

A COMPARISON OF THE INTERNAL CONSISTENCY RELIABILITY
AND CONVERGENT VALIDITY
OF TWO RESPONSE FORMATS FOR THE BECK HOPELESSNESS SCALE

by

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Abstract

The Beck Hopelessness Scale (BHS) is a 20-item true/false questionnaire designed to measure a respondent's negative expectancies about the future. The construct of hopelessness has been found to correlate strongly with suicidal and parasuicidal behavior, and the BHS is frequently used in the assessment of suicide risk.

The primary purpose of the current study was to explore the impact on the internal consistency reliability and convergent validity of the BHS, when the scale's item response format was altered from its published true/false format to a system of scoring each item on a 6-point Likert scale. The sample investigated was drawn from an adult non-clinical population.

Results indicated that there was no significant difference in the magnitude of the internal consistency reliability coefficients obtained with each of the two response formats tested. Results also indicated that, when considering the total sample, there was no significant difference in the magnitude of correlations found between the true/false versus the 6-point Likert scored BHS and the convergent measures investigated in the study. However, two levels of sex differences were found: within each BHS type tested (true/false and 6-point Likert) higher magnitude correlations were found between BHS scores and

all of the other measures investigated for female participants than for male participants (although the differences failed to reach statistical significance) in the true/false BHS condition, and higher magnitude correlations were found for male participants than for female participants (two of the differences were significant at the .05 level) in the 6-point Likert condition. Additionally, within each sex, male participants obtained higher correlations (non-significantly) in the 6-point Likert compared to the true/false BHS condition with all measures investigated, while female participants in the true/false BHS group obtained higher correlations with all of the measures investigated (one of the differences was significant at the .05 level) relative to female participants in the 6-point Likert group. A number of interpretations and implications of the findings are discussed.

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INTRODUCTION

The Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974) is a 20-item true/false questionnaire designed to measure a respondent's negative attitudes towards the future. In designing the scale, Beck et al. (1974) adopted Stotland's (1969) definition of hopelessness as "a system of cognitive schemas in which the common denominator is negative expectancy about the short- and long-term future" (Beck & Steer, 1988, p. 1).

The construct of hopelessness has been found to be closely linked to suicidal ideation, attempt, and completion (e.g. Beck, Weissman, & Kovacs, 1976; Kovacs, Beck, & Weissman, 1975; Minkoff, Bergman, Beck, & Beck, 1973; Wetzel, 1976); therefore, the BHS is commonly used as an indirect indicator of suicidal risk (Beck & Steer, 1988; Kovacs et al., 1975).

Although the scale was developed and originally intended for use with an adult psychiatric population, it has also been used to measure hopelessness in adolescent and various adult non-clinical populations (e.g., Cole, 1988; Durham, 1982; Greene, 1981; Johnson & McCutcheon, cited in Beck & Steer, 1988; Linehan & Nielsen, 1981, 1983). In use with a clinical population, the psychometric properties of the BHS have been widely studied and accepted (Beck et al., 1974; Young, Halper, Clark, Scheftner, & Fawcett, 1992). However, the scale's reliability and validity as an instrument to operationalize

hopelessness with a non-clinical population has been questioned (Linehan & Nielsen, 1981; Young et al., 1992).

The purpose of the present study was to assess the impact on the internal consistency reliability and convergent validity of the BHS in use with a non-clinical population when two versions of the BHS, each employing a different item response format, were tested. Participants were randomly assigned to respond to one of two versions of the BHS: the published scale which employs a true/false scoring format, or a revised version of the scale which scores each item on a 6-point Likert scale. Additionally, all respondents completed four instruments that measure constructs theoretically related to hopelessness: anxiety, dispositional optimism, positive/negative affectivity, and parasuicidal history. The instruments that were used in this study are: the T-Anxiety (trait form) of the State Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970), the Life Orientation Test (LOT; Scheier & Carver, 1985), the Positive Affect Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), and the Suicide Behaviors Questionnaire (SBQ; Cole, 1988).

In use with non-clinical populations, the STAI and the LOT have demonstrated moderate to strong correlations with BHS scores: STAI/BHS $r = .71$ (Connell & Meyer, 1991); LOT/BHS $r = -.53$ (Chang, D'Zurilla, & Maydeu-Olivares, 1994). The

remaining two instruments selected measure parasuicide and positive/negative affectivity, constructs that have a theoretical relation to hopelessness (e.g. Linehan & Nielsen, 1981, 1983; Watson, Clark & Tellegen, 1988). Primary analysis of the data consisted of a comparison of the relative internal consistency reliability, and convergent validity of the two response formats for the BHS.

A measure of the relative reliability of each of the two BHS response formats was determined by comparing the internal consistency reliability coefficient (coefficient alpha) yielded by each version of the BHS. To compare the relative convergent validity of the two scoring formats for the BHS, respondents' total BHS scores were correlated to their scores on the other four instruments.

Primary analysis explored two questions: whether one of the two methods of scoring the BHS yielded a significantly larger magnitude internal consistency reliability coefficient, and whether higher magnitude correlations were found with the true/false or Likert scored scale and respondents' scores on measures with a predicted positive and negative correlation with hopelessness.

CHAPTER 1: LITERATURE REVIEW

A wide body of research literature has focused on or employed the BHS in the 20 years following its inception. With regard to the present study, the main issues of relevance are the overall reliability and validity of the BHS as an instrument to operationalize hopelessness, and the issues particular to the use of the BHS with a non-clinical population.

Properties of the Beck Hopelessness Scale

The BHS consists of 20 items measuring a respondent's negative expectancies (see Appendix C(i) for a listing of the items). The scale was originally constructed with a population of 294 hospitalized patients who had made recent suicide attempts. With this population, a measure of the internal consistency of the scale, analyzed by means of coefficient alpha, Kuder-Richardson 20, yielded a reliability coefficient of .93 (Beck et al., 1974). The BHS manual (Beck & Steers, 1988) provides internal consistency data for an additional six clinical norm groups (suicide ideators, alcoholics, heroin addicts, single-episode major depression, recurrent-episode major depression, and dysthymics) with coefficients ranging from .92 to .82 (mean coefficient, $r = .89$). In non-clinical samples, Durham (1982) reported a reliability coefficient of .65 for his college student sample, a drop in reliability that the author attributes to the

restriction in range of scores found with non-clinical versus clinical populations.

Available test-retest reliability coefficients are reported to be .69 after one week and .66 after 6 weeks. Although these coefficients are in the moderate range, Dowd (1985) points out that they may be reflective of the lability of the feeling of hopelessness, rather than demonstrating a failing in the reliability of the scale.

Much of the research on the validity of the BHS has focused on four aspects of the scale's validity: content, concurrent, construct, and predictive.

Content Validity

The items selected for inclusion in the hopelessness scale were taken from a large pool of statements made by patients receiving treatment for clinical depression. Twenty of the items deemed by the researchers to be most commonly mentioned were given to a random sample of depressed and non-depressed psychiatric patients who were advised of the purpose of the scale and asked to evaluate the statements in terms of their relevance and clarity. The items were also reviewed by several clinicians for face validity and were then pilot tested as a scale titled the Generalized Expectancy Scale (GES; Minkoff et al., 1973). The present form of the BHS (Beck et al., 1974) is a slight modification of the wording of the 20 GES items.

Concurrent Validity

Beck et al. (1974) studied the correlation between BHS scores and clinicians' ratings of hopelessness (based on an 8-point rating scale). They reported correlations of .74 in a sample of 23 outpatients in a general medical practice, and .62 in a sample of 62 hospitalized patients who had recently attempted suicide. Interrater reliability for ratings by two judges was .86.

The BHS manual (Beck & Steers, 1988) also reports correlations between the BHS and the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) for the seven normative samples mentioned earlier. After subtracting the Pessimism rating from the BDI total score, correlations with BHS scores range from .74 (in the alcoholic sample) to .42 (in the heroin addicted sample), with a mean correlation of .58. The magnitude of these correlations indicate that the two scales measure related, but distinct, constructs.

Construct Validity

The majority of the evidence concerning the construct validity of the BHS focuses on the relationship between hopelessness and suicidal risk. Although hopelessness is positively correlated with depression (e.g. Minkoff et al., 1973), and both constructs are related to suicide, a number of studies have shown that hopelessness is the mediating variable in the relationship between depression and suicide. That is,

the correlation between depression and suicide decreases to insignificance when hopelessness is controlled for, while the strong positive correlation between hopelessness and suicide remains practically unchanged when depression is controlled for (Dyer & Kreitman, 1984; Kovacs et al., 1975; Petrie & Chamberlain, 1983; Wetzel, 1976; Wetzel, Margulies, Davies, & Karam, 1980).

Providing further evidence of the scale's construct validity, Beck, Steer, and McElroy (1982) used a multiple regression analysis to show that scoring on the BHS accounted for 42% of the variance in suicidal intention as measured by the Suicidal Intent Scale (SIS; Beck, Shuyler, & Herman, 1974) in a sample of 105 alcoholics. In contrast, respondents' scores on the BDI and the number of previous suicide attempts accounted for less than 1% of the variance in suicidal intention.

Predictive Validity

In a nine year follow-up study of 207 patients hospitalized with suicidal ideation, 10 out of the 11 patients who committed suicide during the follow-up period had a BHS score of 9 or above at the time of admission to hospital, a false-negative rate of 9.1% (Beck, Steer, Kovacs, & Garrison, 1985). Beck, Brown, Berchick, Stewart, and Steer (1990) conducted a similar eight year follow-up study of 1,958 psychiatric outpatients. The authors found that a BHS score

above 9 at the time of admission predicted eventual suicide for 15 out of the 16 outpatients who committed suicide during the period of study (false-negative rate of 6.2).

Properties of the BHS in Use with a Non-Clinical Population

Overall, the psychometric properties of the BHS in use with a clinical population have been studied extensively, and the measure is widely accepted as both reliable and valid (e.g., Beck & Steer, 1988; Dowd, 1985; Greene, 1981; Keyser & Sweetland, 1984). A review of the literature reveals three areas of concern pertaining to the use of the BHS with a non-clinical population: the relationship between BHS scores and measures of social desirability, researchers' definitions of 'clinical' and 'non-clinical' populations, and the scale's construct validity when measuring low levels of hopelessness.

The BHS/ Social Desirability Correlation

In a study with 196 mall shoppers, Linehan and Nielsen (1981) examined the relationship between BHS scores, scores on the Edwards Social Desirability Scale (ESDS; Edwards, 1970) and self-reported past, present, and predicted future parasuicidal behavior. Overall, the authors reported a strong negative correlation between BHS scores and scoring on the ESDS ($r = -.64$), and found that the significant correlation between BHS scores and parasuicidal behavior decreased to insignificance when social desirability was controlled for.

Nevid (1983) countered that it was not unreasonable (and

therefore not a threat to the construct validity of the BHS) to find a correlation between BHS scores and social desirability, since describing oneself as feeling hopeless is by definition a socially undesirable description. Alternatively, he suggested that hopelessness may decrease a respondent's tendency to answer in a socially desirable manner, leading to the conclusion that the social desirability-BHS correlation would be stronger in non-clinical versus clinical populations.

The latter assumption was tested by Linehan and Nielsen (1983) in a study with 44 psychiatric inpatients. The authors again found a strong negative correlation between BHS and ESDS scores ($r = -.58$), and reported that the correlation between hopelessness and self-reported chance of future suicide dropped (nonsignificantly) from .33 to .26 when social desirability was controlled for. Overall, the authors replicated the direction of results from their shopping centre sample findings, but also supported Nevid's (1983) assumption in that the magnitude of confounding between social desirability and hopelessness was smaller in the clinical versus the non-clinical sample.

Petrie and Chamberlain (1983) measured depression, hopelessness, suicidal behavior, and social desirability in a sample of 54 hospital patients who had recently attempted suicide. Using the Marlowe-Crowne Social Desirability Scale

(MCSDS; Crowne & Marlowe, 1964), they found a significant correlation between hopelessness and social desirability ($r = -.30$), but contrary to Linehan and Nielsen's (1981, 1983) findings, the correlation between hopelessness and parasuicide did not diminish when social desirability was controlled for. The authors concluded that their results were largely due to the different characteristics present in a clinical versus a non-clinical sample.

Cole (1988) attempted to resolve the BHS-social desirability controversy by gathering data using multiple operationalizations of hopelessness, social desirability, depression, and parasuicide from two college student populations. Hopelessness was operationalized using the BHS and a five-item questionnaire used by Beck et al. (1974) to validate the BHS. Social desirability was measured with the ESDS, the MCSDS, and the MMPI-K subscale. The two samples studied consisted of a treatment seeking group ($n=125$) who were undergoing therapy at the university psychology clinic, and a nontreatment group ($n=130$) who were volunteers from an undergraduate psychology class.

The author found differing correlations between BHS scores and social desirability, depending on which instrument was used to operationalize social desirability: BHS/ESDS, $r = -.61$, BHS/MMPI-K, $r = -.43$, BHS/MCSDS, $r = -.19$. Cole (1988) was able to replicate both Linehan and Nielsen's (1981) and

Petrie and Chamberlain's (1983) findings, but found that the apparent contradiction in results was not due to the sample used, but to different operationalizations of social desirability. However, he also replicated Linehan and Nielsen's (1981, 1983) findings in that controlling for social desirability decreased the hopelessness-parasuicide correlation (although it remained significant) in the treatment-seeking sample and eradicated the correlation in the non-treatment seeking sample.

An in-depth examination of the relationship between the measurement of hopelessness and indexes of social desirability is beyond the scope of the present study. Although inconclusive, the balance of the available research literature seems to suggest that the degree of confounding is more attributable to variation in the instruments used to operationalize social desirability, than to a failing in the validity of the BHS.

For the present study, the issue of the possible confounding of hopelessness measurement by social desirability was addressed in two ways. First, in response to the concern that impression management may lead a non-clinical sample to underreport hopelessness, participants responded to the BHS questionnaires privately and anonymously. Previous research studies that have detailed the methods used to carry out data collection report having a researcher present while

participants completed the BHS (e.g., Cole, 1988; Greene, 1981; Linehan & Nielsen, 1981, 1983), a method which may exacerbate respondents' social desirability concerns.

Second, measurement of the concurrent validity of the BHS did not depend solely on participants' self-reported parasuicide. Having a history of attempted suicide and parasuicide is a relatively rare phenomenon in non-clinical populations (e.g. Linehan & Neilsen, 1981), and researchers have found that self-reports of suicidal ideation and behavior are also significantly negatively correlated with measures of social desirability (Cole, 1988; Linehan & Neilsen, 1981). Presumably, responses to the LOT, STAI, and PANAS, also answered privately and anonymously, will not be subject to the same restriction in range of scores or social desirability concerns.

Delineation of Clinical and Non-Clinical Samples

The second key issue regarding the use of the BHS with a non-clinical population concerns the various ways researchers have chosen to define 'clinical' and 'non-clinical'. As mentioned previously, Beck et al. (1974) originally designed the BHS using a population of hospitalized patients who had recently attempted suicide. In the nearly 20 years following the scale's inception, researchers have used a variety of criteria to delineate their samples.

