DISSERTATION

DEVELOPING A BRIEF INTEGRATIVE BIOPSYCHOSOCIAL SCREENING

INSTRUMENT TO INVESTIGATE INFLUENCES OF ALCOHOL ABUSE AND

DEPENDENCE IN COLLEGE AGE STUDENTS: A MIXED RESEARCH STUDY

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In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

Colorado State University

Fort Collins, Colorado

Summer 2011

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ABSTRACT

DEVELOPING A BRIEF INTEGRATIVE BIOPSYCHOSOCIAL SCREENING INSTRUMENT TO INVESTIGATE INFLUENCES OF ALCOHOL ABUSE AND DEPENDENCE IN COLLEGE AGE STUDENTS: A MIXED RESEARCH STUDY

The purpose of this mixed-methods study was to develop a reliable, valid, and clinically useful brief integrative biopsychosocial screening instrument to investigate influences of alcohol abuse and dependence in college age students. The Rein-Brief Integrative Biopsychosocial Screening Instrument (R-BIBSI) is a 30-item (alpha = 0.89), non-diagnostic, brief screening tool developed to aid drug and alcohol treatment professionals in treatment planning for persons experiencing substance abuse or dependence. The BIBSI is easily scored by clinical or non-clinical staff to assess six constructs of alcohol use influence: Biological Influence, Psychological Internally Expressed Influence, Psychological Externally Expressed Influence, Social Family Influence, Social Peer/Work Environmental Influence, and Social Cultural Influence. Item reduction processes included think-aloud, predictive validity testing utilizing paired samples t-test, and exploratory factor analysis. A convenience sample of 63 college age students provided data for validation and reliability testing of the R-BIBSI.

ACKNOWLEDGEMENTS

DEDICATION

This project is affectionately dedicated to my parents, Donald and Dorothy Rein, to my grandmother, Hannah Rein, and to rest of my family all who have supported me throughout my life and this academic endeavor. Without you all, none of this would have been possible.

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CHAPTER 1 – INTRODUCTION

An estimated 16.6 million people in the United States met diagnostic criteria for alcohol and/or drug dependence in 2001; only 3.1 million of those persons received substance-abuse treatment (Matto, 2005). As a result of this gap, the reactive efforts of the legal system in the United States incur an estimated $294 billion in alcohol and drug treatment costs annually in the attempt to make services available to the largest number of people in need as possible (Matto, 2005). Recently, with drastic cuts in financial support for treatment and prevention efforts, many facilities have been forced to close their doors (Carrol & Miller, 2006). Additionally, Ketcham, Asbury, Schulstad, and Ciaramicoli (2000) report that the exorbitant cost of alcohol and other drug (AOD) addiction treatment in the United States has caused the need for a more time and cost effective means of assessing and treating those with AOD issues.

However, the mechanisms of change and treatment effects have proven extremely complex because there are many variables to consider, and the experience of developing as well as changing addictive behaviors is so unique for each individual (Matheson, Gloeckner, Rein, & Miller, 2009). The complex nature of treating AOD abuse and dependence is just one component that causes large expenditures by rendering best-practice treatment modalities hard to establish and individualized treatment planning to lack cost effectiveness. Gaps have persisted between what research has shown to be effective treatment and what is being practiced in clinical settings (Carrol & Miller, 2006). Even more unsettling is that treatment services for alcohol and drug problems

continue to be stigmatized, marginalized, and isolated from the rest of the health care system (Carrol & Miller, 2006). Some who work in health care continue to experience these phenomena in the current state of the health care system through budget cuts and the push to expedite treatment in many different forms of health care settings.

The current study endeavored to address the issue of time and money lost through ineffective treatment and unsuccessful treatment planning by developing a screening instrument that would provide clinicians with an individualized biopsychosocial profile of a client's path toward AOD abuse/dependence. The author postulated that this instrument, the Rein-Brief Integrative Biopsychosocial Screening Instrument (R-BIBSI), would allow treatment to be expedited and cost reduced by aiding in the facilitation of individualized treatment planning and decreasing a healthcare professional's time demand per client. Other possible anticipated benefits or outcomes were that the R-BIBSI would assist clinicians in clearly identifying possible high-risk relapse situations and would provide useful criteria for aftercare planning tailored to the client. The R-BIBSI would accomplish this by assessing the client's self-reported perceptions of his/her experience leading up to his/her problematic AOD abuse/dependence.

During Project MATCH, a landmark study conducted in the 1990s, researchers found there were few indications that any one of the three treatment modalities studied (cognitive-behavioral therapy, motivational enhancement therapy, and twelve step facilitation) were proven to be significantly superior to the others (Stout, Del Boca, Carbonari, Rychtarik, Litt, & Cooney, 2003). The findings of this study illustrate the difficulties in successfully treating persons with AOD issues or predicting the outcome of any particular treatment modality with any particular individual. Some research,

however, has demonstrated that endeavoring in the assessment of personality can lead to effective client-therapist collaboration and remarkably positive outcomes in the therapeutic process, particularly when the information gathered is shared with clients during follow-up sessions (Butcher & Perry, 2008). Moreover, the success of psychotherapy depends greatly upon gaining an early understanding of the client's potential for change, the extent of their problems, and the establishment of attainable treatment goals (Butcher & Perry, 2008). This early understanding can be and is facilitated by a number of available screening instruments.

Some of the most common instruments are the Alcohol Severity Index (ASI), the Alcohol Severity Index-Lite (ASI-L), the Comprehensive Drinking Profile (CDP), the Substance Abuse Subtle Screening Inventory (SASSI), the Family Environment Scale (FES), and the University of Rhode Island Change Assessment Scale (URICA), just to name a few. Many of these assessment instruments require administration and interpretation by trained professionals, which can be costly, or they are too brief and do not provide enough information to effectively construct a viable treatment plan. Some instruments attempt to assess and sort persons into categories so that they fit into treatment modalities that are already in place with the hope that the cost and time of upgrading to more recent, innovative treatment services would be avoided. Sometimes an assessment might be given to a client to inform the treatment planning, but may never be looked at again because therapists are required to carry unreasonably large caseloads that keep them too time-constrained to give adequate attention to clients' individualized plans.

Problem Statement

Explanatory models are and have been developed in order to provide a theoretical framework within which to explain the etiology, natural history, and consequences of a disorder (Meyer & Babor, 1989, as cited in Donovan, 2005). This desire to develop a model to explain etiology holds true for the complexities of AOD abuse/dependence, as well. There are a number of diverse models that have arisen throughout time.

DiClemente (2010) lists seven traditionally accepted models for understanding addiction. These models or theories for understanding AOD abuse/dependence are described as: Social/Environmental, Genetic/Physiological, Personality/Intrapsychic, Coping/Social Learning, Conditioning/Reinforcement, Compulsive/Excessive Behavioral, and Integrative Bio-Psycho-Social. Bickel and Potenza (2006) suggest that a modular systems approach to addiction may explain differences among forms of addiction. The neurobiology of addiction is outlined by Koob (2006), which seeks to explain compulsivity, loss of control, the reward aspects, and addresses to some extent the genetic predisposition that is suggested to be inherent in families with a history of addiction. Hesselbrock and Hesselbrock (2006) cite genetic risk as substantially increasing vulnerability as well as traits of temperament that may influence the development of AOD issues. Peer influences and social support have also been consistently cited as risk factors for the initiation of AOD use among children and adolescents (Hesselbrock & Hesselbrock, 2006).

In his landmark book, *Social Learning Theory*, Bandura (1977) states that people generally regulate their behavior on the basis of subtle social cues. This concept seems to be true with abusive and dependent behaviors relating to AOD use, as well. Still another

aspect which needs to be considered is that problems with substance use and mental illness are inextricably linked (Mueser, Drake, Turner, & McGovern, 2006). Mueser, et al. (2006) report studies have shown that persons in alcohol or drug treatment typically report rates of comorbid mental illness in the range of 60-80% of the time, and people in psychiatric treatment settings show rates of comorbid substance use in the 40-60% range. The comorbidity rates of mental illness with AOD abuse/dependence is alarming and has raised questions such as, what is the best way to help someone who meets the diagnostic criteria for two co-occurring disorders? Which do we treat first, and how?

These numerous theories, models, and approaches attempt to explain how a person arrives at a place in their life when they are confronted with the possibility of being AOD abusive or AOD dependent. The viewpoints that have arisen to explain etiology, along with the reported difficulties in treating persons with AOD abuse/dependence, can create apprehensions that make it seem like this topic is too immense or too confusing to sort out. One thing it seems that we can be sure of is that each of the different theories have, at least, a part of the truth. However, no one lens seems to hold the key for how to treat a person experiencing these difficulties in his/her life. This has given rise to the advocacy of a *biopsychosocial* lens in which to view the addictive process and treatment thereof.

An all-encompassing, or comprehensive, viewpoint with which to assess and treat AOD abuse/dependence is not a new concept. As a response to the limitations of working from only one theoretical framework in the field of biomedicine, George Engel (1977) first introduced the concept of an integrative perspective to healthcare services and coined the term *biopsychosocial*. This integrative perspective was adapted and has

emerged in the field of AOD abuse/dependence treatment as the biopsychosocial model of addictive behaviors (Donovan, 2005). Related to AOD abuse/dependence, the biopsychosocial model posits that addictive behaviors are complex disorders multiply determined through biological, cognitive, psychological, and sociocultural processes (Donovan, 2005). The biopsychosocial model is integrative in the sense that it advocates for the notion that any one, or a combination of several factors in a person's life might play a role in the development of his/her AOD abuse/dependence and, therefore asserts that every aspect of a person's experience must then be considered when assessing his/her AOD abuse/dependence issues. In other words, clinicians need to assess persons with AOD abuse/dependence in a *holistic* manner to successfully plan and implement treatment for an individual.

The problem is that the biopsychosocial model does not take into account the degree to which a a person's experiences may have had in the development of his/her decision making and how those experiences may have influenced him/her in his/her individual path to AOD abuse/dependence. It merely suggests that all aspects of a person's life must be assessed and considered when planning treatment for that individual. Because of the complexity of addictive behaviors, we know that no one model or theory alone can fully explain how AOD abuse/dependence develops for individuals and that any one or a combination of theories, models, and approaches will likely vary among diverse individuals. Therefore, the author proposed that an instrument should be developed that would aid in identifying the degree to which constructs derived from a review of these theories might be used to *describe and/or explain* the development of AOD abuse/dependence. This will accomplished through the development of an

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instrument that will provide an individualized, integrated, biopsychosocial profile for clients related to influences in their decision making leading up to their problematic use of AOD. Therefore, individualized treatment may be more effectively planned and implemented which would expedite treatment and reduce costs.

Philosophical View/Theoretical Framework

Given the multidimensional nature of the constructs suggested for this study, the researcher has chosen a pragmatic approach to answering the research questions. Pragmatism is a philosophical movement begun during the latter decades of the nineteenth century by the American philosopher Charles Sanders Peirce (James, 1907; Maxcy, 2003). William James (1907), who considered pragmatism an "attitude of orientation," was a guiding figure in the development of pragmatic philosophy. James (1907) elaborated by stating, *[Pragmatism is]* "the attitude of looking away from first things, principles, 'categories,' supposed necessities; and of looking towards last things, fruits, consequences, facts" (p. 54). Early pragmatists such as George Herbert Mead believed that, "What is real is happening now," and later, John Dewey, in particular, had lasting impact on pragmatic philosophy by seeking to invest social science with more objective methods within the larger concerns of people as they form communities (Maxcy, 2003). In fact, today one can find communities that form with like-minded attitudes. A good example of this is the city of Del Ray, Florida which has become a well know location for persons to gather and live together who are learning to cope with a life without drug and alcohol use.

These two viewpoints suggest that there is utility in combining the subjective with the objective when doing scientific research. Maxcy (2003) goes on to say that evolution

continues to be central to any critical pragmatic stance, but the thrust is downward into nature and experience rather than upward into metaphysics. Gliner, Morgan, and Leech (2009) advocate for a pragmatic approach as a new guiding paradigm for social and therapeutic science research by stating that research conducted from the pragmatic approach utilizes exploratory and confirmatory methods (instead of qualitative or quantitative methods), which increases the options for researchers regarding data collection methods, data analysis tools, and interpretations. In addition, research that combines qualitative and quantitative methods allows researchers to focus attention on methodological rather than philosophical concerns (Gliner, Morgan, & Leech, 2009). Several authors (Datta, 1997; Howe, 1988; Patton, 1990; Rossman & Wilson, 1985; Tashakkori & Teddlie, 1998; as cited in Teddlie & Tashakkori, 2003) have proposed that pragmatism is the best paradigm for justifying the use of mixed methods research. However, this advocacy is not enough to arbitrarily choose pragmatism as one's philosophical standpoint. The methodology needs to rigorously answer the research questions.

Why then, should a mixed-method pragmatic approach be considered? Individuals holding the pragmatic worldview are focused on the outcome of the research (Creswell, 2007). In this case, the outcome will produce a useful, reliable, and valid screening instrument. A pragmatic approach is not committed to any one system of philosophy and reality; it is more concerned with answering the research questions in the way that best suits the needs of the study (Creswell, 2007). In other words, pragmatic research is driven by the research question. Collins, Onwuegbuzie, and Sutton (2006) conceptualized four rationales for mixing approaches: participant enrichment, instrument fidelity, treatment

integrity, and significance enhancement. Collins et al. (2006) state that qualitative techniques can be used to enhance the development of quantitative instruments and vice versa.

The goal of this study was to develop a valid instrument that would measure a person's perceptions of his/her past life experiences. Historically, perceptions have proven to be difficult to measure. Given that the nature of truth, meaning, and reality is realized through many different forms of information, and the instrument items will almost certainly identify more than one construct, a decision was made by the researcher to approach this study from a pragmatic viewpoint. Also, the utilization of multiple lenses and multiple methods seemed to be an appropriate framework for answering the research questions.

Researcher's Perspective

The researcher was a student in the Interdisciplinary Studies Ph.D. program in the School of Education at Colorado State University. After having completed a Masters degree in Education and Human Resource Studies with a concentration in Community Counseling, the researcher began his work in the addiction treatment field. Through working in a number addiction treatment milieus, which included adolescent residential, adult outpatient, and college-age voluntary as well as mandated programs, the author noted common challenges across facilities. One of those challenges was that the amount of time required to conceive an appropriate individualized treatment plan was not available due to large case loads and extensive administrative duties the counselors were asked to perform.

The biopsychosocial model of addiction treatment has been evolving within the therapeutic model of motivational interviewing and has emerged as the gold standard in treating addictive behaviors. There are numerous assessments used in the addiction field. However, none were found that could be administered without a clinician present, was brief, and would provide a biopsychosocial compass, if you will, in aiding therapists to direct treatment most successfully by addressing the client's self-identified influences on their decision-making. Awareness of this deficit in the literature came as the researcher was studying the numerous models of addiction throughout modern times that have been used to attempt to explain and treat the disease of addiction. In the United States, publications have been traced back to, Benjamin Rush, a member of the Continental Congress, who in 1777 and 1782 condemned drunkenness and provided some of the first solutions offered to decrease the effect alcohol had on the performance of the Continental Army (White, 1998). The negative effects of alcohol are apparent throughout world history and while most people seem to have the ability to take or leave substance use, there are many whose lives are directly and/or indirectly dominated by it. The effort of this research was to provide more effective and time-sensitive treatment for those whose lives are greatly impacted by a disease that has baffled scientists and humanitarians for centuries.

Research Questions

The guiding questions identify the kinds of information an instrument will be designed to address (Cox & Cox, 2008). The instrument will measure six constructs that were developed to correspond to six traditional models of AOD abuse/dependence listed by DiClemente (2010), as well as other theories and approaches to ultimately provide a

biopsychosocial profile unique to the respondent. This study utilized a nine-phase, sequential explanatory mixed-method design (Creswell & Plano-Clark, 2007) with modifications as suggested by Onwuegbuzie (2010) for instrument development and construct validation (see Figure 1 in Methodology section). Therefore, in addition to the overarching and guiding research question; each individual phase will require specific research questions and sub-questions as required for specificity (Creswell, 2007).

After the initial comprehensive literature review or Phase 1, the research question that guided the construct development stage or Phase 2 was, *What are the constructs, as identified through the literature review, that the instrument will seek to measure?* Phase 3 was guided by the question: *What are the specifiers or instrument items, as identified through the literature review, that will discriminate each construct?* The research question and sub-questions that guided the item revision stage or Phase 4 were more complex since this was where critical decision-making on the researcher's part took place regarding the final version of the instrument. The researcher anticipated that many items would, likely, be multidimensional. In other words, multidimensional items identified multiple objectives or constructs. These items are referred to as multiple-objective instrument items. Questions for Phase 4 were:

• *Do each of the multiple-objective instrument items discriminate or load to the construct/s for which they have been intended?*

•*Do the IIOC-MO results agree and how will decision-making take place to delete or revise an instrument item?*

•*What items fit best or load the highest with each construct? From the results of the IIOC-MO, which items need to be considered for deletion or revision?*

If one item loaded on several factors or if it did not discriminate, the researcher made a decision if that item should be revised or removed from the instrument. If an item highly identified with one construct it was considered unique or mutually exclusive to at least part of the construct. It was important to retain those particular items to be tested through the IIOC-MO process.

Phase 5 entailed completing the instrument design and proceeding with the field-test procedures. During this process human subjects research approval was obtained. All ethical standards for human research adhered to and procedures were planned to complete the data collection process.

The research questions for the quantitative analysis stage or Phase 6 were related to validity. Here the researcher asked: *Do each of the multiple-objective instrument items identify or load to the construct/s for which they have been intended?* Additionally, questions for Phase 7 were: *Is the instrument that has been designed, based on the qualitative data, a better instrument than existing instruments? How do the qualitative results inform the concepts of accuracy, goodness, and trustworthiness of the instrument? Do the qualitative responses confirm the intended constructs of the item?* A further question for Phase 8 was: *Is there a relationship between the instrument results, the predictive results, and the qualitative think-aloud results?* Phase 9 entailed a review of the instrument development/construct identification process and product.

CHAPTER 2 – REVIEW OF LITERATURE

Utilizing literature related to current and emerging models of addiction and substance abuse treatment, this section will look at the function of substance use assessment, construct validity issues, identify assessment strategies, and present the constructs for the Rein-Brief Integrated Biopsychosocial Screening Instrument (R-BIBSI).

The quality of survey research is fundamentally dependent on the validity of respondent reports, including the ability of respondents to accurately report on their past behaviors or events that they have experienced (Belli, 1998). "Given that drug and alcohol use is an observable behavior, one might expect that substance use would be comparatively straightforward to assess accurately and in a meaningful way. However, given the complexity and multidimensional nature of substance abuse, and despite theoretical and methodological advances of recent years, assessment of substance use remains anything but simple and straightforward" (Carroll, 1995). The thought process and care that must be taken when assessing persons with substance use difficulties is an ongoing challenge. What seems like an uncomplicated and easily attainable task quickly becomes mired in seemingly illogical response patterns that can bewilder researchers and clinicians alike.

The function of assessment in regard to substance use has historically been to determine if a person can be diagnosed with substance abuse or dependence through assessing for the set of criteria defined in the most current *Diagnostic and Statistical*

Manual of Mental Disorders IV-TR. Assessment may therefore be used for *screening*, or

to determine if an individual's levels, patterns, and consequences of substance use are

such that they would meet the criteria for substance abuse or dependence (Carroll, 1995).

Screening typically refers to assessment at the onset of treatment for the purpose of

assigning the appropriate mode of treatment or intervention for a particular individual.

Screening can also be used to gather demographic information that may give initial

insights into the individual's presenting issues and ensuing substance use patterns. This

process can take many forms from formal or informal interview, to pencil and paper, to

computer-based assessment. Because most assessment strategies are self-report, which is

inherently unreliable, the assessment process in substance use treatment facilities may

include interviews of the individual's loved ones to gain corroborative evidence of their

reports. The aim here is to minimize purposeful distortion of data. However,

corroborative evidence is also not reliable since, many times, loved ones can be unsure of

the specific details of the client's true substance use patterns.

Assessment may be used to describe the *nature* of the individual's substance use

(Carroll, 1995). There is known to be a great deal of variability in the frequency,

intensity, severity, and history of substance use among individuals who meet criteria for

substance use disorders (Carroll, 1995). This variability or heterogeneity in individuals

continues to be a confounding factor in assessing individuals and attempting to align

them with a set of predetermined criteria. Assessment of substance use usually entails

measurement of quantity and frequency, route of administration, periods of abstinence

and use, time to relapse, consequences of use, and treatment history (Babor, 1993; Babor,

et al., 1994; as cited in Carroll, 1995). Specifying the nature of a person's substance use

patterns can aid in developing and refining individual treatment planning, and understanding of the development and course of the disorder.

Another major function of assessment is to describe the *individual* with the substance use disorder (Carroll, 1995). Substance users are diverse and vary widely in terms of sociodemographic characteristics, concurrent problems (e.g., medical, legal, vocational, interpersonal, and familial), comorbid psychiatric disorders, and family history (Carroll, 1995). White (1998) concurs that most responsible researchers and clinicians take the position that alcoholism and other addictions are complex, multiply determined disorders in which biological and environmental factors interact to enhance personal vulnerability to substance use difficulties. Therefore, there is consensus that assessment of substance use disorders must be multidimensional in nature (Connors et al., 1994; Donovan & Marlatt, 1988; Institute of Medicine, 1990; McLellan et al., 1992; Rounsaville et al., 1993, as cited in Carroll, 1995).

In research, the function of assessment of individuals can be to determine *typology* or *categorization,* as well. In Project MATCH a battery of assessments were used to categorize participants into "Type A" (e.g., late onset, less psychiatric disturbance), and "Type B" (e.g., early onset, extensive family history, more psychiatric disturbance) (Kadden, Longbaugh, & Wirtz, 2003). Participants within these "Types" were exposed to different intervention strategies and groups' treatment outcomes were compared. Interestingly, there were no significant differences found between treatment modalities.

The validity of methods is a particularly salient issue in research involving assessment of substance use, as well as addressing the heterogeneity of individuals with

substance use disorders (Carrol, 1995). Addressing construct validity in instrument development is crucial and refers to the extent to which an instrument may measure a theoretical or hypothetical construct or trait (Alberta Alcohol and Drug Abuse Commission, 2004; Whiston, 2005; Gliner, Morgan, & Leech, 2009; Miller, Strang, & Miller, 2010). In other words, does the instrument measure what it is intended to measure? Constructs are hypothetical concepts that may not be observed directly (Gliner, Morgan, & Leech, 2009) and constructs in the counseling arena are generally abstract and difficult to define (Whiston, 2005). Also, with many constructs in counseling, there may be no universally agreed upon content or set of criteria (Whiston, 2005). Therefore, when applying construct validity to instrument design, it is necessary that the defined constructs are guided by an underlying theory (Hunter & Brewer, 2003; Gliner, Morgan, & Leech, 2009).

For the development and purpose of this instrument, the biopsychosocial approach to substance use treatment (Donovan, 2005) was chosen as the overarching guide. A biopsychosocial approach, simply put, encourages clinicians to assess clients holistically before a treatment is prescribed. It purports that psychological and social experiences can have an effect on biological functioning (Engel, 1977). Recently, theorists have added the word "spiritual" at the end (e.g., Biopsychosocial-Spiritual). Although, this instrument was not designed to address the spiritual issue, it might be noted that in the 1939 publication of Alcoholics Anonymous one can find the quote, "Of necessity there will have to be discussion of matters medical, psychiatric, social, and religious" (Alcoholics Anonymous, 2001, p. 19). One can see that the biopsychosocial concept is not new; however, given the holistic nature of the biopsychosocial approach, it

was necessary to employ a more defining theoretical strategy that would guide the creation of the constructs this instrument would attempt to measure.

Klion and Pfenniger (1997) advocate for the utilization of Personal Construct Theory (PCT) when considering the psychology and etiology of addictions and they refer to George Kelly's 1955, two-volume work *The Psychology of Personal Constructs* as a basis for this approach and a vital text on the subject. Kelly (1955) suggests that researchers look at individuals as seeking to predict and control the course of events in their life; i.e. as scientists in their own right, if you will, testing their circumstances and outcomes though trial and error or, in other words, via hypothesis testing through experimental evidence. Just as different scientists come up with different explanations (theories/beliefs/assumptions) and outcomes (results/consequences), so do individuals decide what they believe and expect through continuous trial and error. In relation to substance use assessment, as well as other clinical assessment, the premise is that while two clients may present with very similar initial complaints, the difficulty in construing what underlies those complaints may vary significantly, and therefore may change the outcomes of the specific interventions used to address them (Klion & Pfenniger, 1997).

Variation in the underlying etiology of similar complaints is a unique challenge faced by addiction professionals on a frequent basis. Clients may present clinicians with what seems like a simple diagnosis of substance abuse or dependence, although the circumstances that led each individual to that point, after careful inquiry, will likely be very diverse. PCT suggests that we construct our world through our understandings of it, and that all of our present interpretations of the universe are subject to potential revision (Klion & Pfenniger, 1997). It is the interpretation of one's circumstances and expected

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outcomes that has a direct effect on decision-making, and especially decision-making regarding substance use. As a person begins to focus his activities on the use of substances and to operate in substance related contexts, he/she often explicitly or implicitly elaborates and extends the addictive role and decreases his/her ability to re-construe the self in other terms (Burrell & Jaffee, 1999). For these individuals with substance use issues, psychologically it can seem nearly impossible to change if a viable alternative cannot be conceived (Klion & Pfenniger, 1997). Decisions, therefore, are made through an individual's constructions of his/her circumstances and the outcomes they anticipate as a result. Often, for a person with substance use difficulties, the only option appears to be continuation of the old behavior, which in many cases, perpetuates the addiction or at least continued risk taking behavior (Klion & Pfenniger, 1997). This may affect individuals who experience chronic substance abuse. For example, they might not see a viable way out of their circumstances, they might not see the desired outcome as attainable, they may have low self-efficacy in their ability to succeed in changing their substance use patterns, or they simply might not be willing to engage in the necessary work involved in addressing their issue. Any one of these belief patterns or constructions, among others, could be an underlying cause for chronic relapse behavior and may play a role in the ongoing difficulties and frustrations experienced by clinicians when working with such clients.

The concept of substance use, abuse, and dependence may vary cross-culturally and historically in significant ways (Peele, 2000). Peele states that "how we think about addiction influences how individuals become addicted, since we learn to be addicted through the expectations we develop about specific involvements" (p. 599). There is no

idiosyncratic mechanism in which substance use difficulties develop; they are influenced culturally, historically, and socially. We see that one's thinking about addiction and about one's behavior precedes and determines addiction experience (Callahan & Room, 1947, as cited in Peele, 2000). It is unwise and unnecessary to deny that the reality of people's experience can have crucial effects on their behavior (Peele, 2000).

Peele cites Callahan and Room's 1974 study, the purpose of which was to dispute the current "disease model" of addiction, which posits that loss of control is central to alcoholism, and that symptoms of alcoholism occur in some regular and coherent sequence and as such are consistent over time. Callahan and Room found that physiological symptoms of alcoholism were less consistent over time than was loss-of-control for problem drinkers and concluded the reports did not represent real physiological traits, but were merely the subjective description of the respondent's states (Peele, 2000). The importance of identifying, not only traits and experiences, but the individual's *interpretation* of those traits and experiences is essential in providing an accurate and practical individual assessment of substance use.

Methods of clinical assessment and classification must be guided by their clinical utility, by the clinician's need to make appropriate therapeutic decisions, and to communicate with other treatment providers (Lehman, Myers, & Corty 2000). This follows pragmatic sensibility, in that, the assessment must be successful in its utility to aid practitioners in providing more effective, individualized treatment. Assessing persons with substance use issues poses challenges that are not unique to the collection of information. It is important for clinicians to understand that these problems may be amplified by an individual's desire to deny, minimize, maximize or somehow distort the

seriousness of their substance use and its related difficulties. The challenge in substance

use assessment is that self-report is, and has been, the main strategy employed by

substance use treatment providers for gathering information about clients to determine

diagnoses and treatment planning. But because deception is a known trait of persons with

substance use difficulties, the problems with self-reporting must be addressed, though for

most research purposes, self-reports of drinking show adequate reliability and validity

when assessment situations are structured to minimize bias (Midanik, 1982, 1988; Babor,

et al., 1990; Del Boca & Noll, 2000; as cited in Del Boca & Darkes, 2003).

Accurate recall of past events remains to be one of the most challenging aspects in

instrument development. "Recent theorizing regarding the structure of autobiographical

memory, or that part of memory in which life events are stored, is particularly relevant to

understanding the retrieval of information needed to accurately report behaviors such as

alcohol consumption and illicit drug use" (Del Boca & Noll, 2000, p. 352). Strategies

such as Cognitive Interviewing (Willis, 2005), Timeline Followback (Teesson, Clement,

Copeland, Conroy, & Reid, 2000), and Think-aloud (Davison, Vogel, & Coffman, 1997;

Collins, 2003) attempt to aid and encourage respondents to increase the accuracy of

memory recall through guided inquiry.

Del Boca and Darkes (2003) state that limits in memory or memory retrieval can

influence responses. Fowler (1995) presents three possible explanations of memory recall

problems: (1) the respondent may not have the information needed to answer the

question, (2) the respondent may once have known the information but have difficulty

recalling it, or (3) the respondent may have difficulty accurately placing events in the

time frame called for in the question. In addiction assessment, this applies in the sense

that, oftentimes, respondents are asked about situations in which they truly have limited memory due to their AOD consumption. For extreme cases, a blackout experience may render the respondent unable to recall any part of an experience they are being asked about. However, Fowler's limitations of memory recall are based in the assumption that respondents are motivated to openly disclose the information they have access to, which allows him to omit the possibility that a person might have access to the information, but is unwilling to disclose that information for a variety of reasons. A client could be experiencing shame or guilt connected with their AOD use or he/she may be concerned about what the person conducting the assessment might think of them if they tell the entire truth, or possibly they are in legal trouble and believe minimization of their past behaviors would decrease court requirements.

Belli (1998) presents an hierarchical structure of autobiographical memory that is divided into three realms and describes how memories are arranged and understood by cognitive psychologists. They are *extended events* (events that are temporal in nature which may be extended in time for long periods or as short as a few days)*, summarized events* (common themes that underlie events of the same kind)*, and *specific events* (perceptual and episodic information that provides a sense of *reliving* an event as it originally occurred) (Belli, 1998). These concepts are important to instrument design due to the nature of what the instrument items will ask of the respondent and how those responses will be interpreted. Items may ask about a respondent's perceptions/ constructions of *extended events*, (e.g., items that inquire about childhood experience, job/school experience, family dynamics, etc.), *summarized events* (e.g., drinking experiences, holidays, weekends, etc.), or *specific events* (e.g., got a traffic ticket, had an

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accident, got in a fight, was diagnosed, etc.). While the hierarchical structure of autobiographical memory has been used to aid respondents in accurate reconstruction of their personal pasts, in this case the utility will be in reconstructing *perceptions* of personal pasts. When taking on a theoretical perspective that is based on reconstructing the past, one must take into account that each time a respondent is administered this instrument their responses may change as they proceed through treatment and their self-awareness of each experience is heightened or expanded. Specifically related to construct validity, this would exclude for example, the test-retest method as an accurate determiner of construct validity for this instrument simply because a person's constructions of experience can be expected to change over time.

It can also be expected that during intake respondents may, deliberately or not, manipulate their responses in a variety of ways in order to avoid stigmatization, to decrease treatment intensity, increase attention, or to support their own denial. Many clinicians might assume that because a person is in a treatment setting, they are motivated to be honest so that they will receive the best services possible. This should not assumed to be the case. Denial can be manifest in relation to the social undesirability of a given problem, and could affect answers that might imply personal defects, such as alcohol problems (Del Boca & Noll, 2000). The motivation to deny one's severity of use is a powerful reason for a respondent to distort the accuracy of information they report about their heavy drinking behavior. Persons who have substance use problems often exhibit decreased motivation to be fully self-disclosing due to their fear of being perceived negatively by others.

Although some researchers may be prone to perceive this distortion as minimization, some respondents might be motivated to *over-report*. This is a situation that is particularly pertinent to health services research and can sometimes occur when data are collected from a respondent by their primary clinician and the respondent has a desire to be viewed as successfully treated. As a result, the respondent may over-report the positive outcomes of treatment or they may under-report the severity of their related problems (Del Boca & Noll, 2000). The phenomenon of over-reporting might also be related to a respondent's desire to be seen as "untreatable," "unique," or to express a wish to intimidate others by seeming to be more knowledgeable because of their extensive substance use. Decreased motivation to report accurately can also be related to the physical and psychological state of the respondent, such as fatigue, withdrawal symptoms, depression, or anxiety, and may contribute to decreased cooperation and diminished effort because these uncomfortable states affect perceptions regarding the purpose or usefulness of the assessment (Del Boca & Noll, 2000).

Researchers can become confounded by an individual's apparently unintentional, inexplicable, or deliberate distortion of their self-reported behaviors and their beliefs surrounding those behaviors. Schumann and Presser (1981) describe a phenomenon known as acquiescence response bias (or yea-saying) as a threat to construct validity. This phenomenon was anticipated by Likert as early as 1932. Two assumptions are that respondents will acquiesce to items for which they feel they have no real answer, or on items that are vague, ambiguous, or difficult to answer (Schumann & Presser, 1981). Acquiescence response bias has also been found to be prominent among those with low socio-economic status and/or who are poorly educated (Schumann & Presser, 1981).

Although this instrument will be intended for individuals motivated and invested in seeking treatment, it is not uncommon for a person who is undergoing an extensive battery of intake assessments to rush though their responses in an acquiescent manner in order to complete the assessment in a shorter period of time. To combat these threats to instrument validity one must develop rapport, ensure clients' confidentiality, maintain consistency in administration of the instrument, and have proper training in the application of the instrument. This will help to minimize bias and support the participant in feeling safe in responding truthfully.

Another challenge is that, in addiction health services research, assessment more often focuses on concrete, observable behaviors and events, rather than on underlying hypothetical constructs (Del Boca & Noll, 2000). The difficulty is in assessing the individual's attitudes or beliefs, i.e. what they want or what they think is true (Salant & Dillman, 1994). This instrument, the R-BIBSI, has been designed to assess clients' attitudes and beliefs around his/her substance use. It employs a PCT lens to inform the overarching biopsychosocial view of an individual's perceptions or constructions of his/her past experience with the development of his/her substance use difficulties, as well as the accepted models of addiction treatment as presented by DiClemente (2010). To develop efficacious measures of the constructs and sub-constructs for this instrument, it was imperative to keep these theoretical perspectives in mind. The constructs will aim to discriminate a participant's risk factors on his/her path to problematic substance use as pertaining to Biological Influences, Psychological Influences, and Social Influences. Further review of instruments in the development stage of this instrument will be elaborated on in the methodology section (p. 32).

Reliability

Reliability is referred to in many texts and articles as the consistency of an instrument (Whiston, 2005; Creswell, et al., 2007; Huck, 2008; Gliner, et al., 2009). Does the instrument consistently measure what it is intended to measure? If reliability cannot be established, then the data accumulated as a result of the study will not be useful. Whiston (2005) states that classical test theory is based on the premise that any result from an instrument is a combination of an individual's true score plus error.

Observed score = True score +/- Error

Thus, using a reliability coefficient to estimate how much of the variance is true variance and how much is error variance is the most common way to describe an instrument's reliability (Whiston, 2005). For items that are not dichotomous (Likert scales), the appropriate statistic is coefficient alpha or Cronbach's Alpha, which provides a conservative estimate of reliability (Whiston, 2005). This is the statistic that was used for establishing the reliability of the screening instrument that is the focus of this study, the R-BIBSI. Another widely used method to determine reliability is the split-half method. This method entails randomly splitting an instrument in half to create two instruments. Those results are then compared to determine reliability of the overall instrument. However, for the purpose of this study, the split-half method was not appropriate because items are multidimensional which means that some items that would apply to certain constructs may be eliminated from one of the "halves," therefore skewing the results. For example, if a person's mother is identified as having AOD issues, but his/her father is not, and both items load to multiple constructs, it would be very unlikely

the randomized split-half method would produce two "reasonably equal halves," causing the results of this method likely to be invalid.

Systematic and unsystematic errors also pose issues with an instrument's reliability (Whiston, 2005). To address systematic error, or the error that is within the system (typographical errors or unclear directions), proofreaders were asked to report on the instrument before pilot testing. Whiston (2005) describes unsystematic error as an error that is inconsistent, such as a typographical error on just one copy of the instrument or difficulties in administration that could range from proctors' unfamiliarity to environmental concerns such as temperature of the room or unexpected noises. These issues were addressed during proctor training and instrument implementation to ensure each participant had a similar experience.

When addressing instrument reliability, one of the most important questions to ask is about variability (Gliner, et al., 2009). How much confidence can we expect in the performance of the instrument so that we can be confident in the result? The standard error of measurement (SEM) statistic allows one to establish a range of scores within which a participant's true score should lie. This is commonly referred to as the confidence interval and was assessed and reported in the results.

<div align="center">

Research Validity

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Addressing the many manifestations of instrument validity seems a daunting task. One will need to address the research validity as well as the measurement validity of the instrument. Gliner, et al., (2009) describes research validity as the "quality" of the whole study. Research validity is divided into two aspects, external and internal.

External validity is the extent to which populations, settings, treatment variables, and measurement variables can be generalized (Gliner, et al., 2009). External validity will need to be evaluated on ecological external validity, which addresses the "naturalness" of the setting, as well as population external validity. To account for population external validity, the pilot test was completed by a convenience sample of college age (18-24 year old) students who are identified as struggling with AOD abuse/dependence issues. To account for ecological validity for example in this study, care was taken during the preparation of the instrument and planning of implementation so that the appropriateness of length, ease of use, and rapport with proctors are properly addressed.

Internal validity has to do with the strength, soundness, and design of the study (Gliner, et al., 2009). Taking into account the equivalence of the groups and controls of experiences and environmental variables will address internal validity (Gliner, et al., 2009). By maintaining consistency in the testing atmosphere and ensuring that the pilot test group was congruent in the criteria mentioned (college age and identified with AOD issues), internal validity of the study was appropriately addressed.

Measurement Validity

Quantitative and qualitative studies have different ways of establishing measurement validity; therefore, in a mixed methods study like this one, many related aspects need to be considered. Measurement validity is concerned with establishing evidence for the use of a particular instrument in a particular setting with a particular population for a particular purpose (Gliner, et al., 2009). In the quantitative world there are three main types of measurement validity: content, criterion, and construct.

Content validity was largely addressed through the think-aloud process to determine the goodness of each item by asking "does the item measure what it was intended to measure?" Criterion validity procedures usually involve establishing a correlation coefficient between the instrument and the external criterion (Gliner, et al., 2009). Addressing the concept of predictive criterion validity was accomplished by utilizing a trained interviewer or rater to conduct the face-to-face intake assessments on 10 test subjects. The rater then completed the instrument based on the information gathered during the intake process in order to 'predict' how the test subjects' would respond to the R-BIBSI items. By comparing the interviewer's predictions with the actual outcome of the test subjects' responses, predictive criterion validity was assessed and reported. Construct validity was also assessed through an exploratory factor analysis to determine if, in fact, the items grouped or loaded into factors that made sense with the intended constructs of the instrument.

Limitations and Assumptions

Potential limitations of this instrument needed to be considered. Some issues arose when it was considered that the instrument was designed to assess a person's perceptions of the past and that these perceptions change with time. Coming from a PCT lens for example, the constructs developed for the instrument from review of the theories and models of substance abuse/dependence are, themselves, constructions. As with other disorders, models have been created to explain AOD abuse/dependence. From the pragmatic paradigm's ontology, that our experience of reality is wider and deeper than the cognitive reflection (Maxcy, 2003), it was important to consider how this would affect the response pattern of the participants and to address it in the application of the

instrument. Maxcy (2003) also states that pragmatic philosophy believes in some sense that nature is revealed and is continually revealing itself. This implies that, with time, these models of AOD abuse/dependence will, themselves, evolve into something different which would make the instrument less useful without timely reappraisal and revision.

The conceptualized intent of this instrument was that it be used with participants who are currently in or considering an AOD abuse treatment setting. Many times instruments of this nature are too overt which makes them easy for participants to manipulate and therefore skew the results. Items might be time sensitive or may be stated in a way that could inhibit the participant from answering truthfully. Thus, using this instrument with participants who are, in fact, desiring to seek effective treatment would provide for the optimal application of this instrument. Resistant clients, however, tend to be common in AOD abuse treatment settings. Resistant clients are considered to be clients who are not attending the AOD abuse treatment voluntarily but rather through coercion from parents or the legal system, or they are persons who are not necessarily invested in making changes in their lives in regard to their AOD use patterns. However, the hope is that this instrument, the R-BIBSI, would prove useful and reliable with resistant clients, also.

Persons who are adopted and those who do not have direct knowledge of their biological ancestry might not be able to be accurately assessed, especially by the questions designed to assess genetic predisposition to AOD abuse problems. While this could cause the biological construct of the assessment to be less valid, in these cases

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other areas of influence will continue to present themselves as relevant topics of

discussion and treatment for those individuals.

CHAPTER 3 – METHODOLOGY

The purpose of this mixed-method study was to develop an instrument that would address the question of constructing a biopsychosocial profile for individuals who are identified with having AOD abuse/dependence issues. Therefore, thinking through the research design was critical in providing a valid, reliable, and trustworthy instrument.

During the search for research designs in instrument development, the literature suggested two viable mixed-method models for instrument development. Creswell and Plano-Clark (2007) recommend a sequential explanatory with follow-up explanations design. This design model utilizes qualitative methods to inform quantitative results and is a proven mixed-methods research model for instrument development using a pragmatic framework (Creswell & Plano-Clark, 2007). Onwuegbuzie, Bustamante and Nelson (2010) present a mixed research-based meta-framework for an "instrument development and construct validation" (IDCV) process that was designed to aid instrument developers in undergoing a rigorous and comprehensive process during instrument development and construct validation. Aspects of both of these research designs, with the emphasis on the IDCV model, have been utilized in the planning of this study because of the multidimensional nature of the instrument items as well as the quantitative dominant nature informed by qualitative methods (see Figure 1).

Phase 1: Interdisciplinary Review of the Literature

There are many instruments that are currently being used to aid in the assessment and treatment planning for persons with AOD abuse/dependence issues. A

comprehensive review was conducted to assess the current research on the etiology of

addiction and its

Sequential Explanatory Design:
Instrument Development and Construct Validation (IDCV)

Phase 1: Interdisciplinary Review of Literature

Phase 2: Construct Identification

Phase 3: Rein-Brief Integrative Biopsychosocial Screening Instrument (R-BIBSI)
   Item Development

Phase 4: Index of Item-objective Congruence for Multiple-objective Instrument Items

Phase 5: Design and Field-test revised R-BIBSI

Phase 6: Validate revised R-BIBSI: Quantitative Phase
   Exploratory Factor Analysis, Cronbach's Alpha, Predictive Criterion

Phase 7: Validating revised R-BIBSI: Qualitative Phase: Think-aloud Strategy

Phase 8: Validating revised R-BIBSI: Quantitative-dominant Cross-over Mixed
Analysis

Phase 9: Evaluating Instrument Development/Construct Evaluation Process & Product

Figure 1. Design of Study

treatment. This review was central in determining the specific constructs to be

operationalized as a part of the item development phase. Also, existing instruments were

reviewed to assess if this approach to addiction assessment had been conducted in the

past (see Appendix A). Go to "http://lib.adai.washington.edu/" for a comprehensive

overview of assessment instruments related to substance use.

Phase 2: Construct Identification

Operationalizing the guiding research question is crucial in the instrument

development process (Cox & Cox, 2008). From the literature review of the current

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models, and theories of the etiology of the addiction process, the researcher determined specific constructs across the biopsychosocial spectrum. Constructs were identified as Biological Influence (BI), Psychological Internally Expressed Influence (PI), Psychological Externally Expressed Influence (PE), Social Family Influence (SF), Social Peer/Work Environmental Influence (SP), and Social Cultural Influence (SC).

Identifying the specific influences that contribute to the onset of alcohol use in each of the constructs for the R-BIBSI required delving into subject matter that can be controversial and, even now in the modern era, difficult to define. Part of the problem is that there are many factors that seem to cross over several constructs. For example, one of the most well known studies of genetic influence on alcohol use is the "Finn Twin" study. In this study, twins were actually found to have more likelihood of environmental influence on their drinking than genetic influence (Rose & Dick, 2005). This finding outlined the need for a comprehensive approach to the definition of the R-BIBSI constructs. This section identifies the themes of influence to which the items for the R-BIBSI will be written to correspond to the six constructs: BI, PI, PE, SF, SP, and SC (see Figure 2).

