

The Addiction-Prone Personality

Gordon E. Barnes

University of Victoria, Victoria, British Columbia, Canada

Robert P. Murray and David Patton

University of Manitoba, Winnipeg, Manitoba, Canada

Peter M. Bentler

University of California, Los Angeles, California

and

Robert E. Anderson

University of New Mexico, Albuquerque, New Mexico

Kluwer Academic Publishers
New York, Boston, Dordrecht, London, Moscow

Contents

PART I. INTRODUCTION

1. Introduction	3
2. Personality and Alcohol Abuse	17
1. Extraversion–Introversion.....	17
1.1. Clinical Alcoholic Personality Research	17
1.1.1. Trait Measures	17
1.1.2. State Measures	24
1.1.3. Alcohol Effects	26
1.2. Prealcoholic Personality	27
1.2.1. Longitudinal Studies	27
1.2.2. High-Risk Studies.....	28
2. Psychoticism.....	30
2.1. Clinical Alcoholic Personality Research	31
2.1.1. Trait Measures	31
2.1.2. Clinical Diagnoses.....	34
2.1.3. Antisocial Behaviors.....	35
2.1.4. Cognitive Functioning.....	36
2.2. Prealcoholic Personality	37
2.2.1. Longitudinal Research.....	37
2.2.2. High Risk Studies	40
3. Neuroticism	42
3.1. Clinical Alcoholic Personality Research	44
3.1.1. Trait Measures	44

- 3.1.2. Clinical Diagnoses 48
- 3.1.3. State Measures 52
- 3.2. Prealcoholic Personality 53
 - 3.2.1. Longitudinal Studies 53
 - 3.2.2. High-Risk Studies 54
 - 3.2.3. Cross-Sectional Studies of Young Heavy Drinkers 56
- 4. Ego Strength 57
 - 4.1. Clinical Alcoholic Personality Research 58
 - 4.1.1. Trait Measures 58
 - 4.1.2. Clinical Diagnoses 60
 - 4.1.3. Alcohol Effects on Self-Concept 61
 - 4.2. Prealcoholic Personality 61
 - 4.2.1. Longitudinal Studies 61
 - 4.2.2. High-Risk Studies 62
- 5. Field Dependence–Independence 64
 - 5.1. Clinical Alcohol Personality Research 64
 - 5.2. Prealcoholic Personality 66
 - 5.2.1. High-Risk Studies 66
- 6. Summary 67

PART II. THE WINNIPEG HEALTH AND DRINKING SURVEY

- 3. Methodology 71**
 - 1. Objectives 71
 - 2. Wave 1 71
 - 2.1. Eligibility 71
 - 2.2. Finding the Sample 72
 - 2.2.1. Response Rates 72
 - 2.2.2. Refusal Rates by Each of the Six Age/Gender Cells 73
 - 2.3. Sample Description 74
 - 2.3.1. Age 74
 - 2.3.2. Gender 74
 - 2.3.3. Marital Status 76
 - 2.3.4. Ethnicity and Racial Origins 77
 - 2.3.5. Language 77
 - 2.3.6. Religion 77
 - 2.3.7. Education 78
 - 2.4. Measures 78
 - 2.4.1. Personality 78
 - 2.4.2. Alcohol Use Measures 80

Contents	xi
3. Wave 2.....	81
3.1. Wave 2 Procedures	81
3.2. Materials in Wave 2.....	82
4. Comparison of Reinterviewed Participants with Those Not Reinterviewed	82
4.1. Logistic Regression Analysis of Nonresponse.....	85
5. Summary.....	86
4. Prevalence	87
1. Objectives.....	87
2. Summary	99
5. Personality and Alcohol Abuse Results.....	101
1. Objectives	101
2. Analytic Strategy	103
3. Results	107
3.1. Correlational Analyses	107
3.2. Structural Equation Models.....	107
4. Discussion	127
5. Summary and Conclusions.....	130

PART III. THE CLINICAL STUDY

6. Methodology of the Clinical Study	135
1. Introduction.....	135
2. Description of the Clinical Treatment Program	135
3. Procedure for Data Collection	136
4. Sample Selection and Description.....	137
5. Measures.....	138
5.1. Demographics.....	138
5.2. Family History of Alcoholism	138
5.3. Personality.....	139
5.4. Alcohol Measures	139
5.5. Drug Measures	140
7. Personality and Addiction in Clinical and General Population Samples	141
1. Objectives	141

- 2. Comparison of Drug Abusers versus Nonabusers..... 143
 - or Other Problem Groups on Personality Measures..... 143
 - 2.1. EPQ 143
 - 2.2. NEO..... 144
 - 2.3. MCMI..... 144
 - 2.4. MMPI 144
 - 2.5. TPQ 147
 - 2.6. Zuckerman Sensation-Seeking Scale 147
 - 2.7. Other Measures 148
 - 2.8. Comorbidity Studies 148
 - 2.9. Summary 149
- 3. Methodology 150
- 4. Results 151
 - 4.1. Demographic Comparison 151
 - 4.1.1. Demographics and Personality 154
 - 4.1.2. Alcohol Measures 156
 - 4.1.3. Drug Abuse 158
 - 4.1.4. Family History of Alcohol Abuse 158
 - 4.1.5. Personality 158
- 5. Summary and Conclusions 162

