

**FORM 2 – FULL RESEARCH PROPOSAL**

<p><b>Principal Investigator<sup>1</sup></b></p> <p>Mrs Sue Paddon</p> <p>Vocational/psychological health assessor for long term unemployed who have one or multiple physical or mental health barriers for , APM –UK Ltd</p> <p>Four Chimneys Farm, Royal Oak Lane, High Hurstwood, East Sussex TN22 4AN.</p> <p><a href="mailto:Sue.paddon@btopenworld.com">Sue.paddon@btopenworld.com</a></p> <p>01825 732592/ 07812139922 (UK)</p>
<p><b>Collaborators<sup>2</sup></b></p>
<p><b>Research title<sup>3</sup></b></p> <p><i>The sources of stress and associated coping strategies when working at altitude</i></p>
<p><b>Lay summary<sup>4</sup></b></p> <p>This research will investigate the sources of stress and associated coping strategies that are utilised by those working at altitude during the Manaslu expedition. It will identify how participants prepared psychologically for the experience and how they coped both during the expedition and post expedition. Following data collection this study aims to suggest recommendations that will allow high altitude researchers to be better prepared for potential stressors that may be experienced at altitude, in order to ensure that they get the most out of their time.</p>
<p><b>Scientific proposal, background<sup>5</sup></b></p> <p><u>Background</u></p> <p>The physiological impacts of working at altitude have been well cited, allowing potential adventurers and researchers the opportunity to prepare for the demands of such a task. In particular, resources suggesting guidance prior to embarking on such a trip (e.g., The Guide book “Travel at High Altitude”) provides useful preparation and warning advice about AMS and other possible illnesses. While such literature may allow for adventurers to physically prepare for working at altitude, there is little information suggesting the potential psychological difficulties, and consequently psychological preparation may be limited.</p> <p>Preliminary research examining the impact of being at altitude has suggested goal oriented euphoria on success may be strong, as well as a feeling of closure and control. Yet such research has focused on individuals embarking on an expedition as opposed to a working context. Given the positive nature of this research context, little</p>

or no preparation for failure or unforeseen situations has been discussed (Burke & Sabiston, 2009). Previous research has also suggested that cognitive functioning may alter detrimentally at altitude (Phillips, Griswold & Pace, 1963).

Research in the sport and exercise context has suggested that understanding the sources of stress and associated coping strategies that are present in an environment may contribute to enhanced functioning (Thatcher & Day, 2008). For altitude expeditions, the potential sources of stress and the impact that stressors in such conditions may have on aspects such as team functioning, coping, and communication are currently unclear. Further, in addition to understanding these sources of stress, understanding is also warranted regarding the strategies (both effective and ineffective) that may be used for coping at altitude. As a result, this study would contribute to existing literature by suggesting the potential stressors that may occur on a group altitude trip, indicating the psychological impact of these stressors, and suggesting effective and ineffective strategies for reducing stress.

## **Scientific proposal, aims and hypotheses<sup>6</sup>**

### Aims

This study aims to examine the potential stressors and associated coping strategies and psychological impacts on an altitude climb. There are three main overall research aims.

#### **1.) What are the expected/unexpected stressors at the start of the trip?**

- What is the impact of previous experience?
- What methods were taken to prepare for potential stressors (physically, psychologically, & emotionally and organizationally)
- What are the anticipated coping strategies.

#### **2.) What are the sources of stress that occur during the trip?**

- What are the features of the stress sources (e.g., organisational, performance related)?
- What coping strategies were used ?
- Were these strategies effective?
- What impact/emotions were experienced?

#### **3.) How could trip participants have been better psychologically prepared for the stressors that were encountered?**

This aim will use a post trip, follow up questionnaire with participants at the final data collection point, as a method of triangulating and confirming those stressors experienced. It will also ask participants to reflect on their experiences

### **Scientific proposal, methods<sup>7</sup>**

#### Method

This study will use a longitudinal design in order to focus on the sources of stress experienced throughout the trip by a range of individuals. Data collection will be qualitative; a method that has been well advocated in research which is exploratory and aims to collect in-depth data. Further, this is the predominant method used by research in peer reviewed journals examining stress and coping in sport and exercise. In order to better understand the process of stress and coping this study used multiple methods of data collection. In accordance with Lazarus (1999), it is suggested that single methods of data collection may not fully capture the complexities of the stress and coping process. In particular, Lazarus highlighted that research methodologies should consider how to capture both changing and stable variables as they occur over time.