Historically, a person's genetic risk for developing a certain disorder has been estimated by establishing a family history of the disorder, and this approach remains important for research on substance use disorders (SUD). Presence of an SUD in a parent has consistently been shown to be a strong risk factor for adolescent AOD use and SUDs (Thatcher & Clark, 2008). Hesselbrock & Hesselbrock (2006) state that "while no single source of information definitely confirms the genetic hypothesis, the confluence of findings from extended pedigree studies, studies of monozygotic (identical) and

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dizygotic (fraternal) twin, and studies of adoptees raised apart from their alcoholic parent persuasively argues for a genetic component to the vulnerability for developing alcoholism" (p. 110). Furthermore, "family, twin, and adoption studies have convincingly demonstrated that genes contribute to the development of alcohol dependence, with heritability estimates ranging from 50 to 60 percent for both men and women" (McGue, 1999; as cited in Dick & Agrawal, 2008, p. 111). While a parent having the presence of an SUD is a risk factor does present a possible influence of AOD use problems, it does not consign their children to a fate of living a life filled with addiction struggles.
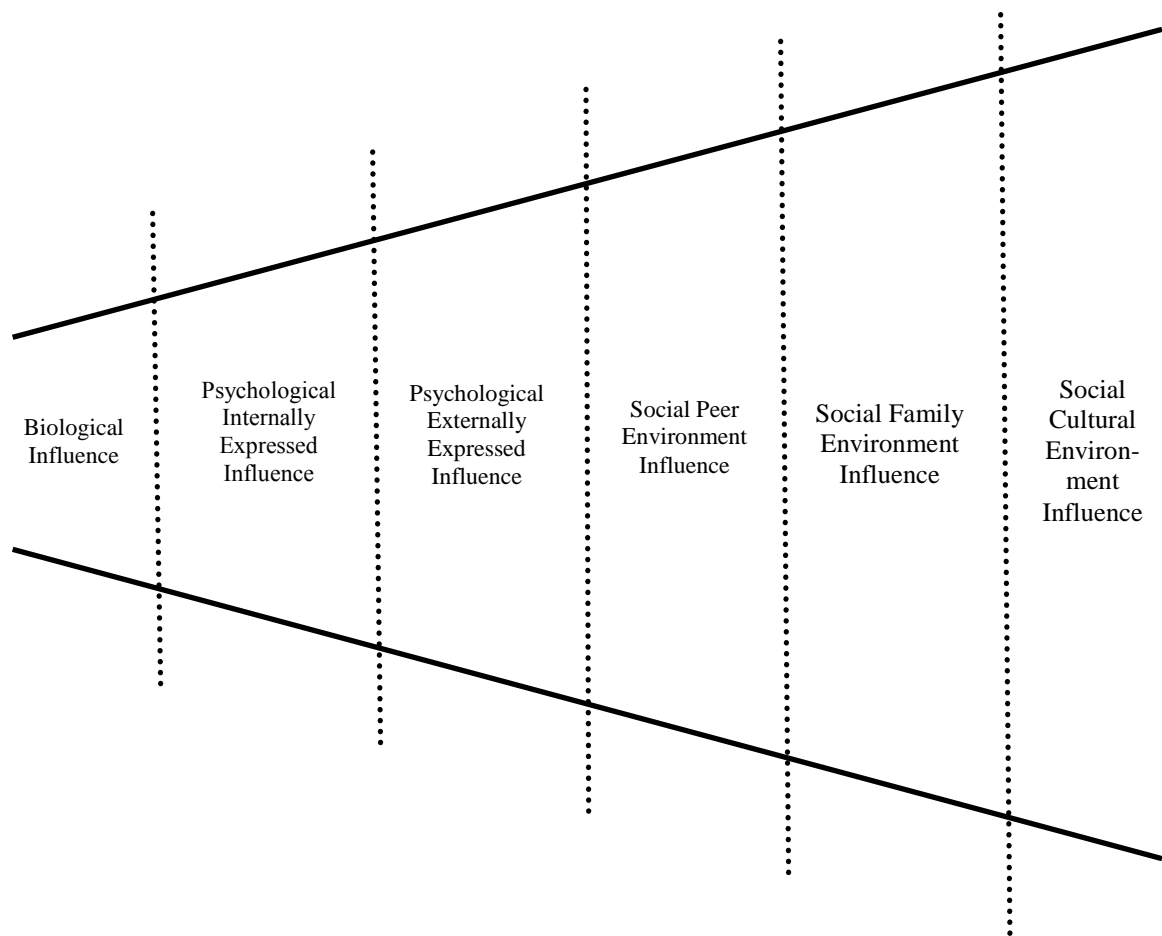
Figure 2. Conceptualized Model of Biopsychosocial Influence (Figure designed by Marty J. Rein).

Psychological dysregulation in that child's parents during their childhood also may contribute to the heritable risks for SUDs (Clark et al. 2004a; as cited in Thatcher & Clark, 2008). For example, a family history of alcohol abuse, antisocial behavior (by either parent), and depression (especially in the mother) can be an influencing factor in a person's AOD use (Masten, Faden, Zucker, & Spear, 2009). It is well documented that a positive family history of alcoholism substantially elevates one's risk for alcohol abuse (Chassin, Curran, Hussong, & Colder, 1996; Dawson, Harford, & Grant, 1992; Sher, Walitzer, Wood, & Brent, 1991; Sigvardsson, Bohman, & Cloninger, 1996; as cited in Finn, Sharkansky, Brandt, & Turcotte, 2000). Hereditary makeup, personal background characteristics, and behavioral competencies have been shown to be crucial factors in predicating behavior (Donvan & Marlatt, 2005). The convincing confirmation of a genetic predisposition to alcohol use disorders is the basis for this R-BIBSI construct.

Many studies, though, have focused on sons of alcoholic fathers. Schuckit (1994) found the there seems to be a contrasting response to alcohol consumption among those with to those without a family history of alcoholism. Those with alcoholism in their family history tended to have a less intense response to moderate amounts of alcohol (Schuckit, 1994). This reduced response to alcohol is predictive of subsequent development of alcohol dependence (Mundt, Perrine, & Searles, 1997; Schuckit, 1994, 1998, as cited in Donovan & Marlatt, 2005).

Psychological dysregulation is defined as deficiency in three domains: cognitive, behavioral, and emotional—when adapting to environmental challenges (Thatcher & Clark, 2008). Psychological dysregulation is related to parental characteristics, is predictive of adolescent outcomes, and may be a manifestation of neurobiological

characteristics (Thatcher & Clark, 2008). To assess psychological dysregulation, the construct of internally expressed influences will focus on cognitive and emotional aspects such as report of depression, anxiety, negative self-talk, and low self-esteem. From a psychological perspective, traumatic events such as child maltreatment may lead directly to AOD use because the affected person attempts to self-medicate the anxiety and depression resulting from the traumatic event (Thatcher & Clark, 2008). Adults often use alcohol and tobacco for similar reasons, but the coping functions for alcohol use are more likely to involve distraction and forgetting (of the traumatic event, or their depression or anxiety) (Bobo & Husten, 2000).

There is evidence that genetic influences are predictive of conditions other than alcohol use disorders, especially, conduct disorder (CD), and that CD in turn, was predictive of alcohol use disorder (Rose & Dick, 2005). From these results, Rose and Dick (2005), inferred that CD is an early manifestation of a genetic predisposition that later contributes to the development of alcohol-related problems and alcohol dependence. Dick and Agrawal (2008) went on to present evidence of other externalizing psychological traits such as antisocial personality disorder and attention deficit hyperactivity disorder (ADHD) as being predictive of the development of alcohol use disorder. Therefore, efforts to identify risk for developing alcoholism and to create opportunities for targeted interventions should focus on identifying persons exhibiting symptoms of CD, antisocial personality disorder, and ADHD (Rose & Dick, 2005; Dick & Agrawal, 2008). The traits of conduct disorder during childhood is one of the most important predictors of adolescent SUDs (Bukstein 2000; Clark et al. 2002; Sartor et al. 2006, as cited in Thatcher & Clark, 2008).

Some researchers use the label of "social deviance proneness" rather than antisocial traits because the latter constructs either connote a specific diagnosis or refer to a broad range of personality characteristics. At the core of the concept of social deviance proneness are deficits in the ability to regulate behavior in response to social norms, interpersonal or other contextual cues for appropriate behavior. Such deficits are associated with a range of outcomes, such as conduct disorder, aggressive behavior, problems with authority, unreliability, and substance abuse (Gorenstein & Newman, 1980; Pihl, Peterson, & Finn, 1990; as cited in Finn, Sharkansky, Brandt, & Turcotte, 2000).

Because influencing factors can be categorized as either cultural (i.e., contextual) and related to legal and normative expectations or as interpersonal and concerned with family and peer-group influences, the social construct is divided into three constructs. Both cultural and interpersonal factors can reduce the likelihood that young people will engage in illicit use of drugs or excessive drinking (Schulenberg & Maggs, 2002), for example, low levels of parental supervision were more likely to subsequently develop an alcohol use disorder (Thatcher & Clark, 2008).

Several environmental influences have been identified that affect the risk of accelerated AOD involvement and the development of adolescent SUDs. As described in the following sections, major environmental influences include child maltreatment and other traumatic events; parental influences, such as parenting practices; and peer influences. Some of these also lead to manifestations of psychological dysregulation, such as CD, ADHD, and major depressive disorder (Thatcher & Clark, 2008). Environmental risk factors include family-related characteristics, such as family

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functioning, parenting practices, and child maltreatment, as well as other contextual

factors, such as peer influences, substance availability, and consumption opportunities.

These heritable and environmental factors then interact to determine a person's

observable characteristics and behaviors, such as AOD use (Thatcher & Clark, 2008).

Adolescent alcohol use is associated with drinking by parents (Brook, Whiteman,

Gordon, Nomura, & Brook, 1986; Botvin, Malgady, Griffin, Scheier, & Epstein, 1998; as

cited in Bobo & Husten, 2000), and siblings (Rittenhouse & Miller, 1984). Among teens,

parent-child relationship factors such as limited or poor quality familial attachments; low

levels of parental supervision and strictness; inadequate parental monitoring; and lack of

parental affection, concern, and involvement have been related to drinking (Arkin &

Funkhouser 1990; Scaffa 1998; as cited in Bobo & Husten, 2000). Young persons who

have positive beliefs about alcohol's effect on social interactions (Turrisi, Wiersma, &

Hughes, 2000) and those who engage in problematic alcohol use are at greater risk of

experiencing harmful consequences (Perkins, 2002). This information is important since

the instrument items will inquire about a person's perceptions of how the onset of alcohol

use was experienced in their adolescence.

"In Bandura's (1969) approach, four components integral to social learning theory

are discussed. These include (1) vicarious learning, where an individual learns without

direct reinforcement by observing the behavior of others and the consequences they face

for engaging in the behavior (positive or negative); (2) differential reinforcement, where

a behavior (e.g., heavy episodic drinking) may be viewed differently and result in

different consequences—either positive or negative—in different settings (e.g., living

arrangements); (3) cognitive processes, the individual's internal psychological functions

related to decision-making; and (4) reciprocal determinism, the mutual and interdependent causation between psychological processes, social context, and individual behavior" (Ward & Gryczynski, 2009. p. 365).

Research has shown that awareness of beer commercials among fifth and sixth graders is significantly related to intentions to drink as adults (Grube & Wallack, 1994), suggesting that alcohol advertising may influence adolescents to be more favorably disposed to drinking. Therefore, advertising has been found to be a potential risk factor for both smoking and drinking among adolescents (Bobo & Husten, 2000). Coming from a cultural perspective, the effect of social media (e.g., Facebook, Twitter, Myspace, etc.) can be assumed to have an influence on a person's perceptions surrounding the expectations of society concerning alcohol and other drug use.

As a result of what the literature suggests, the Biological Influences construct will include genetic risk as defined by previous conditions reported to be present in the family (e.g., mental health issues and/or substance use difficulties within the biological family structure). Persons who are adopted will pose the most serious threat to the validity of this construct since they may not necessarily have access to the information regarding their biological history as requested by the instrument, however, the environmental aspect of family life will continue to have influence on the person whether they are biologically related or not. If a person has been adopted, questions of biological influence will need to be assessed on an individual basis in relation to that person's knowledge of their genetic past.

The Psychological Influences construct will be divided into two sub-constructs: (1) internally expressed (e.g., clinical depression, generalized anxiety disorder, or other

mood disorders) and (2) externally expressed (e.g., reinforcement, conditioned responses, personality disorders, impulsivity, post traumatic stress, conduct disorder, illegal behaviors, etc.). The Social Influences construct was further defined by three sub-constructs: (1) family environment influences (e.g., family structure, familial relationships and support), (2) social peer environment influences (e.g., vocational culture/cues or peer culture/cues), and (3) cultural environment influences (e.g., community norms, expectations, drinking polices, advertising). These preliminary constructs seem to fit into the original intent of the instrument while taking into consideration insights that have come with the review of literature on the subject (see Figure 3).

Biological
Influence

Social
Cultural
Environment
Influence

Psychological
Internally
Expressed
Influence

Individual's decision-making regarding alcohol use

Social Peer
Environment
Influence

Psychological
Externally
Expressed
Influence

Social Family
Environment
Influence
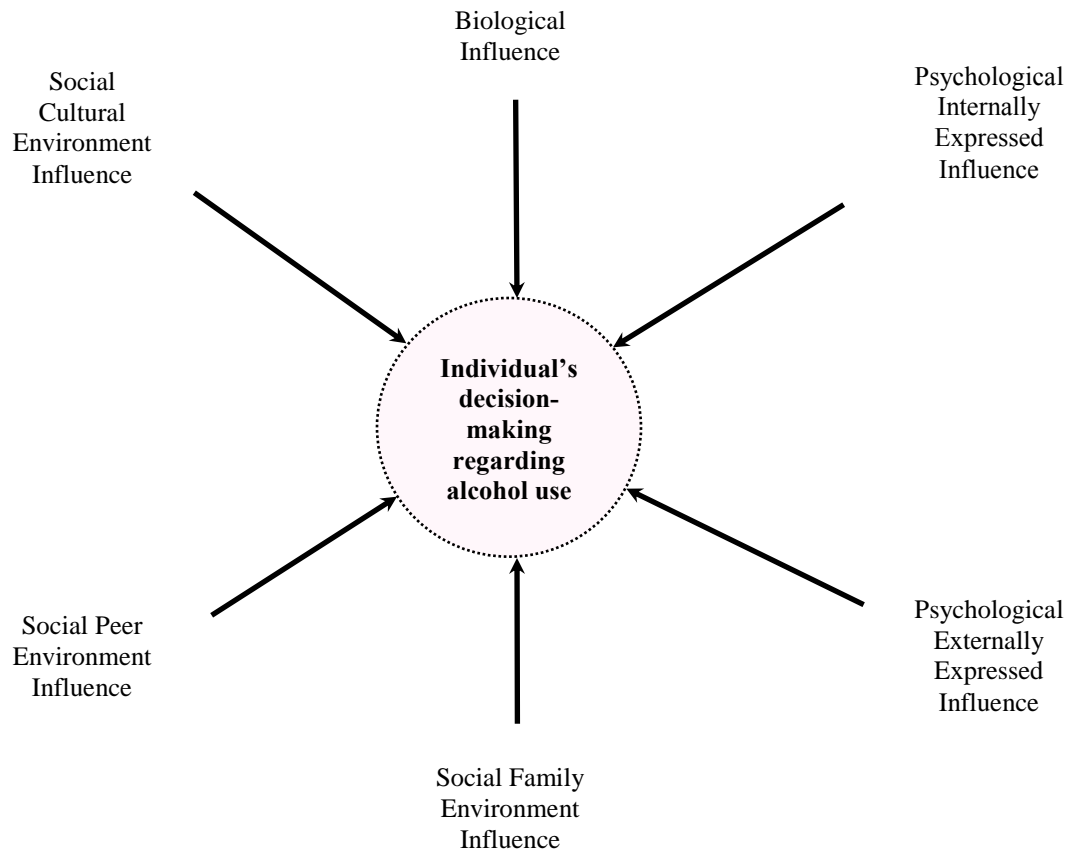
Figure 3. Conceptualized Model of Biopsychosocial Influence on the Individual (figure designed by Marty J. Rein).

This delineation provides six separate areas of influence as constructs and sub-constructs: Biological Influence (BI), Psychological Internally Expressed Influence (PI), Psychological Externally Expressed Influence (PE), Social Family Environment Influence (SF), Social Peer Environment Influence (SP), and Social Cultural Environment Influence (SC). Participants will be asked to respond to items that are designed to discriminate between these six constructs (see Table 1). The main difference from the original intention is that the Social Construct will be divided into three rather than two sub-constructs in order to create a clear separation of the risk areas of family, environment, culture. These sub-constructs maintain alignment with five accepted models of treatment (Genetic/Physiological, Conditioning/Reinforcement, Personality/ Intrapsychic, Coping/Social Learning, and Social/Environmental) as presented by DiClemente (2010).

Table 1

Six Constructs for the Brief Integrative Biopsychosocial Screening Instrument

Construct	Description
Biological Influence (BI)	Indicators: • Any familial history of addiction • Any familial history of conduct disorder (esp. in father) • Any familial history of psychological dysregulation • Any alcohol use by mother during pregnancy • Any familial history of antisocial personality disorder • Any familial history of ADHD • Reduced response to alcohol consumption • Inadequate response to high demand situations

Construct	Description
Psychological Internally Expressed Influence (PI)	Indicators: • Depression • Manic, hypomanic, and mixed episodes • Low self-esteem • Unwanted thought patterns • Feelings of alienation • Feelings of being misunderstood • Negative self-talk • Positive outcome expectancies of alcohol use • Outcomes of alcohol use that are greater than predicted • Low executive cognitive functioning
Psychological Externally Expressed Influence (PE)	Indicators: • Experience of reinforcement patterns • Impulsivity • Hyperactivity • Illegal behaviors • Feelings of aggression • Obsessive compulsive behaviors • Oppositional defiance disorder • Conduct disorder behaviors • Personality disorder behaviors • Inflexible behavior patterns that deviate from societal norms
Social Family Environment Influence (SF)	Indicators: • Parental subsystems not providing nurturance • Parental subsystems not providing guidance • Parental subsystems not providing supervision • Parental subsystems not providing affection or concern • Parental subsystems not providing involvement related to drinking • Decreased family cohesion • Any familial history of depression (esp. in mother) • Over functioning to compensate for the member who is using • Positive view of alcohol use exhibited within the family • Drinking within the family

Construct	Description
Social Peer Environment Influence (SP)	Indicators: • Expectations related to school or athletic peer groups • Expectations related to vocational or work peer groups • Alcohol use encouraged and/or expected in peer groups • Vicarious learning through peer or vocational group interactions • Perceived positive consequences learned through peer group interactions
Social Cultural Environment Influence (SC)	Indicators: • Availability • Legal drinking age • Local policies • Advertising (e.g., media, commercials, billboards, t-shirts, internet, etc.) • Religious/Spiritual Organizations • Role models

This section has reviewed literature to address construct identification and the establishment of efficacious measures in the development of the Rein-Brief Integrative Biopsychosocial Screening Instrument (R-BIBSI). It has also looked at difficulties in assessing persons with substance abuse issues and presented an overarching theoretical structure with which to address these issues. It was necessary to define the constructs in a way that would provide a more comprehensive, theory-based perspective. As a result, the Conditioning/Reinforcement and the Personality/Intrapsychic models were combined into two sub-constructs within the Psychological construct portrayed by *internally* expressed influences and *externally* expressed influences. In response to the insights regarding the social construct, it was necessary to create a cultural sub-construct (society, community, church, role models, etc.), to identify the social environmental sub-construct to account for experiences that involve peers (friends, acquaintances, peer group members, etc.) and vocational influences (co-workers, school cohorts, team participation, etc.), and to

maintain the family sub-construct. Although, this did require some retooling of the original mock-up of the instrument, as a result, it will provide a more useful instrument which holds true to the original intent in the project.

Phase 3: Brief Integrative Biopsychosocial Screening Instrument Item Development

Instrument items were developed with the intent that each item would clearly discriminate to one or more of the constructs. The basic task of the instrument items was to place the respondent's answers on a continuum of well-defined constructs (Fowler, 1995). The items were designed to inquire about the respondent's subjective perceptions of their past experiences. Recalling information about past events can be especially difficult (Converse & Presser, 1986), therefore, decisions were made as to the appropriate design of the instrument items. For example, to ensure that a diverse population of participants could adequately understand and accurately respond to each item, the reading level required by the R-BIBSI was given specific attention.

One concern in the item development stage was how to gain the best data from the respondent's answers, e.g., measuring intensity, and whether to offer a middle alternative (Converse & Presser, 1986). The manner in which researchers handle the possibility that respondents may not be familiar enough with the subject matter, or their own feelings on a topic, to answer a question, is an important issue (Fowler, 1995). Fowler offers three suggestions for addressing this issue; (1) ask a screening question, (2) include a "no opinion" or "don't know" option, (3) do not explicitly address the issue of respondents' familiarity with a topic; in other words, force respondents who do not feel they can answer a question to volunteer that information. Asking questions about intensity or strength of feeling, has been shown to predict attitude stability and may

enhance better understanding of the nature of the respondent's opinion on an issue

(Converse & Presser, 1986). Also, Converse and Presser suggest that, by not offering a

middle alternative, the instrument will avoid losing valuable information about the

direction in which the respondent leans. Some investigators prefer to omit the middle

alternative on the grounds that almost everyone really leans in one direction or the other

on most issues and that the middle alternative may invite evasion (Schumann & Presser,

1981).

Converse and Presser (1986) state that, in general, forced-choice items are more

apt to encourage a considered response. That is by forcing a choice in one direction or the

other, the participant will naturally reflect more deeply, and therefore provide a more

accurate response pattern. Additionally, there are investigators who purposefully omit a

middle alternative in order to force respondents into one of the polar positions (Fowler,

2002; Fowler, 1995; Converse & Presser, 1986; Schumann & Presser, 1981). When

considering the type of person this instrument is intended for, someone who is having

AOD issues and who may not be willing to fully consider each question relating to their

experience, the researcher believed that a forced-choice Likert scale would render the

responses needed to provide for the most accurate information about that respondent.

For the development of this instrument, the researcher chose a forced choice 6-

point Likert scale (0 - 5) with the response options being on the continuum of: 0 = the

item is NOT AT ALL like my experience, 1 = the item is RARELY like my experience, 2

= the item is SOMEWHAT like my experience, 3 = the item is LIKE my experience, 4 =

the item is VERY MUCH like my experience, and 5 = the item is DEFINITELY like my

experience. The reasoning is that this instrument will be asking about a respondent's

perception of their past experiences. If the respondent has not had the experience described, doesn't know, or has no opinion, they will have the opportunity to choose the "NOT AT ALL like my past experience" option. With the utilization of the forced choice 6-point scale, the respondent will also have the option to measure the intensity of their perceptions one way or the other. The use of this forced choice, 6-point Likert scale will address the issues of intensity, the middle alternative, the don't know issue, acquiescence response bias, and the possibility of recency effects.

Review of Instruments

To develop the individual items for the R-BIBSI, 748 instruments were found that related to substance use assessment. These instruments were reviewed for reliability, validity, content, and ease of administration. Appendix A contains an itemized table of some the most commonly accepted instruments in the field of alcohol and drug abuse treatment. Instruments designed to assess areas that correlated to one or more of the six R-BIBSI constructs were located and evaluated to inform possible items for each construct. Items were also composed by the researcher from his experience in the addiction treatment field when no prior assessments addressed a particular area.

At the onset of the item development, no restriction was placed on the number of items to be written for each construct. The researcher began by writing items for each construct individually, starting with BI, PI, PE, SF, SP, and SC. Resources that were instrumental, but not exclusive, in this portion of the initial item development were the DSM-IV-TR (American Psychiatric Association [DSM-IV-TR], 2000), the Alcohol Expectancy Questionnaire (AEQ) (Christiansen, Brown, & Golman, 1982), the Co-occurring Disorders Screen (Cherry, Dillon, Hellman, & Barney, 2007), the Depression

Anxiety Scale (DASS) (Lovibond & Lovibond, 1995), the Life Experiences Survey (LES) (Sarason, Johnson, & Siegel, 1978), the CAGE (Ewing, 1970), and the Michigan Alcohol Screening Test (MAST) (Selzer, 1971). To address systematic error, or the error that is within the system (typographical errors or unclear directions), (Whiston, 2005), input on wording, reading level, and accessibility was solicited from experts in the field of substance abuse assessment and instrument development throughout the item development procedure. Items were revised accordingly on an on-going basis depending on feedback from instrument development experts.

As previously mentioned, there was an assumption that some items would inherently be multiple-objective items. The researcher determined not to be concerned with this fact during the *initial* item development process. The objective was to write as many items to identify each construct as specifically as possible. The thought process was that once the first set of instrument items were developed, they would then be reassessed before the IIOC-MO procedure and the items that were multiple objective would be identified and either eliminated or revised as a result of the IIOC-MO process. Also, it was assumed that items of lesser quality would naturally be eliminated during the IIOC-MO process due to ambiguity or poor wording. Appendix C contains a list of those items with corresponding sources, of which 146 were composed. The original 146 items were reduced to 145 due to items 75 and 97 being repetitious.

Phase 4: Index of item-objective congruence for multi-objective instrument items

Huck (2008) states content validity of an instrument is normally established by having experts carefully compare the content of the instrument against an outline that specifies the instrument's claimed domain. The purpose of this phase of the study was to

determine item fit within the six constructs and to eliminate ambiguous or poorly worded items. The goal was to reduce the number of items on the R-BIBSI to between 30 and 50. The index of item-objective congruence for multiple-objective items (IIOC-MO) process has been shown to be a useful tool for instrument developers by providing an independent assessment of item validity prior to the pilot test administration (Turner & Carlson, 2003). To accomplish this task of item fitting and item reduction, the IIOC-MO strategy, as suggested by Turner and Carlson (2003) was utilized. The IIOC-MO strategy is a process in which treatment professionals and experts in the field (evaluators) were solicited to verify the content validity and construct fit of items through participation in a guided rating process of each instrument item as it identifies to each of the intended constructs for those items. For items that identify to one or more constructs (or multiple-objective items), Turner and Carlson (2003) suggested the use of an adjusted IIOC-MO equation:

$$I'_{ik} = \frac{(N)\mu_k - (N - p)\mu_l}{2n - p}$$

Where (I'_{ik}) is the index of item-objective congruence for item i on a set of objectives k, N = the number of objectives, p = the number of valid objectives, μ_k = the judges' mean rating of item i on the valid objectives k, and μ_l = the judges' mean rating of item i on the invalid objectives l. Specifically, the IIOC-MO is a form of "item fitting" that is useful when items on an instrument may identify more than one construct or objective (Turner & Carlson, 2003).

Local content experts were selected through recommendations from drug and alcohol treatment facilities in the area and their level of experience in working with

clients experiencing AOD issues. The local content experts came from a variety of disciplines (psychiatry, psychology, counseling, and addiction counseling). The content experts who were selected held licensure or certification in their respective fields. Each content expert was asked to rate the 145 items across the 6 constructs by using "1" if the expert believed this item clearly defined the construct, "0" if the item was ambiguous, and "-1" if the item did not identify to the construct. As an additional measure to inform the IIOC-MO results, the content experts were given the opportunity to provide suggestions for item revisions as a result of their experience rating the instrument items. Items were then retained, revised, or deleted from the instrument depending on the results of the IIOC-MO and the content experts' suggestions.

To complete the IIOC-MO procedure, a document needed to be created to invite content experts to participate in the final item reduction and revision process. This document also needed to describe the intention of the R-BIBSI, the constructs that were developed, the underlying theoretical orientation, as well as indicate what would be required of them to complete the item rating required by the IIOC-MO procedure. A comprehensive document was necessary to ensure adequate understanding of what was being asked of the content experts and why (see Appendix C). An honorarium of $50.00 was offered to each content expert as compensation for the time it took to accurately complete the IIOC-MO. The rationale was that if the content expert was given, or at least offered, compensation for their time, the attention paid to the activity would increase, and thus, the reliability of the results would increase. It was estimated by the researcher to take approximately one to two hours to complete. Of the five who responded only three asked for this compensation.

According to Turner & Carlson (2003), for the IIOC-MO to produce valid results, at least four completed content expert packets were necessary. Local content experts were selected based on a number of criteria: knowledge of addiction treatment, knowledge of the biopsychosocial concept in addiction treatment, knowledge of instrument construction, number of years experience in the field, and their availability and willingness to participate. The content experts were from multiple disciplines to ensure the most accurate results from multiple lenses. The group of content experts consisted of three Licensed Psychologists, a Licensed Psychiatrist, and a Certified Addiction Counselor III. Each content expert had 20 or more years of addiction counseling and/or addiction research experience. The local content experts, who were suggested by colleagues or known by the researcher to be respected in the addiction field, were contacted by the researcher by phone or email and identical packets were sent or hand delivered to each. A stamped return envelope was included.

The next step in the procedure was to randomize the items and create an IIOC-MO rating document that was easily readable and clear for the content experts. This was necessary because the items were originally listed in order of each construct and therefore, would be predictable once the rating process had begun. Additionally, this randomization was necessary because the researcher was also required to rate each item to the constructs and thus familiarity with the items would be less likely to affect the ratings provided by the researcher. In addition, the randomization of the items provided an opportunity for the researcher to reevaluate each item individually as to which constructs it would identify with "fresh eyes." This aided the researcher in identifying

ambiguous or poorly worded items outside of the context of each construct (see

Appendix D: IIOC-MO rating document).

It was determined, with consultation, that Institutional Review Board approval

was not necessary for this portion of the study since it did not require test subjects'

involvement. Of eight IIOC-MO packets, five were returned completed. The researcher's

role in the IIOC-MO process was to rate each item to the constructs it was intended for.

In essence, the content experts' ratings would then be compared with the other content

experts' ratings, as well as the researcher's ratings and for each specific item to each

specific construct in the IIOC-MO analysis.

Once packets were returned, the data was analyzed by utilizing the macro

program for Statistical Analysis Software (SAS) provided in Turner & Carlson (2003).

The macro program consisted of inputing the researcher's ratings as well as the content

experts' ratings into the SAS macro. The variable V indicated the six constructs and the

researchers ratings, respectively. See Appendix E for the IIOC-MO macro and an

example of a completed rater form that were analyzed by this macro.

Phase 5: Design and Field-test Revised R-BIBSI

The purpose of this phase was to complete the design and then field test the R-

BIBSI. By collecting quantitative and qualitative data, the researcher was able to assess

the construct validity and trustworthiness of the R-BIBSI. The data were collected

simultaneously using three strategies: instrument results from the identified sample of

respondents, predictions of results by a trained evaluator, and a think-aloud process. Each

of these strategies were designed to inform the other and provided data for determining

the overall validity or trustworthiness of the instrument. Human subjects approval from

the Colorado State University Institutional Review Board (IRB) was obtained for this three-part process: collection of field-test data, collection of predictive validity data, and collection of the qualitative think-aloud data.

The participants were selected on a volunteer basis from students attending interventions in the Drugs, Alcohol, and You Programs (DAY) office in the Colorado State University Health Network. Students who utilize the DAY Programs office may come from a pool of voluntary or mandated clients. Most of the students who use the DAY Program services are first year freshmen who have violated the student conduct code and have been mandated to a number of possible interventions designed to address their level of risk regarding their reported AOD use. These interventions are: LiveSafe (a three-hour focus group), BASICS (Brief Alcohol Screening and Intervention for College Students), and the Back-on-TRAC (Treatment, Responsibility, and Accountability on Campus) program (Matheson, et al., 2009). The DAY Programs office also provides services for voluntary clients who have chosen to address their AOD use on their own. The overall population of DAY Programs clients provided a convenience sample at different levels of risk, openness to treatment, and who fit into the population for which the R-BIBSI is intended: persons who have either been identified through a conduct system or have self-identified as having concern with their AOD use. Students were solicited on a volunteer basis as they completed intake procedures for their respective interventions. For participation in this study, students were offered a payment of $5.00 in compensation for their time and active participation.

The possibility of the participants experiencing harmful effects by participating in the field test of this instrument were anticipated to be minimal. However, through

informed consent, participants were made aware that the questions they would be asked to answer might cause discomfort by bringing up thoughts of difficult situations in their past. Because of this possibility, participants were offered the opportunity to receive debriefing with the researcher, as well as an interpretation of their results, if they desired it. It was the utmost priority to maintain every aspect of the participants' well-being if they chose to participate in the pilot testing of the R-BIBSI.

Maintaining confidentiality was a top priority. Once the participant accepted the invitation to participate, they were given a numbered packet that included the informed consent form and the R-BIBSI. Once the informed consent form was signed and R-BIBSI completed, the packets were secured in a locked facility that was only accessible by the researcher. Throughout the pilot testing, each participant's signed invitation to participate and signed informed consent forms were separated from his/her associated, numbered R-BIBSI. Data was then entered anonymously. Participants in the think-aloud strategy provided a challenge since it required the researcher to be present during their participation. To maintain their confidentiality, the transcription of the data was completed by a trained transcriptionist who did not have any investment in the outcome of the pilot test. The transcriptionist was given the recordings without any identifying information other than a participant number. Once transcriptions were completed, the recordings were destroyed. See Appendix K for IRB consent forms for each data collection strategy, as well as procedures that were followed during the data collection process.

Phase 6: Validating Revised R-BIBSI: Quantitative Phase: Exploratory Factor Analysis, Cronbach's Alpha, Predictive Criterion

Constructs are hypothetical concepts that cannot be directly observed (Gliner, et al., 2009). As noted before, this instrument asked a participant to self-report his/her perceptions of his/her past experiences. The data gathered from this self-reporting provided information as to the extent to which each of the biopsychosocial constructs influenced that person's path to AOD issues. Exploratory factor analysis and Cronbach's Alpha were the two quantitative procedures for establishing construct validity of the instrument statistically.

After collection of the quantitative and qualitative responses, the next phase was to analyze the quantitative (i.e., Likert-form) data with the goal of assessing the content-related validity (i.e., item validity), criterion-related validity (i.e., predictive validity), and construct-related validity (i.e., item-fit or convergent validity) of the R-BIBSI (Onwuegbuzie, et al., 2010). The quantitative analysis processes utilized were exploratory factor analysis, a method that has been widely used in determining instrument validity (Huck, 2008), as well as Cronbach's Alpha (Cronbach, 1951) and a predictive criterion strategy that employed independent samples t-tests for each item and summations of each construct.

To complete the predictive criterion strategy, the Back-on-TRAC intake clinician, who was experienced with clients who have AOD use issues, was trained on the application, administration, and purpose of the R-BIBSI. He then conducted the initial intake interviews of students applying to be accepted into the Back-on-TRAC program. Informed consent to participate in this study was obtained from the students and they completed the R-BIBSI. The intake clinician, as a result of the intake interview, was then

asked to rate each student using the R-BIBSI to predict how he believed the student would respond. There was not an issue of interrater reliability since each student experienced the intake interview with the same clinician in the same office. After the interview, the instrument was administered to the participants and an analytic comparison was made to determine the accuracy of the items by comparing instrument results to the rater's predictions to provide evidence of internal validity for the R-BIBSI. The statistical method used was independent t-tests to compare the means, correlations, and significance of the differences in the test subjects' responses and the raters' predictions of how the test subjects would answer the items based on the intake interview. These procedures provided multiple approaches to compare the test subjects' responses with the rater's predictions.

Exploratory factor analysis (EFA) was employed for the process of construct validation. The use of EFA in health care disciplines has increased in recent years, especially to aid in developing tools that will help practitioners to be better able to devise counseling interventions that are specific to a particular group (Pett, Lackey, & Sullivan, 2003). In this case, the aim is to identify influences of alcohol use across the aforementioned six conceptual biopsychosocial constructs. EFA is a strategy where researchers are concerned with how each item is answered on an instrument (Pett, et al, 2003). In EFA, one postulates that there is a smaller set of unobserved variables or constructs underlying those that were measured (Leech, Barrett, & Morgan 2007).

Based on communalities and correlations with the other factor, EFA produces a factor structure matrix. For the development of this instrument, the best case scenario would have been to have the items intended for each construct load into similar groupings

within the factor structure matrix. Leech, Barrett, & Morgan (2007) suggest a correlation limit of 0.40, while Pett et al. (2003) suggest that a 0.30 correlation is acceptable in health care research. This study will use a 0.40 correlation limit in the factor rotation which will limit multiple loadings of items. There is a certain amount of subjective decision-making that will be encountered with EFA. Pett, et al. (2003) note that sometimes items will fail to load significantly to any factor, however, weak-loading items can be important contributors to the content of a construct. If this problem is encountered, items should be examined closely for their relevance to the construct and might still possibly be retained (Pett, et al. 2003). Another possibility is that an item might load with a moderate-sized correlation to more than one factor (Pett, et al. 2003). Because the R-BIBSI does, in fact, contain some items that are designed to be multiple-objective, this will complicate the interpretation of the EFA results. Pett, et al. (2003) state that an item should be placed with the factor that it is most closely related to conceptually.

Phase 7: Validating revised R-BIBSI: Qualitative Phase: Think-aloud Method

Establishing construct validity is a step that is commonly excluded or minimized during instrument development. In this case, one strategy used to aid in establishing construct validity was the think-aloud process. The think-aloud method consisted of asking participants to think out loud while solving a problem or answering a question and then analyzing the resulting verbal protocols (Van Someren, Barnard, & Sandberg, 1994). "In a standard think-aloud method, researchers have participants verbalize cognitions while performing some task, and responses are then recorded for subsequent evaluation" (Davison, Vogel, & Coffman, 1997, p. 950). This qualitative data was recorded, transcribed, coded and analyzed to establish the validity of each item. By providing this

type of information from a different "lens" so to speak, the researcher was better able to determine if items truly identified the intended constructs as determined by the IIOC-MO process.

It was important to consider the different aspects of this process to ensure that validity of the process could be established through rigorous means. The question-and-answer model, derived from cognitive psychology, is a useful and commonly cited representation or theory of how respondents answer survey questions (Collins, 2003). Simply stated, this model consists of four actions a participant must go through to answer a question: they must comprehend the question, retrieve the necessary information from long-term memory, make a judgement about the information needed to answer the question, and respond to the question (Tourangeau, 1984, as cited in Collins, 2003). The think-aloud approach is particularly useful in helping researchers to understand the products as well as the processes of cognition (Davison, et al., 1997). Understanding these aspects of how respondents arrive at their answers will provide evidence for validation of the R-BIBSI. However, both Smagorinsky (1998), as well as Ericsson and Simon (1998) in their articles from the same journal raise and address the question of, "Is it possible to study intrinsic or covert thinking by making it overt without affecting consciousness, and therefore, outcome?" Each looks at the question from a different lens.

Smagorinsky (1998) outlines a protocol analysis from the perspective of cultural-historical activity theory (CHAT) based on the work of Vygotsky, Leont'ev, and others. The CHAT perspective attempts to understand the means through which cognition develops (Smagorinsky, 1998). Problem solving is both a function of how problems or situations are defined by circumscribed milieus and how people have historically solved

those problems with particular cultural goals in mind (Smagorinsky, 1998). As an important part of maintaining the trustworthiness of this portion of the study from this lens, it was necessary to consider that the linguistic artifacts collected by the think-aloud method would be representations affected by the respondents' historical culture and, then in turn, analyzed by the researcher from his/her particular historical culture. It was surmised also from this perspective that as consciousness is changed by the verbalization of thoughts, so would be the outcome of the participants' responses. This effect was observed during the think-aloud interviews as some respondents changed their initial answers after thinking out aloud about the item.

Ericsson and Simon (1998), on the other hand, come from an information-processing perspective that seeks to emphasize explanations, including description in terms of cause and effect as well as methodologies that provide as much protection as possible against the subjectivism of the investigator. Information-processing strives to illuminate the problem solving cognitive processes. The items that were utilized on the R-BIBSI primarily asked respondents to recall experiences from their past and how their decisions were influenced as a result of those experiences. One of the primary focuses of the research on information-processing has been to identify circumstances where participants could verbalize their thoughts with minimal reactive influence on their thinking (Ericsson & Simon, 1998). The importance of acknowledging both of these lenses in the data collection during the think-aloud method was paramount because this instrument was designed to assess perceptions of prior problem-solving in the present while recognizing the possible, if not likely, social and cultural impact the participant experienced during their past decision-making.

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To ensure the qualitative data were accurate, trustworthy, and credible, each respondent had a similar experience while participating in the think-aloud method. This was addressed by creating an instrument administration protocol that was used by the researcher for each participant. Participants were each read from the same script and interviews were conducted in the same office as all others. Participants also sat in the same chair with the researcher across from them in the same orientation. The recorder and recording process were identical in each of the data collection sessions. This ensured that the most consistent and confidential experience as possible was maintained for all participants.

It was also recommended that, after standard instructions for think-aloud were stated, the participants were then given a short series of simple warm-up tasks to practice directing their full attention to the task while verbalizing their thoughts (Ericsson & Simon, 1984, 1993, 1998; Van Someren et al., 1994). This suggestion turned out to be singularly important in the data collection process for the participants to become comfortable and also to ask questions about the process without feeling like they were interfering with the study. From the observations of the researcher during this process, it was evident that completing the two practice questions served the purpose intended as it allowed the participants decreased anxiety and increased confidence in their ability to complete the task given them without stopping.

Because this method was to be respondent-driven rather than interviewer-driven (Collins, 2003), the researcher was present to administer instructions as well as the practice exercises, however, remained silent in the room while the instrument was being completed, only speaking if the participant had questions arise. The goal was for the

participant to feel comfortable and supported while participating in the think-aloud

process, as well as complete the entire process without stopping.

In the qualitative world, there is emphasis on validity to determine whether the

account provided by the researcher and the participants is accurate, can be trusted, and is

credible (Lincoln & Guba, 1985; as cited in Creswell & Plano-Clark, 2007). Qualitative

validation was important to establish and provided the backbone of the crossover analysis

method used in determining the validity of this instrument. The qualitative collection of

the data was from the praxis of grounded theory and the analysis of the data utilized

deductive reasoning as well as the constant comparative technique (Creswell, 2007), in

which themes and codes are also allowed to develop *inductively* as the analysis

progresses. Comparing the think-aloud results with the respondent's instrument results,

the evaluator's predictions, and the factor analysis results established construct validity

from three viewpoints and provided for stronger evidence to support the outcome of the

pilot test.

Phase 8: Validating Revised R-BIBSI: Quantitative-Dominant Cross-Over Mixed Analysis

There are many ways to combine quantitative and qualitative data. Erzberger and

Kelle (2003) suggest triangulation as a viable means of determining the validity of an

instrument being developed by supplying a means to combine qualitative and quantitative

data sets to establish convergent, complementary, or divergent evidence regarding how

much confidence can be placed in the instrument. The question one must ask is, "What is

the advantage in collecting and mixing qualitative data with quantitative data?" Rocco,

Bliss, Gallagher, Perez-Prado, Alacaci, Dwyer, Fine, and Pappamiliel (2003), suggest

that consciously going back and forth between qualitative interpretation and quantitative

analysis is seen as providing important insights concerning the phenomena under study. Moreover, the most persuasive evidence of confirmation comes through a triangulation of measurement processes; if a proposition can survive the onslaught of a series of imperfect measures, confidence should be placed in it (Webb, Campbell, Schwartz, & Sechrest, 1966, as cited in Johnson, Onwuegbuzie, & Turner, 2007). The point is, if the instrument can withstand multiple measures from multiple perspectives, then confidence can safely be placed in the trustworthiness of the instrument.

Many mixed-method studies utilize the term *triangulation* as means for accomplishing a multi-lens analysis. The term *triangulation*, taken from its original meaning in navigation and land surveying, was used as a means for determining the yet unknown position of a certain spatial point, C, through measurement operation from two known points, A and B (Erzberger & Kelle, 2003). However, the transfer of the notion of triangulation from trigonometry to the realm of mixed methods research has seemed to transform it into a somewhat fuzzy idea with many possible meanings (Erzberger & Kelle, 2003). Onwuegbuzie, et al. (2010) advocate for use of *crossover analysis* and state that this type of analysis represents the highest form of combining quantitative and qualitative techniques. The techniques described in their article pinpoint exactly how one might combine methods from different research paradigms and clarifies the "fuzziness" concern described by Erzberger and Kelle (2003).

