Nonclinical panic: A useful analogue for panic disorder?

Gia Renee Hamilton

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NONCLINICAL PANIC:
A USEFUL ANALOGUE FOR PANIC DISORDER?

A Thesis
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Science
in
Psychology:
Clinical/Counseling

by
Gia Renee Hamilton

June 2002
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Approved by:
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ABSTRACT

The study of Nonclinical Panic (NCP) has been used as an analogue for Panic Disorder (PD). NCPs consist of individuals who experience panic attacks and who do not seek treatment. Delineating what constitutes NCP is essential to its theoretical utility as an analogue for PD. Since PD requires the presence of unexpected panic attacks, it is plausible that NCP that includes at least some unexpected panic attacks might be a more appropriate PD analogue. Thus, the objective of this study is to see if nonclinical panickers with unexpected panic attacks (NCPs-U) may be a more useful PD analogue than nonclinical panickers with expected panic attacks (NCPs-E).

Participants were 52 psychology undergraduates at a state university in Southern California. The present study compared 18 nonclinical panickers with unexpected attacks (NCPs-U) with 15 nonclinical panickers with expected attacks (NCPs-E) with 19 panic-free participants (CONs) on a variety of anxiety measures. It was predicted that, compared to NCPs-E, NCPs-U would display significantly greater levels of anxiety sensitivity (measured by the ASI) and panic-related cognitions (measured by the PAI),
as well as, a higher intensity of anxiety and physical symptoms (measured by subjective units of distress and by self-report on a Likert scale) experienced during a voluntary hyperventilation challenge. It was also predicted that, compared to CONs, NCPs-U would display significantly greater levels of anxiety sensitivity and a higher intensity of anxiety and physical symptoms. In contrast, it was predicted that no significant differences between the NCPs-E and the CONs would be observed.

In this study, a one-way MANOVA and planned comparisons (one-tailed Student’s t-tests for independent samples) were used to analyze these hypotheses. Overall, results were mixed. Surprisingly, both groups of NCPs were much more similar to each other than different. Possible reasons for the current findings are suggested. In addition, a variety of implications for a more useful PD analogue are discussed.
ACKNOWLEDGMENTS

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DEDICATION

I would like to dedicate this thesis to the four teachers I admire most, my parents, George and Mary Louise Mastromonaco, and my in-laws, Gary and Susan Hamilton. Lastly, I dedicate this thesis to my life partner and best friend, Erin Hamilton.
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CHAPTER ONE

INTRODUCTION

Panic Disorder (PD) is a debilitating disorder that affects between 1.5% and 3.8% of the general population (Eaton, Dryman, & Weissman, 1991; Kessler et al., 1994). The diagnostic criteria for PD include recurrent unexpected panic attacks as well as, at least one of the following symptoms: persistent worry about additional attacks, worry about the implications or consequences of an attack, behavior change as a result of an attack (DSM-IV-TR; American Psychiatric Association, 2000). Without appropriate treatment, studies of PD have pointed to a poor long-term prognosis (Margraf, Barlow, Clark & Telch, 1993). This is in part due to the chronic nature of PD that can include severe depression and drug and alcohol abuse (Barlow & Shear, 1988). Many patients who contend with these secondary problems do not receive adequate treatment (Beamish & Granello, 1996; Ehlers, 1995). In addition, Ehlers (1995) found that a panic-free status was rarely achieved in a 1-year prospective study of panic attacks. Ehlers' sample consisted of 39 patients (22 of whom were treated with medication and/or psychotherapy and
17 remitted patients with no panic attacks in past 6 months), 46 infrequent panickers (defined as having experienced at least one unexpected panic attack in their lifetime), and 45 controls. Almost all (92%) PD patients, 41% of remitted patients and 50% of infrequent panickers continued to experience panic attacks in a 1-year follow-up. Furthermore, Ehlers found individuals identified as infrequent panickers were significantly more likely than controls to develop PD. However, other studies have shown that 80% of PD patients who receive optimal treatments such as panic control treatment (PCT; interoceptive exposure and cognitive restructuring) or cognitive therapy, obtain and maintain a panic-free status for up to 2 years (Barlow & Lehman, 1996; Margraf et al., 1993). What is not disputed is that PD seriously diminishes an individual’s quality of life and is considered a “major health problem” (Margraf et al., 1993, p.1).

In light of PD’s chronic nature and course, it is critical to uncover the potential mechanisms involved in the development and maintenance of PD. The goal is to better understand PD in order to better treat PD, as well as to better help prevent PD. Thus, finding a useful analogue is of particular significance in order to
identify and test possible etiological theories, risk factors and preventative factors associated with PD. Over the past 17 years, researchers have identified Nonclinical Panickers (NCPs; Norton, Harrison, Hauch & Rhodes, 1985) as representative of a less severe and less frequent yet similar symptom structure as panic attacks (PAs) in PD. More specifically, NCPs consist of individuals who experience PAs and who are not seeking treatment.

A panic attack is defined as “A discrete period of intense fear or discomfort, in which 4 or more symptoms develop abruptly and reach a peak within 10 minutes” (DSM-IV-RT, 2000, p. 395). Barlow et al. (1984) determined that PAs are not unique to PD and occur in over 80% of patients diagnosed with an anxiety disorder. Furthermore, there are three characteristic types of PAs; unexpected (uncued) PAs, expected or situationally bound (cued) PAs and situationally predisposed PAs. Unexpected PAs occur in the absence of a situational trigger; expected PAs occur invariably in the actual presence or anticipation of a situational trigger; situationally predisposed PAs are more likely to occur yet do not necessarily occur in the presence of a situational trigger (DSM-IV-RT, p. 395).
To date, the risk factor components that are similar yet less severe and that best discriminate NCP from PD are anxiety sensitivity, suffocation fears and cognitive symptoms. A number of studies have established that a high score on the Anxiety Sensitivity Index (ASI; Peterson & Reiss, 1992) is a cognitive risk factor for the development of unexpected attacks (e.g., Cox, Endler, Norton, & Swinson, 1991; Donnell & McNally, 1990) and thus predictive of PD (Maller & Reiss, 1992; Schmidt, Lerew & Jackson, 1997). Additional studies have shown that high anxiety sensitivity is not specific to PD but is also characteristic of cued PAs (Asmundson & Norton, 1993; Cox et al., 1991), Posttraumatic Stress Disorder (McNally, 1990) and other anxiety disorders (see Taylor, Koch, & McNally, 1992). The ASI is designed to measure the fear associated with anxiety symptoms based on perceptions that these symptoms are threatening on a cognitive, physical or social level. For example, a person might misinterpret heart palpitations as an indication of an impending heart attack. In addition, high anxiety sensitivity also predicts an intensified tendency to panic in response to biological challenges such as hyperventilation (Asmundson, Norton, Wilson & Sandler, 1994; McNally, Hornig & Donnell,
In one particular study, Whittal and Goetsch (1995) compared PD patients with infrequent panickers on a voluntary hyperventilation challenge. Their infrequent panic group endorsed 1-3 PAs in the past month with at least 4 symptoms of moderate intensity. While Whittal and Goetsch found that higher ASI scores and higher subjective ratings of distress discriminated between NCPs and PD patients, it is interesting to note that the ambulatory monitoring of cardiac responses in a few studies recorded no actual differences in heart rate response to biological challenges (Whittal & Goetsch; Forsyth, Palav & Duff, 1998). Additionally, one study found no actual cardiovascular differences (measured by heart rate and blood pressure) between NCPs (students who reported at least 1 unexpected PA in the past year) and Controls (CONs), (Sandler, Wilson, Asmundson, Larsen, & Ediger, 1992).

McNally et al. (1995) defined NCPs as those individuals who reported at least one unexpected PA in the past year with at least 4 symptoms of moderate severity. Since their sample was fairly large (425 NCPs and 37 patients), they also calculated the effect sizes of symptoms. McNally et al. found the three cognitive
symptoms to have the largest effect sizes: fear of dying \([r(101) = 0.53]\), fear of having a heart attack \([r(101) = 0.51]\), and fear of losing control \([r(101) = 0.48]\) were more characteristic of PD than NCP. In another study, NCPs with unexpected PAs reported higher levels of fear symptoms, fear of “going crazy,” and fear of doing something uncontrolled than NCPs with expected PAs (Wilson, Sandler, Asmundson, Larsen & Ediger, 1991). These results support Clark’s (1986) theory of panic that cognitive symptoms best differentiate clinical from nonclinical panic. Thus, it seems that unexpected attacks and the presence of cognitive fears may represent a nosologic boundary between NCP and PD.

Consequently, if NCP is to be used as an effective analogue for PD, it is crucial to ascertain that the PAs experienced by NCPs are qualitatively similar in nature to those reported by PD patients (Norton, Cox & Malan, 1992). In other words, it is imperative that we are measuring the same construct in NCP as in PD for the NCP analogue to be useful. One pervasive problem among studies is the highly discrepant observed prevalence rates of NCP in the population ranging from 3 - 60% (Wilson, Sandler, Asmundson, Ediger, Larsen & Walker, 1992). These
discrepant prevalence rates are likely due to differing criteria used across studies of NCP. More specifically, the number of PAs required, the number of symptoms required, the time period sampled and the nature of PAs that are used to assess NCP vary from study to study (Norton et al., 1992). Thus, Barlow, Brown and Craske (1994) have strongly encouraged researchers to use a homogeneous definition of NCP. In response, Norton, Pidlubny and Norton (1999) have suggested specific guidelines for identifying NCP. To meet the inclusion criteria for NCP, a subject has to report at least 1 or more PAs during the past year, as well as, meet one of the following criteria: 1) 1 or more PAs during the past month, or 2) 1 or more PAs in any 4-week period, or 3) score 2 (moderate) or higher on a 5-point Likert scale measuring any of the following; distress produced by PAs, avoidance produced by PAs or seriousness of the disorder. Furthermore, NCP attacks should have at least 4 symptoms of moderate severity (indicated by a score of 2 or higher on a 5-point Likert scale) and should not occur in the face of physical danger. The current study used this conservative definition of NCP recommended by Norton et al. with three more conservative modifications.
Participants had to have experienced at least 2 PAs instead of 1 PA in both the past 3 months (instead of in the past year) and in any 4-week interval.

