Chapter 20
Ebb and Flow in the Sense of Meaningful Purpose: A Lifespan Perspective on Alcohol and Other Drug Involvement

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We scoured a number of search engines in an effort to locate data to help answer the following five questions. Q1: Is the construct known as Meaning in Life–Purpose in Life (MIL–PIL) relevant to understanding the initiation, onset, frequency and intensity of alcohol and other drug (AOD) involvement during adolescence and young adulthood?; Q2: Is MIL–PIL relevant to understanding the progression or course of AOD involvement up to, but not including the decision to quit or cut back?; Q3: Is MIL–PIL relevant to understanding an person's decision to seek professional help or informal help for an AOD problem?; Q4: After an AOD abuser has resolved to change and has received treatment, does this treatment affect their MIL–PIL scores?; Q5: After an AOD abuser has resolved to change and has received treatment, is MIL–PIL relevant to understanding variability in resolution outcome? Our search located 76 studies (n=35,686 participants) that reported quantitative findings relevant to these questions. We extracted key features of each study and these were collated and distilled into four tables. The data contained in each table forms the empirical foundation underpinning four separate literature reviews. We conclude that the state of the science in this fledgling area is not sufficiently developed as to empirically justify secondary and tertiary prevention initiatives that seek to impact AOD outcomes by modifying people's sense of MIL–PIL. We conclude that, although theoretical justification suggesting the importance of the MIL–PIL construct is plentiful, evidence is currently lacking. We recommend future scholarship employ more rigorous methodologies, and that it be more firmly rooted in theory. Also, these studies ought to adopt a life course perspective because it has the potential to expand the

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continuum of care by improving our understanding of the needs of the untreated majority of people who are troubled by an AOD problem.

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Introduction

Recently, a paradigm shift that has occurred in which scholars, interventionists, policy makers, and other stakeholders have all begun to advocate a more encompassing, broad-spectrum understanding of AOD involvement. The new meta-conceptual framework has been dubbed the life course perspective (Hser et al. 2007; Tucker and Grimley 2011; Tucker and Simpson 2011). As an aid to organizing studies in our exhaustive review of empirical research, we offer a life course perspective that seeks to contribute toward a more comprehensive and more dynamic understanding of statistical findings that have linked MIL–PIL to AOD involvement.

Our model was intentionally comprehensive in scope. At one end of the continuum, we identified people who were still in the "active" or "wet" phase of their AOD career, while at the other end of the continuum, we identified people who were seeking to become "inactive" or "dry" with respect to their AOD involvement. The 76 studies that were captured in our literature search varied widely in terms of the age and "clinical status" of participants Some of the samples were in treatment, while others were not. With regard to nontreatment seekers, we identified three subclusters of studies that reported statistical associations of MIL–PIL to AOD involvement in people who we classified as being in early (adolescent), middle (young adult), or late (older adult) stages of the "active" or "wet" phase of their AOD career. From a Transtheoretical Model (TTM) perspective (Prochaska and DiClemente 1986), we might classify these three groups of AOD users as being in the precontemplation, contemplation, or preparation stages of change. Key facets of these studies (i.e., drinkers who are not seeking help from formal or informal sources) are summarized in Table 20.1.

At the other end of the spectrum, we identified three clusters of studies that examined MIL–PIL in clinical samples who were seeking to be "inactive" or "dry" with respect to their AOD involvement. As such, respondents in these studies might be classified as falling into Transtheoretical stages of change known as "action" and "maintenance". Key facets of these studies (i.e., those involving samples of treatment seeking participants) are summarized in Tables 20.2, 20.3, 20.4, 20.5 and 20.6.

A cardinal feature of the developmental perspective is the concept of change over time. Accordingly, a number of corollary ideas and concepts are nested within the life course perspective. Of special significance to the current chapter are corollaries of AOD initiation, AOD progression, AOD transitions (e.g., from "use" to "abuse"), AOD trajectories, and AOD turning points. These points along the continuum of AOD involvement are important to consider because they may

each identify a momentary point in time through which MIL–PIL could be shown to exert its influence. As such, they are also directions for future research.

As already noted above, the TTM "stages of change" provide added value to our efforts aimed at providing a more comprehensive framework for understanding the role of MIL–PIL in AOD involvement. In the domain of contemporary AOD scholarship, the TTM has done much to showcase the full gamut of relationships people can have with AOD. We are attracted to the shear breadth of the spectrum captured by the TTM. Moreover, we find this model useful because it provides us with a unique opportunity to synthesize perspectives of public health and psychological viewpoints. In the current chapter, we seek to blend the amalgam into a broad-spectrum meta-framework that will help organize findings linking MIL–PIL to AOD involvement.

Jalie Tucker and colleagues have described the epidemiology of AOD involvement at the population level, showing how diverse it truly is (Tucker and Grimley 2011; Tucker and Simpson 2011). For example, they show how most young people who initiate drinking do not progress onward to the point of abuse, or to the point of needing professionally guided assistance at inpatient and/or outpatient treatment facilities. Indeed, the majority young drinkers have a favorable AOD trajectory. By way of comparison, relatively few young people show a negative AOD trajectory. With time, their AOD evolves from occasional use, to regular use, and eventually onward to abusive use. Tables 20.1 and 20.2 provide tentative evidence to suggest people who lack MIL–PIL may be especially susceptible to unhealthy shifts in the nature of their AOD involvement.

Similarly, most heavy drinking adults do not progress to the point of addiction which requires treatment or attendance at mutual-aid groups. Little is known, from a life course perspective, about the natural epidemiology of favorable or unfavorable AOD trajectories. There are hints in the current chapter that the psychological factor known as MIL–PIL may play a role in deflecting these kinds of transitions.

The life course perspective that underpins the current chapter acknowledges that the untreated majority who have an AOD problem are being underserved. Because most of these people are still in the early stages of their AOD 'career' (precontemplators who are still in the active/"wet" stage), they will tend to have less severe problems than their clinical counterparts. Of course, many nonclinical samples will have extremely severe problems with AOD, but will remain outside the treatment system.

Historically, clinical psychologists have turned a blind eye to people who fall beneath the DSM threshold for problem severity and who have not yet entered the treatment system. If we complement the clinical approach with a public health approach, it may, one day, become possible for AOD scholars and like-minded practitioners and policy makers to intervene and deflect developmental trajectories for at risk drinkers who suffer from 'sub-clinical' levels of problematic AOD involvement.

The promise of this perspective is that, in the future, a range of less intensive services could be formulated to close the gap between: (a) what untreated AOD

users need or require, and (b) the types of services that are currently available. Some of these services are described in a 2011 book entitled, "*Public health tools for practicing psychologists*" (Tucker and Grimley 2011). The life course paradigm may eventually establish a metaconceptual framework that would frame empirically validated brief AOD services. These types of services (e.g., brief motivational interventions or goal setting initiatives) would then enable the untreated majority to gain access. An example of this proposal (to be discussed in section "Introduction to Table 20.1 and Summary of Key Findings") might include "Positive Youth Development" programs that invite high-risk youth to find and pursue meaningful goals. In turn, such initiatives could immunize bored, disengaged, or unhappy youth drinkers from AOD escalation because they inculcate countervailing feelings of vigor and vital engagement. Consistent with the public health paradigm, such programs could easily be delivered by nonspecialists in school or other settings where plenty of adolescent drinkers can be reached (Benson et al. 2006; Larson 2000; Tucker and Grimley 2011).

One of the assumptions of Positive Youth Development Programs (or similar goal-setting programs for troubled college students and adults who are not in treatment) is that people who feel the activities of their daily living are worth pursuing are less motivated to exhibit AOD involvement than people who are less satisfied (or dissatisfied) with their life. When behavioral and social scientists speak about subjective ratings of satisfaction with life, they often distinguish between two general types: hedonic happiness and eudaimonic happiness (Ryan and Deci 2001; Ryff and Singer 2006, 2008; Waterman 2013).

The first type of life satisfaction, hedonic happiness, refers to positive affective experiences associated with pleasure. Examples would include fun or enjoyable activities such as going to the cinema to watch a comedy, eating fine food, drinking alcohol, socializing at a festive party, and the like. The second type of life satisfaction, eudaimonic happiness, is a term that was originally coined within Aristotle. As evidenced within the 13 chapters in Waterman's 2013 book, "*The Best Within Us: Positive Psychology Perspectives on Eudaimonia*", the term is still a topic of hot debate. However, there is growing consensus (e.g., Ryan and Deci 2001; Ryff and Singer 2008) that the common core of most models of eudaimonia includes a subjective sense of quality of life (QoL) marked by a perception that the activities of daily living have meaning and purpose.

If levels of MIL–PIL are high, a person feels fulfilled or satisfied with their life. Such an person will strongly feel as though he or she has something (e.g., an activity, goal, or purpose) in their life that is worth investing effort in. However, if levels of MIL–PIL are low, an individual will feel dissatisfied due to a subjective void in the quality of his or her life. In this instance, a person will experience aversive emotions associated with disinterest and disengagement, boredom and emptiness. This confluence of emotions and lack of motivation denotes Frankl's (1963) conceptualization of "existential vacuum" (EV). People who perceive their daily activities as being trivial or as a waste of time would score low on questionnaires that assess eudaimonic happiness. In conclusion, the promise of

Positive Youth Development programs and other secondary prevention interventions that bolster levels of MIL–PIL is that they will deflect AOD trajectories in a way that arrests the (likely) progression to regular use, abusive use, or dependence and addiction.

In much the same way that scholars continue to debate about the meaning of eudaimonia, similar discussion rages onward about conceptual definitions of terms like "meaning in life" and "purpose in life." This discussion is easily discernible within the 28 chapters of Wong's 2012 book, "*The Human Quest for Meaning: Theories, Research and Applications.*" The conceptual definition we find most attractive was offered by Gary Reker, who spoke about a kind of personal meaning which he called existential meaning. According to Reker (2000), "*existential meaning is defined as the cognizance of order, coherence, and purpose in one's existence, the pursuit and attainment of worthwhile goals, and an accompanying sense of fulfillment. A person with a high degree of existential meaning has a clear life purpose, feels satisfied with past achievements, and is determined to make the future meaningful*" (p. 41).

In Part 1 of this four part chapter, we will document and evaluate key features of studies that address the apparent salutary influence of existential meaning on the unfolding process of developing a problem with AOD. This body of research is summarized in Tables 20.1 and 20.2. While high levels of MIL–PIL may shield people, low levels may serve to increase their risk of misuse by rendering them psychologically vulnerable

Before moving to a discussion of the data compiled in Part 1 of this chapter, we wish to spend a moment addressing scholarship in the AOD literature. Our goal is to strengthen the conceptual connections and explicate similarities between MIL–PIL and related developments in the AOD field that share a kinship with the MIL–PIL construct. The first point of convergence involves AOD scholarship concerning the issue of Quality of Life (QoL). While empirical research in this area is limited, a few seminal papers have established the potential relevance of adopting a QoL approach to understanding, treating, and preventing AOD disorders (Donovan et al. 2005; Foster et al. 1999; Rudolf and Watts 2002). Donovan and colleagues (2005) suggest that a growing scientific concern with QoL may signal the infiltration into AOD research of a broader paradigm shift that reconceptualises the term "health." This paradigm springs from the well renowned and comprehensive definition offered by the World Health Organization (WHO 1958), who defined health as "*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*" (p. 459). When applied to the AOD field, the WHO model suggests a broadening of the scope of concern beyond substance misuse per se. While negative factors that indicate or facilitate biological harm remain important, the WHO model points to a more inclusive definition of "health." This new view invites scholars and practitioners in the AOD field to expand their conceptual focus by giving due consideration to positive elements of health. An important feature of the holistic model of health is that it assumes the existence of salutary factors that both promote and indicate "positive health" and optimal adjustment. As such, it makes room for psycho-existential factors such

as MIL–PIL. The conceptual backdrop offered by the WHO definition stands in marked contrast to the prevailing illness paradigm of health that has guided AOD research and practice. Consistent with the "Positive Psychology" movement (Hart and Sasso 2011), contemporary scholarship in the AOD field has moved beyond the narrow focus on pathogenesis by featuring a broad spectrum model of wellness.

The WHO definition of health may also have been the origin of the broad-spectrum model of AOD recovery that was first articulated in a 2007 publication issued by the Betty Ford Institute Consensus Panel (BFICP, 2007). The BFICP report differentiated between the following two kinds of positive recovery outcomes: (a) being dry, and (b) having a high QoL. Specifically, AOD recovery was defined as "*a voluntarily maintained lifestyle c5haracterized by sobriety, personal health, and citizenship*" (p. 221). According to this perspective, "personal health" encompasses a number of facets including emotional, existential, and spiritual well-being. Of special concern to the current chapter is the existential facet, because it points to the importance of personal values and the importance of having a sense of meaningful purpose in life.

Perhaps spurred on by the BFICP report, the US Substance Abuse and Mental Health Services Administration (SAMHSA) convened a number of meetings in 2010 attended by scholars, behavioral health leaders, and mental health consumers. A series of discussions eventually resulted in a practical, comprehensive, working definition of recovery that would enable policy makers, service providers, and scholars to better design, deliver, and evaluate holistic services for persons suffering from addiction and other mental health disorders. SAMHSA's working definition suggested that AOD recovery comprises four facets. These include: (1) restoration of health (broadly defined), (2) restoration of home (broadly defined), (3) restoration of community, and (4) restoration of a sense of meaning and purpose in life.

The fourth facet of recovery, restoration of meaning and purpose, is particularly germane to findings we have compiled in Tables 20.4, 20.5 and 20.6 of this chapter. These tables all deal with clinical samples in the action stage of changing their involvement with AOD and summarize research that has examined whether MIL–PIL is indeed restored as a function of participation in treatment.

According to SAMHSA, a long-term resolution to AOD-related problems is one that enables the ex-substance misuser to exercise self-determination in choosing meaningful life goals that are congruent with personally held values. For SAMHSA, quality recovery is sustainable recovery. Both require that meaningful purposes extend beyond a single-minded and myopic concern with curbing observable drinking or drug taking behaviour. These broader purposes could include a variety of goals, provided they each infuse a sense that a person's new life in sobriety has meaning. Examples of treatment goals likely to bolster a sense of meaning include aspirations such as a attaining or holding a job, attending school, being of service to others through volunteerism, pursuit of familial, social and recreational goals, or creative endeavors.

Studies that have Tested the Association of Meaning and Purpose in Life in Relation to the Initiation and Intensity of AOD Involvement in Nonclinical Samples who are not in Treatment or Pursuing Informal Methods of Change

Introduction to Table 20.1 and Summary of Key Findings

As noted earlier, the current chapter consists of four separate literature reviews. Of special concern to the first review (i.e., Part 1) is the question of whether MIL–PIL is relevant to understanding the initiation and intensity of AOD involvement amongst individuals who are not in treatment. Part 1 also presents evidence bearing on the question of whether MIL–PIL plays a role in arresting or accelerating the progression of AOD use to abuse, dependence, and addiction. In particular, our first literature review seeks to examine whether MIL–PIL can deflect the likelihood, over time, of experiencing a worsening of AOD involvement up to the point just prior to the decision to quit or cut back. In regards to the Transtheoretical Model (TTM) stages of change, Part 1 deals with individuals who are located at the low end of the spectrum of readiness to change. As such, respondents identified in Table 20.1 can be understood as falling into the precontemplation or contemplation stages of change.

In Part 1 of the chapter, we take stock of a number of quantitative studies of nonclinical samples that suggest MIL–PIL may be relevant to understanding why people differ in regard to their level of AOD involvement.

In Table 20.1, we searched a number of literature databases such as, PsychINFO, SCOPUS, PubMed, and Google Scholar. A variety of key terms were also used as search parameters. These included meaning in life, purpose in life, existential well-being, goal-pursuit, goal-striving, sense of coherence, making meaning, perceived meaning, purpose, spiritual wellbeing, anomie, Existential Vacuum (EV), noogenic neurosis (NN), and positive psychological wellbeing. We then cross-referenced these key terms with a variety of substance use parameters such as drinking, alcohol, substance use, substance misuse, alcohol dependence, alcohol abuse, alcoholism, addiction, and chemical dependency. Once we located papers containing empirical and quantitative findings connecting MIL–PIL to AOD involvement, we examined their references to locate additional relevant papers.

Roughly speaking, we believe that Table 20.1 captures over 75 % of the pertinent English speaking literature linking MIL–PIL and AOD involvement in nonclinical samples. Brief inspection of the results displayed in Table 20.1 provides tentative evidence to suggest that MIL–PIL may be involved in the initiation/onset of AOD involvement. Given that respondents are stratified by age, the collection of findings that we have identified may also be relevant to understanding the progression or course of AOD, starting at the point of initial experimental use during early adolescence to the point of habitual abuse just prior to treatment entry.

In this first section of the chapter, we strived to collate and condense empirical findings derived from individuals who were not known to be receiving professional or informal treatment. We examined three cohorts of research participants that map onto different age-bands. The first set of studies involves adolescent participants, while the second and third set of studies pertain to younger (mostly college students) and older adult participants, respectively. We chose to group the studies shown in Table 20.1 into these three developmental cohorts because we felt the data contained in the adolescent cohort would be relatively more pertinent to the "initiation and onset" phase of AOD involvement than the younger or older adult cohorts. By way of contrast, we reasoned that the two older cohorts would provide data yielding insights into the issue of "intensity" of AOD involvement, and possibly its "course or progression" over time. Through examination of methodologies used across studies of each age band, we did indeed notice a discernible trend in which "abuse" measures of AOD involvement (e.g., symptom count) tended to be more popular in the study of adults, whereas "use" measures of AOD involvement (e.g., frequency of use) tended to be the norm in research with youthful participants.

Table 20.1 provides a concise summary of a large body of published and unpublished research that has tested the association between MIL–PIL and AOD involvement in persons not known to be in treatment. As shown in headings spread across the top of Table 20.1, we collated data by examining each of the studies along five dimensions. In the first column, we identified the researchers and year of publication for each study. In the second column, we identified key features of the sample. In the third column, we identified the method that was used to assess MIL–PIL. In the fourth column, we identified the method that was used to assess AOD involvement. Finally, we reported statistical findings in the last column.

Overall, a total of 28 studies were extracted from the extant literature base. This yielded a rather large aggregate sample size which consisted of 19,706 total participants. Within this aggregate pool of respondents, 2,266 subjects fell into the adolescent age band, 8,463 subjects fell into the young adult age band (college students), and 8,977 subjects fell into the older adult age band. A cursory look at publication dates showed that of the 28 studies, a smaller proportion were conducted before the year 2000 (10 studies), as opposed to after (18 studies) the year 2000. The range in publication date varied from 1974 to 2012.

A total of 61 effects were extracted and inserted into Table 20.1. Of these effects, 48 were found to be statistically significant (79 %). By way of comparison, *p*-values were nonsignificant for 10 effects (16 %), and unreported for three effects (5 %). Because the majority of Table 20.1 studies reported Pearson *r* correlations between MIL–PIL and some index of AOD involvement, we decided to focus our attention on these analyses. Generally speaking, studies tended to operationalize AOD involvement in one of two ways. As shown in Table 20.1, some studies employed a "use" measure of AOD involvement. This was especially popular in nonclinical samples of adolescents. Other studies, in contrast, tended to report MIL–PIL correlates to an "abuse" measure of AOD involvement. This approach to operationalizing AOD involvement was especially popular in clinical studies of treatment seeking adults (see Tables 20.2, 20.3, 20.4, 20.5 and 20.6).

Table 20.1 A summary of quantitative studies that have examined the link between meaning or purpose in life (MIL–PIL) and involvement with drugs and/or alcohol in nonclinical samples of persons not known to be receiving formal treatment or pursuing informal methods of natural change

Study	Sample	Method of operationalizing MIL–PIL	Method of operationalizing drug and/or alcohol involvement	Relationship between MIL–PIL and drug and/or alcohol involvement
Adolescent studies				
1. Myrin and Lagerstrom (2006)	383 adolescents (14–15 years old) Group 1: consumes alcohol once a week/month ($n = 35$) Group 2: consumes alcohol once a year/never ($n = 348$)	Sense of coherence (SOC)[1]	Frequency of alcohol consumption	Group 1: M SOC = 62 Group 2: M SOC = 67 $t = 2.36$, $p < 0.05$
2. Lam et al. (2002)	152 students (M age = 15.3)	Purpose in life test (PILT)[2]	Drug involvement	$r = -0.35$, $p < 0.01$
3. Minehan et al. (2000)	144 students (age range = 12–17)	Purpose in life test (PILT)	Frequency of alcohol consumption	$r = -0.02$, $p =$ n.s. $\beta = -0.18$, $p < 0.05$[a]
4. Kinnier et al. (1994)	Group 4: male subjects only ($n = 60$) Group 3: female subjects only ($n = 101$) Group 2: adolescent subjects with psychiatric problems ($n = 113$) Group 1: high-school students ($n = 48$)	Purpose in life test (PILT)	Frequency of substance use	Group 1: $r = -0.51$, $p < 0.01$ Group 2: $r = -0.10$, $p =$ n.s. Group 3: $r = -0.28$, $p < 0.01$ Group 4: $r = -0.18$, $p =$ n.s.
5. McBroom (1994)	428 adolescents (age range = 13–14)	Psychosocial composite variable[3]	Frequency of alcohol consumption	$r = 0.31$, $p < 0.001$
6. Sayles (1994)	582 adolescents (age range = 14–18)	Purpose in life test (PILT)	Youth risky behaviors index	$r = -0.35$, $p < 0.01$
7. Padelford (1974)	Group 1: all high-school students ($n = 416$; grade 10) Group 2: male students only ($n = 203$) Group 3: female students only ($n = 213$) Group 4: Anglo-American students only ($n = 227$) Group 5: ethnic minority students only ($n = 72$)	Purpose in life test (PILT)	Drug involvement	Group 1: $r = -0.23$, $p < 0.001$ Group 2: $r = -0.29$, $p < 0.001$ Group 3: $r = -0.13$, $p =$ n.s. Group 4: $r = -0.34$, $p < 0.001$ Group 5: $r = -0.15$, $p =$ n.s.