The crossover analysis for this study sought what Greene, Caracelli, and Graham (1989) refer to as elaboration and clarification of the findings from one method with results from another method in the hope of finding convergence (as cited in Onwuebuzie, et al. 2010). The researcher made decisions on which types of crossover analysis

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approaches would be most appropriate for the comparison or integration of these

quantitative and qualitative data to best answer the research questions. A pragmatic

position implicitly calls for a method that will best answer the research questions (Rocco,

et al, 2003). Two techniques suggested by Onwuebuzie, et al., (2010) were appropriate

for the purpose of this study: data transformation (converting the qualitative data into

numerical codes that can be analyzed statistically), and data importation (using the

follow-up findings from qualitative analysis to inform the quantitative analysis results).

Phase 9: Evaluating Instrument Development/Construct Evaluation Process and Product

Phase 9 will be included in Chapter 5 as a comprehensive evaluation of both the

R-BIBSI and the processes used in its development. The revision of the R-BIBSI as a

result of the findings of Phases 6 though 8 of the revised instrument is reported in

Chapter 5 of this study, as well as an evaluation of the entire research process.

CHAPTER 4 – RESULTS

Index of Item-Objective Congruence for Multiple Objective Instrument Items

To complete the item reduction, the IIOC-MO process was used as suggested by Tuner and Carlson (2003). The IIOC-MO provided an individual index of item objective congruence for each of the 145 items. The IIOC-MO values varied from -1 to 1. The output also displayed the relation to average judges' rating for each objective. Figure 4 provides an example of the IIOC-MO output for Item 1 and Item 2.

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Index1
Item: 1 Index of Item Congruence: 0.74
Valid Constructs: 1   1   0   0   0   0
Construct Mean: 0.20   1.00 -1.00 -1.00 -0.80 -1.00

Index2
Item: 2 Index of Item Congruence: 0.42
Valid Constructs: 1   1   1   0   0   0
Construct Mean: -0.40   1.00   0.00 -1.00 -0.80 -1.00

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Figure 4. Example of IIOC-MO Results

In Figure 4, line 1 displays the item number, line 2 displays the overall IIOC-MO rating, line 3 displays the six constructs intended for each item by the researcher, and line 4 displays the construct mean for each item. For the purpose of this phase of the study, the researcher was interested in the *overall* index of IIOC-MO. In the example above, the IIOC-MO values were shown to be 0.74 and 0.42, respectively. The predetermined acceptable range was determined to be an IIOC-MO correlation of 0.60 or higher for an item to be considered for the final version of the R-BIBSI. This meant the instrument item, as rated by the content experts and the R-BIBSI developer, agreed to an acceptable

degree that the instrument item was measuring the constructs it was intended to measure. Therefore, in this case, item 1 was accepted and item 2 was rejected (see Appendix F).

The proposed R-BIBSI items were then sorted by the strength of their IIOC-MO score. There was a clear cut-off of 0.66 (above the desired cutoff of 0.60) at 45 items. Those 45 items were then considered for the final version of the R-BIBSI (See Appendix G). These 45 items were assessed to determine if all of the six constructs were adequately represented and if there were any duplicate items. This assessment of the items would provide the final target of 40 total items. It was found that item #25, "Celebrations at my house usually included alcohol," and item #98, "Alcohol was served at many family gatherings when I was growing up," were similar. In this case, item #98 was retained. Even though the IIOC-MO was higher for item #25 (0.90) than item #98 (0.82), a decision had to be made on wording. The rationale in this case was thought that the term "family gatherings" provided a more general scope in definition, and therefore, a wider range of endorsement than the term "celebrations," which could possibly limit endorsement by persons participating in the study.

Item #37 "Drinking is accepted where I work" and #69, "Drinking is encouraged where I work," were also similar. Here, the IIOC-MO for #37 (0.72) was clearly lower than #69 (0.82), therefore, the item with the higher IIOC-MO was retained.

Item #33 "I am a better lover when I drink alcohol," and item #121, "I feel attractive when I drink alcohol," showed similar themes. Here again, the researcher kept the item with the higher IIOC-MO, #121 (0.74) vs. #33 (0.68).

Item #112, "My parents didn't like me," IIOC-MO = 0.68, was similar to item #88, "I felt that one or more of my siblings did not like me," IIOC-MO = 0.80. For item

#112, the decision was made to reject due to the fact that the Social Family Influence (SF) construct contained an adequate number of items that identified to it.

The next item in question was #19, "I have been diagnosed with depression," IIOC-MO = 0.66. This item's theme was a repeat of item #79, "I have been treated for depression," IIOC-MO = 0.70. Therefore, item #19 was rejected in lieu of item #79 due to the higher IIOC-MO rating and also that being treated for depression was a broader question than being diagnosed for depression, and would provide for a wider range of endorsement by the participant. The rationale was that some counselors are reluctant to diagnose, but more willing to treat depression.

Item #29, "Sometimes I get into trouble because I don't think about what I'm doing," was the last item on the IIOC-MO cutoff with a score of 0.66. This item was accepted as the 40th and final item on the R-BIBSI.

Items were assessed to ensure even distribution across the six constructs, BI = 8, PI = 13, PE = 8, SF = 16, SP = 5, and SC = 4. There are 14 items that are multiple objective items, (i.e., they identify two possible constructs when endorsed by the participant), and 26 items that identify a singular construct when endorsed by the participant. A lower number of items was accepted for the SP and SC constructs because all but one of the items for those two constructs were singular in construct identification. From these 40 items, the field-test version of the R-BIBSI was created. Items were randomized once again to account for acquiescence bias (Schumann & Presser, 1981), and the instrument was designed. See Appendix H for the R-BIBSI items with corresponding constructs. See Appendix I for the field-tested version of the R-BIBSI).

Description Of The Field-Test Data

The pilot test included a convenience sample of university students who were in a variety of stages in their AOD treatment. A convenience sample was selected due to assumptions made by the researcher that the R-BIBSI would be most effective with persons who were motivated to receive effective treatment for their AOD issues. The sample consisted of a total of 63 valid participants. There were 13 female (20.6%) and 50 male (79.4%) participants. Fifty participants identified as Caucasian (79.4%) with small numbers of other ethnicities including one Asian-American, six Hispanic-Americans, and four Native Americans. The age range was from 18 to 25 with 73% in the 18-20 year old category and the other 27% in the 21 to 25 year old category. This was not surprising due to the observation that freshman and sophomore students are the majority of those sanctioned to AOD treatment in the college setting.

The R-BIBSI utilizes a forced choice 6-point Likert scale (0 - 5) with the response options being on the continuum of: 0 = the item is NOT AT ALL like my experience, 1 = the item is RARELY like my experience, 2 = the item is SOMEWHAT like my experience, 3 = the item is LIKE my experience, 4 = the item is VERY MUCH like my experience, and 5 = the item is DEFINITELY like my experience. First, the researcher examined the mean, standard deviation, and skewness of each item to determine reliability (See Table 2).

Table 2

Item Descriptives

Item	*M*	*SD*	Var.	Skew	N
01 Drinking alcohol helps me sleep	1.78	1.680	2.821	0.680	63
02 I have typically been a person who likes to keep moving	3.41	1.240	1.537	-0.528	63
03 My family had financial trouble	1.79	1.628	2.650	0.692	63
04 It's easy to say yes when my friends ask me to drink with them	3.44	1.241	1.541	-0.967	63
05 I have done things without concern for my own or other's safety	2.60	1.530	2.340	-0.048	63
06 My friends encourage me to drink	2.60	1.351	1.824	0.078	63
07 Sometimes I enjoy getting into arguments	1.51	1.447	2.093	0.727	63
08 I have been treated for depression	0.95	1.764	3.111	1.550	63
09 I used to drink alcohol in order to cope with my family	0.81	1.413	1.995	1.874	63
10 Sometimes I feel self-conscious that I will look stupid	2.08	1.599	2.558	0.404	63
11 My mother seemed to be depressed a lot	1.41	1.399	1.956	0.825	63
12 I felt the need to parent my younger siblings when I was growing up	0.67	1.218	1.484	2.113	63
13 It is hard for me to believe that I am capable of being successful	0.89	1.206	1.455	1.757	63
14 I felt like my parents were over protective of me	2.02	1.581	2.500	0.504	63
15 I have found that I can drink a lot without feeling drunk	2.44	1.522	2.315	-0.004	63
16 Drinking alcohol is looked at as a rite of passage in my family	0.54	0.930	0.865	1.805	63
17 I have had trouble with employment because of my drinking	0.37	0.921	0.848	3.289	63
18 Members in my extended family have had trouble with alcohol	2.00	1.675	2.806	0.319	63
19 I felt that one or more of my siblings did not like me	0.79	1.370	1.876	1.747	63
20 My mother abuses alcohol	0.27	0.745	0.555	3.380	63
21 I was given alcohol as medicine when I was young	0.10	0.530	0.281	6.814	63
22 Sometimes I have lied to get what I want	2.37	1.418	2.010	0.336	63
23 People I admire drink alcohol	2.16	1.285	1.652	0.070	63
24 Drinking alcohol will help keep my mind off my problems at home	1.17	1.443	2.082	1.082	63
25 I will be able to think better after a few drinks	0.83	1.071	1.146	1.338	63
26 Commercials that sell alcohol have influenced my drinking	0.79	1.124	1.263	1.479	63
27 Alcohol was served at family gatherings when I was growing up	2.44	1.654	2.735	-0.109	63
28 I tend to overreact emotionally	1.44	1.532	2.348	.0956	63
29 Drinking is encouraged where I work/go to school	2.08	1.659	2.752	-0.021	63
30 My father was in trouble with the law a lot	0.38	1.113	1.240	3.243	63
31 Alcohol has helped me cope with a tragedy in my life	1.13	1.601	2.654	1.198	63
32 I took on extra tasks to make up for shortcomings in my family	1.00	1.356	1.839	1.644	63
33 Television shows encourage me to believe drinking alcohol is ok	1.67	1.566	2.452	0.474	63
34 I feel attractive when I drink alcohol	1.67	1.470	2.161	0.290	63
35 My parents argued a lot	1.48	1.645	2.705	0.942	63
36 I get into trouble when I don't think about what I'm doing	2.48	1.615	2.608	0.056	63
37 Drinking alcohol will help me to fit in with the group	1.95	1.650	2.724	0.301	63
38 It looks like fun to me when I see people drinking on television	2.17	1.551	2.405	0.074	63
39 When I drink alcohol I take unusual risks	2.73	1.588	2.523	-0.038	63
40 My father abused alcohol	1.00	1.586	2.516	1.477	63

For this study a high negative skewness meant that there were an abnormally high number of respondents who endorsed the item. A high positive skew meant that an abnormally high number of respondents did not endorse the item. The most glaring was Item #21 (I was given alcohol as medicine when I was young) which had a skewness of 6.814 ($M = 0.10$) and could possibly indicate that this item was irrelevant for most test subjects. In fact, only 3 of the respondents endorsed Item #21 causing the researcher to question its relevance to the test subjects.

Item #20 (My mother abuses alcohol) had a skew of 3.380 ($M = 0.27$), item #17 (I have had trouble with employment because of my drinking) had a skew of 3.289 ($M = 0.37$), and item #30 (My father was in trouble with the law a lot) had a skew of 3.243 ($M = 0.38$), respectively. Upon review of the distributions of these items one could argue for revision or deletion from the R-BIBSI, however taking into consideration that, in a sense, endorsement of these items causes the respondent to overtly shed a negative light on their parents and on themselves, it can be understood that minimization of these items would be common.

Item #9 (I have been treated for depression) also presented a high positive skew at 3.111 (M = 0.81) which indicates that a high number of the respondents either have not been treated for depression or the respondent did not want to admit this about themselves and minimized their response accordingly.

There was not a concern regarding the relevance or goodness of fit for Items 9, 17, 20, or 30 since an assumption of the R-BIBSI is that the participants who are motivated to seek effective treatment would provide a valid response. Therefore, the low endorsement rate can be seen as the item discriminating the traits effectively.

There were two items with high negative skewness, Item #2 (I have typically been a person who likes to keep moving) with a skew of -0.528 (M = 3.41), and Item #4 (It's easy to say yes when my friends ask me to drink with them) with a skew of -0.967 (M = 3.44). Item #2, which was aimed at assessing traits of ADHD, this causes one to question what the persons who endorsed the item were actually responding to, (i.e., what is this item actually measuring?). Because of the high response rates to Item #4, it needs to be considered if this item is too general for the purpose of this assessment. The results of the highly skewed items, Items 2, 4, 20, 21, and 30, will need to be compared with the predictive results and also the qualitative data to determine goodness of fit of the items and whether they should be considered for deletion or revision.

Qualitative Results

Before going further into the quantitive results, and to familiarize the reader with the R-BIBSI items that were chosen to undergo pilot-testing, the qualitative results will follow. To answer the research questions, "*Is the instrument that has been designed, based on the qualitative data, a better instrument than existing instruments? How do the qualitative results inform the concepts of accuracy, goodness, and trustworthiness of the instrument? Do the qualitative responses confirm the intended constructs of the item?*" a grounded theory or constant comparative approach was employed (Willis, 2007). Deductive codes for each construct were identified according to traits listed in Table 1 (p. 43), while allowing for inductive processes that arose for test subjects during the talk-aloud data collection. The viewpoint taken by the researcher in reporting the data is from a 'realist' standpoint (Van Maanen, 1988, as cited in Miles & Huberman, 1994). The researcher was primarily interested in whether the R-BIBSI items elicited the test subject

to think about or recall events or memories that could specifically relate to the identifiers of the construct for which each item was intended. From this lens, whether the test subject endorsed the item or not had no bearing on assessing the validity of the item. The item would be validated if it elicited memory responses that could be directly correlated with the predetermined deductive codes.

The constant comparative method allows, in this case, for inductive codes to emerge in the qualitative data. These codes were then assessed to determine item fit with the identified constructs. Miles and Huberman, (1994) state that examining "outliers" that emerge as a result of the inductive coding is an import piece of the data analysis process to guard against self-selecting biases and to strengthen the findings. However, for the purpose of the think-aloud strategy, the researcher was more interested in the overall thematic responses of the test subjects. While examining the outlying responses could prove to be very helpful to clinicians, the main purpose here was to evaluate the overall goodness of each R-BIBSI item. To accomplish evaluation of the qualitative results, the test subjects responses were first compiled to correspond with the appropriate item. Those responses were then coded and again compiled by the coding categories. This ensured that responses remained confidential during the coding and analysis process.

For the think-aloud data collection a revision was made to page 2 of the R-BIBSI to include a practice section for test subjects to complete prior to the collection of the data (See Appendix J for the revised page 2 of the think-aloud version of the R-BIBSI which includes the practice questions). The test participants in the think-aloud strategy consisted of three female and six male participants. Each interview took between 10 and 20 minutes to complete. The age range was from 19 to 25. All test subjects were enrolled in

the Back-on-TRAC program at the time of the interviews and participated willingly. Therefore, the test subjects were familiar with the researcher and this familiarity to them might have played a role in their participation. Another researcher was not chosen since the think-aloud procedure needed to be presented in a consistent manner to ensure external validity issues. It was decided that the consistency was important to obtain valid responses. The test subjects, however, did not have previous knowledge of the purpose of the R-BIBSI or what their participation would require. Therefore, the researcher feels that the data gathered from this process is valid and is viable to be used for the purpose of aiding in the construct validation process for this field-test of the R-BIBSI. In the interest of being transparent, of course, there is the hope that the items would prove to be valid. Therefore, examples are provided so that the reader may come to their own conclusions. Qualitative analysis was completed independently of the quantitative analysis and the following report of the data will include numerous examples so that the readers may make independent judgements on the goodness of each item.

Item 1, "Drinking alcohol helps me sleep" was a multiple-objective item intended to identify both the BI and PI constructs. The data for this item might be said to be skewed in the direction of the inductive codes that emerged during the coding process. Although, there were four codes with seven entries from the deductive list, history of depression (1), history of psychological dysregulation (1), cognitive function (1), and outcomes of alcohol use were greater than predicted (4), there were two inductive codes that had a total of 13 entries, feeling restless (4), and using alcohol as an intentional sleep aid (8). The fact that inductive codes emerged here does not necessarily mean that the

item is invalid. It means the item elicited unexpected responses and is an example of the richness provided by the qualitative data in assessing the items.

First, deductively the item seemed to fit with the intended construct of BI moderately well, two of the nine participants mentioned thinking of insomnia and binge drinking. While this does not mean that that they are drinking over being depressed or not being able to sleep, it does imply that drinking for these reasons had crossed their mind as a result of reading the item. Two examples of the deductive PI code of outcomes greater than predicted was, "Every time that I would drink, I would pass out," or "It did (help me sleep), but it wasn't necessarily the purpose of it," indicate that alcohol was not having the effect that was hoped for by the test subject.

The inductive codes had two clear themes, feeling restless, and using alcohol as an intentional sleep aid and seemed to exemplify the overarching memories and thought processes elicited by this item. Some test subjects remembered the next day after drinking when they were having a difficult time maintaining sleep, e.g., "Hard to sleep the next day," or the feeling of restlessness that comes with a hangover, "Wake up in the morning not really feeling too rested." The memories of why they used also emerged, e.g., "I drank alcohol to pass out," "I got drunk enough, then I could fall asleep," or "(alcohol) helped me kinda just relieve some of the stress to go to sleep easier." Using alcohol as a stress reliever or sleep aid could point to a number of different issues that might be relevant such as relieving stress, anxiety, depression, or insomnia. The perception that alcohol can have the desired effect of calming these traits down was evident in the test subjects' responses. Taking into consideration the high number of unexpected inductive themes, this item seemed to elicit responses that could be moderately attributed to the BI

construct (See Table 3 for the qualitative report for all BI items) and highly attributed to

the PI construct (See Table 4 for the qualitative report for all PI items).

Table 3

Item Ratings Biological Influence

Item #	Coding	Rating	Comments
1[a]	2/19	low	delete from BI - could possibly identify self-medication for insomnia
8[a]	7/19	high	retain - some PI codes related to depression could support this construct
11	16/18	high	retain - clear indication of BI
15	19/22	high	retain - identifies development of high tolerance
18[a]	11/13	high	retain - clear indication of BI
20[a]	5/11	high	retain - clear indication of BI
30[a]	9/14	high	retain - possible identifiers of conduct disorder
40[a]	13/15	high	retain - clear indication of BI

[a] = multiple-objective item

Item 2, "I have typically been a person who likes to keep moving" was multiple-

objective item intending on identifying both the PI and PE constructs. This item was

aimed at assessing hyperactivity. There were 24 codes, 13 of which could be directly

related to hyperactivity, e.g., "I just like to be occupied," and "I'm always running

around." However, many of the responses for this item pointed to a different

interpretation by the test subjects. It appeared that this item elicited recalled memories

that related to a person simply enjoying living an active lifestyle, e.g., "I don't like to be

sitting down," and "My entire life I've been active." There were 2 codes related to

conduct disorder, but these were not definitive, e.g., "When I'm bored nothing good usually comes from that," and "That's usually when I start to cause a little bit of trouble." The statements insinuate that trouble comes from boredom and not definitively from traits resembling conduct disorder. There were four codes related to depression, e.g., "I'm not happy when I'm, uh, just sittin' around the house," and "I don't like being alone," but these statements seem vague, also. Item 2 had three inductive themes with one coded entry for each of the following: physical activity, relocation, and personal struggle.

The wide range of verbal responses to Item 2 caused the researcher to question its validity in both the PI and PE constructs. Item 2 is in question for two reasons, ineffective wording and ambiguous verbal responses. It is rated low for both constructs and will be considered for deletion or rewrite (See Table 5 for the qualitative report for all PE items).

Item 3, "My family had financial trouble" was a single-objective item intending on identifying the SF construct. Inductive themes that emerged from this item were financial stressors (13 entries), class comparison (six entries), and parents vocation (three entries). There were no deductive code entries for this item. Mainly due to the directness of the item, there were not any indications of difficulties with family cohesion or lack of support within the family systems due to financial stress. Instead, this item seemed to elicit memories of cooperation within the family system.

Some test subjects did seem to have the urge to protect their family's sense of security in this area shown by, "I mean there's kind of some financial struggles there," "my grandma helps us out a lot financially," and "I've always grown up getting whatever I asked for." In two cases test subjects displayed a level of entitlement in the examples, "We have just a bunch of money," and "Money just kind of grew on trees to everyone."

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Although there were certainly examples of financial stress being apparent in recent memories, e.g., "We're trying to sell our house," "money was always something that was worried about," or "Parents never really had a budget until recently," there was also a tendancy to compare their level of financial securty with others, e.g., "I definitely know people who were worse off than myself," or "It's not like we're lower class or below poverty line."

Test subjects responded with a wide array of topics while answering this item. Most clearly related to financial situation and the stress caused by it. Seemingly, the most meaningful outcome of this item was less about whether there was worry about money, but more importantly how the family responded to the stress of a financial crisis. The researcher wondered how parental perceptions of the expectations of culture might have played a role in these perceptions being passed from family systems to children. This item will be rated high for the SF construct due to the clear cut responses from test subjects (See Table 6 for the qualitative report for all SF items).

Item 4, "It's easy to say yes when my friends ask me to drink with them" was a single-objective item intending on identifying the SP construct. This item contained 13 entries in three deductive codes with most falling into expectations of peers (10 entries), and one inductive code of internal bargaining (one entry). This item seemed to clearly elicit extended memories of their drinking experiences, "Whenever my friends would ask me to drink I would always be someone who was okay with that," "If there was alcohol and if someone was asking me I would have no problem joining them in drinking," and

Table 4

Items Ratings Internally Expressed Psychological Influence (PI)

Item #	Coding	Rating	Comments
1*	17/19	high	retain - could possibly identify self-medication for insomnia
2*	11/24	low	revise or delete - even with a high number of codes, response were too wide ranging to clearly identify PI
8*	16/19	high	retain - gave clear indication of the presence of depression
10	18/18	high	retain - rated self view and internal processes related to self image
13	16/18	high	retain - indicated anxiety towards the future and low self esteem
19*	0/11	low	delete from PI
24*	8/16	high	retain - indicates difficulty with internal coping process
25	12/18	high	retain - indicates thoughts of social insecurity
28*	14/21	high	retain - indication of emotional sensitivity and emotional distance
31	14/17	high	retain
32*	0/19	low	revise or delete - confusing term of "shortcomings"
34	11/16	high	retain - indicates low self esteem
36*	6/24	moderate	retain - seems to indicate internal processing difficulties

* = multiple-objective item

"They asked me all the time." These statements illustrate the influence peers may have on one's drinking patterns especially through persistence. There were four entries for expectations of peers, but one code, alienation, seemed most poignant for one test subject shown by the response, "I feel like I would be missing out on something if I didn't drink with them." One entry for the inductive code of internal bargaining showed that the test subject did have reservations about the decision to drink when there was schoolwork to be done, "I would postpone school and studying to go and drink because that was just a lot more fun to do than sitting down and reading." Item 4 was rated high for the SP construct.

Item 5, "I have done things without concern for my own or others' safety" was a single-objective item intending on identifying the PE construct. This item aimed at assessing traits of impulsivity related to conduct disorder and possibly anti-social personality disorder. Of the 22 entries, 10 could be correlated with the theme of impulsivity, e.g., "When I was younger, I'd...do it all the time," "I definitely have done a lot of things like that," "(I've) definitely done stuff without concern for my own safety," "I just don't think of the consequences right away, or repercussions of my actions," "I don't think I've really endangered anybody or put anybody at risk including myself when I've been sober," and "I just did things without even thinking about the consequences." There were five entries that related to knowingly committing illegal behaviors, in this case driving under the influence, e.g., "Before I got my DUI I didn't exactly think of consequences," "So many different times I had gotten home and no consequences," "I've driven behind the wheel when I was drinking before," and "I just wasn't really thinking about what could happen to me or to other people." An inductive code of thrillseeking

had one entry and another admitted that, "It wasn't with my best interest in mind." This item seemed to elicit memories of specific events from the test subjects whether it was a DUI or times when they had put others' safety in jeopardy. Overall, impulsivity seemed to be the main theme. This item is rated high for the PE construct.

Table 5

Item Ratings Externally Expressed Psychological Influence (PE)

Item #	Coding	Rating	Comments
2 [a]	17/24	high	revise or delete - even with a high number of codes, responses were too wide ranging to clearly identify PE
5	20/22	high	retain - indicated impulsivity
7	23/25	high	retain - indicated attention seeking behaviors
17 [a]	2/12	low	delete from PE - indicated inflexible patterns, did not clearly identify deductive PE traits
22	11/15	high	retain - identified attention seeking behaviors
28 [a]	6/21	moderate	retain - low number of codes due to multiple-objective item, did elicit reactions to extreme emotions
36 [a]	18/24	high	retain - indicated impulsivity
39	26/30	high	retain - indicated impulsivity and thrill seeking behavior

[a] = multiple-objective item

Item 6, "My friends encourage me to drink" was a single-objective item intended to identify the SP construct. There were 30 entries for this item, and because of the directness of the item, 20 were related to peer encouragement of drinking and six to

expectations of peers. Examples of peer encouragement are, "The majority of them are alcoholics so I would have to say, yeah," "The rugby team, those guys definitely encourage me to drink," "One shot's not going to kill you." "It's not like they're supportive of my sobriety," "C'mon man, what are you pussy, why aren't you going to drink with us," and "When I got to college they definitely did." The responses indicated an understanding that friends did have an influence on the test subjects as well a movement either closer to or away from relationships with those friends, e.g., "They didn't really understand my situation," "I've almost just shifted away from those people," and "Once I got to know someone that was how we hung out, is we drank." An inductive code of cultural expectation emerged with two statements, "It's part of our social culture," and "Encouraging other people to do things they'd never done before." While these two entries might indicate a cultural influence or expectation that has held sway over the test subjects' decision to drink, the clear theme was that the interactions with friends had a more direct influence on decision-making. Item 4 was rated high for the SP construct.

Table 6

Item Ratings Social Family Influence (SF)

Item #	Coding	Rating	Comments
3	24/24	high	retain - identified family's response to financial struggles
9	16/17	high	retain - indicated familial relationships
11[a]	2/18	high	retain - although low number of codes, item identified mother's history and respondent's experiences
12	12/12	high	retain - although some test subjects were exclude because they had no younger siblings, family cohesion was identified
14	23/24	high	retain - identified reactions to familial relationships
16	14/14	high	retain - identified familial perceptions of alcohol use
18[a]	1/13	moderate	retain - while most codes were in the BI construct, most related to the view of alcohol as perceived outside the immediate family
19[a]	10/11	high	retain in SF - identified relationship with siblings
20[a]	6/11	high	retain - identified relationship with mother
21	6/7	high	retain - even though response rates were low, this item clearly delineated how alcohol was viewed in the family
24[a]	7/16	high	retain - indicated how problems are solved within the family structure
27	16/17	high	retain - clearly identified perceptions of alcohol through family interactions
30	5/14	moderate	retain - seemed to identify risk of negative experiences due to conduct disorder by father
32[a]	11/19	moderate	revise or delete - confusing term of "shortcomings"
35	17/17	high	retain - clear indication of familial relationships
40[a]	2/15	moderate	retain - a multiple-objective item, responses indicated perceptions learned from father's behavior

[a] = multiple-objective item

Item 7, "Sometimes I enjoy getting into arguments" was a single-objective item intending on identifying the PE construct. There were 25 entries for this item, 22 of which could be related to the trait of aggression in some sense. There were polarized responses to this item which supports clarity of understanding the item. Examples of the aggression theme were, "I like to argue," "I'm someone who always likes to be right," "when I got drunk I liked getting into arguments," and "It's just some weird, I don't know, power thing I think with me." For the test subjects who did not endorse this item, "I don't like to have serious arguments that get me or the other person riled up," "I'm a pretty conflict free person," "I usually try to avoid confrontation," "I hate getting into fights," and "I don't really ever enjoy getting into arguments." Some outlying coding related to self-esteem and attention seeking behavior, "(Arguing) kind of makes me feel intelligent I guess," "(I) like (to) have a lot of attention," and "Especially with guys I sometimes just start arguments for nothing because I know that I can usually win." Because of the number of entries directly related to outward expressions of aggression, this item can be rated high for the PE construct.

Item 8, "I have been treated for depression" was a multiple-objective item intended to identify both the BI and PI constructs. This question clearly brought up memories that directly related to the test subject thinking about his/her own depressive traits. There were 15 codes that were directly related to depression or history of depression. Most responses were direct statements of not ever being depressed, e.g., "I don't think that that's something I have a problem with," or "Never really thought of myself as being depressed." However, there was disclosure of attempting medications, "The medications never really helped me very much," and also of a degree of worry, e.g.,

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"It's definitely evident, but it hasn't applied to me, yet." In this case, the item seemed to elicit memories over time or long term events that indicated, at least, considering depression at some point in their lives. There were two inductive codes that emerged with a total of four entries. The inductive codes had a theme of self treating anxiety, as well as discussion of perception of depression in others. Depression seemed to be viewed as a normal part of society and generally accepted throughout the test subjects responses. One example was, "People I mean go through hard times and if there's something out there that will kind of level them out then that's perfect." Because the directness of this item was an advantage in assessing the validity through qualitative means, it is rated as high for both the BI and PI constructs.

Item 9, "I used to drink alcohol in order to cope with my family" was a single-objective item intending on identifying the SF construct. This item aimed to assess family relationships and attitude towards drinking outcomes. Of the 17 coded entries, eight could be aligned with the deductive code of family cohesion. Of the deductive codes, one test subject mentioned that, "I did it out of rebellion more than anything," which was in the PI construct containing traits of oppositional defiance. However, rebellion against one's parents could be related to the type of familial relationships experienced by this test subject. Mostly, test subjects talked about their family's relational style, e.g., "I'm completely comfortable with my family situation," "Always been pretty close with my family," "We never really had any like problems that made me want to go drink," for test subjects that didn't endorse this item, and "I had a lot of problems with me and my mother," and "There were always those times when I would just be angry and think about drinking," for test subjects endorsing this item, which indicated a perception that drinking

was sometimes thought of as what people do when they struggle. An interesting statement came from one test subject in the area of familial supervision, "I'd sneak booze when I was at home," indicating that opportunity was taken advantage of when supervision was lacking.

An inductive theme of family tragedy emerged with two test subjects as this item brought up memories of specific events in their lives, "My brother passed away when I was in middle school, and I never really dealt with it," and "My mom got breast cancer in high school and drinking was just easier than talking to my family about what was going on." These two statements could be a catalyst for very meaningful conversations in a counseling situation, as they indicate that this item could elicit responses that might not be expressed before rapport is established in the counseling relationship. Ultimately, this item can be rated high in relation to the SF construct.

Item 10, "Sometimes I feel self-conscious that I will look stupid" was a single-objective item intended to identify the PI construct. The 18 coded entries for this item could all be placed in deductive codes for internally expressed psychological traits. Thoughts of alienation from others were most apparent with seven entries, e.g., "I care a lot about what other people think," "It's not something I worry about," and "I definitely do (care what others think)." While this might have to do with perceptions of being judged, the essence here is related to ego strength and the need to fit in with one's peer group. One test subject seemed to embrace his/her perceived differences with the statement, "I'm someone who is just really weird and out there." Another test subject expressed an understanding of how alcohol might have played a role in his/her substance

use and spoke to how he/she coped with having unwanted thoughts, "Using (substances) was a good way to kind of get rid of that feeling and make it subside for a little while."

There were four inductive entries for test subjects who mentioned feeling self-conscious, e.g., "(I'm) definitely self-conscious of a lot of my actions," "I mean there's times when you always think that someone's kind of watching you," and "We all have kind of our own self-conscious habits." While these entries are inductive, they obviously are related to internal processes the test subject thought about while answering this question. This item is rated high for the PI construct.

Item 11, "My mother seemed to be depressed a lot" was a multiple-objective item intended to identify both the BI and SF constructs. This item elicited an interesting array of responses. Here again, the directness of the item seemed to serve as an advantage in analysis. One of the assumptions for this multiple-objective question was that, if the mother suffered from depression, it would add to the BI construct, but also would have a significant impact on the familial experiences the test subject encountered as a child. Clear indication of the deductive nodes, history of depression (11 entries), and history of psychological dysregulation (five entries) were evident in the responses. Long term events throughout the childhood experience with the mother and perceptions of depressive behavior, e.g., "She went through chemical depression and has had to be treated for that." The mother not having depressive behaviors was also talked about, e.g., "my mom was pretty happy." This question elicited the test subjects to also think about their perceptions of other psychological traits in their mother, e.g., "She definitely struggles with anxiety," "She rode a roller-coaster and was like, um, kind of crazy," or "I wouldn't so much say depressed as kind of manic-depressive."

One inductive code concerning a family tragedy was elicited that might have

significance for the test subject was, "The only time she seemed to be depressed or sad

was when she was going through breast cancer, but that was more just from the chemo

and all the treatments." This statement might imply that going through this time was also

difficult for the test subject and is a meaningful topic that may not come up as a regular

course of intake questions. Also, this question elicited responses about other family

members in some cases, e.g., "My grandfather had it (depression)," and "That side of the

family has had manic depression issues." The fact that this question seemed to clearly

bring up memories of extended events and experiences with the mother warrants a high

rating in both the BI and SF constructs.

Item 12, "I felt the need to parent my younger siblings when I was growing up"

was a single-objective item intended to identify the SF construct. This item elicited 12

codes, 10 of which could be attributed to the deductive codes established for the SF

construct. Deductive themes indicated were, family cohesion e.g., "Mostly we spent our

time arguing," guidance, e.g., "I played peacekeeper a lot," involvement, e.g.. "If my

older brother needed help I would try to help him out through situations if he needed it,"

and nurturance, e.g., "My dad worked (at) night for a really long time." The statement

about the older brother, at least, indicated that the item would not be totally ignored if the

test subject had no younger siblings. The manner in which this item is worded, one might

assume that it would automatically rule out middle or youngest siblings. That would not

seem to be the case. At least with this collection of data, the test subjects appeared to be

able to think beyond the direct wording of the item and relate it to their own experience,

shown by other statements which seemed to indicate an understanding that they did, at times, try to help out when parents weren't available.

One test subject related that, "It wasn't my job to parent them," which could be an indication of a well-structured family hierarchy and depending on the tone of voice, could indicate resentment of that situation if they were not expected to take on duties of responsibility at a young age. An inductive theme of the desire to be a positive role model was stated by one of the test subjects, "I got a little brother and sister that I grew up with that were 11 and 7 years younger than me but I felt... but I definitely felt the pressure to try to be a positive role model." Because of the specific memories and perceptions elicited from this item, it was rated high for the SF construct.

Item 13, "It is hard for me to believe that I am capable of being successful" was a single-objective item intended to identify the PI construct. There were 18 coded entries for this item, 14 deductive codes and five inductive codes. Internal processes related to self esteem and self talk were the most prevalent themes, e.g., "I want to believe that I will be successful," "I feel really confident in myself," "I am worried about being successful in life," and "I really think that if I put my mind to it I could be (successful)." One coded entry related to the concept of reinforcement, "Since I've been putting more time and effort into school I feel more capable of being successful," displaying a direct connection of time and effort related to scholastic success. Inductive codes also related to internal processes experienced by test subjects, e.g., "In stressful weeks, such as finals week, like it is right now there's just so much going on that feels overwhelming," "Success is very important to me," "(I) feel like I can't do my full potential because there's so much going on." Feelings of being overwhelmed with the stress of life's

demands and the chance of failure can contribute to one using alcohol as a coping strategy. This item is rated high for the PI construct.

Item14, "I felt like my parents were over protective of me" was a single-objective item intended to identify the SF construct. Ten of the 24 coded entries for this item were aligned with perceptions of supervision either negative, e.g., "I wasn't able to do everything that everyone else was able to do," "My parents were really strict," "Wasn't able to stay out on homecoming or prom," or positive, e.g., "I've never really felt that they were overprotective," or "I still have a curfew." Remembering a specific event, such as prom, indicates that the item elicited some reflective thinking about what happened and how the test subject acted as a result, shown by the statement, "I think that just caused me to rebel in a way." This statement is more indicative of oppositional defiance in the PE construct, however it does exemplify a reaction to the perception of strict supervision. Even with this one PE theme, the researcher believes the rest of the the codes indicate a high association with the SF construct.

Item15, "I have found that I can drink a lot without feeling drunk" was a single-objective item intended to identify the BI construct. The majority of the responses elicited by this item were identified in the deductive theme of response to alcohol (14 of the 22 entries). A decreased response to alcohol consumption or the development of a high tolerance to alcohol can be associated with biological propensity to alcohol use problems. This theme was illustrated by statements such as, "I've had my moments of being able to drink a lot and not feel it," "I definitely had a very high tolerance," or "I built up a tolerance over time." There was also clear indication of disclosure of history of addicition either within the family structure or personally, e.g., "My dad has a high tolerance," or "I

was a functioning drunk." However, it should be noted that there was a suggestion by one test subject concerning the possiblity of a SP influence in some of the perceptions elicited by this item, e.g., "(drinking a lot of alcohol was) definitely one of the things that I was known for through friends," and "When I was in the Marines I used to drink a lot on a regular basis." Also, an indication of PI influence of unwanted thoughts emerged from a test subject in that, "It's kinda worrisome." There were no inductive themes that emerged from this data. Because of the number of responses that related directly to the test subjects perception of their response to alcohol use, this item is rated high for the BI construct.

Item16, "Drinking alcohol is looked at as a rite of passage in my family" was a single-objective item intending on identifying the SF construct. This item was aimed at assessing positive perceptions of alcohol use embedded through familial interactions. There were 14 entries, 10 of which could be associated with the theme of family perception of alcohol. Examples were, "My parents took me out for a drink at a restaurant on my 21st birthday," "After I got through bootcamp, my mom was the first one to buy me a case of beer," "It just kind of evolved into us being able to be open about it" and "They frown upon it when you're underage." The wide range of messages reported from the parents was interesting, especially the perception instilled through acting out familial belief systems suggesting that the inclusion of alcohol was an accepted way to celebrate accomplishments, indicate that this item can be rated high in identifying the SF construct.

Item17, "I have had trouble with employment because of my drinking" was a multiple-objective item intended to identify both the PE and SP constructs. Of the 12 entries for this item, eight had to do with perceived work ethic. The test subjects

interviewed in this study seemed to have a sense of the importance of work, e.g., "I've never had an issue with drinking and work," "I have never had any trouble with my employment," "Drinking hasn't gotten in the way of that," "(I've) never had a problem with getting employed because of a drinking problem," and also some indication by 3 test subjects that their work ethic was compromised due to a drinking problem, "Towards the end of my drinking, I was drinking at work a lot," "I only got caught once and kind of got talked to about it," and "They didn't think I was drunk." The polarization of responses is encouraging for this item, in that, there seems to be a clear delineation of responses. However, the responses do not clearly indicate a relationship with expectations at work, but more have to do with the test subjects' perception of work ethic which means this question might be considered to be more suited for the SF construct than the SP construct (See Table 7).

Two entries that support the PE construct were, "The reason I quit Subway was because I came in hung over and they wouldn't let me have a cigarette when I was supposed to," and "I've never allowed nor will I ever allow drinking or anything to prohibit my work ethic." These entries indicate possibility of inflexible patterns that could indicate traits of OCD. While not convincing, these responses in the qualitative data might encourage exploration of that topic with the test subject if he/she became a client. This item is rated low for the PE construct and moderate for the SP construct. This question seemed to provide valuable information from the qualitative data, however, a clinician would not know this information from the results of the instrument only. The best use of this question would be if the clinician had direct knowledge of the test subject's reasons for endorsement of this item.

Table 7

Item ratings Social Peer Influence (SP)

Item #	Coding	Rating	Comments
4	10/13	high	retain - influence of peer relationships
6	29/31	high	retain - influence of peer relationships
17 [a]	10/12	moderate	retain - assessed attitude towards work ethic
29	24/24	moderate	retain - assessed perceptions of school culture, possibly add to SC
37	21/25	high	retain - seemed to measure ego strength, possibly add to PI

[a] = multiple-objective item

Item18, "Members in my extended family have had trouble with alcohol" was a multiple-objective item intended to identify both the BI and SF constructs. All themes from the responses to this item were identified with deductive codes in the BI and SF constructs. Perceptions of family problems were straightforward, e.g., "My grandfather was an alcoholic," "I have had some cousins that have had trouble with alcohol and alcohol abuse," and "On both sides of my family, both my mom and dad, they're sons (and daughters) of alcoholism." One test subject responded with, "A lot of them are in jail because of it," which may show a history of conduct disorder. This statement is significant in that conduct disorder has been shown through the Finn Twin studies to be associated with the onset of alcohol issues. Memories of how alcohol use was viewed within the family structure was remembered by the statement, "My aunt and my uncle, my mom's sister and her husband...because they are like 45 years old and they still act like they're in high school and they drink and are super shit-faced all the time." Children

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growing up in an environment of this nature can have an impact on how the test subject perceived the acceptance of alcohol use. There were no themes that emerged inductively with this item, therefore this item is rated high for the BI construct and moderate for the SF constructs.

Item19, "I felt that one or more of my siblings did not like me" was a multiple-objective item intended to identify both the PI and SF constructs. This item was aimed at identifying whether the test subject experienced beliefs about relationships with family members and if there was perceived discourse in their familial relationships. There were 11 entries with eight being identified to family cohesion, e.g., "I think my brother, although we argue, does like me," "When I was young I thought my brother didn't like me," or "I've always felt pretty comfortable with my relationship with my brother." One test subject appeared to want to normalize sibling rivalries by saying, "You're obviously going to have fights with your siblings." Another seemed to insinuate that there was a playing of favorites in their family by whispering, "Kind of the favorite," when referring to the perception of the relationship test subject and his/her siblings had with their parents. Although, this doesn't point to a disgruntled sibling relationship, it does add to the evidence of perceived discourse in the family structure. Because this item only had one code within the PI construct it will be rated low, however, it can be rated high for the SF construct.

Item 20, "My mother abuses alcohol" was a multiple-objective item intended to identify both the BI and SF constructs. The themes indicated from the responses of this item were history of addiction (five entries), and family view of alcohol use (six entries). Examples of history of addiction are, "I've never felt like my mom has used or abused

alcohol," "I've never seen it like where she constantly abuses it for a period of time," and "I've never felt like my mom has used or abused alcohol." Examples of the family view of alcohol use are, "My mom will probably have a beer with dinner or wine every once in awhile but she never gets drunk," "She does drink but um...she's not really let it affect her life," and "I mean I've seen her (mom) get drunk before." This question seemed to elicit memories that were related to their experience with their mother's alcohol use and these responses indicate that this item seemed to have meaning for the test subjects as they recalled memories of the mother's alcohol use. There seemed to be a desire to protect the mother from being looked negatively upon by the researcher. When the memories elicited about a loved were negative, test subjects tended to have an uncomfortable feeling, possibly of shame, and as a result, a desire to protect that person from unwarranted judgment from others. It could be possible this phenomenon might influence under-reporting on this item. However, based on the responses, this item can be rated as high for both the BI and SF constructs.

Item 21, "I was given alcohol as medicine when I was young" was a single-objective item intended to identify the SF construct. This proved to be an interesting item because it was only endorsed by two of the nine participants, however this item might bring into the open a positive familial perception of the medicinal use of alcohol which can be a topic that certainly would not likely arise in most counseling sessions. There were seven entries in the SF construct for this item, six in the family view of alcohol use and one in parental involvement. Some examples of family view were, "My dad used to joke about putting whiskey, giving me a little whiskey when I couldn't fall asleep when I was a baby," "I don't really know if it was put on my like bottle or whatever they do with

that like when they put whiskey on it," or "Booze wasn't kept in my house." The parental involvement entry was, "My parents were very careful of me since I was a firstborn," could indicate that the parents were over protective or simply that because the child was their first, they paid more attention to safety around the house. In any case, even though there was low endorsement of this item, the researcher believes it can be rated as moderately identifying the SF construct.

Item 22, "Sometimes I have lied to get what I want" was a single-objective item intended to identify the PE construct. This item aimed at identifying externally expressed behavioral traits, especially impulsivity, and seemed to elicit an inductive theme of self-seeking. Test subjects' responses communicated that this was a difficult question to answer because it brought up memories of events that caused a feeling of shame or guilt over having lied for gain, "That really sucks to answer," and "I definitely feel guilty about that one." Responses ranged from direct, "I lied all the time to get what I wanted," "I would lie to get around it and get my way," "I've lied a lot to get what I want," to more indirect, "I've never been the type of person to feel like I want and need anything," and "When I was younger and less mature um I definitely did lie to get what I want." One test subject related this question to how romantic relationships were viewed, "Mainly this would be dealing with guys in relationships, like, having two guys at once and lying to both of them because I wanted to have my cake and eat it too." By examining the memories elicited that were clear in behavioral indications, this question can be rated high for the PE construct.