- 8. Personality and Treatment Outcome 165**
 - 1. Objectives 165
 - 2. A Review of the Outcome Research to Date..... 166
 - 3. Research Propositions 169
 - 4. Sample Selection and Description 171
 - 5. Data Analyses 172
 - 5.1. Initial Analyses..... 172
 - 5.2. Analyses Using SEM..... 173
 - 6. Results 175
 - 6.1. Initial Analyses 175
 - 6.2. SEM Analyses 176
 - 6.2.1. Accounting for Missing Data 176
 - 6.2.2. Measurement Models..... 177
 - 6.2.3. Structural Models 180
 - 7. Discussion 187
 - 7.1. Personality Structure of the AFM Sample 187
 - 7.2. Pretreatment Structural Model 188
 - 7.3. Posttreatment Structural Model 189
 - 8. Implications..... 191

PART IV. SUBGROUPS OF ALCOHOLICS

9. Types of Alcoholics in the General Population and Clinical Samples 195

- 1. Theoretical Perspectives 196
 - 1.1. Cloninger..... 196
 - 1.2. MacAndrew 197
 - 1.3. Babor 197
 - 1.4. Zucker 198
 - 1.5. Blackson..... 198
- 2. Empirically Oriented Studies 198
 - 2.1. MMPI 199
 - 2.2. MCMI 199
 - 2.3. Personality Assessment Inventory 200
- 3. Summary 200
- 4. Subtypes of Alcoholics in the General Population 201
 - 4.1. Method 201
 - 4.1.1. Sample 201
 - 4.1.2. Measures. 201
 - 4.1.3. Data Analysis 201
 - 4.2. Results 202
- 5. Subtypes of Alcoholics in the Clinical Sample 205
 - 5.1. Method 205
 - 5.1.1. Sample 205
 - 5.1.2. Measures 205
 - 5.1.3. Data Analysis 206
 - 5.2. Results 206
- 6. Summary and Conclusions 209

PART V. THE PREALCOHOLIC PERSONALITY

10. The Prealcoholic Personality in the General Population and Clinical Samples. 213

- 1. Objectives 213
- 2. The MAC and EPQ-A Scales 214
- 3. Test Construction 215
- 4. General Population Results 219
 - 4.1. PAP Scores and Demographic Characteristics 219
 - 4.2. PAP Scores and Personality 220
 - 4.3. PAP Scores and Drinking 222

- 5. Clinical Sample Results 224
 - 5.1. Cross-Validation in a Clinical Sample 224
 - 5.1.1. Correlational Analyses..... 225
 - 5.2. PAP Personality Correlates in the Clinical Sample 228
 - 5.3. PAP Scores and Treatment Outcome 230
- 6. Summary and Conclusions 232

- 11. The Development of the Prealcoholic/Addiction Prone Personality 235**

- 1. Family Socialization Influences on Personality Development. 237
- 2. Family Socialization Influences
 - on the Development of Substance Misuse 238
- 3. Objectives 243
- 4. Methodology 244
 - 4.1. Design 244
 - 4.2. Procedure and Subjects 244
 - 4.3. Measures..... 245
 - 4.3.1. Demographics 245
 - 4.3.2. Personality 246
 - 4.3.3. Family Environment..... 246
 - 4.4. Data Analyses 247
- 5. Results and Discussion 249
 - 5.1. Demographic Characteristics 249
 - 5.2. The APP-21 and Five-Factor Personality Traits 250
 - 5.3. The APP and Substance Abuse 251
 - 5.4. Parent and Offspring Personality Correlations 251
 - 5.5. Family Environment and APP-21 Scale Scores 254
 - 5.6. Structural Equation Models 255
- 6. Summary and Conclusions 258
- Appendix 261

PART VI. CONCLUSIONS

- 12. Integration and Conclusions 265**

- 1. Prevalence Patterns 267
- 2. Personality and Alcohol Abuse. 267
- 3. Personality and Alcohol and Drug Abuse
 - in the Clinical Study 270
- 4. Alcoholic Subtypes 271
- 5. The Addiction-Prone Personality 272
 - 5.1. Development of the Addiction-Prone Personality 272

- 6. Integration with Other Theoretical Perspectives 273
 - 6.1. Freud 273
 - 6.2. Eysenck 274
 - 6.3. Zuckerman 274
 - 6.4. Tarter 275
 - 6.5. Cloninger 275
 - 6.6. Blum 276
 - 6.7. Sher 278
 - 6.8. Watson 278
 - 6.9. Zucker 279
 - 6.10. UCLA Longitudinal Research Program 279
 - 6.11. Integrative Models 281
- 7. Policy and Program Design Implications 283
- References** 287
- Index** 317

1

Introduction

In the years that have elapsed since the publication of the review article by Barnes (1979) on the alcoholic personality, dramatic developments have occurred in the fields of both personality and alcohol abuse. Although there was a time when personality traits had fallen into disfavor because of the alleged low correlations between personality traits and actual behavior, this trend has currently been reversed for several reasons. Now it is recognized that low correlations between personality and behavior may be attributable at times to unreliable measures of behavior rather than the lack of validity of personality traits. Where reliable estimations of behavior are achieved through aggregation, the correlations between personality and the aggregated measures of behavior have generally been much higher (Epstein, 1979; Rushton, Brainerd & Pressley, 1983). As an illustration of this principle, the correlations between a personality scale score and drinking behavior in a group of subjects on a given day may be fairly low, but if the drinking behavior were observed and recorded over a period of thirty days, the correlation is likely to be much higher. Relationships between personality risk factors and alcohol abuse can also be enhanced by using latent variable structural equation modeling techniques (e.g., Earleywine, Finn & Martin, 1990). Recent research has also tended to show that biologically based individual differences or temperaments are relatively stable from early childhood on (Buss & Plomin, 1984; Caspi & Silva, 1995), that neonatal temperament is linked with molecular genetic structure (Ebstein, Levine, Geller et al., 1998), and that personality characteristics are particularly stable in adulthood (McCrae & Costa, 1984). In one particular study (Costa, McCrae, & Arenberg, 1980), it was noted that the median test-retest correlation for 10 personality traits over a twelve year period was .74.

