DOCTOR OF PHILOSOPHY

The motives for participation in high-risk sport

Barlow, Matthew

Award date:
2012

Awarding institution:
Bangor University

The motives for participation in high-risk sport

by

Matthew Barlow

Thesis submitted to Bangor University in fulfilment of the requirements for the degree of Doctor of Philosophy at the School of Sport, Health, and Exercise Sciences, Bangor University.

March 2012

DECLARATION

This work has not previously been accepted in substance for any degree and is not being currently submitted in candidature for any degree.

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ACKNOWLEDGEMENTS

Lew and Tim, your guidance, support and wisdom have been truly invaluable, extending far beyond the research training itself. Thank you so much.

My amazing wife Vicki, your unconditional support throughout this entire process was everything I could have asked for and more. I love you so much and cannot thank you enough.

Mum, Dad, Ruth and my extended family, I am only at this point thanks to your love and inspiration.

My dear friends, who helped me in your own special ways – be it through sharing sessions of riding, climbing, running, swimming, or consuming tea & cake with me – I am very grateful to you all.

Chapter 1 - General introduction

It is only by risking our persons from one hour to another that we live at all.
- William James, 1896, 'The Will to Believe'

Taking a requisite "optimal amount of risk" has traditionally been viewed as beneficial, and even necessary, for the health and development of the species (Trimpop, 1994, p. 39). From this stand point, risk-taking may be an essential element of accruing the necessary resources for survival and self-advancement (Buss, 1988). However, the motives underpinning voluntary engagement in "unnecessary" (Furedi, 2006, p. 107) risk-taking, such as high-risk sport, have long fascinated and posed a problem for psychologists (Lester, 1983; Loewenstein, 1999). Indeed, what reward could possibly be worth voluntarily risking one's health or life to attain? (Heimer, 1988).

From a psychodynamic perspective conscious behaviours that are antithetical to a normal concern for self-preservation are symptoms of psychological conflicts established through early childhood experiences (Turp, 1999; Willig, 2008). As such, during the first half of the twentieth century, voluntary physical risk taking was viewed as evidence of underlying psychopathology within an individual (Adler, 1930; Deutsch, 1926; Fenichel, 1939, 1945/1987), such as having a death wish (Freud, 1926/1955). However, toward the middle of the twentieth century, Hebb (1955) argued that numerous human activities, including high-risk sporting activities such as skydiving and driving at high speeds, appear to be motivated by the desire to increase one's level of stimulation and excitement (cf. Slanger & Rudestam, 1997). This idea can be traced back to one of the founders of experimental psychology Wilhelm Wundt (1893). Wundt (1893) suggested that along a continuum of intensity of stimulation and sensation, there was an optimal point at which the stimulus was regarded as most pleasurable. Stimulation above or below this point was judged as less pleasurable or

even aversive. Hebb & Thompson's (1954) research with animals, led them to conclude that not only do mammals exhibit an optimal level of stimulation but they will actively engage in behaviours so as to attain that optimal level: "mammals seek excitement . . . seek situations that produce emotional stimulation to a mild degree . . . animals will always act so as to produce an optimal level of excitation" (p. 551-552). Hebb (1955) suggested that the significance of seeking of an optimal level of stimulation "is in a phenomenon of the greatest importance for understanding motivation in higher animals [such as man]. This is the *positive attraction of risk taking*, or mild fear, *and of problem solving,* or mild frustration." [emphasis in the original] (p. 250). Hebb (1955) asserted, "This taste for excitement *must* not be forgotten when we are dealing with human motivation. It appears that, up to a certain point, threat and puzzle have positive motivating value, beyond that point negative value . . . especially for higher animals such as man" [emphasis in the original] (p. 250).