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Table 20.1 (continued)

Study	Sample	Method of operationalizing MIL–PIL	Method of operationalizing drug and/or alcohol involvement	Relationship between MIL–PIL and drug and/or alcohol involvement
Unweighted mean Pearson r †				$r_{um} = 0.33$
Young adult studies				
8. Ianni et al. (2012)	205 college students (M age = NR.) Group 1: high secular meaning, high spiritual meaning ($n = 74$) Group 2: high secular meaning, low spiritual meaning ($n = 28$) Group 3: low secular meaning, high spiritual meaning ($n = 34$) Group 4: low secular meaning, low spiritual meaning ($n = 69$)	Secular and spiritual meaning scale[4]	Hazardous use (AUDIT; alcohol use disorders identification test)[17]	Group 1: M AUDIT = 5.64 Group 2: M AUDIT = 6.27 Group 3: M AUDIT = 6.39 Group 4: M AUDIT = 6.83 Group 4 > Group 1, $p < 0.05$ β (secular meaning, AUDIT) = −0.16, $p < 0.05$ β (spiritual meaning, AUDIT) = −0.22, $p < 0.05$
9. Ianni et al. (2010)	560 college students (M age = NR.)	Three-item composite measure of perceived meaning in life[5]	Hazardous use (AUDIT; alcohol use disorders identification test)	$r = -0.17$, $p < 0.001$
10. Midanik and Zabkiewicz (2009)	4,630 adults (18 years or older) who drank at least once in the month prior to assessment Group 1: low SOC (27 % of participants) Group 2: moderate SOC (37 % of participants) Group 3: high SOC (36 % of participants)	Sense of coherence (SOC)	Method 1 (M1): alcohol consequences (AC) Method 2 (M2): alcohol dependency (AD)	(Moderate vs. low SOC on absence of AC) Odds Ratio = 1.72, $p < 0.01$ (High vs. Low SOC on absence of AC) Odds ratio = 2.21, $p < 0.01$ (Moderate vs. Low SOC on absence of AD) Odds ratio = 2.32, $p < 0.01$ (High vs. low SOC on absence of AD) Odds ratio = 4.32, $p < 0.01$

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Table 20.1 (continued)

Study	Sample	Method of operationalizing MIL–PIL	Method of operationalizing drug and/or alcohol involvement	Relationship between MIL–PIL and drug and/or alcohol involvement
11. Johnson et al. (2008)	515 young adults (college students)	Search for meaning (latent factor derived from confirmatory factor analysis)[6]	Method 1 (M1): alcohol consequences Method 2 (M2): peak consumption Method 3 (M3): alcohol composite (frequency of consumption × quantity of consumption)	M1: $\beta = -0.15$, $p < 0.001$ M2: $\beta = -0.09$, $p < 0.05$ M3: $\beta = -0.11$, $p < 0.05$
12. Okasaka et al. (2008)	664 undergraduates (M age = 20.3) Group 1: no addiction ($n = 538$) Group 2: alcohol addictive tendencies ($n = 44$) Group 3: alcohol addiction ($n = 104$)	Purpose in life test (PILT)	Hazardous and problematic use (Kurihama alcoholism screening test)[18]	Group 1: M PIL = 90.4 Group 2 M PIL = 89.7 Group3 M PILT= 91.3 F = NR, p = n.s.
13. VonDras et al. (2007)	151 young adults (M age = 21)	Existential well-being (EWB; SWBS)[7]	Method 1 (M1): frequency of alcohol consumption Method 2 (M2): quantity of alcohol consumption	M1: $r = -0.16$, $p < 0.05$ M2: $r = -0.10$, p = n.s.
14. Beckwith (2006)	396 young adults (age range = 18–25)	Existential well-being (EWB, SWBS)	Method 1 (M1): frequency of alcohol consumption Method 2 (M2): quantity of alcohol consumption Method 3 (M3): alcohol composite (frequency of consumption × quantity of consumption) Method 4 (M4): alcohol consequences	M1: $r = -0.13$, $p < 0.01$ M2: $r = -0.16$, $p < 0.01$ M3: $r = -0.09$, p = n.s. M4: $r = -0.25$, $p < 0.01$

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Table 20.1 (continued)

Study	Sample	Method of operationalizing MIL–PIL	Method of operationalizing drug and/or alcohol involvement	Relationship between MIL–PIL and drug and/or alcohol involvement
15. Wood and Hebert (2005)	606 young adults (M age = 21)	Spiritual meaning (SM; PMS)[8]	Method 1 (M1): frequency of alcohol consumption (last 30 days) Method 2 (M2): frequency of alcohol and Illicit drug consumption (last 30 days) Method 3 (M3): alcohol composite (frequency of consumption × quantity of consumption)	M1: $r = -0.29$, $p < 0.01$ M2: $r = -0.17$, $p < 0.01$ M3: $r = -0.28$, $p < 0.01$ Mean SM in alcohol and drug abstainers = 3.92 Mean SM in alcohol and drug non-abstainers = 3.58 $t = 4.22$, $p < 0.01$
16. Nam et al. (1994)	344 young adults (modal age category = 21–25)	Method 1 (M1): purpose in life (PILT) Method 2 (M2): existential anxiety[9] Method 3 (M3): powerlessness[10]	Alcohol and drug involvement	Regression findings: M1: β = −0.20 M2: β = 0.18 M3: β = 0.14 Overall regression model: $F = 14.75$, $p = 0.0001$
17. Shillingford (1991)	150 young adults (M age = 20)	Method 1 (M1): meaninglessness[11] Method 2 (M2): Purpose in life test—revised (PILT-*R*)	Alcohol-related symptoms, behaviors, and beliefs (alcohol use inventory: general alcoholism scale)[19]	M1: $r = 0.21$, $p < 0.05$ M2: $r = -0.11$, p = n.s.
18. Schwarz et al. (1978)	242 young adults (undergraduate college students)	Boredom susceptibility (BI; SSS)[12]	Alcohol Composite (frequency of consumption × quantity of consumption)	$r = 0.27$, $p < 0.001$
Unweighted mean Pearson r †				$r_{um} = 0.21$

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Table 20.1 (continued)

Study	Sample	Method of operationalizing MIL–PIL	Method of operationalizing drug and/or alcohol involvement	Relationship between MIL–PIL and drug and/or alcohol involvement
Adult Studies				
19. Kleftaras and Katsogianni (2012)	200 adults (M age = 44.1)	Method 1 (M1): existential vacuum (EV; LAP)[13] Method 2 (M2): goal seeking (GS; LAP)	Hazardous use (AUDIT; alcohol use disorders identification test)	M1: $r = -0.19$, $p < 0.01$ M2: $r = -0.15$ $p < 0.01$
20. Arevalo et al. (2008)	393 female adults (M age = 33.7)	Sense of coherence (SOC)	Severity of use (alcohol and drug addiction severity index)[20]	Path Coefficient = 0.08, p = n.s.
21. Neuner et al. (2006)	1,833 adults (M age = 34; 62 % male, 38 % female)	Sense of coherence (SOC)	Hazardous use (AUDIT; alcohol use disorders identification test)	Odds ratio between lowest SOC quartile and highest SOC quartile = 1.99, $p < 0.05$
22. Stewart et al. (2006)	1,709 adults from ProjectMATCH sample (M age = 40.3) Male participants (n = 1,292) Female participants (n = 417)	Purpose in life test (PILT)	Drinking intensity (drinks per drinking day)	All participants: $\beta = -0.48$, $p < 0.001$ Males only: $\beta = -0.45$, $p < 0.001$ Females only: $\beta = -0.73$, $p < 0.001$
23. Krause (2003)	1,162 adults (66 years of age or older; 43 % older men, 57 % older women)	Sacred meaning (SM)[14]	Frequency of alcohol consumption (abstinence)	Odds ratio = 1.16, $p < 0.01$
24. Staton et al. (2003)	661 adults (M age = 31)	Existential well-being (EWB; SWBS)	Alcohol composite (frequency of consumption × quantity of consumption)	$r = -0.09$, $p < 0.05$
25. Tsuang et al. (2002)	Group 1: 100 males twins Group 2: 100 male twins	Existential well-being (EWB; SWBS)	Symptoms of alcohol abuse or dependency	Group 1: $r = -0.36$, $p < 0.001$ Group 2: $r = -0.27$, $p < 0.01$
26. Harlow et al. (1999)	545 female young adults (M age = 32)	Psycho-existential distress (PED)[15]	Alcohol composite (frequency of consumption × quantity of consumption)	$r = 0.13$, $p < 0.01$ Coefficient for cross-lag model: $\beta = 0.06$, $p < 0.05$ (T1 PED, T2 alcohol composite)

(continued)

Table 20.1 (continued)

Study	Sample	Method of operationalizing MIL–PIL	Method of operationalizing drug and/or alcohol involvement	Relationship between MIL–PIL and drug and/or alcohol involvement
27. Midanik et al. (1992)	Group 1: 952 adults (M age = 62) Group 2: males only (n = 545) Group 3: females only (n = 407)	Sense of coherence (SOC)	Alcohol consequences	Group 1: $r = -0.19$, $p < 0.001$ Group 2: $r = -0.22$, $p < 0.001$ Group 3: $r = -0.17$, $p < 0.001$
28. Dull (1983)	1,322 adults (M age = NR)	Anomie[16]	Frequency of alcohol consumption (lifetime and past year)	$r = 0.06$, $p < 0.01$
Unweighted mean Pearson r †				$r_{um} = 0.18$
Aggregate lifespan unweighted mean Pearson r †				$r_{um} = 0.24$

Footnotes pertaining to method of operationalizing MIL–PIL [1]The sense of coherence scale (Antonovsky 1993); [2]Purpose in life test (PILT) (Crumbaugh 1968); [3]Contains items related to: loneliness, depression, meaninglessness, and suicidal ideation; [4]Secular and spiritual meaning scale (Hart 2009); [5]Two items from Beck depression inventory (Beck et al. 1961) and one item from the personality diagnostic questionnaire (Hyler and Rieder 1987); [6]Factor comprised of : (1) Will to meaning and goal seeking subscales on the life attitudes profile (Reker and Peacock 1982), and (2) Personal Growth and Altusitic Life Goals subscales on the personal commitments scale (Novacek and Lazarus 1990); [7]Existential well-being subscale from the spiritual well-being scale (Ellison 1983); [8]Pargament Spiritual Meaning Scale (PSMS Pargament 1999); [9]The existential anxiety scale (Good and Good 1974); [10]The powerlessness scale (Neal and Seeman 1964); [11]Three single items used by Newcomb and Harlow (1986); [12]Boredom susceptibility subscale from the sensation seeking scale (Zuckerman et al., 1964); [13]Existential vacuum from the life attitudes profile; [14]Three-item measure of religious meaning developed by Krause (2003); [15]Assessed using the following four indicators: (1) a modified version of the PILT, (2) Hopelessness (Beck et al. 1974), (3) Self-derogation (Kaplan 1976), and (4) Powerlessness (adapted from Newcomb and Harlow 1986); [16]Strole anomie scale (Strole 1956)

Footnotes pertaining to method of operationalizing drug and/or alcohol involvement [17]AUDIT alcohol use disorders identification test (AUDIT Saunders et al. 1993); [18]Kurihama alcoholism screening test (Saito and Ikegami 1978); [19]The alcohol use inventory (Horn et al. 1986); [20]The addiction severity index (McLellan et al. 1980). Other footnotes: [a]Beta coefficient reflects the link between PILT and frequency of alcohol use, controlling for crystallized abilities; [b]Analyses controlled for gender, agreeableness, conscientiousness, and religiosity/spirituality; [c]p-values were not reported for individual regression coefficients; however, the overall regression model including all variables significantly predicted drug and alcohol involvement

†Only significant r's were in cluded in unweighted mean calculations. Valence was not considered since methods used to operationalize MIL–PIL and AOD varied across studies (e.g., "purpose in life" vs. "psycho-existential distress" yield negative and positive Pearson r correlations with problematic AOD involvement, respectively)

Table 20.2 A summary of quantitative studies that have compared levels of meaning or purpose in life (MIL–PIL) in clinical samples of persons at the point of treatment intake versus nonclinical ("normal") samples who are not in treatment

Study	When was MIL assessed during treatment?	Composition of treatment group(s)	Composition of comparison group(s)	Method of operationalizing MIL–PIL	Findings (mean comparisons)
1. Saunders et al. (2007)	Within the first 2 weeks of treatment	Group 1: 80 problem drinkers in outpatient alcohol treatment setting (M age = 38)	Group 2: 106 nontreatment seeking adults (M age = 41)	Existential well-being (EWB/SWBS)[1]	Group 1 EWB = 37.6 versus Group 2 EWB = 47.4, $t = 7.66$, $p < 0.001$ $t = 7.66$, $p < 0.001$
2. Butler et al.(2006)	Within the first 2 weeks of treatment	242 adults (M age = 38) Group 1: inpatients ($n = 142$) Group 2: aftercare ($n = 100$) Over half of Groups 1 and 2 in treatment for alcohol abuse (56 %)	237 nontreatment seeking adults (M age = 42) Group 3: with substance use problems ($n = 30$) Group 4: without substance use problems ($n = 207$)	Existential meaninglessness (EM/ASAT)[2]	Group 1 EM = 2.0, Group 2 EM = 1.6,Group 3 EM = 0.80, Group 4 EM = 0.30 $F = 257.4$, $p < 0.001$ Post-Hoc Comparisons Group 1 > Group 2 > Group 3 > Group 4, $p < 0.001$ for all post-hoc comparisons
3. Fassino et al. (2004)	Within the first week of treatment	Group 1: 115 heroine abusing adults with a comorbid personality disorder in residential treatment Group 2: 55 heroine abusing adults without a personality disorder in residential treatment	Group 3: 63 nontreatment seeking adults	Existential well-being (EWB/MQoL)[3]	Group 1 EWB = 34.4 versus Group 2 EWB = 44.0 versus Group 3 EWB = 49.3 $F = 56.04$, $p < 0.001$ Post-Hoc comparisons Group 1 < Group 2 < Group3, $p < 0.05$ for all post-hoc comparisons

(continued)

Table 20.2 (continued)

Study	When was MIL assessed during treatment?	Composition of treatment group(s)	Composition of comparison group(s)	Method of operationalizing MIL–PIL	Findings (mean comparisons)
4. Nicholson et al. (1994)	Within the first 2 weeks of treatment	Group 1: 49 inpatient drug abusers (*M* age = 29)	Group 2: 49 nonclinical matched controls (*M* age = 29)	(1) Method 1: personal meaning (PM/LAP)[4] (2) Method 2: Purpose in life test (PILT)[5]	Group 1 PM = 55.5 versus Group 2PM = 64.6 $F = 14.47$, $p < 0.001$ Group 1 PILT = 79.0 versus Group 2 PILT = 83.5 $F = 8.64$, $p < 0.01$
5. Waisberg (1990)	Within the first week of treatment	Group 1: 146 adults Participants were in early treatment (or waitlisted) at four different substance abuse treatment programs. Programs involved inpatient and outpatient treatment. The majority of participants were seeking help for alcohol-related problems (*M* age of waitlisted or treatment participants was always ≥ 27)	Group 2: the author used a mean PILT score reported by Crumbaugh and Maholick (1969) corresponding to the general population[a]	Purpose in life test (PILT)	Group 1 PILT = 86.01 versus Group 2 PILT = 102 $t = -8.3$, $p < 0.0001$

Footnotes pertaining to method of operationalizing MIL–PIL [1]Existential well-being subscale from the spiritual well-being scale (EWBL; SWBS Ellison 1983); [2]Existential meaninglessness from the addiction severity assessment tool (EM; ASAT Butler et al. 2006); [3]Existential well-being subscale from the McGill quality of life questionnaire (EWB; MQoL Cohen et al. 1996); [4]Personal meaning index composite scale from the life attitudes profile—revised (PM; LAP Reker, 1991); [5]Purpose in life test (PILT, Crumbaugh 1968)
Other footnotes [a]Mean value based on 1,151 cases

As can be seen in Table 20.1, a total of 36 Pearson *r* correlations were recorded. Of these statistical effects, 28 were found to be statistically significant (77 %). In a cursory effort to identify factors that might moderate the strength of the association between AOD involvement and MIL–PIL, we considered different age-bands across the lifespan. To set the stage for this analysis, we observed that the sheer number of statistical tests (zero-order correlational analyses in this case) was evenly distributed across lifespan categories. For example, there were 13 Pearson *r* values involving adolescent samples. Of these, 8 were found to be statistically significant (62 %). Similarly, there were 13 Pearson *r* values involving young adult samples. Of these, 10 were found to be statistically significant (77 %). Lastly, there were 10 Pearson *r* values involving older adult samples. Of these effects, all 10 were found to be statistically significant (100 %). We tentatively concluded that the probability of finding a statistically significant effect increases as respondents get older. Indeed, this is the picture we pieced together upon restricting our attention solely to *p*-values.

Upon shifting our attention away from statistical significance and toward the size and strength of statistical effects, we found that the magnitude of significant effects varied as a function of age band.

A group of seven studies reported findings testing the link between MIL–PIL and AOD involvement in adolescents who were not in treatment. Research involving these 2,266 novice AOD users yielded a total of 15 statistical effects. Less than 100 % of these effects reached statistical significance, and less than 100 % of them were Pearson *r* values. When we restricted our attention to statistically significant Pearson *r* values, we arrived at a mean aggregate unweighted effect size of 0.33. From this analysis, we estimate that MIL–PIL accounts for 8.36 % of the variance in AOD involvement among nontreatment seeking adolescents. This estimate, however, is clearly quite liberal since it is derived only from significant Pearson *r* values. Nonetheless, it is rather impressive, considering many behavioral and social scientists are happy to explain even 5 % of their outcome variance.

In an effort to reduce the level of bias inherent within our estimate, we replicated the analysis shown above using the full pool of Pearson *r* values. This pool of effects included both null Pearson *r* values and those which reached statistical significance. This adjustment resulted in a more conservative mean aggregate unweighted Pearson *r* effect size of 0.25. Accordingly, the estimate derived from this analysis suggests that MIL–PIL explains 6.25 % of the outcome variance in AOD involvement among nontreatment seeking adolescents.

A comparison between liberal and conservative estimates shows a size reduction of 24.24 %. While the "true" effect size for 100 % of the adolescent population is unknown, it may be somewhere between 0.25 and 0.33. Caution is urged when interpreting these findings because they are derived from zero-order correlational analyses. If, in the future, more sophisticated statistical methods become the norm, the effect size estimates we report here may prove to be inaccurate.

For the next age cohort (i.e., nontreatment seeking young adults), Table 20.1 shows a group of 11 studies that report findings testing the link between MIL–PIL and AOD involvement. Research involving these 8,463 AOD users yielded a total of

29 statistical effects. Less than 100 % of these effects reached statistical significance, and less than 100 % of them were Pearson *r* values. When we restricted our attention solely to statistically significant Pearson *r* values, we arrived at a mean aggregate unweighted effect size of 0.21. From this analysis, we estimate that MIL–PIL accounts for approximately 4.41 % of the variance in AOD involvement among younger adults. Since this estimate is derived only from significant Pearson *r* values, it may represent a liberal approximation of the "true" effect between MIL–PIL and AOD involvement in young adults.

In an effort to reduce the level of bias inherent within our estimate, we replicated the above analysis using the full pool of Pearson *r* values. This pool of effects included both null Pearson *r* values and those which reached statistical significance. This adjustment resulted in a more conservative mean aggregate unweighted Pearson *r* effect size, which we determined to be 0.18. Accordingly,the estimate derived from this analysis indicates that MIL–PIL explains 3.24 % of the outcome variance in AOD involvement among younger adults.

A comparison between liberal and conservative estimates shows a size reduction of 14.29 %. While the "true" effect size for 100 % of the young adult population is unknown, it may lie somewhere between 0.18 and 0.21. Again, this estimate range should be interpreted with caution because it is derived solely from zero order correlational analyses. If, in the future, more sophisticated statistical methods become the norm, the effect size estimates we report here may prove to be inaccurate.