Reviewing the literature, a 'clinical' sample has

variously been defined as hospitalized suicide attempters (Beck et al., 1974), general psychiatric inpatients (Durham, 1982; Linehan & Nielsen, 1983), psychiatric outpatients (Beck et al., 1990; Young et al., 1992), general medical patients (Greene, O'Mahony, & Rungasamy, cited in Beck & Steer, 1988), and college students seeking treatment at a counselling centre (Cole, 1988).

Similarly, the definition for a 'non-clinical' or 'normal' population has varied. Greene (1981) used a sample culled at random from the voters' lists in Ireland. Linehan and Nielsen (1981) selected their sample from volunteers in a Seattle shopping mall and then subdivided the sample based on respondents' self-reported history of past suicidal behavior (that is, respondents with a history of parasuicide were deemed to be relatively more 'clinical' than non-parasuicidal participants). Other researchers have used samples of college students as controls (e.g., Cole, 1988; Durham, 1982).

For the present study, an adult non-clinical sample was defined as consisting of male and female participants aged 18-65 who were not undergoing psychiatric or psychological treatment at the time of testing.

Validity of the BHS when Measuring Low Levels of Hopelessness

The third issue regarding the use of the BHS with non-clinical populations concerns the scale's possible lack of sensitivity at low levels of hopelessness. Researchers have

suggested that the relatively low range of psychopathology present in non-clinical samples leads to a restriction in range of scores that may compromise the construct validity of the BHS when it is used with a non-clinical population (Cole, 1988; Durham, 1982; Young et al., 1992).

An exploration of this issue was the primary focus of the present study. One method of establishing or testing the construct validity of an instrument involves demonstrating that the instrument correlates with variables it is predicted to have a relationship to (i.e. examining the test's convergent validity), and demonstrating that the instrument does not correlate with variables it is predicted to differ from (i.e. examining the test's discriminant validity) (Campbell, 1960). The present study focused on examining the convergent validity of the BHS, by computing correlations between respondents' BHS scores and their scores on measures with either an established or predicted relationship to hopelessness: anxiety, optimism, parasuicide, negative affectivity, and positive affectivity.

Specifically, the study tested the impact on the internal consistency reliability and convergent validity of the BHS, when the scale's response format was changed from a dichotomous (true/false) to a continuous (6-point Likert) scale. The test construction literature recognizes that there are a number of possible item response format options - for

example, Yes/No, Yes/?/No, True/False, Like/Dislike, Trichotomous scales, and Likert graded response scales (e.g. Anastasi, 1988; Goldstein & Hersen, 1990; Kline, 1986).

Kline (1986) lists several advantages and disadvantages of each of the two response formats - true/false and graded Likert scale - examined in the present study. The advantages of a true/false response scale are that it is easily understood by respondents, it is easily scored, and it allows for an oral administration of the test. A possible disadvantage of this type of response format is that respondents may show a tendency to acquiesce, or answer 'True' to all items, regardless of their content. The potential problem of acquiescence is usually addressed by counterbalancing test items so that some are positively worded (i.e. 'True' denotes a response in the keyed direction) and some are negatively worded (i.e. 'False' denotes a response in the keyed direction). The BHS, for example, contains 11 positively worded and 9 negatively worded items.

The advantage of Likert response scales is that they allow respondents the option of expressing a gradation in their feelings, which may therefore increase the amount of information available to the test examiner; for example, it may be meaningful for the examiner to know which test items a respondent 'strongly agrees' with, compared with those items he/she 'slightly agrees' with. Kline (1986) describes two

response sets that may confound responses on a Likert scale: respondents' tendency to endorse the extreme options, or respondents' tendency to choose the middle category (especially if the middle category is 'Neutral').

Although Beck et al. (1974) do not discuss their rationale for the selection of a true/false response scale for the BHS, the decision was most likely influenced by the fact that the scale was intended as an assessment tool for clinical populations, where allowing for an oral administration of the test may potentially have been an important consideration. Although the issue of the optimal number of choice alternatives for a rating scale remains unsettled, there is research concurrence on some aspects of the multicategory versus dichotomous scales debate. It has been found, for example, that increases in the number of choice alternatives per item yield an increase in reliability and validity for some measures (e.g. Comrey & Montag, 1982; Georgi, 1984; Ghiselli, 1939; Komorita & Graham, 1965; Oaster, 1989).

Georgi (1984) compared the effects of using a 4-point Likert format versus a 2-point true-false format on the testing time, internal consistency reliability, and validity for four scales derived from the California Personality Inventory. One group of participants (N=97) responded to the scales in their original true-false format, while a second group (N=99) responded to the same items using a 4-point

Likert format. The results showed no significant differences between testing time for the two formats, a significant increase in internal consistency reliability for the 4-point format on all four scales, and significant increases in validity for two of the four scales.

Along with the potential psychometric advantages of continuous scales, participants also report a preference for multicategory versus dichotomous scales (Jones, cited in Georgi, 1984), and are less likely to choose the "don't know" category when given graded rather than absolute response options (Ghiselli, 1939). Additionally, Ghiselli (1939), as well as Guest (1962), found that some participants changed the direction of their responses when they were presented with four rather than two response categories. The present study examined whether the influence of any of these factors significantly affected a sample's scoring on the BHS when an increase in response options - from 2 to 6 - was tested.

Hypotheses

As previously stated, the true/false format of the BHS was presumably selected by Beck et al. (1974) to allow for an oral administration of the test, a potentially important property for a test intended to be used with severely clinical populations. Although Wetzel (1975) presented the BHS as a 7-point Likert scale in his study of 154 suicide attempters (unfortunately the author did not discuss his rationale for this change in format), to date no research has compared the appropriateness of the true/false versus the Likert-scale scoring format for the BHS.

Accordingly, the present study tested the following two hypotheses:

- Ho (1): A change in the BHS scoring format from a true/false to a 6-point Likert system of scoring each item will not significantly affect the internal consistency reliability of the scale in use with a non-clinical population sample.
- H1 (1): A change in the BHS scoring format from a true/false to a 6-point Likert system of scoring each item will significantly affect the internal consistency reliability of the scale in use with a non-clinical population sample.
- HO (2): There will be no significant difference in the correlations obtained between total BHS scores derived

from a true/false version versus a 6-point Likert scale version of the BHS, and respondents' scores on the LOT, STAI, PANAS, and SBQ.

H1 (2): There will be a significant difference in the correlations obtained between total BHS scores derived from a true/false version versus a 6-point Likert scale version of the BHS, and respondents' scores on the LOT, STAI, PANAS, and SBQ.

CHAPTER II: METHOD

The present study employed an experimental group design. Participants were randomly assigned to complete one of the two versions of the BHS (true/false or 6-point Likert scored) employed in the study, and all participants completed the T-Anxiety form of the STAI, the LOT, the PANAS, and the SBQ.

All participants were also asked to complete a demographic data sheet (see appendix D). As well, due to the sensitive nature of the topic under investigation in the present study, participants received a listing of some of the crisis intervention and suicide prevention resources available in the lower mainland (see Appendix E).

Participants

For this study, a sample of convenience totalling 168 respondents was recruited from among five sources:

Source 1 (N=43): employees of a lower mainland car dealership;

Source 2 (N=38): employees of a UBC union;

Source 3 (N=24): employees and associates of a lower mainland group home;

Source 4 (N=38): employees of a bank processing branch;

Source 5 (N=25): residents of the researcher's apartment building.

The 168 respondents who participated in the present study ranged in age from 18 to 65 years with a mean age of 36.6

years (s.d.= 12.1). One hundred women were tested (mean age 34.9, s.d.= 11.8) and 68 men (mean age 39.1, s.d.= 12.3). The majority of respondents were married, with full-time employment, and a college or university education.

The questionnaires sent out to the first group of participants tested (the car dealership employees) included the following question in the demographic section: How would you describe your ethnic background? Because a large number of respondents from this first sample source left the question blank (10 out of 43, 23%), the question was changed to the following for the remaining participants:

How would you describe you ethnic/cultural background?

(Circle one)

European Eastern European Asian African East Indian
Other: _____

Combining the results obtained with both forms of the ethnicity question, the majority of respondents (approximately 54%) described themselves as 'European,' with the second most often reported ethnicity (Canadian) reported by approximately 11% of participants. A detailed description of the demographic characteristics of the sample investigated is provided in Table 1.

To ensure that a non-clinical sample, as defined by the present study, was investigated, one of the questions included in the questionnaire package asked respondents whether they

were currently undergoing psychiatric or psychological treatment. Seven participants answered "Yes," and their questionnaire responses have not been included in the analysis of the data. Additionally, 2 questionnaires were returned incomplete. One had only the first instrument completed and was therefore not included in the data analysis. The second had all the instruments complete except the T-Anxiety form of the STAI, and was included in the analysis.

Table 1

Description of the Sample Sources

Source	1 (N=43)	2 (N=38)	3 (N=24)	4 (N=38)	5 (N=25)
Mean Age	33.16	45.31	33.12	36.82	32.28
Std. Dev.	9.23	10.63	10.22	14.70	9.73
	n	n	n	n	n
Sex:					
Male	23	20	8	14	3
Female	20	18	16	24	22
Marital St.					
Single	16	4	10	17	10
Common-Law	1	5	3	1	4
Married	21	25	9	17	9
Divorced	5	4	2	3	2
Education:					
High School	19	16	6	14	3
Trade School	4	9	1	5	1
Coll./Univ.	18	13	14	18	19
Masters/PhD	2	--	3	1	2
Employment:					
Student	3	--	4	4	1
Part/Time	4	8	9	6	5
Full/Time	35	29	11	19	18
Retired	--	--	--	6	1
Unemployed	--	1	--	3	--
Ethnicity:					
European	12	24	15	22	17
East Europ.	--	2	1	3	1
Asian	7	5	3	2	1
African	1	--	2	--	--
East Indian	3	--	--	1	--
Canadian	6	1	1	5	6
Other	4	5	--	3	--
Unreported	10	1	2	2	--

Procedure

Potential participants were contacted at their place of work (or at their residence in the case of the apartment sample) and asked to volunteer for the study. For the first sample from whom data was collected, the car dealership employees, permission was obtained to have a letter outlining the study and requesting participation included in each employee's pay envelope [see Appendix A(i) for a sample of the initial contact letter]. Employees who agreed to participate also received a page of instructions, which was included in their questionnaire packages [see Appendix A(ii)]. For the remainder of the sample sources, the information contained in the contact and instruction sheets was combined [see Appendix A(iii)] and distributed as part of the questionnaire package.

To recruit the remainder of the study participants, the researcher sent potential respondents a copy of the questionnaire package inviting participation (in the case of the UBC union employee sample), or personally presented the study and asked for volunteers (in the case of the bank employee, apartment resident, and group home employee samples). It was assumed that participants would self-select based on the age restrictions set out in the instruction letter (under 18 or over 65) and on their ability to comprehend English.

Study volunteers received a package containing, in the following order: an instruction sheet; a small envelope with an index card enclosed (for participants wishing to have their names entered in a prize draw); the PANAS questionnaire; either a true/false or 6-point Likert scored version of the BHS; the T-Anxiety form of the STAI; the LOT; the SBQ and a demographic data sheet; and a page listing some of the lower mainland crisis and suicide intervention resources. Data was collected during March and April, 1995.

There was some variation in the ways respondents returned their completed questionnaires. The car dealership and group home employees returned completed forms to a box provided by the researcher at their work sites. Residents of the researcher's apartment building returned their forms to the researcher's mail box. The bank employees were provided with stamped envelopes addressed to the researcher and returned their questionnaires through the mail. UBC employees were given the option of returning their questionnaires to a box provided at their work site, or to the Counselling Psychology Department through campus mail.

From each participant, the researcher received a large envelope containing the smaller sealed envelope (for the prize draw) and an anonymous completed questionnaire package. The prize draw envelopes were separated from the questionnaires, and remained sealed until the draw date (May 10th). Once the

prize winning participants were selected and notified, the remaining envelopes were disposed of unopened.

Instruments

Beck Hopelessness Scale

True/False Scored Beck Hopelessness Scale (BHS)

Two versions of the BHS were employed in the present study, and participants were randomly assigned to complete one or the other. The true/false (published) version [see Appendix C(i)] consists of the 20 BHS items headed by the following instructions:

This questionnaire consists of 20 statements.

Please read the statements carefully one by one. If the statement describes your attitude for the past week including today, darken the circle with a 'T' indicating TRUE in the column next to the statement. If the statement does not describe your attitude, darken the circle with an 'F' indicating FALSE in the column next to the statement. Please be sure to read each statement carefully.

Nine of the 20 items are keyed false (i.e., participant receives 1 point for answering these items "False") and the remaining 11 items are keyed true. Participants' scores could potentially have ranged from 0 to 20.

6-point Likert Scored Beck Hopelessness Scale

The Likert-scale version of the BHS [see Appendix C(ii)] contains the same 20 items in the same order, headed by these instructions:

This questionnaire consists of 20 statements.

Please read the statements carefully one by one. To describe your attitude for the past week including today, how much do you agree with each statement?

1-Completely Disagree

2-Strongly Disagree

3-Slightly Disagree

4-Slightly Agree

5-Strongly Agree

6-Completely Agree

Circle the number corresponding to your degree of agreement in the column next to the statement. Please be sure to read each statement carefully.

Participants received a score corresponding to the alternative they selected for each of the items keyed True, and the scoring was reversed (i.e., 1=Completely Agree, 6=Completely Disagree) for each of the items keyed False. Respondents' scores could potentially have ranged from 20-120.

One-half of the total number of questionnaire packages generated by the researcher contained a copy of the true/false scored BHS, while the other half contained a 6-point Likert

scale scored BHS. To achieve random assignment of participants to either of the two BHS conditions, the questionnaire packages were handed out to participants in an alternating order.

T-Anxiety Scale of the State Trait Anxiety Inventory (STAI)

The trait form of the State Trait Anxiety Inventory is a 20-item test purporting to measure a respondent's "anxiety-proneness" (Spielberger, Gorsuch, & Lushene, 1970, p. 1), as it relates to a relatively stable personality trait (see Appendix D for a listing on the test items). The test requires respondents to indicate how often their feelings generally correspond to the statements contained in each item, using a 4 point Likert response format that ranges from 'almost never' to 'almost always.' Respondents' scores on the T-Anxiety scale of the STAI can range from 20 to 80, with a higher score indicating a higher level of trait anxiety.

The STAI is one of the most commonly used instruments to operationalize anxiety in psychological research (Keyser & Sweetland, 1984) and its reliability and validity have been widely established and accepted (e.g. Gaudry & Poole, 1975; Kendall, Finch, Auerback, Hooke, & Mikulka, 1976). In use with an adult non-clinical population, the STAI manual reports internal consistency reliability coefficients of .91 for the T-Anxiety scale, for both males and females (Spielberger, Gorsuch, & Lushene, 1970). The manual also provides normative

data for both clinical and non-clinical adult populations, as well as high school students.

The construct of anxiety is theoretically related to the constructs of both depression and hopelessness (e.g. Connell & Meyer, 1991; Rholes & Riskind, 1985; Silbert & Berry, 1991). The T-Anxiety scale of the STAI was selected for use in this study because it is a relatively short test, it has a demonstrated relationship to scoring on the BHS (Connell & Meyer, 1991), and its items do not exhibit a large degree of content overlap with the BHS items.