Item 23, "People I admire drink alcohol" was a single-objective item intended to identify the SC construct and aimed at assessing the influence of role models on one's

drinking behaviors. There were 20 entries, 15 of which could be directly related to role models. However, the role models sometimes were friends and family. Therefore, the influence could be considered to be a wider ranging cultural impact than was originally intended. There was an underlying theme of minimization due to a desire to protect those that were admired by the test subjects, e.g., "It's not like I admire them because they drink alcohol," "I'd be making an assumption that they drink alcohol," "I don't know if they would drink alcohol or not," "They're moderate and responsible drinkers," and "I definitely didn't look up to them because they drank alcohol." However, many of the responses related directly to role models drinking behavior, "There are definitely some people I admire who drink alcohol," "People that I do admire do drink alcohol," "Not that I really admire that aspect of them, but I think they're badasses," "Those that I admire also drink alcohol," "I have good friends that are great for support and advice and I know they drink," and "People I admire drink occasionally, I guess." While the responses are not convincing that this item assessed cultural idols in the media, it did seem to assess a broader range of memories across the cultural experience of the test subjects. This item can be rated moderate for the SC construct (See Table 8 for the qualitative report for all SC items).

Table 8

Item Ratings Social Cultural Influence (SC)

Item #	Coding	Rating	Comments
23	19/20	moderate	retain - also measured peer relationships, possibly add to SP
26	30/30	high	retain - indicated awareness of advertising
33	29/30	high	retain - assessed media influence
38	20/21	high	revise - due to duplication with item 33, revise to include internet sites

Item 24, "Drinking alcohol will help keep my mind off my problems at home" was a multiple-objective item intended to identify both the PI and SF constructs. The entries for this item were evenly split in the PI (nine entries) and SF (seven entries) constructs. This item seemed to be clearly an item that was multiple-objective. The PI codes related to unwanted thoughts and how the test subject responded in relation to alcohol use as a result, e.g., "Anytime I did drink it was a lot easier to solve or blanket those problems," "I'm pretty sure it helps me keep my mind off of anything," "It was easier to kind of just get away from the problems that I did have," and "I didn't know how to cope or deal with any of 'em so I just wanted to forget." Test subjects' responses clearly indicated that they had used alcohol to subdue unwanted thoughts or memories.

Examples of those who had problems with family cohesion were illustrated by, "It always did help get my mind off of any sort of fight that I had with my parents," and "There's all kinds of stuff going on at home." More positive responses in relation to family cohesion included, "I can just go to my family if I have a problem," and "I've never really had any problems with my family or any problems in my house," and would

indicate that these persons have strong, nurturing family relationships. Because of the even distrubution of coding and the polarized responses, the item can be rated high for both the PI and SF constructs.

Item 25, "I will be able to think better after a few drinks" was a single-objective item intending on identifying the PI construct. This item had 18 entries, 12 of which could be thought of as internal processes, and seven of those were related to cognitive function, e.g., "I feel like it, but it definitely does not help me think better," "I make unintelligent decisions compared to when I am sober," "It definitely doesn't help you have more decisive or better thinking," and also related to decreasing anxiety experienced in social situations, "It loosens me up to a degree," "It helps me lower some of my inhibitions,", and "I can be more smooth of a talker." There were three entries that related to external behaviors as a result of drinking such as deciding to drive while intoxicated or weighing the odds of getting in trouble, however the majority of entries were clearly related to internal processing.

On another note, one test subject became immersed in a discussion about being politically correct in his speech patterns when he made the statement, "That's a pretty retarded way of thinking about it." This test subject's response then continued along the that topic, unrelated to the intention of the item, while wondering about the impact of using the word "retarded." When this happens, it might be an indication of attention deficit disorder and is evidence for using this instrument as a think-aloud assessment. Nonetheless, this item was rated high for the PI construct.

Item 26, "Commercials that sell alcohol have influenced my drinking" was a single-objective item intended to identify the SC construct. This item had 30 coded

entries, 26 of those entries triggered memories that caused test subjects to directly quote

commercials or the brands they were selling, e.g., "Bud," "Miller Lite," "Dos XX,"

"Budweiser," "Coors," and "The most interesting man in the world." Themes from

alcohol commercials were reported, "You're not a man unless you're drinking," and

"Funny or entertaining (commercials) definitely make it a little easier to accept drinking

and to drink." Some denials of influence were apparent, "I really don't feel that it's made

me want to drink," "I've never watched a commercial about alcohol and then been like,

oh, I'm going to go out and drink," or realizations that they might have been influenced

by advertising, "I know that they would have influenced my drinking," "At least

influenced my perceptions on drinking just by seeing them," and "Probably,

subconsciously." Two responses indicated naivity, "I never really thought about that,"

"Not that I'm aware of," and one response indicated a difficulty in understanding the

question, "I'm not even sure how to answer that." The memories elicited directly related

to memories of how alcohol is advertised and the perceived influence those

advertisements had on the test subjects, therefore, this item is rated high for the SC

construct.

Item 27, "Alcohol was served at family gatherings when I was growing up" was a

single-objective item intended to identify the SF construct. Of 17 coded entries, 16 were

able to be placed in the family view of alcohol use category. Examples were clearly

drawing from memories of alcohol use in extended events, e.g., "Every time my family

gets together there is always booze around," "People are always drinking," "On my

father's side of the family it was never usually served," "It's always kind of just around,"

"It's part of the culture," and "My mother's side of the family down in the South they do

drink for family gatherings." Whether the family was excessive drinkers or not did not have bearing on the perception of the test subjects, in fact, as seen in other items, the test subjects tended to have an air of defensiveness to protect judgments of their family by the proctor. The one outlier in this data set was in the family involvement area, "I don't really remember the last family gathering we had." In this case, one has to consider the importance of familial relationships for this particular test subject. This is a case where the clinician hearing information of this nature could be instrumental in the treatment of the client. This item is rated high for the SF construct.

Item 28, "I tend to overreact emotionally" was a multiple-objective item intended to identify both the PI and PE constructs. It was designed to assess internal processes and the behavioral results thereof. This item produced a range of responses, 21 total, however it seemed to elicit responses that indicated the test subjects were considering how they behaved in relation to their emotional stressors. Deductive PI codes of unwanted thoughts and positive expectancies of alcohol use were apparent with entries of, "It's not a fun thing to go through," "I do blow things out of proportion," "This was an issue for me for a long time," and "(I was) covering them (emotions) up with alcohol."

There were a number of inductive PI themes that arose related to emotional sensitivity, emotional control, and emotional under-reaction, shown by, "(I) have a tendency to let a splinter turn into a log when it comes to disappointment," "As soon as I get worked up it pretty much spirals out from there," "I put more thought into what's actually going on and then stress myself out and overreact," and "I feel like it's the other way almost, because a lot of times I under-react." Inductive PE themes emerged as emotional distance and emotional control, e.g., "(I) don't really share too much emotion,"

"I was always really good at just hiding my emotions," and "I don't really ever get too upset or too flush." These responses seem to indicate that this item does, in fact elicit reflection of emotional difficulties both internal and external. This item is rated high for the PI construct and moderate for the PE construct.

Item 29, "Drinking is encouraged where I work/go to school" was a single-objective item intended to identify the SP construct. Of the 24 coded entries for this item, 12 were directly related to the influence of a peer network experienced at school that encouraged drinking, e.g., "I go to school at (name of school) and we like to drink here," "Being on a college campus I think that alcohol is everywhere," "Party on the weekends, this is what college is supposed to be about," "It's a college town, (name of city), so I guess it's encouraged," and "I feel like the social atmosphere of going to college is to like get drunk on the weekends." There were also reports of experiences that did not encourage alcohol use at school, e.g., "Nobody ever really pressured me to drink at school," "There's a lot, especially on campus, a lot to prevent students from drinking a lot," "I don't think campus encourages it," and "I would not say it's encouraged in school." The responses indicate that the memories elicited by this item were congruent with its intent, but that it also could be an indicator for the SC construct. This item is rated moderate for the SP construct and might be considered to measure multiple-objectives as the responses for the SC construct indicate.

Item 30, "My father was in trouble with the law a lot" was a multiple-objective item intended to identify both the BI and SF constructs. This item elicited responses that were aimed at memories of conduct disorder in the father which has been associated with alcohol use problems in offspring, as well as possible SF influences that may have been

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experienced by the test subject as a result. The memories were not ambiguous, whether the father had issues or not, e.g., "He is in prison right now," "My dad has had multiple DUIs," "(dad) served some, uh, jail time when I was younger," or "My dad has never got in trouble with the law," and "I don't think he's ever been in trouble for anything."

In the SF construct, three different test subjects responded with perceptions of the law that emerged as an inductive theme by reflecting on when it seemed alright within the family to break a law such as speeding, e.g., "unless you count speeding," "A few speeding tickets which I think is pretty normal," or "(Dad's gotten) a speeding or parking ticket." Because of the high number of entries in history of conduct disorder (8) and the small number in the inducutive family theme of perception of law (4), this item rates high for BI and moderate for SF.

Item 31, "Alcohol has helped me cope with a tragedy in my life" was a single-objective item intended to identify the PI construct. Of the 17 coded entries for this item 12 were able to be correlated with positive expectancies of alcohol use, e.g., "I've never really used alcohol to cope with something like that," "I don't really ever view alcohol as a coping method," and on the other spectrum, "Yes, actually, bad breakup with a girlfriend a long time ago, that was one of the tools I used to not think about it," "Whenever I would breakup with a guy or get in a fight with a friend," "I would stub my toe and I would, figured that was probably close enough to a tragedy," and "Alcohol helped me cope with everything in life."

The positive and negative polarization of the responses provide evidence that the test subjects could clearly answer this item without any ambiguity. There was one coded entry that related to familial nurturance and also one coded entry that indicated the test

subject believed they had good coping skills in the face of tragedy. However, with such an overwhelming majority of codes being related to the positive expectancies theme, this item is rated high for the PI construct.

Item 32, "I took on extra tasks to make up for shortcomings in my family" was multiple-objective item intended to identify both the PI and SF constructs. This item produced a range of coding themes (8) and two points are important to note. None of the PI deductive themes were mentioned and there were four entries from test subjects that indicated this item was confusing to them, "I don't know if there are any short comings in my family...that question somewhat confuses me," "Maybe I'm just not understanding the question," and "I don't really understand what that means." These statements coming from three of the nine test subjects indicate that this question might not be clear for some people. The term "shortcomings" is not an unusual term, however, in this context it is taken from language commonly used in Alcoholics Anonymous (2001). While some who have experience with parents in the recovery process might have an understanding of this term, it might be confusing to others.

Test subjects who did understand this question seemed to be able to discern the meaning intended, e.g., "I don't feel like I had to pull extra slack because of my parents," "Sometimes things would be really shaky at home," "We would just get out and do stuff a lot so that we didn't like have to talk about what was going on at home," and "I did stuff to help around the house." There was some indication of PE traits, such as, "I overwork myself in many points." The item did not elicit responses related to the PI construct. Overall, this question's use of a possibly obsure or confusing term such as

"shortcomings" suggests is should be rated low for PI and moderate for SF. For these reasons, this item needs to be considered for revision or deletion from the R-BIBSI.

Item 33, "Television shows encourage me to believe drinking alcohol is ok" was a single-objective item intended to identify the SC construct. There were 30 coded entries and 22 of those indicated memories of movies or television shows where drinking was portrayed. Some respondents reported a clear understanding of how entertainment encourages drinking alcohol, e.g., "They definitely show that moderate drinking is okay," "I did look at that and feel it was sort of normal," "I think that's common in all television shows," "Most shows that incorporate drinking," "Some of the more adult shows I like watching do have alcohol as being an okay thing," "you always see shows where people are drinking and it just seems so normal," and "Definitely encourages it (drinking) to show it's okay." Other responses showed encouragement of excessive drinking, e.g., "Some shows at the same time show people being stupid," "They're drinking to excess," "The way that high school is portrayed a lot of the time is people's drinking," "view it as like nothing bad ever really happens," "it's all kind of just a joke," and "when it really happens it's not too funny." Some memories of specific movies were reported, "I just initially think of like James Bond," some denied any influence from television, "I don't think television has encouraged me at all," "that never really was what encouraged me to think it was okay." There was also an understanding of how advertisers intend their product to be seen by the public, "it seems like for mass media marketing, alcohol is always accepted."

Here again, whether the item was endorsed by a test subject or not was not important, but the congruency of the specific memories elicited indicated this question

was clearly stated and should be rated high for the SC construct. This question, due to the similarity of question 38 should be revised to include movies, "Television shows/movies encourage me to believe drinking alcohol is ok."

Item 34, "I feel attractive when I drink alcohol" was a single-objective item intended to identify the PI construct. Of the the 16 entries for this item item, seven could be attributed to self-esteem, e.g., "(I) definitely have more confidence a lot of the time, when drinking alcohol and say approaching people, "I used to think that I was the shit and that guys thought that it was a lot cooler if I could drink a lot," "I guess I felt more attractive but I was probably just thinking that was the drunk or the alcohol talking in me," and "Maybe I feel more confident." One test subject indicated that, "Usually wasn't conscious for very long after I started drinking," or that "(I) black out a lot," suggesting the PI theme of outcomes greater than predicted after alcohol use. Moving to the inductive codes, in saying, "I can drink more than you," or "that was sort of the stigma that I had created around myself and my reputation," one test subject reported that drinking a lot was related to reputation or competitiveness and those traits had an influence on the amounts he consumed. There were two test subjects who indicated confusion of what the item was asking, therefore the wording should be considered. This item can be rated with a moderate to high correlation with the PI construct.

Item 35, "My parents argued a lot" was a single-objective item intended to identify the SF construct. There were 17 coded entries for this item, 15 of which clearly identified memories of family cohesion, e.g., "My mother and my step-dad and they definitely did argue a lot," "I never saw it if they did," "Seemed to me at least, to be true when I was younger," "Before they got divorced they argued a lot," "My mom was pretty

happy to have him around so they didn't argue," and "They only time they argued was who won a ping-pong match." Memories elicited here indicate the test subject was remembering specific times when their parents argued and weighing that memory against their perception of what was normal in a married couple's relationship. One test subject recalled memories of his father's work schedule and, from the nature of the item, might indicate that this might have been a source of conflict in the family. While this inductive code only had two entries, it gives an example of the variety of complex situations each test subject experienced growing up. This item is rated high for the SF construct.

Item 36, "I get into trouble because I don't think about what I'm doing" was a multiple-objective item intended to identify both the PI and PE constructs. This item attempted at assessing perceptions of both internal and external psychological traits that may have influenced drinking behaviors in the test subjects. There were 24 coded entries, 18 that indicated external traits and six that indicated internal traits. Impulsivity arose as the most prevalent theme, "I do whatever dumb thing comes to my mind first," "I definitely don't think of the repercussions of my actions before I do something," "I've never really thought about the consequences," "I tend not to look ahead into the future for the majority of things that I do," "I don't think before I act," and "I just figured I'd never get caught and never get into trouble." An internal trait of unwanted thoughts was indicated by one respondent, "I'm one of those people that thinks about everything," and one other respondent indicated knowingly justifying their behaviors. This item can be rated high for the PE construct, however, due to the low number of internal responses, but because it seemed to indicate internal processing difficulties, this item is rated moderate for the PI construct.

Item 37, "Drinking alcohol will help me to fit in with the group" was a single-objective item intended to identify the SP construct. Of the 25 coded entries 12 elicited an inductive theme of acquiring peer relationships. Examples included both denying and endorsing the item, e.g., "That may have been why I drank," "I've come to realize that I can fit in just fine without alcohol," "It's just something you can build a relationship around," "For me it was always more smoking weed as opposed to drinking alcohol to fit in with people," "If you're drinking you can kind of connect with other people on that basis," "You go to the keg and fill up your cup and meet new people," "Drinking was a way to get in with people and have friends and have connections," "It's like a social ice breaker," as well as "My parents kind of raised me, if someone doesn't like you for who you are then they're not worth hanging out with," "I've never really been involved in peer pressure," and "I've never drank alcohol to fit in with people." One response indicated a high level of ego strength, "My personality is going to help me fit in with the group." The most poignant deductive example of peer influence was, "The reasons I started drinking was because the people who are the most welcoming I think and from my experience in high school and college groups are the people who drink a lot." The memories elicited from this item indicate it can be rated high for SP construct.

Item 38, "It looks like fun to me when I see people drinking on television" was a single-objective item intended to identify the SC construct. Of the 21 coded items, 14 were directly related to memories of television shows that encouraged drinking. There were four entries that indicated memories of movies seen on television. The item seemed to be closely related to Item 33, as both asked about television. Responses included, "Alcohol is never really portrayed in a bad way on television," "...few times when they

show the negative effects," "It's made out to look like something that's really fun," "It does look entertaining and that it would be fun," "Most television shows that incorporate drinking or movies definitely make it look like more fun," and "They always are laughing with their glass of wine and having a great time." Two specific movies mentioned were "Ben Wilder" and "The Hangover."

This item can be rated high for the SC construct, however the similarity with item 33 would suggest a revision. After administering the R-BIBSI for field testing, the realization came that social networking sites had not been addressed in the pilot version. Therefore, it seems necessary to rewrite this question as, "It looks like fun to me when I see or read about people drinking on social networking sites."

Item 39, "When I drink alcohol I take unusual risks" was a single-objective item intended to identify the PE construct. This item was aimed at assessing externally expressed psychological traits that could relate to conduct disorder such as illegal behaviors or impulsivity. There were 30 coded entries 17 of which could be related to impulsivity, e.g., "I think that alcohol makes me do stupid things," "I've ran rampant in the town," "I do things I normally wouldn't," "Last 4th of July I jumped off my aunt's roof after some drinks," "I probably wouldn't have messed up if I was not on drinking," "I do things that I normally wouldn't do when I was sober," "I used to lay in the middle of busy streets," and "Do all kinds of stupid shit." Some responses were related to thrill seeking behaviors, "I've always been a risk taker," "Drinking definitely increases those risks," "I don't normally take unusual risks." Illegal behaviors included, "The only risk I would take would be driving," "Anything to get people riled up was sort of my M.O.,"

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and "I take risks that could give me negative impacts on my life." Some of the thrill

seeking behavior was related to participation in extreme sports and was seen as a healthy

form of risk taking, e.g., "I rock climb," and "I do snow board and kayak." Also, some

reporting indicated a social aspect to risk taking behaviors, "I'm with people that do," and

"It usually ties me in with that person." Because of the number of responses that

indicated knowingly taking unusual risks when intoxicated, this item is rated high for the

PE construct.

Item 40, "My father has abused alcohol" was a multiple-objective item intended

to identify both the BI and SF constructs. The directness of this item seemed to elicit an

urge to protect the father from being judged negatively, as also in Item 20 when test

subjects were asked about perceptions of their mother's alcohol use. It did seem to

produce memories relevant to their perception of familial history of addiction, however

shown by the following examples, e.g., "I know he used drugs and drank sometimes,"

"...probably more than most parents do," "I know he's abused drugs," and "I know he

was never really a huge drinker." Interestingly, a history of depression also appeared in

the responses, "He's gone through his times of depression," for example. The memory

recall that Item 40 elicited in the SF construct was, "He can have a drink with dinner but

he never really gets drunk." It was clear this item should be rated high for the BI

construct and moderate for the SF construct.

Overall, these qualitative data were encouraging and provided initial insight into

the perceptions and memories elicited by the R-BIBSI items. There were clear examples

of items that needed to be revisited for goodness of fit within the constructs for which

they were intended. The richness of the data from the nine test subjects yielded a general

indication that most items did prompt test subjects to think back into their past and also to draw from the perceptions assigned to those memories. The results were compared to the predictive validity and exploratory factor analysis quantitative results to determine the final version of the R-BIBSI.

Quantitative Results

To assess whether the 40 R-BIBSI items formed a reliable scale, and whether the item summations for each construct created reliable individual scales, Cronbach's Alpha was computed. The alpha for all 40 items was 0.90 which indicates the items formed good internal consistency. Alpha was computed for the items within each of the constructs; for the PI scale alpha = 0.81, for the SF scale alpha =0.76, for the SP scale alpha = 0.74, which indicates that the items form scales that have reasonable internal consistency reliability. For the PE scale alpha = 0.69, and for the SC scale alpha = 0.68 which indicated minimally adequate reliability. For the BI scale alpha = 0.52 which indicates highly questionable adequate reliability. One explanation for this phenomenon could be that many of the items for the BI scale were multiple-objective items which means that these items were asking questions from very different areas of biological risk. For example, items for the BI scale, or construct, inquired about depression, anxiety, and different behavioral aspects of the mother and father (such as conduct disorder and traits of depression or of alcohol use). It can be conceived that if a person endorses traits of depression, they may not be likely to endorse traits of anxiety. Likewise, one's father might be perceived as having traits of conduct disorder, but not alcohol use; and also persons who endorsed items about their perception of their mother's alcohol use may not have endorsed items regarding her traits of depression. Therefore, while the low

Cronbach's Alpha for the BI scale was discouraging, it can be understood why there was a low reliability rating for this scale.

Predictive Validity

For the predictive validity data collection, ten students participated in a 1-1/2 hour intake interview as a prerequisite to enter the Back-on-TRAC program provided the R-BIBSI field-test data for this phase of analysis. Each student's intake was conducted by the same clinician. This clinician then provided responses to the R-BIBSI based on the information gathered by the intake session. These two groups were then compared to assess the predictive validity of the R-BIBSI.

Summations for the constructs were compiled according to the assigned items for each respective construct. For example, Items 1, 8, 11, 15, 18, 20, 30, and 40 were identifiers of the BI construct; the PI construct contained Items 1, 2 ,8, 10, 13, 19, 24, 25, 28, 31, 32, 34, and 36; the PE construct contained Items 2, 5, 7, 22, 27, 28, 36, and 39; the SF construct contained Items 3, 9, 11, 12, 14, 16, 18, 19, 20, 21, 24, 27, 30, 32, 35, and 40; the SP construct contained Items 4, 6, 17, 29, and 37; and the SC construct contained Items 23, 26, 33, and 38. An independent samples t-test was computed to compare the results of the test subjects with the results of the rater for each test subject. The hope was to have no significant differences between these two sets of data. Table 9 shows that the test subjects ratings were significantly different from the rater for the SP construct ($p = 0.051$). Inspection of the two groups' means indicates that the average SP score by the test subjects ($M = 11.70$) was significantly lower than the average SP score by the rater ($M = 14.50$). The difference between the means is 2.8 out of 25-points possible for the SP scale. The effect size d is approximately -0.56 which is typical. Test

subjects responses were not significantly different in either the BI, PI, PE, SF or SC

constructs.

Table 9

Independent t-test for Six R-BIBSI Constructs

		M	SD	t	df	p
BI	Test Subject BISUM	11.40	4.502	0.492	9	0.083
	Rater BISUM	14.50	6.399			
PI	Test Subject PISUM	21.30	12.356	2.665	9	0.137
	Rater PISUM	28.20	8.404			
PE	Test Subject PESUM	17.70	6.800	3.268	9	0.459
	Rater PESUM	19.40	5.502			
SF	Test Subject SFSUM	19.60	8.796	0.980	9	0.075
	Rater SFSUM	27.50	11.607			
SP	Test Subject SPSUM	11.70	5.870	-0.149	9	0.041
	Rater SPSUM	14.50	3.951			
SC	Test Subject SCSUM	7.00	4.320	1.429	9	0.329
	Rater SCSUM	8.20	2.044			

This means that, overall, the test subjects answered the R-BIBSI items very

similarly to what they disclosed during the intake session and the rater's summations

were typically higher than the means of the test subjects, which could indicate a certain

level of minimization of reporting by the test subjects. This type of minimizing is a

phenomenon that can be expected to a certain degree in AOD abuse treatment settings.

To assess each individual item, an independent t-test was calculated to inquire whether the test subjects' responses had a relationship to the rater's predictions on each item. To determine predictive criterion validity, the hope was to have relatively close means (*MD* < 1), high correlations (> 0.5), and no significance (*Significance for t* > 0.05) between the rater's predictions and the test subject's responses (See Table 10 for paired *t*-test results).

Table 10

Paired t-test for Individual Items, Between Groups Test Subjects vs. Rater

Item	Student OR Rater	N	M	MD	SD	SEM	Corr.	Sig. for Corr.	t	Sig. for t
01 Drinking alcohol helps me sleep	Student	10	0.90		1.10	0.35				
				-0.8			0.35	0.32	-2.06	0.70
	Rater	10	1.70		1.06	0.34				
02 I have typically been a person who likes to keep moving	Student	10	2.70		1.33	0.43				
				-0.6			-0.27	0.45	-1.03	0.33
	Rater	10	3.30		0.95	0.30				
03 My family had financial trouble	Student	10	1.70		1.83	0.58				
				0.3			0.64	0.05	0.67	0.52
	Rater	10	1.40		1.35	0.43				
04 It's easy to say yes when my friends ask me to drink	Student	10	3.90		1.10	0.35				
				0.7			0.68	0.03	2.69	0.3
					0.92	0.29				
	Rater	10	3.20							
05 I have done things without concern for my own or other's safety	Student	10	3.10		1.29	0.41				
				0.0			0.39	0.27	0.00	1.00
			3.1							
	Rater	10	3.10		0.88	0.28				
06 My friends encourage me to drink	Student	10	2.40		1.51	0.48				
				-1.3			0.29	0.42	-2.75	0.02
	Rater	10	3.70		0.82	0.26				
07 Sometimes I enjoy getting into arguments	Student	10	1.40		1.06	0.4				
				-0.9			-0.49	0.15	-1.87	0.10
	Rater	10	2.30		0.66	0.21				

Item	Student OR Rater	N	M	MD	SD	SEM	Corr.	Sig. for Corr.	t	Sig. for t
08 I have been treated for depression	Student	10	2.60		2.41	0.76				
				0.2			0.66	0.04	0.34	0.74
	Rater	10	2.40		2.01	0.64				
09 I used to drink alcohol in order to cope with my family	Student	10	1.00		1.70	0.54				
				-1.4			0.49	0.16	-2.81	0.02
	Rater	10	2.40		1.35	0.43				
10 Sometimes I feel self-conscious that I will look stupid	Student	10	2.60		1.96	0.62				
				0.3			-0.40	0.25	0.41	0.69
	Rater	10	2.30		0.68	0.21				
11 My mother seemed to be depressed a lot	Student	10	1.80		1.03	0.33				
				-0.3			-0.09	0.81	-0.64	0.54
	Rater	10	2.10		0.99	0.31				
12 I felt the need to parent my younger siblings when I was growing up	Student	10	1.00		1.33	0.42				
				-0.8			0.92	0.00	-2.75	0.02
	Rater	10	1.80		1.99	0.63				
13 It's hard for me to believe that I am capable of being successful	Student	10	1.00		1.25	0.39				
				-0.7			-0.11	0.77	-1.41	0.19
	Rater	10	1.70		0.82	0.26				
14 I felt like my parents were over protective of me	Student	10	2.70		1.83	0.58				
				-0.2			0.39	0.26	-0.36	0.73
	Rater	10	2.90		1.20	.038				
15 I have found that I can drink a lot without feeling drunk	Student	10	2.40		1.43	0.45				
				0.1			0.52	0.12	-0.25	0.81
	Rater	10	2.30		1.16	0.37				
16 Drinking alcohol is looked at as a rite of passage in my family	Student	10	0.30		0.49	0.15				
				-1.0			0.24	0.51	-3.00	0.02
	Rater	10	1.30		1.06	0.34				

Item	Student OR Rater	N	M	MD	SD	SEM	Corr.	Sig. for Corr.	t	Sig. for t
17 I have had trouble with employment because of my drinking	Student	10	0.70		1.57	0.50				
				0.2			0.75	0.01	0.56	0.59
	Rater	10	0.50		0.70	0.22				
18 Members in my extended family have had trouble with alcohol	Student	10	2.50		1.72	0.54				
				-0.4			0.25	0.48	-0.57	0.58
	Rater	10	2.90		1.91	0.61				
19 I felt that one or more of my siblings did not like me	Student	10	0.60		0.97	0.31				
				0.4			0.76	0.01	1.81	0.10
	Rater	10	0.20		0.42	0.13				
20 My mother abuses alcohol	Student	10	0.10		0.32	0.10				
				-0.6			0.96	0.00	-1.50	0.17
	Rater	10	0.70		1.57	0.50				
21 I was given alcohol as medicine when I was young	Student	10	0.00		0.00	0.00				
				-0.1			.	.	-1.00	0.34
	Rater	10	0.10		0.32	0.10				
22 Sometimes I have lied to get what I want	Student	10	2.40		1.43	0.45				
				-0.4			0.06	0.87	-0.74	0.48
	Rater	10	2.80		1.03	0.33				
23 People I admire drink alcohol	Student	10	1.80		1.14	0.36				
				-0.8			0.03	0.94	-1.92	0.09
	Rater	10	2.60		0.70	0.22				
24 Drinking alcohol will help keep my mind off my problems at home	Student	10	1.10		1.37	0.43				
				-1.6			0.20	0.59	-3.36	0.01
	Rater	10	2.70		0.95	0.30				
25 I will be able to think better after a few drinks	Student	10	1.10		1.29	0.41				
				-1.0			-0.44	0.20	-1.63	0.14
	Rater	10	2.10		0.99	0.31				

Item	Student OR Rater	*N*	*M*	*MD*	*SD*	SEM	Corr.	Sig. for Corr.	*t*	Sig. for *t*
26 Commercials that sell alcohol have influenced my drinking	Student	10	0.70		1.06	0.34				
				-0.5			0.61	0.06	-1.86	0.10
	Rater	10	1.20		0.79	0.25				
27 Alcohol was served at family gatherings when I was growing up	Student	10	2.60		1.51	0.48				
				0.6			-0.06	0.87	0.94	0.37
	Rater	10	2.00		1.25	0.39				
28 I tend to overreact emotionally	Student	10	1.80		1.75	0.55				
				0.0			0.37	0.29	0.00	1.00
	Rater	10	1.80		1.14	0.36				
29 Drinking is encouraged where I work/go to school	Student	10	2.40		1.96	0.61				
				-1.5			0.71	0.02	-3.31	0.01
	Rater	10	3.90		0.99	0.31				
30 My father was in trouble with the law a lot	Student	10	0.00		0.00	0.00				
				-0.4			.	.	-2.45	0.04
	Rater	10	0.40		0.52	0.16				
31 Alcohol has helped me cope with a tragedy in my life	Student	10	1.20		1.75	0.55				
				-0.4			0.17	0.65	-2.33	0.05
	Rater	10	2.60		1.08	0.34				
32 I took on extra tasks to make up for shortcomings in my family	Student	10	1.20		1.48	0.48				
				-1.1			0.11	0.76	-1.76	0.13
	Rater	10	2.30		1.64	0.52				
33 Television shows encourage me to believe drinking alcohol is ok	Student	10	1.70		1.83	0.58				
				-0.3			0.14	0.70	-0.69	0.51
	Rater	10	2.10		0.57	0.18				
34 I feel attractive when I drink	Student	10	1.90		1.45	0.46				
				-0.4			0.68	0.03	-1.18	0.27
	Rater	10	2.30		0.82	0.26				

Item	Student OR Rater	N	M	MD	SD	SEM	Corr.	Sig. for Corr.	t	Sig. for t
35 My parents argued a lot	Student	10	1.90		1.91	0.61				
				-0.4			-0.34	0.34	-0.50	0.63
	Rater	10	2.30		1.16	0.37				
36 I get into trouble because I don't think about what I'm doing	Student	10	2.60		1.58	0.50				
				-0.2			0.26	0.47	-0.38	0.72
	Rater	10	2.80		1.14	0.36				
37 Drinking alcohol will help me to fit in with the group	Student	10	2.30		1.83	0.58				
				-0.9			0.72	0.02	-2.21	0.05
	Rater	10	3.20		1.14	0.36				
38 It looks like fun to me when I see people drinking on television	Student	10	2.80		1.62	0.51				
				0.5			0.47	0.17	1.10	0.30
	Rater	10	2.30		0.68	0.21				
39 When I drink alcohol I take unusual risks	Student	10	3.00		1.76	0.56				
				0.2			0.51	0.13	0.41	0.69
	Rater	10	2.80		1.23	0.39				
40 My father has abused alcohol	Student	10	1.10		1.85	0.59				
				-0.9			0.77	0.09	-2.21	0.05
	Rater	10	2.00		1.94	0.61				

Items were rated with "acceptable" predictive validity if they met all of these three criteria, "moderately acceptable" if they met two criteria, "questionable" if they met one, and "highly questionable" if the item did not meet any of the criteria. Items 21 and 30 were unable to be rated for predictive criterion validity because these items were not endorsed by the 10 test subjects.

Item 6 (MD = -1.3, correlation = 0.29, p = 0.03), Item 9 (MD = -1.4, correlation = 0.49, p = 0.02), Item 16 (MD = -1.0, correlation = 0.24, p = 0.02), Item 24 (MD = -1.6,

correlation = 0.20, p = 0.01), Item 24 (MD = -1.6, correlation = 0.20, p = 0.01) and Item

31 (MD = -1.4, correlation = 0.17, p = 0.05) did *not* meet any of the three PV criteria for

acceptability which indicated that they should be rated highly questionable for PV.

Item 25 (MD = -1.0, correlation = 0.44, p = 0.14) had a correlation that was very

near the cutoff for acceptability and no significance, however it did met the MD criteria.

Item 25 were rated with questionable PV. Likewise, Item 32 (MD = -1.1, correlation =

0.11, p = 0.13) was rated with questionable PV because it did not satisfy the MD or

correlation criteria. Item 29 (MD = -1.5, correlation = 0.71, p = 0.01) had a high MD and

a significant p-value, however this item did meet the correlation criteria. It was rated with

questionable PV.

Item 1 (MD = -0.8, correlation = 0.35, p = 0.70) had a correlation below 0.50,

however the rater's predictions were not significantly different from the participants' and

so it was rated with moderately acceptable PV. Item 2 (MD = -0.6, correlation = -0.27, p

= 0.33) also failed with the correlation, but a had reasonable mean difference and was not

significant. Item 2 was rated with moderately acceptable PV. Item 5 (MD = 0.0,

correlation = 0.39, p = 1.00) had a low correlation and having no mean difference which

indicated that it was a moderately acceptable item for PV. Item 10 (MD = 0.3, correlation

= -0.40, p = 0.69) had a negative correlation because participants rated this item higher

than the rater, however due to the low mean difference and no significance it was deemed

acceptable. Item 11 (MD = -0.3 correlation = -0.09, p = 0.54) had a low correlation, but

was acceptable in that it had a low mean difference and no significance. Item 13 (MD =

-0.7, correlation = -0.11, p = 0.19) had a low correlation, but survived due to low mean

difference and no significance.

Item 14 (MD = -0.2, correlation = 0.39, p = 0.73) had a low correlation, but with the extremely low mean difference and no significance, it was moderately acceptable. Similarly, Item 18 (MD = -0.4, correlation = 0.25, p = 0.58), Item 22 (MD = -0.4, correlation = 0.06, p = 0.48), Item 23 (MD = -0.8, correlation = 0.03, p = 0.09), Item 27 (MD = 0.6, correlation = -0.87, p = 0.37), Item 28 (MD = 0.0, correlation = 0.37, p = 1.00), Item 33 (MD = -0.3, correlation = 0.14, p = 0.51), Item 35 (MD = -0.4, correlation = -0.34, p = 0.63), Item 36 (MD = -0.2, correlation = 0.26, p = 0.72), and Item 38 (MD = 0.5, correlation = 0.47, p = 0.30) fell into the same category having a low correlation, but with the extremely low mean differences and no significance between groups, they were rated with moderately acceptable PV.

Items 37 (MD = -0.9, correlation = 0.72, p = 0.05), and Item 40 (MD = -0.9, correlation = 0.77, p = 0.05) met the criteria for MD and correlation, but had significant differences for t. They were rated as moderately acceptable for meeting 2 of 3 PV criteria.

Items 3, 4, 8, 12, 15, 17, 19, 20, 26, 34, and 39 met all criteria for the predictive validity assessment strategy and were rated with acceptable PV. See Table 11 for an overview of how the R-BIBSI items were rated as a result of the predictive validity testing. Highlighted cells indicate that item did not meet the criteria.

Generally speaking, the rater's predictions were very close to the test subjects' results. This might suggest that the test subjects were motivated to be truthful during their intake interview which gave the rater adequate information to predict how they would respond to the items. Accordingly, the close predictions might also be evidence of the expertise possessed by the rater while conducting the intake process, as well as the ability

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to develop rapport with mandated clients to more effectively assess each person's overall

situation and stance regarding their alcohol use.

Table 11

PV Item Validity Results

Item #	Mean Difference	Correlation	PV Sig.	Predictive Validity Outcome
1	<1.0	<+/-0.50	> 0.05	Moderately acceptable
2	<1.0	<+/-0.50	> 0.05	Moderately acceptable
3	<1.0	>+/-0.50	> 0.05	Acceptable
4	<1.0	>+/-0.50	> 0.05	Acceptable
5	<1.0	<+/-0.50	> 0.05	Moderately acceptable
6	>1.0	<+/-0.50	< 0.05	Highly questionable
7	<1.0	<+/-0.50	> 0.05	Moderately acceptable
8	<1.0	>+/-0.50	> 0.05	Acceptable
9	>1.0	<+/-0.50	< 0.05	Highly questionable
10	<1.0	<+/-0.50	> 0.05	Moderately acceptable
11	<1.0	<+/-0.50	> 0.05	Moderately acceptable
12	<1.0	>+/-0.50	> 0.05	Acceptable
13	<1.0	<+/-0.50	> 0.05	Moderately acceptable
14	<1.0	<+/-0.50	> 0.05	Moderately acceptable
15	<1.0	>+/-0.50	> 0.05	Moderately acceptable
16	>1.0	<+/-0.50	< 0.05	Highly questionable
17	<1.0	>+/-0.50	> 0.05	Acceptable
18	<1.0	<+/-0.50	> 0.05	Moderately acceptable
19	<1.0	>+/-0.50	> 0.05	Acceptable
20	<1.0	>+/-0.50	> 0.05	Acceptable
21	<1.0	.	> 0.05	0 participant response rate
22	<1.0	<+/-0.50	> 0.05	Moderately acceptable
23	<1.0	<+/-0.50	> 0.05	Moderately acceptable
24	>1.0	<+/-0.50	< 0.05	Highly questionable
25	>1.0	<+/-0.50	> 0.05	Questionable
26	<1.0	>+/-0.50	> 0.05	Acceptable
27	<1.0	<+/-0.50	> 0.05	Moderately acceptable
28	<1.0	<+/-0.50	> 0.05	Moderately acceptable
29	>1.0	>+/-0.50	< 0.05	Questionable
30	<1.0	.	.	0 participant response rate
31	>1.0	<+/-0.50	< 0.05	Highly questionable
32	>1.0	<+/-0.50	> 0.05	Questionable
33	<1.0	<+/-0.50	> 0.05	Moderately acceptable
34	<1.0	>+/-0.50	> 0.05	Acceptable
35	<1.0	<+/-0.50	> 0.05	Moderately acceptable
36	<1.0	<+/-0.50	> 0.05	Moderately acceptable
37	<1.0	>+/-0.50	< 0.05	Moderately acceptable
38	<1.0	<+/-0.50	> 0.05	Moderately acceptable
39	<1.0	>+/-0.50	> 0.05	Acceptable
40	<1.0	>+/-0.50	< 0.05	Moderately acceptable

Exploratory Factor Analysis

To assess the underlying structure for the 40 items of the Brief Biopsychosocial Screening Instrument, principal axis factor analysis with varimax rotation was conducted based on 63 test subjects' responses. Several assumptions were tested. The assumption of independent sampling was met (determinant = 0.000) (Leech, et al., 2007). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy, which measures whether or not enough items are predicted by each factor, should be more than 0.70 for optimal adequacy, and is considered to be inadequate if less than 0.50 (Leech, et al., 2007). Here, the KMO = 0.608, is in the adequate range, and it should be noted that the results be viewed with caution. The assumption for Bartlett's Test of Sphericity, which tests whether the items were correlated highly enough to provide a reasonable basis for factor analysis, was met with (sig. < 0.001) (Leech, et al., 2007).

Six factors were requested, based on the fact that the R-BIBSI items were designed to discriminate six constructs: biological influence, internal psychological influence, external psychological influence, social family influence, social peer influence, and social cultural influence. After rotation, the first factor accounted for 10.7% of the variance, the second factor for 9%, the third factor for 8.9%, the fourth factor for 6.9%, the fifth factor for 6.5%, and the sixth factor for 2%. Table 12 displays the items and factor loadings for the rotated factors, with loadings less than 0.40 omitted to improve clarity.

Next, the content of the items that had high loadings for each of the factors were examined for fit. In other words, did the items that were selected as representing similar aspects of the phenomenon share high loading on the same factors; and did those items

that were selected to represent different aspects of the phenomenon have high loadings on different factors (Pedhazur & Schmelkin, 1991, as cited by Pett, et al,. 2003)? Both questions are important, although the second question is especially important for this study since many of the instrument items were designed to determine polarizing aspects of the same construct. It can be expected that some items will load highly to more than one factor and other items will load to unexpected factors.

Ideally, the items will load significantly on a single factor; however it is common for items to load significantly on multiple factors (Pett, et al., 2003), as was the case for this analysis. The meaning of an item must be taken into account when assigning labels to each of the factors on which the item loads (Pett, et al. 2003). The phenomenon of multiple loading items creates a need to place the items in the factor that it most closely resembles and the challenge is in which factor to ultimately place the item (Pett, et al. 2003).

Table 12

Rotated 6 Factor Matrix[a]

Item	F 1	F 2	F 3	F 4	F 5	F 6
10 Sometimes I feel self-conscious that I will look stupid	0.718					
28 I tend to overreact emotionally	0.712					
37 Drinking alcohol will help me to fit in with the group	0.632		0.502			
39 When I drink alcohol I take unusual risks	0.612				0.447	
38 It looks like fun to me when I see people drinking on television	0.567		0.441			
08 I have been treated for depression	0.542					
19 I felt that one or more of my siblings did not like me	0.453					
33 Television shows encourage me to believe drinking alcohol is ok	0.447		0.417			0.440
31 Alcohol has helped me cope with a tragedy in my life		0.776				
24 Drinking alcohol will help keep my mind off my problems at home		0.691				0.409
09 I used to drink alcohol in order to cope with my family		0.687				
25 I will be able to think better after a few drinks		0.686				
17 I have had trouble with employment because of my drinking		0.489				
32 I took on extra tasks to make up for shortcomings in my family	0.432	0.446				

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Item	F 1	F 2	F 3	F 4	F 5	F 6
13 It is hard for me to believe that I am capable of being successful		0.404				
34 I feel attractive when I drink alcohol	0.468		0.685			
06 My friends encourage me to drink			0.677			
04 It's easy to say yes when my friends ask me to drink with them			0.562			
29 Drinking is encouraged where I work/go to school			0.481			
05 I have done things without concern for my own or others' safety			0.440		0.432	
01 Drinking alcohol helps me sleep			0.424			
07 Sometimes I enjoy getting into arguments			0.421			
16 Drinking alcohol is looked at as a rite of passage in my family						
30 My father was in trouble with the law a lot				0.602		
35 My parents argued a lot				0.600		
11 My mother seemed to be depressed a lot				0.591		
02 I have typically been a person who likes to keep moving				0.519		
12 I felt the need to parent my younger siblings when I was growing up				0.501		
03 My family had financial trouble				0.452		
18 Members in my extended family have had trouble with alcohol					0.517	
23 People I admire drink alcohol					0.511	
40 My father has abused alcohol					0.510	
36 I get into trouble because I don't think about what I'm doing					0.500	
22 Sometimes I have lied to get what I want			0.411		0.428	
15 I have found that I can drink a lot without feeling drunk						
21 I was given alcohol as medicine when I was young						
26 Commercials that sell alcohol have influenced my drinking						0.668
14 I felt like my parents were over protective of me						-0.508
20 My mother abuses alcohol						0.432
27 Alcohol was served at family gatherings when I was growing up						

Extraction: Prin. Axis Factoring. Rotation: Varimax with Kaiser Normalization. [a.] Rotation converged in 10 iterations.