For the final, most elderly age cohort (i.e., nontreatment seeking older adults), Table 20.1 shows a group of 10 studies that report findings testing the link between MIL–PIL and AOD involvement. Research involving these 8,977 AOD users yielded a total of 17 statistical effects. Again, not all of these effects reached statistical significance, and not all of them involved Pearson *r* values. When we restricted our attention to statistically significant Pearson *r* values, we arrived at a mean aggregate unweighted effect size of 0.18. From this analysis, we estimate that MIL–PIL accounts for 5.76 % of the variance in AOD involvement among older adults. Since this estimate is derived solely from significant Pearson *r* values, it represents a liberal approximation of the "true" effect between MIL–PIL and AOD involvement in older adults.

We were not able to find any nonsignificant Pearson *r* values in published studies involving older adult samples. Of course, this may be a cultural artifact of the tendency within academia to publish significant findings more often than null findings. This phenomenon—known as the "file drawer effect"—is a serious limitation to literature reviews and meta-analyses seeking summative answers to research their questions.

Although our initial analysis of *p*-values showed the adolescent age-band to have a comparatively lower probability of achieving statistical significance, Pearson *r* values for younger respondents tended to be rather strong in magnitude. As was previously indicated, the unweighted mean effect size averaging all of the significant Pearson *r* values across adolescent samples is 0.33. The magnitude of this value is 57 % larger than the unweighted mean effect size corresponding to young adults ($r_{um} = 0.21$), and 83 % larger than the unweighted mean effect size

corresponding to older adults ($r_{um} = 0.18$). Notably, these values represent liberal estimates derived from analyses involving significant Pearson *r*'s only.

The effect size disparity among age cohorts is far less distinct when conservative effect size estimates are considered. Using these estimates, the magnitude of the association between MIL–PIL and AOD involvement is only 39 % larger among adolescents ($r_{um} = 0.25$) than younger and older adult samples alike ($r_{um} = 0.18$).

As can be seen in Table 20.1, when all three lifespan categories are collapsed together, the total unweighted mean effect size linking MIL–PIL to AOD involvement is 0.24. This value provides a liberal estimate averaging Pearson *r* values reported as statistically significant. Comparatively, a more conservative estimate involving the total pool of Pearson *r* values across age cohorts is 0.21. Although we observed some attenuation between liberal and conservative estimates of the unweighted mean effect across all age cohorts, the amount was negligible.

Table 20.1 also takes stock of the methods used across various studies to assess MIL–PIL. Here we noted a substantial amount of heterogeneity among Table 20.1 studies in terms of the measures used to operationalize MIL–PIL. In total, we found 16 different measures of MIL–PIL assessment. The most frequently used measure was Crumbaugh's (1968) Purpose in Life Test (PILT), which was used in a approximately a third of all Table 20.1 studies (9/28 studies; 32 %). Next in popularity were Antonovsky's (1983) Sense of Coherence Scale (SOC) (5/28 studies; 18 %) and Paloutzian and Ellison's (1983) Existential Well-Being factor from their Spiritual Well-Being Scale (EWB from SWBS) (4/28 studies; 14 %). We sought to compare the proportion of significant versus null findings for each of these most commonly used measures of MIL–PIL. Our analysis revealed that 37, 10, and 22 % of findings involving PILT, SOC, and EWB operationalizations yielded null results, respectively. We consider AOD scholarship in this area to be in its embryonic stage of development. As such, we refer to this body of work as first generation research. One direction for second generation research is to better understand why different ways of assessing MIL–PIL seem yield different chances for reaching statistical significance.

We were also mindful to examine whether or not the method of assessing MIL–PIL varied as a function of membership in one of the lifespan age-bands. We discovered that five out of nine studies using the PILT (56 %) tested for MIL–PIL effects in adolescent samples. In contrast, SOC and EWB measures were more commonly employed among studies involving younger and/or older adult samples. Given that many high magnitude effects were found among studies involving youthful participants, it remains difficult to disentangle whether the pattern of large adolescent effect sizes is due to a lifespan effect or an operational/methodological effect. Moreover, the simultaneous combination of both lifespan and operational/methodological effects could be influencing the strength of the relationship between MIL–PIL and AOD involvement. In either case, the pattern of the significant effects is consistent with the prevailing salutogenic model that suggests high levels of MIL–PIL may "immunize" people against developing problems with AOD. While high levels of MIL–PIL may shield people, low levels may serve to increase their risk of misuse by rendering them psychologically vulnerable.

Tremendous heterogeneity among Table 20.1 studies was also observed in terms of the methods used to operationalize AOD involvement. Our analysis of this variation showed that most studies used operationalization methods fitting within two major categories: (1) AOD "use" (13/28 studies; 46 %), and (2) AOD "abuse" (12/28 studies; 43 %). The AOD "use" category was comprised mainly of frequency, quantity, or composite (frequency × quantity) measures of consumption, whereas the AOD "abuse" category was comprised mainly of measures of severity, hazardous/harmful consumption, symptomatology (i.e., dependence or abuse), or drug and/or alcohol-related consequences.

An exploratory effort was made to test for possible moderating influences of disparate methods used to operationalize AOD involvement. Specifically, we examined whether or not statistical effects varied as a function of variability in methods used to operationalize AOD involvement. In this analysis, we compared the proportion of significant versus null findings that were reported among studies employing "use" and "abuse" measures of AOD involvement. Our analysis revealed that 21 and 14 % of findings involving "use" and "abuse" categories yielded null results, respectively. In other words, it was more probable that a significant MIL–PIL effect would be found if AOD involvement was assessed by means that suggested pathological involvement (e.g., DSM symptom levels, negative drinking consequences, etc.).

To further add to our analysis of possible moderating effects, we observed a trend in Table 20.1 which might possibly be interpreted as a two- or three-way interaction. Given the multiple layers of uncertainty, we have little confidence in drawing any firm conclusions, except that more research is needed. Permit us to explain. Inspection of the data shown in Table 20.1 suggests a unique configuration or pattern where method of operationalizing AOD involvement may "interact" with a respondents' age, which may, in turn, increase the probability of finding significant results. The reader will recall that we addressed three periods across the lifespan of participants featured in Table 20.1. For the youngest cohort (i.e., adolescent AOD users), we found that 100 % of the reported studies operationalized AOD involvement using a nonpathological measure of "use". This fact is intriguing because the strongest effect sizes also seemed to cluster within the adolescent age-band. Trends such as this lead us to speculate that the strength of the association between MIL–PIL and AOD involvement may fluctuate as a function of: (a) lifespan category, and/or (b) operationalization of MIL–PIL, and/or (c) operationalization of drug and/or alcohol involvement, and/or (d) some cross-tabulation or interaction among these factors.

Table 20.1 Summary and Discussion

To the best of our knowledge, Table 20.1 is the first-ever comprehensive effort to collate and distill empirical research examining the question of whether or not MIL–PIL is related to levels of AOD involvement amongst drinkers who,

from the Transtheoretical perspective, might be classified as falling in the precontemplation or contemplation stages of change. Our answer to this question is a strong but qualified "yes."

Most of the statistical effects that were considered (79 %) showed that MIL–PIL was scores were related—in ways that are statistically significant—to the use and abuse of AOD in nonclinical samples. Our conclusion, therefore, is that the two variables are related. This conclusion is based on our analysis of trends found in an aggregate sample of 19,706 drinkers represented in Table 20.1. When we collapsing across all three age-bands, we found a total of 28 studies. From these studies, a grand total of 61 statistical effects were reported (these statistical effects are shown in the far right column of Table 20.1). Of these statistical effects, 48 proved to be statistically significant. On average then, about 8 out of 10 studies that have tested for a connection between MIL–PIL and AOD involvement have found it.

Table 20.1 also shows that the direction of all 48 statistically significant effects is in the predicted direction. That is, none of the significant effects are in a direction opposite to what existing theory would lead us to hypothesize. A number of theoretical formulations have inspired empirical hypotheses asserting that high levels of MIL–PIL contribute to more favourable adjustment outcomes. We have dubbed this interpretation the "etiologic model." Examples of conceptual frameworks that have conferred the MIL–PIL construct with etiologic status include: (1) the literature on goal-theory (e.g. Ken Sheldon, Robert Emmons), (2) the literature on existential-humanistic psychology (e.g. Viktor Frankl, Rollo May, Paul TP Wong), and (3) the literature on positive psychology (e.g. Carol Ryff, Martin Seligman, Todd Kashdan). Theoretical frameworks derived from these three areas converge to suggest that high levels of MIL–PIL play an active role in "causing" or contributing to positive adjustment, optimal health, and high levels of well-being.

If we extrapolate from these theoretical perspectives and apply them to the findings compiled in Table 20.1, we are lead to conclude that people who have a strong sense of MIL–PIL are better adjusted in terms of their relationship with alcohol and/or other drugs. While MIL–PIL may be especially relevant to understanding the initiation aspect of AOD involvement (the biggest effect size, $r = 0.33$, was seen in the adolescent subsample), age stratified results shown in Table 20.1 suggest: (1) MIL–PIL could also be germane to understanding continued use and maintenance of AOD (the effect size for young adults was $r = 0.21$) and (2) to understanding how AOD involvement escalates to pathological involvement (the effect size for older adults was $r = 0.18$).

When taken together, this tripartite pattern of findings leads us to propose the influence of MIL–PIL may not be equal across the inflection points of the developmental progression of AOD. From a life span perspective, this pattern of findings leads us to speculate that MIL–PIL may contribute more strongly to the earliest stage of AOD use (during adolescence). Comparatively speaking, MIL–PIL seems to have a lesser effect on subsequent stages of AOD involvement, stages that involve progression to habitual use and misuse (in young adulthood), and dependence and addiction (in adulthood).

Hopefully, future scholars will use more rigorous designs and more sophisticated statistical methods to tease out the putative differential effects of MIL–PIL on experimental use, regular use, misuse, dependence and addiction. Because most of the studies shown in Table 20.1 employ cross-sectional correlational designs, longitudinal studies are needed that assess and control confounding influences. Because most studies in Table 20.1 used Pearson correlations in their statistical analyses, we recommend that second generation studies be mindful to improve on statistical conclusion validity. This can be achieved by using more sophisticated data analytic methods such as multiple regression, path analysis, and structural equation modeling.

At this point, we wish to speculate about the mediating mechanisms and processes that might account for why MIL–PIL 'causes' or contributes to lesser use and/or abuse of alcohol. We begin with the assumption that youth who are pursuing goals in life which they feel are meaningful (and who therefore feel a strong sense of purpose) are simply less apt to take part in experimental drinking because they are otherwise preoccupied. Such a "differential exposure model" suggests that, compared to their more disinterested and bored counterparts, youth who are energetically and vitally engaged in goal pursuits are less likely to encounter social situations where AOD involvement is more likely to occur. Accordingly, MIL–PIL may serve a protective function to "immunize" people against developing AOD problems by means of distraction or displacement.

Related to this issue, it is possible that individuals who are engaged in pursuing meaningful goals might also lack the motivation to drink or take other drugs simply because doing so could sabotage chances of successful goal attainment. For instance, this logic might explain why a star basketball player belonging to a high-school or college team chooses to abstain from heavy drinking or illicit drug use to preserve the health and performance gains achieved as a result of their training.

People suffering from boredom or disengagement who also lack involvement in activities deemed to be worthwhile (whether they are adolescents, young adults or adults) may be looking for ways to escape a dull and monotonous existence. It is likely that some of these individuals may gravitate toward AOD as an escape/avoidance coping mechanism. During the initial stage of an episode of intoxication, some of these substance users may experience strong positive subjective feelings of significance and meaningfulness. Such phenomenological experiences are plentiful in anecdotal case reports of neophyte drinkers and persons who smoke marijuana. As a consequence of the neuropsychological effects of these and other kinds of mind-altering drugs, even trivial pursuits can be perceived as profoundly meaningful when a person is drunk or high.

For the AOD user who lacks MIL–PIL in their "sober life," this illusory sense of MIL–PIL can serve as a strong positive reinforcer for continued involvement with AOD. In this way, baseline levels of meaninglessness may create a psychological vulnerability amongst nonclinical samples of drinkers by making them vulnerable to experiencing high levels of positive reinforcement when passing through the ascending (blood alcohol) phase of drug intoxication.

A chemically exaggerated sense of meaning and purpose in life may, in part, explain why the AOD trajectory for people who are new to drinking or other drug taking progress from occasional experimental use, to habitual or regular use. It is typical that the motive for drinking or taking drugs shifts as a function of the passage of time. In this way, repeated experience with the ascending phase of intoxication can provide appetitive motivation that strengthens AOD involvement. Over time, the counterfeit experience of MIL–PIL may deflect a novice AOD user's consumption trajectory toward the direction of abuse and/or dependence. However, other processes may operate in later developmental stages of a person's drinking or other drug-taking career. As age and AOD experience unfold across time, it may become more difficult to extract the same quality of "meaningful euphoria" that was once experienced with ease during the early years.

We offer the following speculation as a tentative model of AOD progression. While our line of reasoning focuses on the development of alcohol misuse, the logic is meant to extend to other drugs of choice. With the passage of time, as drinking careers mature, people who lack MIL–PIL may be especially likely to undergo a shift in the nature of their involvement with alcohol toward unhealthy patterns of use. By contrast, high levels of MIL–PIL may protect social drinker from evolving into problem drinkers. The drinking trajectory of those who are vulnerable may be deflected, over time, away from regular use and toward dependence and addiction. By definition, misusers will show a pattern of repeated episodes of intoxication. These episodes, in turn, may contribute to an accumulation of undesirable life situations such as problems at work, job loss, failure in other kinds of achievement settings, lost or damaged health, lost or damaged relationships, legal problems, and the like. As life stress events continue to escalate, mounting levels of negative affect may motivate efforts to manage emotions by means of increased alcohol consumption (affect relief drinking). During the second half of the "wet" phase of the drinking career of alcoholism, intensified misuse of alcohol would surely worsen existing problems and generate new ones. In this way, a self-reinforcing downward cycle would be established. Counsellors who are familiar with the AA model will recognize this as the graduate process that leads up to another inflection point: "hitting bottom." From our point of view, the most significant aspect about these negative life events relates to the psychoexistential repercussions they generate.

Although we could not find any data in support the following line of thinking, we can envision an existential-developmental model that may account for some of the processes that might be involved in the maintenance of AOD misuse and in its progression. We start by speculating that negative events and undesirable circumstances that are consequences of AOD misuse will be experienced as being especially aversive in when they diminish valuable sources of MIL–PIL. A corollary of this is that types of AOD consequences that damage or destroy the root sources of MIL–PIL may enlarge the size of a person's existential vacuum far more than types of AOD consequences that leave the roots intact.

As a caveat, light social drinking may actually help sustain or replenish factors that contribute to MIL–PIL. Responsible use of alcohol may have a salutary effect,

in part, because social drinking may facilitate growth in social network factors that serve as wellsprings to a strong positive sense of MIL–PIL.

There are several ways in which the life consequences of AOD misuse can undermine perceptions of MIL–PIL and heighten levels of *existential* distress. For instance, habitual misuse of AOD may affect brain function in such a way as to impair the cognitive ability to make sense out of the events and situations of life. As a result, coherent understandings of the circumstances of one's life may be more difficult to formulate. In the same way, imbuing meaning on emotional or somatic experiences may prove difficult. Repeated episodes of AOD intoxication may also result in memory loss (blackouts) which, in turn, can disrupt a person's sense that their life makes sense and that circumstances of the past and present cohere in ways that are predictable and orderly. If these kinds of cognitive disruptions persist over time, it is easy to see how repeated episodes of AOD intoxication can give rise to a chronic subjective sense of confusion, perceptions of capriciousness, and a sense of inner chaos. Clearly, these states of mind are antithetical to the cognitive ability to make or perceive meaning. Finally, chronic intoxication due to AOD misuse may weaken commitment to valued purposes and erode personal values. This, in turn, may rob a person of their motivation to achieve valued goals.

Chronic misuse of alcohol and other drugs may also lead to reductions in MIL–PIL in other ways. In regards situational and ecological pathways, stressful life events that are generated as a result of AOD misuse can alter a person's life context in a way that deprives them of opportunities to achieve valued goals. As a result, sense of purpose will be diminished. Imagine the case of a substance abuser who's job requires them to rely on their automobile to meet occupational goals. If such a person loses their licence because of an accident, or because the legal system finds them guilty of driving whilst intoxicated, they may experience emotional distress. At the same time, they may also experience existential suffering. Emotional distress can arise because of fears of economic insecurity. In addition, if employment had provided a meaningful sense of purpose, the out-of-work substance abuser will also experience existential distress. By comparison, if the substance abuser's work life was a source of boredom, the size of their existential vacuum would be that much less.

AOD misuse can lead to a weakening of a person's sense of MIL–PIL in at least three additional ways. Alcohol dependence or addiction can strip people of opportunities that cultivate the growth and development of MIL–PIL. In particular, Frankl (1963, 1984) suggests that chronic misuse of alcohol or other drugs can hamper a person's ability to derive benefit from three existential tasks (a) engaging in activities that permit creative expression, (b) having memorable encounters with higher order aesthetic experiences (e.g., appreciation of beauty or gratitude); and (c) making attitudinal adjustments that enable reframing of uncontrollable facts and aversive personal experience.

Our tentative developmental model further proposes the following. Over time, if AOD misuse continues to generate negative life events, key sources of MIL–PIL will continue to erode. As a consequence, "existential vacuum" (EV; Frankl, 1963, 1984)

will also continue to grow. The distressing experience of inner emptiness that accompanies a loss of meaning and purpose may grow for years or decades before the existential suffering becomes especially difficult to bear. How much time it takes for a person to hit their intrapsychic bottom depends, in part, on the specificity of the negative life consequences of AOD misuse. In some cases, key sources of MIL–PIL can be preserved because the consequences of misuse may selectively impact areas of life that are irrelevant to a person's sense of meaning and significance. In other cases, the consequences of AOD misuse may quickly destroy core sources of MIL–PIL." Under these circumstances, lack of MIL–PIL would be the result of drinking or drug taking, rather than the cause of it.

Eventually, as the veteran substance misuser approaches closer to the end of the active or "wet" phase of their AOD career, their growing sense of inner void may deepen and transform to a terrifying experience of chronic psycho-existential despair. Frankl (1963, 1984) has termed this inner state of utter bankruptcy "noogenic neurosis." Again, this line of thinking suggests negative life consequences of alcohol misuse can sometimes hasten the subjective experience of hitting a spiritual or existential "bottom"—provided that the life stressors selectively damage the root sources of MIL–PIL. Sooner or later, under these circumstances, a history of AOD misuse will culminate in a unique form of unhappiness. From a positive psychology standpoint, this type of suffering approximates the antithesis of eudaimonic well-being

Toward the end of an AOD career, after a person has reached their lowest point of psycho-existential well-being, continued misuse of substances will tend to be maintained through the process of negative reinforcement. In particular, AOD consumption will be motivated by a desire to escape or avoid the experience of noogenic neurosis and achieve oblivion. At this stage, alcohol and other drugs will be used, primarily, as anesthetics that dull the suffering of an empty and pointless existence.

The motive of escape and avoidance stands in marked contrast to the approach motive that drives substance use in curious young people who find themselves at the stage of initial experimentation. For neophyte substance users, positive reinforcement will tend to drive drinking and drugging. This may be especially true for inexperienced youth who lack meaning and purpose in their "sober life." Youngsters who are already bored with their life and disengaged from goal pursuit when sober will surely find greater incentive value in the chemically fueled sense of meaning that can arise during the ascending phase of intoxication.

How do veteran alcoholics (or addicts) break out of the downward cycle of misuse? Empirical evidence bearing on this question is difficult to find. Theory is far more plentiful. We propose that, in some cases, toward the end of a drinking or drug– taking career, psycho-spiritual suffering associated with the experience of existential despair may become therapeutic in nature. For reasons that are poorly understood, "creative suffering" can cause an upward shift on the ladder of readiness to change.

When suffering strengthens motivation to change, substance misusers who find themselves standing on the precontemplation step of the ladder of change may be

nudged up a rung. People who move up will shift their cognitive energy to the task of contemplating the pros and cons of quitting or cutting back. Meanwhile, creative suffering may cause people who are standing on the contemplation step of the ladder of readiness to change to move up a rung to the preparation step. These people will devote considerable attention to planning strategies that may lead to the goal of quitting and cutting back. It may take months or years to migrate from the precontemplation stage to the preparation stage. Finally, at the very end of the "wet" period of the drinking or drugging career, creative suffering may cause people who are in the preparation stage of change to shift upward to the action stage of change. These people may take action by seeking professional treatment or by attending mutual aid support groups (like Alcoholics Anonymous or Narcotics Anonymous) or by implementing a plan for "natural change."