#### Participants

Participants will be a range of individuals who are present at the baseline collection and who will be on the expedition. It is anticipated that up to 80% of participants who are present are prepared to assist in the study. In order to fulfill the aims of the study it is important to sample both those with experience of working at altitude (and consequently experience of likely stressors) and those who are inexperienced.

#### Procedure

Participants will be asked to provide written answers to open ended questions on stress and coping at three stable time points: 1 at the baseline data collection session at Bangor University, 2 at the midpoint or at base camp whichever is most convenient to the smooth running of the group's progress, 3 at the final post trip data collection session. These questions aim to identify and then explain aims 1,2 and 3 above.

In order to capture the variable nature of the stress and coping process, participants will also be given a hand-written diary to complete during the trip. Despite the growing frequency with which diaries have been used as a method of data collection, their design has varied considerably from using highly structured, pre-set questions to more unstructured, free writing designs (Furness & Garrud, 2010). For this study, in order to capture the variety of stressors and coping strategies that may be observed the

principle investigator's diary will be unstructured.

An ethnographic approach will be used whereby the researcher serves as an active participant. Such a method has been demonstrated as a useful method of collecting data (e.g., Wagstaff, Fletcher, & Hanton, 2012), particularly in an organisational context. In doing this the primary investigator will act as an observer within their own group throughout the trip, making notes and memos regarding observable behaviours. These memos will be used both as a source of data.

These diary entries will focus on the stressors observed on that day and will focus on the coping strategies used and their effectiveness. The flexibility of this method means that entries can take place when convenient thereby not interfering with other data collection and causing minimal disruption to others involved in the trip.

In order to enhance the trustworthiness of the study triangulation will be used. On returning from the trip participants will be provided with the opportunity to comment on the data analysis. Further, the data will also be triangulated using a secondary researcher as an additional analyst: Dr M Day, Department of Sport & Exercise Sciences, University of Chichester.

Throughout the data collection process this study will ensure that data remains anonymous and participants will be given a pseudonym. This is essential given that participants will need to feel comfortable about writing their personal thoughts and feelings regarding stressors and coping without disclosing their identity. Participants will also have the right to withdraw from the study at any time and have their data removed from the analysis.

### **Scientific proposal, expected results<sup>8</sup>**

One of the key results expected in this study will be to identify the stressors experienced by participants on the trip. Results will indicate the frequency with which these stressors are experienced and their psychological impact.

In addition it is anticipated that participants may use both effective and ineffective strategies for coping with these stressors. Results will assist in identifying which stressors were deemed to be ineffective and how frequently these ineffective strategies were used. Further, it may be suggested that those with previous experience on similar trips may use more effective strategies.

Finally, results may indicate whether participants were able to predict the stressors that would be experienced on such a trip, and consequently whether they were able to feel psychologically prepared.

<p><b>Dissemination plan, target journal(s)<sup>9</sup></b></p> <p>Potential target journals would be peer review journals specializing in stress and coping such as ‘Anxiety, stress, and coping’ or ‘International Journal of Stress Management’</p>
<p><b>Dissemination plan, timeline<sup>10</sup></b></p> <p>Date: spring 2015 TBC baseline data collection.</p> <p>Date: mid line data collection.</p> <p>Date: post trip data collection.</p> <p>Date: September 2015 completion of analysis of all written data.</p> <p>Date: November 2015 completion of secondary analysis.</p> <p>Date: January 2016 paper ready for peer review.</p> <p>Date TBC but prior to March 2016 paper ready for publication.</p> <p>For the full paper to be ready for review within 1 year post trip.</p>
<p><b>Research requirements, participants<sup>11</sup></b></p> <p>15-30 minutes from each participant at each data collection point.</p>
<p><b>Research requirements, personnel<sup>12</sup></b></p> <p>Paper, pens/pencils, note pads</p>
<p><b>Research requirements, equipment<sup>13</sup></b></p> <p>Given the qualitative nature of the study the research requirements for equipment and consumables are minimal. The principal investigator will serve as the main tool for data collection. During the trip she will require a digital recording device and laptop.</p>
<p><b>Research requirements, consumables<sup>14</sup></b></p> <p>Paper, pens/pencils, note pads, cost of printing questionnaires.</p>
<p><b>Research requirements, logistics<sup>15</sup></b></p> <p>This research requires little in the way of logistics other than the researchers having adequate amounts of empty baseline, basecamp and post trip questionnaires to distribute to participants willing to undertake the research. Time from each participant is the main requirement.</p>
<p><b>Research requirements, research cost<sup>16</sup></b></p>