In addition to the growing evidence that personality traits are fairly stable,

new evidence is also accumulating to show that there is a biological basis underlying the primary personality characteristics (Cloninger, 1987a; Zuckerman, 1989). Research on samples of twins (e.g., Eysenck, 1990; Macaskill, Hopper, White, & Hill, 1994) has shown that a substantial proportion of the reliable variance in the primary personality characteristics of Extraversion, Neuroticism, and Psychoticism can be explained by genetic variance. Recent research has shown an association between molecular genetic structure and personality. Ebstein and Belmaker (1997) found an association between the dopamine D4 receptor and novelty seeking as measured by the TPQ (Cloninger, 1987b). These results were replicated by Benjamin (Benjamin, Li, Patterson et al., 1996) in research employing the NEO-Five Factor Inventory where associations were found between high extraversion and low conscientiousness on the NEO and the presence of long alleles of D4DR exon III. A significant association was also found between this genetic pattern and a calculated measure of novelty seeking. By carefully analyzing sibling data, Benjamin et al. (1996) were able to show that population factors such as ethnicity could not account for this genetic transmission. Results confirmed that associations within the same families were apparent between the genetic structure and novelty seeking. Benjamin et al. (1996) point out that genetic variation does not explain all of the variance in novelty seeking and that their discovery accounts only for 10% of the genetic variance in the transmission of novelty seeking. They suggest that several other genetic loci that predict novelty seeking will eventually be identified. In fact recent research by Blum et al. (in press) confirms the prediction having found an association between the A1 of D2 allele, or the so-called alcohol or reward-seeking gene and novelty seeking.

Research on twins reared apart has confirmed that the genetic influence on personality is just over 40%. Even the trait self-concept, which one would think might be more strongly affected by environmental influences, also has a strong genetic component (e.g., Hur, McGue, & Iacono, 1998). If major personality dimensions are stable and biologically based, then the chances that these factors may be causally related to alcoholism is also enhanced. Recent evidence from both twin studies (e.g., Jang, Livesley, & Vernon, 1995; Kaij, 1960; Kendler, Heath, Neale, Kessler, & Eaves, 1992; Koopmans & Boomsma, 1986; Murray, Clifford, & Gurling, 1983; Pickens et al., 1991; Prescott, Hewitt, Heath, Truett, Neale, & Eaves, 1994; Romanov, Kaprio, Rose, & Koskenvuo, 1991) and adopted out studies (e.g., Goodwin, Schulsinger, Hermansen, Guze, & Winokur, 1973; Cloninger, Bohman, & Sigvardsson, 1981) has established a likely association between genetic factors and alcoholism, found that the genetic aspect is particularly relevant to the type of alcoholism associated with physical dependence (Goodwin, 1985), and shows up more strongly in older samples (Koopmans & Boomsma, 1996).

More recently, a new avenue of research has been established stemming from developments in the field of molecular genetics. Blum et al. (1990) reported

that the A1 allele of the dopamine receptor gene occurred with a much higher frequency in the DNA of brain samples taken from alcoholics following autopsy than in a comparison sample. This particular receptor was chosen because of the important role of the dopaminergic system in alcohol-related behaviors. Blum et al. (1990) cautioned that their results would have to be replicated because of failures in the past to replicate molecular genetic findings linking particular loci of inheritance with neuropsychiatric disorders. In a recent review of the research in this area, Gelernter, Goldman, and Risch (1993) concluded that the body of data collected to date did not support an association between the A1 Allele of D2 and alcoholism. However, Gelernter et al. (1993) did not employ scientifically approved meta-analytic procedures to combine the results of different studies. In our own reanalysis of this data (Barnes, Patton, & Sharp, unpublished manuscript), using standard meta-analytic procedures, as advocated by Rosenthal (1984), we found that the overall pattern of results supported an association between the A1 D2 Allele and alcoholism ($p < .001$, overall). The magnitude of this effect was $r = .15$ when all studies were combined, and somewhat stronger ($r = .23$) when studies not screening alcoholics from their control groups were excluded. A recent review of this literature by Lawford et al. (1997) supported the association between the A1 Allele and severe alcoholism and also highlighted the importance of using nonalcoholic controls.

Because it is not possible to inherit alcoholism per se (if one was never exposed to alcohol and never drank, it would be impossible to become an alcoholic no matter what the predisposition), the search has been going on to identify potential biological markers of alcoholism (see Schuckit, 1987), which would make people susceptible to alcoholism once they began drinking. Noble, Blum, Ritchie, Montgomery, & Sheridan (1991) have examined some of the possible mechanisms through which the A1 allele might act to affect alcoholism by examining the association between this allele and receptor binding characteristics. In their book called *Alcohol and the Addictive Brain*, Blum and Payne (1991) articulate the theory that individuals who are vulnerable to alcohol suffer from abnormally low levels of dopamine and a lower ability to bind dopamine receptors in the reward part of the brain. This condition produces a supersensitivity in the reward center of the brain so that anything that increases the amount of dopamine available in the brain, including alcohol, can produce strong feelings of well-being. The appeal of their theory to psychologists is that their results are consistent with a lot of what is known about the psychology of addictive behaviors and sensation-seeking behavior in general. The results showing that the A1 allele is associated with cocaine dependence (Noble et al., 1993), cigarette smoking (Comings et al., 1996; Noble et al., 1994), and polysubstance abuse (Smith et al., 1992) add another important piece to the puzzle.