Another problematic issue is the method of screening for NCP. The use of structured interviews versus self-report methods has been shown to greatly affect the prevalence rates of NCP (Wilson, Sandler, Asmundson, Ediger, Larsen & Walker, 1992). Brown and Deagle (1992) used the panic disorder section of the Anxiety Disorders Interview Schedule - Revised (ADIS-R) to assess the 1-year prevalence of PAs. Their results revealed that 29.2% of participants experienced at least 1 PA (unexpected and/or expected) in the past year. However, Brown and Deagle found that although the ADIS-R did not affect the prevalence of expected PAs (28.1%), it did result in a far lower prevalence of unexpected PAs (2.3%) than past studies using questionnaires and similar samples (e.g., 14.4% in Brown & Cash, 1990; 15.5% in Donnell & McNally, 1990; 13.9% in Rapee et al., 1988). Likewise, another factor that has been found to lower PA prevalence rates observed in self-report measures is the inclusion of a clinical vignette describing a PA. Wilson et al. (1991) compared the prevalence rate of PAs between two
questionnaires, identical in nature except for the inclusion or exclusion of a clinical vignette describing a PA. Results showed that the PA prevalence rates differed significantly between the two questionnaires with 51.3% of participants reporting PAs on the questionnaire without the clinical vignette (questionnaire 1) compared to 33.4% on the questionnaire containing the clinical vignette (questionnaire 2). However, only the participants with expected PAs accounted for this difference (44.2% on questionnaire 1 vs. 27.2% on questionnaire 2) since the rate for participants with unexpected PAs was similar (6.7%) across questionnaires. A separate study administered two forms of the Panic Attack Questionnaire (PAQ), identical except for some additional information differentiating anxiety from panic contained in the definition/description of a PA on the modified PAQ (Brown & Cash, 1989). Results revealed a significantly lower prevalence of panic (25.7%) during the past year with the modified PAQ than with the original PAQ (37.1%). This suggests a possible confusion on the part of participants between heightened anxiety and panic, thus producing a high rate of false-positives (Brown & Cash, 1989). In order to address some of these methodological concerns,
the present study used both a modified and more conservative PAQ, and the PD subsection of the Anxiety Disorders Interview Schedule (ADIS-IV) to assess for expected and unexpected PAs.

Delineating what constitutes NCP is essential to its theoretical utility as an analogue for PD. Cox, Endler and Norton (1994) have studied the frequency of PAs in NCP. Their findings suggest that only frequent panickers (FPs—at least 1 PA required in past 3 weeks) constitute an accurate NCP analogue. The infrequent panickers (IPs—at least 1 PA required in past year but none in past 3 weeks) differed significantly from nonpanickers (CONs) on anxiety sensitivity. In contrast, FPs differed significantly from IPs on numerous measures: the ASI, the Fear Questionnaire (FQ) subscales of agoraphobia (Ag), blood/injury phobia (BI), the Beck Depression Inventory (BDI), the Endler Multidimensional Anxiety Scales-State (EMAS) subscales of cognitive worry (CW) and autonomic emotional (AE), and the EMAS-Trait subscales of social evaluation (SE), ambiguous stimuli (AM), and daily routines (DR). Therefore, the frequency of PAs is an important variable in selecting a useful NCP analogue.
Similarly, it is quite possible that the nature of a 
PA, expected vs. unexpected, might also be a useful 
variable in accurately identifying NCP. After all, one of 
the hallmark features of PD is the presence of unexpected 
PAs. Unfortunately, there are few studies that have 
compared expected PAs with unexpected PAs. Yet this might 
well be a more salient dimension to investigate since it 
is crucial in the diagnosis of PD. In fact, Cox et al. 
(1991) found that the best discriminatory variable between 
NCP and PD was expected PAs in NCP vs. unexpected PAs in 
PD. Along these lines, a few studies (Cox, Endler, Swinson 
& Norton, 1992; Norton, Dorward & Cox, 1986) have shown 
that PAs suffered by NCPs are more expected in nature and 
thus tied to a particular situation (67% when under 
stress, 56.8% prior to/during tests and 51.4% in life 
threatening situations). On the other hand, PAs 
experienced by PD patients seem to occur more unexpectedly 
(77% ‘out of the blue,’ 76.6% traveling alone and 72.3% 
walking alone in busy streets).

Contrary to the aforementioned findings (Cox, Endler, 
Norton & Swinson, 1991; Taylor & Rachman, 1994), Norton, 
Pidlubny and Norton (1999) found that NCPs (using a more 
conservative inclusion criteria) did not significantly
differ from nonpanickers (CONs) on ASI or Suffocation Fear Scale (SFS) scores. However, it is possible that in failing to discriminate between expected and unexpected PAs in participants, Norton et al.'s sample contained more participants with expected PAs thus contributing to non-significant results. The heterogeneity of NCP (i.e., blending of expected PAs and unexpected PAs) might account for the discrepancy in results. Therefore, a main objective of this study is to investigate whether nonclinical panickers with unexpected attacks (NCPs-U) will display greater levels of anxiety sensitivity, panic-related cognitions, intensity of anxiety and physical symptoms experienced during a voluntary hyperventilation challenge than their counterparts, nonclinical panickers with expected attacks (NCPs-E).

Since PAs are common in all anxiety disorders, the type of PA required for NCP should differentiate PD from other anxiety disorders. Therefore, it seems crucial that NCPs experience at least some unexpected PAs with or without expected PAs. The present study compared nonclinical panickers with unexpected attacks (NCPs-U) with nonclinical panickers with expected attacks (NCPs-E) with panic-free participants (CONs) on a variety of
anxiety measures including the Anxiety Sensitivity Index (ASI), the Panic Appraisal Inventory (PAI), and responses to a voluntary hyperventilation challenge.

It was predicted that, compared to NCPs-E, NCPs-U would display significantly greater levels of anxiety sensitivity (measured by the ASI) and panic-related cognitions (measured by the PAI), a higher intensity of anxiety and less control over those anxiety symptoms (measured by subjective units of distress and by self-report on a Likert scale) both before and during a voluntary hyperventilation challenge, as well as, a higher intensity of physical symptoms (measured by subjective units of distress and by self-report on a Likert scale) experienced during a voluntary hyperventilation challenge.

A similar prediction was made between the NCPs-U and the CONs in regard to levels of anxiety sensitivity, intensity of anxiety and control over those anxiety symptoms both before and during a voluntary hyperventilation challenge, as well as, intensity of physical symptoms experienced during a voluntary hyperventilation challenge. Because, by definition, CONs are panic-free, no comparison between levels of panic-related cognitions between the NCPs-U and CONs was made.
It was predicted that, compared to CONs, NCPs-U would display significantly greater levels of anxiety sensitivity, a higher intensity of anxiety and less control over those anxiety symptoms both before and during the voluntary hyperventilation challenge, as well as, a higher intensity of physical symptoms experienced during the challenge. In contrast, it was predicted that no significant differences between the NCPs-E and the CONs would be observed on levels of anxiety sensitivity, intensity of anxiety and control over those anxiety symptoms before and during the voluntary hyperventilation challenge, as well as, intensity of physical symptoms experienced during the challenge.

In addition, there will be some follow-up analyses between the NCPs-U and the NCPs-E on the ADIS-IV. These comparisons will provide added material with which to interpret the hypotheses.
CHAPTER TWO

METHOD

Design

A single-factor multivariate quasi-experimental design with three levels was used to test the hypotheses. The independent variable is type of PA. It is a qualitative variable with three conditions (NCP-unexpected PAs, NCP-expected PAs, and CON-no PAs). There were four dependent variables: level of anxiety sensitivity (measured by the ASI), level of panic-related cognitions (measured by the PAI), level of anxiety experienced in response to a voluntary hyperventilation challenge (measured by self-report on a Likert scale) and level of physical symptoms experienced during a voluntary hyperventilation challenge (measured by self-report on a Likert scale) (see Materials).

Participants

Participants were 52 undergraduate psychology students at a state university in Southern California. Participants were chosen for inclusion from a pool of participants based on their responses on a Panic Attack Questionnaire-Revised (PAQ-R) measuring the occurrence and
frequency of PAs. Seven hundred and forty participants were screened initially with the PAQ. All participants were compensated via extra class credit. Appropriate participants were then selected to take part in the experiment phase and were again compensated via extra class credit. In this experiment phase, participants were selected for inclusion in one of three groups [NCP-U (n = 18), NCP-E (n = 15), and CON (n = 19)] based on their responses during the PD section of the Anxiety Disorders Interview Schedule - IV (ADIS-IV).

Materials and Scoring

Screening Phase

The following materials were used in the screening portion of the study: Informed consent (see Appendix A), Demographic information (see Appendix B), Medical screen (see Appendix C), and Panic Attack Questionnaire-Revised (PAQ-R) (see Appendix D).