Suicidal Behaviors Questionnaire (SBQ)

Reviewing the literature, the measurement of hopelessness is rarely discussed in isolation of parasuicide (e.g. Beck et al, 1990; Dyer & Kreitman, 1984; Kovacs, Beck, & Weissman, 1975). Accordingly, participants in the present study also answered the four items of the Suicidal Behaviours Questionnaire (SBQ; see Appendix F) used by Cole (1988).

The SBQ questions respondents' history of parasuicidal ideation and behavior, and their perceived potential for future suicide. It was selected for use in the present study because it has been used in previous research examining the relationship between BHS scoring and parasuicide. As per Cole (1988) the researcher determined whether a respondent was classified as parasuicidal or non-parasuicidal based on the following criteria: a respondent was classified as

parasuicidal if he or she either a) self-reported a previous suicide attempt, or b) answered "yes" to two or more of the SBQ questions.

Life Orientation Test (LOT)

Like the BHS, the LOT is designed to measure a respondent's generalized outcome expectancies (see Appendix E for a listing of the LOT items). The scale consists of a total of twelve items, four keyed positively, four keyed negatively and four filler items (items number 2, 6, 7, and 10 are the filler items). Each LOT item is scored on a Likert scale ranging from 4=Strongly Agree to 0=Strongly Disagree. Respondents' scores can range from 0 to 32, with a higher score indicating a higher level of optimism.

The LOT demonstrates a moderate level of internal consistency reliability (.76), and test-retest reliability (.79) (Scheier & Carver, 1985). The test authors have also tested the LOT's convergent and discriminant validity by computing correlations between scores on the LOT and scores on instruments measuring a number of other constructs, including hopelessness. With an adult non-clinical sample (n=322), the authors report a moderately strong negative correlation ($r = -.47$) between LOT and BHS scores.

Inclusion of a measure of optimism was desired in the present study in order to test the discriminant validity of the BHS. The LOT was selected as the optimism measure because

it is very brief, has demonstrated reliability and validity, and has a demonstrated relationship to scoring on the BHS.

Positive Affect Negative Affect Schedule (PANAS)

The PANAS scale consists of 20 words that describe different feelings and emotions (Watson, Clark & Tellegen, 1988). Participants are asked to indicate the degree to which each word describes the way they have felt during the time period specified (see Appendix B for a listing of the PANAS words). Responses are graded on a five point scale ranging from 'very slightly or not at all' to 'extremely.' Ten of the words compose the positive affect (PA) subscale, and the negative affect (NA) subscale is made up of the remaining ten words. Participants' scores can range from 10 to 50 on each subscale, with higher scores indicating a higher level of the construct being measured by the subscale.

Positive affect reflects "the extent to which a person feels enthusiastic, active and alert. High PA is a state of high energy, full concentration, and pleasurable engagement, whereas low PA is characterized by sadness and lethargy" (Watson, Clark & Tellegen, 1988, p. 1063). Contrastingly, negative affect is reflective of "subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states, including anger, contempt, disgust, guilt, fear, and nervousness, with low NA being a state of calmness and serenity" (Watson, Clark, & Tellegen, 1988, p. 1063).

Presumably, hopelessness can be conceptualized as an 'aversive mood state,' and would therefore be related to both negative affect (positive correlation) and positive affect (negative correlation). Inclusion of the PANAS in the present study was influenced by the brevity and simplicity of the instrument, and its measurement of constructs with both a predicted convergent and discriminant relationship to the construct of hopelessness.

CHAPTER 3

Results

The results of the data analyses performed in the present study will be presented in four parts: comparison of the two groups assigned to each level of the independent variable (the type of scoring format used for the BHS), detailing of scoring on the instruments investigated, testing of the hypotheses, and post hoc exploratory analyses.

Comparison of the Two BHS Groups

The 168 respondents who participated in the present study were randomly assigned to respond to one of the two versions of the BHS used: the published version which scores each item on a dichotomous true/false scale, or a modified version which scores each item on a 6-point Likert scale ranging from completely agree to completely disagree. Eighty-five respondents completed a true/false scored BHS, and 83 completed a 6-point Likert scored BHS. There was no significant difference in the mean age of respondents to each of the two BHS versions (T/F mean= 36.8, s.d.= 12.5; 6-point Likert mean= 36.4, s.d.= 11.8; t -value =.20, p =.840). A series of chi-squares were computed to ensure that the two BHS groups were comparable in terms of the distribution of the following variables: sex, marital status, education, employment, and parasuicide. The two groups were not found to differ significantly on any of these factors (see Table 2).

Table 2

Distribution of Demographic Characteristics by BHS Type

	T/F BHS (N=85)	6pt BHS (N=83)	Chi-Square p value
Sex:			
Male	35	33	.983
Female	50	50	
Non-parasuicidal	70	71	.834
Parasuicidal	15	12	
Marital Status:			
Single	30	27	.904
Common-Law	6	8	
Married	40	41	
Divorced	9	7	
Employment Status:			
Student	6	6	.933
Part-Time	17	15	
Full-Time	57	55	
Retired	3	4	
Unemployed	2	3	
Education:			
High School	26	32	.340
Trade School	11	9	
College/University	42	40	
Master's/PhD.	6	2	

To assess equivalence among the five sample sources from which the 168 participants were selected, a series of one-way ANOVAs were computed on participant scores on the measures investigated (LOT, STAI, PA, and NA) across each of the five sample sources. Analyses revealed no significant group differences at the .05 level for any of the measures (see Table 3).

Table 3

Scoring on the Dependent Variables by Source

	LOT score	NA score	PA score	T-Anxiety
Source 1 (N=43)				
Mean	21.44	19.14	32.42	39.02
Std. Dev.	5.57	5.98	6.69	10.40
Source 2 (N=38)				
Mean	22.39	17.05	31.82	35.79
Std. Dev.	5.21	7.15	7.90	9.78
Source 3 (N=24)				
Mean	20.00	20.00	31.58	42.57
Std. Dev.	5.60	7.15	7.63	11.78
Source 4 (N=38)				
Mean	22.82	20.21	32.89	38.55
Std. Dev.	5.49	8.04	7.26	11.03
Source 5 (N=25)				
Mean	22.88	19.28	33.48	37.04
Std. Dev.	5.33	7.28	7.69	10.46
Significance	F= 1.35 p= .254 n.s.	F= 1.12 p= .350 n.s.	F= .31 p= .872 n.s.	F= 1.60 p= .177 n.s.

Scoring on the Instruments InvestigatedTrue/False BHS

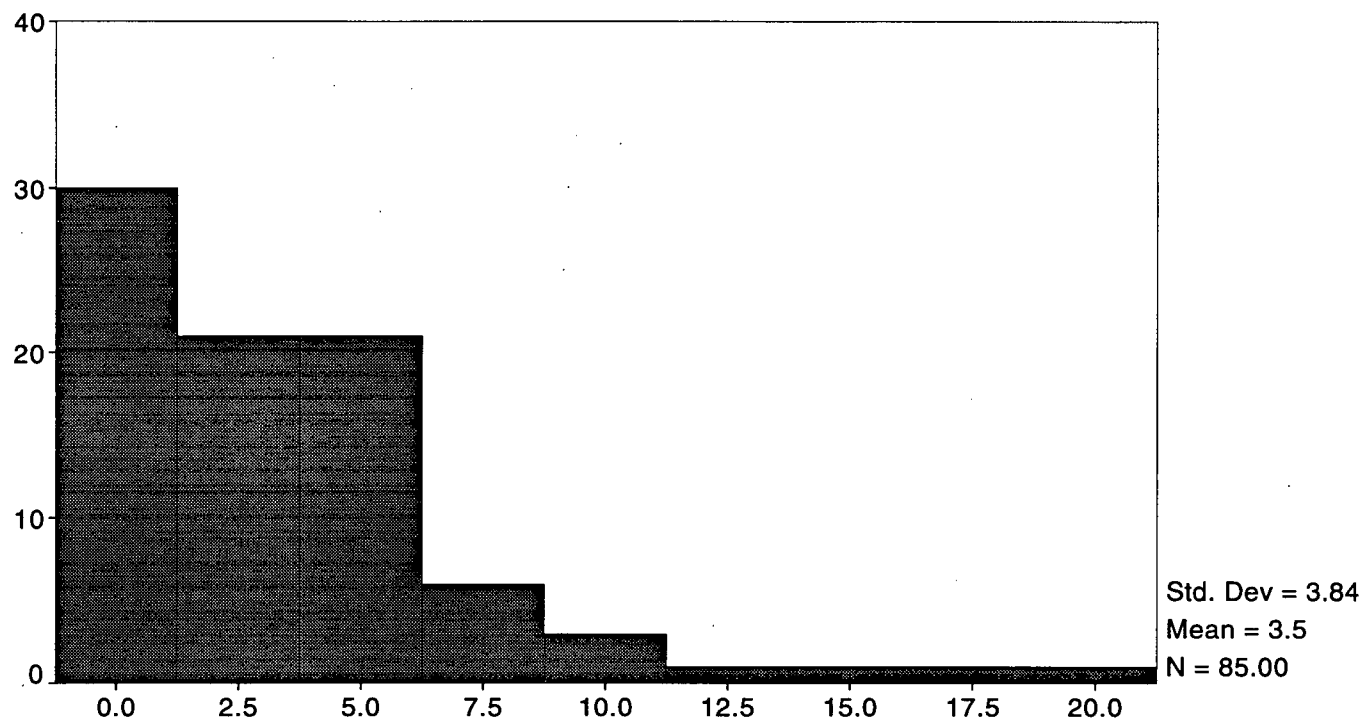
A frequency distribution histogram depicting scoring on the true/false BHS is shown in Graph 1. In the present study, scoring on the true/false version of the BHS ranged from 0 to 20, with a mean score of 3.52, s.d.=3.84 (n= 85). This is lower than the BHS scores reported by Greene (1981) for a sample of 395 adults: mean= 4.45, s.d.= 3.09. Potential

relationships between true/false BHS scores and a range of demographic variables were also investigated (see Table 4).

As in Greene's study, women in the present study scored higher on the BHS than men. To replicate the analyses carried out by Greene (1981), the difference between mean BHS scores for men and women was tested using an independent samples t-test. However, because the distribution of BHS scores was skewed, BHS scores were rank ordered and a nonparametric test of the equivalence of means (the Mann-Whitney U test) was also calculated. Neither test showed the difference between means for men and women to be statistically significant (t-test $t = -1.10$, $p = .276$; M-W $z = -1.38$, $p = .165$).

A very small positive correlation was found between age and BHS scoring: $r = .0266$, $p = .809$. In the present study, married participants had the lowest BHS scores, and divorced participants had the highest. An analysis of variance was computed to compare BHS scoring by levels of the different demographic characteristics. None of the demographic characteristics explored in this study were shown to significantly affect total BHS scores. BHS scoring was significantly higher for parasuicidal versus non-parasuicidal respondents ($t = -3.13$, $p = .002$; M-W $z = -3.38$, $p = .000$).

Graph 1: Frequency Distribution of Scoring (True/False BHS)



Graph 2: Frequency Distribution of Scoring (Likert BHS)

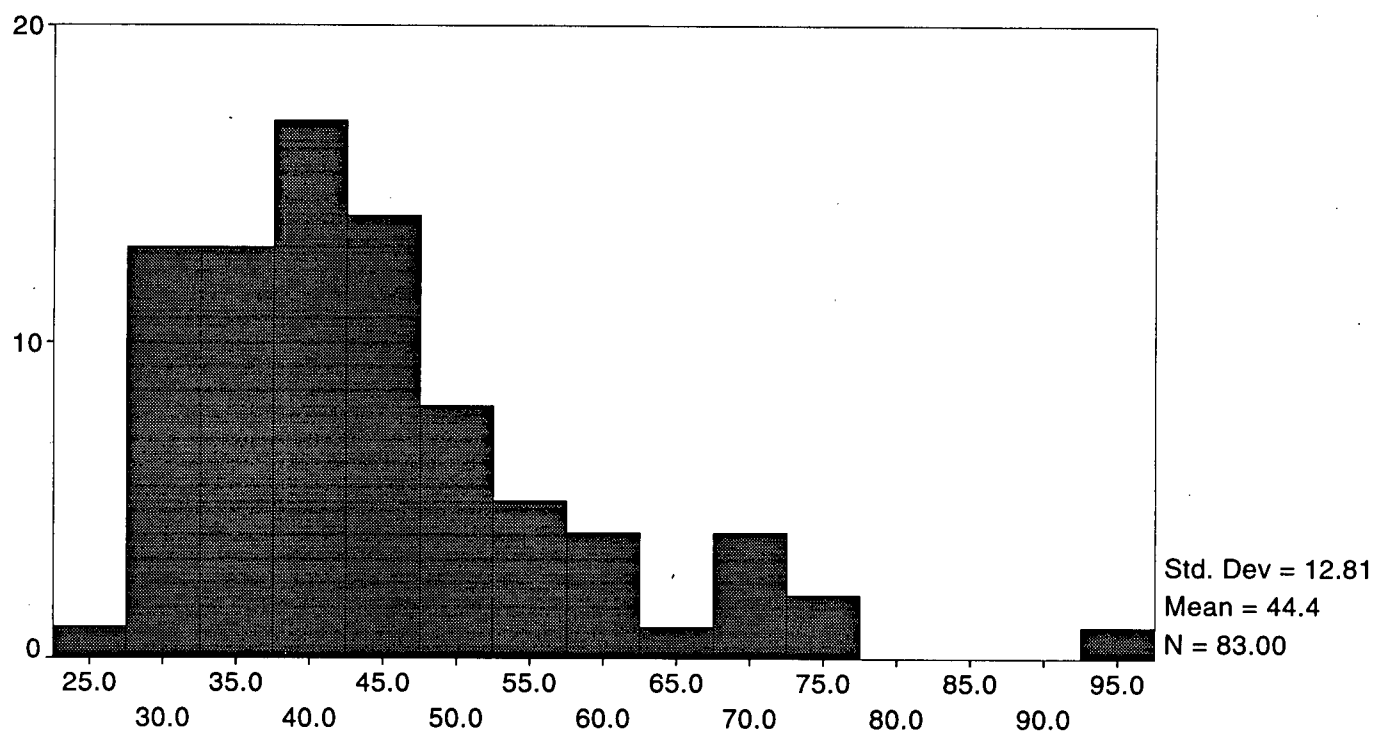


Table 4

T/F BHS scoring relative to demographic variables

Variable	N	Mean	s.d.	Sig.
Overall Sample	85	3.52	3.84	
Sex:				
Male	35	2.97	3.78	t=-1.10
Female	50	3.90	3.87	p= .276
				n.s.
Non-parasuicidal	70	2.94	3.55	t=-3.13
Parasuicidal	15	6.20	4.14	p=.002*
Marital Status:				
Single	30	3.69	4.59	
Common-Law	6	3.67	2.42	F= .73
Married	40	2.92	3.40	p= .535
Divorced	9	4.78	3.53	n.s.
Empl. Status:				
Student	6	3.40	4.45	
Part/Time	17	3.18	2.67	
Full/Time	57	3.51	4.18	F= .17
Retired	3	3.00	3.46	p= .953
Unemployed	2	4.50	.71	n.s.
Education:				
High School	26	4.44	3.96	
Trade School.	11	3.09	2.66	F= 2.14
College/Univ.	42	2.64	3.10	p= .101
Master's/PhD.	6	5.50	7.47	n.s.