Little is known about the nature of creative suffering or about its role in helping people break out of the cycle of addiction. Frankl (1984), however, hints at the existence of a healing power that may spring into action during difficult times characterized by extreme suffering. He calls this force "the defiant power of the human spirit." To date, scientific study of this mysterious power has been lacking. This is a call for creative scholars everywhere to embark on studies that will advance knowledge of the "defiant power" construct. Based on the writings of Frankl, we expect future conceptual elaboration will reveal this healing force can be triggered when people have an honest encounter with the limits of their human powers, which leads them to surrender and give into deep despair

Summary: An Existential-Developmental Model of AOD Etiology

Because our proposed model of the initiation, progression, and evolution of AOD involvement has yet to be tested, it should be recognized as speculation in search of empirical validation. Our model envisions a temporally sequenced, dynamic, and bidirectional relationship between MIL–PIL and AOD involvement. We have adopted a life span approach, suggesting the possible existence of different developmental pathways at each of the "inflection points" for people scoring high or low on MIL–PIL.

The calendar of our existential-developmental model starts at the point immediately prior to the first time youngsters find themselves in a situation where AOD is potentially available for consumption. We then imagine these youngsters growing older. An effort is made to describe how people who score high and low on MIL–PIL may show different trajectories of relationships with AOD over time. Special attention is given to the idea that individual differences in MIL–PIL may be particularly influential during "critical periods" were inflections are most likely to occur in a person's relationship with their drug of choice.

In regards the beginning of a person's relationship with alcohol or other drugs, we have proposed that pre-existing levels of MIL–PIL may deflect the developmental pathway into the future, deflecting it in either a salutogenic direction or one that is pathogenic. Deflection can occur during the very earliest point at which

a young person (who is naïve to AOD) first becomes acquainted with AOD. This phase is marked by precedent setting involvement in circumstances where AOD is in close proximity and is potentially available. We have suggested that MIL–PIL may affect the chance of entering these kinds of situations. We have also suggested that MIL–PIL may influence the likelihood of whether or not first time use of AOD progresses, over time, into a pattern of experimental use.

For young and inexperienced young people who find themselves in close proximity to AOD for the first time, high levels of pre-existing MIL–PIL may play a salutary role, possibly by bolstering refusal self-efficacy. In contrast, low levels of MIL–PIL may create a proclivity to transform the first exposure stage into a point of negative inflection. Vulnerability to AOD progression due to existential vacuum could take a number of forms. It could manifest at the contextual level as an increased probability that a person will be first exposed to AOD at an especially young age. As the years pass by, low levels of MIL–PIL may also make people vulnerable to later misuse by acting as a linchpin at other key points in a person's fledgling career as a person who drinks or takes other drugs. Specifically, lack of meaning and purpose in life may increase the chances that occasional experimental use will progress into regular use, and that regular use will progress to abuse, dependence, and addiction.

For older and more seasoned substance abusers who find themselves at the end of the "wet" phase of a problematic drinking career, life stress events that are consequential to AOD misuse may cause significant reductions in levels of MIL–PIL. This is most apt to occur when drinking consequences (or drug use consequences) diminish or deplete sources of MIL–PIL. Under these conditions, perceived lack of MIL–PIL (existential vacuum) would be the result of AOD misuse, rather than their cause.

After alcoholism or addiction sets in, the reciprocal feedback loop connecting AOD misuse and levels of MIL–PIL may spiral downward to the point where the person is unable to endure the ever-deepening experience of psycho-existential suffering. In some veteran substance misusers, the final destination in the process of hitting bottom could be a type of suffering we have termed "creative despair". For reasons that are poorly understood, some wet alcoholics and addicts become resilient. As unlikely as it might seem, something saves them from falling over the brink of total destruction. Frankl (1963, 1984) has suggested the saving force consists of the "defiant power of the human spirit," which works to rekindle the desire to survive and thrive. We have envisioned this power as something that energizes end-stage alcoholics and addicts and that propels them to move up the ladder of motivational readiness to change.

Critique of Table 20.1 Scholarship and Future Directions

A number of philosophers, theoreticians, and interventionists firmly believe the nature of the association between MIL–PIL and AOD involvement is causal. However, to our way of thinking, confidence in an etiological interpretation is

based more on faith than fact. Table 20.1 shows the facts (i.e., empirical data) that are at hand. We now turn our attention to a brief discussion of different ways of interpreting these data.

Table 20.1 restricts its attention to a large sample of nonclinical drinkers who are not in formal treatment or any other type of AOD intervention (e.g., mutual-aid or peer-support groups). There is very strong evidence to suggest that, for these kinds of drinkers, MIL–PIL and AOD involvement are indeed connected at the statistical level. However, there is ambiguity and uncertainty about what to make of this connection. At this point in time, interpreting the link is a matter of debate. We urge readers to exercise sound reasoning and caution when drawing inferences from the data. From a scientific standpoint, it would be hasty to conclude that Table 20.1 findings justify secondary prevention MIL–PIL interventions designed to curb AOD abuse in high-risk nonclinical samples of drinkers.

Certainly, policy makers and interventionists would have strong and compelling theoretical justification for wanting to strengthen drinkers' sense of MIL–PIL. Existing theoretical ideas are exicitng to those who wish to curb the use and abuse of AOD based on the (assumed) functionality of MIL–PIL as a psychological means of stopping or slowing the developmental progression of AOD involvement. Unfortunately, secondary prevention initiatives aiming to bolster MIL–PIL would be premature if these efforts were justified solely by the yardstick of sound empirical evidence. Preventative intervention programs guilty of this act would be overvaluing the statistical conclusion validity of existing data, since correlation does not necessarily imply causation.

It might be helpful to step back for a moment and put the fledgling scholarship in this area into a larger historical context. Our temporal analysis of the publication dates of the 28 studies under consideration showed this area to be relatively new. Specifically, we found that most studies were published after the year 1999. Examined from a history of science perspective, we view the contemporary work in this area as "first generation research." Of course, it is typical for new and emerging scholarship of "first generation research" to be largely descriptive and correlational in nature. As such, these kinds of studies will lack internal validity and will offer only the weakest of evidence on which to base inferences about causality.

Behavioral and social scientists use the term "internal validity" to signify the extent to which researchers can be confident in making inferences about the causal status of a variable. Internal validity of the studies shown in Table 20.1 is weak on at least two accounts. First, there has been a widespread lack of concern for ruling out confounding factors also affecting AOD involvement (e.g., depression, neuroticism, psychoticism, happiness, spirituality/religiosity, etc.). In addition to these variables, a host of other factors can easily be envisioned as clouding the findings reported in Table 20.1. Because any number of spurious variables may be operating simultaneously alongside MIL–PIL, it creates uncertainty as to what the real "causes" of AOD involvement actually are. Second, most of the studies appearing in Table 20.1 are cross-sectional in design, measuring MIL–PIL and AOD involvement at the same time point. This opens the door to reverse causation

explanations, which are especially probable for people who meet DSM criteria for AOD abuse or dependence. In accordance with a reverse causality standpoint, (low levels of) MIL–PIL may actually be a "consequence" or 'effect' of alcohol involvement instead of a preceding 'cause' of it.

In looking ahead, we see reasons to be optimistic about the continued growth of this body of literature. To date, studies have tended to give only cursory attention to theory. A stronger focus on theory-driven research will be especially important because it will enable us to better understand how and why MIL–PIL is connected to AOD involvement. This knowledge, in turn, will serve as a foundation for the subsequent development of interventions designed to increase subjective awareness of meaningful purpose. In this regard, we recommend scholars to ground their empirical efforts in (1) existential philosophy (e.g., Heidegger, Kierkegaard), (2) existential-humanistic psychology (e.g., Frankl, May, Schneider, Wong), (3) conceptual frameworks that gave rise to first generation approaches to treatment (eg., Boss, Buber, Bugenthal, Frankl, Yalom, van Deursen), and (4) positive psychology. Work in the emerging area of positive psychology has led to increased cross-pollination of goal theory, existential-humanistic psychology, and positive psychology. Convergence of theoretical frameworks in these areas of scholarship is welcomed. We expect that integrative efforts may help usher in a more refined "second generation of research" in this area.

In addition to grounding research in this area into rich theoretical frameworks, we also urge future scholars to upgrade the rigor of their designs and measures by devoting greater attention to matters of internal validity and construct validity. If science in this area can advance at theoretical and methodological levels simultaneously, the field will mature very rapidly giving rise to an improved understanding of how to interpret the statistical associations documented in Table 20.1. Hopefully, future scholars will employ different types of longitudinal and prospective design strategies. In this way, the status of MIL–PIL as an antecedent 'cause,' consequential 'effect,' mediator, moderator, etc. will become increasingly understood. Research along these lines will help identify targets for secondary prevention interventions, and inform program developers about relevant psychological processes or mechanisms of addictive behavior change.

Another priority of future scholarship in this area should be aimed at improving the construct validity of the MIL–PIL theoretical concept. We documented a total of 16 separate instruments for assessing MIL–PIL in Table 20.1. This heterogeneity in methods used to operationalize MIL–PIL suggests a marked lack of consensus as to the nature of the construct being considered. Ideally, consensus metrics that are widely known and commonly understood can be useful (e.g., pounds, kilograms, degrees Fahrenheit; Celsius, etc.). Such measurement convergence enables more effective scientific communication, rapid advancement of a pooled knowledge and understanding, and greater ease and effectiveness for those involved in translational research. If we assume the MIL–PIL construct is multidimensional in nature, and that apparent AOD effects of studies shown in Table 20.1 are due to various facets of the MIL–PIL construct, then confusion arises as to which element(s) of MIL–PIL interventions might be used to curb AOD involvement.

Again, we reiterate our call to "second generation researchers" to concentrate efforts toward establishing the construct validity of MIL–PIL. As a final caveat to this request, we offer a personal anecdote that we have both experienced, garnered from our interactions with persons both within and outside of the academe. In both contexts, we have noticed how easy it is to fall into a communication gap when explaining the nature of our research. When we speak about the MIL–PIL construct, people often conclude that we are working within the wrong Department! They appear puzzled because they view MIL–PIL as a concept lying primarily within domains of philosophy and theology. We have made painstaking efforts (often to no avail) to explain the difference between: (1) perceived meaning in life, and (2) the meaning of life. Over time, I (KH) have come to use a different vernacular when communicating with others about my research. I sometimes tell people that I am studying "how satisfied drinkers are with the quality of their life." Of course, nobody tends to roll their eyes back when I mention the theoretical concept of (subjective) QoL. At other times, I merely describe myself as studying the idea that drinkers are better adjusted if they are pursuing meaningful goals in their day to day activities.

In our limited reading of the theoretical literature, we have been struck by the many different ways that MIL–PIL is understood. We feel the time is right for scholars to collate the multiplicity of conceptual definitions by beginning the process known as "concept analysis". We especially call on scholars who are experienced in qualitative methods to cull the theoretical literature and document the diverse preoperational explications of the constructs that have been offered. We believe this approach would provide a useful map for showcasing the many contours and boundaries of MIL–PIL as it has been understood across the social sciences and humanities.

Case-Control Studies Comparing Average Levels of Meaning and Purpose in Life in Normal (Nonclinical) Samples to Clinical Samples in Early Treatment

Introduction to Tables 20.2 and 20.3 and Summary of Key Findings

Our starting point in this section begins with the assumption that drinkers who are new to treatment and who have recently completed the intake process are at an especially low point in their lives. This low point has been widely characterized as a time of intense stress, emotional suffering, and profound unhappiness. Treatment providers sympathetic to the 12-Step model describe the period just prior to treatment entry as the process of "hitting bottom." Given that few drinkers are motivated to seek out AOD services at a high point in their life, it is safe to assume the that MIL–PIL data given by the 687 drinkers shown in Table 20.2

Table 20.3 A summary of quantitative studies that have compared levels of meaning and purpose in life (MIL–PIL) in clinical samples of persons receiving an unknown dose of treatment versus nonclinical ("normal") samples who are not in treatment

Study	When was MIL assessed during treatment?	Composition of treatment group(s)	Composition of comparison group(s)	Method of operationalizing MIL–PIL	Findings (mean comparisons)
1. Marsh et al. (2003)	Unknown	Group 1: 137 treatment seeking problem drinkers (M = 40)	Group 2: 357 nontreatment seeking social drinkers (M age = 30)	Purpose in life test (PILT)[1]	Group 1 PILT = 84.03 versus Group 2 PILT = 105.43 $t = 11.78$, $p < 0.001$
2. Kairouz and Dube (2000)	Unknown/"short-term abstainers"	Group 1: "short-term abstainers" in Alcoholics Anonymous (n = NA) Group 2: Long-term abstainers in Alcoholics Anonymous (n = NA)[a]	Group 3: 32 nontreatment seeking police officers (M age = 36) Group 4: 48 nontreatment seeking catholic nuns (M age = 70) Group 5: 42 nontreatment seeking university students (M age = 22)	Well-being(WB)[2]	Group 1 WB = 5.75 versus Group 2 WB = 6.32 versus Group 3 WB = 6.70 versus Group 4 WB = 7.32 versus Group 5 WB = 5.77 $F = 13.41$, $p < 0.0001$ Post-hoc comparisons: Group 2 > Group 1 ($t = 2.11$, $p < 0.05$) Group 3 > Group 1($t = 3.38$, $p < 0.001$) Group 4 > Group 1 ($t = 6.52$, $p < 0.0001$)
3. Miller and Russo (1995)	Unknown	Group 1: 50 high-school/university students with some involvement in Alcoholics Anonymous (M age = NR)	Group 2: 58 nontreatment seeking high-school/university students (M age = NR)	Existential well-being (EWB/SWBS)[3]	Group 1 EWB = 45.7 versus Group 2 EWB = 50.0[b]
4. Hutzell and Finck (1994)	Unknown	Group 1: 100 high-school students in an outpatient support group for drug and/or alcohol abuse	Group 2: 100 nontreatment seeking high-school students without substance use problems	Life purpose questionnaire (LPQ)[4]	Group 1 LPQ = 10.6 versus Group 2 LPQ = 12.5 $t = 3.1$, $p < 0.01$

(continued)

Table 20.3 (continued)

Study	When was MIL assessed during treatment?	Composition of treatment group(s)	Composition of comparison group(s)	Method of operationalizing MIL–PIL	Findings (mean comparisons)
5. Kinnier et al. (1994)	Unknown	Group 1: 113 adolescents from two psychiatric inpatient facilities—many with substance abuse problems[c]	Group 2: 48 nontreatment seeking adolescents	Purpose in life test (PILT)	Group 1 PILT = 68.1 versus Group 2 PILT = 73.3 $t = 2.53$, $p < 0.05$
6. Schlesinger et al. (1990)	Unknown/within the first year	Group 1: 60 young adult inpatients attending treatment for alcohol abuse (M age $\geq$ 19; 50 % male, 50 % female)	Group 2: 60 young adult nontreatment seeking social drinkers (M age $\geq$ 19; 50 % male, 50 % female)	Purpose in life test (PILT)	Group 1 (Females) PILT = 85.5 Group 2 (Females) PILT = 112.0 $t = 5.6$, $p < 0.01$ Group 1 (Males) PILT = 98.3 Group 2 (Males) PILT = 108.3 $t = 1.8$, $p < 0.05$
7. Crumbaugh (1968)	Unknown	Group 1: 38 inpatients hospitalized for alcohol dependency (M age = NR)	Group 2: 805 individuals who were not seeking treatment for psychiatric and/or addictions-related issues (M age = NR)	Purpose in life test (PILT)	Group 1 PILT = 85.4 versus Group 2 PILT = 112.4 $t = 15.98$, $p < 0.001$

Footnotes pertaining to method of operationalizing MIL–PIL [1]Purpose in life test (PILT, Crumbaugh, 1968); [2]Hybrid measure of wellbeing involving 5x hedonic items and 5x meaning items (WB, kairouz and Dube 2000); [3]Existential Wellbeing Subscale from the Spiritual Wellbeing Scale (EWB; SWBS, Ellison, 1983); [4]Life Purpose Questionnaire (LPQ, Hutzell, 1989)

Other footnotes [a]Total n for short-term *and* long-term abstainers = 78 (M age = 39); [b]p value not reported, however, between-group difference was reported to be statistically significant

[c]M age = 15 across treatment and comparison group samples

reflect the subjective effects of having experienced a recent history of escalating troubles resulting from AOD involvement (i.e., negative drinking consequences). When describing their subjective state at the point of treatment intake, case workers and clients alike often use terms such as "demoralizing", "despairing", and "utterly hopeless."

The underlying objective of studies reported in Tables 20.2 and 20.3 is roughly the same: MIL–PIL in AOD clients who have just entered into treatment is compared to MIL–PIL in non-clients who are not in treatment for AOD (or any other type of disorder). Our belief is that results presented in Tables 20.2 and 20.3 provide insight into a unique kind of despair that may actually be operating at the very end stage of the "wet" phase of a person's relationship with AOD, and just prior to the decision to seek treatment.

Frankl (2004), and others have suggested that the lived experience of alcoholics who hit bottom is that of "noogenic neurosis". Consistent with this line of reasoning, we wish to tentatively propose that "hitting bottom" at the very end of the "wet" phase has less to do with losing external commodities in the objective world (e.g., cars, jobs, families) and more to do with losing a subjective sense of meaning, purpose, and direction in one's life. We further propose that the intensity (or type) of suffering associated with noogenic neurosis may be particularly intolerable for current AOD users, oftentimes overpowering any reticence to seek treatment. Paradoxically then, lack of meaning and purpose in life may have a salutary effect in certain instances, in as much as it motivates people who are profoundly unhappy in life to seek relief by entering treatment.

For readers not familiar with Frankl's concept of noogenic neurosis, we offer a brief introduction. The condition involves an utter or total loss of a subjective sense that one has meaningful goals and/or activities to pursue. Of course, a variety of life circumstances are capable of contributing to perceptions of this sort, and no one would dispute that harmful life consequences of AOD abuse play a contributing role. According to Frankl, noogenic neurosis is an extreme form of the more common nonpathological condition, which he termed "existential vacuum". Concepts of noogenic neurosis and existential vacuum have been described as meaning voids. These voids are both characterized by an inner sense of emptiness that vary in terms of degree. In the case of noogenic neurosis, inner emptiness is profound, painful, and deeply entrenched into a person's day to day experience. In the case of existential vacuum, inner emptiness is relatively shallow, localized, and tolerable (at least in comparison to noogenic neurosis). A key feature of both conditions includes confusion and anxiety due to a loss in one's ability to make sense of, and find order and coherence among life experiences.

The clinical literature on existential therapy is replete with case reports in which clients describe how deeply disturbing the lived experience of noogenic neurosis can be. Clients report that this form of "existential suffering" includes symptoms of incomprehensible demoralization, and strong feelings of alienation and anomie. Incoherence is felt as an agonizing sense of anarchy where nothing makes sense and life is absurd. Finally, this lived experience involves utter hopelessness as well as grief and despair owing to a perceived loss of significant reasons (i.e., purposes) for living.

Tables 20.2 and 20.3 organize existing research that seeks to compare and contrast average levels of MIL–PIL in clinical samples of AOD patients versus non-clinical "normal" controls who have not sought treatment for an AOD problem. In all but one of the studies (i.e., Butler et al. 2006), low scores on measures of MIL–PIL indicate the absence of MIL–PIL and the presence of psycho-existential despair reminiscent of noogenic neurosis or existential vacuum. Within both of these Tables, clinical samples consisted of persons who were sufficiently motivated to seek treatment in hopes of resolving their problematic AOD involvement.

Although we consider Tables 20.2 and 20.3 to be "case-control" studies, we note that our use of the term "normal controls" is technically imprecise and may be misleading to some. In part, our lack of precision is fueled by variation in the composition of comparison groups across studies. In addition, there is really no way to determine how "normal" control respondents truly are. Some of these participants may have had subclinical or unrecognized difficulties with AOD. Furthermore, the term "control group" implies experimental design methodology in which respondents are randomly assigned to an experimental condition and a control condition. In such designs, the term "control" is used to connote an effort to rule out confounding factors which would otherwise lessen the certainty of drawing causal inferences based on findings showing between group differences on one or more outcome measures of interest.

Given that Tables 20.2 and 20.3 report comparisons between intact groups in naturalistic settings, there is no way to rule out (or control for) the influence of extraneous variables which might be confounding comparisons of MIL–PIL among AOD abusers who have sought treatment (i.e., "cases") and non-AOD abusers from outside of treatment settings (i.e., "controls"). Because intact groups are being compared to one another, it is more accurate to consider "normal" control samples as nonclinical comparison samples.

We have structured the presentation of published literature in a manner that aims to "control" for the reactive effects of receiving treatment on variation in MIL–PIL. As we will soon demonstrate (see Table 20.4), MIL–PIL scores tend to improve as a function of time in treatment. In recognition that treatment can influence MIL–PIL scores, we structured Tables 20.1 an 20.2 studies into two parts. In Part 1 (i.e., Table 20.2), we report a group of studies that employ similar methodologies with respect to when MIL–PIL was assessed during the pre-treatment or treatment phase. Our goal in this instance was to provide a picture of the subjective experience of new treatment clients who recently completed the intake process. As a whole, studies shown in Table 20.2 might be considered as close approximations to what baseline readings of MIL–PIL could look like just after the intake process (i.e., before a therapeutic "dose" has been received).