Recently Noble and co-workers have established linkages between the A1 allele and other risk factors for alcoholism, including P300 latency (Noble et al.,

1994), reduced visuospatial performance (Berman & Noble, 1995), and novelty seeking (Noble et al., in press). Research has also confirmed an association between the A1 allele and hyperactivity, another important risk factor for alcoholism (Miller & Blum, 1996). Perhaps what Blum and Payne (1991) have discovered is not so much the gene for alcohol abuse but the gene for reward-seeking or sensation-seeking behavior. In fact Miller & Blum have started to use the term reward deficiency syndrome to describe this condition. Zuckerman (1987) now postulates that sensation seeking is associated with a desire for stimulation in the reward center of the brain. Biologically based dimensions of individual difference seem to rate serious consideration as possible factors that could be inherited and play a causal role in risk for alcoholism.

Progress in our understanding of the relationships between personality characteristics and alcohol abuse has been spurred on by research in several different areas. New longitudinal studies conducted by Cloninger, Sigvardsson, & Bohman (1988) and by Hagnell, Lanke, Rorsman, & Ohman (1986) have been particularly important in illuminating the relationship between personality characteristics and alcohol abuse. These projects will be described in more detail in the next chapter. In brief, however, it can be noted that Cloninger, Sigvardsson, & Bohman (1988) found a twentyfold difference in the risk of alcohol abuse in adulthood predicted by childhood personality characteristics. In a similar vein, Hagnell et al. (1986) reported that subjects with high-risk personalities in 1957 were more than twelve times as likely to develop alcoholism 15 years later than those with low-risk personalities. In another longitudinal investigation by Labouvie and McGee (1986), the sample was studied between the ages of 12 and 21. Here again personality seemed to predict the development of alcohol and substance abuse, "adolescents who proceed early and quickly to heavier levels of use tend to score lower on achievement, cognitive structure and harm avoidance and, at the same time, higher on affiliation, autonomy, exhibition, impulsivity and play" (p. 292). In analyses based on the same data set, Bates and Labouvie (1995) reported that high impulsivity and disinhibition (i.e., sensation seeking) were associated with high-risk developmental trajectories for alcohol use and problems.

Several recent longitudinal investigations have confirmed the importance of personality in measuring subsequent alcohol abuse even when personality is assessed at a very young age. Pulkkinen and Pitkanen (1994) studied 196 males and 173 females at ages 8, 14, and 26. In their male subjects, problem drinking was predicted by higher aggression and lower anxiety, prosociality, and school success at age 8. For females, higher anxiety and lower school success at age 8 were associated with more problem drinking in adulthood. Masse and Tremblay (1997) examined the association between temperament assessed at ages 6 and 10 and the onset of alcohol and substance abuse assessed at ages 11, 12, 13, 14, and 15. The large-scale, well-conducted study provided impressive evidence for the linkage between personality and alcohol and substance abuse. High novelty seeking and

low harm avoidance were associated with early developing alcohol and substance misuse even when personality was assessed as early as age 6. In another large and well-conducted study, Caspi et al. (1997) found that personality measures as early as age 3 could be used to predict health-risk behavior (including alcohol abuse) patterns at age 21. Children who later developed healthrisk behavior patterns were described as “undercontrolled” at age 3.

There are few longitudinal studies examining the association between personality and alcohol abuse where positive findings have not been reported. One paper where a positive association between personality and alcohol abuse was not reported was the study reported by Vaillant and Milofsky (1982). In this research, data from the Glueck and Glueck (1950, 1968) inner city youth study were reported. The original sample for this study was not a random sample, but was comprised of reform school youth who had at the age of 14 not been charged with delinquency. In the Vaillant and Milofsky (1982) paper, a report was made of a follow-up study conducted on this sample at age 47. This is an important study because it involves such a long period between the original data collection and follow-up. In their description of the results of this study, Vaillant and Milofsky (1982) argued that their results did not support an association between personality and the development of alcoholism. This conclusion was subsequently challenged by Zucker and Lisanskey Gomberg (1986), who argued that some of the personality factors examined in this study, such as “oral dependency” have not been given much credence in the personality and alcohol abuse literature. On the other hand, Zucker and Lisanskey Gomberg (1986) note that within the Vaillant and Milofsky data, antisocial behavior in adolescence, which they regard as part of personality, played an important role in predicting adult alcoholism.

Another longitudinal investigation where positive findings were not reported was in the study reported by Schuckit, Klein, Twitchell, and Smith (1994). Several factors in the design of this study worked against finding significant results. The exclusion of patients with personality disorders would certainly restrict the range of personality scores in this sample and reduce the potential for finding significant results. It is not surprising in a way that when you control for personality, personality does not predict alcohol abuse. Although the study used the Eysenck questionnaire, it did not include a recent version of the EPQ test, so the P dimension was not included in the study, nor were there any measures of sensation seeking. The sample size in this study was also too small to detect the effects that they were looking for. For example, the study included the MacAndrew Alcoholism Scale (MacAndrew, 1965), but data were available for only 62 subjects on this test and subsequent alcoholism diagnoses. The results comparing alcoholics and non-alcoholics on the MAC test were almost significant ($p < .08$) and would almost certainly have been significant with a larger sample size.