* p<.05

6-Point Likert BHS

A frequency distribution histogram of scoring on the 6-point Likert BHS is shown in Graph 2. The 83 respondents who completed a 6-point Likert scored version of the BHS had a mean BHS score of 44.39, s.d.= 12.81 (range 26 to 97, n=83). The group's scoring on the 6-point Likert scored BHS relative to other demographic variables is summarized in Table 5. Unlike the true/false scored BHS, women scored lower than men on the graded response format BHS. As with the true/false BHS group, the scores of the 6-point Likert BHS group were also negatively skewed, and the difference in means was similarly tested with both a t-test and a Mann-Whitney U-test. The difference in BHS means for men and women in the 6-point Likert group was not statistically significant ($t=1.20$, $p=.234$; M-W $z=1.08$, $p=.282$). A small positive correlation was found between age and BHS scoring ($r=.1107$), but it was not statistically significant ($p=.319$).

With this sample, participants who are in a common-law relationship had the lowest BHS scores, and divorced participants the highest. As with the T/F BHS respondents, an analysis of variance conducted on 6-point Likert BHS total scores across the various demographic categories revealed no statistically significant differences. Similar to the true/false scored BHS group, participants in the 6-point Likert BHS group who were classified as parasuicidal had higher BHS scores than those who

were classified as non-parasuicidal, but this difference failed to reach statistical significance ($t=-1.17$, $p=.266$; M-W $z=-.93$, $p=.350$).

Table 5

Likert BHS scoring relative to demographic variables

Variable	N	Mean	s.d.	Sig.
Overall Sample	83	44.39	12.81	
Sex:				
Male	33	46.45	14.99	$t= 1.20$
Female	50	43.02	11.09	$p= .234$ n.s.
Non-parasuicidal	71	42.41	11.36	$t=-1.17$
Parasuicidal	12	50.17	18.58	$p= .266$ n.s.
Marital Status:				
Single	27	44.36	14.08	
Common-Law	8	40.88	13.47	$F= .65$
Married	41	43.27	11.13	$p= .584$
Divorced	7	47.86	22.59	n.s.
Empl. Status:				
Student	6	38.14	13.09	
Part/Time	15	43.93	14.15	
Full/Time	55	44.82	13.67	$F= .12$
Retired	4	41.00	3.16	$p= .973$
Unemployed	3	46.33	13.05	n.s.
Education:				
High School	32	42.94	11.64	
Trade School	9	51.67	20.92	$F= 1.35$
College/Univ.	40	43.50	12.46	$p= .265$
Master's/PhD.	2	36.00	5.66	n.s.

Trait-Anxiety Scale of the State Trait Anxiety Inventory (STAI)

Table 6 summarizes respondents' scoring on the trait form (T-Anxiety) of the STAI. T-Anxiety scores obtained in the present study are slightly higher than the norms given for working adults in the STAI manual. In the current sample, males had a mean T-Anxiety score of 36.15, s.d.= 9.89, and females had a mean score of 39.90, s.d.= 11.00. This compares to means of 34.89, s.d.= 9.19 for males and 34.79, s.d.= 9.22. for females given in the STAI manual (Spielberger, Gorsuch, & Lushene, 1970). T-test analysis did not reveal any significant difference in scoring on the T-Anxiety form of the STAI based on BHS type ($p=.323$). Contrary to the STAI manual norms, women in the present study scored higher than men on the T-Anxiety form of the STAI, and this difference was statistically significant ($p=.025$).

Table 6

Scoring on the T-Anxiety form of the STAI

	N	Mean	s.d.	Sig.
Overall Sample	167	38.37	10.69	
BHS type				
True/False BHS	85	39.18	10.99	$t = .99$
6-point Likert BHS	82	37.54	10.37	$p = .323$
				n.s.
Sex				
Males	68	36.15	9.89	$t = -2.26$
Females	99	39.90	11.00	$p = .025^*$
* $p < .05$				

Life Orientation Test (LOT)

Table 7 summarizes respondents' scoring on the LOT. The LOT purports to measure dispositional optimism; a higher LOT score indicates a higher degree of optimism. To date, the only norms available for scoring on the LOT are based on a sample of 357 college undergraduates. Those norms are, Males: mean = 21.03, s.d. = 4.56; Females: mean = 21.41, s.d. = 5.22 (Scheier & Carver, 1985).

In the present study there were no significant differences in scoring on the LOT between male and female participants ($p=.335$). The difference in scoring on the LOT between the two BHS groups just failed to reach statistical significance ($p=.051$), with the 6-point Likert group achieving a higher mean LOT score. This suggests that the Likert BHS group was reporting slightly higher levels of dispositional optimism.

Table 7

Scoring on the LOT

	N	Mean	s.d.	Sig.
Overall Sample	168	21.98	5.47	
BHS type				
True/False BHS	85	21.16	5.60	$t=-1.96$
6-point Likert BHS	83	22.81	5.12	$p=.051$ n.s.
Sex				
Males	68	22.47	5.37	$t=.97$
Females	100	21.64	5.53	$p=.335$ n.s.

PANAS Positive Affect and Negative Affect Subscales

Tables 8 and 9 summarize scoring on the positive affect and negative affect subscales of the PANAS (respectively) in the present study. Scoring norms for the PANAS subscales are reported based on the time period specified during the instructions given to respondents. For the 'past week' instructions used in the present study, norms are: PA mean = 33.3, s.d.= 7.2 (n=1002); NA mean = 17.4, s.d.= 6.2 (n=1002) (Watson, Clark & Tellegen, 1988). These norms are slightly higher than the means found in the present study for the PA subscale, and slightly lower than the present sample's mean NA scores. T-test analyses showed no significant differences in PA or NA scoring between the two BHS groups. In the present study, women obtained higher NA means and lower PA means than men, but neither of these differences reached statistical significance.

Table 8

Scoring on the PA subscale

	N	Mean	s.d.	Sig.
Overall Sample	168	32.43	7.33	
BHS type				
True/False BHS	85	32.47	7.75	t= .07
6-point Likert BHS	83	32.39	6.91	p= .940 n.s.
Sex				
Males	68	33.18	7.33	t= 1.09
Females	100	31.92	7.32	p= .277 n.s.

Table 9

Scoring on the NA subscale

	N	Mean	s.d.	Sig.
Overall Sample	168	19.05	7.12	
BHS type				
True/False BHS	85	18.95	7.18	t=- .18
6-point Likert BHS	83	19.16	7.09	p= .854 n.s.
Sex				
Males	68	17.88	6.73	t=-1.77
Females	100	19.85	7.30	p=.074 n.s.

Suicide Behaviours Questionnaire (SBQ) and Parasuicide

The results of participants' responses to the SBQ are summarized in Table 10. In the present study, participants were classified as parasuicidal or non-parasuicidal depending on their responses to the 4-item SBQ. Respondents were considered to be parasuicidal if they reported a previous suicide attempt, or if they answered in a parasuicidal direction to 2 or more of the SBQ questions. Respondents were classified as 'Ideators' if they reported a history of suicidal ideation (they may or may not have met the additional criteria for a classification of parasuicide), and classified as 'Ideators only' if they only answered yes to the SBQ question regarding a history of suicidal ideation. Item one of the SBQ asks: Have you ever thought about or attempted to kill yourself? Two out of 168 respondents in the present study (1.2%) reported that they had attempted suicide. Six respondents

answered the question with "Yes", without specifying whether the affirmative response was related to a suicide attempt or to suicide ideation. In those cases, the responses were coded as if they referred to suicide ideation.

Table 10

Responses to the Suicide Behaviours Questionnaire

	Total (N=168)		Females (N=100)		Males (N=68)	
	N	%	N	%	N	%
Ideators only	24	14%	15	15%	9	13%
Ideators	51	30%	34	34%	17	25%
Parasuicidal	27	16%	19	19%	8	12%

In a study of 196 shoppers, Linehan and Nielsen (1981) reported a parasuicidal rate of 9%, and a history of suicidal ideation rate of 33% (the authors did not offer a breakdown of their sample in terms of gender). At the time of the publication of Linehan and Nielsen's study, researchers voiced surprise at the high rates of parasuicidal ideation and behavior found by the authors in a non-clinical population sample. However, the suicidal ideation rate reported in the present study is comparable to Linehan and Nielsen's, and the rate of self-reported parasuicide is somewhat higher.

Testing of the Hypotheses

In the present study, primary analyses involved testing of the following two null hypotheses:

Ho (1): A change in the BHS scoring format from a true/false to a 6-point Likert system of scoring each item will not significantly affect the internal consistency reliability of the scale in use with a non-clinical population sample.

Ho (2): There will be no significant difference in the magnitude of correlations obtained between total BHS scores derived from a true/false version versus a 6-point Likert scale version of the BHS, and respondents' scores on the LOT, STAI, PANAS, and SBQ.

To test the first hypothesis, an internal consistency reliability analysis was computed for each of the two versions of the BHS used in the study [see Appendix H(i) and (ii)]. The reliability coefficients obtained were: True/False BHS Alpha = .873, 6-point Likert BHS Alpha = .882.

The two coefficients were converted to Zr scores, and a test of the difference between two correlations was computed. With a non-directional test, the difference between two correlations is significant at the .05 level if Zobs is less than -1.96 or greater than 1.96. Testing the difference in the magnitude of the two coefficients yielded a Zobs score of -.29 (non-significant).

The reliability coefficient found with the true/false version of the BHS in the present study is markedly higher than the alpha coefficient of .65 reported by Durham (1982) in the only study that calculated the internal consistency reliability of the true/false BHS with a non-clinical population.

To test the second hypothesis, correlations were computed between respondents' total BHS scores and their scores on each of the other measures investigated (see Appendix I for the complete correlation matrix). Table 11 summarizes the correlations computed for each of the two versions of the BHS used in this study. To test whether the differences between the correlations obtained with each of the two BHS versions were significant, the correlations were converted to z-scores and the test of difference between two independent correlation coefficients was computed. To recap, given a null hypothesis (H_0) that the two correlations do not significantly differ from each other, the decision rules for this test, for a .05 significance level and a nondirectional test are:

If $-1.96 < Z_{obs.} < 1.96$, do not reject H_0 .

If $Z_{obs.} < -1.96$ or $Z_{obs.} > 1.96$, reject H_0 .

Table 11

Correlations with total BHS scores

Instrument	T/F BHS	6pt. BHS	Zobs.
LOT	-.760 (n=85) P=.000	-.654 (n=83) P=.000	1.35 n.s.
PA subscale	-.484 (n=85) P=.000	-.492 (n=83) P=.000	-.04 n.s.
NA subscale	.562 (n=85) P=.000	.403 (n=83) P=.000	1.29 n.s.
T-Anxiety	.693 (n=85) P=.000	.614 (n=82) P=.000	.90 n.s.
Parasuicide	.325 (n=85) P=.002	.187 (n=83) P=.091	.95 n.s.

LOT/BHS Correlation

For both the true/false and the 6-point Likert scored BHS groups, the highest magnitude correlations obtained were between respondents' BHS scores and total LOT scores. The correlations found in the present study, $-.760$ and $-.654$ for true/false and 6-point Likert BHS groups respectively, are considerably higher than the LOT/BHS correlations of $-.47$ reported by Scheier & Carver (1985) and $-.53$ reported by Chang, D'Zurilla, & Maydeu-Olivares (1994). Because the BHS purports to measure current levels of hopelessness - also

referred to as pessimism by Beck et al. (1974) - a strong negative correlation between total BHS scores and total LOT scores would be predicted.

PA/BHS Correlation

As a second test of the discriminant validity of each of the two BHS response formats, respondents' total BHS scores were correlated with their positive affect (PA) subscale scores. The correlations obtained were in the moderate range, $-.484$ for the true/false group, and $-.492$ for the 6-point Likert group. The PA/BHS correlation was the only correlation computed in which a higher (non-significantly) correlation was obtained with the 6-point Likert versus the true/false BHS group. Although the correlation between BHS scores and PA subscale scores has not previously been examined in the research literature, given the nature of the two constructs the scales are measuring, hopelessness and positive affectivity, a moderately strong negative correlation would be predicted.

NA/BHS Correlation

A positive correlation was found between respondents' total BHS scores and their scores on the negative affectivity (NA) subscale of the PANAS. These correlations were also in the moderate range: $.562$ for the true/false BHS group and $.402$ for the 6-point Likert BHS group. The difference in the magnitude of these two correlations failed to reach

statistical significance.

As with the PA subscale, the BHS/NA correlation has not previously been examined, but a moderately strong positive correlation would be predicted based on the nature of the constructs being measured by the two scales.

STAI T-Anxiety/BHS Correlation

The correlations between respondents' STAI T-Anxiety scores and total BHS scores, .693 for the true/false BHS group and .614 for the 6-point Likert group, are close in magnitude to the .71 correlation reported by Connell and Meyer (1991) between BHS and T-Anxiety scores ($n=150$). The difference in the magnitude of the correlations obtained for each BHS group was not significant at the .05 level.

Parasuicide/BHS Correlation

Point-biserial correlations were computed between respondents' total BHS scores and their classification as either parasuicidal or non-parasuicidal (dependent on their responses to the Suicide Behaviours Questionnaire). A relatively small positive correlation was found in the true/false BHS group ($r=.325$), and a smaller, nonsignificant correlation was found for the 6-point Likert group ($r=.187$). The difference in the strength of the correlations obtained for each BHS group was not significant at the .05 level.

Two previous studies have examined the correlation between a non-clinical sample's BHS scores and their responses

to the SBQ. With a sample of 130 undergraduate psychology students, Cole (1988) reported the following correlations between BHS scores and each of the 4 SBQ items: Item #1: $r=.16$; Item #2: $r=.14$; Item #3: $r=.05$; Item #4: $r=.14$. Using the same criteria for a parasuicide classification employed in the present study, Cole reported a BHS/parasuicide correlation of .21.

With a sample of 196 shoppers, Linehan and Nielsen (1981) reported a correlation of .42 for BHS scores and suicidal ideation (as measured by the SBQ), and .39 for BHS scores and likelihood of future suicide (item #4 on the SBQ). The present sample's results fall within the range of the two previous studies.

Exploratory Analyses

In use with a clinical population, a BHS score of 9 or above is considered to be indicative of a high risk for suicide (Beck & Steer, 1988; Beck et al., 1985). One of the exploratory analyses carried out in the present study involved selecting the respondents who had received a BHS score of 9 or above (for the true/false BHS condition) or 54 or above (for the 6-point Likert BHS condition; $9 \times 6 = 54$), and computing a point-biserial correlation between BHS total scores and respondents' classification as either parasuicidal or non-parasuicidal, based on responses to the SBQ (see Table 12).