In contrast, Table 20.3 comprises a separate cluster of "case-control" studies in which researchers did not indicate a specific time when MIL–PIL was assessed for AOD clients seeking treatment. Thus, there was no clear way of knowing how long clients had been receiving treatment. This resulted in having no clear way to calibrate the degree of treatment dose; it could have been 0–25 %, 26–50 %, 51–75 %, or even 76–100 %.

Across both tables, 12 studies are reported comparing MIL–PIL among a treatment seeking group and one or more "normal" (nonclinical) comparison groups. From these studies, a total of 12 mean comparison effects (all statistically significant) were extracted and reported in the last column of each table. To reiterate, studies included in Table 20.2 met a specific inclusion criterion which required MIL–PIL to be assessed at the point of intake, or within the first 2 weeks of treatment. By way of contrast, Table 20.3 studies did not meet this specific inclusion criterion. Over half of the studies we initially found (7/12; 58 %) were excluded from Table 20.2 and moved into Table 20.3 since they did not explicitly identify when MIL–PIL was assessed during the treatment process. We are relatively more confident that baseline levels of MIL–PIL are captured by studies shown in Table 20.2 than Table 20.3.

Table 20.2 Summary

A total of 687 treatment seeking drinkers are represented in studies shown in Table 20.2. In studies that reported a mean age of clinical subsamples, respondents were found to consistently lie within the range of middle to late adulthood. Accordingly, there were no adolescents included in Table 20.2, and respondents tended to be older than the nonclinical respondents found in Table 20.1.

With respect to the type of treatment being sought, most of the clinical samples were pursuing help for problematic alcohol use at professionally staffed AOD treatment facilities. We did not probe deeper into the nature of specific services that were provided, and thus are unable to provide information about their conceptual approaches or methodologies. However, in almost all cases, the goal of treatment was to achieve abstinence.

A total of 1,606 comparison group participants were summed across Table 20.2 studies. The total number of comparison group participants was substantially larger than the total number of treatment seeking participants, primarily because the last analysis (i.e., Waisberg 1990) included a noticeably disproportionate ratio of treatment seeking ($n = 146$) to nontreatment seeking ($n = 1151$) participants. The comparison groups appeared to have an age demographic similar to treatment seeking groups, with most participants falling within the range of middle to late adulthood.

A considerable amount of variation can be observed among Table 20.2 studies in terms of the measures used to operationalize MIL–PIL. Of the five case-control studies reported, two of them (40 %) used Crumbaugh and Maholick's (1968) PILT. Two other studies purported to measure EWB; however, each of them used a different psychometric instrument to assess this theoretical construct.

The data shown in the far right column of Table 20.2 show statistical findings comparing levels of MIL–PIL between case samples and nonclinical comparison samples. As can be seen, 100 % of the reported findings show statistically significant differences in mean levels of MIL–PIL between groups of participants at the

point of intake (or first 2 weeks of treatment) and groups of nonclinical comparison participants. Interestingly, 100 % of these findings were consonant with current theory suggesting that early treatment seekers are motivated to receive help, in part, because of a profound sense of meaninglessness in life. It should also be noted that observed differences in findings appear to persist despite slight variation across studies in terms of: (a) the composition of early treatment seeking and nonclinical subsamples, and (b) the measures used to operationalize MIL–PIL.

Table 20.3 Summary

As noted earlier, the main difference between Tables 20.2 and 20.3 is the timing of MIL–PIL assessment, which is known to be close to the point of treatment intake in Table 20.2 studies, and unknown in Table 20.3 studies. Thus, we observed that Table 20.3 studies simply failed to report when clients were assessed using measures of MIL–PIL.

A total of 576 participants are included as "cases" in studies shown within Table 20.3. Unlike Table 20.2, these studies involved a greater proportion of participants in adolescence and/or young adulthood. In particular, four of seven studies (57 %) reported a mean age value within the developmental range of adolescence or young adulthood. As was true of Table 20.2, the vast majority of participants included in Table 20.3 entered treatment in hopes of receiving help for drinking (rather than for other drug misuse).

Let us now shift our attention to the "control" samples. As shown in Table 20.3, our aggregate sample consisted of 1,550 people. Thus, the comparison group was quite large. Like Table 20.2, this subsample size exceeds the number of treatment seeking participants by a significant margin. Again, this discrepancy appears to be primarily the result of one study (i.e., Crumbaugh 1968) involving a disproportionate ratio of treatment seeking participants ($n = 38$) to nonclinical comparison participants ($n = 805$). A quick look at the nonclinical comparison groups shows their age demographic to be similar in composition to treatment seeking groups. In particular, most participants appear to fall within developmental ranges of adolescence and young adulthood across both treatment seeking and nonclinical comparison groups.

Collapsing across Table 20.3 studies, Crumbaugh and Maholick's (1968) PILT once again emerges as the most frequently employed method of operationalizing MIL–PIL. In particular, this measure was used in 57 % of the studies included within Table 20.3. Each of the remaining studies employed different methods of operationalizing MIL–PIL.

Interms of the findings yielded across studies, we found 100 % of the reported mean comparison tests to be statistically significant. Among all of these studies, treatment "cases" were shown to have significantly less MIL–PIL than nontreatment seeking "controls." As can be seen in both Tables 20.2 and 20.3, mean levels of MIL–PIL were lower in clinical samples that sought treatment in comparison to

"normal" controls. It might be also worth noting that the proportion of significant results did not differ between Tables 20.2 and 20.3. In both tables, 100 % of the statistical tests that compared cases to controls were significant. While this trend may suggest a convergence between empirical findings and theory, we also recognize that within academic culture, significant findings are more likely to be published than nonsignificant findings.

We also made a cursory effort to identify possible moderators of between group differences appearing in Tables 20.2 and 20.3. Results of these analyses showed that MIL–PIL differences between treatment seeking and nontreatment seeking subsamples persisted despite variation in terms of: (a) the composition of treatment and nontreatment seeking subsamples, and (b) the measures used to operationalize MIL–PIL.

Tables 20.2 and 20.3 Summary, Conclusion, and Future Directions

There appears to be a strong and robust trend in the findings of case-control studies. MIL–PIL levels in AOD clients who have just entered treatment are significantly lower than MIL–PIL scores in comparison samples of "normal" individuals who are not troubled by AOD-related problems. In relation to other Tables embedded within this chapter, neither Table 20.2 nor Table 20.3 contain null findings. What we wish to emphasize is that 100 % of the statistical effects contained within these tables are statistically significant and in a direction consonant with Frankl's existential theory.

Frankl and many others have posited that the subjective experience of hitting bottom due to AOD abuse involves a unique type of emotional suffering. Descriptively, this experience has received various labels including "existential vacuum," "noogenic neurosis," "existential demoralization," and "psycho-existential despair." We tentatively conclude that this lived experience (i.e., "hitting an existential bottom") may be a chief motivational impetus driving individuals into treatment.

Future studies that seek to better understand the determinants of motivational readiness to resolve or change AOD-related problems (i.e., among persons who are nearing the end of the "wet" phase of their relationship with AOD) are encouraged to consider pitting measures of MIL–PIL against other standard predictors appearing in the extant literature base. In the addictions field, a number of "gold standard" variables have been identified as either facilitating the likelihood of treatment entry or as presenting a barrier. barrier. Work along this line has repeatedly demonstrated "DSM symptom severity" and "negative consequences of AOD involvement" to be reliable predictors of treatment readiness and motivation to change.

Our own model of change suggests that DSM symptom severity and negative consequences of AOD involvement may both impact an individual's decision to seek help indirectly by robbing them of a subjective sense of meaning and purpose in life. Thus, deficits in MIL–PIL may, in part, explain why people who are

addicted are more likely to seek out treatment when symptoms of AOD abuse (i.e., memory lapses, blackouts, etc.) happen with greater regularity. In such instances, a sense of being in control is lost, and cherished goals that used to provide a sense of meaning and purpose in life are clouded. As DSM symptoms of AOD abuse escalate, they are sure to disrupt a person's sense of coherence in life. If the process is drawn out over a prolonged period of time, the person may hit an "emotional bottom." However, they may also hit an even deeper bottom, which might be called an "existential bottom." As noted earlier, Frankl's term for this kind of suffering is "noogenic neurosis."

Before closing this section, we offer one last theoretical conjecture which is based on an extrapolation of Franklian thinking. Specifically, this supposition pertains to the possibility that a tragedy such as "hitting bottom" (i.e., due to AOD abuse) might be transformed into a personal triumph. Indeed, it is possible that people who are not yet in treatment but who experience a true existential bottom (and not some other type of bottom) may be especially likely to experience an inner stirring or kindling of an innate force for health. This healing resource might be considered a type of resilience that lies dormant until activated. Frankl describes the desire to flourish and thrive in the face of extreme adversity as the "defiant power of the human spirit." Little is known about the nature of this defiant power other than the fact that it is presumed to have a spiritual quality.

Longitudinal Studies of Clinical Samples that have Attempted to Document Whether Meaning and Purpose in Life Increases Over Time as a Function of Treatment Involvement

Introduction to Table 20.4 and Summary of Key Findings

It should not be surprising to learn that, historically, the vast majority of clinical research attempting to document benefits of AOD interventions has focussed overwhelmingly on outcome measures of AOD involvement. To date, abstinence, as assessed by "percent days sober," has been the dominant measure of choice. "Drinks per drinking day," has also been a popular yardstick for measurement of abstinence-related outcomes. Recently, a paradigm shift of sorts has been occurring in which scholars, practitioners, policy makers and health care consumers have begun to advocate for a more all-encompassing and widespread understanding of benefits associated with AOD treatments.

This new paradigm shift elevates QoL outcomes to the venerated status of drinking or drug taking outcomes. The first incarnation of this increasingly popular trend (i.e., toward understanding the breadth of benefits clients might expect from entering AOD treatments) involves a broad-spectrum model that was articulated in a 2007 publication issued by the Betty Ford InstituteConsensus Panel (BFICP).

The BFICP report differentiated between two different kinds of positive recovery outcomes: (a) being dry, and (b) having a high QoL. Specifically, AOD recovery was defined "*as a voluntarily maintained lifestyle characterized by sobriety, personal health, and citizenship*" (p. 221). In this model, "personal health" encompassed a number of facets including emotional, existential, and spiritual well-being.

Three years later, the US Substance Abuse and Mental Health Services Administration (SAMHSA) convened a meeting of scholars, behavioral health leaders, and mental health consumers. This inaugural meeting began a series of discussions that eventually resulted in a practical and comprehensive working definition of recovery that would enable policy makers, providers, and scholars to better design and deliver holistic services to persons suffering from addictions and other mental health disorders. SAMHSA's working definition suggested that AOD recovery comprises four facets. These include: (1) restoration of health (broadly defined), (2) restoration of home (broadly defined), (3) restoration of community, and (4) restoration of a sense of meaning and purpose in life.

The fourth facet, meaning and purpose, is particularly germane to the results of the studies that we have compiled for Table 20.4 of the current chapter. According to SAMHSA, a lasting resolution to AOD-related problems is one that enables the ex-substance misuser to exercise self-determination in choosing meaningful life goals that are personally expressive personally expressive. For SAMHSA, quality recovery is sustainable. Both require that meaningful purposes extend beyond a single-minded and myopic concern with curbing observable drinking or drug taking behaviour. These broader purposes could include a variety of goals, provided these goals infuse a sense that a person's new life in sobriety has meaning. Examples of goals likely to bolster a sense of meaning include aspirations such as a getting or holding a job, attending school, being of service to others through volunteerism, pursuit of social and recreational goals, or creative endeavors.

To the best of our knowledge, Table 20.4 represents the first ever attempt to amalgamate existing empirical research exploring whether or not involvement in treatments designed to curb AOD misuse can also have a favorable effect on a client's sense of satisfaction with the quality of their life. In particular, Table 20.4 organizes existing research that has examined whether MIL–PIL in clinical samples changes as a function of receipt of formal treatment or involvement in some other type of intervention (e.g., mutual-aid meetings).

Most studies in Table 20.4 are true longitudinal investigations, meaning they periodically monitor persons who are attempting to resolve their AOD problem using the standard PRE–POST test repeated measures design. As such, MIL–PIL scores are obtained at the point of pre-intervention ("intake" or baseline) and at a later point in time, typically post-intervention ("discharge" or follow-up).

In total, 12 studies were extracted from the extant literature base. This yielded a total pool of 3,132 participants derived after summing initial pre-treatment subsample sizes. A total of 12 effects (all statistically significant) were extracted from these studies and reported in the last column of each table. A temporal analysis of publication dates revealed that an equal percentage of studies were conducted before and after the year 2000 (temporal range = 1977–2013).

Table 20.4 A summary of empirical studies that have reported statistical tests of whether or not meaning or purpose in life (MIL–PIL) changes from the point of pre-treatment (intake) to post-treatment (discharge/followup) in alcohol or drug abusers who have sought professional help or help from mutual-aid groups

Study	Sample	Treatment characteristics	Time between T1-T2 MIL assessments	Method of operationalizing MIL–PIL	T1 mean score(s)	T2 mean Score(s)	t/F-value
1. Robinson and Krentzman (2013)	364 individuals with alcohol dependency (M age = 44)	Two treatment programs: (1) University-affiliated out patient program (2) Moderated drinking program	2.5 years	Purpose in life test (PILT)[1]	92.2	99.1	t/F = NR p = NR
2. Krentzman et al. (2010)	Secondary analysis of 414 ProjectMATCH participants with alcohol dependency (M age = 41)	12-step facilitation, CBT, or motivational enhancement therapy	15 months	Purpose in life test (PILT)	92.6	101.4	t = -8.98 $p < 0.001$
3. Piderman et al. (2007)	74 alcohol dependent outpatients (age range = 19–80; median age = 44)	Individual and group treatment incorporating: 12-step facilitation, CBT, and motivational enhancement	3 weeks	Existential well-being (EWB; SWBS)[2]	40.7	44.8	t = NR, $p < 0.001$
4. Robinson et al. (2007)	123 outpatients with an alcohol use disorder (M age = 39)	Predominantly 12-step facilitation with limited use of CBT and motivational interviewing	6 months	Purpose in life test (PILT)	96.2	100.3	t = 2.97 $p < 0.01$
5. Stewart et al. (2006)[a]	Secondary analysis of 1709 project-MATCH participants (M age = 40)	12-step facilitation, CBT, or motivational enhancement therapy	1 year	Purpose in life test (PILT)	NA	NA	NA

(continued)

Table 20.4 (continued)

Study	Sample	Treatment characteristics	Time between T1-T2 MIL assessments	Method of operationalizing MIL–PIL	T1 mean score(s)	T2 mean Score(s)	t/F-value
6. Piedmont (2004)	Time 1 assessment: 73 substance abusing outpatients Time 2 assessment: 56 substance abusing outpatients (age range = 19–66; *M* age = 41)	Rehabilitation program involving vocational training and AA/NA group attendance	8 weeks	Spiritual transcendence scale (STS)[3]	86.23	90.8	$t = -3.85$ $p < 0.01$
7. Krupitsky and Burakov (1996)	10 alcoholic patients (*M* age = 41)	Ketamine psychedelic therapy (KPT)	6 weeks	Purpose in life test (PILT)	89.7	115.3	t = NR $p < 0.01$
8. Majer (1992)	21 clients with chemical dependency beginning the 12–24 treatment program (*M* age = 34) Eight clients with chemical dependency finishing the 12–24 treatment program (*M* age = 32)	Raft House Inc. long-term residential/community care with a focus on 12-step treatment	12–24months[b]	Method 1 (M1): Purpose in life test (PILT) Method 2 (M2): life purpose questionnaire (LPQ)	PILT = 90.1 LPQ = 10.1	PILT = 105.1 LPQ = 15.0	M1: $t = 2.36$ $p < 0.05$ M2: $t = 2.93$ $p < 0.01$

(continued)

Table 20.4 (continued)

Study	Sample	Treatment characteristics	Time between T1-T2 MIL assessments	Method of operationalizing MIL–PIL	T1 mean score(s)	T2 mean Score(s)	t/F-value
9. Waisberg (1990)	89 wait listed or active participants in treatment for substance abuse. Participants clustered into 4 different groups based on treatment type or wait list status	Group 1: group therapy, medical information, relaxation/assertiveness training, exercise, nutrition, spirituality ($n = 45$) Group 2: AA meetings, individual and group therapy, spirituality ($n = 21$) Group 3: individual, group, and family therapy, AA meetings, lecturing ($n = 7$) Group 4: waitlist ($n = 16$)	4–6 months	Purpose in life test (PILT)	Group 1: 89.3 Group 2: 90.4 Group 3: 82.3 Group 4: 91.06	Group 1: 108.0 Group 2: 109.0 Group 3: 99.1 Group 4: 91.9	Group 1: $t = 7.44$ $p < 0.0001$ Group 2: $t = 5.12$ $p < 0.0001$ Group 3: $t = 2.98$ $p < 0.05$ Group 4: $t =$ NR $p =$ n.s.
10. Little and Robinson (1989)	70 incarcerated alcohol and drug "offenders" Group 1: drug offenders ($n = 30$; M age = 25) Group 2: alcohol offenders ($n = 40$; M age = 35)	Prison-based drug and alcohol abuse programs involving behavioral management techniques and moral reconation therapy	Treatment intake–the 7th stage of the treatment program[c]	Life purpose questionnaire(LPQ)[4]	Group A = 10.8 Group B = 12.1	Group A = 13.2 Group B = 13.4	Group 1: $t = 3.61$ $p = 0.01$ Group 2: $t = 2.35$ $p = 0.05$

(continued)

Table 20.4 (continued)

Study	Sample	Treatment characteristics	Time between T1-T2 MIL assessments	Method of operationalizing MIL–PIL	T1 mean score(s)	T2 mean Score(s)	t/F-value
11. Gruner (1984)	128 delinquent and substance abusing inpatients (age range = 16–28)	Spiritual group treatment at various teen challenge centers	9–12 months	Purpose in life test (PILT)	82.4	116.1	$F = 325.3$ $p < 0.01$
12. Jacobson (1977)	57 substance abusing patients (M age = 41)	Rehabilitation program	3 weeks	Purpose in life test (PILT)	95.38	105.49	$t = 3.21$ $p < 0.01$

Footnotes pertaining to method of operationalizing MIL–PIL [1]Purpose in life test (PILT, Crumbaugh 1968); [2]Existential well-being subscale from the spiritual well-being scale (EWB; SWBS, Ellison 1983); [3]Spiritual transcendence scale (STS, Piedmont 1999); [4]Life purpose questionnaire (LPQ, Hutzell 1989)
Other footnotes [a]This study reported that a 1-month increase in time since treatment intake to be associated with a 0.21 increase in PILT ($\beta = 0.21$); [b]Majer (1992) used a cross-sectional design to assess two groups of participants; [c]Treatment interval indicated between T1 and T2 MIL–PIL assessment rather than time interval

Examination of the age demographic of treatment group participants shows these individuals to generally be in developmental stages of early to middle adulthood. In particular, 7 out of 12 studies (58 %) report an average participant age demographic falling within the range of 40–45 years old. The remaining studies either do not report the mean age of treatment participants, or report a mean age value less than 40 years old.

Table 20.4 shows MIL–PIL data from studies examining a wide variety of different therapeutic modalities and intervention orientations. A general distinction can be seen between studies that examine professionally assisted methods of change (i.e., formal treatments, such as CBT) and studies that examine nonprofessionally assisted methods of change (i.e., informal interventions, such as Alcoholics Anonymous). Looking further at Table 20.4, it can be seen that most treatments involved programs emphasizing spiritual growth" (e.g., Alcoholics Anonymous, 12-step facilitation). Although 12-step facilitation (TSF) interventions are formal in nature (i.e., they are delivered by mental health professionals), one of their primary goals is to motivate clients to attend informal community support groups such as Alcoholics Anonymous or Narcotics Anonymous. As can be seen in Table 20.4, 8 out of 12 studies (67 %) examined changes in MIL–PIL among participants who had been exposed to TSF, Alcoholics Anonymous, or recovery environments oriented toward spiritual growth. Aside from these interventions, other common treatment approaches included in Table 20.4 are CBT (mentioned in 4/12 studies; 33 %) and motivational enhancement therapy (mentioned in 4/12 studies; 33 %).

The duration of participants' treatment attendance also varies significantly across studies. The shortest and longest time intervals between pre-treatment (intake) and post-treatment (discharge/follow-up) are 3 weeks and 2.5 years, respectively. However, one group of researchers (i.e., Little and Robinson 1989) chose to report a treatment interval (i.e., intake—Step 7) to signify the length of treatment attendance. In this instance, no indication is pro vided about the duration or length of time that is required to advance from intake to Step 7 of this treatment program. Excluding this analysis, the average duration of treatment attendance across Table 20.4 studies is 280 days (i.e., just over 9 months).[1]

Table 20.4 studies appear to be relatively homogeneous in terms of the measures used to operationalize MIL–PIL. In particular, only four separate measures were noted across all 12 studies. This value represents a 76 % reduction in variability among methods used to operationalize MIL–PIL compared to Table 20.1 studies, which involved 17 different methods of MIL–PIL assessment. Similar to previous tables, the most frequently appearing method of MIL–PIL in Table 20.4 is Crumbaugh and Maholick's (1968) PILT. Specifically, this measure was used in 9 out of 12 (75 %) studies.