Recent developments in the drug abuse field are also consistent with the position taken in this book. In a major new book (Glantz & Pickens, 1992) con-

taining a series of articles describing longitudinal studies predicting the transition from drug use to drug abuse, Glantz and Pickens (1992) concluded that “drug use appears to be more a function of social and peer factors, whereas abuse appears to be more a function of biological and psychological processes” (p. 9). Recent longitudinal research by Jessor, Donovan, and Costa (1991) lends further support for this contention. In their cross-sectional research, Jessor et al. (1991) found strong support for the role of the perceived environment in predicting substance abuse. In their longitudinal analyses using structural equation modeling, however, no support for the role of the perceived environment was observed. Personality characteristics were the major factors associated with predicting the risk of problem behaviors, including alcohol abuse, in their longitudinal analyses. This perspective is also being supported by recent research in the field of childhood temperament. Dobkin, Tremblay, Masse, and Vitaro (1995), for example, found that children who were disruptive at age 6 (e.g., more fighting, hyperactivity, etc.) were more likely to report getting drunk and using drugs at age 13. Longitudinal analyses suggested that personality may also affect substance abuse indirectly by affecting the selection of deviant peers. Longitudinal research by Brook, Whiteman, and Finch (1992) has also supported an association between childhood aggression and adolescent drug use and delinquency. Tubman and Windle (1995) also found that individuals who display a pattern of continuous difficult temperament were more vulnerable to abuse alcohol and other substances.

Support for the importance of the personality domain in predicting the development of drug abuse can also be derived from research employing the use of risk factors. In their study of concurrent and predictive risk factors for drug use among 994 adolescent 10th-12th graders, Newcomb, Maddahian, and Bentler (1986), for example, found that a scale composed of ten different risk factors was reliably associated with several types of alcohol and drug use. They also reported that the risk factors significantly predicted increased drug use across a one-year period, controlling for initial levels of use. The risk factors included poor self-esteem and sensation seeking.

In another longitudinal study employing a risk factor approach, Scheier, Botvin, and Baker (1997) examined the role of a set of psychological risk factors that included behavioral undercontrol, depression/anxiety, locus of control, and self-esteem. Their results confirmed the importance of psychological factors in predicting an increase in alcohol problems. In this research, the magnitude of the psychological set in predicting the development of alcohol abuse was comparable to that of social influences.

Recent longitudinal research in the field of personality disorders also supports the importance of personality in prospectively predicting risk for alcohol and substance abuse. In one such investigation, Kwapil (1996) investigated the importance of psychosis-prone traits and nonconformity in predicting substance abuse ten years later. Their results confirmed the importance of both psychosis

proneness and nonconformity in predicting the development of substance abuse disorders. In another longitudinal study examining the relationship between personality disorders and substance abuse in adolescents over a three-year period, Johnson, Bornstein and Sherman (1996) found support for the relationship between the prevalence of personality disorders and the occurrence of substance use over time.

Another important source of evidence contributing to our understanding of the relationship between personality characteristics and alcohol abuse has been the research on high-risk individuals. In the past ten years, numerous studies have been conducted on high-risk individuals, as defined in various ways, but generally based on whether the person has had a family history of alcohol abuse. This important research, which has now been conducted on such characteristics as stimulus augmenting reducing, field dependence (Hennecke, 1984), anxiety and tension reduction (see Finn & Pihl, 1987; Finn, Zeitouni, & Pihl, 1990; Pihl, Peterson & Finn, 1990), and minimal brain dysfunction (e.g., Tarter, Hegedus, Goldstein, Shelly, & Alterman, 1984) has improved our understanding of the most likely causal direction between these risk factors and abuse. Before this research, it was uncertain which of these characteristics came as a result of drinking and which characteristics may have been caused by drinking. This research will also be described in more detail in the sections that follow.

Another important area of research that has contributed toward our understanding of the relationship between personality and alcohol abuse has been the research on alcoholic personality types. At the time I (Barnes) wrote my review article in 1979, I did not include a review of the various possible subtypes of alcoholic personalities. This omission has led some of the people who read the original review to conclude that I was somehow trying to argue that there was a single alcoholic personality type. That was not my belief or intention at that time. The main problem I had in reviewing the cluster analytic studies searching for the subtypes of alcoholic personality was that this literature seemed to be producing results that did not seem to be very consistent or easily compared across studies. The studies also seemed to be producing too many different possible subtypes to be credible. Recent research (Dush & Keen, 1995) has shown that the number of subtypes of alcoholics identified in MMPI research on clinical samples is not stable over time and probably capitalizes on transient withdrawal symptoms.

Results from the adopted out research conducted by Cloninger, Bohman, and Sigvardsson (1981) and the longitudinal research by Cloninger, Sigvardsson, and Bohman (1988) provide strong support for the validity of the two major classifications of alcoholics that differ according to personality characteristics. Cloninger (1987a) describes the neurotic or Type 1 alcoholic as low on novelty seeking, high on harm avoidance, and high on reward dependence. This type of alcoholism is associated with later onset, more guilt, and less frequent history of fighting and arrests. This type of alcoholic is motivated to drink for tension relief

and is milieu limited. In other words, this type of alcoholism occurs only in environments that are conducive to heavy drinking. Type 2 alcoholics are described by Cloninger (1987a) as high on novelty seeking, low on harm avoidance, and low on reward dependence. They are characterized by an earlier onset of drinking and frequent fighting and arrests. This type of alcoholism is associated with lower levels of serotonin, dopamine, and metabolites. Persons with this type of alcoholism are expected to be at greater risk regardless of the environment, and this form of alcoholism is limited to males.