First factors were assessed which determined whether items loaded with a theme corresponding to the proposed constructs was supported. The first factor, which seems to index some of the items intended to identify internal psychological traits, had strong

loadings on the first six items. Item 37, "Drinking alcohol will help me to fit in with the group," which was intended to identify social peer influences, loaded highly to this factor which suggests that it relates in some way to identifying some internal psychological inadequacies and should be considered for the PI construct. Item 39, "When I drink alcohol I take unusual risks," was intended for the PE construct by asking about traits of conduct disorder. While this item might have to do somewhat with internal processes, it also had a moderate loading to Factor 5 which seemed to index external psychological traits. Ultimately, a decision was made to retain item 39 in the PE construct. Item 38, "It looks like fun to me when I see people drinking on television" loaded highly, but did not seem to fit with the PI theme of this factor. Item 33, "Television shows encourage me to believe drinking alcohol is ok" is very similar in wording to item 38 and also had a low loading to Factor 1. Item 33 also had a low loading to Factor 6, therefore Item 38 will need to be reevaluated or rewritten. Item19, "I felt that one or more of my siblings did not like me" was intended for the PI construct and had a low loading (0.453) to Factor 1. Item 19 will need to be considered for inclusion in the final instrument.

Factor 2, which also had two PI items with the highest loadings seemed to index internal psychological traits caused by elements of external experiences in general. Factor 2 has the appearance of indexing another aspect of internal psychological traits. The highest loading items, (item 2, 9, and 24) ask about tragedy, problems within the family structure, and problems at home, respectively. Alcohol use as a coping mechanism can easily become a learned behavior to deal with various types of trauma. Item 25, "I will be able to think better after a few drinks" had a high loading to Factor 2. Because of the high loading to Factor 2, that might also indicate drinking as a way of coping with internal

burdens. Item17, "I have had trouble with employment because of my drinking" was a multiple-objective item intended to identify the PE and SF constructs that had a low loading to Factor 2 and did not load to any other factor, suggesting the necessity to question the validity of this item, at least according to the EFA results. Item 32, "I took on extra tasks to make up for shortcomings in my family" and Item 13, "It is hard for me to believe that I am capable of being successful" both had moderately low loadings (< 0.5) to Factor 2 and should be considered for deletion or revision according to the EFA results.

Factor 3, which had four items with high loading, seemed to clearly index aspects of the SP construct. Item 34, "I feel attractive when I drink alcohol," was initially intended for the PI construct, however the high loading with items 4, 6, and 29 suggests evidence that this item is somehow related to a social peer influence and should be considered for the SP construct. This could possibly be due to the need to be accepted as part of a social group as suggested by Social Learning Theory (Bandura, 1977). Item 5, "I have done things without concern for my own or others' safety" was intended for the PE construct. Item 5 had a similarly low loading for Factor 3 and for Factor 5, 0.440 and 0.432 respectively. The decision was made to retain Item 5 with Factor 5 and keep it in the PE construct as it does directly relate to personality trait disorder according to the DSM-IV-TR. Items 1 and 7 had low loading to Factor 3 and should be considered for revision or deletion.

Factor 4 seemed to index items related to family or the SF construct. Items 30, "My father was in trouble with the law a lot," Item 35, "My parents argued a lot," and Item 11, "My mother seemed to be depressed a lot" loaded the highest to this factor and

were clearly related to traits of the family structure. Item 2, "I have typically been a person who likes to keep moving" also loaded highly to Factor 4, however this item proved to be problematic during the qualitative analysis. Item 2 will need to be considered for deletion or revision. Item 12, "I felt the need to parent my younger siblings when I was growing up" loaded in an acceptable range for Factor 4 and will be retained in the SF construct. Item 3, "My family had financial trouble" had a moderate loading to F4 (0.452) which is within the cutoff and because this item only loaded to F4, it will be retained in the SF construct.

Factor 5 had four items with high loadings and one item with a moderate loading that came from the BI, SF, and PE constructs which made it difficult for the researcher to define an overarching theme. Item 18, "Members in my extended family have had trouble with alcohol" and Item 40, "My father has abused alcohol" were intended as a multiple-objective item identifying the BI and SF constructs. Item 23, "People I admire drink alcohol" was intended to identify the SC construct. Remembering the qualitative data, Item 23 seemed to be more related to the SP construct. Item 36, "I get into trouble because I don't think about what I'm doing" and Item 22, "Sometimes I have lied to get what I want" had a moderate loading to Factor 5 and both were intended to identify the PE construct. Item 15 and 21 loaded to Factor 5, but not to a sufficient level to satisfy the cutoff criteria of 0.40. Item 5, "I have done things without concern for my own or others' safety" which loaded to both Factor 2 and Factor 5, seemed to have more of a fit with factor 5 when considering that, even with lower loadings, there were more PE items grouped in Factor 5 than the other items. Ultimately, the loadings in Factor 5 do not satisfactorily support any of the themes hoped for when developing the constructs.

However, since Items 22, 36, and 5 all had moderate loadings, it can be cautiously said that at minimum most of the items in Factor 5 were from the PE construct.

Factor 6 contained two items with acceptable loading and seemed to index the SC construct. Item 26, "Commercials that sell alcohol have influenced my drinking" loaded highly. Item 33, "Television shows encourage me to believe drinking alcohol is ok" loaded moderately. Item14, "I felt like my parents were over protective of me" had a high negative loading and should be considered for deletion from the instrument. Item 27, "Alcohol was served at family gatherings when I was growing up" did not load adequately to Factor 6.

The EFA process tended to support the PI, SF, and SP constructs and minimally support for the SC construct. Furthermore, there was questionable support for the BI and PE constructs. See Table 13 for EFA results. These results were then compared to, via a qualitative-dominant cross-over mixed analysis, the index of item objective congruence for multiple-objective items, the descriptive data, the think-aloud results, and the predictive validity results in the effort to produce the best instrument possible.

Table 13

Exploratory Factor Analysis Results

Item #	Intended Construct/s	Factor	Factor Analysis Results
1[a]	BI	3	low loading to F3 or SP
1[a]	PI	3	low loading to F3 or SP
2[a]	PI	4	loaded highly to F4 or SF
2[a]	PE	4	loaded highly to F4 or SF
3	SF	4	moderate loading to F4 or SF

Item #	Intended Construct/s	Factor	Factor Analysis Results
4	SP	3	high loading to F3 or SP
5	PE	3/5	low loading to F3 and F5, retain in F5 or PE
6	SP	3	loaded highly to F3 or SP, retain in SP
7	PE	3	low loading to F3
8 [a]	BI	1	loaded to F1 or PI, dele. from BI
8 [a]	PI	1	loaded to F1 or PI, retain PI
9	SF	2	loaded highly to F2, delete from SF, add to PI
10	PI	1	high loading w/F1 or PI, retain w/PI
11 [a]	BI	4	did not load
11 [a]	SF	4	loaded highly to F4, retain in SF
12	SF	4	high loading to F4 or SF, retain in SF
13	PI	2	low loading w/PI
14	SF	6	high negative loading to F6
15	BI	5	did not load, delete
16	SF	3	did not load, delete
17 [a]	PE	2	delete from PE
17 [a]	SP	2	did not load
18 [a]	BI	5	highest loading to F5, but didn't seem to with overall theme
18 [a]	SF	5	highest loading to F5, but didn't seem to with overall theme
19 [a]	PI	1	low loading w/F1 or PI
19 [a]	SF	1	did not load
20 [a]	BI	6	low loading to F6, retain for BI
20 [a]	SF	6	low loading to F6, remove from SF

Item #	Intended Construct/s	Factor	Factor Analysis Results
21	SF	5	did not load
22	PE	5	moderate loading to F5 or PE, retain in PE
23	SC	5	high loading to F5, but didn't seem to with overall theme
24 [a]	PI	2	loaded highly w/F2 retain in PI
24 [a]	SF	2	delete from SF
25	PI	2	loaded highly to F2, retain in PI
26	SC	6	high loading to F6
27	SF	6	did not load
28 [a]	PI	1	high loading w/F1 or PI, retain w/PI
28 [a]	PE	1	remove from PE
29	SP	3	moderately loaded to F3, retain in SP
30 [a]	BI	4	remove from BI
30 [a]	SF	4	loaded highly to F4, retain in SF
31	PI	2	loaded highly w/F2, retain in PI
32	PI	2	low loading w/PI
32	SF	2	low loading to F2 or PI, delete
33	SC	6	loaded to F1, F3, & F6, retain in F6 or SC
34	PI	3	loaded highly to F3, delete from PI, add to SP
35	SF	4	loaded highly to F4, retain in SF
36 [a]	PI	5	good loading to F5 or PE
36 [a]	PE	5	good loading to F5 or PE, retain in PE
37	SP	1	remove from SP, add to PI
38	SC	1	loaded to F1 & F3, delete or revise

Item #	Intended Construct/s	Factor	Factor Analysis Results
39	PE	1	loaded to F1, also loaded to F3, add to SP
40 [a]	BI	5	highest loading to F5, but didn't seem to fit with overall theme
40 [a]	SF	5	highest loading to F5, but didn't seem to fit with overall theme

[a] = multiple-objective item

Validation: Quantitative-Dominant Cross-Over Mixed Analysis

To complete the quantitative-dominant cross-over mixed analysis, and in an effort to look at the goodness of each item from multiple lenses, the items were compared from each data collection strategy; IIOC-MO results, descriptives of results from the field-test data (particularly skewness), the predictive results, and the exploratory factor analysis. Onwuebuzie, et al., (2010) suggests data importation to use the findings from qualitative analysis to inform the quantitative analysis results. By comparing all results, each R-BIBSI item was scrutinized through an integration of these quantitative and qualitative data to best answer the question of goodness of fit, reliability, and validity. See Table 14 for a combined output of constructs identified by the literature, the factor grouping identified by the EFA results, skewness of each item, think-aloud results, predictive validity results, an overview of the EFA results, and the outcome as a result of combining all of the assessment modalities.

To this point through the construct identification, item-reduction, and item-fit analysis processes, items have been scrutinized by multiple methods through multiple

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lenses. Twenty-three items produced results that identify them as the most valid and reliable identifiers of each of the six constructs.

Items 15, 18, and 40 were retained for the BI construct. All three items loaded to Factor 5 in the EFA results, with Item 15 being slightly below the cutoff criteria of greater than 0.40 significance. Item15, "I have found that I can drink a lot without feeling drunk" aimed to identify low level response to alcohol use (Schuckit, 1994). Item 15 was not fully supported by the EFA results, however it was highly supported by the TA and moderately by the PV (especially by the $MD = 0.10$) assessment modalities. Item18, "Members in my extended family have had trouble with alcohol," pointed out that genetic risk is not always obvious in the parents, but sometimes, in other family members, (Thatcher & Clark, 2008). Item 18 was not fully supported by the EFA results. However, this was expected due to its multiple-objective quality and, in fact, many of the items intended for the BI construct loaded to different factors in the EFA results for this reason. Furthermore, this item was highly supported by the TA results and moderately supported by the PV results. Item 40 "My father has abused alcohol" was cited in the literature as a clear indicator of genetic risk of problematic AOD use (Thatcher & Clark, 2008) and was retained due to the high support from IIOC-MO, PV, and TA results. There was consideration that Item 40 be rewritten to include the possibility of genetic risk elicited in both the mother and father, e.g., "One or both of my parents have abused alcohol." While this would be a viable option, Masten, Faden, Zucker, & Spear, (2009) indicated that maternal risk is more indicated by familial environments during adolescent development shown by evidence of depression in the mother rather than substance abuse.

Table 14

Crossover Mixed Analysis Results

Item #	Const./s	EFA #	Skew	IIOC-MO	Think-aloud Results	PV Results	Factor Analysis Results	Outcome
1*	BI	3	0.680	0.74	delete from BI	Moderately acceptable	low loading to F3 or SP, delete	Item not supported by EFA or TA and only moderate support from PV. - remove from BI - retain for informative purposes only
1*	PI	3	0.680	0.74	could possibly identify self-medication for insomnia	Moderately acceptable	low loading to F3 or SP, delete	Item not supported by EFA and did not produce clear confirmatory TA results. - remove from PI - retain for informative purposes only.
2*	PI	4	-0.528	0.72	even with a high number of codes, responses were too wide ranging to clearly identify PI	Moderately acceptable	loaded highly to F4 or SF	Item not supported by EFA for PI construct. TA did not produce convincing support. Moderate PV. - remove from PI - remove from instrument
2*	PE	4	-0.528	0.72	even with a high number of codes, responses were too wide ranging to clearly identify PE	Moderately acceptable	loaded highly to F4 or SF	Item not supported by EFA for PI construct. TA did not produce convincing support. Moderate PV. - remove from PE - remove from instrument
3	SF	4	0.692	0.90	identified family's response to financial struggles	Acceptable	moderate loading to F4 or SF	Item supported by all modalities. - retain in SF
4	SP	3	-0.967	0.94	indicated influence of peer relationships	Acceptable	high loading to F3 or SP	Item supported by all modalities. - retain in SP
5	PE	3/5	-0.048	0.86	indicated traits of impulsivity	Moderately acceptable	low loading to F3 and F5, retain in F5 or PE	Item supported by TA and moderately supported by PV. EFA produced multiple factor loadings. - retain in PE with caution

Item #	Const./s	EFA #	Skew	IIOC-MO	Think-aloud Results	PV Results	Factor Analysis Results	Outcome
6	SP	3	0.078	0.82	indicated influence of peer relationships	Highly questionable	loaded highly to F3 or SP, retain in SP	Item supported by EFA and TA and, but questionable support from PV cause item to be in question. - remove from SP - remove from instrument
7	PE	3	0.727	0.80	indicated attention seeking behaviors	Moderately acceptable	low loading to F3, delete	Item not supported by EFA or TA and questionable support from PV. - remove from PE - retain for informative purposes only
8*	BI	1	1.550	0.70	some PI codes related to depression supported	Acceptable	loaded to F1 or PI, delete from BI	Item not supported by TA or EFA for BI construct. Item supported by PV. - remove from BI
8*	PI	1	1.550	0.70	gave clear indication of the presence of depression	Acceptable	loaded to F1 or PI, retain in PI	Item supported by all modalities. High positive skew means this item had a fairly low endorsement rate. - remove from PI - retain in instrument for informative purposes only
9	SF	2	1.874	0.82	indicated familial relationships	Highly questionable	loaded highly to F2, delete from SF, add to PI	Item not supported by EFA in the SF construct. TA support was adequate. Questionable PV support. Elevated positive skew indicated low endorsement rate. - remove from SF - retain for informative purposes only
10	PI	1	0.404	0.90	rated self view and internal processes related to self image	Moderately acceptable	high loading w/F1 or PI, retain w/PI	Item supported by all modalities. - retain in PI
11*	BI	4	0.825	0.84	clear indication of BI	Moderately acceptable	did not load	Item not supported by EFA and moderately support by PV. Support by TA and only moderate support from PV. - remove from BI
11*	SF	4	0.825	0.84	low number of codes, item identified mother's history and respondent's experiences	Moderately acceptable	loaded highly to F4, retain in SF	Item supported by EFA and moderately by PV. TA results indicated effects on familial relationships. - retain in SF

Item #	Const./s	EFA #	Skew	IIOC-MO	Think-aloud Results	PV Results	Factor Analysis Results	Outcome
12	SF	4	2.113	0.78	some test subjects were excluded because they had no younger siblings, family cohesion was identified	Acceptable	loaded to F4 or SF, retain in SF	Item supported by EFA and PV. High positive skew indicated a very low endorsement rate. TA indicated this item excluded test subjects who did not have younger siblings. - remove from SF - rewrite to include all siblings and retain for informative purposes only
13	PI	2	1.757	0.90	indicated anxiety towards the future and low self esteem	Moderately acceptable	low loading to PI	Item not supported by EFA. Moderate support by TA and PV. High skew indicates low endorsement rates. - remove from PI - retain for informative purposes only
14	SF	6	0.504	0.86	identified reactions to familial relationships	Moderately acceptable	high negative loading to F6	Item not supported by EFA, but had moderate support by PV. Item was highly supported by TA. - retain in SF
15	BI	5	-0.004	0.86	identifies development of high tolerance	Moderately acceptable	did not load above 0.40	Item was not supported by EFA. Moderate support from PV. TA results supported that this item identified tolerance development. - retain in BI
16	SF	3	1.805	0.82	identified familial perceptions of alcohol use	Highly questionable	did not load	Item not supported by EFA or PV. Moderate support from TA. High positive skew indicates low endorsement rate. - remove from SF - remove from instrument
17*	PE	2	3.289	0.78	indicated inflexible patterns, did not clearly identify deductive PE traits	Acceptable	delete from PE	Moderately support from EFA in the PI construct. High positive skew indicates very low endorsement rate. - remove from PE - remove from instrument
17*	SP	2	3.289	0.78	assessed attitude towards work ethic	Acceptable	did not load	Item not supported by EFA. High positive skew indicates very low endorsement rate. - remove from SP - remove from instrument

Item #	Const./s	EFA #	Skew	IIOC-MO	Think-aloud Results	PV Results	Factor Analysis Results	Outcome
18*	BI	5	0.319	0.82	clear indication of BI	Moderately acceptable	highest loading to F5, but didn't seem to fit with overall theme	Item not supported by EFA. Item had clear support by TA. Moderate support from PV. - retain in BI
18*	SF	5	0.319	0.82	most codes were in the BI construct, related to the view of alcohol as perceived outside the immediate family	Moderately acceptable	highest loading to F5, but didn't seem to fit with overall theme	Item supported by EFA. Not supported by TA in this construct. - remove from SF
19*	PI	1	1.747	0.80	delete from PI	Acceptable	low loading w/F1 or PI, delete	Item not supported by EFA or TA. Good support from PV. High skew indicates low endorsement rate. - remove from PI - remove from instrument
19*	SF	1	1.747	0.80	identified relationship with siblings	Acceptable	did not load	Item not supported by EFA or TA. Good support from PV. High skew indicates low endorsement rate. - remove from SF - remove from instrument
20*	BI	6	3.380	0.94	clear indication of BI	Acceptable	low loading to F6, retain for BI	Item not supported by EFA. High support from TA and PV. Very high skew indicates very low endorsement rate for this item. - remove from BI - remove from instrument
20*	SF	6	3.380	0.94	identified relationship with mother	Acceptable	low loading to F6, retain for BI	Item not supported by EFA. High support from TA and PV. - remove from SF - remove from instrument
21	SF	5	6.814	0.92	response rates were low, this item clearly delineated how alcohol was viewed in the family	0 response	did not load	Item not supported by EFA, PV, or TA. Extremely high positive skew indicates unacceptably low endorsement rate. - remove from SF - remove from instrument
22	PE	5	0.336	0.88	identified attention seeking behaviors	Moderately acceptable	moderate loading to F5 or PE, retain in PE	Item supported by TA and PV. Moderate support by EFA. - retain in PE

Item #	Const./ s	EFA #	Skew	IIOC-MO	Think-aloud Results	PV Results	Factor Analysis Results	Outcome
23	SC	5	0.070	0.80	measured peer relationships possibly add to SP	Moderately acceptable	high loading to F5, but didn't seem to fit with overall theme	Item moderately supported by PV. TA indicated this item is more suited to the SP construct. Moderate support by EFA. - remove from SC - move to SP
24*	PI	2	1.082	0.80	indicates difficulty with internal coping process	Highly questionable	loaded highly w/F2 retain in PI	Item highly supported by EFA and TA in the PI construct. Item not supported by PV. - remove from PI - retain in instrument for information purposes only
24*	SF	2	1.082	0.80	indicated how problems are solved within the family structure	Highly questionable	delete from SF	Item not supported by EFA or TA for this construct. Item not supported by PV. - remove from SF
25	PI	2	1.338	0.76	indicates thoughts of social insecurity	Questionable	loaded highly to F2, retain in PI	Item highly supported by EFA or TA for the PI construct. Item not supported by PV. Item had moderate PV support and high positive skew indicating low endorsement rates. - retain in PI with caution
26	SC	6	1.479	0.80	indicated awareness of advertising	Acceptable	high loading to F6	Item supported by all modalities. Slightly high positive skew indicates low endorsement rate. - retain in SC
27	SF	6	-0.109	0.82	clearly identified perceptions of alcohol through family interactions	Moderately acceptable	did not load	Item not supported by EFA. item had moderate support by PV. TA results indicated effects on perceptions due to familial relationships. - remove from SF - retain for informative purposes only
28*	PI	1	0.956	0.72	indication of emotional sensitivity and emotional distance	Moderately acceptable	high loading w/F1 or PI, retain w/PI	Item supported by all modalities. - retain in PI
28*	PE	1	0.956	0.72	low number of codes elicited reactions to extreme emotions	Moderately acceptable	high loading w/F1 or PI, retain w/PI	Item not supported by EFA or TA for the PE construct. - remove from PE

Item #	Const./s	EFA #	Skew	IIOC-MO	Think-aloud Results	PV Results	Factor Analysis Results	Outcome
29	SP	3	-0.021	0.82	assessed perceptions of school culture, possibly add to SC	Questionable	moderately loaded to F3, retain in SP	Item moderately supported by EFA. TA indicated this item is suitable for the SP construct. Questionable support by PV. - retain in SP
30*	BI	4	3.243	0.72	possibly identifiers of conduct disorder	0 response	did not load	Item not supported by EFA or PV for this construct. High positive skew indicates very low endorsement rate. - remove from BI - remove from instrument
30*	SF	4	3.243	0.72	seemed to identify risk of negative experiences due to conduct disorder by father	0 response	loaded highly to F4, retain in SF?	Item supported by EFA and TA and, but questionable support from PV causes item to be in question. High positive skew indicates very low endorsement rate. - remove from SF - remove from instrument
31	PI	2	1.198	0.80	retain	Highly questionable	loaded highly w/F2, retain in PI	Item supported by EFA & TA. PV resulted in highly questionable. - retain in PI
32*	PI	2	1.644	0.72	confusing term of "short-comings"	Questionable	low loading w/PI	Item not supported by EFA or TA and only moderate support from PV. Elevated positive skew indicates low endorsement rate. - remove from PI - remove from instrument
32*	SF	2	1.644	0.72	confusing term of "short-comings"	Questionable	low loading to F2 or PI, delete?	Item not supported by EFA or TA and only moderate support from PV. Elevated positive skew indicates low endorsement rate. - remove from SF - remove from instrument
33	SC	6	0.474	0.82	assessed media influence	Moderately acceptable	loaded to F1, F3, & F6, retain in F6 or SC	Item supported by TA and moderately supported by PV. EFA produced multiple factor loadings. - retain in SC
34	PI	3	0.290	0.74	indicates low self esteem related to social pressure	Acceptable	loaded highly to F3, delete from PI. add to SP	Item not supported by EFA for this construct and suggested this item fit with the SP items. TA indicated item identified self esteem. Acceptable support by PV. - remove from PI - add to SP

Item #	Const./s	EFA #	Skew	IIOC-MO	Think-aloud Results	PV Results	Factor Analysis Results	Outcome
35	SF	4	0.942	0.84	clear indication of familial relationships	Moderately acceptable	loaded highly to F4, retain in SF	Item supported by all modalities. - retain in SF
36*	PI	5	0.056	0.66	seems to indicate internal processing difficulties	Moderately acceptable	good loading to F5 or PE	Item not supported by EFA for PI construct. Moderate support from TA and PV. - remove from PI
36*	PE	5	0.056	0.66	indicated impulsivity	Moderately acceptable	good loading to F5 or PE, retain in PE	Item supported by EFA and TA for this construct. Moderate PV support. - retain in PE
37	SP	1	0.301	0.74	seemed to measure ego strength, possibly add to PI	Moderately acceptable	loaded to F1 or PI, and F3 or SP.	Item supported by EFA and PV. TA indicated this item possibly measured ego strength. - retain in SP
38	SC	1	0.074	0.88	due to duplication with item 33, revise to include internet sites	Moderately acceptable	loaded to F1 or PI, and F3 or SP. Revise	Item supported by PV. EFA indicated multiple loading. TA suggested item was redundant. - revise item to include social media
39	PE	1	-0.038	0.92	indicated impulsivity and thrill seeking behavior	Acceptable	loaded to F1 or PI, and F4 or PE.	Item supported by TA and PV. Moderate support by EFA. - retain in PE
40*	BI	5	1.477	0.82	clear indication of BI	Moderately acceptable	highest loading to F5, but didn't seem to fit with overall theme	Item supported by TA and PV. EFA suggested questionable factor loadings. Elevated positive skew indicates low endorsement rate. - retain in BI
40*	SF	5	1.477	0.82	responses indicated perceptions learned from father's behavior	Moderately acceptable	highest loading to F5, but didn't seem to with overall theme	Item supported by TA and PV. EFA suggested questionable factor loadings. Elevated positive skew indicates low endorsement rate. - remove from SF

* = multiple-objective item

Items 10, 25, 28, and 31 were retained for the PI construct. Item 10, "Sometimes I feel self-conscious that I will look stupid" is an item that was revised from the Depression Anxiety Stress Scales (Lovibond & Lovibond, 1995) and was supported by

all item assessment modalities. Item 25, "I will be able to think better after a few drinks" contained a theme taken from the Alcohol Expectancy Questionnaire (Christiansen, Brown, & Golman, 1982). Although, this item was not highly supported by the PV testing, it was highly supported by the EFA and TA assessment modalities. Item 31, "Alcohol has helped me cope with a tragedy in my life" contained a theme taken from the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978), and had high support from the EFA and TA results, and although it failed the PV criteria, it was retained due to the strength of the TA results. Item 28, "I tend to overreact emotionally," revised from traits listed for substance abuse related mood disorders (DSM-IV-TR, 2000), was supported by all assessment modalities.

Items 5, 22, 36, and 39 were retained for the PE construct. Item 5, "I have done things without concern for my own or others' safety," Item 22, "Sometimes I have lied to get what I want," and Item 39, "When I drink alcohol I take unusual risks" were taken from traits suggested for personality related disorders (DSM-IV-TR, 2000) and were supported by the TA and PV evidence. The EFA for Item 5 produced a multiple factor loading in Factor 3 and Factor 5, but was supported by the TA and moderately supported by the PV results. Item 22 identified attention-seeking behaviors from the TA results and had moderate support from EFA and PV. Thematically, these items fit with the other items in Factor 5 which were part of the PE construct. Item 36, "I get into trouble because I don't think about what I'm doing" was composed by the researcher to attempt to identify behavioral traits due to AOD use and was supported by EFA and TA results. Item 36 had moderate support from PV by surviving two of the three predictive validity criteria.

Items 3, 11, 14, and 35 were retained for the SF construct. Item 3, "My family had financial trouble," which was supported by all assessment modalities, was modified from the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978) which measures the effect of positive expectancies on behavior. Item 11, "My mother seemed to be depressed a lot" was written to identify the difficulties in the familial environment and depression in the mother, both of which Masten, et al., (2009) stated are predictors of AOD use disorders coming from a developmental perspective. Item 11 was removed from the BI construct due to lack of support in EFA and TA results. Item 11 was retained in the SF construct due to high EFA support, moderate PV support, and the TA results which clearly identified the mother's history and the test subjects' reactions to that experience. Item14, "I felt like my parents were over protective of me" and Item 35, "My parents argued a lot" were composed by the researcher to further identify different aspects of family life that might influence the onset of AOD use. Item 14 was the most controversial due to negative loading for Factor 6 in EFA results. Item 14, however, had extremely positive TA results. All codes suggested that this item clearly identified familial relationships. The PV results also supported this item moderately with a very low mean difference (MD = -0.02), a moderate correlation of 0.391, and with no significance (0.776), it was deemed acceptable for the instrument. Although item 14 was not supported by EFA, it was retained in the SF construct. Item 35 was supported by all assessment modalities.

Items 4, 23, 29, 34, and 37 were retained for the SP construct. Item 4, "It's easy to say yes when my friends ask me to drink with them" was modified from the Alcohol Abstinence Self-Efficacy Scale (DiClemente, Carbonari, Montgomery, & Hughes, 1994)

which measured one's belief that they could maintain abstinence in the face of peer pressure and other high risk situations. Item 4 was supported by all assessment modalities. Item 23, "People I admire drink alcohol" was taken from concepts introduced by Bandura (1977) in his Social Learning Theory, suggesting that cultural "idols" can influence behavior. This item was originally intended for the SC construct; however, the TA results strongly suggested that Item 23 assessed the test subjects' perceptions of their peer group rather than a broader cultural influence. Item 23 was consequently reassigned to the SP construct. Item 23 had moderately acceptable PV support and moderate support from EFA for the SP construct and was, thusly, reassigned to the SP construct. Inclusion of Item 23 was, most likely, the greatest diversion from rigor for the development of this instrument; however the strength of the TA responses encouraged support of this item for the SP construct. Item 29, "Drinking is encouraged where I work/go to school" was written to identify the suggestion by Rose & Dick (2005), who reported in the "Finn Twin" studies the likelihood of environmental influence. Item 29 was supported by EFA in the SP construct and, although the PV results were questionable due to a high mean difference, the TA results suggested these items elicited adequate responses to experiences encountered at work/school. Item 34, "I feel attractive when I drink alcohol" was revised from the Positive Drinking Consequences Questionnaire (Corbin, Morean & Benedict, 2008). Item 34 had a high PV rating and was originally intended for the PI construct, however the EFA and TA results seemed to indicate this item identified traits related to self-esteem and how that trait influenced the test subjects' view of social situations. This item was reassigned to the SP construct. Item 37, "Drinking alcohol will help me to fit in with the group" was revised from the Alcohol Expectancy Questionnaire

(Christiansen, et al., 1982), and was supported by the EFA and PV results. The TA results suggested this item was a measure of ego strength.

Items 26 and 33 were retained for the SC construct. Item 38 was rewritten to include social media in the inquiry for the SC construct. Item 26, "Commercials that sell alcohol have influenced my drinking," and item 33, "Television shows encourage me to believe drinking alcohol is ok," were taken from concepts introduced by Bandura (1977) in his Social Learning Theory, suggesting that cultural mores can influence behavior. Item 26 was supported by all assessment modalities, although the high skew indicates a slightly low endorsement rate. Item 33 had moderate EFA and PV support. The TA results highly suggested measurement of media influence on behavior. Item 38 was rewritten as, "Seeing people drinking alcohol on social media websites looks like fun" to address the growing popularity of the internet as a cultural influence on AOD use behaviors.

Recalculated Quantitative Results for Retained Items

Cronbach's Alpha was recalculated for the items retained for the R-BIBSI. The alpha for all 23 items was 0.88 which indicates the items formed good internal consistency. Alpha was computed for the items within each of the constructs. The PI scale alpha = 0.61 (down from the previous alpha = 0.81), which indicated minimally adequate reliability. The PE scale alpha = 0.79 (improved from the previous alpha = 0.69) showing reasonable adequate reliability. The SF scale alpha = 0.58 (decreased from the previous alpha = 0.76) indicating minimally adequate reliability. The SP scale alpha = 0.72 (slightly less than the previous alpha = 0.74), indicated that the item formed a scale that had reasonable internal consistency reliability. The SC scale alpha = 0.77 (improved

from the previous alpha = 0.68) which indicated reasonably adequate reliability. For the

BI scale alpha = 0.57 (improved from the previous alpha = 0.518) indicates better

adequate reliability, but less than desirable. Alpha was computed for the new construct

summations, alpha = 0.822 which indicates reasonable adequate reliability between the

scales. See Table 15 for a correlation matrix of the revised summations.

Table 15

Correlation Matrix for Revised Construct Summations

	BISUM revised	PISUM revised	PESUM revised	SFSUM revised	SPSUM revised	SCSUM revised
BISUMrevised	1.000	0.286	0.545	0.479	0.431	0.307
PISUMrevised	-	1.000	0.601	0.229	0.594	0.491
PESUMrevised	-	-	1.000	0.253	0.713	0.605
SFSUMrevised	-	-	-	1.000	0.147	0.117
SPSUMrevised	-	-	-	-	1.000	0.693
SCSUMrevised	-	-	-	-	-	1.000

To reassess the underlying structure for the forty items of the Brief

Biopsychosocial Screening Instrument, principal axis factor analysis with varimax

rotation was conducted based on 63 test subjects' responses of the 23 remaining items.

Several assumptions again were tested. The assumption of independent sampling was met

(determinant = 0.000) (Leech, et al., 2007). The Kaiser-Meyer-Olkin Measure of

Sampling Adequacy, which measures whether or not enough items are predicted by each

factor, should be more than 0.70 for optimal adequacy, and is considered to be inadequate

if less than 0.50 (Leech, et al., 2007). Here, the KMO = 0.766 which showed optimal

adequacy (improved from the previous KMO = 0.608). The assumption for Bartlett's Test

of Sphericity, which tests whether the items were correlated highly enough to provide a reasonable basis for factor analysis, was met with a significance of 0.000 (Leech, et al., 2007). Six factors again were requested, based on the fact that the R-BIBSI items were designed to discriminate six constructs: biological influence, internal psychological influence, external psychological influence, social family influence, social peer influence, and social cultural influence. After rotation, the first factor accounted for 20.5% of the variance, the second factor for 11.1%, the third factor for 10.3%, the fourth factor for 9.6%, the fifth factor for 9.4%, and the sixth factor for 7% (all improved from the previous variances). Table 16 displays the items and factor loadings for the rotated factors, with loadings less than 0.40 omitted to improve clarity.

Table 16

Revised Rotated 6 Factor Matrix[a]

	F 1	F 2	F 3	F 4	F 5	F 6
38 It looks like fun to me when I see people drinking on television	0.773					
33 Television shows encourage me to believe drinking alcohol is ok	0.736					
29 Drinking is encouraged where I work/go to school	0.710					
05 I have done things without concern for my own or others' safety	0.686					
37 Drinking alcohol will help me to fit in with the group	0.668	0.472				
34 I feel attractive when I drink alcohol	0.649					
04 It's easy to say yes when my friends ask me to drink with them	0.618					
39 When I drink alcohol I take unusual risks	0.603					
10 Sometimes I feel self-conscious that I will look stupid		0.770				
28 I tend to overreact emotionally		0.743				

	F 1	F 2	F 3	F 4	F 5	F 6
25 I will be able to think better after a few drinks			0.749			
31 Alcohol has helped me cope with a tragedy in my life			0.688			
23 People I admire drink alcohol			0.632	0.456		
35 My parents argued a lot				0.809		
11 My mother seemed to be depressed a lot		0.489		0.576		
18 Members in my extended family have had trouble with alcohol				0.469		
40 My father has abused alcohol				0.467	0.429	
22 Sometimes I have lied to get what I want	0.422		0.424	0.449		0.417
36 I get into trouble because I don't think about what I'm doing					0.715	
03 My family had financial trouble					0.703	
15 I have found that I can drink a lot without feeling drunk					0.569	
14 I felt like my parents were over protective of me						0.812
26 Commercials that sell alcohol have influenced my drinking	0.404				0.449	-0.478

Extraction: Prin. Axis Factoring. Rotation: Varimax with Kaiser Normalization. [a] Rotation converged in 17 iterations.

The revised EFA results for the retained items loaded all items for the SC construct (Items 26 and 33) to Factor 1. EFA also loaded four of the five retained items aimed at the SP construct (Items 4, 29, 34, and 37) to Factor 1. This would make sense seeing that these items all measure a part of the overall social realm. However, Item 23 loaded to multiple factors (3 & 4), which meant that this item, finally, could not be

justified for inclusion in the SP construct for the final version of the instrument. Item 23 will remain part of the instrument for clinically informative purposes only. Item 15 loaded highly to Factor 6 and Item 18 loaded moderately to Factor 5. Interestingly, Item 40 loaded moderately to both of these factors. All three items were retained for the BI construct. Items 10 and 28 loaded highly to Factor 3, and Items 25 and 31 loaded highly to Factor 4. Clustering this closely in two different factors suggests that these items are measuring different aspects of the PI construct, therefore all PI items were retained. For the PE construct, EFA results loaded item 5 and item 39 to Factor 1, Item 22 also loaded moderately for Factor 1, however, it needs to be noted that Item 22 also loaded moderately to four of the six factors and will be retained with caution. The fact that Item 36 loaded highest to Factor 5 suggests this item is measuring another dimension of a hard to define construct, however, will be retained for the PE construct. For the SF construct, EFA results loaded Items 11 and 35 highly in Factor 4. Item 3 loaded highly to Factor 5 and Item 14 loaded highly to Factor 6. All items were retained. For the SF construct, EFA results loaded items 3 to Factor 5 and item 14 to Factor 6 suggesting they are measuring different aspects of the SF construct. These results seem encouraging, and from them the researcher can confidently say that each item has survived an onslaught of multiple analyses.

Refined Quantitative Results for Retained Items

Due to the removal if Item 23, Cronbach's Alpha was once again recalculated for all other items retained for the R-BIBSI. Cronbach's Alpha for the retained 22 items was calculated (alpha = 0.89) which indicates the items formed good internal consistency. The recalculated alpha for the SP construct (alpha = 0.77), also showed good consistency. The

alpha for the BI, PI, PE, SF, and SC remained consistent since the items identifying those

constructs remained the same. Alpha for the summations of the constructs was calculated

(alpha = 0.82), showed good consistency. See Table 17 for the refined construct

summations correlation matrix.

Table 17

Correlation Matrix for Refined Construct Summations

	BISUM revised	PISUM revised	PESUM revised	SFSUM revised	SPSUM revised	SCSUM revised
BISUMrevised	1.000	0.286	0.545	0.479	0.381	0.307
PISUMrevised	-	1.000	0.601	0.229	0.592	0.491
PESUMrevised	-	-	1.000	0.253	0.669	0.605
SFSUMrevised	-	-	-	1.000	0.118	0.117
SPSUMrevised	-	-	-	-	1.000	0.703
SCSUMrevised	-	-	-	-	-	1.000

To reassess the underlying structure for the 22 retained items principal axis factor

analysis with varimax rotation was again conducted based on 63 test subjects' responses

of the 22 remaining items. Several assumptions again were tested. The assumption of

independent sampling was met (determinant < 0.001) (Leech, et al., 2007). The Kaiser-

Meyer-Olkin Measure of Sampling Adequacy, KMO = 0.785 showed optimal adequacy

(improved from the previous KMO = 0.766). The assumption for Bartlett's Test of

Sphericity, was met (sig. < 0.001) (Leech, et al., 2007).

Six factors again were requested, based on the fact that the R-BIBSI items were

designed to discriminate six constructs: biological influence, internal psychological

influence, external psychological influence, social family influence, social peer influence,

and social cultural influence. After rotation, the first factor accounted for 31.1% of the variance, the second factor for 8.9%, the third factor for 6.1%, the fourth factor 5%, the fifth factor 4%, and the sixth factor 3%.

The revised EFA results for the retained items loaded Items 15 and 40 (BI) loaded moderately to Factor 3 and Item 18 again loaded moderately to Factor 5. Items 10 and 28 (PI) loaded highly to Factor 2, and Items 25 and 31 (PI) loaded highly to Factor 4. Confirming that the clustering of these items in two different factors are measuring different aspects of the PI construct. For the PE construct, EFA results loaded Item 5 to Factor 1 and Item 39 loaded to Factor 1 and 6. Item 36 loaded highest to Factor 6. Item 22 loaded for Factor 5 and seemed to be an outlier for this construct. Further testing will need to be conducted to ascertain if this item does belong in the PE construct. For now, Item 22 was retained. Items 3, 11, and 35 (SF) all loaded to Factor 3 confirming a relationship between those items. Item 14 (SF) loaded to Factor 5, which means that the EFA results show this item was measuring a different aspect of the SF construct. Item 14 will be retained and further testing needed. EFA loaded all four items for the SP construct () to Factor 1. All items for the SC construct (Items 26, 33and 38) to Factor 1. Items 4, 29, 34, and 37 (SP) were retained. Items 26, 33, and 38 (SC) all loaded to Factor 1, although Item 38 also loaded slightly higher to Factor 6. All three items will be retained for the SC construct. See Table 18 for Exploratory Factor Analysis Matrix discussed in this section.

Table 18

Refined Rotated 6 Factor Matrix[a]

	F 1	F 2	F 3	F 4	F 5	F 6
33 Television shows encourage me to believe drinking alcohol is ok	0.745					
38 It looks like fun to me when I see people drinking on television	0.727					
29 Drinking is encouraged where I work/go to school	0.637					
05 I have done things without concern for my own or others' safety	0.633					
37 Drinking alcohol will help me to fit in with the group	0.599	0.515				
34 I feel attractive when I drink alcohol	0.591					
04 It's easy to say yes when my friends ask me to drink with them	0.524					
26 Commercials that sell alcohol have influenced my drinking	0.461		0.448			
28 I tend to overreact emotionally		0.777				
10 Sometimes I feel self-conscious that I will look stupid		0.657				
03 My family had financial trouble			0.649			
35 My parents argued a lot			0.612			
11 My mother seemed to be depressed a lot			0.506			
15 I have found that I can drink a lot without feeling drunk			0.489			
40 My father has abused alcohol			0.473			
25 I will be able to think better after a few drinks				0.917		
31 Alcohol has helped me cope with a tragedy in my life				0.557		
14 I felt like my parents were over protective of me					0.636	
22 Sometimes I have lied to get what I want					0.565	
18 Members in my extended family have had trouble with alcohol					0.404	
36 I get into trouble because I don't think about what I'm doing						0.683
39 When I drink alcohol I take unusual risks	0.523	0.414				0.540

Extraction: Prin. Axis Factoring. Rotation: Varimax with Kaiser Normalization. [a] Rotation converged in 9 iterations.

The item order for the final version of the R-BIBSI needed to be revisited. Items that were utilized for clinical information only were interspersed throughout the instrument and items were ordered in a way that would randomize items so that the construct items were not in any particular order, but kept with a logical sequence that would flow for the client. Attending to the sequence of items is important as the memories elicited from one item may carry over to the next item and possibly have an effect on the scoring outcome. See Table 19 for an overview of the remaining items with deleted items included. See Table 20 for the revised items with the new item order applied. See Appendix L for the final version of the R-BIBSI. See Appendix M for the R-BIBSI scoring instructions.

Table 19

Overview of Revised R-BIBSI Items

Item	Outcome
01 Drinking alcohol helps me sleep	Info. only
02 ~~I have typically been a person who likes to keep moving~~	Deleted
03 My family had financial trouble	SF
04 It's easy to say yes when my friends ask me to drink with them	SP
05 I have done things without concern for my own or others' safety	PE
06 ~~My friends encourage me to drink~~	Deleted
07 Sometimes I enjoy getting into arguments	Info. only
08 I have been treated for depression	Info. only
09 I used to drink alcohol in order to cope with my family	Info. only
10 Sometimes I feel self-conscious that I will look stupid	PI
11 My mother seemed to be depressed a lot	SF
12 I felt the need to parent my ~~younger~~ siblings when I was growing up	Info. only
13 It is hard for me to believe that I am capable of being successful	Info. only
14 I felt like my parents were over protective of me	SF
15 I have found that I can drink a lot without feeling drunk	BI
16 ~~Drinking alcohol is looked at as a rite of passage in my family~~	Deleted
17 ~~I have had trouble with employment because of my drinking~~	Deleted
18 Members in my extended family have had trouble with alcohol	BI
19 ~~I felt that one or more of my siblings did not like me~~	Deleted
20 ~~My mother abuses alcohol~~	Deleted
21 ~~I was given alcohol as medicine when I was young~~	Deleted
22 Sometimes I have lied to get what I want	PE
23 People I admire drink alcohol	Info. only
24 Drinking alcohol will help keep my mind off my problems at home	Info. only
25 I will be able to think better after a few drinks	PI
26 Commercials that sell alcohol have influenced my drinking	SC
27 ~~Alcohol was served at family gatherings when I was growing up~~	Deleted
28 I tend to overreact emotionally	PI
29 Drinking is encouraged where I work or go to school	SP
30 ~~My father was in trouble with the law a lot~~	Deleted
31 Alcohol has helped me cope with a tragedy in my life	PI
32 ~~I took on extra tasks to make up for shortcomings in my family~~	Deleted
33 Television shows encourage me to believe drinking alcohol is ok	SC
34 I feel attractive when I drink alcohol	SP
35 My parents argued a lot	SF
36 I get into trouble because I don't think about what I'm doing	PE
37 Drinking alcohol will help me to fit in with the group	SP
38 Seeing people drinking alcohol on social media websites looks like fun	SC
39 When I drink alcohol I take unusual risks	PE
40 My father has abused alcohol	BI

Table 20

R-BIBSI Items with New Ordering

New Item #	Item with previous #	Construct
1	01 Drinking alcohol helps me sleep	Info. only
2	04 It's easy to say yes when my friends ask me to drink with them	SP
3	25 I will be able to think better after a few drinks	PI
4	13 It is hard for me to believe that I am capable of being successful	Info. only
5	03 My family had financial trouble	SF
6	36 I get into trouble because I don't think about what I'm doing	PE
7	38 Seeing people drinking alcohol on social media websites looks like fun	SC
8	07 Sometimes I enjoy getting into arguments	Info. only
9	37 Drinking alcohol will help me to fit in with the group	SP
10	26 Commercials that sell alcohol have influenced my drinking	SC
11	10 Sometimes I feel self-conscious that I will look stupid	PI
12	05 I have done things without concern for my own or others' safety	PE
13	12 I felt the need to parent my siblings when I was growing up	Info. only
14	11 My mother seemed to be depressed a lot	SF
15	15 I have found that I can drink a lot without feeling drunk	BI
16	08 I have been treated for depression	Info. only
17	18 Members in my extended family have had trouble with alcohol	BI
18	22 Sometimes I have lied to get what I want	PE
19	31 Alcohol has helped me cope with a tragedy in my life	PI
20	24 Drinking alcohol will help keep my mind off my problems at home	Info. only
21	39 When I drink alcohol I take unusual risks	PE
22	40 My father has abused alcohol	BI
23	35 My parents argued a lot	SF
24	34 I feel attractive when I drink alcohol	SP
25	09 I used to drink alcohol in order to cope with my family	Info. only
26	14 I felt like my parents were over protective of me	SF
27	28 I tend to overreact emotionally	PI
28	33 Television shows/movies encourage me to believe drinking alcohol is ok	SC
29	29 Drinking is encouraged where I work or go to school	SP
30	23 People I admire drink alcohol	Info. only

CHAPTER 5 – DISCUSSION

Strengths

The final version of the R-BIBSI provides a 30-item instrument that can be completed and scored in 15 minutes or less. The 22 items retained for the final instrument had good internal consistency (alpha = 0.89). The resulting biopsychosocial profile will be useful at the onset of AOD use treatment, treatment planning, and in initial treatment sessions to guide the conversation to more meaningful topics relating to the client's influences of AOD use. It was designed to be simple and straightforward so that it can easily understood by a diverse range of clientele and clinicians of varying skill levels. The R-BIBSI may be administered by clinical or administrative staff with little or no training. The R-BIBSI may be utilized to monitor success rates in clinical settings with mandated clients, such as the Back-on-TRAC program, or with voluntary clients who are more motivated to address AOD use issues. The think-aloud results provided strong evidence of thought processes experienced when completing the R-BIBSI and might be considered as a mode of administration at the onset of counseling sessions.