Informed Consent (see Appendix A). In the informed consent form, the following information was included: identification of researchers involved, description of the nature and purpose of the study, duration of research participation, explanation of how confidentiality will be
safeguarded, statement of participants’ rights to withdraw from the study at any time without penalty, information about reasonably foreseeable risks and benefits, mention of the voluntary nature of participation, and provision of contact name regarding questions about participants’ rights or injuries.

Demographic Information (see Appendix B). In the demographic sheet, the following questions were asked: participants’ age, gender, annual household income, number of dependents, ethnicity, and family history of anxiety.

Medical Screen (see Appendix C). The medical screen consisted of questions pertaining to health issues that might adversely impact participants in the voluntary hyperventilation challenge. Health issues screened included pregnancy, heart disease, epilepsy, respiratory disorders, blood pressure, heart and brain abnormalities and serious head injuries among others.

Panic Attack Questionnaire-Revised (PAQ-R; Norton, 1995, see Appendix D). The PAQ-R is a self-report instrument that measures both the frequency and characteristics of PAs. The first section of the PAQ-R assesses the nature and frequency of PAs. The second part assesses distress, avoidance and symptoms of PAs using a
5-point Likert scale anchored by 0 (none) and 4 (very severe). The PAQ-R includes a vignette defining a PA and differentiating a PA from heightened anxiety (Wilson et al., 1991).

Margraf and Ehlers (1988) (as cited in Bouchard, Pelletier, Gauthier, Cote & Laberge, 1997) found test-retest reliability Kappa coefficients of .80-.82 using a 20-day interval. As reported by Bouchard et al., factor analysis has revealed a three-factor structure; dizziness-related, cardiorespiratory and cognitive factors.

**Experiment Phase**

For the experiment portion of the study, the following materials were used: oral informed consent (see Appendix E), Anxiety Disorders Interview Schedule-IV; Panic Disorder section (ADIS-IV) (see Appendix F), Anxiety Sensitivity Index (ASI) (see Appendix G), Panic Appraisal Inventory (PAI) (see Appendix H), Instructions for voluntary hyperventilation challenge (see Appendix I), Anticipatory ratings worksheet (see Appendix J), Voluntary hyperventilation challenge response sheet (see Appendix K) and Debriefing statement (see Appendix L).

**Oral Informed Consent** (see Appendix E). The oral informed consent outlined participants’ right to withdraw
from the experiment at any time without penalty, the components of the experiment phase, and the risks and benefits of participation.

Anxiety Disorders Interview Schedule-IV; Panic Disorder Section (ADIS-IV; Di Nardo & Barlow, 1988, see Appendix F). The ADIS-IV is a semi-structured interview that assesses anxiety disorders and allows for differential diagnosis among anxiety disorders. In the present study, only the Panic Disorder subsection of the ADIS-IV was used to confirm PAQ responses and to ensure that participants were assigned to an appropriate group (NCP-U, NCP-E, & CON) based on inclusion criteria (see Procedure). The first section, initial inquiry, consists of close-ended questions to rule in or rule out PAs and to specify the nature of the attacks, expected and/or unexpected. The second section, symptoms ratings, are reported in terms of distress on a scale from 0 to 8 where 0 = none and 8 = very severe. The third section, panic frequency, is to ensure that participants have experienced the minimum number of PAs for inclusion in NCP-U or NCP-E groups. The fourth and fifth sections, worry about panic and interference due to panic, require participants to rate situations using a scale anchored by 0 (none) and 8
(very severe). Preliminary studies show adequate reliability for DSM-III diagnosis of Panic Disorder with the ADIS-R panic subsection (Kappa = .651, n = 17).

Anxiety Sensitivity Index (ASI; Reiss, S., Peterson, R.A., Gursky, D.M., & McNally, R.J., 1986, see Appendix G). This scale contains 16 items each identifying a potential negative consequence to the experience of anxiety. An example item is, “It scares me when I become short of breath.” The subject then proceeds to rate each item using a 5-point Likert scale as follows; very little (0), a little (1), some (2), much (3) and very much (4). The sum of the scores on all 16 items ranges from 0 to 64. A high score means that an individual has a high degree of anxiety sensitivity, or belief that anxiety symptoms have negative effects. Conversely, a low score means that an individual has a low degree of anxiety sensitivity.

Peterson and Reiss (1987) found that the ASI normative mean is 17.8 (SD = 8.8) with Panic Disorder patients typically scoring in the mid-thirties (McNally, Foa & Donnell, 1989). There is much evidence establishing its construct validity in tapping the fear of anxiety symptoms as opposed to state or trait anxiety (Donnell & McNally, 1989; Peterson & Reiss, 1987). There is also evidence for
the criterion validity of the ASI in predicting patients with anxiety disorders as opposed to college students (Reiss et al.). In addition, Maller and Reiss (1992) have shown the ASI to have a test-retest correlation of .71 over 3 years. Furthermore, Reiss et al. found interitem correlations of 0.42 (SD = 0.14) and 0.35 (SD = 0.09) for two samples of participants. Therefore, people who endorse one negative consequence for anxiety are likely to endorse other negative consequences.

**Panic Appraisal Inventory-** (PAI; Telch, 1987, see Appendix H). The PAI is a self-report scale that measures cognitions associated with panic. The PAI consists of 45 items assessing 3 areas of panic-related cognitions; 15 items on anticipation of panic (PAI-1), 15 items on panic consequences (PAI-2) and 15 items on panic-coping (PAI-3). The PAI-1 gives 15 situations and asks participants to rate the likelihood of panic in each situation using a scale anchored by 0 (no chance of panic) and 100 (definite panic). The PAI-2 gives 15 thoughts experienced by people during a PA and asks participants to rate how troubling these particular thoughts are to them using a scale anchored by 0 (not at all troubling) and 100 (extremely troubling). The PAI-3 gives 15 coping strategies and asks
participants to rate their confidence in each coping strategy using a scale anchored by 0 (not at all confident) and 100 (completely confident). The 15 items on each scale are summed together (scores range from 0 to 150). All participants are asked to rate items based on how they have been feeling during the past month.

Feske and DeBeurs (1997) found alphas ranging from .86-.90 supporting the PAI’s internal consistency. In addition, the PAI showed satisfactory to excellent convergent validity (rs = .54-.90) when compared to other conceptually-related panic measures and adequate divergent validity when correlated with conceptually-related panic measures as opposed to the BDI or the Social Adjustment Scale, Self-Report (SAS-SR).

Instructions for Voluntary Hyperventilation Challenge (see Appendix I). Oral instructions for the voluntary hyperventilation challenge included the nature of the challenge, possible symptoms commonly experienced during the challenge, the rate of hyperventilation required (1 breath per 2-3 seconds), the opportunity for participants to ask questions before or after the challenge, and the participant's right to stop at any time. A stopwatch was used to time the voluntary hyperventilation challenge.
Anticipatory Ratings Worksheet (see Appendix J). Participants were asked for their anticipatory ratings of anxiety (0 = not at all and 8 = extremely) before engaging in the hyperventilation challenge. Similarly, in anticipation of the challenge, participants were also asked to rate their control over those anxiety symptoms (0 = none and 8 = complete).

Voluntary Hyperventilation Challenge Response Sheet (see Appendix K). The response sheet measured anxiety symptoms and bodily sensations experienced in the voluntary hyperventilation challenge. Participants rated anxiety and bodily symptoms using a scale from 0 to 8; none (0), mild (2), moderate (4), severe (6) and very severe (8).

Debriefing Statement (see Appendix L). In the debriefing statement, participants were informed of the purpose of the study and the research method. In addition, participants were given a contact name and available resources in case of distress experienced due to the study and/or desire to obtain/discuss study results. Moreover, participants were asked not to discuss the details of the study with potential participants in order to ensure the validity of the study.
Procedure

Screening Phase

All participants gave informed consent and filled out a demographics form. Participants then proceeded to complete a medical screen. The medical screen was used to exclude participants from the experiment phase of the study that included a voluntary hyperventilation challenge. Participants who reported pregnancy, respiratory disorders, epilepsy, serious head injuries, high or low blood pressure, heart disease, heart abnormalities (as indicated by an EKG), brain abnormalities (as indicated by an EEG), and severe shortness of breath were not invited to participate in the experiment phase of the study.

Participants were then screened for participation in the experiment phase via administration of the PAQ. The following conservative definition recommended by Norton et al. (1999) was used with three modifications. The current study required participants to have experienced at least two PAs (instead of one PA) in the past 3 months (instead of in the past year). Likewise, NCPs were required to have experienced at least 2 PAs in any 4-week period (instead of 1 PA in any 4-week period). To meet the inclusion
criteria for NCP, a subject has to report at least two PAs during the past 3 months, as well as, meet one of the following criteria: 1) one or more of the above PAs must have occurred during the past month, or 2) two or more of the above PAs must have occurred in any 4-week period, or 3) score 2 (moderate) or higher on a 5-point Likert scale measuring any of the following; distress produced by PAs, avoidance produced by PAs or seriousness of the disorder. Furthermore, NCP attacks should have at least 4 symptoms of moderate severity (indicated by a score of 2 or higher on a 5-point Likert scale) and should not occur in the face of physical danger.

Finally, 52 participants who met the inclusion criteria on the Medical Screen and the PAQ were selected from a larger pool of participants (n = 740) who indicated a desire to take part in the experiment phase of the study.