£100 approximately for printing and stationary items.		
<b>[Print full name of principle investigator and collaborators here and all sign in next column]<sup>17</sup></b> Sue Paddon		<b>[Insert date here]</b> 7/1/14

<sup>1</sup>Title, full name, current post, department, institution, contact postal address, email address, telephone (including country and area code)

<sup>2</sup>Title, full name, department, institution, email address

<sup>3</sup>Max 20 words

<sup>4</sup>Project summary in simple English. Max 200 word

<sup>5</sup>Provide rationale for study

<sup>6</sup>Concise; specific and directional hypotheses

<sup>7</sup>Participants; research design; study schematic; procedures; statistical analyses; identification of main outcome measure; justification of sample size

<sup>8</sup> Graphs as likely to be presented in manuscript depicting theoretical relationships but correct units and physiologically plausible absolute values; explanatory text to justify relationships (based on previous literature)

<sup>9</sup>Target journal(s)

<sup>10</sup>Timeline from research proposal to submission of, manuscript to target journal (including conference presentations and 1<sup>st</sup> draft of introduction/methods/results/discussion sections)

<sup>11</sup>Total time participants will spend on study; <sup>12</sup>Risk to participants and how risks will be mitigated

<sup>12</sup>Staff required to run project successfully

<sup>13</sup>Make, model, where equipment will be sourced from, rough estimate of power requirements

<sup>14</sup>Plastics, paper, disposable accessories for equipment, etc

<sup>15</sup>Rough estimates of: sample transport (if required); equipment total weights; laboratory requirements (space, environmental conditions, services (water, electric, light, waste disposal)

<sup>16</sup>Direct expenditure related to project and explanation of how these costs will be met. Do not include expedition fees or logistics, or indirect salaries

<sup>17</sup>Principal Investigator and Collaborators must provide consent to submit proposal. This can be done with either physical or electronic signatures on the research proposal, or alternatively each researcher may email [j.h.macdonald@bangor.ac.uk](mailto:j.h.macdonald@bangor.ac.uk) the following text: "I Sue Paddon approve the full research proposal entitled "*The sources of stress and associated coping strategies when working at altitude* "

- Formatting
  - Please type information into table above and expand table as necessary
  - Min 12 point, min 1.5 line spacing, 2cm margins, times new roman, reference format as per Journal of Applied Physiology guidelines, include page numbers and principal investigator surname in a footer on every page; scientific proposal section should not exceed six pages of A4 plus references; research requirements should not exceed four pages of A4
- Submission
  - Email one pdf file to [j.h.macdonald@bangor.ac.uk](mailto:j.h.macdonald@bangor.ac.uk)
  - Closing date: 24.12.13, 1200, Greenwich Mean Time

- Please also ensure all researchers have read, completed and submitted form 3: researcher application form
- Please also ensure the principle investigator has read, completed and submitted form 4: principal investigator contract.
- Suggest at least four reviewers
  - Must have no known conflict of interest
  - Provide title, full name, position, department, institution, email address and phone number (including country and area code)
- You will receive confirmation of submission within five working days
- Queries
  - Contact MEDEX Manaslu 2015 Research Lead
    - Jamie Macdonald PhD, Extremes Research Group, Bangor University
    - Email: [j.h.macdonald@bangor.ac.uk](mailto:j.h.macdonald@bangor.ac.uk)
    - Tel: +44 1248 383272

## References:

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