Eleven studies report mean levels of Time 1 (T1; pre-treatment/intake) and Time 2 (T2; discharge/follow-up) MIL–PIL. All studies reporting a p value demonstrate

[1] [1] This calculation involved using mid-points for studies reporting variability in the duration of treatment attendance (e.g., 9-12 months = 273-365 days; midpoint = 319 days).

statistically significant differences between T1 and T2 mean levels of MIL–PIL. In an attempt to summarize across a common metric, we selected all studies using the PILT (i.e., the modal method of operationalizing MIL–PIL) to calculate average MIL–PIL scores at T1 and T2. We also computed an average MIL–PIL change score *between* T1 and T2 assessment phases. Eight studies involving 10 subsamples were included in these analyses.[2] Cumulative T1 and T2 subsample sizes were 2,899 and 2,886, respectively. Findings pertaining to each of our analyses revealed the following mean scores: T1 PILT = 90.06; T2 PILT = 105.89; T1 − T2 PILT change score = 15.83.

Although each study shows statistically significant differences in MIL–PIL, the largest improvements can be observed in study 11 (i.e., Gruner 1984) involving delinquent adolescents attending a 9–12 month spirituality-based inpatient program (33.7 unit increase). Surprisingly, a relatively short psychopharmacological method (Ketamine Psychedelic Therapy) administered to 10 adult patients (i.e., study 7; Krupitsky and Burakov 1996) shows the second largest improvements in MIL–PIL between T1 and T2 assessment phases (25.6 unit increase). Overall, it is quite interesting to note that each of these studies identifies statistically significant differences between T1 and T2 phases of assessment (in the expected direction) regardless of the duration or type of treatment participants received. This trend suggests that treatment duration (beyond a certain threshold) and treatment type *may not* moderate the magnitude of PRE–POST treatment changes in MIL–PIL.

Tables 20.4 Summary, Conclusion and Future Directions

The US Substance Abuse and Mental Health Services Administration (SAMHSA) has sensitized AOD scholars and health care providers of the need to ensure that interventions do more than improve client drinking and drug taking outcomes. Results derived from our analysis of the studies reported in Table 20.4 are highly consistent with this message. Without exception, each and every one of these studies shows the exact same pattern of results: MIL–PIL scores improve over time and this improvement is statistically significant.

What we find particularly interesting and revealing is that a broad range of different approaches to treatment were used, yet the results for many of these approaches seemed roughly comparable in term of their efficacy. Why would Ketamine (psychedelic) therapy for adults produce improvements in MIL–PIL that look similar to MIL–PIL improvements among adolescents taking part in a Teen Challenge program? On a slightly different note, we also found huge differences

[2] [2] We omitted the study by Stewart et al. (2006) since it did not report T1 and T2 mean scores. Instead, Time in Treatment was represented as its own variable within a regression model. Group 4 participants from Waisberg (1990) were also excluded since they were waitlisted and not actively in treatment.

in the elapsed time period between the intake assessment of MIL–PIL and the follow-up assessment. Why would a rehab program that only lasts 3 weeks produce improvements in MIL–PIL that are roughly similar in magnitude to 1-year follow-up results produced by a 12 week Project MATCH intervention?

We can envision a number of answers to the question of why MIL–PIL scores improved in each and every one of the 12 intervention studies reported in Table 20.4. The first explanation suggests that MIL–PIL improvements occur simply because clients are lead to expect (by the treatment staff) they will occur. While it is difficult to rule out a placebo effect, we prefer an alternative explanation which suggests that MIL–PIL improvements are "real" effects rather than artifacts which may or may not be attributable to the "active ingredients" of treatment programs. In the absence of a waitlist control group, we have no way of knowing if MIL–PIL improvements among AOD clients are simply due to the sheer number of days these clients have to detoxify. As the number of "dry days" adds up and "sober time" continues to mount, the human brain may simply find it easier to recognize patterns and ascribe significance to life events.

Aside from the possible neurologically mediated benefits of a client's sense of MIL–PIL that could possibly be derived from abstaining from alcohol and/or other drugs, all of the treatment programs that we examined in Table 20.4 shared something else in common. Mainly, they provided clients with a host of personally relevant and significant goals to achieve. The resulting increased sense of direction and purpose in the day to day lives of clients may have contributed toward PRE–POST increases in MIL–PIL scores. Finally, it is likely that some of the spirituality-based interventions (e.g., those based on 12-steps philosophies; Teen Challenge programs; etc.) helped clients to reframe the painful process of having abused AOD to the brink of utter destruction. If clients received assistance in benefit finding and meaning making, then this may have contributed toward improvements in MIL–PIL scores.

Establishing a sense of interpersonal connectedness with peers and/or counselling staff may also constitute a nonspecific factor with therapeutic reactive effects on MIL–PIL during treatment. Relationships are widely cited as a major source of MIL–PIL; thus, development of warm and sober interpersonal relationships (especially with AOD counselors) may strengthen a client's sense of MIL–PIL in ways that prevent premature drop-out, and in other ways that have yet to be fully grasped by empirical research.

We are mindful of the fact that no interventions reviewed in Table 20.4 are explicitly designed with the intention of bolstering a client's sense of MIL–PIL. A number of logotherapeutic programs have been developed, some of which have been used in case studies of isolated AOD clients. To date, we are not aware of any meaning-focused intervention programs that have conducted randomized clinical trials with AOD clients using the PRE–POST test design characteristic of studies currently embedded within Table 20.4. Clearly, this seems like a worthwhile direction for future clinical research. In this way, the incremental therapeutic effectiveness of meaning oriented interventions could be tested. If meaning-focused AOD interventions prove more effective than matched interventions that do not

explicitly seek to inculcate MIL–PIL, evidence in this regard would prove invaluable, both for theories of causation and clinical practice.

In summary, there are simply too many uncertainties to be sure of how best to interpret the findings presented in Table 20.4. Because these are not randomized clinical trials pitting one form of treatment against placebo or waitlist controls, we are simply unable to say with any certainty that improvements in MIL–PIL scores are the result of "active ingredients" of each intervention program. Indeed, there is a chance these differences may have been observed due to the influence of some other factors (e.g., placebo effect, etc.)

Quantitative Studies that have Examined the Link Between Meaning and Purpose in Life and Factors Indicative of, or Facilitative of Recovery in Treatment Samples and in Persons Attending Mutual-Aid Groups

Introduction to Tables 20.5 and 20.6 and Summary of Key Findings

A major impetus leading us to undertake the literature review for this last part of our chapter was a conceptual orientation to resilience that we have come to term the "Psychosocial Resilience Model." Consistent with Franklian thinking (Frankl 2004), we reasoned that clients who "hit bottom" and proceed into the treatment system may enjoy enhanced recovery benefits from which they can garner a well-developed sense of MIL–PIL. Enhanced recovery benefits may stem from two processes: First, MIL–PIL might act as a shield that protects AOD clients against a variety of negative processes that would otherwise hinder remission and recovery. Secondly, MIL–PIL might promote positive coping and positive adjustment, especially considering the broader context of AOD abuse involving adversity. Our Psychosocial Resilience Model builds on these two assumptions, but adds a unique twist. It suggests that MIL–PIL enhances generalized recovery (in the holistic sense of the term) by virtue of a favorably balanced profile of psychosocial assets relative to liabilities. These assets work in concert by interacting in ways that amplify benefits derived from treatment.

In this final section of the chapter, we compiled a number of studies to help us understand whether MIL–PIL is indeed associated with a unique constellation of correlates (as suggested by the Psychosocial Resilience Model of Recovery). We expected inverse associations between MIL–PIL and factors known to detract from abstinence and well-being (e.g., stress, depression, anxiety), and positive associations between MIL–PIL and factors known to promote positive adjustment (e.g., social support, 12-Step involvement, spirituality). To the best of our knowledge, Tables 20.5 and 20.6 represent the first attempt to organize existing empirical

Table 20.5 A summary of quantitative studies that have examined the link between meaning or purpose in life (MIL–PIL) and factors indicative of and facilitative of recovery in treatment samples and in persons attending mutual-aid groups

Study	*Sample*	*Method of operationalizing MIL–PIL*	*Recovery-related variables*	*Relationship between MIL–PIL and recovery-related variables*
1. Robinson and Krentzman (2013)	364 participants with alcohol dependency (*M* age = 44)	Purpose in life test (PILT)[1]	(1) Full remission (0DSM-IV dependence symptoms) (2) Depressive symptoms	Growth model coefficients: (1) $\beta = 0.91, p < 0.05$ (2) $\beta = 0.76, p < 0.01$
2. Krentzman et al. (2010)	414 participants from ProjectMATCH sample (*M* age = 41)	Purpose in life test (PILT)[2]	Sobriety sustained over a 6-month period of time	Odds ratio = 1.039, $p < 0.01$[a]
3. Gomes and Hart (2009)	76 former inpatients who received treatment for problematic drinking (*M* age = 43)	Three item index of MIL–PIL	(1) AA involvement (2) AA attendance (3) Depression (4) Depression improvement[b] (5) Anxiety (6) Anxiety improvement[c] (7) Abstinence	(1) $r = 0.40$, $p < 0.05$ (2) $r = 0.16$, $p =$ n.s. (3) $r = -0.55$, $p < 0.05$ (4) $r = 0.30$, $p < 0.05$ (5) $r = -0.43$, $p < 0.05$ (6) $r = 0.11$, $p =$ n.s. (7) $r = 0.42$, $p < 0.05$
4. Hart and Singh (2009)	68 former clients of a Minnesota Model treatment setting (*M* age = 43)	Perceived availability of meaning[3]	(1)Quality of life composite[d] Quality of life subscales: (2) Personal functioning (3) Interpersonal functioning (4) Societal functioning	(1) $r = 0.38$, $p < 0.01$ (2) $r = 0.41$, $p < 0.001$ (3) $r = 0.26, p < 0.05$ (4) $r = 0.24, p < 0.05$
5. Pocrnic et al. (2009)	68 former inpatients discharged from treatment facility for problematic drinking (*M* age = NR; adults)	Existential quality of life[4]	(1) Changes in AA involvement (2) Changes in frequency of criminal offending behavior	(1) $r = 0.35$, $p < 0.01$ (2) $r = 0.19$, $p =$ n.s.

(continued)

Table 20.5 (continued)

Study	*Sample*	*Method of operationalizing MIL–PIL*	*Recovery-related variables*	*Relationship between MIL–PIL and recovery-related variables*
6. Robinson and Hart (2009)	40 participants receiving residential treatment for problematic drinking (M age = NR)	(1) Relationship meaning (RM; RGMS)[5] (2) Generic meaning (GM; RGMS)	(1) AA Involvement (AAI) (2) Abstinence self-efficacy (ASE)	bootstrap-t (RM,AAI) = NR, $p < 0.01$ bootstrap-t(GM,AAI) = 6.54, $p < 0.01$ bootstrap-t(RM,ASE) = 0.21, p = n.s. bootstrap-t(GM,ASE) = 2.18, $p < 0.05$
7. Krentzman (2008)	414 participants from ProjectMATCH sample African American ($n = 90$) Caucasian ($n = 324$) (M age = 41)	Purpose in life (PILT–seeking of noetic goals)[6]	(1) Depression (2) Drinks per drinking day (3) Percent days abstinent (4) 6-month sustained sobriety	(1) $r = -0.39$, $p < 0.001$ (2) $r = -0.29$, $p < 0.001$ (3) $r = -0.22$, $p < 0.001$ (4) $r = 0.23$, $p < 0.001$ Logistic regression: (4) Odds ratio = 1.039[e] Interactive logistic regression: (5) Odds ratio = 1.044[f]

(continued)

Table 20.5 (continued)

Study	*Sample*	*Method of operationalizing MIL–PIL*	*Recovery-related variables*	*Relationship between MIL–PIL and recovery-related variables*
8. Laudet and White (2008)	312 inner-city participants meeting DSM-IV criteria for drug abuse or drug dependency Participants were abstinent for atleast 1 month at baseline and followed for a 1-year period of time Approximately 75 % of participants had attended Alcoholics Anonymous in the last year (*M* age = 43; age range = 19–65)	Existential well-being (EWB; SWBS)[7]	Baseline outcomes: (1) Length of abstinence (time since last consumption at baseline) (2) Stress (3) Social support for recovery (4) General social support (5) Spirituality (6) Religious Activities (7) 12-step involvement (8) AA/NA meeting attendance (9) Quality of life 1-year follow-up outcomes: (10) Quality of life (11) Stress (12) Sustained abstinence	(1) $r = 0.10$, $p =$ n.s. (2) $r = -0.12$, $p < 0.05$ (3) $r = 0.28$, $p < 0.001$ (4) $r = 0.36$, $p < 0.001$ (5) $r = 0.57$, $p < 0.001$ (6)$r = 0.67$,$p < 0.001$ (7)$r = 0.24$,$p < 0.001$ (8)$r = 0.16$,$p < 0.01$ (9) $r = 0.26$, $p < 0.001$; (10) $r = 0.23$, $p < 0.05$; (11) $r = -0.14$, $p < 0.001$ (12) $r = 0.23$, $p < 0.001$
9. Oakes (2008)	77 participants attending Alcoholics Anonymous (median age = 45)	Purpose in life test (PILT)	(1) AA involvement (2) Spiritual openness (3) Recent faith practice (4) YearsAbstinence	(1) $r = 0.23$, $p < 0.05$ (2) $r = 0.22$, $p < 0.05$ (3) $r = 0.12$, $p =$ n.s. (4) $r = 0.18$, $p =$ n.s.
10. Rocco 2007	148 participants attending Alcoholics Anonymous (*M* age = 46)	Purpose in life test (PILT)	(1) Years abstinent (2) AA involvement (3) Social support appraisal	(1) $r = 0.31$, $p < 0.001$ (2) $r = 0.21$,$p < 0.01$ (3) $r = 0.66$, $p < 0.001$
11. Laudet et al. (2006)	353 inner-city substance abusers in recovery (*M* age = 43; age range = 19–65)	Existential well-being (EWB; SWBS)	(1) Months abstinent (2) 12-step involvement (3) Quality of life (4) AA/NA meeting attendance	(1) $r = 0.11$, $p < 0.05$ (2) $r = 0.26$, $p < 0.01$ (3) $r = 0.28$, $p < 0.01$ (4) $r = 0.19$, $p < 0.01$

(continued)

Table 20.5 (continued)

Study	*Sample*	*Method of operationalizing MIL–PIL*	*Recovery-related variables*	*Relationship between MIL–PIL and recovery-related variables*
12. Moller-Leimkuhler et al. (2006)	193 inpatients formerly in detox (M age = NR)	Sense of coherence (SOC)[8]	Abstinence 6-months after discharge from detox	Statistical significance achieved
13. Stewart et al. (2006)	1,709 participants from ProjectMATCH sample (M age = 40)	Purpose in life test (PILT)	(1) Drinks per drinking day (2) Time in treatment	(1) $\beta = -0.48$, $p < 0.001$ (2) $\beta = 0.21$, $p < 0.001$
14. Tilton (2005)	1,726 alcohol dependent clients from a ProjectMATCH sample Outpatients ($n = 952$); Aftercare ($n = 774$); (M age for outpatients = 39; M age for aftercare patients = 42)	Purpose in life test (PILT; 15-month post-assessment)	15-month outcomes: (1) AA involvement (2) Drinks per drinking day	(1) $\beta = 0.17$, $p < 0.0001$ (2) $\beta = -0.22$, $p < 0.0001$
15. Tonigan (2001)	1,726 alcohol dependent clients from a ProjectMATCH sample Outpatients ($n = 952$); Aftercare ($n = 774$); (M age for outpatients = 39; M age for aftercare patients = 42)	Purpose in life test (PILT)	(1) AA attendance	(1) $r_{wa} = 0.05$, $p < 0.002$ [g]
16. Oakes et al. (2000)	78 participants attending Alcoholics Anonymous (median age = 45; age range = 23 to 71)	Purpose in life test (PILT)	(1) AA involvement (2) Length of abstinence (3) Drinking consequences (4) Spiritual openness (5) Religious practices	Partial correlations:[h] (1) $r = 0.25$, $p < 0.05$ (2) $r = 0.12$, $p =$ n.s. (3) $r = 0.08$, $p =$ n.s. (4) $r = 0.23$, $p < 0.05$ (5) $r = 0.12$, $p =$ n.s.
17. Kairouz and Dube (2000)	78 participants attending Alcoholics Anonymous (M age = 39)	Hybrid measure of wellbeing (WB)[9]	(1) Length of abstinence	(1) $r = 0.30$, $p < 0.01$

(continued)

Table 20.5 (continued)

Study	*Sample*	*Method of operationalizing MIL–PIL*	*Recovery-related variables*	*Relationship between MIL–PIL and recovery-related variables*
18. Junior (1999)	122 participants attending Alcoholics Anonymous (M age = 45)	Purpose in life test (PILT)	(1) Length of abstinence (2) Self-esteem (3) Abstinence self-efficacy	(1) $r = 0.39$, $p < 0.01$ (2) $r = -0.32$, $p < 0.01$ (3) $r = 0.55$,$p < 0.01$
19. Berg et al. (1996)	40 current and former inpatient clients at drug and/or alcohol treatment and rehabilitation facilities (M age = 33)	Sense of coherence(SOC; nine-item)	(1) Emotional distress (e.g., anxiety; depression)	$r = -0.74$, $p < 0.0001$
20. Montgomery et al. (1995)	54 former inpatients assessed at a follow-up period 220 days after discharge. Patients had received treatment for problematic drinking (M age of original sample [$n = 66$] = 34; age range = 18–58) Follow-up sample ($n = 54$) not significantly different with respect to age	Purpose in life test (PILT)	(1) AA involvement (2) AA attendance	(1) $r = 0.48$, $p < 0.01$ (2) $r = 0.16$, $p =$ n.s.
21. Carroll (1993)	100 participants attending Alcoholics Anonymous (Median age = 42; age range = 26-81)	Purpose in life test (PILT)	(1) Spirituality (2) AA attendance	(1) $r = 0.59$, $p < 0.001$ (2) $r = 0.24$, $p < 0.01$
22. Waisberg (1990)	110 inpatients at three treatment facilities receiving help for drug and/or alcohol abuse (M age of participants across different sites was always ≥ 27)	Purpose in life test (PILT)	(1) Positive partner relationships (2) Positive family relationships (3) Positive friendships (4) Positive work functioning (5) Health	(1) $r = 0.67$, $p < 0.001$ (2) $r = 0.48$, $p < 0.001$ (3) $r = 0.30$, $p < 0.05$ (4) $r = 0.35$, $p < 0.05$ (5) $r = 0.50$, $p < 0.01$

(continued)

Table 20.5 (continued)

Study	*Sample*	*Method of operationalizing MIL–PIL*	*Recovery-related variables*	*Relationship between MIL–PIL and recovery-related variables*
23. Little and Robinson (1989)	30 incarcerated inmates receiving substance abuse treatment (*M* age = 25)	Life purpose questionnaire (LPQ)[10]	(1) Time in treatment (2) Advancement in moral reconation therapy	(1) $r = 0.32$, $p = 0.05$ (2) $r = 0.50$, $p = 0.01$
24. Giannetti (1981)	130 recovering alcoholics in professional inpatient treatment (95/130 also attending Alcoholics Anonymous) (*M* age = NR)	Purpose in life test (PILT)	(1) Length of AA attendance (2) Severity of drinking	(1) $r = 0.14$, $p < 0.05$ (2) $r = -0.16$, $p < 0.05$

Footnotes pertaining to method of operationalizing MIL–PIL [1]Purpose in life test (Crumbaugh 1968); [2]PILT was assessed 15-months after a 3-month treatment phase; [3]Assessed using the following single-item measure: *"To what extent do you agree that your life really does have meaning and purpose?"* [4]Quality of life (Cummins 1997) ; [5]Relationship and Generic meaning scale (Robinson and Hart 2009);[6] Purpose in life was calculated by computing the difference score between "found meaning" and "meaning seeking" (representative of "hitting bottom"); [7]Existential well-being subscale from the spiritual well-being Scale (Ellison 1983); [8]The sense of coherence scale (Antonovsky 1993); [9]Measure of well-being involving 5x hedonic items and 5x meaning items; [10]Life purpose questionnaire (Hutzell 1989)

Other footnotes [a]For every 1 unit increase above the mean in 15-month PILT, participants were 3.9 % more likely to achieve sustained sobriety over a 6-month period of time; [b]Perceived difference between level of depression at the point of treatment intake (recalled from 2.5 years prior) to point of assessment; [c]Perceived difference between level of anxiety at the point of treatment intake (recalled from 2.5 years prior) to point of assessment; [d]Three domain index of quality of life (Betty Ford Institute Consensus Panel report 2007); [e]For every 1 unit increase in purpose in life 15-months POST treatment, participants were 3.9 % more likely to get sober; [f]For each 1 unit increase above the mean in Purpose in life 15-months POST treatment, the odds of African American participants getting sober were 4.4 % greater than for Caucasian participants; [g]Mean weighted Pearson *r* averages values across 11 total outpatient and aftercare settings; [h]Partial correlations control for regression residual variances