Experiment Phase

For the experiment phase of the study, participants were tested individually in an experiment room. Subsequent to giving oral consent, participants were interviewed using the PD subsection of the ADIS-IV by trained graduate students to confirm/disconfirm PAQ results, as well as, to
correctly identify NCP-U and NCP-E participants. The NCP-U group required the presence of at least 2 unexpected PAs in the past 3 months and possibly some expected PAs, the NCP-E group required the presence of at least 2 expected PAs in the past 3 months and no unexpected PAs, and the CON group required the absence of PAs.

Next, participants in the NCP-U and NCP-E groups completed the ASI and the PAI. However, participants identified as CONs only completed the ASI since the PAI is irrelevant for panic-free individuals. Then, all participants were read the instructions for the voluntary hyperventilation challenge and asked to rate their anticipatory anxiety level and control level over those anxiety symptoms using the visual scales (Subjective Units of Distress; SUDS from 0-8) on the wall. All participants stood on the designated “X” on the floor and hyperventilated until the experimenter said, “stop” (60 second duration). After the challenge, participants filled out a worksheet measuring anxiety symptoms and bodily sensations experienced during the task. Finally, participants were read and given a debriefing statement and a counseling referral list. All participants were compensated via extra class credit.
CHAPTER THREE

RESULTS

Student's t-tests for independent samples were used for all between-group comparisons and a criterion $p = .05$ was adopted to conclude statistical significance for the results. Using a sample size of $n = 15$ and a large effect size (.15), the power for the analyses was approximately .67.

Unexpected Versus Expected

Refer to Table 1 for the means and standard deviations for NCPs-U and NCPs-E on the ASI, PAI, anticipatory ratings of anxiety and control, and task ratings of anxiety, control and physical symptoms. Overall, the results were mixed. The groups did not differ on self-report measures of anxiety sensitivity and panic related cognitions. However, the NCPs-U demonstrated significantly greater reports of anxiety in response to the hyperventilation challenge. The groups did not differ on reports of hyperventilation task anticipatory anxiety nor reports of control of task related anxiety sensations. Specifically, compared to NCPs-E, NCPs-U did not display significantly greater levels of anxiety sensitivity [$t(31)$
Furthermore, NCPs-U did not display greater levels on any of the panic-related cognitions than NCPs-E: likelihood of panicking in a given situation $[t(31) = 1.07, p > .05]$, presence of distressing thoughts while experiencing a PA $[t(31) = .46, p > .05]$, and

Table 1. Means and Standard Deviations for NonClinical Panickers-Unexpected and NonClinical Panickers-Expected on Anxiety Measures

<table>
<thead>
<tr>
<th></th>
<th>NCP-U (n = 18)</th>
<th>NCP-E (n = 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASI</td>
<td>29.61 (13.85)</td>
<td>24.99 (14.19)</td>
</tr>
<tr>
<td>PAI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-Anticipated panic</td>
<td>31.33 (16.43)</td>
<td>25.36 (15.41)</td>
</tr>
<tr>
<td>2-Consequences</td>
<td>26.22 (21.82)</td>
<td>22.64 (22.76)</td>
</tr>
<tr>
<td>3-Coping</td>
<td>47.82 (17.29)</td>
<td>53.20 (19.87)</td>
</tr>
<tr>
<td>Hyperventilation Task</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anticipatory Ratings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>2.22 (1.83)</td>
<td>2.20 (2.48)</td>
</tr>
<tr>
<td>Control</td>
<td>6.22 (1.80)</td>
<td>5.80 (2.21)</td>
</tr>
<tr>
<td>Task Ratings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>3.61 (2.03)</td>
<td>2.47 (1.72)*</td>
</tr>
<tr>
<td>Control</td>
<td>5.50 (1.72)</td>
<td>5.60 (2.16)</td>
</tr>
<tr>
<td>Physical Symptoms</td>
<td>26.56 (16.22)</td>
<td>20.07 (14.09)</td>
</tr>
</tbody>
</table>

*p < .05
confidence in coping with panic \([t(31) = .83, p > .05]\). In addition, NCPs-U did not display significantly greater levels than NCPs-E on the ratings for anticipatory anxiety \([t(31) = .03, p > .05]\) and anticipatory control over those anxiety symptoms \([t(31) = .61, p > .05]\). However, NCPs-U did display significantly more anxiety during the voluntary hyperventilation challenge than the NCPs-E \([t(31) = 1.72, p < .05]\). NCPs-U did not display significantly less control over anxiety symptoms experienced during the hyperventilation challenge than the NCPs-E \([t(31) = .15, p > .05]\). Lastly, NCPs-U did not display significantly greater levels than NCPs-E on the intensity of physical symptoms experienced during the voluntary hyperventilation challenge, \([t(31) = 1.21, p > .05]\).

Unexpected Versus Control

See Table 2 for the means and standard deviations for NCPs-U and CONs on the ASI, anticipatory ratings of anxiety and control, and task ratings of anxiety, control and physical symptoms. As predicted, the NCP-U group displayed a greater level of anxiety sensitivity than the CON group \([t(35) = 4.40, p < .05]\). On the other hand,
there were no significant differences between NCPs-U and CONs on the anticipatory rating of anxiety \( t(35) = .02, p > .05 \) and on the anticipatory rating of control \( t(35) = 1.50, p > .05 \) prior to the voluntary hyperventilation challenge. However, results showed that the NCP-U group reported a significantly higher level of anxiety experienced during the voluntary hyperventilation challenge than CONs, \( t(35) = 1.81, p < .05 \). In addition, results showed that the NCP-U group endorsed a

Table 2. Means and Standard Deviations for NonClinical Panickers-Unexpected and Controls on Anxiety Measures

<table>
<thead>
<tr>
<th></th>
<th>NCP-U (n = 18)</th>
<th>CON (n = 19)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASI</strong></td>
<td>29.61 (13.85)</td>
<td>12.79 (8.67)*</td>
</tr>
<tr>
<td><strong>Hyperventilation Task</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anticipatory Ratings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>2.22 (1.83)</td>
<td>2.21 (2.09)</td>
</tr>
<tr>
<td>Control</td>
<td>6.22 (1.80)</td>
<td>6.95 (1.08)</td>
</tr>
<tr>
<td>Task Ratings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>3.61 (2.03)</td>
<td>2.37 (2.14)*</td>
</tr>
<tr>
<td>Control</td>
<td>5.50 (1.72)</td>
<td>6.68 (1.29)*</td>
</tr>
<tr>
<td>Physical Symptoms</td>
<td>26.56 (16.22)</td>
<td>14.05 (13.08)*</td>
</tr>
</tbody>
</table>

* \( p < .05 \)
significantly lower level of control over anxiety symptoms experienced during the voluntary hyperventilation challenge than the CON group, \([t(35) = 2.37, p < .05]\).

Likewise, the intensity of physical symptoms experienced during the voluntary hyperventilation challenge was significantly higher for the NCPs-U than for the CONs \([t(35) = 2.59, p < .05]\).

**Expected Versus Control**

Refer to Table 3 for the means and standard deviations for NCPs-E and CONs on the ASI, anticipatory ratings of anxiety and control, and task ratings of anxiety, control and physical symptoms. Contrary to our hypothesis, the NCP-E group reported significantly greater ASI scores than the CON group \([t(32) = 3.09, p < .05]\). However, consistent with study hypotheses, the two groups did not differ on any of the hyperventilation task variables. Specifically, there were no significant differences found on the ratings for anticipatory anxiety \([t(32) = .013, p > .05]\), anticipatory control over anxiety symptoms \([t(32) = 1.99, p > .05]\), anxiety experienced during the hyperventilation challenge \([t(32) = .14, p > .05]\) and control over anxiety symptoms experienced during
the hyperventilation challenge \([t(32) = 1.82, p > .05]\).

Finally, there was no significant difference in the intensity of physical symptoms experienced during the voluntary hyperventilation challenge, \([t(32) = 1.29, p > .05]\).

Table 3. Means and Standard Deviations for NonClinical Panickers-Expected and Controls on Anxiety Measures

<table>
<thead>
<tr>
<th></th>
<th>NCP-E (n = 15)</th>
<th>CON (n = 19)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASI</td>
<td>24.99 (14.19)</td>
<td>12.79 (8.67)*</td>
</tr>
<tr>
<td><strong>Hyperventilation Task</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anticipatory Ratings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>2.20 (2.48)</td>
<td>2.21 (2.09)</td>
</tr>
<tr>
<td>Control</td>
<td>5.80 (2.21)</td>
<td>6.95 (1.08)</td>
</tr>
<tr>
<td>Task Ratings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>2.47 (1.73)</td>
<td>2.37 (2.14)</td>
</tr>
<tr>
<td>Control</td>
<td>5.60 (2.16)</td>
<td>6.68 (1.29)</td>
</tr>
<tr>
<td>Physical Symptoms</td>
<td>20.07 (14.09)</td>
<td>14.05 (13.08)</td>
</tr>
</tbody>
</table>

* \( p < .05 \)

Anxiety Disorders Interview Schedule-IV

Refer to Table 4 for the means and standard deviations for the NCPs-U and NCPs-E on the ADIS-IV Panic Disorder Section. NCPs-U endorsed a significantly greater
Table 4. Means and Standard Deviations for NonClinical Panickers-Unexpected and NonClinical Panickers-Expected on Anxiety Disorders Interview Schedule-IV; Panic Disorder Section