Table 12

Correlation between Parasuicide & BHS scores Above Cut-Off

True/False BHS score of 9 or above	n= 7	r= -.461 p=.297 n.s.
6-point Likert BHS score of 54 or above	n=15	r= .628 p=.012*

*p<.05

Seven of the respondents in the true/false BHS group had BHS total scores that met or exceeded the cut-off point, compared with 15 of the 6-point Likert BHS group respondents. For the true/false BHS group, the correlation between BHS scoring and parasuicide changed dramatically, from a positive correlation ($r=.325$) for the total group, to a negative correlation ($r=-.461$) for the seven respondents who had BHS scores of 9 or above. For the 6-point Likert BHS group, the BHS/parasuicide correlation was stronger for the 15 respondents with BHS scores of 54 or above: $r=.628$ compared with $r=.187$ for the total 6-point Likert BHS group.

A second exploratory analysis carried out with the data gathered in this study involved recoding the responses of the 6-point Likert BHS group to parallel the format of the true/false BHS group. In the true/false group, participants' responses to each of the 20 BHS items were coded so that respondents received a score of '0' for non-hopelessness keyed item responses, and a score of '1' for hopelessness keyed

responses. Similarly, the responses of the 6-point Likert BHS group to each of the 20 items were coded so that a higher score indicated a response in a more hopelessness keyed direction. Recoding the data involved changing the 6-point Likert group's scoring on each of the 20 items so that a score of 1, 2, or 3 was changed to '0', while a score of 4, 5, or 6 was changed to '1'. That is, respondents in the 6-point Likert group received a score corresponding to a 'true' response in the true/false condition if they answered slightly agree, strongly agree, or completely agree, and a score corresponding to a 'false' response if they answered slightly disagree, strongly disagree, or completely disagree. Table 12 compares the true/false BHS group's scoring with the scoring of the Likert group after recoding.

Table 13

A comparison of the True/False and Recoded BHS groups

	N	Mean	s.d.	Range
True/False BHS group	85	3.52	3.84	0 - 20
Recoded BHS group	83	3.27	3.17	0 - 19

After recoding, the 6-point Likert BHS group's transformed scores were also re-correlated with the other measures used in the study. Recoding the 6-point Likert BHS scores to parallel the true/false BHS format did not

significantly alter the correlations obtained between BHS scores and the other measures investigated in this study. A summary of the results appears in Table 14.

Table 14

Comparison of Correlations obtained with 6-point Likert BHS scores and Recoded Scores

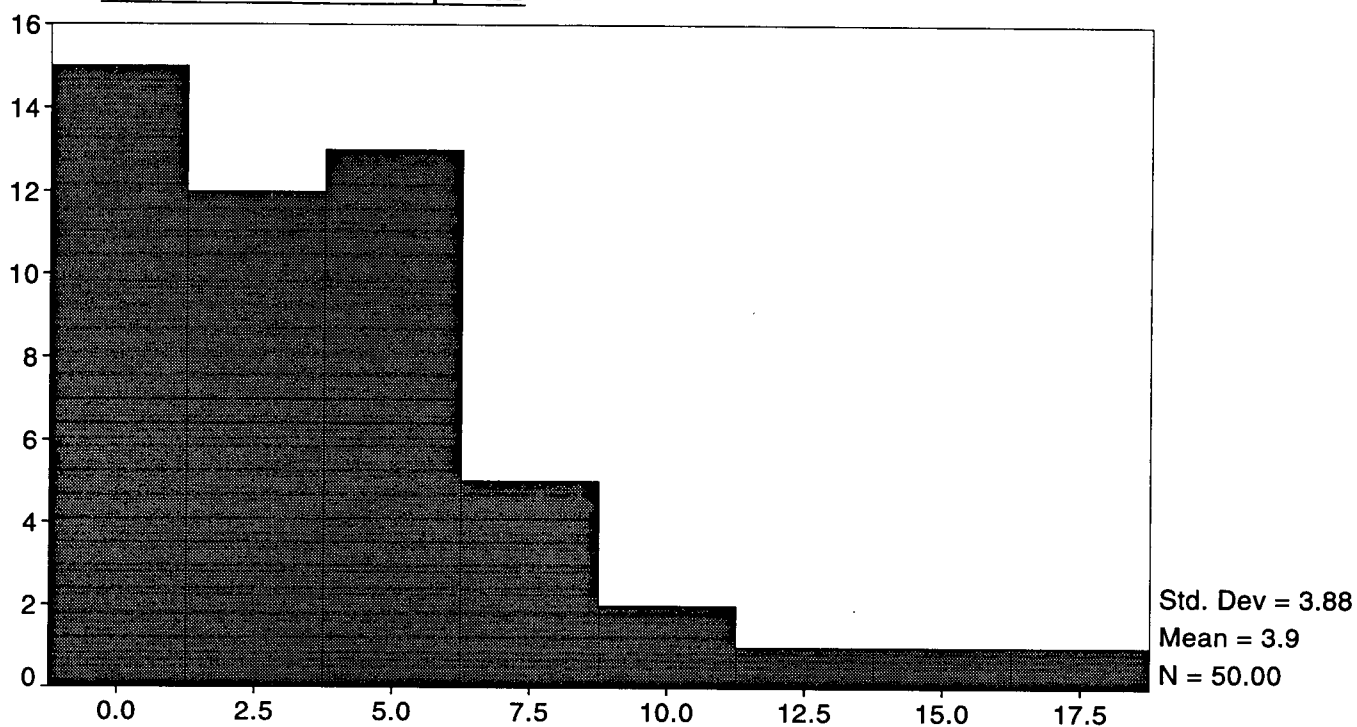
Instrument	6pt. Likert	Recoded
	BHS r	BHS r
LOT	-.654 p=.000	-.646 p=.000
PA subscale	-.492 p=.000	-.495 p=.000
NA subscale	.403 p=.000	.346 p=.000
T-Anxiety	.614 p=.000	.558 p=.000
Parasuicide	.187 p=.091	.248 p=.024

In the present study, women reported a higher level of distress than men. The mean scores obtained by each sex on the measures investigated indicate that, relative to the men tested, women reported higher levels of negative affectivity and trait anxiety, and lower levels of positive affectivity and optimism. One of these differences, between mean scores for the T-Anxiety scale, was significant at the .05 level. Additionally, of the 27 participants who were classified as

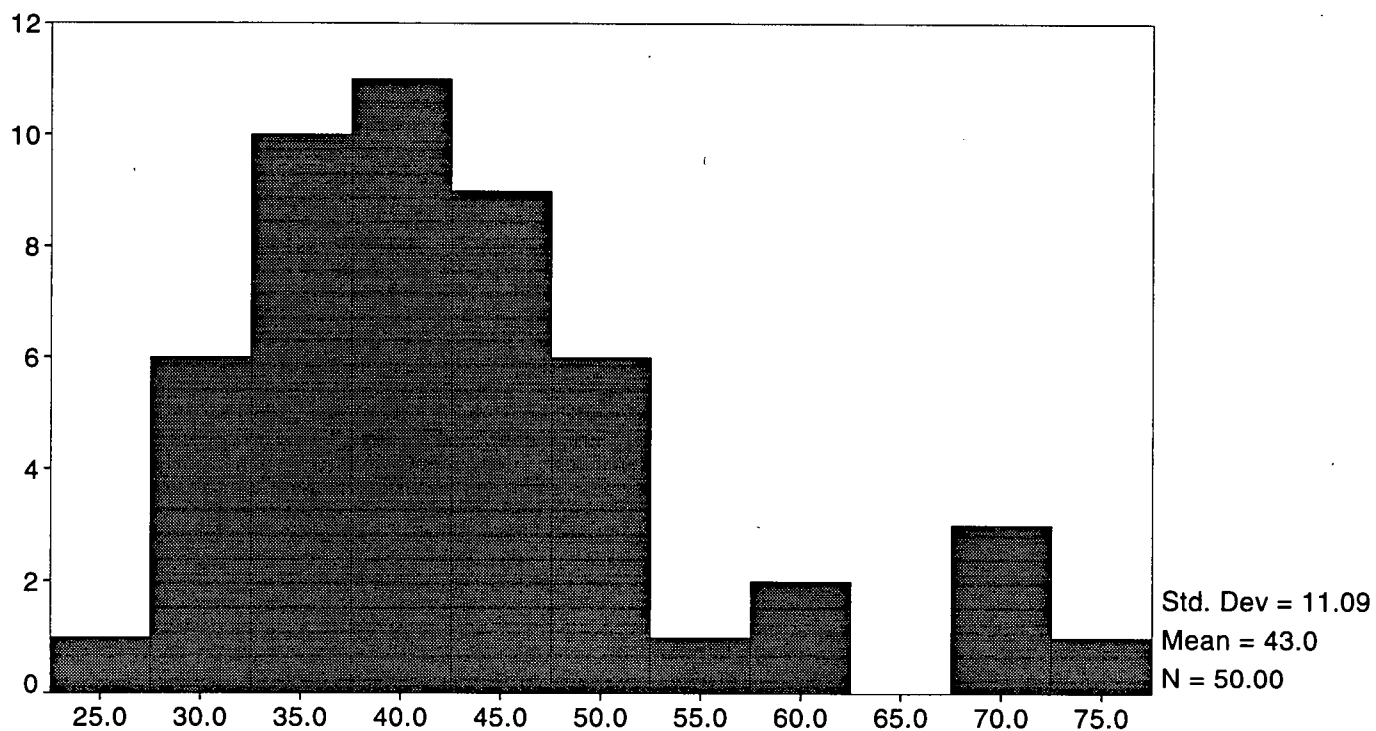
parasuicidal, 19 were female (19% of the total female sample studied), and 8 were male (12% of the total male sample).

Accordingly, a third exploratory analysis carried out in the present study involved comparing the patterns of scoring on the instruments investigated by male and female participants. Graphs 3, 4, 5, and 6 depict frequency distribution histograms of scoring on the two BHS formats for male and female participants. Visual examination of the histograms reveals that, for both men and women, the distribution of scores for the 6-point Likert BHS group shows relatively more variance than that of the true/false BHS group.

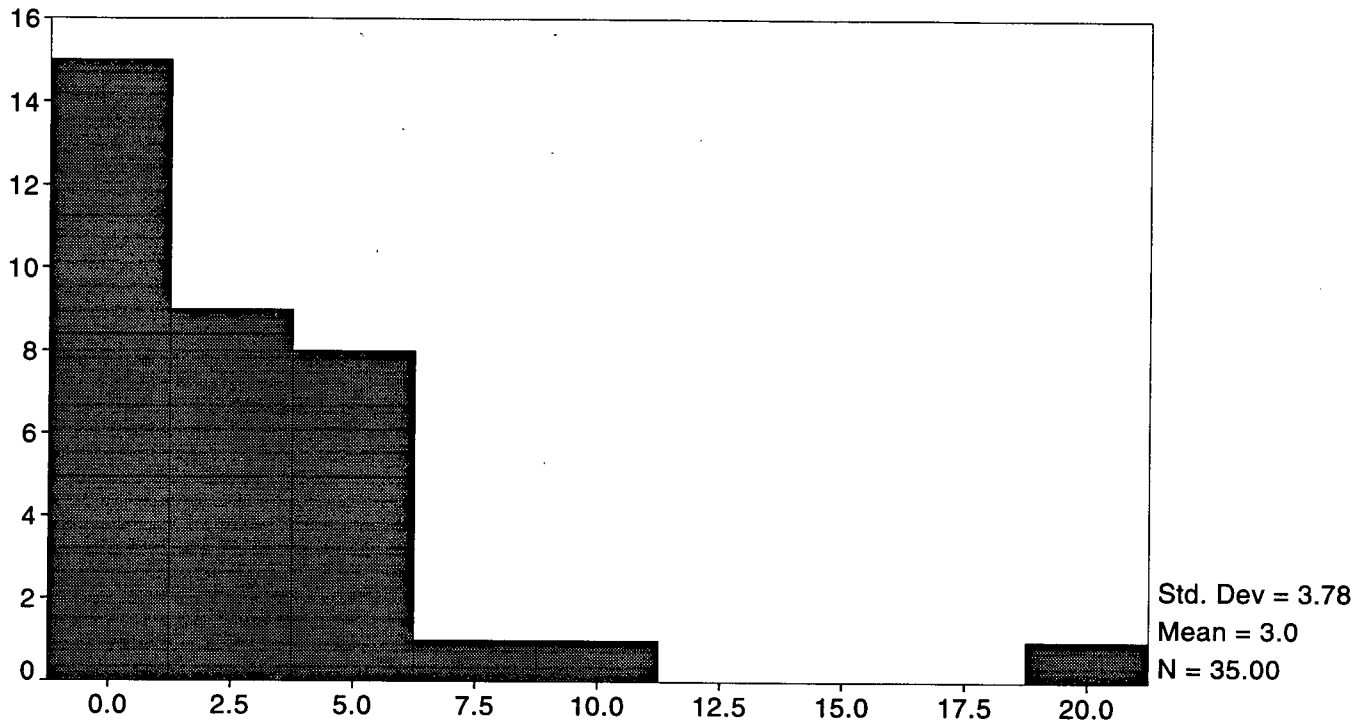
Graph 3: Distribution of Scoring on the True/False Scored BHS by Female Participants



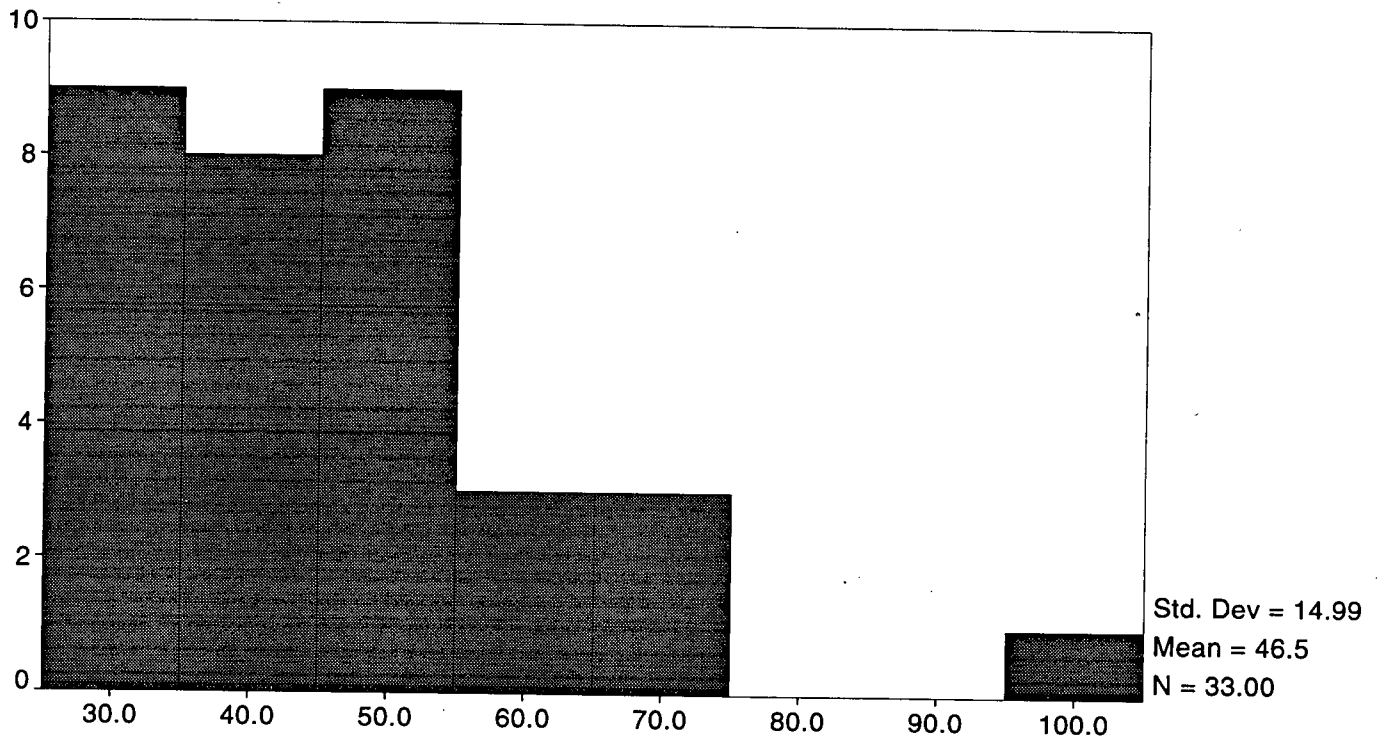
Graph 4: Distribution of Scoring on the 6-point Likert BHS by female participants



Graph 5: Distribution of Scoring on the True/False BHS by male participants



Graph 6: Distribution of Scoring on the 6-point Likert BHS by male participants



A follow-up examination of sex differences in the present study involved computing correlations between BHS scores and the other measures investigated in this study separately for each gender. The significance of the difference in correlations for males and females within each BHS type were computed (non-directional test, difference is significant at the .05 level if $Z_{obs.} < -1.96$ or $Z_{obs.} > 1.96$). Results are summarized in Tables 15 and 16.