Limitations

There are some limitations of this study. The population sample was a convenience sample consisting of 63 participants. The majority of the test subjects were 18- 20 year old, white males. While this number is adequate, a larger, more diverse sample would have produced more reliable results. There was a lack of discrimination between the SP and SC constructs, especially with the exploratory factor analysis results,

which indicated that these constructs were closely related and should be considered when addressing these constructs in counseling situations. While these constructs were separated in the scoring of the R-BIBSI, according to EFA, they remain to be measuring and overall social influence of AOD use.

Review

The purpose of this study was to develop a brief screening tool that would adequately discriminate between the six biopsychosocial constructs and also would be a clinically useful assessment tool for therapists who work with persons struggling with AOD use issues. The R-BIBSI is not intended to be a diagnostic instrument. However, the researcher believes that the instrument that was developed can potentially be a strong clinical tool, particularly at the onset of AOD treatment. The data for this this study were limited to a convenience sample of mandated college age students (ages 18-25), which should be taken into consideration before application by a clinician. The R-BIBSI items were written in language that could be understood by a variety of ages and educational experiences. The situations depicted by the items are not limited to that particular age group and demographic background.

From the beginning of this four-year endeavor to develop the R-BIBSI went through several revisions. It was the aim of the researcher's that the development of the R-BIBSI would produce a valid and useful tool. Research bias to have the R-BIBSI meet these criteria needed to be addressed throughout the study by the researcher. Research ethical standards and rigor were applied to the utmost in order to address the issue of research bias. The constructs were derived largely from the biopsychosocial view of addiction. Throughout the research process, the researcher was acting as a clinician

through a graduate student assistantship received from the university counseling center. The main duty of this position was to work with clients mandated to treatment by the university conduct process so those students could be allowed to remain at the university. As the researcher developed as a clinician, so did the perspective on what a useful addiction assessment tool would look like. After receiving a background in Motivational Interviewing, which encourages clinicians to "meet clients where they are at," and coming from a Personal Construct Theory (Kelly, 1955) based perspective when working with clients, it seemed there was a gap was between assessment and treatment. There didn't appear to ba a useful connection between assessment and practice. This gap and the researcher's desire to provide clients with more appropriate treatment earlier in the treatment process was the catalyst to begin the process of developing the R-BIBSI.

Construing, developing and then operationalizing the six constructs was the first challenge. The six constructs were derived from review of the current accepted views of addiction treatment from Personal Construct Theory lens, and influenced by what this researcher/clinician experienced during clinical practice. Numerous useful AOD related assessment tools based in biopsychosocial theory were already in existence. However, a brief, easy to use, and clinically useful screening tool in biopsychosocial assessment could not be located.

Composing the instrument items was completed over time. Input from advisors, colleagues, and fellow students was employed. It was important to have numerous items (145) before beginning the item-fitting/item-reduction process in order to find the best items for each construct. The goal was to reduce the item base to the best 20 - 40 items utilizing the IIOC-MO process that would produce the pilot test instrument. Through the

IIOC-MO item reduction process, the researcher can be confident that the 40 surviving instrument items were the best and most likely items that would address the constructs effectively. Some items that did not prove to be acceptable by the content experts solicited for the IIOC-MO that the researcher found difficult to remove from the instrument, mainly because those items were found to be important in clinical practice. Overall, the initial item-reduction did seem to present a clear separation between the best items and ambiguous items. The local content experts were a vital part of the item-reduction process. Locating clinicians with a range of experience and expertise in AOD use treatment who were willing to complete a 145 item rating document was challenging. However, the five who did return the document where well versed in the idiosyncrasies of treating clients with addiction issues.

The field-test version of the R-BIBSI was constructed from the remaining 40 items and procedures were developed to gather the R-BIBSI field-test data. Because the data was derived from a convenience sample of 18-25 year old college students mandated to treatment, caution needs to be used when attempting to make any inferences from this data set. In addition, the many of the test subjects were familiar with the researcher and this might have had an effect on how they answered the R-BIBSI items. It was expected that, because a $5.00 payment was offered for completing the R-BIBSI, there would be many students willing to participate from other mandated programs. This was not the case and although some test subjects looked at the payment as a way to "get back" at the conduct system for their sanction, others simply were not enticed to participate by the compensation. At the close of data collection, there were 63 total field-test data sets.

While adequate, this number of test subjects was lower than most instrument development processes require.

The exploratory factor analysis (EFA) results proved to be the most difficult to interpret. There is a certain amount of subjectivity that is inherent in this quantitative method. Many items measured different aspects of each construct, and therefore did not show adequate communalities with other items from the same constructs. The was a lack of discrimination between the SP and SC constructs which might have been expected since those social constructs are closely related. However, from the results, the researcher was able to discern items that were superior and items that were less acceptable for the final product. Some items that loaded highly to the factors were not able to be included due to results from the think-aloud and predictive validity measures. This phenomenon highlights the importance of conducting a mixed-method analysis of all 40 field-test R-BIBSI items.

The predictive validity strategy was useful in determining items with adequate response rates. The rater's predictions of test subjects' responses after conducting an initial intake assessment was accurate. From this data, the researcher was able to identify items that test subjects were unwilling or unable to answer accurately. The rater who participated in the predictive validity results has had extensive experience working with the students for this study's demographic, and this most likely, had a positive effect on the accuracy of the predictions.

Think-Aloud

The think-aloud data collection process was one of the most informative aspects of this study. Reflection of the process indicated that having clients think-aloud with the

therapist in the room could be an informative application of the R-BIBSI. Considering that one intention of this instrument was to induce more meaningful conversation earlier in the therapeutic relationship, administering the R-BIBSI as a think-aloud tool during one of the initial counseling sessions could be clinically useful. As test subjects vocalized their thoughts, their thought processes became evident and parts of their history were revealed that they may not have been willing to disclose early in the therapeutic process. Also, topics of clinical importance appeared that may not have been readily apparent for the therapist to ask about. So, in application, the R-BIBSI might be administered as an activity during the rapport building stage of the therapeutic relationship, with results being used as verification of the therapeutic process and also as validation of the client's experiences.

Literature related to think-aloud strategies suggested that warm-up questions should be used to acclimate the test subjects to the think-aloud process before beginning the actual exercise. This researcher believes the process proved to be important when conducting think-aloud research protocol because the warm-up questions helped to deescalate the nervousness being experienced by the test subjects, as well as to increase their confidence in completing the task. Furthermore, the data collected after the warm-up activity seemed to be more genuine and the demeanor of the test subjects more relaxed and authentic. The richness of the think-aloud data provided a valuable source with which to validate the instrument items, especially when the EFA and PV results were conflicting.

All think-aloud research protocol was conducted by the researcher. The test subjects were familiar with the researcher. This influence could have had an effect the

data that were collected since the test subjects might be either more or less willing to participate. However, once the process began, test subjects appeared to be more involved with the memories elicited by the R-BIBSI items than the presence of the researcher. Although the researcher feels confident in the results of the think-aloud process, the data should be viewed with awareness of the effect that familiarity with the researcher might have had on the responses.

Mixed-Methods Research

Mixing results from multiple research methods aimed to find the best overall items for the final version of the R-BIBSI. Looking at the items from multiple lenses did not prove to be as difficult as expected. It did prove to be important in identifying the best instrument items. For the instrument item to be accepted, it had to go through scrutinization in many forms: IIOC-MO, TA, PV, and EFA. The descriptive statistical results were also used to analyze each item. Several items were confirmed by the other analysis strategies such as skew. Skewed items (mostly positively) showed the item had an unsatisfactorily low endorsement rate which deemed it unusable for this particular instrument. The quantitative results were sometimes confirmed and sometimes disputed by the qualitative data. However, holding to the idea that undergoing analyzation by multiple, imperfect processes would produce the most reliable outcome, the researcher felt not only confident, but invested and comfortable in this process.

By utilizing a mixed perspective, confidence that the final items selected for the R-BIBSI are the best possible that could have been derived from the data set that was obtained. The final version of the R-BIBSI will need to undergo further validity and reliability testing with a larger data set in order to confirm the findings of this study.

Furthermore, with a larger data set, it could be possible to make inferences about gender differences, ethnicities, and success rates of persons profiles elevated in different constructs. An additional course of study would be to examine results of the R-BIBSI from a longitudinal frame of reference in order to assess whether perceptions of one's influences change over time as treatment progresses.

Recommendations for Practice

A positive therapeutic relationship has been shown through multiple studies to be the most effective tool for efficacy of clinical practice and that good rapport with a client has a large role in eliciting the most lasting change with clients. While the following is not an operations manual for the R-BIBSI, it might give some insight on the amount of information the R-BIBSI could possibly produce that would be useful for clinical use in the therapy room and in treatment planning for clients, as well.

The Biological Influence (BI) construct seems like something that one could simply ask a client about because genetic risk doesn't seem that difficult to assess. Client's new to the therapeutic process may find it difficult to disclose areas of discomfort regarding their family whether they are mandated or not. By asking these difficult questions from a third person perspective, clients might be more willing to disclose sensitive information. Person's who score high in this area would benefit from a third person perspective on the realities of having a genetic predisposition to addiction. This person should be approached from a psycho-educational standpoint with the aim to assess and normalize their risk of developing an addiction problem. Persons in this construct might also benefit from a harm reduction therapeutic approach, by addressing their AOD use behaviors through a mutually agreed upon contract with self-imposed

consequences (positive and negative) to the client to feel more in control of their

situation. See Figure 5 for an example R-BIBSI profile with an elevated BI.
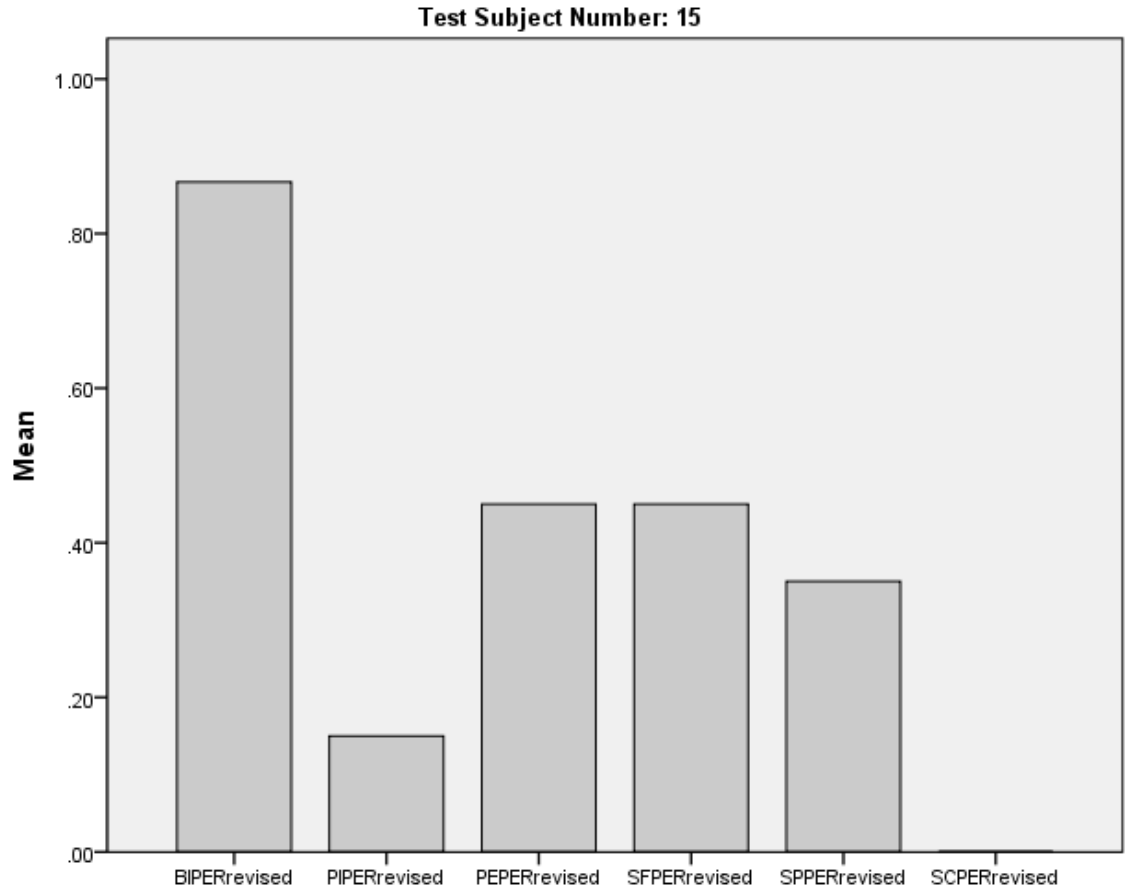
Figure 5. Example of Elevated BI

Many of the BI items were initially multiple-objective, meaning that they could

identify two areas of influence. Most commonly, the BI construct items also identified a

risk in the SF construct. This makes sense since one might guess that, if one of the

client's parents were having problems with alcohol, discourse within the familial

structure could be expected. Remembering that one of the predictors of AOD abuse was

conduct disorder shown in the father or by the client early in his/her adolescence,

clinicians should consider the client's history from different perspectives, rather than only

asking about whether one of their parents were alcoholics. Furthermore, co-occurring disorders are becoming more common in AOD abuse treatment settings. For example, depression is one of the most common conditions that co-occur with AOD use difficulties, therefore these symptoms of depression should be inquired about and addressed.

The two psychological constructs had many dimensions which made the item development process difficult. The researcher found it difficult to remove certain items from the R-BIBSI regarding this construct. Persons scoring high in the PI construct would benefit from further assessment and exploration into depression, anxiety, ego strength, emotional dysregulation, and self-efficacy. Clinicians might consider any number of accepted emotionally-based theories. Cognitive Behavioral Therapy is an evidenced-based therapeutic technique for persons who are being treated with AOD abuse problems. Rational Emotive Behavior Therapy may also be a helpful technique for an inexperienced clinician to use to help a client of this nature. This researcher, has found the therapeutic approach based on "meaning-making" suggested by Viktor Frankl to be beneficial for clients who use alcohol as an escape because they cannot see a positive future for themselves. Clinicians should use whatever technique or therapy that fits with their own personality, experience, and comfort level. See Figure 6 for an example R-BIBSI profile with an elevated PI.
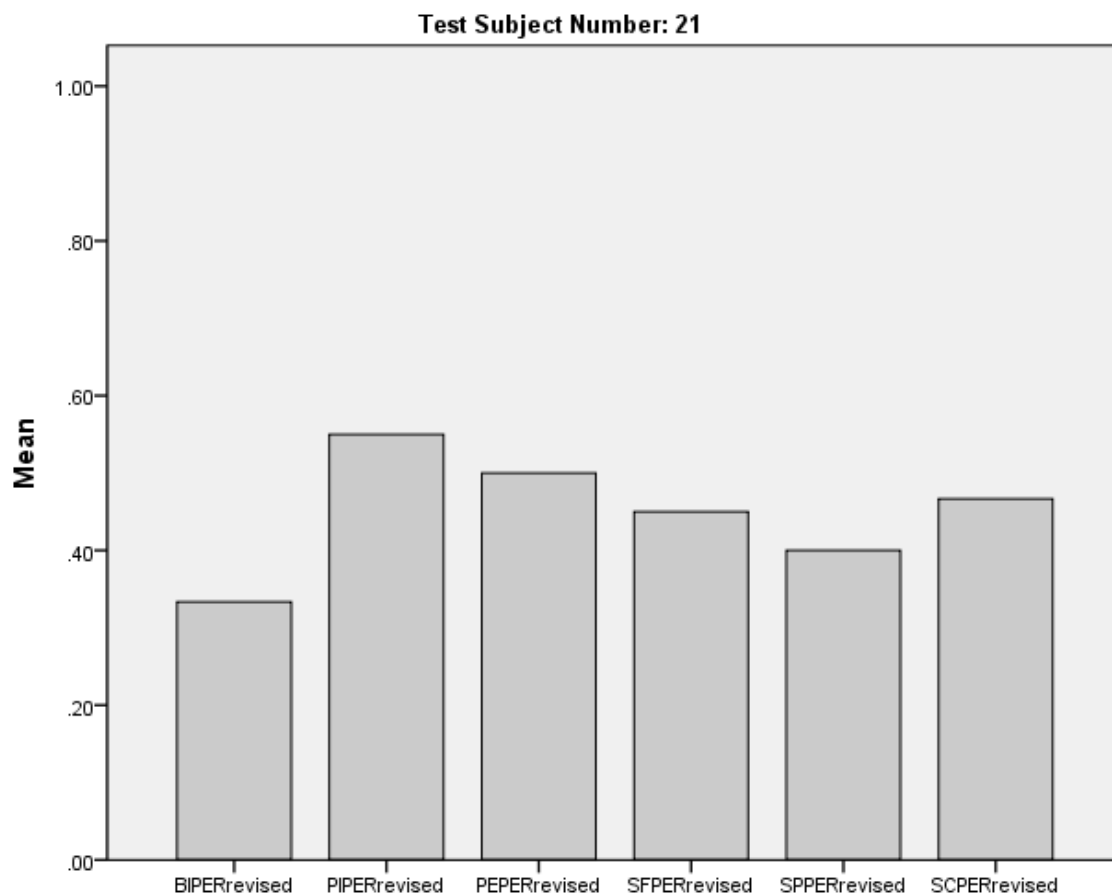
Figure 6. Example of Elevated PI

The intention of the Psychological External (PE) construct was to assess psychological processes that were externally expressed. Some items were designed to assess traits of Axis II disorders. Persons who score high in this construct might benefit from further inquiry into outwardly expressed psychological traits, for example: ADD/HD, OCD, ODD, and possibly personality disorder. Sometimes, when Axis II is mentioned, clinicians can have an adverse reaction that they might not be aware of because Axis II disorders are difficult to treat. If the clinician feels an uncomfortable when presented with the possibility of an Axis II disorder, he/she will need to address that issue in supervision before beginning the therapeutic process with a client. If, after

further inquiry and assessment, these traits are truly present in the client, he/she might benefit from Dialectical Behavior Therapy (DBT) or other evidenced based practices for the specific challenge being experienced by the client. Because the R-BIBSI is not a diagnostic instrument, scoring high in the PE construct does not mean the client has a personality disorder. It means that their psychological symptoms are typically outwardly expressed as behaviors and might be cause for further assessment in this area. Clinicians should only treat conditions for which they are trained and they should only use therapeutic techniques they have been supervised in and are skillful with. See Figure 7 for an example R-BIBSI profile with an elevated PE.
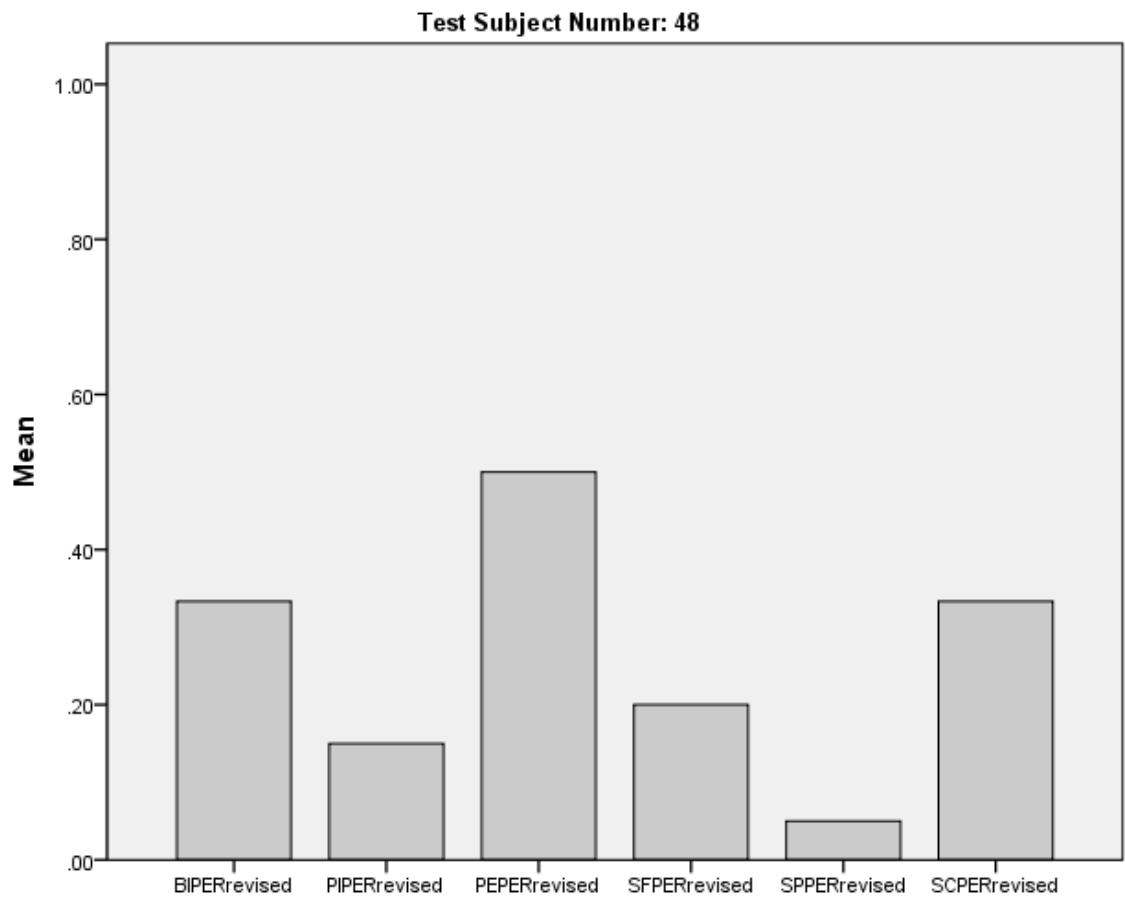
Figure 7. Example of Elevated PE

The Social Family (SF) construct assesses if the person has perceived discourse in their familial relationships. Persons scoring high in this construct might be approached from a myriad of family therapy theories and techniques. This clinician should consider a Structural Family Therapy approach while inquiring about the possibility of enmeshed relationships within the family structure, the goal being to promote problem solving and altering the dysfunctional structure to facilitate growth (Gehart & Tuttle, 2003). Another commonly used therapy for families when addiction or abuse are present is Systemic Family Therapy (Gehart & Tuttle, 2003). This researcher, as a clinician, has found that a Narrative Therapy based approach may also be useful in this area. A common phrase utilized from Narrative Therapy is: "The person is not the problem, the problem is the problem" (Gehart & Tuttle, 2003). This way of thinking is common in recovery communities because it separates the person from the behavior and allows the enmeshed person to have what is known as "loving detachment" with the problematic family member. Communication within a family system can sometimes be difficult, especially when addictive behaviors are present in one or more of the members. The clinician might consider a Transactional Analysis approach to provide clients who are younger in age with tools to understand how "scripts" are perpetuated. The client might not realize there was anything wrong in his/her family since that's all he/she has known. Once aware of their situation, clients can be empowered to accurately interpret and effectively interrupt dysfunctional communication patterns that have been occurring within their family system. See Figure 8 for an example R-BIBSI profile with an elevated SF.
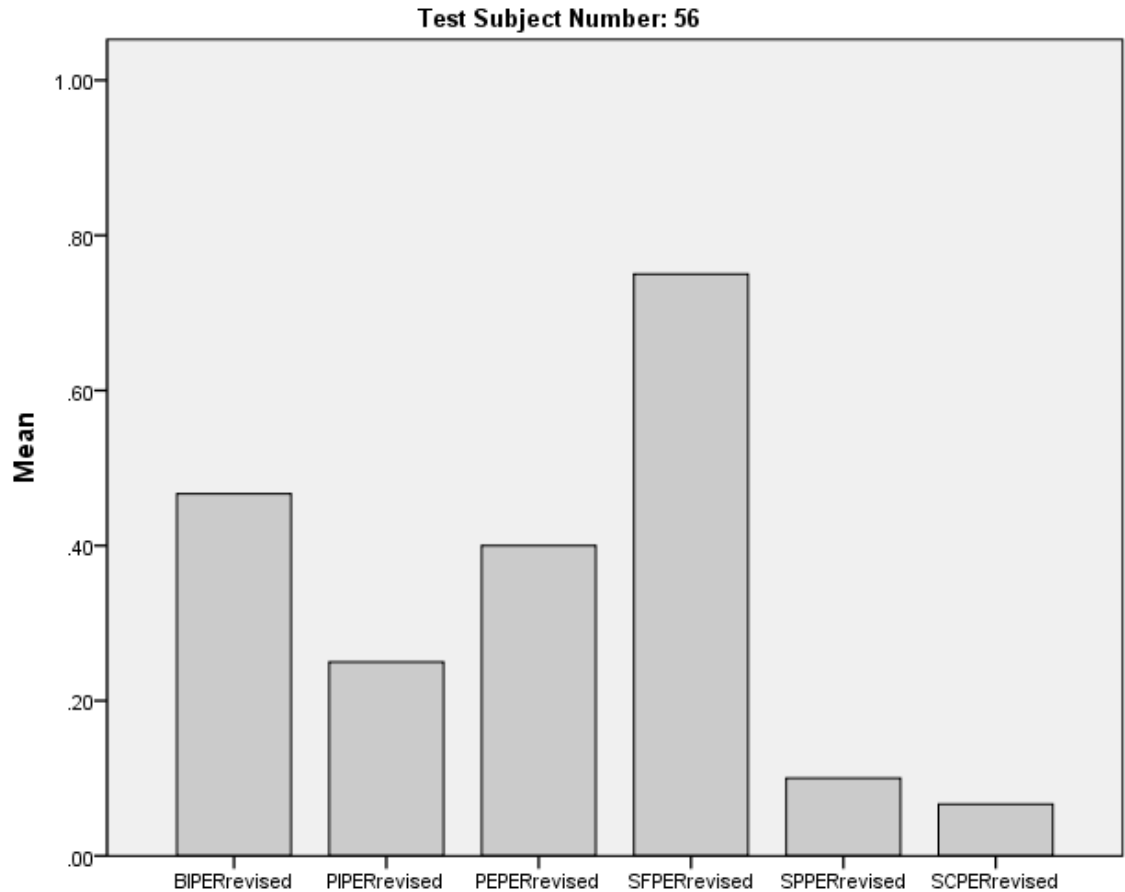
Figure 8. Example of Elevated SF

Items developed that survived for the Social Peer (SP) construct provided a challenge, in that, the items had very low or very high response rates. The difficulty was to develop items that were specific to the dimensions of the construct and produce adequate response rates. Persons who score high in the SP construct might have low self-esteem or diminished efficacy that they belong. Persons elevated in the SP construct might benefit from therapies based in human development. Some well accepted perspectives in this area can be found in Erikson's Psycho-Social Theory, Piaget's Cognitive-Developmental Theory, Vygotsky's Cognitive-Mediation Theory, and

Bandura's Social Learning Theory. See Figure 9 for an example R-BIBSI profile with an elevated SP.
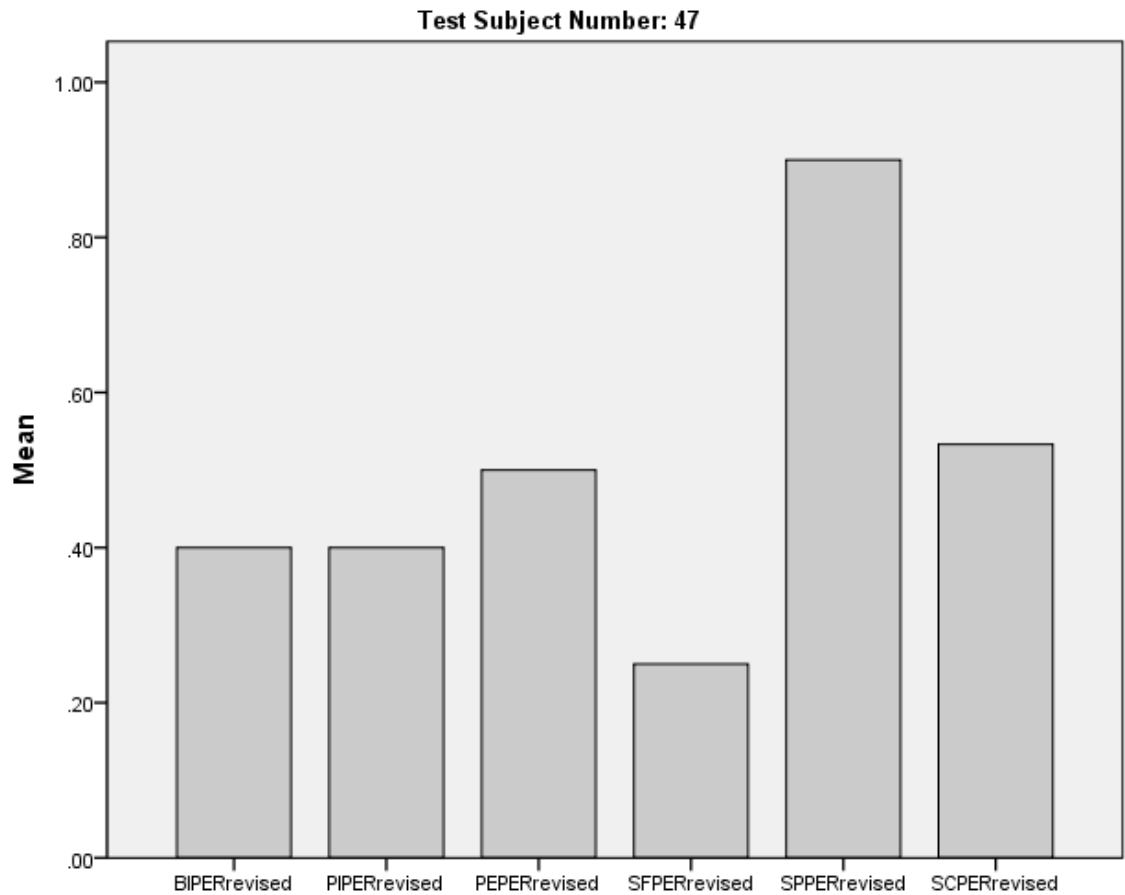
Figure 9. Example of Elevated SP

The Social Cultural (SC) construct contains items designed to assess the experience of cultural influence on drinking behavior. Societal culture tends to impose the expectation of certain behaviors in seemingly covert ways. In modern culture, expectations are experienced through media resources. Television advertisements, reality shows, and especially social media internet sites provide a bombardment of information about how one should act to be accepted. Other sources of information such as cultural mores suggested by our immediate community, or possibly religious affiliations. Self-

confidence is enhanced by the knowledge that one is accepted by society and it is

damaged when one is told through societal messages that he/she is living outside the

expected or established boundaries. Persons who score high in SC construct may feel

conflicted that they must comply to the cultural messages they are receiving. Although

diverse demographic data was limited in this study, it would seem logical that first or

second generation immigrants would be susceptible to this influence. Clients may need

encouragement to become comfortable with who they are no matter what society is

telling them about how they should act. Certainly, raising awareness for the client would

be a goal in treatment planning for this person. See Figure 10 for an example R-BIBSI

profile with an elevated SC.
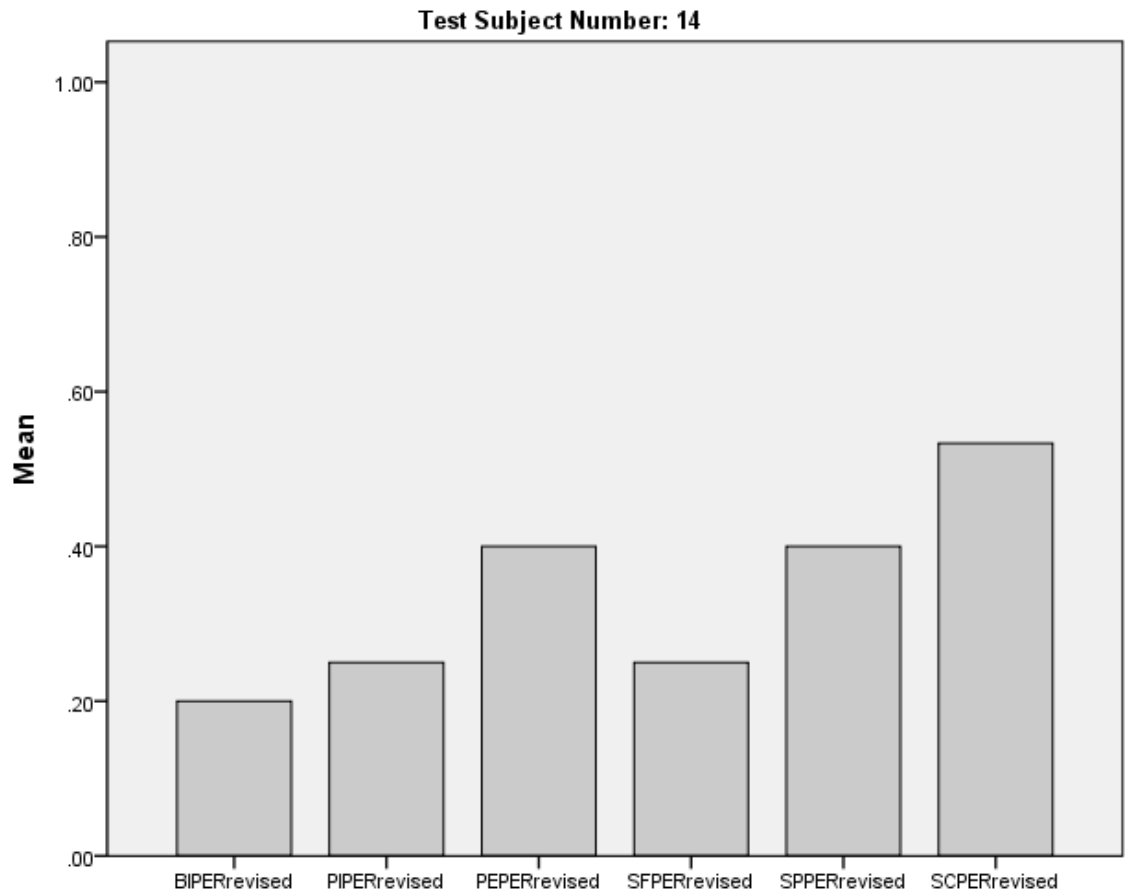
Figure 10. Example of Elevated SC

While the previous discussion is not a comprehensive user's manual for the R-BIBSI, the researcher hopes that the information produced in this study does demonstrate the wide possibility of applications for this instrument. The next step in this process is to norm and reevaluate the final version of the R-BIBSI for validity and reliability. Another possible study would be to create a parallel form of the R-BIBSI from the remaining items that were not included in this study.

Recommendations for Further Study

The R-BIBSI that was developed will need to undergo a norming process to ensure validity with clients of more diverse backgrounds. The R-BIBSI will need to be

tested for efficacy of use in clinical sessions both as an intake tool and as a counseling tool. Continuing development of the biopsychosocial approach to AOD use treatment, the R-BIBSI may be utilized to assess treatment completion rates for persons with influences from different biopsychosocial constructs.

The R-BIBSI is meant to aid in clinical treatment planning and developing a more meaningful conversation earlier in the treatment process for persons with AOD use problems. The R-BIBSI can potentially reduce treatment costs by decreasing the time demand on clinicians completing comprehensive assessment with clients. Although, the R-BIBSI is not meant to take the place of one-on-one intake evaluation, it may certainly save time and expedite AOD abuse treatment.

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APPENDIX A

REVIEW OF INSTRUMENTS WITH REPORTED RELIABILITY AND VALIDITY

Instrument Name/Developers	Reliability Measures	Validity Measures	Constructs	Training	# of items	Time to complete	Include or exclude
AC-Co-Occurring Disorder Screen (AC-COD). Cherry, Dillon, Hellman, & Barney (2007)	none reported	none reported	mental health, addiction, domestic violence, trauma	y	17	5 min.	include good face validity guide for item development
Addiction Severity Index, 5th Ed. (ASI). Thomas, Luborsky, O'Brien, & Woody (1980)	test-retest = good interrater reliability = .83 - 1.00 internal consistency = adequate	predictive criterion, concurrent criterion, construct	medical status, employment, support, drug use, alcohol use, legal status, family/social status, psychiatric status	y	200	1 hr.	include: widely used & well documented
Addiction Severity Index-Lite (ASI-Lite). Thomas, Luborsky, Woody, & O'Brien (1980)	test-retest, split half, internal consistency	predictive criterion, concurrent criterion, construct	medical status, employment, support, drug use, alcohol use, legal status, family/social status, psychiatric status	y	178	30 min.	include widely used & well documented
Adolescent Alcohol Involvement Scale (AAIS). Mayer & Filstead (1979)	test-retest was conducted but specifics were not reported	predictive criterion, concurrent construct conducted but not reported	psychological functioning, social relations, and family living	n	14	5 min.	exclude only screens for alcohol probs.

Instrument Name/Developers	Reliability Measures	Validity Measures	Constructs	Training	# of items	Time to complete	Include or exclude
Adolescent Chemical Dependency Inventory (ACDI). Behavior Data Systems, Ltd. (1988)	alpha > .75 p = <.001	concurrent criterion	truthfulness, alcohol scale, drug scale, distress, adjustment	n	104	15 - 20 min.	exclude only screens for risk
Alcohol Abstinence Self-Efficacy Scale (AASE). DeClemente, Carbonari, Montgomery, & Hughes	internal consistency 5 subscales alpha = .81 - .92	discriminate validity supported, convergent validity good	efficacy, temptation	n	40	10 min.	include great guide for item development
Alcohol and Drug Consequences Questionnaire (ADCQ). Cunningham, Sobell, Gavin, Sobell, & Bresin (1997)	alpha = .92 for costs alpha = .90 for benefits	convergent evidence	cost of continuing use benefits continuing use cost of quitting use benefits of quitting use	n	28	15 min.	exclude only looks at consequences
Alcohol Dependence Scale (ADS). Horn, Skinner, Wanberg, & Foster (1984)	test-retest = .92 internal consistency reliability alpha = .92	predictive, concurrent criterion, factor analysis, correlation coefficient ≈ .70	withdrawal, impaired control, awareness of compulsion, increased tolerance, salience of drink-seeking behavior	y	25	10 min.	include
Alcohol Expectancy Questionnaire (AEQ). Christiansen, Brown, & Golman (1982)	test-retest alpha = .70 -.90	predictive criterion concurrent criterion	expectancy of positive alcohol effects	n	120	15 min.	include: can provide a guide item development

Instrument Name/Developers	Reliability Measures	Validity Measures	Constructs	Training	# of items	Time to complete	Include or exclude
Alcohol Expectancy Questionnaire-Adolescent (AEQ-A). Christiansen, Brown, & Golman (1982)	test-retest internal consistency	predictive criterion concurrent criterion	expectancy of positive alcohol effects expectancy of negative alcohol effects	n	90	15 min.	include: can provide a guide item development
Alcohol Timeline Followback (TLFB). Sobell (1979)	test-retest	concurrent criterion by verifiable events & collateral informants construct by parallel measures	variability of drinking, patterns & extents of drinking	y	90	35 min.	include will inform qual. strategy
Beck Depression Inventory (BDI). Beck, Ward, Mendelson, Mock, & Erbaugh (1961)	BDI-II test-retest = .93 at 1 wk alpha = .92 outpatient alpha = .93 nonclinical	concurrent r = .71 w/scale for depression r = .47 w/scale for anxiety	degree of depression in adolescents and adults	n	21	10 min.	include, highly valid and reliable
Clinician-Administered PTSD Scale for Children and Adolescents for DSM-IV (CAPS-CA). Newman & Ribbe (1996)	none reported	none reported	guilt, shame, dissociation, changes in attachment behavior, trauma-specific fear	y	33	20 min.	include to inform item dev.
College Alcohol Problems Scale-Revised (CAPS-r). O'Hare (1997)	internal consistency measures	predictive criterion concurrent criterion construct	personal consequences social consequences	n	53	40 min.	include to inform item dev.
College Drinking Influences Survey (CDIS). Fisher, Fried, & Anushko (2007)	test-retest r = .38 - .78 inter-item reliability alpha = .71 -.94	concurrent validity = supported predictive validity = supported	college drinking expectations, psychosocial drinking inventory, drinking values	n	53	30 min.	include to inform item dev.

Instrument Name/Developers	Reliability Measures	Validity Measures	Constructs	Training	# of items	Time to com-plete	Include or exclude
Controlled Drinking Self-Efficacy Scale - Moderate Drinking Version (CDSES). Sitharthan & Karanagh (1990)	test-retest and internal consistency reported as high	none reported	control in drinking situations	n	20	10 min.	include to inform item dev.
Depression Anxiety Stress Scales (DASS). Lovibond & Lovibond (1995)	test-retest = good internal consistency 5 scales alpha = .88 - .96	convergent & dis-criminant validity = adequate	depression, anxiety, stress	y	42		include to inform item dev.
Drinking Expectancy Questionnaire (DEQ). Young & Ross (1996)	test-retest internal consistency measures not available at this time	predictive & concurrent criterion not available at this time	assertion, affective change, sexual enhancement, cognitive change, tension reduction	n	43	20 min.	include: informs item dev.
Drug Taking Confidence Questionnaire (DTCQ). Annis & Martin (1985)	internal consistency alpha = .79 - .95	predictive & concurrent criterion = adequate convergent & dis-criminate construct = adequate	coping self-efficacy in high-risk sits.: unpleasant emotions, physical discomfort, pleasant emotions, testing personal control, urges & temptations, conflict w/ others, social pressure, pleasant times w/ others	n	50	10 min.	include: informs item dev.