<table>
<thead>
<tr>
<th></th>
<th>NCP-U (n = 18)</th>
<th>NCP-E (n = 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADIS-IV</td>
<td></td>
<td></td>
</tr>
<tr>
<td># of Symptoms</td>
<td>8.94 (2.29)</td>
<td>6.87 (2.20)*</td>
</tr>
<tr>
<td>Symptom Distress</td>
<td>4.86 (1.02)</td>
<td>4.34 (1.12)</td>
</tr>
<tr>
<td>Frequency-1 month</td>
<td>2.61 (2.30)</td>
<td>3.33 (4.01)</td>
</tr>
<tr>
<td>Frequency-3 months</td>
<td>7.78 (8.86)</td>
<td>5.67 (4.51)</td>
</tr>
<tr>
<td>Frequency-6 months</td>
<td>16.17 (17.01)</td>
<td>9.00 (6.91)</td>
</tr>
<tr>
<td>Worry</td>
<td>3.33 (2.14)</td>
<td>3.47 (1.73)</td>
</tr>
<tr>
<td>Interference</td>
<td>3.78 (1.86)</td>
<td>3.33 (1.99)</td>
</tr>
<tr>
<td>Distress</td>
<td>5.06 (1.51)</td>
<td>4.53 (1.41)</td>
</tr>
<tr>
<td>Lifestyle change</td>
<td>4.67 (2.30)</td>
<td>4.07 (2.31)</td>
</tr>
</tbody>
</table>

* p < .05

number of PA symptoms than NCPs-E during the ADIS-IV interview \([t(31) = 2.64, p < .05]\). However, there was no significant difference in the mean level of distress per panic symptom between the groups \([t(31) = 1.39, p > .05]\).

In addition, NCPs-U and NCPs-E did not differ significantly on the frequency of PAs in the past month \([t(31) = .65, p > .05]\), in the past 3 months \([t(31) = .84, p > .05]\) or in the past 6 months \([t(31) = 1.63, p > .05]\). Interestingly, the NCPs-U and the NCPs-E also did not differ on ratings of worry about panic \([t(31) = .19, p > .05]\).
.05], interference due to panic \([t(31) = .66, p > .05]\),
distress due to panic \([t(31) = 1.02, p > .05]\), and
lifestyle changes to avoid panic \([t(31) = .74, p > .05]\).
CHAPTER FOUR
DISCUSSION

Overall, results from the current study were mixed. Surprisingly, there were essentially no significant differences on verbal report anxiety measures between the NCPs-U and NCPs-E. Both groups of NCPs were much more similar to each other than different on the ADIS-IV, ASI, and PAI. The two NCP groups differed in their report of anxiety in response to the hyperventilation challenge. Specifically, the NCPs-U group manifested greater reports of anxiety in response to the hyperventilation challenge. This response to interoceptive stimulation was expected as the NCPs-U were hypothesized to be more similar in their responses to PD. In fact, 67% of NCPs-U as opposed to 20% of NCPs-E experienced an abrupt surge of symptoms (i.e., more NCPs-U may have panicked in the challenge). This actual behavioral challenge elicited expected group differences on reports of anxiety, yet this hypothesized difference did not emerge on retrospective verbal report. The only difference between the NCPs-U and NCPs-E was number of symptoms reported during the average PA on the ADIS-IV interview. The two NCP groups were remarkably
alike on expectancies of PAs, coping with panic and likelihood of panic.

As predicted, the NCPs-U were significantly different than the CONs on a number of measures including the ASI, as well as, ratings of anxiety, control and intensity of physical symptoms experienced during a voluntary hyperventilation challenge. However, the results comparing the NCPs-E with the CONs indicated partial confirmation of study hypotheses. Specifically, contrary to study hypotheses, the NCPs-E differed significantly from the CONs on the ASI. On the other hand, consistent with study hypotheses, there were no other observed significant differences between the NCPs-E and the CONs on the intensity of anxiety and physical symptoms experienced during a voluntary hyperventilation challenge.

Unexpected Versus Expected

The finding that, contrary to expectations, NCPs-U and NCPs-E were similar rather than different on most verbal report measures may be explained in various ways. One possible reason for this outcome could be due to the assessment and selection criteria used in the present study. The two NCP groups might not have been as neatly
divided in terms of type of panic experienced as planned. In the selection criteria, the NCPs-U included participants with unexpected PAs and possibly expected PAs. In the current study, 50% of NCPs-U also reported at least 1 expected PA in the past 3 months. The NCPs-E consisted of participants with only expected PAs. The decision to include those individuals with both expected and unexpected PAs in the NCP-U group may have masked any differences between the groups. If the NCP-U group had included only those individuals with unexpected PAs and no expected PAs, then the two groups would not have expected PAs in common. This mutually exclusive definition would have allowed for a cleaner test of the NCP-U vs. NCP-E distinction and therefore would have increased the internal validity of the experiment. The decision to include expected panic attacks in the NCP-U group was based on the observation that most individuals with PD report both unexpected and expected attacks. Hence, the current study focused on generalizability to PD (i.e., external validity) - possibly at the expense of the internal validity. Future studies may define the NCP groups more distinctly to enhance internal validity.
Another possible reason for the failure to find differences between NCP groups is the existence of a third type of PA, situationally predisposed panic, that was not accounted for in the study. Situationally predisposed PAs are PAs that are more likely to occur but do not invariably occur in the presence of a situational trigger. Since in the current study, situationally predisposed PAs were not given their own category, they were classified as either unexpected or expected panic depending upon how the participant reported the occurrence of these attacks. Therefore, the composition of the NCP-U and NCP-E groups may not have been as distinct as originally planned. Specifically, the NCPs-U contained unexpected, expected and situationally predisposed PAs while the NCPs-E contained expected and situationally predisposed PAs. Therefore, the overlap of expected PAs and situationally predisposed PAs in both groups may have diminished any real differences that might actually exist between pure NCP-U and NCP-E. Moreover, the high within-group variability, as demonstrated by the standard deviations on the anxiety measures (see Table 3), could have masked any group differences and could be indicative of the inclusion of different types of PAs in the NCP-U and NCP-E groups.
Another potential reason contributing to the lack of observed differences between the NCPs-U and the NCPs-E is the conservative definition with modifications used to define NCP for the current study. The criteria were more restrictive as both NCP groups required the presence of at least 2 PAs in the past 3 months. As a result, we may have had groups where both had high frequency of PAs and high PA symptoms, making both groups more similar to PD. To our knowledge, no other study has used such conservative criteria. Most studies define NCPs as 1 or more PAs in the past year (McNally et al., 1995; Wilson et al., 1991). Even Norton et al. (1999) used at least 1 PA in the past year plus one of the following; 1) 1 or more PAs in the past month, or 2) 1 or more PAs in any 4-week period, or 3) at least a moderate rating on either distress due to PA, avoidance due to PA or seriousness of disorder. The use of Norton et al.’s more conservative definition of NCP with an additional 3 modifications (see Procedure) may have led to NCP groups of greater severity than prior studies and thus attenuated differences found between these groups. Specifically, the NCP-U and the NCP-E groups did not differ in terms of panic frequency during the past month, the past 3 months and the past 6 months on
the ADIS-IV. This is inconsistent with past studies that have found panic frequency differences between NCPs-U and NCPs-E (Norton et al., 1986; Wilson et al., 1991). In prior research, it is unclear whether the differences observed between unexpected and expected panic are due to the type of panic (e.g., expected vs. unexpected vs. situationally disposed) and/or due to panic frequency. For example, in Wilson et al.’s (1991) study, findings indicated that NCPs-U were characterized by a higher frequency of PAs and by higher levels of “general psychopathology” than NCPs-E as measured by the Symptoms Checklist-90 (SCL-90) and the Beck Depression Inventory (BDI). Interestingly, when panic frequency was used as a covariate, no significant differences remained between groups on the BDI. This finding suggests that frequency of panic needs to be varied in future studies to elucidate the role of PA frequency vs. the unexpected/expected dimension in understanding PD.

Norton et al. (1986) also found that participants with unexpected PAs differed significantly from participants with expected PAs on 9 out of 40 measures including 2 symptom severity ratings (heart palpitations and feelings of unreality), as well as, the specific
situations in which the PAs occurred (unexpected panickers experienced more panic in 2 social and 2 agoraphobic situations). However, the NCPs-U \((M = 6.63, SD = 4.63)\) and the NCPs-E \((M = 4.46, SD = 4.57)\) in their sample reported significantly different frequencies of panic during the past year. Again, it is difficult to disentangle type of PA with frequency of PA in terms of what factor is accounting for the most variability between the unexpected and expected groups. In addition, though not statistically tested, these averages for panic in the past year from the Norton et al. study also appear lower than the average frequencies of panic for the past 6 months for our participants. Specifically, our NCPs-U reported a mean of 16 PAs and our NCPs-E reported a mean of 9 PAs in the past 6 months on the ADIS-IV.

