Sensation seeking is a trait describing the tendency to seek novel, varied, complex, and intense sensations and experiences and the willingness to take risks for the sake of such experience. The first sensation-seeking scale (SSS) was developed in the early 1960s and since that time the instrument and the theory of the trait have evolved as a function of continuing research around the world. More than 600 publications have appeared on this topic, of which more than 400 appeared after a book on the topic was published in 1979. The current book describes the research and theory on sensation seeking with emphasis on the new findings since this earlier book. The behavioral expressions of sensation seeking have been found in various kinds of risk-taking behaviors such as driving habits, health, gambling, financial activities, alcohol and drug use, sexual behavior, and sports. The trait is also involved in vocational preferences and choices, job satisfaction, social premarital and marital relationships, eating habits and food preferences, media and art preferences, humor, fantasy, creativity, and social attitudes. Its modes of assessment, behavioral expressions, and genetic and psychobiological bases are described by the leading researcher in the field. In the last chapter the author develops a biosocial model for the trait.
BEHAVIORAL EXPRESSIONS AND BIOSOCIAL BASES
OF SENSATION SEEKING
BEHAVIORAL EXPRESSIONS AND BIOSOCIAL BASES OF SENSATION SEEKING

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to Mary
# Contents

**Preface**  
ix

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Theory through 1979</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Test development</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Sensation seeking in relation to other dimensions of personality</td>
<td>56</td>
</tr>
<tr>
<td>4</td>
<td>Demographic data</td>
<td>99</td>
</tr>
<tr>
<td>5</td>
<td>Risk taking</td>
<td>124</td>
</tr>
<tr>
<td>6</td>
<td>Sports and vocations</td>
<td>156</td>
</tr>
<tr>
<td>7</td>
<td>Social, sexual, and marital relationships</td>
<td>178</td>
</tr>
<tr>
<td>8</td>
<td>Vicarious experience: art, media, music, fantasy, and humor</td>
<td>199</td>
</tr>
<tr>
<td>9</td>
<td>Smoking, drinking, drugs, and eating</td>
<td>225</td>
</tr>
<tr>
<td>10</td>
<td>Psychopathology and stress</td>
<td>258</td>
</tr>
<tr>
<td>11</td>
<td>Biological bases</td>
<td>285</td>
</tr>
<tr>
<td>12</td>
<td>Psychophysiology</td>
<td>320</td>
</tr>
<tr>
<td>13</td>
<td>Information processing, cognitive styles, intelligence, and creativity</td>
<td>354</td>
</tr>
<tr>
<td>14</td>
<td>New theoretical models</td>
<td>373</td>
</tr>
</tbody>
</table>

**Appendices**  
389

**References**  
411

**Author index**  
453

**Subject index**  
459
Preface

More than a decade has elapsed since the publication of my first book, *Sensation Seeking: Beyond the Optimal Level of Arousal*. It has been 30 years since the publication of the first Sensation Seeking Scale (SSS). Since the publication of the 1979 book publications on the topic have appeared with increasing frequency. Between the publication of the first SSS in 1964 and 1978 there were 246 citations in the psychological literature under the term *sensation seeking*. From the year of publication of the 1979 book to 1990 there were over 400 additional publications. This current book is primarily concerned with the new publications. The earlier literature, described in more detail in the 1979 book, will be summarized in the present volume.

The first extensive theoretical model for sensation seeking was presented in a chapter I wrote in a 1969 volume edited by John Zubek, *Sensory Deprivation: Fifteen Years of Research*. The psychobiological model was markedly changed as a consequence of the decade of research between 1969 and 1979. What began as an optimal level of cortical arousal theory was changed to one emphasizing limbic brain systems for reward and punishment. The model for the trait has evolved further and now attempts to encompass a wide variety of new findings on social behavior, cognition, activity, mood, and psychopathology. Historical antecedents of the sensation-seeking construct and the theoretical development between 1964 and 1979 are described in Chapter 1. New theoretical developments since 1979 are described in Chapter 14 after the presentation of the more recent literature in the intervening chapters.

