes in CD4 counts or VL over 2 years ($n = 177$ men and women in the HAART era), with a trend for higher support to be associated with a decrease in CD4⁺ cell counts. Two other studies with ample sample sizes ($n = 143$ men and 185 men and women, respectively) showed a trend in the expected direction of higher social support and slower disease progression (17,28). Finally, two studies ($n = 87$ men and 89 men and women, respectively) showed no effects of social support on HIV disease progression (45,46). Although this literature is mixed, it is interesting to note that the study using cumulative measures followed for the longest period of time showed the strongest positive effect (42). Complicating the picture are studies showing that HIV-positive persons with higher social support may be more sexually active (27,47,48). If unprotected sex with another HIV-positive person results in a resistant strain of HIV or acquisition of another sexually transmitted disease, these risks could increase the likelihood for disease progression. Furthermore, two studies found the protective effect of social support only among those who were in advanced stages of HIV infection (39,43). Again, although the evidence is mixed, these studies suggest that social support can at times (but not uniformly) be helpful, particularly during later HIV disease stages.

Comparison Between People With HIV and People With Other Chronic Diseases

The findings summarized above on positive psychosocial factors and HIV health are similar to those for other diseases on optimism (49); positive emotions (50); emotional expression (51), altruism (52), positive psychosocial factors (53,54), self-efficacy (55), and spirituality (56,57). The most notable discrepancy between HIV and other literature is for social support. Social support has been a consistent predictor of maintained health in cancer, cardiovascular disease, infectious disease, and in normal aging (58–63). Why might HIV be different from these other illnesses? Issues of risk behavior, stigma, and poverty are paramount in HIV. As noted above, people with higher levels of social support are more likely to be sexually active, which may contribute to HIV disease progression (27,47). Barroso et al. (64,65) described the unique challenges that gay men face in recreating and renegotiating a social network in the face of stigma. The common ground with other illnesses may be that social support becomes more prominent as HIV-infected persons get symptoms or lower CD4⁺ cell counts (39,43).

Conceptual/Methodological Issues and Limitations

In our review, we found that the most promising positive psychosocial predictors of HIV disease progression were optimism, active coping, and spirituality. Even though findings from these longitudinal studies suggest that positive psychosocial factors may predict better health outcomes, these studies do not allow us to draw causal conclusions about the protective health effects of positive psychological states. Positive affect may *reflect* or be the result of continued good health (or slower disease progression), or a third uncontrolled variable may explain this relationship. Most studies, however, controlled for disease stage at entry, and separated in time the measurement of affect and the measurement of health. A randomized controlled trial of an intervention to enhance positive affect would be the strongest way to establish causality.

Examining positive factors after years of studying negative predictors raises the question of whether positive psychological states contribute to health over and above negative states or whether they are two ends of the same spectrum. At this beginning stage of research, it seems that positive factors have a unique role: a) Vassend and Eskild (16) found that planful problem solving predicted lower AIDS/mortality after controlling for distress; b) Milam et al. (7) reported a unique curvilinear contribution for optimism after controlling for depression; c) Moskowitz (12) found that positive affect significantly predicted mortality after controlling

for negative affect; and d) Ironson et al. (18) found that an increase in spirituality predicted slower disease progression after controlling for depression.

A second issue is whether positive and negative states can coexist. Folkman (66) suggested that this does happen—both positive and negative states increase during the course of bereavement. Others have found that positive affect can occur even in the presence of negative affect (50,67).

A third issue is whether the findings noted above still apply in the current era where HAART can control HIV replication. Although most of the studies were conducted before the availability of HAART in 1996, the Ironson group studies (8,18,21,27) and those of Milam et al. (7,24), Ickovics et al. (6), Fitzpatrick et al. (19), and Ashton et al. (30) were done during the availability of these newer treatments. Ickovics et al. (6) reconfirmed the effects of positive psychosocial resources on mortality when limiting the analysis to persons who died in 1996 or later.

A fourth issue concerns whether controlling for medication changes and adherence will affect the role of positive psychosocial factors in the HAART era. Ironson et al. (27) did both and confirmed older results for coping.

A fifth issue is whether psychological factors may have a differential impact at various stages of illness. Ironson (8,27) recruited samples in the mid-range of illness and reasoned that those with very low CD4⁺ cell counts (<200) would have severe immune impairment that might override any influence of psychological factors; conversely, those with high CD4⁺ cell counts would be so healthy that psychological influences might have little impact over short time intervals. This view is supported by data from Solano et al. (28), where Type C predicted change in Centers for Disease Control HIV staging only among those who were moderately immunocompromised (CD4 cell counts ranging between 200 and 500), and not among those with CD4⁺ counts of >500 at study entry.

Another analytical issue is whether to measure positive psychosocial factors as a single measurement (baseline) or over time (e.g., cumulative). Studies by Mayne et al. (68), Ickovics et al. (69), Leserman et al. (42), and Ironson et al. (27) highlighted the importance of repeated measurement over time.