It is also possible that the more conservative definition led to an increase in the symptom severity ratings of both groups. In other words, both NCPs-U and NCPs-E in this study are more like PD than the NCPs used in past studies. For example, McNally et al. (1995) found that three cognitive symptoms on the PAQ: fear of dying, heart attack and loss of control best discriminated between NCPs and PD patients. The current study used 2 of
these cognitive symptoms on the PAQ-R, fear of dying and fear of losing control. The means obtained for NCPs-U and NCPs-E respectively in the present study for fear of dying ($M = 1.78, SD = 1.35; M = 1.27, SD = 1.58$) and for fear of losing control ($M = 1.56, SD = 1.04; M = 1.60, SD = 1.55$) fall just below the moderate level severity rating (moderate = 2). Though not statistically tested, these means appear higher than the severity ratings for the same two items on the PAQ in the Wilson et al. (1991) study that fall just below the mild level severity rating (mild = 1) as depicted in Figure 3 of Wilson et al.'s results section (Wilson et al. do not report the actual means and standard deviations). In their study, Wilson et al. used less restrictive NCP criteria (i.e., at least 1 PA in the past year). This suggests that the participants in the current study were more severe than those in the Wilson et al. study, and more like PD. Finally, it is important to note that similar to our findings, Wilson et al. found more similarities than differences between the NCPs-U and NCPs-E.

In addition, the current sample of NCPs all endorsed moderate levels of impact of PAs on self and lifestyle in the ADIS-IV. Thus, the average NCP participant engaged in
moderate lifestyle changes to avoid PAs (i.e. avoiding physical exertion, sex, caffeine, taking medication, using distraction). This may indicate that our study's NCPs are closer to PD in terms of impact on current functioning and use of avoidance to deal with their panic. In addition, the NCPs in the current study acknowledged a moderate level of worry about having another PA on the ADIS-IV. Yet another measure that tapped into "anticipating panic" is the PAI-1. Using the PAI, Telch et al. (1989) compared PD patients with agoraphobia with PD patients without agoraphobia. The PD patients without agoraphobia reported a mean rating of 14.46 (SD = 12.56) on the PAI-anticipated panic measure. It is striking that in the present study, the NCPs-U reported a mean rating of 31.33 (SD = 16.43) and the NCPs-E reported a mean rating of 25.36 (SD = 15.41) on the same measure. This also might be evidence that the NCP sample that participated in this study were more like PD patients than past NCP samples.

Though not statistically tested, in comparison with Telch et al.'s sample of PD patients without agoraphobia (M = 37.46, SD = 19.37), the current sample endorsed more confidence on the PAI-3 in their coping ability (NCPs-U, M = 47.82, SD = 17.29; NCPs-E, M = 53.20, SD = 19.87). This
observation makes sense since the current sample consists of non-diagnosed university students with a higher level of daily functioning. Anecdotally speaking, many of our NCPs reported strategies (i.e., relaxation and positive self-talk) consistent with techniques used in treatment for panic though participants had not received any formal treatment. It is possible that our university sample has learned to cope with panic more effectively than Telch et al.'s patient sample. Though NCPs-U and NCPs-E rated their panic as having a moderately distressing impact, they also seem to be employing effective coping mechanisms. These effective coping strategies may account for the high level of control over the anxiety symptoms reported by the NCPs-U ($M = 5.50$, $SD = 1.72$) and the NCPs-E ($M = 5.60$, $SD = 2.16$) during the voluntary hyperventilation challenge. These findings suggest that NCP and PD may differ in terms of coping strategies employed and thus the nature of coping ability may be critical in definitions of NCP.

The lack of significant differences between the NCPs-U and the NCPs-E could also be due to similar baseline expectations (i.e., expectations of danger and ability to cope) of panic (cognitions) (i.e., PAI and ASI measures). Thus, in the current sample, the NCPs-U and NCPs-E
interpreted their panic experiences similarly on both a cognitive and emotional level. It is possible that a participant's expectations that encompass their cognitive and emotional appraisal of panic would be a more useful discriminating variable to examine in future studies of NCP. Specifically, groups might be defined based upon their appraisal of panic consequences and coping versus type of panic attack experienced.

In sum, frequency of panic and negative cognitive and emotional appraisals of panic might be more salient variables to investigate in the development of a useful analogue for PD (Norton et al., 1988). Cox et al. (1991) found that in addition to frequency of panic in the past year, the prediction of unexpected panic, anxiety sensitivity and lifestyle restriction were all significant predictors of clinical status. In our sample, the NCPs-E and NCPs-U were alike on all these measures. Admittedly, the current study did not use the same instruments as Cox et al. to measure the aforementioned variables except for the ASI. For example, frequency of panic, lifestyle restriction and worry about future panic in the present study was measured by the ADIS-IV (PAI also measured the anticipation of future panic). Interestingly, there were
no significant differences found on the ASI, the PAI, as well as, panic frequency, worry about panic, and lifestyle change due to panic. Thus, the moderately elevated ratings and the lack of significant differences between the NCPs-U and NCPs-E on these measures make both groups more alike and possibly more like PD.

NonClinical Panic Groups Versus Control Group

The NCPs-U and the NCPs-E differed significantly from the CONs on the ASI. This is consistent with past studies on NCPs (Cox et al., 1991). However, only the NCPs-U differed from the CONs on ratings of anxiety, control over the anxiety and physical symptoms experienced in the voluntary hyperventilation challenge. This may be due to the participants in the NCP-U group who only experienced unexpected PAs (50%). In contrast, no participants in the NCP-E group experienced unexpected PAs.

Finally, a limited sample size did contribute to a lower amount of power (.67) in the preplanned comparisons. Thus, the probability of a Type II error was elevated. Future research may utilize a larger sample to minimize Type II error.
Based on the ASI results, the NCP-U and NCP-E groups can be used as an analogue for PD. Thus, NCPs are an available and fairly prevalent sample that will continue to prove useful in studying risk factors and preventative factors in PD.

Future research would benefit from increasing the internal validity by clearly delineating type of PA. Though this might decrease a study's external validity in terms of generalizability, it would help clarify whether unexpected PAs, situationally predisposed PAs and expected PAs are different. It could be promising for future research to look at grouping NCP based on panic expectancies (cognitions) and panic frequencies rather than type of panic.
APPENDIX A

INFORMED CONSENT
The study in which you are about to participate is designed to investigate the experience of panic in the general population. This study includes two parts that will be carried out at two different times. If you participate in the first part of the study, you will be asked to complete three questionnaires about panic, health and demographics. You will receive one unit of research credit for completing the first part of the study. In the second part of the study, you will be asked to complete a few questionnaires, a brief interview, and a task related to your experiences with/without panic. In the task, you will be asked to breathe at a higher rate for a brief period of time. During this task you may experience a variety of temporary, harmless sensations similar to those when you exert yourself or blow up a balloon. You will receive four units of research credit for completing the second part of the study. At your instructor's discretion, these research credit units may be converted into extra credit points for your class. Please be assured that participating in this study will be in no way harmful. The entire study will take approximately 1 1/4 hours (15 minutes for the first part and 1 hour if you are chosen to participate in the second part of the study).

Gia Hamilton is conducting this study under the supervision of Dr. Michael Lewin, Associate Professor of Psychology and Director of the Clinical/Counseling Program at California State University, San Bernardino (CSUSB). The study has been approved by the Institutional Review Board of California State University, San Bernardino. The university requires that you give your consent before participating in this study.

We request that you provide your name and phone number in the space specified below if you would like to be considered for participating in the second part of the study. Please be assured that any information you provide will be held in strictest confidence by the researchers. An anonymous participant number will be assigned to each participant and will be used to link the responses. There will not be a direct connection between your name, phone number, and your responses in this study.

Presentation of the results of this study will be reported in a group format only. At the conclusion of the study (June, 2002), you may receive a report of the group results by contacting Dr. Michael R. Lewin at the phone number listed below. Your participation in the research is completely voluntary and you are free to withdraw or remove data without penalty at any time during the study.

Any questions about this study or your participation in this research should be directed to Dr. Michael Lewin at (909) 880-7303.

I acknowledge that I have been informed of, and understand the nature and purpose of the study, and I freely consent to participate. I acknowledge that I am at least 18 years of age.

Place an "X" above indicating your agreement

If you would like to be considered for the second part of the study, please include the following:
Name (print): ___________________________
Phone number: ________________________

Date __________________________
All of your responses in this survey will be kept strictly confidential. Please answer each question to the best of your knowledge.

1. Age: _______

2. Gender: M ___ F ___

3. Yearly Household Income $_________ Number of dependents on Income _______

4. Ethnicity: Asian (Asian American) ___ (Specify___________________________)

African American (or black) ___ (Specify___________________________)

Caucasian (or white) ___ (Specify___________________________)

Native American (or American Indian) ___ (Specify___________________________)

Latino (or Hispanic) ___ (Specify___________________________)

Other ___ (please specify) __________________

5. Family History: have you or anyone in your immediate family had problems with anxiety (e.g., social anxiety, excessive worry, panic, obsessive-compulsive, post-traumatic stress). Please indicate if the family member who experienced the problematic anxiety is a biological relative, or part of a step or adoptive family. Check all that apply

<table>
<thead>
<tr>
<th>Any Anxiety</th>
<th>Biological Relative</th>
<th>Step Relative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yourself</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>Mother</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>Father</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>Brother/Sister</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>Aunts/Uncles</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>Cousins</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>Grandparent(s)</td>
<td>_________</td>
<td>_________</td>
</tr>
</tbody>
</table>
APPENDIX C

MEDICAL SCREEN
1. Have you ever been diagnosed or are you currently taking medication for:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epilepsy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High or low blood pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory disorders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.g. asthma</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Have you had a concussion or serious head injury?

<table>
<thead>
<tr>
<th>Condition</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

3. Have you experienced any of the following in the past 5 years?

<table>
<thead>
<tr>
<th>Condition</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convulsions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic cough</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chest pain or angina pectoris</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spitting up blood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe night sweats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe shortness of breath</td>
<td></td>
<td></td>
</tr>
<tr>
<td>at night or on exertion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe swelling of hands, feet, or ankles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart rate irregularities that decrease quickly when resting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or changing posture</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Have results from any of the following indicated abnormalities?