Table 20.6 Association of MIL–PIL during or after treatment to treatment processes and diverse treatment outcomes

Study	Consumption-or abstinence-related correlates	Treatment-related correlates	Psychosocial correlates	Spirituality/ Religiosity correlates
1. Gomes and Hart (2009)	$r = 0.42$ (abstinence)	$r = 0.40$ (AA involvement) $r = 0.16$ (AA attendance)†	$r = -0.55$ (depression) $r = -0.43$ (anxiety) $r = 0.11$ (anxiety improvement)† $r = 0.30$ (depression improvement)	
2. Hart and Singh (2009)			$r = 0.38$ (quality of life) $r = 0.41$ (personal functioning) $r = 0.26$ (interpersonal functioning) $r = 0.24$ (societal functioning)	
3. Pocrnic et al. (2009)		$r = 0.35$ (AA involvement)	$r = 0.19$ (changes in the frequency of criminal offending behavior)†	
4. Krentzman (2008)	$r = -0.29$(drinks per drinking day) $r = -0.22$ (percent days abstinent) $r = 0.23$ (6-month sobriety)		$r = -0.39$ (depression)	
5. Laudet and White (2008)	$r = 0.23$ (sustained abstinence)	$r = 0.24$ (12-step involvement)	$r = 0.28$ (social support for recovery)	$r = 0.57$ (spirituality)
	$r = 0.10$ (length of abstinence–time since last consumption at baseline)†	$r = 0.16$(AA/NA meeting attendance)	$r = 0.36$ (general support) $r = 0.26$ (quality of life; baseline) $r = 0.23$ (quality of life; follow-up) $r = -0.12$ (stress; baseline) $r = -0.14$ (stress; follow-up)	$r = 0.67$ (religious practices)
6. Oakes (2008)	$r = .18$ (years abstinent)†	$r = 0.23$ (AA involvement)		$r = 0.22$ (spiritual openness) $r = 0.12$ (recent faith practice)†
7. Rocco (2007)	$r = 0.31$ (years abstinent)	$r = 0.21$(AA involvement)	$r = 0.66$ (social support appraisal)	

(continued)

Table 20.6 (continued)

Study	Consumption-or abstinence-related correlates	Treatment-related correlates	Psychosocial correlates	Spirituality/ Religiosity correlates
8. Laudet et al. (2006)	$r = 0.11$ (months abstinent)	$r = 0.26$ (12-step involvement) $r = 0.19$ (AA/NA meeting attendance)	$r = 0.28$ (quality of life)	
9. Kairouz and Dube (2000)	$r = 0.30$ (length of abstinence)			
10. Junior (1999)	$r = 0.39$ (length of abstinence)		$r = 0.32$(self-esteem) $r = 0.55$ (abstinence self-efficacy)	
11. Berg et al. (1996)			$r = -0.74$ (emotional distress)	
12. Montgomery et al. (1995)		$r = 0.48$ (AA involvement) $r = 0.16$ (AA attendance)†		
13. Carroll (1993)		$r = 0.24$ (AA attendance)		$r = 0.59$ (spirituality)
14. Waisberg (1990)			$r = 0.67$ (significant relationships) $r = 0.48$ (family relations) $r = 0.30$ (friendships) $r = 0.35$ (positive work functioning)	
15. Little and Robinson (1989)		$r = 0.32$ (time in treatment) $r = 0.50$ (Advancement in moral Reconation therapy)		
16. Giannetti (1981)	$r = -0.16$ (severity of drinking)	$r = 0.14$ (length of AA attendance)		
Unweighted mean effect size using significant Pearson ***r*'s**	$r_{um} = 0.27$	$r_{um} = 0.29$	$r_{um} = 0.38$	$r_{um} = 0.51$
Unweighted mean effect size using all Pearson ***r*'s**	$r_{um} = 0.25$	$r_{um} = 0.27$	$r_{um} = 0.36$	$r_{um} = 0.43$

Footnotes †= nonsignificant zero-order correlations

research bearing on the question of whether MIL–PIL is positively related to factors facilitative of remission and AOD recovery and negatively related to risk factors for backsliding.

A cursory temporal analysis of the publication dates shows that relatively fewer studies were conducted before the year 2000 (six studies; 25 %), as opposed to after (18 studies; 75 %) the year 2000 (range = 1977–2013). These data suggest work in this area tends to be very recent.

Table 20.5 takes stock of 24 empirical studies involving a total of 8,430 participants. Methodologically, it is important to note that some participant samples appear more than once across studies. For instance, one study may report 12-month outcome data for a particular group of participants while a different study reports 24-month follow-up data for the exact same group. In such instances, the same respondents would be duplicated in our computation of the aggregate sample size, thereby violating the statistical assumption of independence of observations.

Table 20.5 organizes existing research that has examined "recovery-related" correlates of MIL–PIL in clinical samples who have attempted to resolve their AOD problem by means that are either formal in nature (professional treatment) or informal in nature (e.g., community-based meetings of Alcoholics Anonymous). A quick glance at Tables 20.5, 20.6 shows that studies vary widely in terms of their research designs, sample composition, and treatment settings. Furthermore, one can see diversity in how MIL–PIL was operationalized and how "recovery" was assessed. In keeping with the recent paradigm shift (i.e., re-envisioning "recovery" as encompassing more than drinking-related outcomes), we have expanded the conceptual scope of "recovery" to include other domains of client functioning and well-being. These broader consequences of treatment/remediation involve QoL, and are both objective in nature (e.g., return to work) and subjective (e.g., anxiety). Whilst the data shown in Tables 20.5, 20.6 are not explicitly intended to show far reaching effects of AOD interventions on diverse outcomes, this idea is implicit since correlates were observed to span multiple domains of client well-being.

The age demographic of Table 20.5 participants is shown to lie primarily within the boundaries of middle adulthood. Specifically, 18 out of the 24 studies (75 %) report mean or median age statistics in the range of 30–50 years old. The composition of subsamples appears to be relatively diverse in terms of other participant characteristics. For instance, variation can be observed among: (a) the type of treatment that participants received, and (b) participants' status as either current or former seekers of AOD-related treatment.

Studies embedded within Tables 20.5, 20.6 also seem to incorporate different research designs and methodologies for examining recovery-related correlates of MIL–PIL. In particular, cross-sectional designs were prominent among examinations of MIL–PIL and recovery-related variables at a single time point. Other common designs across Table 20.5 studies include: (a) longitudinal analyses of treatment participants over time, and (b) secondary analyses on archival datasets (i.e., ProjectMATCH). Collapsing across all Table 20.5 studies, we can also see significant variation among measures of MIL–PIL. Specifically, 10 different

measures of MIL–PIL exist across all 24 studies. Similar to previous tables and analyses, Crumbaugh and Maholick's (1968) PILT surfaces as the most frequently employed measure of MIL–PIL. This measure appears in 15 out of 24 studies (63 %).[3]

A total of 74 statistical associations between MIL–PIL and recovery-related variables are reported across all studies. Many of the MIL–PIL correlates reported in this table can be subsumed under the following categories or recovery-related domains: (1) consumption-related behaviors (i.e., sustained abstinence, drinks per drinking day, etc.), (2) treatment-related behaviors (e.g., treatment attendance, treatment involvement, etc.), (3) psychosocial functioning (i.e., depression, anxiety, etc.), and (4) spirituality/religiosity (e.g., recent faith practice). Of the 74 MIL–PIL associations included in Table 20.5, 26 % are with consumption-related variables, 27 % are with treatment-related variables, 38 % are with psychosocial variables, and 9 % are with religiosity/spirituality variables. Overall, 63 out of the 74 statistical associations (85 %) are reported as statistically significant. Among null associations (i.e., 11/74; 15 %), four correlates are consumption-related variables (36 %), two correlates are treatment-related variables (18 %), three correlates are psychosocial variables (27 %), and two correlates are spirituality/religiosity variables (18 %).

Many of the statistics reported in Table 20.5 are zero-order Pearson *r* correlations (57/74; 77 %). A large proportion of these values (50/57; 88 %) were reported as being statistically significant. Unweighted mean effect sizes were computed to assess the magnitude of significant associations between MIL–PIL and each overarching "recovery" category. Since the majority of Table 20.5 studies reported Pearson *r* findings, significant zero-order correlations were averaged across each category and used to compute these values. Findings showed variables belonging to the spirituality/religiosity domain to have the strongest aggregate associations with MIL–PIL ($r_{um} = 0.52$), followed by variables belonging to psychosocial ($r_{um} = 0.38$), treatment-related ($r_{um} = 0.29$), and consumption-based ($r_{um} = 0.27$) domains. These data are summarized in Table 20.6. Aggregate values in this case provide a liberal approximation of MIL–PIL's "true" underlying association with each recovery domain since only significant Pearson *r* values are considered. We pooled significant and nonsignificant Pearson *r* values within each domain to generate more conservative estimates. Results pertaining to these analyses can be seen in the last row of Table 20.6. While the magnitude of each unweighted mean effect size decreased slightly, the overall *rank order* of unweighted mean effect sizes did not change among the four recovery domains.

Results shown in Table 20.5 provide strong and consistent evidence to suggest that MIL–PIL levels may be relevant to understanding a wide variety of outcomes and processes amongst clients who are attempting to resolve their difficulties with AOD involvement. In looking at the heterogeneity of these outcomes and

[3] Although Krentzman (2008) used the PILT, her final operationalization of MIL–PIL was a difference score between "Found Meaning" (PILT) and "Meaning Seeking".

processes, we felt it would be useful—for heuristic purposes—to chunk MIL–PIL correlates into categories. Thus, as a visual organizational tool, we have supplemented Table 20.5 with Table 20.6. This addendum provides an easy to read 4-fold taxonomy of outcomes and processes.

In the first column of Table 20.6, we display all the effect sizes linking MIL–PIL to the behavioral outcome of AOD involvement. In the second column of Table 20.6, we have grouped findings that describe MIL–PIL correlates of treatment-process (e.g., time in treatment, treatment, attendance, etc.), many of which have been established in other research studies as empirically validated predictors of AOD involvement. While we consider 'treatment-related correlates' as mediators of MIL–PIL effects on AOD outcomes, it should be noted that treatment adherence and treatment involvement carry additional benefits that extend beyond their impact on abstinence. In the third column of Table 20.6, we have amassed findings that describe psychosocial correlates of MIL–PIL (e.g., social support, anxiety). Again, many of these correlates have been empirically validated in previous studies as predictors of AOD involvement (e.g., Moos 2007). Although we consider these 'psychosocial processes' as mediators of MIL–PIL effects on AOD outcomes, processes such as social support and anxiety should be recognized as important outcomes in their own right. The final column of Table 20.6 organizes findings linking MIL–PIL to Spirituality and Religiosity. Spirituality has been an especially prominent ingredient in AOD treatments seeking to facilitate positive drinking-related outcomes.

Tables 20.5 and 20.6 Summary, Conclusion and Future Directions

Prior to our literature search for Table 20.5, we had developed an apriori expectation of what a profile of MIL–PIL correlates might look like. Our Psychosocial Resilience Model led us to expect that the MIL–PIL variable may act like a magnet with two poles. One pole attracts assets and strengths, which we might term "recovery capital" and the other pole repels weaknesses and risk factors. Our model suggest that these two processes work in concert to enhance "generalized recovery" from AOD misuse as defined by the Betty Ford Institute and SAMHSA. We are using the term "generalized recovery" to connote a more pervasive vision of "flourishing in life," as opposed to a narrowly defined remission perspective of recovery characterized by abstinence from AOD involvement.

The pattern of data shown in Tables 20.5, 20.6 is strongly supportive of our Psychosocial Resilience Model account of how MIL–PIL might confer an adaptive advantage in the context of rehabilitation from AOD misuse. Inspection of the pattern of findings displayed in Table 20.6 suggests that a favorably balanced profile of psychosocial assets relative to liabilities may account for the reasons why AOD clients who score high on MIL–PIL enjoy better drinking outcomes than counterparts who experience an existential vacuum.

As can been seen in the first column of data reported in Table 20.6, we identified a total of 12 Pearson *r*'s that tested whether MIL–PIL was linked to the classic yardstick for measuring treatment success: duration of abstinence. We find it worth noting that 10 of the 12 effects were significant and in the expected direction. Indeed, this is a well-replicated and pervasive finding appearing within the extant literature base. Because these are correlations, however, we urge readers to exert caution in drawing any firm conclusions about the salutogenic status of MIL–PIL. By way of comparison, the theory underlying MIL–PIL's presumed salutogenic status is clear. It leads us to tentatively conclude that MIL–PIL is a resilience resource contributing, in a cause-and-effect manner, to stable remission from AOD by amplifying the beneficial influence of treatment. Although this conclusion is provisional, it is consistent with a similar conclusion offered by Moos (2007) in his wonderful review article entitled, "*Theory-based processes that promote the remission of substance use disorders.*" In accounting for MIL–PIL's effects on sobriety, Franklian thinking would also suggest that AOD clients with an especially strong meaning orientation are more likely to see coherence and significance in the treatment services they receive. Moreover, these clients may also be more likely to view their treatment goals as worthwhile investments of their time. Under these conditions, it would not be surprising to find higher rates of treatment adherence and program commitment.

General Discussion

We offer five general conclusions from our analysis of the results that we have reported.

- First, we found tentative evidence to suggest MIL–PIL may help us understand the initiation, onset, frequency and intensity of AOD involvement during adolescence and young adulthood. If this conclusion holds-up in future studies involving rigorous research designs and analytical approaches, it would justify the implementation of MIL–PIL interventions aimed at secondary prevention.
- Second, MIL–PIL may enable behavioral scientists to better understand the progression or course of AOD involvement up to, but not including the decision to quit or cut-back. If this conclusion holds up in future studies involving rigorous research designs and analytical approaches, it would also justify the implementation of MIL–PIL interventions aimed at secondary prevention. These interventions would need to be of a higher degree of intensity.
- Third, it seems plausible that MIL–PIL influences a person's decision to seek professional or informal help for an AOD-related problem. If this conclusion holds up in future studies involving rigorous research designs and analytical approaches, it would also justify the implementation of MIL–PIL interventions aimed at alleviating the subjective experience of "hitting bottom." Paradoxically, seeking to amplify or magnify the salience of noogenic neurosis may also create optimal conditions needed for "creative despair." Again, this is

the kind of existential despair which calls out to the (otherwise) hidden Defiant Power of the Human Spirit.

- Fourth, there is strong evidence suggesting that MIL–PIL scores improve after individuals enter the action stage of addictive behavior change. Once individuals make the decision to seek professionally or nonprofessionally guided assistance, MIL–PIL seems to improve over time as a function of treatment involvement. Despite this general observation, we encourage future researchers to adopt the use of rigorous experimental designs capable of disentangling whether or not MIL–PIL improvements are occurring due to the "active ingredients" of treatment or as the result of some other set of confounding variables.
- Finally, MIL–PIL may enable clients to extract a wider variety of benefits from whatever kind of treatment they are receiving. We have coined this outcome as a "breadth effect." In addition to greater extraction of widespread benefits, MIL–PIL may amplify the magnitude of diverse effects. The term we have given to this outcome is an "amplification effect." Any number of interventions could be tested as ancillary components of "treatment as usual." These could include Meaning Centered Counselling, Logotherapy, Narrative Therapy, etc.

We recommend future scholarship adopt a life course perspective which has the potential to expand the continuum of care by improving our capacity to serve the less intensive needs of the untreated majority of people who are troubled by an AOD problem—but not sufficiently troubled to seek professional help. From a population health perspective, we advocate for this approach since it considers the very low base rate of persons who seek professional treatment for AOD disorders. We hope the current chapter will help develop the science and practice in this area. One day in the future, we can envision brief interventions being delivered to high-risk students (e.g., in school settings) to bolster MIL–PIL.

We can also foresee a number of additional directions for future intervention research. For instance, researchers should be careful to evaluate MIL–PIL interventions using a broad array of outcome criteria that are tied to the Betty Ford Institute Consensus Panel (BFICP, 2007). As you will recall, the BFICP report differentiated between two different kinds of positive recovery outcomes: (a) being dry/drug free, and (b) having a high QoL. Specifically, AOD recovery was defined "*as a voluntarily maintained lifestyle characterized by sobriety, personal health, and citizenship*" (p. 221). Because "personal health" encompasses a number of facets including emotional and existential, and spiritual wellbeing, we urge future scholars to ensure they fully account for all (or many) of these qualities.

Future scholars should also ensure that their method of assessing intervention outcome conforms to the SAMHSA's working definition of "recovery." Their four facets included: (1) restoration of health (broadly defined), (2) restoration of home (broadly defined), (3) restoration of community, and (4) restoration of a sense of meaning and purpose in life.

Special attention should be given to the fourth SAMHSA facet, "*meaning and purpose*." According to SAMHSA, a long-term resolution to AOD-related issues is

one that enables the ex-substance misuser to exercise self-determination in choosing meaningful life goals that are personally expressive and making use of signature strengths. For SAMHSA, quality recovery is sustainable recovery. This idea requires that meaningful purposes extend beyond a single-minded and myopic concern with curbing observable drinking or drug taking behaviour. These broader purposes could include a variety of goals, provided these goals also infuse a sense of meaning and purpose in life. Examples of goals likely to bolster a sense of meaning and purpose include aspirations such as a getting or holding a job, attending school, being of service to others through volunteerism, pursuit of social and recreational goals, or creative endeavors. These and other types of "meaning-and-purpose" focused interventions are described in a new book entitled, "*The Positive Psychology of Meaning in Addiction Recovery*" (Wong et al. 2013).

Although MIL–PIL may have scientific and practical utility in terms of understanding rehabilitation during the "dry" stage of one's AOD career, results shown in Tables 20.1 and 20.2, 20.3 of the current chapter suggest a wider role for MIL–PIL. Consistent with the broad-spectrum model, featured in our life course organizational framework used to collate extant research findings, we believe there is reason to be cautiously optimistic in thinking high levels of MIL–PIL may serve to protect persons early in their AOD career. Many people who are still in the active or "wet" stage are likely to reside in school or workplace settings, which make these contexts prime candidates for brief initiatives aimed at inculcating higher levels of MIL–PIL. Of course, scholarship will be needed to test whether or not secondary interventions actually work to inoculate or protect high-risk individuals from AOD misuse.

For interventionists who wish to base their methods on theory, we recommend an integrative conceptual article entitled, "*Purpose in Life as a System that Creates and Sustains Health and Well-Being*" (McKnight and Kashdan 2009). In terms of practical applications, we recommend a "tool kit" described in a 2011 book entitled, "*Public Health Tools for Practicing Psychologists*" (Tucker and Grimley 2011). With some creative thought, we believe many approaches in this book could be adapted to fit secondary prevention initiatives designed to bolster MIL–PIL for individuals in precontemplation, contemplation, or preparation stages of addictive behavior change. Because it is testable, the long-term promise of the life course paradigm comes in the form of providing a useful meta-conceptual framework for empirical validation studies of brief AOD services. In turn, these studies could enable the untreated majority to gain access to resources matching their needs.

In looking into our crystal ball, we see many reasons to be optimistic about the future growth and expansion of theory, research and practice in this broad area of interdisciplinary inquiry spanning fields of academic psychology and public health. It is difficult to be specific about what the second generation of scholarship in this area might bring. However, the zeitgeist seems fitting for a creative synthesis of conceptual approaches derived from various fields previously existing in isolation of one another. We see much opportunity in the future for scholars who are fond of building bridges designed to span interdisciplinary boundaries and connect

"silos". Future studies attempting to connect MIL–PIL to AOD involvement seem well positioned to bring together, in ways that would cohere, work from within some or all of the following silos:

- Positive Psychology (e.g., well-being, flourishing, eudaimonia, goal pursuit),
- Resilience (e.g., overcoming adversity, post-traumatic growth),
- Humanistic Psychology and Psychotherapy (e.g., growth mindset, strengths orientation, client's personally held cognitions/constructions and phenomenology),
- Existential Philosophy and Psychotherapy (e.g., ideas of Kierkegaard, Heidegger, Frankl—related treatment methods of logotherapy, existential analysis and meaning-centered counselling),
- QoL (WHO conception of health),
- Comprehensive and Holistic Models of AOD Recovery (e.g., Betty Ford and SAMHSA).

We remain hopeful that creative minded scholars will develop diverse and integrative theoretical frameworks in the future that will be tested using rigorous methodologies. This process will lay a solid foundation for translational research and for the eventual dissemination of evidence-based interventions for individuals at different stages of AOD involvement. We also remain hopeful that second generation scholars will find heuristic value in couching their work within the life course frame of reference. In this connection, we urge policy makers and those in public health to create "white papers" (framed within a lifespan perspective of AOD involvement) articulating a vision for anticipated socio-economic and political benefits. Of course, our own bias is that white papers such as these encourage stakeholders (up and down the continuum of AOD involvement) to appreciate the salutogenic value of acquiring a sense of meaningful purpose.