Another limitation is the wide variety of conceptualizations and measurement tools used to assess positive psychosocial factors, such as benefit finding and posttraumatic growth, making it difficult to generalize and interpret discrepant findings. For example, finding meaning was defined as a major change in “values, priorities, or perspectives” in one study (14), yet Ickovics et al. (6) defined it in terms of relationships with others.

Finally, there are a large number of positive constructs yet to be studied in relationship to HIV disease progression. Some of these are character strengths and virtues (e.g., kindness, courage) from the field of positive psychology (6,70,71), the notion of resilience (72,73), dimensions underlying well-being (e.g., self-acceptance, purpose in life) (74), situational appraisals as threatening or challenging (75), distress tolerance (76,77), perceived control (78), the will to live (79), and the complex construct of happiness.

Potential Mechanisms: Health Behaviors and Biology

Two primary potential pathways linking psychosocial factors to HIV health outcomes have been posited by behavioral medicine researchers (80,81): health behaviors and biological mechanisms (endocrine and immune). Each of these two primary pathways (behaviors and biology) are covered in detail in two articles in this issue (82,83) and so will not be discussed

extensively here. Rather, we will cover potential pathways specific to positive psychosocial factors. We include cross-sectional studies in this section, although we acknowledge that statistical mediation does not necessarily indicate causality.

Potential Psychosocial/Behavioral Mechanisms

There is some support that optimists adopt healthier behaviors such as better adherence (7,8), more exercise (8), less illicit drug use (7), less smoking (8,11), more adaptive coping/proactive behavior (8), less use of avoidant coping (8,4), and enhanced mood (7,8). Positive states of mind have also been related to better adherence (85). However, among HIV-negative gay men, optimism has been related to a *higher* incidence of risky sexual behavior (86).

Ironson et al. (87) found that greater spirituality was associated with practicing safer sex, consuming less alcohol, and smoking less. Simoni et al. (88) showed that greater spirituality was associated with better self-reported medication adherence at 3 months and higher VL suppression at 6 months. Higher forgiveness has similarly been associated with better medication adherence and safer sex (89). A qualitative study in our laboratory of people with HIV (90) demonstrated that spirituality may enhance the commitment to adhere to medications (“I strongly believe that not taking medication is a sin”), or it may lead to the rejection of medication (“I do not have faith in medicine. I put my hands in God.”). In fact, spirituality and world view were considered by 58% of participants in their decision to take or not to take antiretroviral medications (90). Spirituality and religiosity may also facilitate positive reappraisals of stressful situations, and these reappraisals may in turn support positive psychological states (66).

Social support can also play a mediating role by facilitating adherence to medication (88,91). Simoni et al. (88) found that social support was associated with less negative affect and greater spirituality. Cacioppo et al. (92) found that physicians may treat patients with social support better.

Potential Biological Mechanisms

Numerous studies have suggested that hormones important for health are affected by emotions (50,92–94). These include but are not limited to cortisol, epinephrine, norepinephrine (NE), dopamine, adrenocorticotrophic hormone (ACTH), growth hormone, prolactin, and oxytocin. Positive psychological factors have been associated with many of these neurohormones. For example, among people with HIV, spirituality and benefit finding (e.g., focusing on the positive in a negative situation) have both been correlated with lower levels of cortisol (87,95). In fact, cortisol mediated the relationship between spirituality and long survivor status in a cross-sectional study (87). Importantly, cortisol has predicted faster disease progression in HIV (41).

Reduced sympathetic arousal and a concomitant reduction of the stress hormone NE may provide another potential mechanism for positive psychological factors to influence HIV disease progression. In turn, lower NE has been related to better VL suppression with new antiretroviral medication (96) and to suppression of VL in vitro (29). Furthermore, in non-HIV populations, positive psychosocial factors (e.g., social support, moderate optimism) have been related to reductions in NE or sympathetic activity (97–99).

Apart from CD4 and VL counts, a number of other parameters have been explored as immune mediators. Alter and Altfeld reviewed the evidence that natural killer (NK) cells may play an essential role in disease progression of people with HIV (100). Our group found that relative preservation of NK cell counts and function was protective of health in HIV positive people with very low CD4 cell counts (101), and that NK cells mediated between emotional/cognitive

processing of trauma and the maintenance of health in these immunocompromised patients (102). Goodkin et al. found that active coping was associated with higher NK cytotoxicity (103). Furthermore, Temoshok et al. (104) found that Type C coping (related to the nonexpression of emotions) was associated with increased antigen-stimulated production of the proinflammatory cytokine interleukin-6.

Treatment Issues and Clinical Implications

Should doctors treating HIV-infected persons encourage their patients to be positive? Our review suggests that having such an attitude may be protective of health, due to the relationship of positive psychosocial factors with better health behaviors and slower disease progression. However, being positive is more than just positive thinking. Although optimistic thinking has the most empirical support, it may be difficult to change this trait or outlook on life. There is good preliminary evidence that other positive factors may also predict slower disease progression and may be easier to change than optimism. These include: active coping, self-efficacy, expressing and positively processing the HIV diagnosis and other traumatic experiences, finding or maintaining meaning and purpose in life, staying connected with spiritual beliefs and with people (especially as the disease progresses), and remaining engaged in life.