<table>
<thead>
<tr>
<th>Test</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electroencephalogram (EEG)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrocardiogram (EKG)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT scan or similar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chest x-ray</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. Are you currently being treated for any physical disease or condition?
   Yes___ No___
   If yes, please specify________________________________________

6. Are you taking any prescription medication at present?
   Yes___ No___
   If yes, please specify________________________________________

7. Do you have any reason to believe that you are now pregnant?
   Yes___ No___
APPENDIX D

PANIC ATTACK QUESTIONNAIRE - REVISED
INSTRUCTIONS: Listed below are several questions concerning your experiences with panic. Before you proceed, it is extremely important that you read carefully the definition of panic given below. Only count your experience as panic if it meets this definition.

Definition of Panic: A panic attack differs from other forms of anxiety or nervousness in that a panic attack refers to a rapid, intense rush of apprehension, fear or terror. Thus, mild symptoms of nervousness or anxiety that often accompany worry over certain life circumstances (e.g. concern about doing well at school, work, sports, or social situations) should not be considered a panic attack. However, if at one time or another these milder symptoms have escalated into intense feelings of apprehension, fear, terror, or a sense of impending doom, this should be considered a panic attack.

1. Have you ever felt a sudden rush of intense fear or anxiety or feeling of impending doom (panic attack)? (Note: Answer "Yes" only if your experience meets the above definition of panic.)
   a. YES  b. NO

***IF NO, STOP HERE***

1a. Have you ever had the experience of a sudden rush of intense fear or anxiety (i.e. panic attack) for no apparent reason, or "out of the blue"?
   a. Yes  b. No

2. How many panic attacks have you had in the past 3 months?
   _____ (list number)

2a. How many panic attacks have you had in the past month?
   _____ (list number)

2b. What is the highest number of panic attacks you have had in any 4-week period?
   _____ (list number)

2c. Rate the following:

<table>
<thead>
<tr>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Very Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

_____ distress produced by panic attacks
_____ avoidance produced by panic attacks
_____ seriousness of disorder
3. What were the feelings (symptoms) during your worst attack? (Record a number from the scale below next to each feeling or symptoms. For example, if you had a mild chest pain during your worst attack you would record a “1” next to that symptom).

<table>
<thead>
<tr>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Very Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

- shortness of breath or smothering sensations
- feeling like you were choking
- heart racing or pounding (palpitations or accelerated heart rate)
- chest pain or discomfort
- sweating
- dizziness, unsteadiness, or feeling faint
- nausea, stomach upset, or diarrhea
- feeling things around you were unreal, or feeling detached from part of your body
- tingling or numbness in parts of your body
- hot flashes or chills
- trembling or shaking
- feeling afraid that you might die
- feeling afraid that you might go crazy or lose control
APPENDIX E

ORAL INFORMED CONSENT
“In this second experiment you will be asked to complete a few questionnaires, a brief interview, and one task related to your experiences with/without panic. You will be asked to breathe at a higher rate for a brief period of time. During this task you may experience a variety of temporary, harmless sensations similar to those when you exert yourself or blow up a balloon. Please be assured that participating in this study will be in no way harmful. The entire study will take approximately 45 minutes. Should you experience serious discomfort at any point please let us know and we will discontinue your participation without penalty.”

“This study is being conducted under the supervision of Dr. Michael Lewin, Associate Professor of Psychology and Director of the Clinical/Counseling Program at California State University, San Bernardino (CSUSB). The study has been approved by the Department of Psychology Institutional Review Board of CSUSB. The university requires that you give your consent before participating in this study. Do you want to participate?”
APPENDIX F

ANXIETY DISORDERS INTERVIEW

SCHEDULE – IV; PANIC

DISORDER SECTION
I. INITIAL INQUIRY

1a. “Do you currently have times when you feel a sudden rush of intense fear or discomfort?”

   YES  ____  NO  ____

   If YES, skip to 2a.

1b. If NO to 1a, then “Have you ever had times when you have felt a sudden rush of intense fear or discomfort?”

   YES  ____  NO  ____

   If YES, when was the most recent time this occurred? ________________________

If YES to either 1a or 1b, or uncertain, THEN CONTINUE.
If NO to 1a and 1b, THEN STOP

2a. “Do these feelings occur in specific predictable situations (e.g., in supermarkets, giving a speech, or heights etc)?”

   YES  ____  NO  ____

2b. If YES to 2a, then “MORE THAN ONE IN PAST 6 MONTHS?”  YES  ____  NO  ____

3a. “Do you ever have these feelings come from “out of the blue,” for no apparent reason, or in situations where you did not expect them to occur?”

   YES  ____  NO  ____

3b. If YES to 3a, then “MORE THAN ONE IN PAST 6 MONTHS?”  YES  ____  NO  ____

IF BOTH EXPECTED AND UNEXPECTED, THEN FOR FOLLOWING QUESTIONS ASK ABOUT UNEXPECTED ATTACKS ONLY

4. “How long does it usually take for the rush of fear/discomfort to reach its peak level?”

   ___ minutes

5. “How long does the fear/discomfort usually last at its peak level?”

   ___ minutes
II. SYMPTOM RATINGS

In this section, rate symptoms for panic attacks that either occur UNEXPECTEDLY or EXPECTEDLY. IF BOTH EXPECTED AND UNEXPECTED, THEN ASK ABOUT UNEXPECTED ONLY.

Rate the severity of each symptom that is TYPICAL of the most recent PANIC ATTACK(S).

ASK PARTICIPANT:

1) “During the panic attack(s), do you usually experience _______?”(a thru n below)

2) “How distressing/severe is the symptom to you on a scale of 0 to 8 where 0 = none and 8 = very severe?” Discuss scale below with participant before ratings

0——-1——-2——-3——-4——-5——-6——-7——-8
None Mild Moderate Severe Very Severe

YES/NO

DISTRESS
a. Palpitations, pounding heart, or accelerated heart rate
b. Sweating
c. Trembling or shaking
d. Shortness of breath or smothering sensations
e. Feeling of choking
f. Chest pain or discomfort
g. Nausea or stomach distress
h. Chills or hot flushes
i. Dizziness, unsteady feelings, lightheadedness, or faintness
j. Feelings of unreality or being detached from oneself
k. Numbing or tingling sensations
l. Fear of dying
m. Fear of going crazy
n. Fear of doing something uncontrolled

III. PANIC FREQUENCY

E U

1a. “How many panic attacks have you had in the past month?” ______ ______
1b. “How many panic attacks have you had in the past 3 months?” ______ ______
1c. “How many panic attacks have you had in the past 6 months?” ______ ______
IV. WORRY ABOUT PANIC

1a. "How much have you ever worried about, or been apprehensive of having another panic attack on a scale of 0 to 8?" (READ 0,2,4,6,8 ANCHORS BELOW) CIRCLE

No Rarely Occasionally Frequently Constantly
worry/ worried/ worried/ worried/ worried/
No Mild Moderate Severe Extreme
apprehension apprehension apprehension apprehension apprehension

V. INTERFERENCE DUE TO PANIC

1. "How much have the panic attacks interfered with your life (e.g., daily routine, school, job, social activities) on a scale of 0 to 8?" (READ 0,2,4,6,8 ANCHORS BELOW) CIRCLE

No Mild Moderate Severe Very Severe

2. "How much have the panic attacks bothered you or caused you distress in your life on a scale of 0 to 8?" (READ 0,2,4,6,8 ANCHORS BELOW) CIRCLE

No Mild Moderate Severe Very Severe

3. "How much have the attacks caused you to change your behavior/lifestyle such as avoid activities that heighten awareness of bodily sensations (i.e. physical exertion, sex, caffeine), use medication, use distraction (i.e. loud music, t.v., involvement in activities), and/or reduce stressful activities on a scale of 0 to 8?" (READ 0,2,4,6,8 ANCHORS BELOW) CIRCLE

No Mild Moderate Severe Very Severe

4. "When a panic attacks occurs, how do you handle it?"

5. "Are you currently or have you ever been treated for panic attacks?"
APPENDIX G

ANXIETY SENSITIVITY INDEX
Rate each item by selecting one of the five phrases for each of the sixteen questions. Put a check in the blank.

1. It is important to me not to appear nervous.  
   
2. When I cannot keep my mind on a task, I worry that I might be going crazy.  
   
3. It scares me when I feel shaky.  
   
4. It scares me when I feel faint.  
   
5. It is important to me to stay in control of my emotions.  
   
6. It scares me when my heart beats rapidly.  
   
7. It embarrasses me when my stomach growls.  
   
8. It scares me when I am nauseous.  
   
9. When I notice my heart is beating rapidly, I worry that I might have a heart attack.  
   
10. It scares me when I become short of breath.  
   
11. When my stomach is upset, I worry that I might be seriously ill.  
   
12. It scares me when I am unable to keep my mind on a task.  
   
13. Other people notice when I feel shaky.  
   
14. Unusual body sensations scare me.  
   
15. When I am nervous, I worry that might be mentally ill.  
   
16. It scares me when I am nervous.
APPENDIX H

PANIC APPRAISAL INVENTORY
INSTRUCTIONS: Listed below are several activities or situations. Read each item carefully and then choose a number from the scale below which best estimates the likelihood that you would have a panic attack (not just anxiety) in that situation. For example, if you think you would get very anxious when flying in a jet but were sure that you would not have a panic attack, you would circle the number “0”. In making your ratings, assume that you are alone and without tranquilizers or alcohol. Since your estimate of having a panic attack may depend on the specifics of each situation, assume the most difficult case. For example, if you are more likely to panic in a department store if the floors are shiny or if the store has fluorescent lights, then assume these elements are present.