Support for the Cloninger classification system described above has been provided by several studies. Von Knorring, Palm, and Anderson (1985) examined the relationship between treatment outcome and subtypes of alcoholism in 30 alcoholics receiving treatment and 39 ex-alcoholics. Their results showed that drug use and criminal involvement were more common in Type II alcoholics. There was also a higher percentage of Type II alcoholics in the ex-alcoholic group suggesting that Type II alcoholics were perhaps able to control their drinking more easily or had matured out of alcoholism. The hypothesized association between a family history of alcoholism and antisocial behavior in association with alcoholism in men has also been supported (Frances, Timm, & Bucky, 1980; Glenn & Parsons, 1989). Further, Donovan and Marlatt (1982) identified five clusters in their sample of Driving While Impaired Offenders. Three of these groups were high on risk taking, corresponding to Cloninger Type II alcoholics, and the two other groups were low on risk taking, corresponding to Cloninger Type I alcoholic.

Further support and clarification for the concept of two main alcoholic personality types comes from the research and writing by MacAndrew (1979, 1980, 1983). In this work, MacAndrew (1979) indicates that 85% of the alcoholics that are identified by the MacAndrew Alcoholism Scale are Primary Substance abusers. These are individuals who are high on Extraversion and high on Neuroticism and whom Eysenck (1978) would call secondary sociopaths (MacAndrew, 1979). According to MacAndrew (1980), the other 15% of alcoholics, who are not as readily identified by the MacAndrew Scale, are low on extraversion and high on neuroticism. As noted by MacAndrew (1983), both of these groups are characterized by emotional tension and depression. Because of the strong findings cited above indicating that there are likely at least two major subtypes of alcoholism, there is a chapter in this book assigned to examining the possible subtypes of alcoholism in the general population and in a clinical sample of alcoholics.

To discuss the relationships between personality characteristics and alcohol abuse it is necessary to describe the perspective on personality structure that one is adopting. In the review by Barnes (1979) of the alcoholic personality literature, a taxonomy of alcoholic personality characteristics was provided. This taxonomy was based on what was known about personality structure at that time. The four primary traits that were listed included (1) stimulus augmenting-reducing, (2)

ego strength, (3) neuroticism, and (4) field dependence. Current factor analytic studies on personality structure (Digman & Inouye, 1986; McCrae & Costa, 1985a, 1985b, 1987, 1989; Noller, Law, & Comrey, 1987; Watson, 1989; Zuckerman, Kuhlman, & Camac, 1988) suggest that there are between three and seven major personality dimensions. The three main personality dimensions described by the Eysencks (Eysenck, Eysenck, & Barrett, 1985) which include Introversion-Extraversion, Neuroticism, and Psychoticism have been repeatedly found in factor analytic studies, have been observed in different cultures (Barrett & Eysenck, 1984), and have been linked in the literature with biological underpinnings (see Zuckerman, 1989).

The stimulus augmenting-reducing dimension described in the Barnes (1979) review corresponds to the dimension of Introversion-Extraversion. Stimulus reducers characterized by Petrie (1967) are similar to extraverts described by the Eysencks (Eysenck et al., 1985) as sociable, lively, active, assertive, sensation-seeking, carefree, dominant, surgent, and venturesome. Augmenters or introverts are lower on all of these characteristics. Augmenters as hypothesized by Petrie (1967) are more susceptible to becoming alcoholic because of the desirable stimulus-reducing effect that they receive from alcohol.

The second dimension described in the Barnes (1979) taxonomy of alcoholic personality characteristics was Neuroticism. High N scorers are characterized by the Eysencks (1985) as anxious, depressed, high on guilt feelings, low on self-esteem, tense, irrational, shy, moody, and emotional. This dimension emerges consistently in the factor analytic research using both self-reports and peer ratings. In the alcoholic personality literature, high anxiety has frequently been found in association with alcoholism and alcohol is presumed to have tension-reducing properties.

The third dimension in the Barnes (1979) taxonomy of alcoholic personality characteristics was called Ego Strength. Current research suggests that the characteristics which were listed under this characteristic, including, low frustration tolerance, impulsivity, etc., might more be associated with what the Eysencks have called high Psychoticism. High P scorers have been characterized by the Eysencks (Eysenck & Eysenck, 1985) as aggressive, cold, egocentric, impersonal, impulsive, antisocial, unempathic, creative, and tough-minded. The opposite pole of this dimension, which seems to emerge more in factor analytic studies of normals using peer ratings, includes the characteristics of Agreeableness and Conscientiousness.

Although McCrae and Costa (1987) have argued that their data support a five-factor model and that the factors for Agreeableness and Conscientiousness should stand alone, others are not as convinced (see Zuckerman, 1989). The characteristics of Agreeableness and Conscientiousness proposed by McCrae and Costa, although promising, are not as well established as independent personality dimensions. Ultimately the determination of whether there are two factors or one

factor that make up the domain of the Psychoticism dimension will not be decided by factor analysis alone, but by the ability of the different models to predict behaviors. Eysenck (1992) has maintained that factor analysis is a good slave but a poor master. For the purposes of this investigation, we have started from the position that Ego Strength, or what McCrae and Costa call conscientiousness, are similar constructs and have retained this term. We are also employing the term of Psychoticism for the component of this domain that is comprised of impulsive and antisocial characteristics.