Instrument Name/Developers	Reliability Measures	Validity Measures	Constructs	Training	# of items	Time to complete	Include or exclude
Family Environment Scale (FES). Moos & Moos (1986)	test-retest = .54 - .86 internal consistency alpha = .61 - .78	construct and discriminant validity = acceptable	cohesion, expressiveness, conflict, independence, achievement orientation, intellectual-cultural orientation, active-recreational orientation, moral-religious emphasis, organization, control, change	n	90	20 min.	include
Global Appraisal of Individual Needs (GAIN). Dennis (1999)	internal consistency kappa ≥ .60 psychiatric disorder sensitivity kappa = .69 - 1.00	predictive criterion concurrent criterion construct	substance abuse/dependence, treatment motivation, relapse potential, physical health, risk/protective involvement, mental health, environment and vocational situation	y	1606	2 hrs.	include
Inventory of Drinking Situations (IDS). Annis (1982)	test-retest internal consistency alpha = .87 - .96	predictive, concurrent criterion construct = .92 - .99 interrater reliability	unpleasant emotions, physical discomfort, pleasant emotions, testing personal control, urges & temptations to use, conflict with others, social pressure, pleasant times with others	n	100		include

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Instrument Name/Developers	Reliability Measures	Validity Measures	Constructs	Training	# of items	Time to complete	Include or exclude
K6 Brief Screening Scale (K6). Kessler, Andrews, Colpe, Hiripi, Mroczek, & Normand (2002)	none reported	confidence interval = .88 - .90	psychological distress, functional impairment - screens for psychiatric disorder rather than identification of a particular disorder	n	6		include: K6 is a broad mental health screen instrument
Life Experiences Survey (LES). Sarason, Johnson, & Siegel (1978)	none reported	none reported	positive impact of past life events negative impact of past life events	n	47 qt. 3 ql.	10 min.	include
MacAndrew Alcoholism Scale (MAC). MacAndrew (1989)	test-retest internal consistency measures	predictive criterion concurrent criterion construct	this scale is embedded in the MMPI and uses covert content items to tap personality traits frequently associated with substance use	n	49	10 min.	include: can inform item development
Maudsley Addiction Profile (MAP). Marsden, Gossop, Stewart, Best, Farrell, & Strang (1998)	test-retest: satisfactory	concurrent validity: acceptable	substance use, health risk, physical health, psychological health, personal functioning, social functioning	y	60	12 min.	exclude
Michigan Alcoholism Screening Test (MAST). Selzer (1971)	test-retest $\approx$ .84 internal consistency $\approx$ .84 SEM = 3.42	predictive, concurrent criterion construct	lifetime alcohol-related problems and alcoholism	n	25	13 min.	exclude: only looks at diagnosis

Instrument Name/Developers	Reliability Measures	Validity Measures	Constructs	Training	# of items	Time to com-plete	Include or exclude
Obsessive Compulsive Drinking Scale (OCDS). Anton, Moak, & Latham (1995)	test-retest = acceptable internal consistency = acceptable	convergent validity with ASI	obsessive and compulsive cognitive aspects of craving, drink related thought, urges to drink, ability to resist thoughts and urges	n	14	6 min.	include
Personal Experience Inventory (PEI). Winters & Henly (1988)	internal consistency measures = good to excellent	content validity = adequate convergent concurrent validity & factor analysis also ok	personal risk factors that my precipitate or sustain substance abuse	y	56	60 min.	include
PTSD-Alcohol Expectancy Questionnaire (P-AEQ). Norman, Inaba, Smith, & Brown (2008)	internal consistency measures = good	concurrent validity: acceptable	positive alcohol effect expectancies negative alcohol effect expectancies	n	27		include: informs item dev.
Substance Abuse Subtle Screening Inventory (SASSI). Miller (1988)	test-retest phi = .68 at a 2-week interval □a different report said: phi = .92 - 1.00 at a 2-week interval phi = .36 at a 4-week interval	validity measures were conflicted and not clearly reported for this instrument	substance abuse, substance dependence, defensive responding, level of insight, awareness of the effects of the substance misuse, emotional pain, risk of involvement with the legal system	n	93	15 min.	exclude: only looks at diag-nosis and is difficult to inter-pret

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APPENDIX B

ITEMS BY CONSTRUCT WITH SOURCES PRIOR TO ASSESSMENT VIA IIOC-MO

BI	1	I have been diagnosed with depression	M. Rein (2010)
BI	2	My father has abused alcohol	Thatcher & Clark (2008)
BI	3	I have at least one family member who has taken anti-depressants	Thatcher & Clark (2008)
BI	4	I have been treated for anxiety	M. Rein (2010)
BI	5	My mother abuses alcohol	Thatcher & Clark (2008)
BI	6	Some members of my extended family have trouble with alcohol	Thatcher & Clark (2008)
BI	7	I tend to under react when things demand my attention	Schuckit (1994)
BI	8	My mother seemed to be depressed a lot	Masten, et al., (2009)
BI	9	My father was in trouble with the law a lot	Rose & Dick (2005)
BI	10	I have been treated for depression	M. Rein (2010)
BI	11	I have found that I can drink a lot without feeling drunk	Schuckit (1994)
PI	12	I don't have anyone I can trust to talk about what is bothering me	DSM-IV-TR (2000)
PI	13	I get into trouble because I don't think about what I'm doing	M. Rein (2010)
PI	14	Drinking alcohol helps me when I'm depressed	DeClemente, et al. (1994)
PI	15	I drink because I like the way it makes me feel	Alcoholics Anonymous (2001)
PI	16	Drinking alcohol lowers my inhibitions	M. Rein (2010)
PI	17	I tend to overreact emotionally	M. Rein (2010)
PI	18	I don't have any close friends	DSM-IV-TR (2000)
PI	19	I look forward to getting off work/school so I can relax with a drink	M. Rein (2010)
PI	20	Drinking alcohol helps me sleep	M. Rein (2010)
PI	21	I tend to hold grudges	Alcoholics Anonymous (2001)
PI	22	I drink alcohol to avoid thinking about the past	Christainsen, et al. (1982)
PI	23	Sometimes I feel lonely when I'm with a group of people	Alcoholics Anonymous (2001)
PI	24	I get excited when I think about having a drink	M. Rein (2010)
PI	25	I look forward to weekends so I can relax with a drink	M. Rein (2010)
PI	26	I feel like a better person when I drink	Christainsen, et al. (1982)
PI	27	It is hard for me to believe that I am capable of being successful	M. Rein (2010)
PI	28	When I am depressed, it lasts a long time	DSM-IV-TR (2000)
PI	29	I tend to worry a lot	M. Rein (2010)
PI	30	Thinking about drinking occupies a lot my time	DSM-IV-TR (2000)
PI	31	I plan in advance when I will drink	Cherry, et al. (2007)
PI	32	I drink because I believe people won't like the real me	M. Rein (2010)
PI	33	I drink when I want to forget something bad in my past	DSM-IV-TR (2000)
PI	34	Drinking alcohol helps me to be in a better mood	Christainsen, et al. (1982)
PI	35	Drinking alcohol will help to calm me down	M. Rein (2010)
PI	36	I will be able to think better after a few drinks	Christainsen, et al. (1982)
PI	37	I feel attractive when I drink alcohol	Corbin, et al. (2008)
PI	38	Drinking alcohol helps me to worry less	Corbin, et al. (2008)
PI	39	Sometimes I have felt like I have nothing to look forward to	Lovibond & Lovibond (1995)
PI	40	Sometimes I feel self-conscious that I will look stupid	Lovibond & Lovibond (1995)
PI	41	I have a hard time getting an idea out of my head once it's there	DSM-IV-TR (2000)
PI	42	Alcohol has helped me cope with a tragedy in my life	Sarason, et al. (1978)
PE	43	Drinking alcohol has helped me in the past when I get angry	M. Rein (2010)
PE	44	Sometimes I have lied to get what I want	DSM-IV-TR (2000)
PE	45	Sometimes I enjoy getting into arguments	DSM-IV-TR (2000)
PE	46	I am easily annoyed by others concerns of my drinking	Ewing (1970)
PE	47	I enjoy an alcoholic drink now and then	Selzer (1971)
PE	48	Sometimes I have a difficult time completing tasks	DSM-IV-TR (2000)
PE	49	I avoid things that I think will take too much concentration or effort	DSM-IV-TR (2000)

PE	50	I have typically been a person who likes to keep moving	DSM-IV-TR (2000)
PE	51	I am able to be more creative when I drink alcohol	Christainsen, et al. (1982)
PE	52	I feel more talkative when I drink	M. Rein (2010)
PE	53	When I drink alcohol I am able to do things that I am normally afraid of	M. Rein (2010)
PE	54	When I drink alcohol I take unusual risks	DSM-IV-TR (2000)
PE	55	Sometimes I break rules without worrying about the consequences	DSM-IV-TR (2000)
PE	56	When I drink alcohol I disregard my responsibilities	DSM-IV-TR (2000)
PE	57	I have a short attention span	DSM-IV-TR (2000)
PE	58	Sometimes I drink alcohol because it will help me sleep	M. Rein (2010)
PE	59	Drinking alcohol will give me more energy	M. Rein (2010)
PE	60	I plan for extra time so I can recover from a hangover	M. Rein (2010)
PE	61	Sometimes I find it hard to pay attention to details	DSM-IV-TR (2000)
PE	62	It sometimes takes more alcohol than usual to feel like I want to	DSM-IV-TR (2000)
PE	63	I think that I am more friendly when I drink	M. Rein (2010)
PE	64	Drinking alcohol will help me relax after a hard day at work	M. Rein (2010)
PE	65	I am overly anxious much of the time	M. Rein (2010)
PE	66	I am more likely to go to a social event that is going to serve alcohol	M. Rein (2010)
PE	67	I believe that a drink is a good way relieve a hangover	Ewing (1970)
PE	68	I am easily irritated when I don't drink	M. Rein (2010)
PE	69	I find that I can handle more alcohol than my friends	M. Rein (2010)
PE	70	Sometimes I do things I am ashamed after drinking alcohol	DSM-IV-TR (2000)
PE	71	I feel nervous when alcohol is running low at home	M. Rein (2010)
PE	72	I have done things without concern for my own or others safety	DSM-IV-TR (2000)
PE	73	I am a person who usually can't sit still	DSM-IV-TR (2000)
PE	74	Breaking the rules does not bother me that much	DSM-IV-TR (2000)
PE	75	I have learned that alcohol makes me feel less anxious	M. Rein (2010)
PE	76	I have a history of impulsiveness	DSM-IV-TR (2000)
PE	77	I have been in legal trouble more than once	M. Rein (2010)
PE	78	Sometimes I will drink because my friends want me to	Christainsen, et al. (1982)
PE	79	I am a better lover when I drink alcohol	Christainsen, et al. (1982)
PE	80	Sometimes I will drink alcohol alcohol to test my will power	DeClemente, et al. (1994)
PE	81	I make others laugh when I drink alcohol	M. Rein (2010)
PE	82	I will be more open emotionally if I drink alcohol	M. Rein (2010)
PE	83	I won't get as upset at things if I drink alcohol	M. Rein (2010)
PE	84	I have a lot of nervous energy	Lovibond & Lovibond (1995)
PE	85	It's difficult for me to control my drinking	M. Rein (2010)
SF	86	Alcohol was served at many family gatherings when I was growing up	M. Rein (2010)
SF	87	My family is not close	M. Rein (2010)
SF	88	I was given alcohol as medicine when I was young	M. Rein (2010)
SF	89	I try to over achieve to gain recognition from family members	M. Rein (2010)
SF	90	I used to drink alcohol to spite my parents	M. Rein (2010)
SF	91	I felt like I was always in trouble as a child	M. Rein (2010)
SF	92	Children were ignored in my family	M. Rein (2010)
SF	93	I felt that one or more of my siblings did not like me	M. Rein (2010)
SF	94	My family is emotionally disconnected	M. Rein (2010)
SF	95	I took on extra responsibilities to make up for faults in my family	M. Rein (2010)
SF	96	My family has difficulty resolving arguments	Sarason, et al. (1978)
SF	97	I have learned that alcohol makes me feel less anxious (repeat of #75)	M. Rein (2010)
SF	98	My parents didn't like me	M. Rein (2010)
SF	99	My family doesn't seem to be able to communicate well	M. Rein (2010)
SF	100	I cannot communicate easily with my parents	Steinglass, et al. (1987)
SF	101	I felt the need to parent my younger siblings when I was growing up	M. Rein (2010)
SF	102	I used to drink alcohol in order to cope with my family	M. Rein (2010)
SF	103	I did not feel nurtured as a child	Steinglass, et al. (1987)
SF	104	My thoughts and opinions were not valued in my family	M. Rein (2010)
SF	105	I felt like my parents were over protective of me	M. Rein (2010)
SF	106	Drinking alcohol is looked at as a rite of passage in my family	Steinglass, et al. (1987)
SF	107	Drinking alcohol will help keep my mind off my problems at home	Christainsen, et al. (1982)
SF	108	Celebrations at my house usually included alcohol	DeClemente, et al. (1994)
SF	109	My family moved a lot	Sarason, et al. (1978)
SF	110	My parents argued a lot	Sarason, et al. (1978)
SF	111	My family had financial trouble	Sarason, et al. (1978)

SF	112	There was an illness in my family that was difficult to cope with	Sarason, et al. (1978)
SF	113	Alcohol helped me cope with a death in the family	Sarason, et al. (1978)
SP	114	My friends think I am more fun to be around when I drink	Christainsen, et al. (1982)
SP	115	Drinking is accepted as normal where I go to school	M. Rein (2010)
SP	116	Drinking is encouraged where I work	M. Rein (2010)
SP	117	When I drink alcohol I feel accepted by my friends	Christainsen, et al. (1982)
SP	118	I started drinking because it looked like fun	Christainsen, et al. (1982)
SP	119	It's easy to say yes when my friends ask me to have a drink with them	DeClemente, et al. (1994)
SP	120	I try to over achieve in order to gain recognition from friends	M. Rein (2010)
SP	121	Drinking is accepted where I work	M. Rein (2010)
SP	122	My friends encourage me to drink	Christainsen, et al. (1982)
SP	123	My friends think I am more friendly when I drink	Christainsen, et al. (1982)
SP	124	I find it difficult to socialize without drinking	M. Rein (2010)
SP	125	Drinking alcohol will help me to fit in with the group	Christainsen, et al. (1982)
SP	126	Drinking alcohol makes people happier	Christainsen, et al. (1982)
SP	127	I will want to drink if I'm around my friends	Deas, et al. (2001)
SP	128	I find it difficult to avoid drinking situations	Deas, et al. (2001)
SP	129	I have had trouble with employment because of my drinking	Sarason, et al. (1978)
SP	130	Sometimes I choose my friends depending on if they drink alcohol	M. Rein (2010)
SC	131	Television shows persuade me to believe that drinking alcohol is ok	M. Rein (2010)
SC	132	I have had a hard time moving from one city to another	Sarason, et al. (1978)
SC	133	Alcohol is a normal part of the culture I grew up in	Steinglass, et al. (1987)
SC	134	The culture in my home town encouraged people to drink alcohol	M. Rein (2010)
SC	135	I am easily influenced by movies and television	M. Rein (2010)
SC	136	Alcohol was readily available in the place where I grew up	Bandura (1977)
SC	137	People I admire drink alcohol	Bandura (1977)
SC	138	I think it is normal for athletes to drink alcohol or use drugs	Bandura (1977)
SC	139	My home town was a party town	M. Rein (2010)
SC	140	I have been caught breaking the law and then "let off the hook"	M. Rein (2010)
SC	141	Commercials that sell alcohol have influenced my drinking	Bandura (1977)
SC	142	I believe many famous people drink alcohol	Bandura (1977)
SC	143	It's hard to find social functions that don't encourage alcohol use	M. Rein (2010)
SC	144	I have broken the law and gotten away with it	M. Rein (2010)
SC	145	It looks like fun to me when I see people drinking on television	Bandura (1977)
SC	146	I believe many successful people drink alcohol	Bandura (1977)

APPENDIX C

LETTER OF INVITATION FOR CONTENT EXPERTS

The purpose of this document is to request your participation in a process of index of item-objective congruence for multiple objective items (IIOC-MO). The IIOC-MO process, in this case, is an item-fitting exercise designed to obtain feedback from experts in the field of alcohol and other drug (AOD) treatment in the development of the Rein-Brief Integrative Biopsychosocial Screening Instrument (R-BIBSI) for persons having difficulty with AOD use. You have been chosen to provide assistance in this exercise because of your proven experience and success in addiction treatment and/or instrument development. The R-BIBSI is intended to aid professionals in treatment planning and implementation by screening persons across a realm of influence related to their individual biopsychosocial risk of AOD abuse and/or dependence as identified by six specific constructs. A *construct,* in this case, is defined as a specific domain that the instrument is designed to measure. The R-BIBSI will attempt to measure six distinct domains or constructs across the biopsychosocial realm as a source of influence in a person's life regarding their AOD use. The six constructs identified for the R-BIBSI are:

- •Biological Influence (BI)
- •Psychological Internally Expressed Influence (PI)
- •Psychological Externally Expressed Influence (PE)
- •Social Family Environment Influence (SF)
- •Social Peer/Work Environment Influence (SP)

•Social Cultural Environment Influence (SC)

As you can see from Figure 2, the sphere of influence widens as the constructs move across the biopsychosocial spectrum. The R-BIBSI is not intended to diagnose AOD abuse/dependence, rather it is intended to assess a persons perceptions of their past experiences in order to ascertain a logical and meaningful starting point for clinicians at

Conceptualized Model of Biopsychosocial Influence

| Biological Influence | Psychological Internally Expressed Influence | Psychological Externally Expressed Influence | Social Family Environment Influence | Social Peer Environment Influence | Social Cultural Environment Influence |
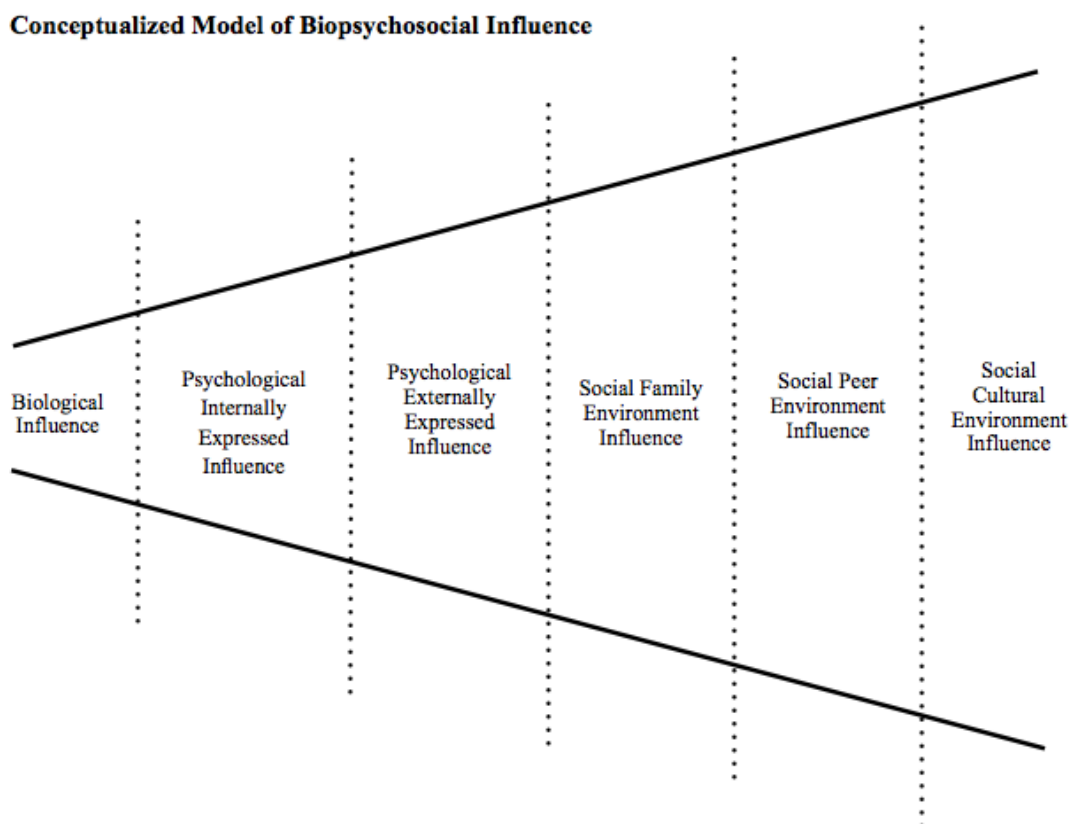
Figure designed by Marty J. Rein

Figure 2

the onset of treatment. The R-BIBSI is based in Personal Construct Theory (Kelly, 1955), which implies that persons act as a result of the way they construe their circumstances through trial and error. Personal "constructions" might also be defined as their "beliefs" or "perceptions" of what will ensue as a result of alcohol use. For example, if a person is anxious and has a drink, they might experience a decrease in their anxiety. This

experience might influence them to construe that, "If I drink, I won't feel as anxious."

This personal construction then plays out in that person's life as he/she makes more

decisions around alcohol use. Figure 3 provides a visual of how different influence might

affect a person's beliefs on their alcohol

Conceptualized Model of Biopsychosocial Influence on the Individual
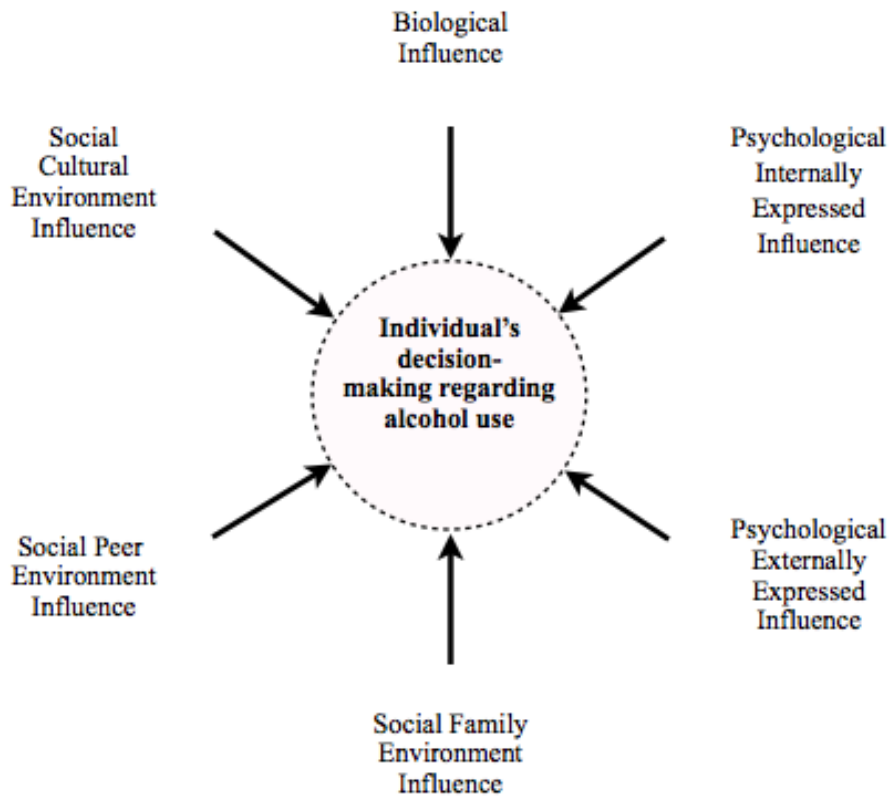
Figure 3

Figure designed by Marty J. Rein (2010)

use.

The fluid nature of the biopsychosocial model dictates that items contained in the

R-BIBSI may likely identify *more than one* construct across the biopsychosocial

spectrum and is the reason that items must be rated for each construct. The IIOC-MO

process will aid the instrument developer in identifying the degree to which each item might point to each construct. For example, the item "I have been diagnosed with depression," might be aimed at identifying a biological influence because of a biochemical imbalance, however, a positive response to this item could also suggest a psychological internally expressed influence due to the indication the person has experienced depression. The instrument items have been composed with a particular construct in mind, but that construct will not be identified in the rating document to remove the possibility of introducing bias in the IIOC-MO process. Table 1 contains a brief description of each proposed construct.

To complete the IIOC-MO process, you will be asked rate each item as to how well it identifies each construct of the R-BIBSI by indicating "1" if the item directly identifies the construct, "0" if you are not sure if the item identifies the construct, or "-1" if the item does not identify the construct. After each item of the IIOC-MO exercise a space is provided so that you will have the opportunity to provide feedback as to the wording of that item and if you believe that item should be removed from the instrument. This space also may be used to suggest an item that you believe should be added to the instrument. It is not required that this space is used for each item. Only use it for those items you wish to comment on. On page nine you will find the IIOC-MO worksheet that you will need to be returned to the researcher.

Please try to rate each item as it identifies the constructs that you believe is fits best to by indicating "1" or "-1" as much as possible.

IIOC-MO ITEM RATING DOCUMENT

Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. **CONSTRUCTS:**	BIOLOGICAL	PSY INTERNAL	PSY EXTERNAL	SOC FAMILY	SOC PEER	SOC CULTURAL
1 Drinking alcohol helps me sleep						
2 Drinking alcohol will help to calm me down						
3 I have typically been a person who likes to keep moving						
4 I am overly anxious much of the time						
5 I have learned that alcohol makes me feel less anxious						
6 I have learned that alcohol makes me feel less anxious						
7 My family had financial trouble						

Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. CONSTRUCTS:	BIOLOGICAL	PSY INTERNAL	PSY EXTERNAL	SOC FAMILY	SOC PEER	SOC CULTURAL
8 It's easy to say yes when my friends ask me to have a drink with them						
9 Alcohol is a normal part of the culture I grew up in						
10 I believe many successful people drink alcohol						
11 I find it difficult to avoid drinking situations						
12 My thoughts and opinions were not valued in my family						
13 I won't get as upset at things if I drink alcohol						
14 I have done things without concern for my own or others safety						
15 I am able to be more creative when I drink alcohol						
16 Drinking alcohol helps me to be in a better mood						

Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. CONSTRUCTS:	B I O L O G I C A L	P S Y I N T E R N A L	P S Y E X T E R N A L	S O C F A M I L Y	S O C P E E R	S O C C U L T U R A L
17 I tend to hold grudges						
18 I don't have anyone I can trust to talk about what is bothering me						
19 I have been diagnosed with depression						
20 Drinking alcohol lowers my inhibitions						
21 I get excited when I think about having a drink						
22 I enjoy an alcoholic drink now and then						
23 I believe that a drink is a good way relieve a hangover						
24 My family is not close						
25 Celebrations at my house usually included alcohol						

	Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. CONSTRUCTS:	B I O L O G I C A L	P S Y I N T E R N A L	P S Y E X T E R N A L	S O C F A M I L Y	S O C P E E R	S O C C U L T U R A L
26	My friends encourage me to drink						
27	Alcohol was readily available in the place where I grew up						
28	I have at least one family member who has taken anti-depressants						
29	I get into trouble because I don't think about what I'm doing						
30	I plan in advance when I will drink						
31	Sometimes I enjoy getting into arguments						
32	It sometimes takes more alcohol than usual to feel like I want to						
33	I am a better lover when I drink alcohol						
34	Children were ignored in my family						
35	I cannot communicate easily with my parents						

	Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. CONSTRUCTS:	BIOLOGICAL	PSY INTERNAL	PSY EXTERNAL	SOC FAMILY	SOC PEER	SOC CULTURAL
36	There was an illness in my family that was difficult to cope with						
37	Drinking is accepted where I work						
38	The culture in my home town encouraged people to drink alcohol						
39	Sometimes I choose my friends depending on if they drink alcohol						
40	Alcohol helped me cope with a death in the family						
41	My family is emotionally disconnected						
42	I will be more open emotionally if I drink alcohol						
43	Drinking alcohol will help me relax after a hard day at work						
44	Drinking alcohol has helped me in the past when I get angry						

	Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. CONSTRUCTS:	B I O L O G I C A L	P S Y I N T E R N A L	P S Y E X T E R N A L	S O C F A M I L Y	S O C P E E R	S O C C U L T U R A L
45	I drink because I believe people won't like the real me						
46	Sometimes I feel lonely when I'm with a group of people						
47	My mother abuses alcohol						
48	I think it is normal for athletes to drink alcohol or use drugs						
49	My friends think I am more friendly when I drink						
50	My friends think I am more fun to be around when I drink						
51	I used to drink alcohol in order to cope with my family						
52	I try to over achieve to gain recognition from family members						
53	Sometimes I will drink because my friends want me to						

	Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. **CONSTRUCTS:**	B I O L O G I C A L	P S Y I N T E R N A L	P S Y E X T E R N A L	S O C F A M I L Y	S O C P E E R	S O C C U L T U R A L
54	I think that I am more friendly when I drink						
55	When I drink alcohol I am able to do things that I am normally afraid of						
56	Sometimes I feel self-conscious that I will look stupid						
57	When I am depressed, it lasts a long time						
58	I don't have any close friends						
59	My mother seemed to be depressed a lot						
60	My father has abused alcohol						
61	It is hard for me to believe that I am capable of being successful						
62	Sometimes I have lied to get what I want						

Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. CONSTRUCTS:	BIOLOGICAL	PSY INTERNAL	PSY EXTERNAL	SOC FAMILY	SOC PEER	SOC CULTURAL
63 I avoid things that I think will take too much concentration or effort						
64 I drink when I want to forget something bad in my past						
65 Sometimes I drink alcohol because it will help me sleep						
66 I have a history of impulsiveness						
67 I used to drink alcohol to spite my parents						
68 Drinking alcohol is looked at as a rite of passage in my family						
69 Drinking is encouraged where I work						
70 I tend to under react when things demand my attention						
71 I drink because I like the way it makes me feel						

Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. **CONSTRUCTS:**	B I O L O G I C A L	P S Y I N T E R N A L	P S Y E X T E R N A L	S O C F A M I L Y	S O C P E E R	S O C C U L T U R A L
72 I feel like a better person when I drink						
73 It looks like fun to me when I see people drinking on television						
74 When I drink alcohol I feel accepted by my friends						
75 My family has difficulty resolving arguments						
76 When I drink alcohol I take unusual risks						
77 Thinking about drinking occupies a lot my time						
78 I feel more talkative when I drink						
79 I have been treated for depression						
80 Sometimes I have a difficult time completing tasks						

	Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. CONSTRUCTS:	BIOLOGICAL	PSY INTERNAL	PSY EXTERNAL	SOC FAMILY	SOC PEER	SOC CULTURAL
81	It's difficult for me to control my drinking						
82	I was given alcohol as medicine when I was young						
83	I felt like my parents were over protective of me						
84	Drinking is accepted as normal where I go to school						
85	People I admire drink alcohol						
86	I started drinking because it looked like fun						
87	Drinking alcohol will help keep my mind off my problems at home						
88	I felt that one or more of my siblings did not like me						
89	Sometimes I will drink alcohol alcohol to test my will power						

Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. CONSTRUCTS:	BIOLOGICAL	PSY INTERNAL	PSY EXTERNAL	SOC FAMILY	SOC PEER	SOC CULTURAL
90 I feel nervous when alcohol is running low at home						
91 I will be able to think better after a few drinks						
92 Drinking alcohol helps me when I'm depressed						
93 I have been treated for anxiety						
94 I look forward to getting off work/school so I can relax with a drink						
95 I look forward to weekends so I can relax with a drink						
96 Sometimes I do things I am ashamed after drinking alcohol						
97 I have a lot of nervous energy						

	Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. CONSTRUCTS:	BIOLOGICAL	PSY INTERNAL	PSY EXTERNAL	SOC FAMILY	SOC PEER	SOC CULTURAL
98	Alcohol was served at many family gatherings when I was growing up						
99	I tend to overreact emotionally						
100	I tend to worry a lot						
101	Sometimes I break rules without worrying about the consequences						
102	Sometimes I find it hard to pay attention to details						
103	I make others laugh when I drink alcohol						
104	I have broken the law and gotten away with it						
105	I have had trouble with employment because of my drinking						

Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. CONSTRUCTS:	BIOLOGICAL	PSY INTERNAL	PSY EXTERNAL	SOC FAMILY	SOC PEER	SOC CULTURAL
106 I try to over achieve in order to gain recognition from friends						
107 I have a short attention span						
108 My father was in trouble with the law a lot						
109 I drink alcohol to avoid thinking about the past						
110 I believe many famous people drink alcohol						
111 I find it difficult to socialize without drinking						
112 My parents didn't like me						

Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. CONSTRUCTS:	BIOLOGICAL	PSY INTERNAL	PSY EXTERNAL	SOC FAMILY	SOC PEER	SOC CULTURAL
113 I plan for extra time so I can recover from a hangover						
114 Alcohol has helped me cope with a tragedy in my life						
115 I am more likely to go to a social event that is going to serve alcohol						
116 I took on extra responsibilities to make up for faults in my family						
117 Drinking alcohol makes people happier						
118 Television shows persuade me to believe that drinking alcohol is ok						
119 My home town was a party town						

Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. **CONSTRUCTS:**	BIOLOGICAL	PSY INTERNAL	PSY EXTERNAL	SOC FAMILY	SOC PEER	SOC CULTURAL
120 I felt like I was always in trouble as a child						
121 I feel attractive when I drink alcohol						
122 I am easily annoyed by others concerns of my drinking						
123 Breaking the rules does not bother me that much						
124 My parents argued a lot						
125 I have found that I can drink a lot without feeling drunk						
126 When I drink alcohol I disregard my responsibilities						

	Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. CONSTRUCTS:	BIOLOGICAL	PSY INTERNAL	PSY EXTERNAL	SOC FAMILY	SOC PEER	SOC CULTURAL
127	I have been in legal trouble more than once						
128	I did not feel nurtured as a child						
129	Drinking alcohol will help me to fit in with the group						
130	It's hard to find social functions that don't encourage alcohol use						
131	I will want to drink if I'm around my friends						
132	Some members of my extended family have trouble with alcohol						
133	I find that I can handle more alcohol than my friends						
134	I have had a hard time moving from one city to another						

	Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. CONSTRUCTS:	B I O L O G I C A L	P S Y I N T E R N A L	P S Y E X T E R N A L	S O C F A M I L Y	S O C P E E R	S O C C U L T U R A L
135	Drinking alcohol will give me more energy						
136	I have been caught breaking the law and then "let off the hook"						
137	My family moved a lot						
138	I am a person who usually can't sit still						
139	Drinking alcohol helps me to worry less						
140	I am easily irritated when I don't drink						
141	Commercials that sell alcohol have influenced my drinking						

	Brief Integrative Biopsychosocial Screening Instrument Index of Item-objective Congruence Worksheet Please rate each item for each construct as follows: -1, 0, or 1 -1 = this item does not identify this construct 0 = this item is ambiguous in identifying this construct 1 = this item definitely identifies this construct Use the space below each item for comments/suggestions. CONSTRUCTS:	BIOLOGICAL	PSY INTERNAL	PSY EXTERNAL	SOC FAMILY	SOC PEER	SOC CULTURAL
142	My family doesn't seem to be able to communicate well						
143	Sometimes I have felt like I have nothing to look forward to						
144	I felt the need to parent my younger siblings when I was growing up						
145	I am easily influenced by movies and television						
146	I have a hard time getting an idea out of my head once it's there						

IIOC-MO MACRO AND RATER RESULTS EXAMPLE

/*   USER INPUT REQUIRED   */

/***
IDENTIFY WHICH CONSTRUCTS ARE VALID FOR EACH ITEM. V1
REPRESENTS CONSTRUCTS FOR ITEM 1, V2 FOR ITEM 2, ETC... 1 = VALID
CONSTRUCT AND 0 = INVALID CONSTRUCT.
***/

```
V1 = {1 1 0 0 0 0};
V2 = {1 1 1 0 0 0};
V3 = {0 1 1 0 0 0};
V4 = {1 1 0 0 0 0};
V5 = {1 1 0 0 0 0};
V6 = {0 0 0 0 0 0};
V7 = {0 0 0 1 0 0};
V8 = {0 0 0 0 1 0};
V9 = {0 0 0 0 1 1};
V10 = {0 0 0 0 1 1};
V11 = {0 0 0 0 1 1};
V12 = {0 1 0 1 0 0};
V13 = {0 1 1 0 0 0};
V14 = {0 0 1 0 0 0};
V15 = {0 1 1 0 0 0};
V16 = {1 1 0 0 0 0};
V17 = {0 1 1 0 0 0};
V18 = {0 1 0 1 1 0};
V19 = {1 1 0 0 0 0};
V20 = {0 1 0 0 1 0};
V21 = {0 1 1 0 0 0};
V22 = {0 0 1 0 1 1};
V23 = {0 1 1 0 0 0};
V24 = {0 1 0 1 0 0};
V25 = {0 0 0 1 0 0};
V26 = {0 0 0 0 1 0};
V27 = {0 0 0 1 0 1};
V28 = {1 1 0 1 0 0};
V29 = {0 1 1 0 0 0};
```

V30 = {0 1 0 0 0 0};
V31 = {0 0 1 0 0 0};
V32 = {1 0 1 0 0 0};
V33 = {0 1 1 0 0 0};
V34 = {0 1 0 1 0 0};
V35 = {0 1 0 1 0 0};
V36 = {0 1 0 1 0 0};
V37 = {0 0 0 0 1 1};
V38 = {0 0 0 0 1 1};
V39 = {0 1 0 0 1 0};
V40 = {0 1 0 1 0 0};
V41 = {1 0 0 1 0 0};
V42 = {0 1 1 0 0 0 };
V43 = {0 1 1 0 1 0};
V44 = {1 1 1 0 0 0};
V45 = {0 1 0 0 0 0};
V46 = {0 1 0 0 0 0};
V47 = {1 0 0 1 0 0};
V48 = {0 0 0 0 1 1};
V49 = {0 1 0 0 1 0};
V50 = {0 1 0 0 1 0};
V51 = {0 0 0 1 0 0};
V52 = {0 1 0 1 0 0};
V53 = {0 1 0 0 1 0};
V54 = {0 1 1 0 0 0};
V55 = {0 0 1 0 0 0};
V56 = {0 1 0 0 0 0};
V57 = {1 1 0 0 0 0};
V58 = {0 1 0 0 1 0};
V59 = {1 0 0 1 0 0};
V60 = {1 0 0 1 0 0};
V61 = {0 1 0 0 0 0};
V62 = {0 0 1 0 0 0};
V63 = {0 1 1 0 0 0};
V64 = {0 1 1 0 0 0};
V65 = {0 1 1 0 0 0};
V66 = {1 0 1 0 0 0};
V67 = {0 0 1 1 0 0};
V68 = {0 0 0 1 0 0};
V69 = {0 0 0 0 1 0};
V70 = {1 0 1 0 0 0};
V71 = {1 1 0 0 0 0};
V72 = {0 1 0 0 0 0};
V73 = {0 0 0 0 0 1};
V74 = {0 1 0 0 1 0};
V75 = {0 1 0 1 0 0};

V76 = {0 0 1 0 0 0};
V77 = {0 1 0 0 0 0};
V78 = {0 1 1 0 0 0};
V79 = {1 1 0 0 0 0};
V80 = {0 0 1 0 0 0};
V81 = {1 0 1 0 0 0};
V82 = {0 0 0 1 0 0};
V83 = {0 0 0 1 0 0};
V84 = {0 0 0 0 1 1};
V85 = {0 0 0 0 0 1};
V86 = {0 0 0 0 1 1};
V87 = {0 1 0 1 0 0};
V88 = {0 1 0 1 0 0};
V89 = {0 1 1 0 0 0};
V90 = {0 1 1 0 0 0};
V91 = {0 1 0 0 0 0};
V92 = {1 1 0 0 0 0};
V93 = {1 1 0 0 0 0};
V94 = {0 1 0 0 1 0};
V95 = {0 1 0 0 0 0};
V96 = {0 1 1 0 0 0};
V97 = {0 1 1 0 0 0};
V98 = {0 0 0 1 0 0};
V99 = {0 1 1 0 0 0};
V100 = {0 1 1 0 0 0};
V101 = {1 0 1 0 0 0};
V102 = {1 1 1 0 0 0};
V103 = {0 0 1 0 1 0};
V104 = {0 0 1 0 0 1};
V105 = {0 0 1 0 1 0};
V106 = {0 1 1 0 1 0};
V107 = {1 1 1 0 0 0};
V108 = {1 0 0 1 0 0};
V109 = {0 1 1 0 0 0};
V110 = {0 1 0 0 0 1};
V111 = {0 1 0 0 1 0};
V112 = {0 1 0 1 0 0};
V113 = {0 1 1 0 0 0};
V114 = {0 1 0 0 0 0};
V115 = {0 0 1 0 1 0};
V116 = {0 1 0 1 0 0};
V117 = {0 0 0 0 1 0};
V118 = {0 0 0 0 0 1};
V119 = {0 0 0 0 1 1};
V120 = {0 1 0 1 0 0};
V121 = {0 1 0 0 0 0};

```
            V122 = {0 0 1 0 0 0};
            V123 = {0 0 1 0 0 0};
            V124 = {0 0 0 1 0 0};
            V125 = {1 0 0 0 0 0};
            V126 = {0 0 1 0 0 0};
            V127 = {0 0 1 0 0 0};
            V128 = {0 1 0 1 0 0};
            V129 = {0 0 0 0 1 0};
            V130 = {0 0 0 0 1 1};
            V131 = {0 1 0 0 1 0};
            V132 = {1 0 0 1 0 0};
            V133 = {1 0 1 0 0 0};
            V134 = {0 0 0 1 0 1};
            V135 = {0 1 1 0 0 0};
            V136 = {0 0 1 0 0 1};
            V137 = {0 0 0 1 0 0};
            V138 = {1 0 1 0 0 0};
            V139 = {0 1 1 0 0 0};
            V140 = {1 0 1 0 0 0};
            V141 = {0 0 0 0 0 1};
            V142 = {0 1 0 1 0 0};
            V143 = {1 1 0 0 0 0};
            V144 = {0 0 0 1 0 0};
            V145 = {0 1 0 0 0 1};
            V146 = {0 1 0 0 0 0};
```

/* IN THE USE AND READ STATEMENTS THE USER MUST SPECIFY THE
NUMER OF CONSTRUCTS TO BE EVALUATED: FOR EXAMPLE C1, C2, C3, C4,
C5 FOR 5 OBJECTIVES   */

/* SPLITTING DATA INTO ITEM LEVEL SUBSETS */

```
        %macro itemcong (numitem);
        %do item = 1 %to &numitem;
                USE one VAR{item c1 c2 c3 c4 c5 c6};
                READ all VAR {c1 c2 c3 c4 c5 c6}
                        where (item=&item) into I&item;
                close one;
        %end;
```

/* COMPUTING INDEX OF ITEM CONGRUENCE FOR EACH ITEM */

```
        %do item = %to &numitem;
        N&item=ncol (I&item);
        p&item = V&item[,+];
        r&item = nrow(I&item);
```

```
        A&item = (V&item*I&item`) [1,+];
        B&item = ((-1*(V&item-1)) *I&item`) [1,+];
        Avg&item = I&item(l+,l)/(nrow(I&item));
        Index&item = (((N&item+p&item-2) *A&item) -
(p&item*B&item))/(2*(N&item-1)
        *r&item*p&item);
        %end;
        %do item = 1 %to &numitem;
        print "Item:" &item[format=2.0] "Index of Item Congruence:"
Index&item[format=6.2];
        print "Valid Constructs:"
                V&item[format=6.0];
        print "Construct Mean:"
                Avg&item[format=6.2];
        %end;
        %mend itemcong;


/*          USER INPUT REQUIRED            */

/**********************************************
ADD IN THE NUMBER OF ITEMS BEING ASSESSED IN THE PARENTHESES
**********************************************/

        %itemcong(146);
        run;
```

Example of Rater Responses

Rater	Item	C1	C2	C3	C4	C5	C6
1	1	1	1	-1	-1	-1	-1
1	2	-1	1	0	-1	-1	-1
1	3	0	1	1	-1	-1	-1
1	4	-1	1	0	-1	-1	-1
1	5	-1	1	1	-1	-1	-1
1	6	n/a	n/a	n/a	n/a	n/a	n/a
1	7	-1	-1	-1	0	-1	-1
1	8	-1	-1	-1	-1	1	-1
1	9	-1	-1	-1	0	0	1
1	10	-1	-1	-1	0	1	1
1	11	-1	1	-1	0	1	1
1	12	-1	0	-1	1	-1	-1
1	13	-1	1	1	-1	-1	-1
1	14	-1	1	1	-1	0	-1
1	15	-1	1	1	-1	-1	-1
1	16	-1	1	1	-1	-1	1
1	17	-1	1	-1	-1	-1	-1

1	18	-1	1	-1	1	0	-1
1	19	0	1	-1	-1	-1	-1
1	20	-1	1	1	-1	0	-1
1	21	-1	1	-1	-1	0	-1
1	22	-1	1	-1	-1	-1	-1
1	23	-1	1	1	-1	0	-1
1	24	-1	0	-1	1	-1	-1
1	25	-1	-1	-1	1	-1	-1
1	26	-1	-1	-1	-1	1	0
1	27	-1	-1	-1	1	1	1
1	28	1	-1	-1	0	-1	-1
1	29	-1	1	1	-1	-1	-1
1	30	-1	1	-1	-1	-1	-1
1	31	-1	-1	1	0	-1	-1
1	32	1	0	-1	-1	-1	-1
1	33	-1	1	-1	-1	-1	0
1	34	-1	0	-1	1	-1	-1
1	35	0	0	-1	1	-1	-1
1	36	0	1	-1	1	-1	-1
1	37	-1	0	0	-1	1	-1
1	38	-1	0	-1	-1	1	1
1	39	-1	-1	-1	1	1	-1
1	40	-1	1	1	0	-1	-1
1	41	-1	0	-1	1	-1	-1
1	42	-1	1	0	-1	-1	0
1	43	0	1	1	-1	-1	-1
1	44	-1	1	1	-1	-1	-1
1	45	-1	1	-1	-1	-1	-1
1	46	-1	1	-1	-1	-1	-1
1	47	0	-1	-1	1	-1	-1
1	48	-1	-1	-1	-1	1	1
1	49	-1	-1	0	-1	1	-1
1	50	-1	-1	0	-1	1	-1
1	51	-1	0	-1	1	-1	-1
1	52	-1	1	0	1	-1	-1
1	53	-1	0	-1	-1	1	-1
1	54	-1	1	-1	-1	0	-1
1	55	-1	1	-1	-1	-1	-1
1	56	-1	1	-1	-1	-1	-1
1	57	0	1	-1	-1	-1	-1
1	58	-1	1	-1	-1	-1	-1
1	59	1	-1	-1	0	-1	-1
1	60	1	-1	-1	1	-1	-1
1	61	-1	1	-1	-1	-1	-1
1	62	-1	-1	1	-1	-1	-1
1	63	-1	-1	0	-1	-1	-1