Table 15

Correlations with True/False BHS totals by Sex

	Overall (N=85)	Male (N=35)	Female (N=50)	Zobs.
LOT	-.760 p=.000	-.722 p=.000	-.780 p=.000	- .56 n.s.
PA	-.484 p=.000	-.315 p=.065	-.561 p=.000	-1.34 n.s.
NA	.562 p=.000	.473 p=.004	.601 p=.000	- .77 n.s.
STAI	.693 p=.000	.626 p=.000	.736 p=.000	- .90 n.s.
Para- suicide	.325 p=.002	.035 p=.842	.419 p=.002	-1.80 n.s.

Table 16

Correlations with 6 pt. Likert BHS totals by Sex

	Overall (N=83)	Male (N=33)	Female (N=50)	Zobs.
LOT	-.654 p=.000	-.826 p=.000	-.461 p=.000	2.88 p<.05
PA	-.492 p=.000	-.671 p=.000	-.283 p=.046	2.21 p<.05
NA	.403 p=.000	.479 p=.005	.350 p=.013	.68 n.s.
STAI	.614 p=.000	.724 p=.000	.545 p=.000	1.31 n.s.
Para- suicide	.187 p=.091	.230 p=.090	.050 p=.731	.79 n.s.

True/False BHS

Although the differences failed to reach statistical significance, visual examination reveals that the correlations between total BHS scores and all of the other measures investigated in this study were higher for females than for males in the true/false BHS condition. The largest difference in the magnitude of correlations obtained by men and women in the true/false BHS group was the point-biserial correlation between total BHS scores and parasuicide. For males, the correlation between BHS and parasuicide, $r=.035$, was negligible, indicating no relationship between the two scores

with this sample. This is compared to the correlation of .419 obtained between BHS scoring and parasuicide for female participants in the present sample. While this difference in the magnitude of correlations found for men compared with women did not reach statistical significance, it is noteworthy.

6-point Likert BHS

Opposite to the findings in the true/false BHS group, in the 6-point Likert BHS group the correlations computed between BHS scores and scores on the other instruments investigated were stronger for male participants than for female participants on all of the measures investigated. The difference in magnitude of correlations found for each sex was significant at the .05 level for both the BHS/LOT and BHS/PA correlations. The correlation between total BHS score and parasuicide was not significant at the .05 level for either males or females in the 6-point Likert BHS group.

The correlations obtained with males and females were also tested to explore whether there were any significant differences in the magnitude of correlations obtained by each sex depending on BHS type (true/false or 6-point Likert). The results of the significance test are summarized in Table 17.

Table 17

Test of the sex difference in r obtained for 2 BHS formats

	Males (N=68) Zobs.	Females (N=100) Zobs.
LOT	-1.04 n.s.	2.66 p<.05
PA	-1.91 n.s.	1.65 n.s.
NA	- .02 n.s.	1.59 n.s.
T-Anxiety	- .73 n.s.	1.60 n.s.
Parasuicide	- .78 n.s.	1.93 n.s.

For males, in all cases the correlations obtained with participants in the 6-point Likert BHS group were stronger than those obtained by males in the true/false BHS group, although this difference failed to reach statistical significance. The largest degree of difference in the magnitude of correlations found for male participants was between BHS scores and PA scores.

The reverse was true for female participants; in all cases, the correlations obtained by female participants in the true/false BHS group were stronger than those obtained by female participants in the 6-point Likert BHS group. This difference was significant at the .05 level in the case of

BHS/LOT correlations, and just failed to reach statistical significance for BHS/parasuicide correlations.

Because a sex difference was found in the magnitude of correlations obtained between BHS scores and the other measures investigated, additional analysis involved testing the difference in mean scores on the LOT, PA, NA, and T-Anxiety obtained by each sex, for each BHS type. Results are summarized in Table 18.

Table 18

Comparison of Mean Scores by Sex

	T/F Males (N=35)	6pt. Males (N=33)	Sig.
LOT			
Mean	22.43	22.52	t=-.07
S.D.	4.92	5.89	p=.948 n.s.
NA score			
Mean	16.91	18.91	t=-1.23
S.D.	5.88	7.49	p=.225 n.s.
PA score			
Mean	34.40	31.88	t= 1.43
S.D.	6.57	7.95	p=.158 n.s.
T-Anxiety			
Mean	35.26	37.09	t=-.76
S.D.	8.99	10.83	p=.449 n.s.
	T/F Females (N=50)	6pt. Females (N=50)	Sig.
LOT			
Mean	20.28	23.00	t=-2.53
S.D.	6.08	4.59	p=.013*
NA score			
Mean	20.38	19.32	t= .72
S.D.	7.71	6.89	p=.470 n.s.
PA score			
Mean	31.12	32.72	t=-1.09
S.D.	8.28	6.19	p=.277 n.s.
T-Anxiety			
Mean	41.92	37.84	t=1.87
S.D.	11.05	10.16	p=.064 n.s.

*p<.05

For male participants, visual examination of mean scores reveals that males in the 6-point Likert BHS group reported somewhat higher levels of distress compared with males in the true/false BHS group; mean scores on the LOT were almost identical, and the 6pt. Likert group males reported higher levels of negative affectivity and anxiety, and lower levels of positive affectivity. None of the differences in means for male participants were significant at the .05 level.

Female participants in the 6-point Likert group reported relatively less distress than females in the true/false BHS group; they obtained lower means in measures of negative affectivity and anxiety, and higher means in measures of optimism and positive affectivity. The difference in means for LOT scores between true/false and 6-point Likert group females was significant at the .05 level.

CHAPTER 4

Discussion

The design of the present study allows for the exploration of two primary issues: the general properties of the Beck Hopelessness Scale in use with a non-clinical population, and the effect of changing the scale's item response format from a dichotomous to a graded response scale. In this section the results obtained through the data analyses will be discussed with regard to each of these issues.

Properties of the BHS with a non-clinical population

Due to the relatively low level of pathology presumed to be present in non-clinical populations, some researchers have suggested that a restriction in range of scores may compromise the construct validity of the BHS for non-clinical respondents (e.g. Cole, 1988; Durham, 1982; Young et al., 1992). This was one of the questions investigated in the present study.

With the sample investigated, correlations between BHS scores and measures of its convergent validity were in the moderate to high range ($r=.403$ to $r=-.760$). This would suggest that the BHS is measuring constructs that are related to, but different from, the constructs measured by the other instruments tested in the study.

The weakest correlations found in the present study were point-biserial correlations between BHS scores and respondents' classification as parasuicidal or

nonparasuicidal. Although parasuicide is often investigated as a correlate of hopelessness (e.g. Linehan & Nielsen, 1981, 1983; Petrie & Chamberlain, 1983), the small correlation found in the present study is not surprising, given that the Suicide Behaviours Questionnaire (SBQ) questions respondents' history of suicidal ideation and behaviour, and present speculation on their potential for future suicide. Contrastingly, the other measures tested in the study question respondents' general or current attitudes, and are therefore more likely to correspond to the attitudes targeted by the BHS: participants' general pessimism or current feelings of hopelessness. It therefore follows that a stronger degree of relationship was found between measures targeting a similar, rather than different, time focus.

An alternative explanation for the low magnitude of correlations found between BHS scores and parasuicide concerns the validity of the SBQ, the instrument used to operationalize parasuicide in the present study. The SBQ consists of four items. Respondents in the present study were classified as parasuicidal if they reported a previous suicide attempt (2 out of 168 or 1.2% of the present sample), and/or if they answered 'yes' to two or more of the SBQ questions (27 out of 168 or 16% of the sample). Presumably, the difficulty of measuring the relationship between a current feeling or attitude (as measured by scoring on the BHS) and a past

thought or behaviour (as operationalized by the SBQ) would be compounded by the SBQ's inability to discriminate among respondents reporting a large range in thought and behaviour processes. That is, a respondent who had made a serious suicide attempt in the past year, and one who reported thinking about suicide as a teenager and having told someone at the time that she or he might suicide, would both be classified as parasuicidal according to the criteria set out by the SBQ. The scale does not allow for a method of quantifying the degree of parasuicidal 'seriousness' reflected in participants' responses, and therefore may not yield a reliable measurement of parasuicide, particularly one that can be reliably linked to respondents' present state of mind.

Previous research studies assessing the degree of correlation between BHS scores and responses to the SBQ by non-clinical populations report correlations that vary widely in magnitude. With a sample of 130 college undergraduates, Cole (1988) obtained correlations ranging from .05 to .16 between BHS scores and the 4 items of the SBQ; with a sample of 196 adults Linehan and Nielsen (1981) obtained a correlation of .42 between BHS scores and suicidal ideation (as operationalized by the SBQ), and a correlation of .39 between BHS scores and Item #4 on the SBQ. The discrepancy in the magnitude of correlations reported may be partly due to the presumed difference in the mean age of the respondents in

the two samples, but it also calls to question the reliability of the SBQ to operationalize parasuicide.

It is also worth noting that the correlation between BHS scores and parasuicide changed significantly when only the scores of the respondents who had received BHS scores above the level considered to be indicative of high suicide risk were considered. For the true/false BHS group, the correlation changed from a slight positive correlation ($r=.325$, $n=85$) to a moderately negative correlation ($r=-.461$, $n=7$). For the 6-point Likert BHS group, the correlation obtained for the whole group was $.187$ ($n=83$), compared with $.628$ ($n=15$) when only the scores of the respondents with BHS scores above 54 were considered. Although these results are interesting, the issues previously discussed regarding the reliability of the SBQ, as well as the small number of respondents on whom the correlations are based makes it difficult to speculate regarding extrapolating the results to a wider sample. This may be an area in which further research could be applied.

The internal consistency reliability coefficients obtained in the present study were quite high: $.873$ and $.882$ for the true/false and 6-point Likert BHS groups respectively. These coefficients are comparable to the reliability coefficients, ranging from $.92$ to $.82$, reported in the BHS manual for clinical norm groups (Beck & Steer, 1988), and

significantly higher than the coefficient of .65 reported by Durham (1985) in his study of BHS scoring by a non-clinical sample.

Overall, the results obtained suggest that when considering the total sample tested, both versions of the BHS behaved as both valid and reliable instruments for operationalizing hopelessness with the non-clinical population sample investigated in this study. Some possible cautions related to the impact of gender issues on the validity of the two response formats for the BHS will be discussed below.

Comparison of True/False and 6-point Likert Response Formats

In the research literature, the argument for the preferability of a continuous versus a dichotomous response format rests on two tenets: the psychometric superiority of continuous response scales, and participants' preference for graded versus dichotomous response formats.

The first of these arguments was not supported by the results obtained in the present study. The internal consistency reliability coefficient obtained for the true/false scoring format was comparable to that of the 6-point Likert format, and correlations between scores obtained with the true/false format were actually of a higher magnitude than those obtained with the 6-point Likert format - although the difference was not statistically significant - on measures of the scale's convergent validity.

The second argument - participant preference for graded rather than dichotomous response formats - was not directly tested in the present study, but three sources of indirect support for it were found. First, a number of respondents in the true/false BHS group attempted to indicate that the true/false format did not exactly capture their feelings; some wrote in the margins to qualify their 'true' or 'false' responses, while others circled both options, or wrote in 'half and half'. Second, 20 out of 85 respondents in the true/false BHS group (23.5%) received minimum or maximum scores (19 respondents with a total BHS score of 0 and 1 respondent with a total BHS score of 20). Contrastingly, none of the 83 respondents in the 6-point Likert group received either a minimum or a maximum score (actual range 26 to 97; maximum possible range 20 to 120).

Lastly, when the 6-point Likert group's scores were collapsed and recoded to parallel the true/false format, the means of the two formats were very similar (true/false group mean= 3.52, s.d.= 3.84; recoded 6-point Likert group mean= 3.27, s.d.= 3.17), but the correlations obtained with the recoded group were essentially unchanged from those found with the 6-point Likert format, and remained different from those obtained with the true/false format. This suggests that although similar means were obtained when the 6-point Likert format was collapsed to resemble a dichotomous scale, the

graded response (6-point) format was still tapping into somewhat different information. The balance of these three findings seems to lend support to the argument that in the present study a dichotomous response scale did not absolutely capture the nuances in the attitudes experienced by respondents.

The most interesting finding to arise out of the present study was the discovery of a gender difference in terms of correlations with total BHS scores and the other measures investigated in this study. Two differences in scoring patterns depending on sex were found: within each BHS type tested (true/false and 6-point Likert) there was a difference in the magnitude of correlations found depending on sex, and within each sex there was a difference in the magnitude of correlations found depending on the BHS type. In the true/false BHS format female participants obtained higher magnitude correlations than male participants with all of the other measures investigated, although the differences failed to reach statistical significance. The reverse was the case in the 6-point Likert BHS group; male participants obtained higher magnitude correlations than female participants with all of the other measures investigated, and this difference was statistically significant for two of the measures (the LOT and PA).

Testing the differences within each sex depending on

which BHS type was completed revealed that male participants in the 6-point Likert BHS group obtained higher magnitude correlations than males in the true/false BHS group on all of the measures investigated, although the differences were not statistically significant at the .05 level. Conversely, females in the true/false BHS group obtained higher magnitude correlations than females in the 6-point Likert group on all of the measures investigated. This difference was significant at the .05 level for BHS/LOT correlations.