The fourth alcoholic personality characteristic described in the Barnes (1979) review of the alcoholic personality literature was described as Field Dependence-Independence. This dimension includes aspects of intelligence and cognitive style and probably overlaps a bit with what McCrae and Costa have called culture. Zuckerman et al. (1988) indicated that "we agree with Eysenck that intelligence or its noncognitive aspects should not be considered a basic personality dimension" (p. 103). Other reviewers of the concept of the alcoholic personality have not included this dimension in their reviews. (e.g., Nathan, 1988). In the Barnes (1979) theory of the alcoholic personality, this concept formed an integral part of the original model. Field-dependent individuals as originally described by Witkin (Witkin, Dyk, Faterson, Goodenough, & Karp, 1962) are hypothesized to be more vulnerable to becoming alcoholics than field-independent persons.

In the Barnes (1979) review of the alcoholic personality literature, a distinction was made between clinical and prealcoholic personality characteristics. The term clinical alcoholic personality was used to describe the characteristics of alcoholics that discriminate them from normals and other clinical groups, and the term prealcoholic was used to describe the characteristics that predict the onset of alcoholism. This distinction will be retained in the current research.

Although there have been hundreds of studies conducted on the relationships between personality characteristics and alcohol abuse, there is still considerable debate regarding the role of personality characteristics in predicting alcohol abuse. Part of the problem lies in the fact that the majority of studies of this topic have been cross-sectional comparing clinical samples of alcoholics with poorly matched controls. Pihl and Spiers (1978), for example, estimated that 93% of all studies relating personality factors to alcoholism were done on clinical samples of alcoholics using either no control groups or poorly matched control groups. It would obviously be much more desirable to do prospective research using longitudinal samples. Although a few studies of this kind that have been conducted (e.g., Block, 1971; Caspi et al., 1997; Cloninger, Sigvardsson, & Bohman, 1988; Hagnell et al., 1986; Jones, 1968; Kammeier, Hoffman, & Loper, 1973; Labouvie & McGee, 1986; Masse & Tremblay, 1997; McCord, 1972; Pulkkinen & Pitkanen, 1994; Robins, 1966; Tubman & Windle, 1995; Vaillant & Milofsky, 1983), many of them were not designed to predict the risk of alcoholism. Because of this factor, these studies do not usually contain comprehensive

measures of the constructs that have been found to discriminate alcoholics in clinical samples from nonalcoholics in a general population sample.

The most desirable alternative for examining the relationships between personality characteristics and alcohol abuse would be a large longitudinal study beginning with a comprehensive personality assessment before alcohol consumption had begun. Because alcoholism may not occur for a long time following initial consumption of alcohol, this type of research is not very practical. An alternative research strategy, which guided the current research project, is to take a two-year slice in the life span for subjects in different age groups and follow the relationships between personality and alcohol abuse over this period. With this type of research design, it is possible to examine the cross-sectional associations between personality and alcohol abuse at one time, and then to examine the longitudinal relationships between these characteristics and drinking in different age groups. In this way, for example, it might be possible to examine the relationships between a personality construct such as field dependence and alcohol abuse at time 1, and then to examine whether the relationship between personality at Time 1 with alcohol abuse at Time 2 is stronger than the relationship going in the opposite direction (see Figure 1.1). By examining these relationships using three different age groups, it will be possible to determine whether this relationship is constant throughout the life span or varies at different points in the life span.

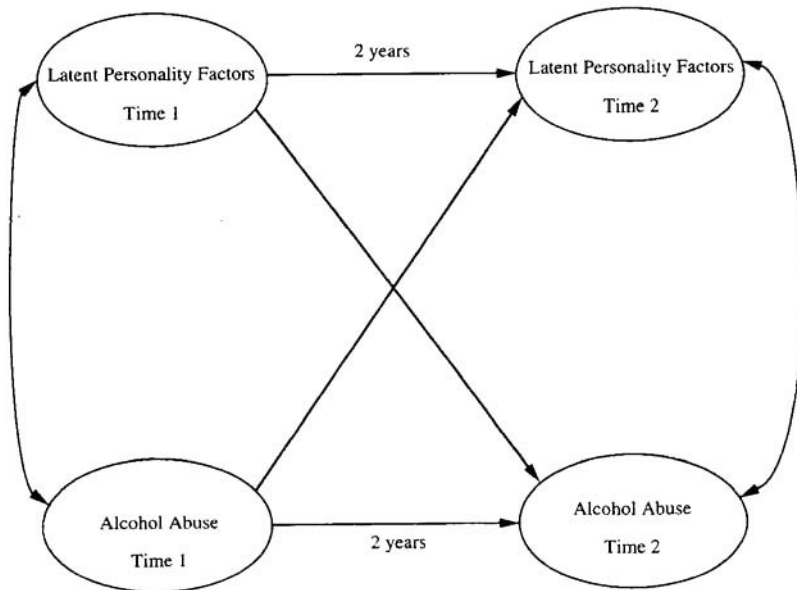


Figure 1.1. Personality and alcohol abuse: longitudinal design.

To examine the longitudinal associations between personality and alcohol abuse, the technique of structural equation modeling using latent variables is ideally suited. This technique was used successfully in the research by Newcomb and Bentler (1988) to model the factors present in adolescence that are associated with drug use and related problems in early adulthood. The proposed personality model that will be used to predict alcohol abuse in the present study is presented in Figure 1.2. Based on our review of the alcoholic personality literature, which is described in the next chapter, we predicted that alcohol abuse would be associated with more Extraversion, more Neuroticism, lower Ego Strength, more Psychoticism, and more Field Dependence. Because not all alcohol abuse is associated with these characteristics, additional analyses are planned to examine possible subtypes of alcohol abusers.