PLEASE RATE EACH OF THE 15 ACTIVITIES/SITUATIONS EVEN IF YOU WOULD NOT ACTUALLY PUT YOURSELF IN THAT SITUATION. RECORD YOUR RATING IN THE SPACE PROVIDED NEXT TO EACH STATEMENT. BASE YOUR RATINGS ON HOW YOU HAVE BEEN FEELING DURING THE PAST WEEK.

<table>
<thead>
<tr>
<th>Number</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>NO CHANCE</td>
</tr>
<tr>
<td>10</td>
<td>SLIGHT CHANCE</td>
</tr>
<tr>
<td>20</td>
<td>MODERATE CHANCE</td>
</tr>
<tr>
<td>30</td>
<td>STRONG CHANCE</td>
</tr>
<tr>
<td>40</td>
<td>DEFINITE OF PANIC</td>
</tr>
<tr>
<td>50</td>
<td>OF PANIC</td>
</tr>
<tr>
<td>60</td>
<td>OF PANIC</td>
</tr>
<tr>
<td>70</td>
<td>OF PANIC</td>
</tr>
<tr>
<td>80</td>
<td>OF PANIC</td>
</tr>
<tr>
<td>90</td>
<td>OF PANIC</td>
</tr>
<tr>
<td>100</td>
<td>OF PANIC</td>
</tr>
</tbody>
</table>

1. Shopping in a large crowded department store
2. Driving 10 miles on a 3 lane freeway in heavy traffic
3. Riding on a train or bus
4. Sitting through a movie or church service in the middle row
5. Waiting in a long line at a bank or post office
6. Drinking several cups of strong coffee
7. Riding a Merry-Go-Round
8. Drinking alcohol to the point of feeling “out of breath”
9. Taking a sauna or steam bath
10. Exercising vigorously to the point of feeling “out of breath”
11. Having a spouse or lover leave you for someone else
12. Having a very close family member or friend pass away
13. Having a major argument with a lover or family member
14. Losing your job or flunking out of school
15. Having to give a formal presentation in front of a group
INSTRUCTIONS: Listed below are 15 statements reflecting some common thoughts that people report during sudden attacks of panic or extreme anxiety. Read each statement carefully and then choose a number from the scales below which best describes the degree to which you are troubled by the thought during an episode of panic or extreme anxiety. Record your rating in the space provided next to each statement. Please base your ratings on how you have been feeling during the past week.

0--------10--------20--------30--------40--------50--------60--------70--------80--------90--------100

<table>
<thead>
<tr>
<th>NOT AT ALL</th>
<th>MILDLY</th>
<th>MODERATELY</th>
<th>MARKEDLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TROUBLING</td>
<td>TROUBLING</td>
<td>TROUBLING</td>
<td>TROUBLING</td>
</tr>
</tbody>
</table>

1. I may go insane ______
2. People may stare at me ______
3. I may become completely hysterical ______
4. I may have a heart attack ______
5. I may faint ______
6. I may scream ______
7. I may lose control of my senses ______
8. I may have a stroke ______
9. People may laugh at me ______
10. I may suffocate ______
11. I may embarrass my family or friends ______
12. I may die ______
13. I may make a scene in front of others ______
14. People may think I’m weird ______
15. I may do something uncontrollable like jump out a window ______

PLEASE LEAVE BLANK

P  S  L

Total = _____

68
INSTRUCTIONS: The questions below ask about how you cope with panic attacks when they occur. Read each item carefully and then choose a number from the scale below which best describes your confidence in coping with panic attacks.

PLEASE RATE YOUR CONFIDENCE FOR EACH ITEM EVEN IF YOU HAVE NOT HAD A PANIC ATTACK IN A WHILE. RECORD YOUR RATING IN THE SPACE PROVIDED NEXT TO EACH STATEMENT.

0-------10-------20-------30-------40-------50-------60-------70-------80-------90-------100
NOT AT ALL COMPLETELY
CONFIDENT CONFIDENT CONFIDENT CONFIDENT

1. Experience a full blown panic attack and return the following day to the situation where the attack occurred

2. Prevent a panic attack from coming on in a difficult situation

3. Stop a panic attack in midstream

4. Experience a panic attack without fleeing from the situation

5. Experience a panic attack without adding frightening thoughts of physical, social or mental harm

6. Maintain control of your actions during a panic attack

7. Control your breathing during a panic attack

8. Experience a panic attack in front of a stranger without feeling humiliated

9. Experience a panic attack in front of friends/family without feeling humiliated

10. Convince yourself that a panic attack is not dangerous

11. Experience heart racing or pounding without panicking

12. Experience dizziness or lightheadedness without panicking

13. Experience feelings of unreality without panicking

14. Experience feelings of breathlessness (shortness of breath) without panicking

15. Control your panic attacks without taking medication
APPENDIX I

INSTRUCTIONS FOR VOLUNTARY
HYPERVENTILATION CHALLENGE
1. **OVERBREATHING**

Shortly, I will ask you to stand and breathe deeply and fast for a period of time (the experimenter will model breathing deeply at a rate of approximately 30 breaths per minute). I will stand a few feet behind you and tell you to increase or decrease your breathing rate if necessary. During the task, you are likely to experience sensations such as shortness of breath, dizziness and lightheadedness. These sensations are normally experienced and are not dangerous.

It is important that you attempt to overbreathe for the full duration (do not tell the participant exactly how long but reassure them it will be a relatively short period of time). If you feel you cannot continue, you may stop.

Before the task and after the task is over, I will ask you how anxious you feel using a 0 to 8 point scale, where 0 = not at all anxious and 8 = extremely anxious. In addition, I will also ask your degree of control/manageability over anxiety symptoms using a 0-8 scale, where 0 = no control, 4 = moderate control and 8 = complete control. At the completion of the task, I will ask you to complete a questionnaire concerning any sensations you experienced during the task.

It is important not to speak during the task so please reserve questions for before or after the task. Do you now have any questions?

Knowing the task, how anxious do you feel about attempting the task right now? Use the 0-8 point scale. How much do you feel in control of anxiety/symptoms right now? Use the 0-8 point scale.
APPENDIX J

ANTICIPATORY RATINGS WORKSHEET
SUBJECT ID #  
DATE  
GROUP  
GENDER AGE  

Anxiety: Not at all Slightly Somewhat Markedly Extremely
0---------1---------2---------3---------4---------5---------6---------7---------8
Control: None Moderate Complete

ANTICIPATORY RATINGS

ANXIETY: 0 1 2 3 4 5 6 7 8
CONTROL: 0 1 2 3 4 5 6 7 8

TIME IN TASK: ___________
APPENDIX K

VOLUNTARY HYPERVENTILATION

CHALLENGE RESPONSE SHEET
Please answer the following questions on the basis of how you reacted to the previous task that was just practiced.

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Very Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
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1. ____ HOW MUCH ANXIETY DID YOU FEEL DURING THE BEHAVIORAL TASK JUST COMPLETED?
2. ____ TO WHAT DEGREE DID YOU FEEL IN CONTROL OF YOUR ANXIETY/SYMPTOMS DURING THE BEHAVIORAL TASK JUST COMPLETED?
3. ____ Palpitations, pounding heart, or accelerated heart rate
4. ____ Sweating
5. ____ Trembling or shaking
6. ____ Shortness of breath or smothering sensation
7. ____ A feeling of choking
8. ____ Chest pain or discomfort
9. ____ Nausea or stomach distress
10. ____ Chills, hot flashes, blushing
11. ____ Dizziness, unsteady feelings, light-headedness or faintness
12. ____ Feelings of unreality or being detached from oneself
13. ____ Numbing or tingling sensations
14. ____ Fear of dying
15. ____ Fear of going crazy
16. ____ Fear of losing control
17. ____ Tics or spasms
18. At any time, did you feel an abrupt onset of symptoms? Yes____ No____
19. At any time, did you feel a strong fear or sense of dread? Yes____ No____

20. ____ Overall, how similar were the symptoms to the types of symptoms you feel during high anxiety and/or panic attacks?
APPENDIX L

DEBRIEFING STATEMENT
The main objective of this study is to examine people who experience panic attacks and who do not come in for help. It is hoped that this population, referred to as Nonclinical Panickers (NCPs), will tell us more about people who actually develop Panic Disorder. This information may be useful for future research into the prevention and treatment of Panic Disorder.

The confidentiality of your identity and data results are guaranteed in accordance with professional and ethical guidelines set by the CSUSB Institutional Review Board and the American Psychological Association. The focus of this research is the group results of all participants, not individual responses. Therefore, the date will be analyzed on a group rather than individual level. Please contact Dr. Lewin if you are interested in the results of this study (After June, 2002) or if you have any questions regarding your participation. It is unlikely that participating in this study will result in any significant distress, however, if you have experienced some distress and would like to discuss your response, please contact either Dr. Lewin at (909) 880-7303 or the CSUSB Counseling Center at (909) 880-5040. In addition, there is an attached sheet that provides crisis resource numbers for the Inland Empire.

Please do not reveal details about this study to anyone who may be a potential participant, as we will be collecting data over the next few weeks. Thanks for your participation.
REFERENCES


Disorders, 3, 139-148.