Although many of the differences found failed to reach statistical significance, the consistency of the pattern of results is worth noting. A stated intention of the present study was to attempt to determine whether one method of scoring the BHS (with a dichotomous or a graded response scale) yielded a more sensitive instrument for operationalizing hopelessness with a non-clinical population. Assessing the validity or sensitivity of the BHS based on the scale's correlation with convergent measures first requires a determination of how strongly a valid, sensitive tool for operationalizing hopelessness 'should' correlate with these other measures. Test construction convention holds that two instruments purporting to measure related constructs should exhibit some degree of correlation in the predicted direction, but should not correlate so highly as to make them redundant (e.g. Anastasi, 1988).

Considering the instruments employed in the present study, Beck et al. (1974) originally conceptualized the BHS as a test to measure pessimism; the title of the article outlining the development of the BHS is "The measurement of pessimism: The hopelessness scale". Accordingly, it would be predicted that the BHS would show a strong negative correlation with the LOT, which purports to measure optimism, and a strong positive correlation with parasuicide (since the BHS is also intended as a suicide risk assessment tool). With regard to the other instruments included in the study, although the direction of the expected relationship can be predicted, assessing the optimal degree of relationship is problematic. For example, in the present study the correlation found between BHS scores and PA subscale scores ranged from a low of $-.283$ (for females in the 6-point Likert BHS group) to a high of $-.671$ (for males in the 6-point Likert BHS group). Although it may appear reasonable to infer that the stronger magnitude correlation was indicative of a more valid measurement of hopelessness, not enough is yet known about how strongly hopelessness and positive affectivity 'should' correlate; conclusions drawn at this point would be speculative in nature.

Bearing that caveat in mind, visual examination of the results obtained suggests that two levels of differences in the magnitude of correlations obtained were found in the

present study: a difference between correlations obtained by males compared with females in the same BHS condition, and a difference between correlations obtained by each sex in the true/false compared with the 6-point Likert BHS condition.

These results can be interpreted in a number of ways. One possibility is that the range in the magnitude of correlations found was due to differences between the groups being tested; that is, differences in the overall attitudes expressed by true/false BHS group respondents compared with 6-point Likert BHS group respondents, and differences between male and female respondents. Comparing the mean scores of the two BHS groups reveals that the 6-point Likert BHS group achieved higher mean LOT scores than the true/false BHS group, and this difference bordered on being statistically significant ($t=-1.96$, $p=.051$). Further exploration revealed that the difference in mean LOT scores between the two groups was largely due to differences in LOT scoring by female participants. The difference in mean LOT scores for male participants in the two BHS scoring format conditions was .09. This is compared to a difference in means of 2.72 for female participants (T/F BHS group LOT mean= 20.28, s.d.= 6.08; 6-point Likert group LOT mean= 23.00, s.d.= 4.59; $t=-2.53$, $p=.013$).

When the correlations obtained by the true/false and 6-point Likert BHS groups were broken down by sex, females in

the 6-point Likert group evidenced the most striking difference in the magnitude of correlations obtained. The correlations for female 6-point Likert group participants between BHS scores and scores on the other measures investigated were smaller in magnitude than the correlations obtained by males in the 6-point Likert group (the difference was statistically significant for two of the correlations), and smaller in magnitude than the correlations obtained by females in the true/false group (one of the differences in correlations was statistically significant).

One possible explanation is that there were anomalies in the pattern of scoring expressed by female 6-point Likert group respondents. Some support for that interpretation is offered by the apparent inconsistency in the pattern of scoring found with this group. Comparing the means of the 6-point Likert group on the measures investigated reveals that, relative to males, females in that group reported less hopelessness, more optimism, more negative affectivity, more positive affectivity, and more anxiety. The reporting of a relatively smaller degree of hopelessness is consistent with findings of relatively higher levels of optimism and positive affectivity, but is inconsistent with the reporting of higher levels of negative affectivity and anxiety.

While it may be possible that the results obtained were due to anomalies in scoring that were unique to the sample

being studied, a number of other interpretations of the results obtained are also possible. One possibility is that the two response formats tested with the BHS, the true/false and 6-point Likert response scales, are measuring somewhat different constructs, and therefore yield different magnitude correlations with measures that are predicted to show a negative or positive relationship with BHS scores. One of the questions related to the measurement of hopelessness that has received some attention from researchers is whether optimism and pessimism are more appropriately conceptualized as polar opposites on a single dimension, or whether they are correlated but distinct dimensions. Specifically related to the BHS, one of the issues that has been investigated with the scale is whether it is measuring a unipolar pessimism dimension, or a bipolar optimism-pessimism dimension (Chang, D'Zurilla, & Maydeu-Olivares, 1994; Marshall et al., 1992; Young et al., 1992).

Marshall et al. (1992) tested the dimensionality of the LOT and the BHS with a sample of 889 male navy recruits. In order to make the items of the two scales comparable, they scored the BHS items using the same 5-point Likert response scale the LOT employs, which ranges from 'strongly disagree' to 'strongly agree.' The authors analyzed the positively worded and negatively worded BHS items separately, and concluded that their analyses supported categorization of the

BHS into two separate factors measuring optimism and pessimism.

The results reported by Marshall et al. (1992) were challenged by Chang, D'Zurilla, and Maydeu-Olivares (1994), who assessed the dimensionality of the BHS, the LOT, and the Optimism and Pessimism Scale (OPS; Dember et al., 1989) using a sample of 389 undergraduate college students. The authors performed confirmatory factor analyses to test one-dimensional and two-dimensional solutions for the BHS. They concluded that the one-dimensional solution was most appropriate, since the two factor solution simply split the scale into one cluster containing the positively worded items and one cluster containing the negatively worded items, and these two clusters were almost perfectly correlated ($r = -.93$).

To explain the contradiction between their findings and the results reported by Marshall et al. (1992), the authors argued that the true/false format of the published BHS scale is most appropriate for measuring extreme negative expectancies: "Since a respondent must answer either true or false to each item, only extreme pessimists are likely to endorse the negative items. More moderate pessimists, like optimists, probably answer false to these items" (p. 157, Chang, D'Zurilla, & Maydeu-Olivares, 1994). Accordingly, they suggested that the results obtained by Marshall et al. could have been due to the authors' use of a modified response

format for the scale, which "possibly changed the nature of the HS from a unidimensional scale to a bidimensional scale" (p. 158, Chang, D'Zurilla, & Maydeu-Olivares, 1994). They concluded that the original BHS and the modified BHS may have been tapping somewhat different constructs.

This conclusion may have some relevance to the results obtained in the present study; it may be that the different pattern of BHS scoring exhibited by respondents in the 6-point Likert group can be attributed to the modified scoring format yielding a hopelessness scale that measures a somewhat different construct than the construct measured by the published true/false scored BHS. It is also worth noting that the sample studied by Marshall et al. (1992) were all male; a second possibility, also consistent with the findings of the present study, is that the constructs of optimism and pessimism have different meanings for men and women.

To explain the different magnitude of correlations obtained by male and female participants in the present study, it is possible that there is a difference in the way hopelessness is experienced or expressed by males and females. Offering some support for this explanation, one sex difference has been consistently found in the suicide research literature: while more women than men attempt suicide, more men than women complete it (e.g. Sanborn, 1990).

The World Health Organization (WHO; cited in McIntosh,

1992) reported suicide statistics for 36 countries compiled between 1984 and 1989. Except for China, where the suicide rate per 100,000 was 14.7 for men and 16.9 for women, all other countries reported suicide rates for men that markedly exceeded those for women, in some cases by a margin as large as 6 to 1. The 1989 statistics cited for Canada report a suicide rate of 21.4 per 100,000 for men, compared with 5.9 per 100,000 for women.

As it applies to the present study, the finding that there is a sex difference in parasuicidal and suicidal behaviour can reasonably be extrapolated to posit a sex difference in the experience of the feeling of hopelessness. Consequently, it would not be unreasonable to find a sex difference in the self-reporting of hopelessness on an instrument such as the BHS; if men and women experience the feeling of hopelessness differently, it is possible that they would also differ in their patterns of expressing hopelessness on a self-report measure.

The two interpretations discussed up to this point account for either the difference in BHS scoring found between the two response scale groups, or the difference in scoring found between male and female participants. A third interpretation that seeks to account for both differences reported is that men and women may vary in their manner of responding to the two types of response formats tested in the

present study.

A large body of research literature has focused on the area of self-disclosure, and particularly on the different patterns of self-disclosure exhibited by men and women (e.g. Allen & Haccoun, 1976; Brody, 1985; Deaux, 1977; Snell, Belk, & Hawkins 1986b). Snell, Miller, and Belk (1988) tested the Emotional Self-Disclosure Scale (ESD) with a group of 79 undergraduate students (36 males, 37 females and 6 sex-unspecified). The ESD consists of 8 subscales: depression, happiness, jealousy, anxiety, anger, calmness, apathy, and fear. The purpose of the authors' study was to examine the effect of the sex and relationship of the disclosure recipient (male friend, female friend, or spouse/lover) on the quantity and quality of sharing offered by the person disclosing.

Of relevance to the present study, the authors found that women were significantly more willing than men to disclose their feelings of depression, anxiety, anger, and fear, regardless of the sex or relationship of the disclosure recipient. The authors concluded that: "men may adhere to certain values, beliefs, and expectations that decrease their inclination to disclose their emotions to others; women, by contrast, may endorse certain values, beliefs, and expectations that dispose them to reveal their emotions" (p. 69, Snell, Miller, & Belk, 1988).

Deaux's (1977) theory of masculine and feminine self-

presentation styles holds that men's willingness to self-disclose may be inhibited by a self-presentational concern with appearing aloof, distant, and apart from others, while women's self-disclosure patterns may be facilitated or exaggerated due to a self-presentational concern with appearing expressive and sharing with others.

Applying both of these findings to the present study, a possible interpretation of the findings is that men were less willing to self-report feelings of hopelessness with a dichotomous scale which demands a definitive (true/false) response, and more willing to report hopelessness with a graded scale where they were able to qualify their responses (i.e. slightly agree, slightly disagree). Nine out of 35 male participants in the true/false BHS group (25.7%) received a total BHS score of 0, indicating that they had not endorsed any of the 20 items in a hopelessness-keyed direction. None of the 33 male participants in the 6-point Likert scored BHS condition received a score of 20 (which would indicate absolute non-endorsement of any of the hopelessness items). Although the distribution of scores for males in both the true/false and 6-point Likert scored groups were negatively skewed, the 6-point Likert group's distribution of scores showed relatively more variability.

Due to the possible anomalies in scoring discussed earlier, interpreting the results obtained with female

participants is more tenuous. To summarize the findings, in the present study the BHS scores of women in the 6-point Likert group correlated less strongly with their scores on the other measures tested in the study, while it appears that they were expressing a higher level of experienced hopelessness relative to the female participants in the true/false BHS group. Comparing the scoring distributions of the female participants in the two BHS groups, the true/false BHS group's scores are strongly negatively skewed, with a mode of 0. The distribution of scores for the 6-point Likert BHS women is only slightly negatively skewed, and approaches a normal distribution. Applying the conclusions of the self-presentation literature to these results, a possible interpretation is that women participants were willing to accurately report their feelings of hopelessness when responding to a dichotomous scale, and may have been encouraged to exaggerate their feelings when responding to a graded response scale.

To summarize, the results obtained in the present study suggest that in a mixed non-clinical population sample, both the true/false and 6-point Likert scored formats of the BHS were found to be psychometrically sound, and not statistically significantly different from each other in terms of their degree of correlation with measures expected to have a convergent relationship to BHS scores. However, it was also

found that the magnitude of correlations found between BHS scores and scores on measures of the scale's convergent validity varied depending on the sex of the respondent; the true/false format yielded higher magnitude correlations than the 6-point Likert format for female respondents, while the 6-point Likert format yielded higher magnitude correlations than the true/false format for male respondents.

Limitations To The Study and Suggestions for Future Research

One of the most significant limitations of the present study concerns the size and particular demographics of the sample tested, and how these two factors affect one's ability to generalize beyond the findings of the present study. Although a total of 168 respondents were tested, the largest number of respondents in a group on which results were reported was 85 (for the true/false BHS group), and the smallest was 33 (male participants in the 6-point Likert group). At present, acceptance of the results obtained would have to be qualified by the small size of the sample, and the findings of the present study would have to be replicated in a larger population sample in order to gain confidence in their validity.

Additionally, as expected, the non-clinical population tested in the present study exhibited a restricted range of scoring on the BHS, resulting in a negatively skewed distribution of scores. This skewness may have affected the

magnitude of correlations found when the range of scores was further restricted by calculating a second series of correlations based separately on the scores of male and female participants.

Another significant limitation to the present study that could be addressed in future research is the issue of between group variance, and how this may confound the results obtained. In the present study, the independent variable (type of response format used with the BHS) was tested between two groups, with one group responding to the true/false format, and the other responding to the 6-point Likert format. In order to control for the confound of between group variance, a study could be designed in which participants had an opportunity to respond to the BHS items with both formats; for example, by randomly selecting 10 of the items to be scored true/false and the remaining 10 to be scored on a Likert scale. In that scenario, between group variance would be controlled for, and any differences in scoring patterns observed could more confidently be attributed to the difference in the two response formats.

The most interesting finding to arise from this study was the discovery of a sex difference in patterns of responding to the two scoring formats tested with the BHS. One avenue of suggested future research would involve testing the various interpretations offered for the findings, to examine whether

and in what manner the dynamics described are operating in this case. For example, the literature related to patterns of male self-disclosure has examined a number of factors that may inhibit or facilitate disclosure: sex of the disclosure recipient (e.g. Snell, Miller & Belk, 1988), relationship of the disclosure recipient (e.g. Hacker, 1981), parental influences on disclosure style (e.g. Balswick & Averti, 1977), etc. The present study suggests an interesting possibility that has yet to be examined: the effect of the type of response format used on level of disclosure.

Lastly, interpreting the results obtained in the present study is necessarily limited by the scope of the study's investigation. The design of the study does not allow one to draw conclusions regarding the BHS' predictive validity (i.e. validity as a suicide risk assessment tool), or offer any insight into whether the scale's response format is relevant to the issue of the BHS' predictive validity. What the study does offer is additional information regarding a non-clinical population's pattern of scoring on the BHS, and quite strong evidence of the scale's internal consistency reliability and convergent validity when it is tested with a non-clinical population.

Relevance to Counselling

Greene (1981) argued that in order to accurately interpret a clinical population's scoring on a particular

instrument, one must have awareness of a 'normal' population's pattern of responses to that instrument. Accordingly, one of the potential contributions of the present study was to provide additional information regarding scoring on the BHS by a non-clinical sample, and to further the information available regarding the scale's internal consistency reliability and convergent validity.

The risk of suicide is an issue that is potentially relevant in any counselling setting, and the balance of the evidence suggests that suicide risk assessment is in many ways equivalent to hopelessness assessment. The findings of the present study highlight the complexity of the issue of hopelessness reporting, and emphasize the need for counsellors to sensitively attend to what their clients say, and perhaps do not say, in the context of this issue.