Although longitudinal prospective research may be the ideal strategy for

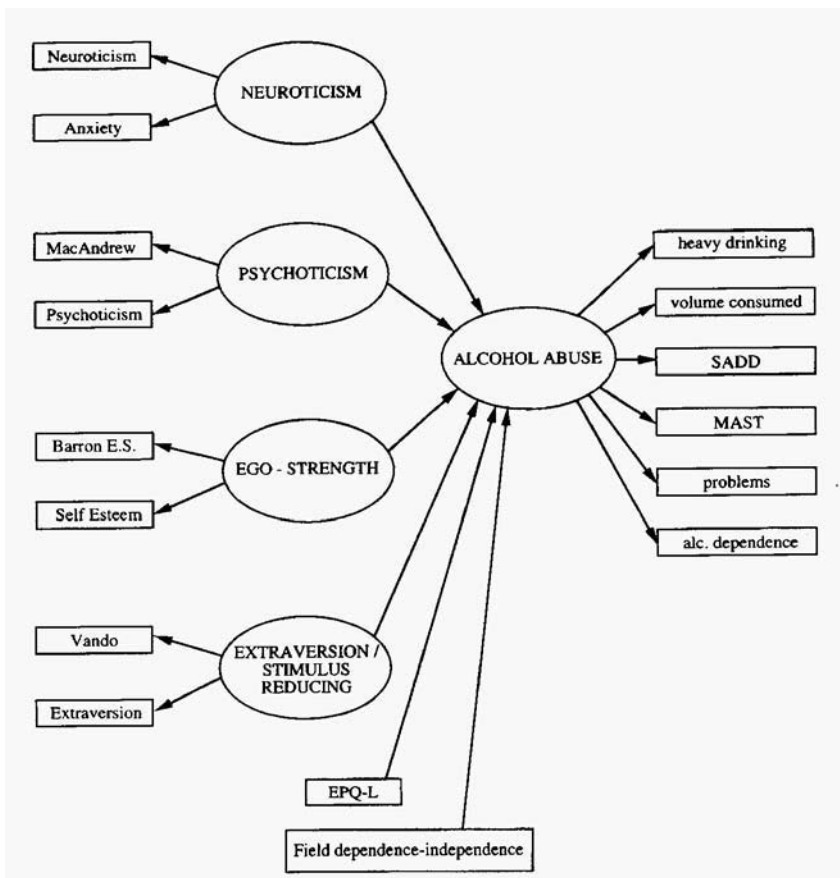


Figure 1.2. Hypothesized personality and alcohol abuse structural equation model.

examining the associations between personality characteristics and alcohol abuse, much can also be learned from examining the personality characteristics of clinical samples of alcoholics. In their landmark research on the social origins of depression, Brown and Harris (1978) established a classic design for studying psychopathology. If a particular variable predicts psychopathology in the general population, this particular predictor should also discriminate a clinical group from a matched general population comparison group. For example, if field dependence predicts alcohol abuse in the general population and discriminates clinical alcoholics from a matched comparison sample, this would provide strong evidence for the association between field dependence and alcoholism. Results become particularly interesting when inconsistent patterns emerge. For example, field dependence might discriminate clinical alcoholics from the comparison sample but not be a predictor of alcohol abuse in the general population. This pattern of results would suggest that field dependence is more likely to predict who goes for treatment than who develops alcoholism.

The addition of a clinical sample to our program of research also provided an opportunity to compare the personality traits of people addicted to different types of drugs. Research has tended to show that alcohol and drug use tend to co-occur in both clinical and nonclinical samples (Jang, Livesley, & Vernon, 1995; Miller, Guttman, & Chawla, 1997). Genetic studies have found common genetic factors underlying the risk of alcohol and drug problems (Grove et al., 1990; Jang et al., 1995; Koopmans, van Doornen, & Boomsma, 1997; Swan, Carmelli, & Cardon, 1997). Personality traits are logical possible factors to account for the underlying vulnerability to addiction. Research by Jang et al. (1995) and Swan et al. (1997) has also shown that there may be separate genetic factors that are specific to different types of substance misuse. Therefore it is possible that there might also be personality differences between alcohol abusers and drug addicts.

Longitudinal data on clinical samples may also be important. Do the same personality variables that predict a worsening of alcohol symptoms in the general population also predict who has a poor prognosis for treatment. Research conducted to date on this topic suggests that individuals with a co-occurring personality disorder such as Antisocial Personality Disorder may have a poorer prognosis in treatment (see Fals-Stewart and Lucente, 1994). Alcoholism scales such as the MacAndrew Alcoholism Scale have also shown some potential for predicting treatment outcome (Little and Robinson, 1989).

In the past, efforts to develop a measure of the “alcoholic” personality have met with mixed success. These efforts have been based primarily on using the item pool of the MMPI (e.g., MacAndrew, 1965). In this project, an effort will be made to develop a measure of the “prealcoholic personality” by selecting items from a broader item pool. The criteria chosen for item selection will be (1) significant association with a family history of alcohol abuse, and (2) significant association with the person’s own current abuse. The prealcoholic personality

measure will be developed and validated in a general population sample and then cross-validated in the clinical sample.

If in fact there is a prealcoholic personality that predisposes an individual to become an alcoholic, it is important to know what the environmental factors are that contribute to the development of the “prealcoholic personality.” Not much research is available on the development of the prealcoholic personality, and most of the research in the personality development area fails to control for genetic confounds (Reiss, 1995; Rowe, 1994). In this book, a large general population family data set will be used to provide further data on the reliability and validity of the newly developed prealcoholic personality test. The Vancouver Family Survey contains a large sample of biological and adoptive families and includes data on perceptions of the family environment from three different family members. This data set will be used to test the possible role of the family environment in the development of the prealcoholic personality.