References

Antonovsky, A. (1993). The structure and properties of the sense of coherence scale. *Social Science and Medicine, 36*, 725–733.

Arevalo, S., Prado, G., & Amaro, H. (2008). Spirituality, sense of coherence, and coping responses in women receiving treatment for alcohol and drug addiction. *Evaluation and Program Planning, 31*, 113–123.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561–571.

Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: The hopelessness scale. *Journal of Consulting and Clinical Psychology, 42*, 861–865.

Beckwith, H. D. (2006). Risky behavior in college students: The influence of religiosity and spirituality. *Dissertation Abstracts International* (Doctoral dissertation).

Benson, P. L., Scales, P. C., Hamilton, S. F., & Sesma, A., Jr. (2006). Positive youth development: Theory, research, and applications. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 894–941). Hoboken, NJ: Wiley.

Berg, J. E., Andersen, S., Brevik, J. L., & Alveberg, P. (1996). Drug addiction as a lifestyle. *Scandinavian Journal of Social Welfare, 5*, 30–34.

Butler, S. F., Budman, S. H., McGee, M. D., Davis, M. S., Cornelli, R., & Morey, L. C. (2006). Addiction severity assessment tool: Development of a self-report measure for clients in substance abuse treatment. *Alcohol and Drug Dependence, 80*, 349–360.

Carroll, S. (1993). Spirituality and purpose in life in alcoholism recovery. *Journal of Studies on Alcohol, 54*, 297–301.

Chen, G. (2006). Social support, spiritual program, and addiction recovery. *International Journal of Offender Therapy and Comparative Criminology, 50*, 306–323.

Cohen, S. R., Hassan, S. A., Lapointe, B. J., & Mount, B. M. (1996). Quality of life in HIV disease as measured by the McGill quality of life questionnaire. *AIDS, 10*, 1421–1427.

Crumbaugh, J. C. (1968). Cross-validation of purpose-in-life test based on Frankl's concepts. *Journal of Individual Psychology, 24*, 74–81.

Cummins, R. A. (1997). Self-rated quality of life scales for people with an intellectual disability: A review. *Journal of Applied Research in Intellectual Disabilities, 10*, 199–216.

Donovan, D., Mattson, M. E., Cisler, R. A., Longabaugh, R., & Zweben, A. (2005). Quality of life as an outcome measure in alcoholism treatment research. *Journal of Studies on Alcohol Supplement, 15*, 119–139.

Dull, T. R. (1983). An empirical examination of the anomie theory of drug use. *Journal of Drug Education, 13*, 49–62.

Ellison, C. (1983). Spiritual well-being: Conceptualization and measurement. *Journal of Psychology and Theology, 11*, 330–340.

Fassino, S., Daga, G. A., Delsedime, N., Rogna, L., & Boggio, S. (2004). Quality of life and personality disorders in heroin abusers. *Drug and Alcohol Dependence, 76*, 73–80.

Frankl, V. E. (1963). *Man's search for meaning*. New York: Washington Square Press.

Frankl, V. E. (1984). *Man's search for meaning: Revised and updated*. New York: Washington Square Press.

Frankl, V. E. (2004). *On the theory and therapy of mental disorders: Introduction to logotherapy and existential analysis*. London, UK: Brunner-Routledge.

Foster, J. H., Powell, J. E., Marshall, E. J., & Peters, T. J. (1999). Quality of life in alcohol dependent subjects—A review. *Quality of Life Research, 8*, 25–261.

Giannetti, V. J. (1981). Alcoholics Anonymous and the recovering alcoholic: An exploratory study. *American Journal of Drug and Alcohol Abuse, 8*, 363–370.

Gomes, K., & Hart, K. E. (2009). Adherence to recovery practices prescribed by Alcoholics Anonymous: Benefits to sustained abstinence and subjective quality of life. *Alcoholism Treatment Quarterly, 27*, 223–235.

Good, L. R., & Good, K. C. (1974). A preliminary measure of existential anxiety. *Psychology Reports, 34*, 72–74.

Gruner, L. (1984). Herion, hashish, and hallelujah: The search for meaning. *Review of Religious Research, 26*, 176–186.

Harlow, L. L., Mitchell, K. J., Fitts, S. N., & Saxon, S. E. (1999). Psycho-Existential distress and problem behaviours: Gender, subsample, and longitudinal tests. *Journal of Applied Biobehavioral Research, 4*, 111–138.

Hart, K. E., & Sasso, T. (2011). Mapping the contours of contemporary positive psychology. *Canadian Psychology*, *52*(2), 82–92

Hart, K. E., & Singh, T. (2009). An existential model of flourishing subsequent to treatment for addiction: The importance of living a meaningful and spiritual life. *Illness, Crisis, & Loss, 17*, 125–147.

Horn, J. L., Wanberg, K. W., & Foster, F. M. (1977). *The alcohol use inventory—AUI*. Denver: Center for alcohol abuse research and evaluation.

Hser, Y. I., Longshore, D., & Anglin, M. D. (2007). The life course perspective on drug use: A conceptual framework for understanding drug use trajectories. *Evaluation Review, 31*, 515–547.

Hutzell, R. R. (1989). *Life purpose questionnaire overview sheet*. Berkeley: Logotherapy Press.

Hutzell, R. R., & Finck, W. C. (1994). Adapting the life purpose questionnaire for use with adolescent populations. *The International Forum for Logotherapy, 17*, 42–46.

Ianni, P. A., Hart, K. A., Hibbard, S., Carroll, M., Milosevic, A., & Wilson, T. (2010, January). Lack of perceived meaning in life as an existential-spiritual risk factor for alcohol abuse: Moderating effects of gender. In *Poster Presented at Convention for the Society for Personality and Social Psychology, Las Vegas, NV.*

Ianni, P. A., Hart, K. E., Carey, T. M., & Robinson, A. (2012, July). Secular verses spiritual meaning: Which one offers better protection against alcohol misuse? In *Poster Presented at Convention of the International Network on Personal Meaning, Toronto, ON.*

Johnson, T. J., Sheets, V. L., & Kristeller, J. L. (2008). Empirical identification of dimensions of religiousness and spirituality. *Mental Health, Religion, & Culture, 11*, 745–767.

Junior, V. Y. (1999). Self-esteem, self-efficacy, and purpose and meaning in life among recovering alcoholics in Alcoholics Anonymous. *Dissertation Abstracts International* (Doctoral dissertation).

Kairouz, S., & Dube, L. (2000). Abstinence and well-being among members of Alcoholics Anonymous: Personal experience and social perceptions. *The Journal of Social Psychology*, *140*, 565–579.

Kinnier, R. T., Metha, A. T., Keim, J. S., Okey, J. L., Adler-Tabia, R. L., Berry, M. A., et al. (1994). Depression, meaninglessness, and substance abuse in "normal" and hospitalized adolescents. *Journal of Alcohol & Drug Education, 39*, 101–111.

Kleftaras, G., & Katsogianni, I. (2012). Spirituality, meaning in life, and depressive symptomatology in individuals with alcohol dependence. *Journal of Spirituality in Mental Health, 14*, 268–288.

Krause, N. (2003). Race, religion, and abstinence from alcohol in late life. *Journal of Aging and Health, 15*, 508–533.

Krentzman, A. R. (2008). Spirituality, religiosity, and alcoholism treatment outcomes: A comparison between black and white participants. *Dissertation Abstracts International* (Doctoral dissertation).

Krentman, A. R., Farkas, K. J., & Townsend, A. L. (2010). Spirituality, religiousness, and alcoholism treatment outcomes: A comparison between black and white participants. *Alcoholism Treatment Quarterly, 28*, 128–150.

Krupitsky, E., & Burakov, A. M. (1996). Continued studies into underlying psychological mechanisms of Ketamine Psychedelic Therapy (KPT). *Multidisciplinary Association for Psychedelic Studies, 6*, 1–3.

Lam, C. W., Ng, H. Y., & Boey, K. W. (2002). Measuring drug abuse: The development of the Chinese Drug Involvement Scale (CDIS) in Hong Kong. *Research on Social Work Practice, 12*, 525–533.

Laudet, A. B., Morgen, K., & White, W. L. (2006). The role of social supports, spirituality, religiousness, life meaning, and affiliation with 12-step satisfaction among individuals in recovery from alcohol and drug problems. *Alcoholism Treatment Quarterly, 24*, 33–73.

Larson, R. W. (2000). Toward a psychology of positive youth development. *American Psychologist, 55*, 170–183.

Laudet, A. B., & White, W. L. (2008). Recovery capital as prospective predictor of sustained recovery, life satisfaction, and stress among former poly-substance users. *Substance Use & Missuse, 43*, 27–54.

Little, G. L., & Robinson, K. D. (1989). Effects of moral reconation therapy upon moral reasoning, life purpose, and recidivism among drug and alcohol offenders. *Psychological Reports, 64*, 83–90.

Majer, J. M. (1992). Assessing the logotherapeutic value of 12-step therapy. *The International Forum for Logotherapy, 15*, 86–89.

Marsh, A., Smith, L., Piek, J., & Saunders, B. (2003). The purpose in life scale: Psychometric properties for social drinkers and drinkers in alcohol treatment. *Educational and Psychological Measurement, 63*, 859–871.

McBroom, J. (1994). Correlates of alcohol and marijuana use among junior high school students: Family, peers, school problems and psychosocial concerns. *Youth Society, 26*, 54–68.

McKnight, P. E., & Kashdan, T. B. (2009). Purpose in life as a system that creates and sustains health and well-being: An integrative, testable theory. *Review of General Psychology, 13*, 242–251.

McLellan, A. T., Luborsky, L., Woody, G. E., & O'Brien, C. P. (1980). An improved diagnostic instrument for substance abuse patients: The Addiction Severity Index. *Journal of Nervous and Mental Disease, 168*, 26–33.

Midanik, L. T., Soghikian, K., Ransom, L. J., & Polen, M. R. (1992). Alcohol problems and sense of coherence among older adults. *Social Science Medicine, 34*, 43–48.

Midanik, L. T., & Zabkiewicz, D. (2009). Indicators of sense of coherence and alcohol consumption-related problems: The 2000 U.S. national alcohol study. *Substance Use and Misuse, 44*, 357–373.

Miller, G. A., & Russo, T. J. (1995). *Alcoholism, spiritual well-being and the need for transcendence*. NC: Appalachian State University (Unpublished manuscript)

Minehan, J. A., Newcomb, M. D., & Galaif, E. R. (2000). Predictors of adolescent drug use: Cognitive abilities, coping strategies, and purpose in life. *Journal of Child and Adolescent Substance Abuse, 10*, 33–52.

Moller-Leimkuhler, A. M., Cuperman, A., & Koller, G. (2006). Gender-role orientation and personal resources of male and female alcohol dependents after inpatient detoxification and at 6-month follow up. *Suchtmedizin in Forschung und Praxis*, *8*, 35–44.

Montgomery, H. A., Miller, W. R., & Tonigan, J. S. (1995). Does Alcoholic Anonymous involvement predict treatment outcome? *Journal of Substance Abuse Treatment, 12*, 141–146.

Moos, R. H. (2007). Theory-based processes that promote the remission of substance use disorders. *Clinical Psychology Review, 27*, 537–551.

Myrin, B., & Lagerstrom, M. (2006). Health behaviour and sense of coherence among pupils aged 14–15. *Scandinavian Journal of Caring Science*, *20*, 339–346.

Nam, J. S., Heritage, J. G., & Kim, J. K. (1994, November). Predictors of drug/alcohol abuse and sexual promiscuity of college students. In *Paper presented at the Annual Meeting of the Tennessee Counseling Association, Chattanooga, TN*.

Neal, A. G., & Seeman, M. (1964). Organizations and powerlessness: A test of the mediation hypothesis. *American Sociological Review, 29*, 216–225.

Neuner, B., Miller, P., Maulhardt, A., Weiss-Gerlach, E., Neumann, T., Lau, A., et al. (2006). Hazardous alcohol consumption and sense of coherence in emergency department patients with minor trauma. *Drug and Alcohol Dependence, 82*, 143–150.

Newcomb, M. D., & Harlow, L. L. (1986). Life events and substance use among adolescents: Mediating effects of perceived loss of control and meaningless in life. *Journal of Personality and Social Psychology, 51*, 564–576.

Nicholson, T., Higgins, W., Turner, P., James, S., Stickle, F., & Pruitt, T. (1994). The relation between meaning in life and the occurrence of drug abuse: A retrospective study. *Psychology of Addictive Behaviors, 8*, 24–28.

Oakes, E. K., Allen, J. P., & Ciarrocchi, J. W. (2000). Spirituality, religious problem-solving, and sobriety in Alcoholics Anonymous. *Alcoholism Treatment Quarterly*, *18,* 37–50.

Oakes, E. K. (2008). Purpose in life: A mediating variable between involvement in Alcoholics Anonymous and long-term recovery. *Alcoholism Treatment Quarterly, 26*, 450–463.

Okasaka, Y., Morita, N., Nakatani, Y., & Fujisawa, K. (2008). Correlation between addictive behaviors and mental health in university students. *Psychiatry and Clinical Neuroscience, 62*, 84–92.

Padelford, B. (1974). Relationship between drug involvement and purpose in life. *Journal of Clinical Psychology, 30*, 303–305.

Pargament, K. I. (1999). *Multidimensional measurements of religiousness/spirituality for use in health research*. Kalamazoo, MI: Fetzer Institute.

Piderman, K. M., Schneekloth, T. D., Pankratz, S. V., Maloney, S. D., & Altchuler, S. I. (2007). Spirituality in alcoholics during treatment. *The American Journal on Addictions, 16*, 232–237.

Piedmont, R. L. (2004). Spiritual transcendence as a predictor of psychosocial outcome from an outpatient substance abuse program. *Psychology of Addictive Behaviors, 18*, 213–222.

Piedmont, R. L. (1999). Does spirituality represent the sixth factor of personality? Spiritual transcendence and the five-factor model. *Journal of Personality, 67*, 985–1013.

Pocrnic, A., Hart, K., & Singh, T. (2009, October). Involvement in Alcoholics Anonymous during aftercare: Beneficial effects on criminal offending behavior. In *Poster presented at Making Gains in AOD Conference, Toronto, ON*.

Prochaska, J. Q, & DiClemente, C. C. (1986). Toward a comprehensive model of change. In W. R. Miller & N. Heather (Eds.), *Treating addictive behaviors: Processes of change* (pp. 3–27). New York: Plenum Press.

Reker, G. T., & Peacock, E. J. (1981). The Life Attitude Profile (LAP): A multidimensional instrument for assessing attitudes toward life. *Canadian Journal of Behavioural Science/, 13*, 264–273.

Reker, G. T. (1991). *The LAP and LAP-R provisional procedures manual*. Peterborough, ON, Canada: Trent University.

Reker, G. T. (2000). Theoretical perspective, dimensions, and measures of existential meaning. In G. T. Reker, & K. Chamerlain (Eds.), *Exploring existential meaning: Optimizing human development across the lifespan* (pp. 39–55). Thousand Oaks, CA, USA: Sage Publications.

Robinson, A. E. R. & Hart, K. E. (2009, October). Understanding the relationship between AA involvement and abstinence self-efficacy: The mediating effects of specific versus inclusive sense of meaning. In *Poster Presented at the Making Gains in AOD Research conference, Toronto Canada*.

Robinson, E. A. R., Cranford, J. A., Webb, J. R., & Brower, K. J. (2007). Six-month changes in spirituality, religiousness, and heavy drinking in a treatment-seeking sample. *Journal Studies of Alcohol and Drugs, 68*, 282–290.

Robinson, E. A. R., Cranford, J. A., & Krentzman, A. R. (2013). *Increases in purpose of life over 2 1/2 years are associated with remission from alcohol dependence*. Ann Arbor, MI: University of Michigan (unpublished manuscript).

Rocco, J. (2007). *Purpose in life, religiosity, social support, and program involvement as predictors of sobriety in Alcoholics Anonymous participants*. Unpublished master's thesis, Humboldt State University, CA, USA.

Rudolf, H., & Watts, J. (2002). Quality of life in substance abuse and dependency. *International Review of Psychiatry, 14*, 190–197.

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*, 141–166.

Ryff, C. D., & Singer, B. H. (2006). Best news yet on the six-factor model of well-being. *Social Science Research, 35*, 1103–1119.

Ryff, C. D., & Singer, B. H. (2008). Know thyself and become what you are: A eudaimonic approach to psychological well-being. *Journal of Happiness Studies, 9*, 13–39.

Saito, S., & Ikegami, N. (1978). KAST (Kurihama Alcoholism Screening Test) and its applications. *Japanese Journal of Alcohol and Drug Dependence, 13*, 229–237.

Saunders, J. B., Aasland, O. G., Babor, T. F., De La Fuente, J. R., & Grant, M. (1993). Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction, 88*, 791–804.

Saunders, S. M., Lucas, V., & Kuras, L. (2007). Measuring the discrepancy between current and ideal spiritual and religious functioning in problem drinkers. *Psychology of Addictive Behaviors, 21*, 404–408.

Sayles, M. L. (1994). Adolescents' purpose in life and engagement in risky behaviors: Differences by gender and ethnicity. *Dissertation Abstracts International* (Doctoral dissertation).

Schlesinger, S., Susman, M., & Koenigsberg, J. (1990). Self-esteem and purpose in life: A comparative study of women alcoholics. *Journal of Alcohol and Drug Education, 36*, 127–141.

Schwarz, R. M., Burkhart, B. R., & Green, S. B. (1978). Turning on or turning off: Sensation seeking or tension reduction as motivational determinants of alcohol use. *Journal of Consulting and Clinical Psychology, 46*, 1144–1145.

Shillingford, J. A. (1991). Alcohol use: The meditational role of stressful events, loss of control, social support, and meaninglessness. *Dissertation Abstracts International* (Doctoral dissertation).

Staton, M., Webster, M. J., Hiller, M., Rostosky, S., & Leukefeld, C. (2003). An exploratory examination of spiritual well-being, religiosity, and drug use, among incarcerated men. *Journal of Social Work Practice in the Addictions, 3*, 87–103.

Stewart, S. H., Hutson, A., & Connors, G. J. (2006). Exploration of the relationship between drinking intensity and quality of life. *The American Journal on Addictions, 15*, 356–361.

Strole, L. (1956). Social integration and certain corollaries: An explanatory study. *American Sociological Review, 21*, 709–716.

The Betty Ford Institute Consensus Panel. (2007). What is recovery? A working definition from the Betty Ford Institute. *Journal of Substance Abuse Treatment, 33*, 221–228.

Tilton, R. F. (2005). An examination of purpose in life in alcohol dependent clients. *Dissertation Abstracts International* (Doctoral dissertation).

Tonigan, S. J. (2001). Benefits of Alcoholics Anonymous attendance: Replication of findings between clinical research sites in project MATCH. *Alcoholism Treatment Quarterly*, *19*, 67–76.

Tsuang, M. T., Williams, W. M., Simpson, J. C., & Lyons, M. C. (2002). Pilot study of spirituality and mental health in twins. *The American Journal of Psychiatry, 159*, 486–488.

Tucker, J. A., & Grimley, D. M. (2011). *Public health tools for practicing psychologists: Advances in psychotherapy: Evidence-based practice* (Vol. 20). Cambridge, MA, USA: Hogrefe Publishing.

Tucker, J. A., & Simpson, C. A. (2011). The recovery spectrum: From self change to seeking treatment. *Alcohol Research and Health, 44*, 371–379.

VonDras, D. D., Schmitt, R. R., & Marx, D. (2007). Associations between aspects of spiritual well-being, alcohol use, and related social-cognitions in female college students. *Journal of Religious Health, 46*, 500–515.

Waisberg, J. L. (1990). Purpose in life, depression, and outcome of treatment for alcohol dependence. *Dissertation Abstracts International* (Doctoral dissertation).

Waterman, A. S. (2013). *The best within us: Positive psychology perspectives on eudaimonia*. Washington D.C., USA: American Psychological Association.

Wong, P. T. P. (Ed.). (2012). *The human quest for meaning: Theories, Research, and Applications* (2nd ed.). GroupNew York, NY, USA: Routledge/Taylor & Francis.

Wong, P. T. P., Thompson, G. R., Wong, L. C. J. (Eds.). (2013). *The positive psychology of meaning and addiction recovery*. Birmingham, AL, USA: Purpose Research.

Wood, R. J., & Hebert, E. (2005). The relationship between spiritual meaning and purpose and drug and alcohol use among college students. *American Journal of Health Studies, 1*, 1–9.

World Health Organization. (1958). *The First Ten Years of the World Health Organization: 1948–1957*. Geneva: World Health Organization.

Zuckerman, M., Kolin, E. A., Price, L., & Zoob, I. (1964). Development of sensation-seeking scale. *Journal of Consulting Psychology, 28*, 477–482.