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APPENDICES

Appendix A: Instructions to Participants

- (i): Initial Contact Letter for Car Dealership Employees
- (ii): Instruction Sheet for Car Dealership Employees
- (iii): Contact/Instruction Sheet for the Remainder of the Sample



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Faculty of Education
2125 Main Mall
Vancouver, B.C. Canada V6T 1Z4
Tel: (604) 822-5259
Fax: (604) 822-2328

Dear Participant,

Thank you for volunteering to take part in this study! Enclosed you will find a questionnaire package for you to complete. The questionnaires should take approximately 10 minutes to answer, and should be completed at one sitting. Please answer the forms on your own and read all questions carefully. Do not write your name on any of the forms.

This study concerns examining how a "normal" person responds to a number of questionnaires sometimes used in counselling. Completion of the forms will indicate your consent to take part in the study.

Completed questionnaire packages are to be sealed in the envelope provided and placed in the "Completed Forms" box in the Business Office. Please return the completed questionnaires no later than February 15th.

The last page of your package is an information sheet for you to keep. Thank you again for your participation! If you have any questions, please contact Dr. Beth Haverkamp or Lee Kotsalis through the Counselling Psychology phone number listed above.

If you wish to have your name entered in the prize draw, please print your name and phone number on the index card attached. Index cards should be placed in the envelope provided and returned to the box marked "Tickets" in the Business Office.

Draw Prizes:

\$30 gift certificate for Isadora's Restaurant
\$30 gift certificate for Maria's Taverna
\$30 gift certificate for Athene's

Appendix B: PANAS Questionnaire

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt this way during the past week. Use the following scale to record your answers.

1	2	3	4	5
slightly or not at all	a little	moderately	quite a bit	extremely

_____interested	_____irritable
_____distressed	_____alert
_____excited	_____ashamed
_____upset	_____inspired
_____strong	_____nervous
_____guilty	_____determined
_____scared	_____attentive
_____hostile	_____jittery
_____enthusiastic	_____active
_____proud	_____afraid

Appendix C: Beck Hopelessness Scale

(i): True/False Scored BHS

(ii): 6-point Likert Scored BHS

This questionnaire consists of 20 statements. Please read the statements carefully one by one. If the statement describes your attitude for the **past week including today**, darken the circle with a 'T' indicating TRUE in the column next to the statement. If the statement does not describe your attitude, darken the circle with an 'F' indicating FALSE in the column next to this statement. **Please be sure to read each statement carefully.**

- | | | |
|--|-----|-----|
| 1. I look forward to the future with hope and enthusiasm. | (T) | (F) |
| 2. I might as well give up because there is nothing I can do about making things better for myself. | (T) | (F) |
| 3. When things are going badly, I am helped by knowing that they cannot stay that way forever. | (T) | (F) |
| 4. I can't imagine what my life would be like in ten years. | (T) | (F) |
| 5. I have enough time to accomplish the things I want to do. | (T) | (F) |
| 6. In the future, I expect to succeed in what concerns me most. | (T) | (F) |
| 7. My future seems dark to me. | (T) | (F) |
| 8. I happen to be particularly lucky, and I expect to get more of the good things in life than the average person. | (T) | (F) |
| 9. I just can't get the breaks, and there's no reason I will in the future. | (T) | (F) |
| 10. My past experiences have prepared me well for the future. | (T) | (F) |
| 11. All I can see ahead of me is unpleasantness rather than pleasantness. | (T) | (F) |
| 12. I don't expect to get what I really want. | (T) | (F) |
| 13. When I look ahead to the future, I expect that I will be happier than I am now. | (T) | (F) |
| 14. Things just don't work out the way I want them to. | (T) | (F) |
| 15. I have great faith in the future. | (T) | (F) |
| 16. I never get what I want, so it's foolish to want anything. | (T) | (F) |
| 17. It's very unlikely that I will get any real satisfaction in the future. | (T) | (F) |
| 18. The future seems vague and uncertain to me. | (T) | (F) |
| 19. I can look forward to more good times than bad times. | (T) | (F) |
| 20. There's no use in really trying to get anything I want because I probably won't get it. | (T) | (F) |

This questionnaire consists of 20 statements. Please read the statements carefully one by one. To describe your attitude for the past week including today, how much do you agree with each statement?

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- 1-Completely Agree
2-Strongly Agree
3-Slightly Agree
4-Slightly Disagree
5-Strongly Disagree
6-Completely Disagree

Circle the number corresponding to your degree of agreement in the column next to the statement. Please be sure to read each statement carefully.

- | | | | | | | |
|--|---|---|---|---|---|---|
| 1. I look forward to the future with hope and enthusiasm. | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. I might as well give up because there is nothing I can do about making things better for myself. | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. When things are going badly, I am helped by knowing that they cannot stay that way forever. | 1 | 2 | 3 | 4 | 5 | 6 |
| 4. I can't imagine what my life would be like in ten years. | 1 | 2 | 3 | 4 | 5 | 6 |
| 5. I have enough time to accomplish the things I want to do. | 1 | 2 | 3 | 4 | 5 | 6 |
| 6. In the future, I expect to succeed in what concerns me most. | 1 | 2 | 3 | 4 | 5 | 6 |
| 7. My future seems dark to me. | 1 | 2 | 3 | 4 | 5 | 6 |
| 8. I happen to be particularly lucky, and I expect to get more of the good things in life than the average person. | 1 | 2 | 3 | 4 | 5 | 6 |
| 9. I just can't get the breaks, and there's no reason I will in the future. | 1 | 2 | 3 | 4 | 5 | 6 |
| 10. My past experiences have prepared me well for the future. | 1 | 2 | 3 | 4 | 5 | 6 |
| 11. All I can see ahead of me is unpleasantness rather than pleasantness. | 1 | 2 | 3 | 4 | 5 | 6 |
| 12. I don't expect to get what I really want. | 1 | 2 | 3 | 4 | 5 | 6 |
| 13. When I look ahead to the future, I expect that I will be happier than I am now. | 1 | 2 | 3 | 4 | 5 | 6 |
| 14. Things just don't work out the way I want them to. | 1 | 2 | 3 | 4 | 5 | 6 |
| 15. I have great faith in the future. | 1 | 2 | 3 | 4 | 5 | 6 |
| 16. I never get what I want, so it's foolish to want anything. | 1 | 2 | 3 | 4 | 5 | 6 |
| 17. It's very unlikely that I will get any real satisfaction in the future. | 1 | 2 | 3 | 4 | 5 | 6 |
| 18. The future seems vague and uncertain to me. | 1 | 2 | 3 | 4 | 5 | 6 |
| 19. I can look forward to more good times than bad times. | 1 | 2 | 3 | 4 | 5 | 6 |
| 20. There's no use in really trying to get anything I want because I probably won't get it. | 1 | 2 | 3 | 4 | 5 | 6 |

Appendix D: Trait-Anxiety form of the STAI

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Reach each statement and then indicate in the space to the left of the statements how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel. Use the following key:

	1	2	3	4
	Almost Never	Sometimes	Often	Almost Always
_____ I feel pleasant.				
_____ I feel nervous and restless.				
_____ I feel satisfied with myself.				
_____ I wish I could be as happy as others seem to be.				
_____ I feel like a failure.				
_____ I feel rested.				
_____ I am "calm, cool and collected".				
_____ I feel that difficulties are piling up so that I cannot overcome them.				
_____ I worry too much over something that really doesn't matter.				
_____ I am happy.				
_____ I have disturbing thoughts.				
_____ I lack self-confidence.				
_____ I feel secure.				
_____ I make decisions easily.				
_____ I feel inadequate.				
_____ I am content.				
_____ Some unimportant thought runs through my mind and bothers me.				
_____ I am a steady person.				
_____ I get in a state of tension or turmoil as I think over my recent concerns and interests.				

Appendix E: Life Orientation Test

Listed below is a number of statements. Indicate the extent to which you agree with each statement, using the following key:

4=Strongly Agree
3=Agree
2=Neutral
1=Disagree
0=Strongly Disagree

Please be as accurate and honest as you can throughout, and try not to let your answers to one statement influence your answers to other statements. We are only interested in your honest opinion; there are no right or wrong answers.

- ___ In uncertain times, I usually expect the best.
- ___ It's easy for me to relax.
- ___ If something can go wrong for me, it will.
- ___ I always look on the bright side of things.
- ___ I'm always optimistic about my future.
- ___ I enjoy my friends a lot.
- ___ It's important for me to keep busy.
- ___ I hardly ever expect things to go my way.
- ___ Things never work out the way I want them to.
- ___ I don't get upset too easily.
- ___ I'm a believer in the idea that "every cloud has a silver lining".
- ___ I rarely count on good things happening to me.

APPENDIX F: Suicide Behaviours Questionnaire and Demographic Data

Please answer the following questions with either yes/no or a brief statement.

1. Have you ever thought about or attempted to kill yourself?
2. How often have you thought about killing yourself in the past year?
3. Have you ever told someone that you were going to commit suicide or that you might do it?
4. How likely is it that you will attempt suicide someday?
5. Are you currently involved in psychiatric or psychological counselling?

Personal Data

The following information is requested in order to ensure that a broad spectrum of the general population has been included in this study.

Age: _____ Sex: _____

Please answer the following questions by circling the appropriate option.

Marital Status: Single Common-Law Married Divorced Widowed

Last Grade Completed: High School Trade School College/University
Master's/PhD.

Current Employment Status: Student Part-Time Full-Time Retired
Unemployed

How would you describe your ethnic/cultural background?

European Eastern European Asian African East Indian

Other: _____

Appendix G: Crisis Intervention Resources Sheet

"... Well, everyone can master grief 'cept he that has it."
William Shakespeare

As you may have noticed, the questionnaires you have just completed concern different emotions, both positive and negative, that people experience. Sadness or depression is one of these emotions, and it is inevitably experienced by everyone at one time or another. Usually the feeling is short-lived and we accept it as part of life. However, sometimes depression is more serious, and we may need outside help to cope with it. There are a number of signs of this kind of depression:

- a prolonged and pervasive feeling of sadness
- withdrawing from or losing interest in one's usual activities
- feeling guilty
- feeling like a failure
- being unable to work
- sleeplessness or excessive sleep
- tiredness
- loss of interest in sex
- loss of appetite or overeating
- thoughts of suicide

If you recognize these signs in yourself, or in someone close to you, there is help available. Below is a listing of just some of the crisis intervention services available in the Lower Mainland.

**Crisis Intervention
and Suicide Prevention Centre
of Greater Vancouver**
Crisis: 733-4111
Business: 733-1171
TDD: 733-4111
(24-hour service)

Care-Line Burnaby
437-3445
(7:00 a.m. to 11:00 p.m.
7 days per week)

Chimo Richmond Crisis Centre
Crisis: 273-8701
Business: 273-8661

Langley Crisis Line
530-5385
(9:00 a.m. to 2:00 a.m.
7 days per week)

**SAFER
(Suicide Attempt Counselling)**
879-9251

**Suicide Prevention & Counselling
(New Westminster)**
522-3722

**Deltassist Youth Suicide Prevention Counselling
(Delta)**
594-3455

Appendix H(i)
True/False BHS Internal Consistency Reliability Output

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
BHS1	3.3690	13.4164	.5051	.	.8658
BHS10	3.2619	12.8944	.5057	.	.8648
BHS11	3.3810	13.1784	.6985	.	.8615
BHS12	3.2024	12.4043	.6144	.	.8602
BHS13	3.2381	13.5812	.2342	.	.8756
BHS14	3.2381	12.5691	.5966	.	.8611
BHS15	3.2262	12.6832	.5403	.	.8634
BHS16	3.3810	13.3953	.5684	.	.8647
BHS17	3.3929	13.5908	.5099	.	.8666
BHS18	3.1548	12.5902	.5102	.	.8650
BHS19	3.4167	14.0050	.3603	.	.8705
BHS2	3.3929	13.5908	.5099	.	.8666
BHS20	3.3929	13.5426	.5414	.	.8659
BHS3	3.3095	13.4934	.3343	.	.8706
BHS4	3.0476	12.5519	.4736	.	.8674
BHS5	2.9286	12.6695	.4245	.	.8701
BHS6	3.3214	13.2569	.4549	.	.8666
BHS7	3.3690	13.1272	.6647	.	.8616
BHS8	2.9762	12.6500	.4316	.	.8697
BHS9	3.3690	13.2477	.5978	.	.8634

Reliability Coefficients 20 items

Alpha = .8720 Standardized item alpha = .8950

Appendix H(ii)
6-point Likert BHS Internal Consistency Reliability Output

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
BHS1	42.1905	162.0115	.6592	.5895	.8844
BHS10	41.7262	160.3699	.5214	.5031	.8865
BHS11	42.2381	155.4607	.7384	.7675	.8805
BHS12	41.5833	154.2701	.6126	.5461	.8834
BHS13	40.9881	166.3252	.2320	.2783	.8963
BHS14	41.4048	160.2679	.5414	.5463	.8859
BHS15	41.7381	156.5330	.5858	.5388	.8844
BHS16	42.2738	159.8157	.5554	.5972	.8855
BHS17	42.3214	157.9798	.7363	.7631	.8816
BHS18	41.4762	156.6139	.5106	.4771	.8871
BHS19	42.0476	158.9134	.6194	.6677	.8839
BHS2	42.5833	161.7159	.6616	.6196	.8843
BHS20	42.3333	160.3213	.7093	.7584	.8830
BHS3	41.9405	163.8157	.3506	.2618	.8917
BHS4	41.0952	161.0029	.3820	.3250	.8915
BHS5	40.8095	163.6982	.2645	.3115	.8967
BHS6	42.0238	160.2404	.6048	.5267	.8846
BHS7	42.3452	157.0240	.7046	.6433	.8817
BHS8	40.4881	164.4938	.2603	.3471	.8962
BHS9	41.9405	157.9362	.5601	.5272	.8852

Reliability Coefficients 20 items

Alpha = .8818 Standardized item alpha = .9070

Appendix I: Correlation Matrix

- - Correlation Coefficients - -						
	BHSTOTAL	LOTSORE	PARASUI	NASORE	PASORE	STAI
BHSTOTAL		-.7599	.3249	.5621	-.4840	.6933
	()	(85)	(85)	(85)	(85)	(85)
	P= .	P= .000	P= .002	P= .000	P= .000	P= .000
LOTSORE	-.6543		-.4602	-.5540	.4644	-.7829
	(83)	()	(85)	(85)	(85)	(85)
	P= .000	P= .	P= .000	P= .000	P= .000	P= .000
PARASUI	.1867	-.3482		.3660	-.1484	.5405
	(83)	(83)	()	(85)	(85)	(85)
	P= .091	P= .001	P= .	P= .001	P= .175	P= .000
NASORE	.4032	-.5029	.3408		-.2552	.6917
	(83)	(83)	(83)	()	(85)	(85)
	P= .000	P= .000	P= .002	P= .	P= .018	P= .000
PASORE	-.4917	.3501	-.3273	-.4068		-.5182
	(83)	(83)	(83)	(83)	()	(85)
	P= .000	P= .001	P= .003	P= .000	P= .	P= .000
STAI	.6143	-.7628	.4101	.6642	-.4265	
	(82)	(82)	(82)	(82)	(82)	()
	P= .000	P= .000	P= .000	P= .000	P= .000	P= .

(Coefficient / (Cases) / 2-tailed Significance)

Note: Correlations above the diagonal are for the true/false BHS group, those below the diagonal are for the 6-point Likert BHS group.