The primary instrument for defining the sensation-seeking trait has been the SSS. This questionnaire has evolved in a series of forms over the years since 1964. The previous book described forms II, IV, and V and how they were developed from the intervening experimental forms. This book will also include newer forms that do not use the forced-choice format and have other interesting features. Copies of the now widely used form V and these new
Preface

forms will be included in the appendix. Chapter 2 also describes forms developed for younger children and adolescents and translated forms developed in other countries. The four subscales of the SSS were derived from item factor analyses of experimental forms. Subsequent factor analyses by other investigators answered the question of replicability of the factor structure and will be discussed in this chapter. The intercorrelations of the scale scores from the factor analyses were used to justify the inclusion of a Total score in form V of the SSS. This score assumes the existence of a general sensation-seeking factor in all of the subscales in addition to some specific factor variance. This assumption has been challenged and the question will be addressed in terms of the newer analyses. The answer has implications for the fundamental definition of sensation seeking, but the questions of definition or construct validity must come primarily from the relationships between the SS scales and external criteria.

Chapter 3 attempts to answer the question of how sensation seeking fits into the broader dimensions of personality such as Eysenck’s three-superfactor model and the currently popular five-dimensional model. Our own recent factor analyses of scales shows that sensation seeking together with impulsivity and asocial tendencies actually constitute the third dimension of personality that the Eysencks have called “psychoticism.” In addition to factor analytic studies, correlations between the SSS and other scales are described to identify the nature of sensation seeking relative to the constructs described by other scales. New types of personality dimensions based on neo-Pavlovian theories have been developed in Eastern Europe. Comparisons between the SSS and the scales measuring these traits are also included in Chapter 3.

Since publication of the 1979 book, demographic data have been obtained from noncollege samples in the United States and elsewhere and these data will be presented in Chapter 4. Gender and age differences found in earlier college samples have generally been replicated in nearly all adequate-sized samples. Cross-national data are also presented along with educational, racial, regional, and socioeconomic comparisons on the SSS.

Risk taking for the sake of novel experience has been part of the definition of sensation seeking since the first scales were developed. At first the major emphasis was on physical risk taking, as embodied in the Thrill and Adventure Seeking (TAS) subscale. However, later research showed that other kinds of risk were involved in the broader trait, including legal, social, and financial ones. This led to a broader theory of risk taking in terms of conflict between positive and negative affects or outcome expectancies. New research on risk taking in terms of personality and cognitive traits, like generalized risk appraisal, is described in Chapter 5. Research on areas of risk
Preface

taking like driving habits, health, gambling, and other kinds of financial risk
taking are also included in this chapter.

Research on risk taking in sports has flourished since 1979 and now
warrants a separate discussion. In Chapter 6, an attempt is made to explain
the difference between the types of sports or exercise favored by high
sensation seekers and those preferred by average and low sensation seekers.
Vocational choice and work satisfaction relationships with sensation seeking
are discussed in this chapter.

The 1979 book included research on the relation between sensation seeking
and sexual attitudes and behavior, but not much on more complex social
relationships between the sexes. The role of sensation seeking in premarital
love relationships and marital adjustment is added to the topic of sexuality in
Chapter 7.

Research on media preferences, including films, art, music, and humor, is
described in Chapter 8. The use of fantasy and the fantasy content reported
by high and low sensation seekers are also reviewed in this chapter.

Sensation seeking has been found to be the personality trait most predictive
of early drug use. Sensation-seeking motivations are important in the early
use of drugs and alcohol. This literature, along with that on eating habits and
food preferences, is described in Chapter 9.

Sensation seeking is an essentially normal trait dimension; there is nothing
intrinsically psychopathological, or even antisocial, in either high or low
sensation seekers. Most high or low sensation seekers are not maladjusted or
abnormal in the psychiatric sense. However, certain kinds of psychopathol-
ogy are associated with high sensation seeking including antisocial personal-
ity, substance abuse, and bipolar disorder. Schizophrenia and some forms of
anxiety disorder are associated with low sensation seeking (Chapter 10). The
relation between normal sensation seeking and psychopathology also includes
certain biological traits found in both. These shared biological correlates
testify to the underlying biological variation affecting both normal personality
variants and types of psychopathology. Stress can produce certain kinds of
psychopathology as well as transient physical, social, and psychological
disturbances. The role of sensation seeking as a mediator of stress is also
discussed in this chapter.