What can be done to improve positive psychosocial health or to help people maintain hope? Interventions targeting stress and coping have been shown to increase various positive constructs and outcomes in HIV (105). In a randomized trial of Coping Effectiveness Training, Chesney, Folkman and associates (106) found that this intervention increased optimism, positive states of mind, personal growth, and coping self-efficacy. The Stress Management and Relaxation Training (SMART) intervention (107) has been shown to increase positive psychological factors including optimism (108), positive reframing and acceptance (109), social support (109), active coping, and coping self-efficacy (36,110) in HIV-infected persons. This intervention has also been shown to reduce stress hormones including cortisol (111) and catecholamines (112), and to improve CD4⁺ cell counts and reduce VL (113). Increases in benefit finding mediated the reductions in cortisol, suggesting that enhancement of positive growth during a time-limited intervention can influence physiological parameters (114). Also, increases in self-efficacy were correlated with decreases in VL when the SMART intervention was adapted for minority women (36). Emotional disclosure through writing about trauma is another intervention targeting the constructs discussed in this article. In a small study of HIV-infected persons, Petrie et al. (115) found that those who wrote about trauma had a significantly greater increase in CD4⁺ cell counts at a 6-month follow-up compared with those writing about daily events. We are conducting a similar trial (116) among HIV-positive men and women that includes additional probes to increase emotional and cognitive processing of trauma. Tuck et al. (117) designed an intervention to enhance spirituality in people with HIV, and McCain et al. (118) found beneficial effects of this intervention on several immune measures (NK cell cytotoxicity and lymphocyte proliferation). Interventions are also available for enhancing the self-efficacy of people with HIV (36) and teaching HIV physicians to encourage positive behavior change using motivational interviewing and assessing readiness for change (119).

This research, however, is in its beginning stages and very little has been done to specifically target enhancement of positive factors other than coping. At this time, it is not known whether such studies would lead to health changes (although preliminary evidence suggests that plausible biological pathways such as CD4⁺ cells, VL, cortisol, epinephrine, and NK cells exist and can be impacted). Studies have not addressed the question of whether advising patients to be positive will have a beneficial effect.

When is being positive likely to be most helpful? As Segerstrom et al. (120) noted, optimism may be “beneficial when coping efforts are effective, but could lead to greater disappointment and distress when efforts are thwarted or unsuccessful.” One might argue that in HIV, because effective medical treatments are available, active coping efforts are likely to be effective (e.g., medication adherence leads to suppression of VL). Thus, consistent with our literature review, an optimistic attitude is likely to be helpful, particularly if it is accompanied by proactive behavior.

More exploration is needed to determine the balancing and timing of when positive coping strategies should be encouraged. For example, Monat and Lazarus (121) hypothesize that “defensive coping style may initially serve a positive function; lowering physiological response levels and helping the person avoid being overwhelmed by negative life circumstances where direct actions are of limited use.” Further, it is not known whether encouraging one to be positive may interfere with the adaptive processing of a negative traumatic event.

In view of the mixed findings with respect to social support and the complexity of issues the people with HIV are facing, we must carefully evaluate whether the patients’ social network is helping them to function better. This may include whether the support encourages maintaining a healthy lifestyle and taking medication, or whether a support network is rejecting, stressful, and fostering riskier sex or drug/ alcohol use. Finally, health professionals may help patients connect with supportive family/friends or organizations especially as their health declines.

How can health professionals bring up sensitive issues such as a patient’s spirituality? Patients often want to talk about such things (122) but are often afraid of judgment. One constructive way is to engage patients around the issue of how they are coping with HIV and what is useful to them. Guidance is available for the interested healthcare professional (122) and a special issue of *Psychiatric Annals* (March 2006) is devoted to this topic.

Finally, one caveat to guard against is to avoid making patients feel that if they are not getting better it is because they are not positive enough. There are many reasons why patients do not improve—the primary ones being the biology of HIV, medication adherence, and the development of resistance; psychological factors are only one potentially contributing factor. It makes more sense to focus on potential solutions, rather than to focus on the blame.

CONCLUSIONS

Investigating the importance and usefulness of positive psychosocial factors is in its beginning scientific stages and shows good initial evidence and future promise. Positive psychosocial factors such as positive beliefs (optimism, finding meaning, spirituality), positive affect, positive behaviors (expressing/processing emotions, proactive coping, adherence, etc.), active ways of interacting (openness, extraversion), and fostering social support can help a person with HIV to cope and to remain engaged in living. Although recognizing and encouraging a positive attitude in patients could be helpful, healthcare professionals must be mindful of potential pitfalls and proceed with sensitivity. Directing the conversation toward more specific approaches for enhancing positive ways of dealing with HIV (e.g., finding meaning, increasing spirituality, providing skills for increasing self-efficacy) may be useful and easier to implement. Future longitudinal studies should cast a wider net to include positive constructs not yet investigated, and should do so with conceptual clarity. Future intervention studies are needed to determine whether focusing on positive states will enhance effectiveness beyond what is already achieved.

Glossary

HAART, highly active antiretroviral therapy; NE, norepinephrine; VL, viral load; ARC, AIDS-related complex.

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