1	64	-1	1	-1	-1	-1	-1
1	65	-1	1	0	-1	-1	-1
1	66	-1	-1	1	-1	-1	-1
1	67	-1	-1	0	1	-1	-1
1	68	-1	-1	-1	1	-1	0
1	69	-1	-1	-1	-1	1	-1
1	70	1	0	-1	-1	-1	-1
1	71	-1	1	-1	-1	-1	-1
1	72	-1	1	-1	-1	-1	-1
1	73	-1	0	-1	-1	-1	1
1	74	-1	0	-1	-1	1	-1
1	75	0	-1	-1	1	-1	-1
1	76	-1	-1	1	-1	-1	-1
1	77	-1	1	-1	-1	-1	-1
1	78	-1	0	-1	-1	-1	-1
1	79	0	1	-1	-1	-1	-1
1	80	-1	1	-1	-1	-1	-1
1	81	-1	1	1	-1	-1	-1
1	82	0	-1	-1	1	-1	-1
1	83	0	1	-1	1	-1	-1
1	84	-1	-1	-1	-1	1	1
1	85	-1	-1	-1	0	1	1
1	86	-1	1	-1	-1	1	-1
1	87	1	1	-1	1	-1	-1
1	88	-1	-1	-1	1	-1	-1
1	89	-1	1	-1	-1	-1	-1
1	90	-1	1	-1	-1	-1	-1
1	91	0	1	-1	0	1	0
1	92	-1	1	-1	0	1	0
1	93	-1	1	0	-1	-1	-1
1	94	-1	1	-1	0	1	0
1	95	-1	1	-1	0	1	0
1	96	-1	1	-1	-1	-1	-1
1	97	-1	1	-1	-1	-1	-1
1	98	0	-1	-1	1	-1	1
1	99	-1	1	0	-1	-1	-1
1	100	-1	1	-1	-1	-1	-1
1	101	-1	1	1	0	0	0
1	102	0	1	-1	0	0	0
1	103	-1	1	-1	0	1	0
1	104	0	-1	1	0	0	0
1	105	-1	-1	1	-1	1	-1
1	106	-1	1	-1	0	1	0
1	107	0	1	-1	0	0	0
1	108	1	-1	-1	1	0	0
1	109	-1	1	-1	0	0	0

1	110	-1	0	-1	0	0	1
1	111	-1	1	-1	0	1	0
1	112	-1	1	-1	1	0	0
1	113	-1	-1	0	0	0	0
1	114	-1	1	-1	0	0	0
1	115	-1	-1	-1	0	0	0
1	116	0	1	-1	1	0	0
1	117	-1	1	-1	0	0	0
1	118	-1	0	-1	0	0	1
1	119	-1	-1	-1	0	1	1
1	120	-1	1	0	1	0	0
1	121	-1	1	-1	0	0	0
1	122	-1	1	0	0	0	0
1	123	0	-1	1	0	0	0
1	124	0	-1	-1	1	0	0
1	125	1	-1	-1	0	0	0
1	126	-1	0	-1	0	0	0
1	127	-1	-1	1	0	0	0
1	128	0	0	-1	1	0	0
1	129	-1	1	-1	0	1	0
1	130	-1	-1	-1	0	1	0
1	131	-1	1	-1	0	1	0
1	132	1	-1	-1	1	0	0
1	133	1	-1	-1	0	0	0
1	134	-1	1	-1	0	0	0
1	135	-1	1	-1	0	0	1
1	136	-1	-1	1	0	0	0
1	137	-1	-1	-1	1	0	0
1	138	0	-1	1	0	0	0
1	139	-1	1	-1	0	0	0
1	140	-1	0	1	0	0	0
1	141	-1	0	-1	0	0	1
1	142	-1	-1	-1	1	0	0
1	143	-1	1	-1	0	0	0
1	144	0	-1	-1	1	0	0
1	145	-1	-1	-1	0	0	1
1	146	-1	-1	1	0	0	0

APPENDIX F

IIOC-MO RESULTS FOR 146 ITEMS

Item #	IIOC-MO	Item #	IIOC-MO	Item #	IIOC-MO	Item #	IIOC-MO
1	0.74	38	0.62	75	0.36	112	0.68
2	0.42	39	0.38	76	0.92	113	0.16
3	0.72	40	0.60	77	0.64	114	0.80
4	0.48	41	0.44	78	0.44	115	0.36
5	0.34	42	0.54	79	0.70	116	0.72
6	repeat	43	0.20	80	0.46	117	-0.12
7	0.90	44	0.35	81	0.58	118	0.82
8	0.94	45	0.62	82	0.92	119	0.54
9	0.56	46	0.64	83	0.86	120	0.56
10	0.48	47	0.94	84	0.64	121	0.74
11	0.48	48	0.66	85	0.80	122	0.34
12	0.56	49	0.52	86	0.20	123	0.50
13	0.46	50	0.52	87	0.80	124	0.84
14	0.86	51	0.82	88	0.80	125	0.86
15	0.52	52	0.64	89	0.48	126	0.52
16	0.20	53	0.66	90	0.20	127	0.64
17	0.50	54	0.44	91	0.76	128	0.54
18	0.45	55	-0.10	92	0.56	129	0.74
19	0.66	56	0.90	93	0.60	130	0.52
20	0.26	57	0.64	94	0.50	131	0.60
21	0.54	58	0.54	95	0.56	132	0.82
22	-0.50	59	0.84	96	0.38	133	0.18
23	0.50	60	0.82	97	0.54	134	-0.26
24	0.62	61	0.90	98	0.82	135	0.42
25	0.90	62	0.88	99	0.72	136	0.56
26	0.82	63	0.50	100	0.42	137	0.66
27	0.54	64	0.48	101	0.38	138	0.54
28	0.33	65	0.46	102	0.43	139	0.40
29	0.66	66	0.52	103	0.40	140	0.46
30	0.44	67	0.56	104	0.42	141	0.80
31	0.80	68	0.82	105	0.78	142	0.46
32	0.26	69	0.82	106	0.31	143	0.42
33	0.68	70	0.26	107	0.38	144	0.78
34	0.46	71	0.50	108	0.72	145	0.58
35	0.62	72	0.66	109	0.28	146	0.24
36	0.48	73	0.88	110	0.48		
37	0.72	74	0.60	111	0.56		

APPENDIX G

IIOC-MO RESULTS 0.66 CUTOFF - TOP 45 ITEMS

IIOC#	Rating	Item
8	0.94	It's easy to say yes when my friends ask me to have a drink with them
47	0.94	My mother abuses alcohol
76	0.92	When I drink alcohol I take unusual risks
82	0.92	I was given alcohol as medicine when I was young
7	0.90	My family had financial trouble
25	0.90	Celebrations at my house usually included alcohol
56	0.90	Sometimes I feel self-conscious that I will look stupid
61	0.90	It is hard for me to believe that I am capable of being successful
62	0.88	Sometimes I have lied to get what I want
73	0.88	It looks like fun to me when I see people drinking on television
14	0.86	Sometimes I have done things without concern for my own or others safety
83	0.86	I felt like my parents were over protective of me
125	0.86	I have found that I can drink a lot without feeling drunk
59	0.84	My mother seemed to be depressed a lot
124	0.84	My parents argued a lot
26	0.82	My friends encourage me to drink
51	0.82	I used to drink alcohol in order to cope with my family
60	0.82	My father has abused alcohol
68	0.82	Drinking alcohol is looked at as a rite of passage in my family
69	0.82	Drinking is encouraged where I work
98	0.82	Alcohol was served at many family gatherings when I was growing up
118	0.82	Television shows encourage me to believe that drinking a lot of alcohol is ok
132	0.82	There are people in my extended family who have had trouble with alcohol
31	0.80	Sometimes I enjoy getting into arguments
85	0.80	People I admire drink alcohol
87	0.80	Drinking alcohol will help keep my mind off of my problems at home
88	0.80	I felt that one or more of my siblings did not like me
114	0.80	Alcohol has helped me cope with a tragedy in my life
141	0.80	Commercials that sell alcohol have influenced my drinking
105	0.78	I have had trouble with employment because of my drinking
144	0.78	I felt the need to parent my younger siblings when I was growing up
91	0.76	I will be able to think better after a few drinks
1	0.74	Drinking alcohol helps me sleep
121	0.74	I feel attractive when I drink alcohol
129	0.74	Drinking alcohol will help me to fit in with the group
3	0.72	I have typically been a person who likes to keep moving
37	0.72	Drinking is accepted where I work
99	0.72	I tend to overreact emotionally
108	0.72	My father was in trouble with the law a lot
116	0.72	I took on extra responsibilities to make up for shortcomings in my family
79	0.70	I have been treated for depression
33	0.68	I am a better lover when I drink alcohol

IIOC#	Rating	Item
112	0.68	My parents didn't like me
19	0.66	I have been diagnosed with depression
29	0.66	Sometimes I get into trouble because I don't think about what I'm doing

APPENDIX H

FINAL 40 ITEMS WITH IIOC-MO AND IDENTIFIED CONSTRUCTS FOR EACH ITEM

Orig. #	IIOC #	R-BIBSI #	IIOC-MO	BI	PI	PE	SF	SP	SC
20	1	1	0.74	1	1	0	0	0	0
50	3	2	0.72	0	1	1	0	0	0
111	7	3	0.90	0	0	0	1	0	0
119	8	4	0.94	0	0	0	0	1	0
72	14	5	0.86	0	0	1	0	0	0
122	26	6	0.82	0	0	0	0	1	0
45	31	7	0.80	0	0	1	0	0	0
10	79	8	0.70	1	1	0	0	0	0
102	51	9	0.82	0	0	0	1	0	0
40	56	10	0.90	0	1	0	0	0	0
8	59	11	0.84	1	0	0	1	0	0
101	144	12	0.78	0	0	0	1	0	0
27	61	13	0.90	0	1	0	0	0	0
105	83	14	0.86	0	0	0	1	0	0
11	125	15	0.86	1	0	0	0	0	0
106	68	16	0.82	0	0	0	1	0	0
129	105	17	0.78	0	0	1	0	1	0
6	132	18	0.82	1	0	0	1	0	0
93	88	19	0.80	0	1	0	1	0	0
5	47	20	0.94	1	0	0	1	0	0
88	82	21	0.92	0	0	0	1	0	0
44	62	22	0.88	0	0	1	0	0	0
137	85	23	0.80	0	0	0	0	0	1
107	87	24	0.80	0	1	0	1	0	0
36	91	25	0.76	0	1	0	0	0	0
141	141	26	0.80	0	0	0	0	0	1
86	98	27	0.82	0	0	0	1	0	0
17	99	28	0.72	0	1	1	0	0	0
116	69	29	0.82	0	0	0	0	1	0
9	108	30	0.72	1	0	0	1	0	0
42	114	31	0.80	0	1	0	0	0	0
95	116	32	0.72	0	1	0	1	0	0
131	118	33	0.82	0	0	0	0	0	1
37	121	34	0.74	0	1	0	0	0	0
110	124	35	0.84	0	0	0	1	0	0
13	29	36	0.66	0	1	1	0	0	0
125	129	37	0.74	0	0	0	0	1	0

Orig. #	IIOC #	R-BIBSI #	IIOC-MO	BI	PI	PE	SF	SP	SC
145	73	38	0.88	0	0	0	0	0	1
54	76	39	0.92	0	0	1	0	0	0
2	60	40	0.82	1	0	0	1	0	0

FIELD-TEST DESIGN OF THE R-BIBSI

BRIEF INTEGRATIVE

BIOPSYCHOSOCIAL SCREENING

INSTRUMENT

Answer the following before completing your survey:

1. What was your age on your last birthday? _____ Years

2. Which category best describes your ethnicity?
   _____ African-American or of African descent
   _____ Asian-American or of Asian descent
   _____ Hispanic-American or of Latin descent
   _____ Native American
   _____ Pacific Islander
   _____ Caucasian
   _____ Other _____

3. How do you identify your gender?
   _____ Female
   _____ Male
   _____ Other _____

Proceed to complete the Brief Integrative Biopsychosocial Screening Instrument:

	Brief Integrative Biopsychosocial Screening Instrument Mark each item as it relates to your experience by placing an "X" in the appropriate box. You must answer all items. 0 = the item is NOT AT ALL like my experience 1 = the item is RARELY like my experience 2 = the item is SOMEWHAT like my experience 3 = the item is LIKE my experience 4 = the item is VERY MUCH like my experience 5 = the item is DEFINITELY like my experience	0	1	2	3	4	5
1	Drinking alcohol helps me sleep						
2	I have typically been a person who likes to keep moving						
3	My family had financial trouble						
4	It's easy to say yes when my friends ask me to drink with them						
5	I have done things without concern for my own or others' safety						
		0	1	2	3	4	5
6	My friends encourage me to drink						
7	Sometimes I enjoy getting into arguments						
8	I have been treated for depression						
9	I used to drink alcohol in order to cope with my family						
10	Sometimes I feel self-conscious that I will look stupid						

Brief Integrative Biopsychosocial Screening Instrument Mark each item as it relates to your experience by placing an "X" in the appropriate box. You must answer all items. 0 = the item is NOT AT ALL like my experience 1 = the item is RARELY like my experience 2 = the item is SOMEWHAT like my experience 3 = the item is LIKE my experience 4 = the item is VERY MUCH like my experience 5 = the item is DEFINITELY like my experience	0	1	2	3	4	5
11 My mother seemed to be depressed a lot						
12 I felt the need to parent my younger siblings when I was growing up						
13 It is hard for me to believe that I am capable of being successful						
14 I felt like my parents were over protective of me						
15 I have found that I can drink a lot without feeling drunk						
	0	1	2	3	4	5
16 Drinking alcohol is looked at as a rite of passage in my family						
17 I have had trouble with employment because of my drinking						
18 Members in my extended family have had trouble with alcohol						
19 I felt that one or more of my siblings did not like me						

	Brief Integrative Biopsychosocial Screening Instrument Mark each item as it relates to your experience by placing an "X" in the appropriate box. You must answer all items. 0 = the item is NOT AT ALL like my experience 1 = the item is RARELY like my experience 2 = the item is SOMEWHAT like my experience 3 = the item is LIKE my experience 4 = the item is VERY MUCH like my experience 5 = the item is DEFINITELY like my experience	**0**	**1**	**2**	**3**	**4**	**5**
20	My mother abuses alcohol						
21	I was given alcohol as medicine when I was young						
22	Sometimes I have lied to get what I want						
23	People I admire drink alcohol						
24	Drinking alcohol will help keep my mind off my problems at home						
25	I will be able to think better after a few drinks						
		0	**1**	**2**	**3**	**4**	**5**
26	Commercials that sell alcohol have influenced my drinking						
27	Alcohol was served at family gatherings when I was growing up						
28	I tend to overreact emotionally						

	Brief Integrative Biopsychosocial Screening Instrument Mark each item as it relates to your experience by placing an "X" in the appropriate box. You must answer all items. 0 = the item is NOT AT ALL like my experience 1 = the item is RARELY like my experience 2 = the item is SOMEWHAT like my experience 3 = the item is LIKE my experience 4 = the item is VERY MUCH like my experience 5 = the item is DEFINITELY like my experience	0	1	2	3	4	5
29	Drinking is encouraged where I work/go to school						
30	My father was in trouble with the law a lot						
31	Alcohol has helped me cope with a tragedy in my life						
32	I took on extra tasks to make up for shortcomings in my family						
33	Television shows encourage me to believe drinking alcohol is ok						
34	I feel attractive when I drink alcohol						
35	My parents argued a lot						
		0	1	2	3	4	5
36	I get into trouble because I don't think about what I'm doing						
37	Drinking alcohol will help me to fit in with the group						

	Brief Integrative Biopsychosocial Screening Instrument Mark each item as it relates to your experience by placing an "X" in the appropriate box. You must answer all items. 0 = the item is NOT AT ALL like my experience 1 = the item is RARELY like my experience 2 = the item is SOMEWHAT like my experience 3 = the item is LIKE my experience 4 = the item is VERY MUCH like my experience 5 = the item is DEFINITELY like my experience	0	1	2	3	4	5
38	It looks like fun to me when I see people drinking on television						
39	When I drink alcohol I take unusual risks						
40	My father has abused alcohol						

REVISED PAGE 2 OF THE THINK-ALOUD VERSION OF THE R-BIBSI

Please answer the following before completing your survey:

1. What was your age on your last birthday? _____ Years

2. Which category best describes your ethnicity?
   _____ African-American or of African descent
   _____ Asian-American or of Asian descent
   _____ Hispanic-American or of Latin descent
   _____ Native American
   _____ Pacific Islander
   _____ Caucasian
   _____ Other _____

3. How do you identify your gender?
   _____ Female
   _____ Male
   _____ Other _____

Warmup questions:

	Brief Integrative Biopsychosocial Screening Instrument Mark each item as it relates to your experience by placing an "X" in the appropriate box. You must answer all items. 3 = the item is very much like my experience 2 = the item is like my experience 1 = the item is somewhat like my experience -1 = the item is not really like my experience -2 = the item is not like my experience -3 = the item is definitely not like my experience	-3	-2	-1	1	2	3
a	I will want to drink if I'm around my friends						
b	Some members of my extended family have trouble with alcohol						

Proceed to complete the Brief Biopsychosocial Screening Instrument Think-aloud exercise when your facilitator has started the recording:

APPENDIX K

INFORMED CONSENT AND PROCEDURES PROTOCOL DOCUMENTS

Consent to Participate in a Research Study
Colorado State University

TITLE OF STUDY: DEVELOPING A BRIEF INTEGRATIVE BIOPSYCHOSOCIAL
SCREENING INSTRUMENT TO INVESTIGATE INFLUENCES OF ALCOHOL USE: A
MIXED RESEARCH STUDY

PRINCIPAL INVESTIGATOR:	LAURIE CARLSON, PH.D.
	ASSOCIATE PROFESSOR
	SCHOOL OF EDUCATION
	PHONE: 970-491-6826
	EMAIL: LAURIE.CARLSON@COLOSTATE.EDU
CO-PRINCIPAL INVESTIGATOR:	MARTY J. REIN, M.ED., LPC, CAC II
	DOCTORAL CANDIDATE
	SCHOOL OF EDUCATION
	PHONE: 941-928-7076
	EMAIL: MJREIN24@COMCAST.NET

WHY AM I BEING INVITED TO TAKE PART IN THIS RESEARCH? You are being selected for this research project because of your status as a student at Colorado State University who is at least 18 years of age and are experiencing negative consequences due to your choices surrounding alcohol use.

WHO IS DOING THE STUDY? This study is being conducted by Marty J. Rein, M.Ed., a doctoral student of Interdisciplinary Studies in the School of Education. He is supported by a team of 4 CSU professors as his advisors.

WHAT IS THE PURPOSE OF THIS STUDY? The purpose of this study is to develop an assessment tool that will aid counselors to better people who have experienced negative consequences due to their choices surrounding alcohol use.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST? The study will take place in the DAY (Drugs, Alcohol and You) Programs office located in Room 239 Aylesworth NW. Your participation is estimated to take from 25-45 minutes. This includes the time it will take to read and sign this disclosure form and to complete the assessment tool.

WHAT WILL I BE ASKED TO DO? For your participation, you will be asked to read and sign this consent form, and complete the assessment tool as it relates to your past experience with alcohol. There will be 30-50 questions that will ask you to rate your beliefs about your past experiences in relation to alcohol. There will be some questions about you age, gender, class level, and ethnicity.

ARE THERE REASONS WHY I SHOULD NOT TAKE PART IN THIS STUDY? Persons who are under the age of 18 are not eligible for this study. Also, if you do not feel comfortable thinking about your past experiences about your family and friends, you should not choose to participate in this study.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?
- ☐   You will be asked questions about your past. A possible risk is that you might feel some discomfort or anxiety while answering the questions.
- ☐ It is not possible to identify all potential risk in research procedures, but the researcher has taken reasonable safeguards to minimize any know and potential, but unknown risks.

ARE THERE ANY BENEFITS FROM TAKING PART IN THIS STUDY? There are no direct benefits from taking part in this study, however while answering the questions you may find new insights into your choices surrounding alcohol. The anticipated benefits are that counselors will better serve people who have had problems with their choices surrounding alcohol.

DO I HAVE TO TAKE PART IN THE STUDY? Your participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

WHO WILL SEE THE INFORMATION THAT I GIVE? We will keep private all research records that identify you, to the extent allowed by law. Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private. Your information on this form will be securely stored by a person who is not involved in conducting this study and not shared with the researchers. These consent forms will be destroyed upon completion of the study.

WILL I RECEIVE ANY COMPENSATION FOR TAKING PART IN THIS STUDY? For your time and active participation in study, you will be compensated the sum of $5.00 after the successful completion of this consent form and the assessment tool.

WHAT IF I HAVE QUESTIONS? Before you decide whether to accept this invitation to take part in the study, please ask any question that might come to mind now. Later, if you have questions about the study, you can contact the investigator, Marty J. Rein at 941-928-7076. If you have any question about your rights as a volunteer in this research, contact Janell Barker, Human Research Administrator at 970-491-1655. We will give you a copy of this consent form to take with you.

This consent form was approved by the CSU Institutional Review Board for the protection of human subjects in research on (Approval Date will be entered here).

WHAT ELSE DO I NEED TO KNOW? As an additional service, the principle researcher will be available to conduct exit counseling after the completion of the assessment tool upon request or should you wish to talk as a result of taking this assessment tool.

Your signature acknowledges that you have read the information stated and willingly sign this consent form. Your signature also acknowledges that you have received, on the date signed, a copy of this document containing 2 pages.

_____   _____
Signature of person agreeing to take part in the study   Date

_____
Printed name of person agreeing to take part in the study

_____   _____
Name of person providing information to participant   Date

_____
Signature of Research Staff

Consent to Participate in a Research Study
Colorado State University

TITLE OF STUDY: DEVELOPING A BRIEF INTEGRATIVE BIOPSYCHOSOCIAL SCREENING INSTRUMENT TO INVESTIGATE INFLUENCES OF ALCOHOL USE: A MIXED RESEARCH STUDY

PRINCIPAL INVESTIGATOR: LAURIE CARLSON, PH.D.
ASSOCIATE PROFESSOR
SCHOOL OF EDUCATION
PHONE: 970-491-6826
EMAIL: LAURIE.CARLSON@COLOSTATE.EDU

CO-PRINCIPAL INVESTIGATOR: MARTY J. REIN, M.ED., LPC, CAC II
DOCTORAL CANDIDATE
SCHOOL OF EDUCATION
PHONE: 941-928-7076
EMAIL: MJREIN24@COMCAST.NET

WHY AM I BEING INVITED TO TAKE PART IN THIS RESEARCH? You are being selected for this research project because of your status as a student at Colorado State University who is entering the Back-on-TRAC program, is at least 18 years of age, and are experiencing negative consequences due to your choices surrounding alcohol use.

WHO IS DOING THE STUDY? This study is being conducted by Marty J. Rein, M.Ed., a doctoral student of Interdisciplinary Studies in the School of Education. He is supported by a team of 4 CSU professors as his advisors.

WHAT IS THE PURPOSE OF THIS STUDY? The purpose of this study is to develop an assessment tool that will aid counselors to better people who have experienced negative consequences due to their choices surrounding alcohol use.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST? The study will take place in the DAY (Drugs, Alcohol and You) Programs office located in Room 239 Aylesworth NW. Your participation is estimated to take from 25-45 minutes. This includes the time it will take to read and sign this disclosure form and to complete the assessment tool.

WHAT WILL I BE ASKED TO DO? For your participation, you will be asked to read and sign this consent form, and complete the assessment tool as it relates to your past experience with alcohol. There will be 30-50 questions that will ask you to rate your beliefs about your past experiences in relation to alcohol. There will be some questions about you age, gender, class level, and ethnicity.

ARE THERE REASONS WHY I SHOULD NOT TAKE PART IN THIS STUDY? Persons who are under the age of 18 are not eligible for this study. Also, if you do not feel comfortable thinking about your past experiences about your family and friends, you should not choose to participate in this study.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?
- ☐   You will be asked questions about your past. A possible risk is that you might feel some discomfort or anxiety while answering the questions.
- ☐   It is not possible to identify all potential risk in research procedures, but the researcher has taken reasonable safeguards to minimize any know and potential, but unknown risks.

ARE THERE ANY BENEFITS FROM TAKING PART IN THIS STUDY? There are no direct benefits from taking part in this study, however while answering the questions you may find new insights

into your choices surrounding alcohol. The anticipated benefits are that counselors will better serve people who have had problems with their choices surrounding alcohol.

DO I HAVE TO TAKE PART IN THE STUDY? Your participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

WHO WILL SEE THE INFORMATION THAT I GIVE? We will keep private all research records that identify you, to the extent allowed by law. Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private. Your information on this form will be securely stored by a person who is not involved in conducting this study and not shared with the researchers. These consent forms will be destroyed upon completion of the study.

WILL I RECEIVE ANY COMPENSATION FOR TAKING PART IN THIS STUDY? For your time and active participation in study, you will be compensated the sum of $5.00 after the successful completion of this consent form and the assessment tool.

WHAT IF I HAVE QUESTIONS? Before you decide whether to accept this invitation to take part in the study, please ask any question that might come to mind now. Later, if you have questions about the study, you can contact the investigator, Marty J. Rein at 941-928-7076. If you have any question about your rights as a volunteer in this research, contact Janell Barker, Human Research Administrator at 970-491-1655. We will give you a copy of this consent form to take with you.

This consent form was approved by the CSU Institutional Review Board for the protection of human subjects in research on (Approval Date will be entered here).

WHAT ELSE DO I NEED TO KNOW? As an additional service, the principle researcher will be available to conduct exit counseling after the completion of the assessment tool upon request or should you wish to talk as a result of taking this assessment tool.

Your signature acknowledges that you have read the information stated and willingly sign this consent form. Your signature also acknowledges that you have received, on the date signed, a copy of this document containing 2 pages.

_____   _____
Signature of person agreeing to take part in the study   Date

_____
Printed name of person agreeing to take part in the study

_____   _____
Name of person providing information to participant   Date

_____
Signature of Research Staff

<h1 style="text-align: center;">Consent to Participate in a Research Study
Colorado State University</h1>

TITLE OF STUDY: DEVELOPING A BRIEF INTEGRATIVE BIOPSYCHOSOCIAL SCREENING INSTRUMENT TO INVESTIGATE INFLUENCES OF ALCOHOL USE: A MIXED RESEARCH STUDY

PRINCIPAL INVESTIGATOR: LAURIE CARLSON, PH.D.
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CO-PRINCIPAL INVESTIGATOR: MARTY J. REIN, M.ED., LPC, CAC II
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WHO IS DOING THE STUDY? This study is being conducted by Marty J. Rein, M.Ed., a doctoral student of Interdisciplinary Studies in the School of Education. He is supported by a team of 4 CSU professors as his advisors.

WHAT IS THE PURPOSE OF THIS STUDY? The purpose of this study is to develop an assessment tool that will aid counselors to better people who have experienced negative consequences due to their choices surrounding alcohol use.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST? The study will take place in the DAY (Drugs, Alcohol and You) Programs office located in Room 239 Aylesworth NW. Your participation is estimated to take from 40-60 minutes. This includes the time it will take to read and sign this disclosure form and to complete the assessment tool.

WHAT WILL I BE ASKED TO DO? For your participation, you will be asked to read and sign this consent form, and complete the assessment tool as it relates to your past experience with alcohol and to audio record you thought process as you take the assessment. There will be 30-50 questions that will ask you to rate your beliefs about your past experiences in relation to alcohol. As you answer the questions, you will be asked to "think aloud" and your voice will be recorded. There will be some questions about you age, gender, class level, and ethnicity.

ARE THERE REASONS WHY I SHOULD NOT TAKE PART IN THIS STUDY? Persons who are under the age of 18 are not eligible for this study. Also, if you do not feel comfortable thinking and talking about your past experiences about your family and friends, you should not choose to participate in this study.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?
- ☐ You will be asked questions about your past. A possible risk is that you might feel some discomfort or anxiety while answering the questions.
- ☐ You may feel uncomfortable at first while thinking aloud about the questions.
- ☐ It is not possible to identify all potential risk in research procedures, but the researcher has taken reasonable safeguards to minimize any know and potential, but unknown risks.

ARE THERE ANY BENEFITS FROM TAKING PART IN THIS STUDY? There are no direct benefits from taking part in this study, however while answering the questions you may find new insights into your choices surrounding alcohol. The anticipated benefits are that counselors will better serve people who have had problems with their choices surrounding alcohol.

DO I HAVE TO TAKE PART IN THE STUDY? Your participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

WHO WILL SEE THE INFORMATION THAT I GIVE? We will keep private all research records that identify you, to the extent allowed by law. Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private. Your information on this form will be securely stored by a person who is not involved in conducting this study and not shared with the researchers. These consent forms will be destroyed upon completion of the study.

You should know, however, that there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court OR *to tell authorities if we believe you have abused a child, been abused as a child, or you pose a danger to yourself or someone else.*

WILL I RECEIVE ANY COMPENSATION FOR TAKING PART IN THIS STUDY? For your time and active participation in study, you will be compensated the sum of $5.00 after the successful completion of this consent form, the assessment tool, and the think-aloud recording.

WHAT IF I HAVE QUESTIONS? Before you decide whether to accept this invitation to take part in the study, please ask any question that might come to mind now. Later, if you have questions about the study, you can contact the investigator, Marty J. Rein at 941-928-7076. If you have any question about your rights as a volunteer in this research, contact Janell Barker, Human Research Administrator at 970-491-1655. We will give you a copy of this consent form to take with you.

This consent form was approved by the CSU Institutional Review Board for the protection of human subjects in research on (Approval Date will be entered here).

WHAT ELSE DO I NEED TO KNOW? As an additional service, the principle researcher will be available to conduct exit counseling after the completion of the assessment tool upon request or should you wish to talk as a result of taking this assessment tool.

Your signature acknowledges that you have read the information stated and willingly sign this consent form. Your signature also acknowledges that you have received, on the date signed, a copy of this document containing 2 pages.

_____   _____
Signature of person agreeing to take part in the study   Date

_____
Printed name of person agreeing to take part in the study

_____   _____
Name of person providing information to participant   Date

_____
Signature of Research Staff

R-BIBSI Pilot Test Procedures Protocol

There will be three procedures for the pilot test data collection of this study.

(1) Pilot test of the assessment tool.
(2) Pilot test to include predictive validity testing.
(3) Pilot test of the assessment tool to include audio recording of the think-aloud strategy.

Procedure 1 Protocol

The population for the pilot test of the assessment tool will be 30-60 BASICS (Brief Alcohol Screening and Intervention for College Students) students who will be invited to volunteer for the study during their initial intake in the DAY Programs office. These students are mandated for counseling due to a previous, alcohol-related infraction of the student conduct code.

Students will be given a 3x5 card during the intake for BASICS that will contain the invitation to participate. The card will contain the following text:

"You are invited to participate in a research study that will help clinicians better serve persons with alcohol use issues. If you choose to volunteer for this study, you will be asked to complete an assessment tool containing 40 questions that will ask you about the things that influenced your choice to use alcohol. The entire process is estimated to take 25-45 minutes of your time. Your participation in the study is completely voluntary and confidential. The only requirements for this study are that you are 18 years of age and are a willing participant. You will be compensated $5.00 for your time and active participation in this study. If you wish to participate in this study, please bring this card to Room 239 Aylesworth NW during normal working hours when you have at least 45 minutes to complete the consent form and the assessment tool."

When the student returns the card to the administrative staff, they will be given a prepared, numbered packet containing the consent form, and the assessment tool with instructions.

The student will be directed to complete the consent form and return it to the administrative staff before completing the assessment tool. Consent forms will be kept in secure, locked storage by the administrative staff. This information will be destroyed once the study is completed.

The student will be directed to turn in the completed assessment tool to the administrative staff following completion of the assessment instrument at which time the student will receive a $5.00 compensation for their time and effort. The student will be asked to sign the invitation card to document receipt of the compensation. The signed invitation card, the signed consent form, and the completed assessment tool will then be returned to the original packet for storage until all data is collected.

Procedure 2 Protocol

The population for the pilot test of the assessment tool will be 4-10 incoming Back-on-TRAC students who will be invited to volunteer for the study during their initial intake in the DAY Programs office. These students are mandated to the Back-on-TRAC program due to a previous, alcohol-related infraction of the student conduct code.

Students will be given a 3x5 card during the intake for BASICS that will contain the invitation to participate. The card will contain the following text:

"You are invited to participate in a research study that will help clinicians better serve persons with alcohol use issues. If you choose to volunteer for this study, you will be asked to complete an assessment tool containing 40 questions that will ask you about the things that influenced your choice to use alcohol. The entire process is estimated to take 25-45 minutes of your time. Your participation in the study is completely voluntary and confidential. The only requirements for this study are that you are 18 years of age and are a willing participant. You will be compensated $5.00 for your time and active participation in this study. If you wish to participate in this study, please bring this card to Room 239 Aylesworth NW during normal working hours when you have at least 45 minutes to complete the consent form and the assessment tool."

When the student returns the card to the administrative staff, they will be given a prepared, numbered packet containing the consent form, and the assessment tool with instructions.

The student will be directed to complete the consent form and return it to the administrative staff before completing the assessment tool. Consent forms will be kept in secure, locked storage by the administrative staff. This information will be destroyed once the study is completed.

The student will be directed to turn in the completed assessment tool to the administrative staff following completion of the assessment instrument at which time the student will receive a $5.00 compensation for their time and effort. The student will be asked to sign the invitation card to document receipt of the compensation. The signed invitation card, the signed consent form, and the completed assessment tool will then be returned to the original packet for storage until all data is collected.

Procedure 3 Protocol

The population for the pilot test and the think-aloud validation strategy of the assessment tool will be 5-7 Back-on-TRAC (Treatment, Responsibility, and Accountability on Campus) students who will be offered the opportunity to volunteer for the study during their affiliation with the DAY Programs office. These students are also mandated for counseling due to a previous, alcohol-related infraction of the student conduct code.

Students will be verbally invited to participate based on their progress in Back-on-TRAC. The invitation will be read from the following text:

"You are invited to participate in a research study that will help clinicians better serve persons with alcohol use issues. To participate in this study you will be asked to complete an assessment tool containing 40 questions that will ask you about the things that influenced your choice to use alcohol. You will also be asked by the researcher to record you thought process as you think-aloud while answering the questions on the assessment tool. The entire process is estimated to take approximately 55 minutes of your time. Your participation in this study is completely voluntary and confidential. The only requirements for this study are that you are 18 years of age, you are a willing participant, and you are willing to have your voice recorded while you complete the assessment tool. You will be compensated $5.00 for your time and participation in this study. If you wish to participate in this study, please contact me to schedule a time when you have 1 hour and 30 minutes to complete the consent form, the assessment tool, and the think-aloud strategy. It should take about 1 hour to complete. The extra 30 minutes is just in case you wish to talk with me afterwards should you feel any negative reactions because of the process."

If the student accepts the invitation, he/she will be scheduled with the researcher for a 1 hour and 30 minute block of time.

At the appointment, the student will be given a prepared, numbered packet containing instructions, the consent form, and the assessment tool. This assessment tool will contain 2 "warmup" questions at the beginning for the participant to practice and become comfortable with the think-aloud strategy.

The student will be directed to complete the consent form and return it to the researcher before completing the assessment tool and the think-aloud strategy. Consent forms will be kept in secure and locked storage by the administrative staff. This information will be destroyed once the study is completed. Digital voice recording will be stored securely until such data can be transcribed to ensure confidentiality, at which time the digital recording will be deleted.

After the consent form is signed and to ensure consistency in data collection, the student will be read the following text before beginning the think-aloud strategy.

Script for the think-aloud strategy:

Researcher: *Thank you for participating in this portion of the study. Your participation will require you to 'think aloud' while completing this assessment tool for the purpose of identifying the thought process while deciding on your answers. You will be recorded as you 'think aloud.' Everything we record here will be confidential. The questions will ask you about your beliefs surrounding your alcohol use. The only people who will hear this recording is the researcher, who will hear it today as we record it, and a transcriber, who is not affiliated with the study and will not have any information on who you are. The transcriber is the person who will listen to the recording and type your words into a confidential text file so that an analysis can be conducted.*

The process will go something like this.

I want you complete the assessment tool, but a little differently than you might think. I want you to read the number of the question out loud, and then read the question itself out loud. At that time, I want you to just 'think out loud' while you are deciding how to answer the question. This means that you should say out loud whatever is going through your mind. Whatever comes to your mind is OK. There are no 'right' or 'wrong' answers. You should not 'edit' your thoughts or 'mince' your words. Just let you thoughts flow and say them out loud as you decide how to answer the question. Don't worry about using 'bad' words, either. You should just say whatever comes to your mind.

My role is just to be in room with you and to operate the recorder. If you have questions while you are working or need a break for a few minutes, it's OK to ask, but I want you to do as much as possible without interruption. Do you have any questions or concerns right now?

(The researcher will pause to answer questions and address concerns)

Researcher: *Do you feel like you completely understand what you are being asked to do?*

(If the answer is 'yes,' then continue. If not, then address any other questions or concerns.)

Researcher: *Before we begin, let's do a warmup. On the second page of the assessment tool you will see some demographic questions and three questions labeled 'a,' 'b,' and 'c.' Please answer the demographic questions now.*

(The researcher will allow time for completion of the demographic questions.)

Researcher: *Now let's look at the practice questions. The 3 practice questions are so you can get comfortable with the think-aloud strategy. After you practice, you may ask me any additional questions you may have. After we are done with the practice and have begun the actual think-aloud strategy, I will become an observer only, unless there is a*

point when you require a break for any reason. However, the goal is to complete the entire assessment tool and think-aloud strategy without stopping once we begin.

Are you ready to begin the practice questions?

(If 'yes,' then continue. If 'no,' address any other questions or concerns.)

Researcher: *Ok, let's begin with the practice questions.*

(Allow participant to complete the practices questions. When the participant has finished the warmup, continue and address any inconsistencies in the respondent's process.)

Researcher: *Good job. Are there any other questions you wish to ask?*

(If 'yes,' then continue. If 'no,' address any other questions or concerns.)

Researcher: *Are you ready to begin?*

(If 'yes,' then continue. If 'no,' address any other questions or concerns.)

Researcher: *Great. I'm now going to turn on the recorder. When it's recording, I will say 'begin.'*

(The researcher will then start the recording device.)

Researcher: *The recording has started. You may begin.*

(The researcher will remain quiet for the duration of the think-aloud strategy. The researcher will be available to stop the recording or answer questions, if the participant requires it. When the participant has finished, stop the recording and continue.)

Researcher: *Thank you for helping me with this portion of the research study. We have scheduled additional time for you to talk if you wish. Do you have any concerns at all that you would like to talk about?*

(If 'yes,' then continue. If 'no,' address any other questions or concerns.)

Researcher: *You need to know that this is not the only opportunity you will be given to ask questions or talk to someone. If something should come up for you in the future, I will be available for you. Please do not hesitate if this happens. Your safety and well-being are important me.*

(At this time, the participant will be given the $5.00 compensation for their efforts.)

Researcher: *Here is our agreed compensation. Your time and effort is greatly appreciated. Thank you. This activity is now complete.*

(End of script.)

At this time in the pilot test and think-aloud strategy, the recording device will be secured in a locked location until such time that it can be transcribed by an person unaffiliated with the study. After the session has been transcribed, the recording will be deleted.

FINAL VERSION R-BIBSI

Brief Integrative Biopsychosocial Screening Instrument Mark each item as it relates to your experience by placing an "X" in the appropriate box. You must answer all items. 0 = the item is NOT AT ALL like my experience 1 = the item is RARELY like my experience 2 = the item is SOMEWHAT like my experience 3 = the item is LIKE my experience 4 = the item is VERY MUCH like my experience 5 = the item is DEFINITELY like my experience		**0**	**1**	**2**	**3**	**4**	**5**
1	Drinking alcohol helps me sleep						
2	It's easy to say yes when my friends ask me to drink with them						
3	I will be able to think better after a few drinks						
4	It is hard for me to believe that I am capable of being successful						
5	My family had financial trouble						
		0	**1**	**2**	**3**	**4**	**5**
6	I get into trouble because I don't think about what I'm doing						
7	Seeing people drinking alcohol on social media websites looks like fun						
8	Sometimes I enjoy getting into arguments						
9	Drinking alcohol will help me to fit in with the group						
10	Commercials that sell alcohol have influenced my drinking						
		0	**1**	**2**	**3**	**4**	**5**
11	Sometimes I feel self-conscious that I will look stupid						
12	I have done things without concern for my own or others' safety						

Brief Integrative Biopsychosocial Screening Instrument Mark each item as it relates to your experience by placing an "X" in the appropriate box. You must answer all items. 0 = the item is NOT AT ALL like my experience 1 = the item is RARELY like my experience 2 = the item is SOMEWHAT like my experience 3 = the item is LIKE my experience 4 = the item is VERY MUCH like my experience 5 = the item is DEFINITELY like my experience		**0**	**1**	**2**	**3**	**4**	**5**
13	I felt the need to parent my siblings when I was growing up						
14	My mother seemed to be depressed a lot						
15	I have found that I can drink a lot without feeling drunk						

Turn page to complete section 2

Section 2

Brief Integrative Biopsychosocial Screening Instrument Mark each item as it relates to your experience by placing an "X" in the appropriate box. You must answer all items. 0 = the item is NOT AT ALL like my experience 1 = the item is RARELY like my experience 2 = the item is SOMEWHAT like my experience 3 = the item is LIKE my experience 4 = the item is VERY MUCH like my experience 5 = the item is DEFINITELY like my experience		**0**	**1**	**2**	**3**	**4**	**5**
16	I have been treated for depression						
17	Members in my extended family have had trouble with alcohol						
18	Sometimes I have lied to get what I want						
19	Alcohol has helped me cope with a tragedy in my life						
20	Drinking alcohol will help keep my mind off my problems at home						
		0	**1**	**2**	**3**	**4**	**5**
21	When I drink alcohol I take unusual risks						
22	My father has abused alcohol						

Brief Integrative Biopsychosocial Screening Instrument Mark each item as it relates to your experience by placing an "X" in the appropriate box. You must answer all items. 0 = the item is NOT AT ALL like my experience 1 = the item is RARELY like my experience 2 = the item is SOMEWHAT like my experience 3 = the item is LIKE my experience 4 = the item is VERY MUCH like my experience 5 = the item is DEFINITELY like my experience	0	1	2	3	4	5
23	My parents argued a lot						
24	I feel attractive when I drink alcohol						
25	I used to drink alcohol in order to cope with my family						
		0	1	2	3	4	5
26	I felt like my parents were over protective of me						
27	I tend to overreact emotionally						
28	Television shows encourage me to believe drinking alcohol is ok						
29	Drinking is encouraged where I work or go to school						
30	People I admire drink alcohol						

FINAL VERSION R-BIBSI SCORING INSTRUCTIONS

Construct	Total	Div. by:	Score %
Biological Influence: add items 15, 17, & 22		15	
Internal Psychological Influence: add items 3, 11, 19, & 27		20	
External Psychological Influence: add items 6, 12, 18, & 21		20	
Social Family Influence: add items 5, 14, 23, & 26		20	
Social Peer/Work Influence: add items 2, 9, 24 & 29		20	
Social Cultural Influence: add items 7, 10, & 28		15	
Items 1, 4, 8, 13, 16, 20, 25, & 30 are meant for informational purposes only.			

Enter the score in the according column and fill in as a bar chart for a visual representation of you client's Biopsychosocial Profile.

%	BI	PI	PE	SF	SP	SC
90						
80						
70						
60						
50						
40						
30						
20						
10						
0						