Behavior genetical research suggests that genetic factors account for at
least 30% of the variance in most broad personality traits. In sensation
seeking, heritability is at the high end of the range, approaching 60% of the
variance uncorrected for reliability. Because we do not inherit personality in
the sense of specific behavior patterns, the differences due to heredity should
be mediated by basic neuropsychological and psychopharmacological differ-
Preface

ences, more directly influenced by genes. Chapter 11 will deal both with the genetics and biochemistry of sensation seeking, including research on hormones, neurotransmitters and their metabolites, and enzymes controlling the production and disposal of neurotransmitters. Because most of the human research on the biochemistry of personality is correlational and uses indirect indicators of brain activity, the comparative research on other species will be examined to see if there are some common biological bases for sensation seeking and analogues of the trait in animal behavior.

Psychophysiology lies between the behavioral and biochemical levels of analysis, showing how high and low sensation seekers may differ in cortical and autonomic reactivity to stimuli varying in intensity, novelty, and meaning. Consistent differences between high and low sensation seekers have been found in heart rate indexes of orienting and defensive reflexes, and in cortical reactivity to high levels of stimulation. These and other topics in psychophysiology are reviewed in Chapter 12.

Differences in psychophysiology are related to different modes of information processing. Chapter 13 describes individual differences in sensation, perception, attention, problem solving, concept formation, and intelligence related to sensation seeking. These differences in information processing may be related to more basic differences in neuropsychology and biochemistry discussed in the preceding chapter.

Chapter 14 attempts to integrate the post-1979 research into a modified model that tries to explain many of the behavioral phenomena of sensation seeking in terms of the underlying psychobiology of the trait. Unfortunately, there is practically no developmental or even family history data on sensation seekers that might enable us to formulate the social-experimental determinants of the trait, but some speculations about this important aspect of personality will be attempted.

I hope this description of the book has made it clear that this is not simply a new edition of my previous book on sensation seeking, but one that is focused on the more recent theory and research. This book is written primarily for researchers, teachers, and graduate students. The 1979 book has been used as a text for advanced undergraduate courses and this book could be used for a similar purpose.

Some background in psychometrics and test construction would be useful for Chapter 2, and some knowledge of behavior genetics, psychobiology, and psychophysiology would be helpful for Chapters 11 and 12. A recent book, Psychobiology of Personality (Zuckerman, 1991a), offers a more detailed explanation of the methods and definitions in the biological areas, and these sections could be useful in reading the current book.
Preface

Figure P.1 High sensation-seeking granddaughter with a low sensation-seeking grandfather.

A comprehensive understanding of individual differences in personality must encompass many diverse areas from the biological to the sociological. This breadth of topics is what I find most challenging about personality. Broad behavioral theories have been deemphasized in psychology for the past 30 years or so. Personality theories remain the only redoubt of general theory.

Sensation seeking has been an exciting trait to study, which may explain why I have stuck to it for so long. The concept was not entirely a new one when I began to study it, but the trait had been neglected by most researchers who did recognize its importance in many diverse kinds of human behavior. This
situation has changed, thanks to the many dedicated researchers who have used my scale or similar ones in their studies. I owe them all a special thanks for making this book possible. Another special debt is owed to my recent graduate students who have explored new areas of sensation seeking in their theses and dissertations: Sam Ball, James Black, Paula Horvath, and Mary Thornquist.

This book was largely written during my sabbatical year (1990–1991) as a fellow at the Netherlands Institute for Advanced Study where, thanks to the government of the Netherlands and the staff of the Institute, I had the unusual opportunity to think and write in very congenial surroundings in the company of many distinguished international scholars. The University of Delaware also supported me during this sabbatical year, and my chairman Thomas Scott gave me some important released time during the semester preceding the sabbatical that allowed me to collect most of the reference materials I needed for the book prior to my arrival in the Netherlands. A grant from the University of Delaware covered the final costs of completing the manuscript.

Finally, a special acknowledgment of the most important support system, Mary Hazard, who, in spite of her own scholarly endeavors, gave generously in time and effort to the feeding, care, and love of a rather disorganized and slovenly brown bear.