Leuba (1955) developed 'the concept of optimal stimulation', alongside a growing body of research into sensory deprivation. Considerable evidence was produced to indicate that humans have a need for stimulation, especially under conditions of sensory deprivation (Fiske & Maddi, 1961; Hunt, 1963; Lilly, 1956). It was from this body of work, and his own personal research on optimal stimulation and sensory deprivation (Zuckerman, 1964; Zuckerman, Persky & Link, 1968), that Zuckerman developed sensation seeking theory (see Zuckerman, 2007). Indeed, the first extensive theoretical model of sensation seeking was presented in Zubek's (1969) book entitled 'Sensory Deprivation: Fifteen years of research'. Zuckerman's sensation seeking theory gained such prominence that it became one of the most actively studied topics in psychology (Llewellyn & Sanchez, 2008) and it is to that theory that we now direct our attention.

Sensation seeking

Sensation seeking theory began as an optimal level of cortical arousal theory, a theory of sensory deprivation based on the construct of optimal level of stimulation (Zuckerman, 1979). The first published theoretical statement on sensation seeking contained a hypothesis concerning a sensation seeking personality trait: "Every individual has characteristic optimal levels of stimulation (OLS) and arousal (OLA) for cognitive activity, motoric activity, and positive affect tone" (Zuckerman, 1969, p. 429). Zuckerman hypothesised that certain individuals, whom he termed high sensation seekers, were persons with a high OLA and therefore would be more stressed by sensory deprivation than individuals with a low OLA (Zuckerman, 1969). Thus, in normal situations, high sensation seekers feel chronically under aroused and therefore need greater stimulation in order to reach their OLA (Zuckerman, 1994). Such chronic under arousal motivates sensation seekers to engage in what Zuckerman (1994) terms "sensation seeking behaviour" (p. 5). Such behaviour "arises from a state of low arousal, produced by an invariant environment, and it is higher arousal, not reduction of arousal, that is the goal" (Zuckerman, 1994, p. 5). Over the course of developing the theory many definitions of sensation seeking have been used. However, the current accepted definition of sensation seeking defines what is meant by sensation seeking behaviour: "Sensation seeking is a trait defined by the seeking of varied, novel, complex and intense sensations and experiences, and the willingness to take physical, social, legal and financial risks for the sake of such experiences" (Zuckerman, 1994, p. 27).

The Sensation Seeking Scale

The original sensation seeking scale (SSS, Zuckerman, Kolin, Price & Zoob, 1964) was developed "based on the idea that there were constant individual differences in optimal levels of stimulation and arousal and that these differences could be measured with a questionnaire" (Zuckerman, 1994, p. 17). The first SSS measured a general sensation seeking trait which included all five of the senses (Zuckerman et al., 1964). Then, beginning with the

development of the SSS-IV, factor analysis showed that the items were not modality specific but should be "conceptualised in a hierarchical trait form, with a general trait composed of narrower traits" (Zuckerman, 1994, p. 30). These traits were categorised into four factors representing four different modes of sensation seeking, which make up the sensation seeking component of an individual's personality structure (Knust & Stewart, 2002). This four factor structure remains in the SSS-V (Zuckerman, Eysenck, & Eysenck, 1978), which is currently the most widely used version of the sensation seeking scale. The factors are *Thrill and adventure seeking*, which consists of items expressing desires to engage in sports or other activities involving some danger, risk or personal challenge; *Experience seeking* which contains items describing the desire to seek new experiences by living in a nonconforming life-style and through travel; *Boredom Susceptibility* which contains items indicating an aversion to repetitive experience of any kind, routine work, and restlessness when things are unchanging; *Disinhibition* which contains items describing the need to engage in disinhibited behaviour in the social sphere by drinking, partying, and seeking variety in sexual partners (Zuckerman, 1979).

Sensation seeking research in high-risk sport

There exists a large body of evidence that suggests sensation seeking, as measured by the SSS-V, does not discriminate between participants of high-risk sports (see Zuckerman, 2007). Rather, research based on the sensation seeking framework typically concludes high-risk sport participants are a homogeneous group (Kajtna, Tusak, Baric & Burnik, 2004) and that "the primary difference in sensation seeking tends to be between all risk sports and other kinds of sports, rather than among the different types of risky sports" (Zuckerman, 1994, p.160). Specifically, high-risk sport participants typically score higher on measures of total sensation seeking (SS-Tot), and the Thrill and Adventure Seeking (TAS) subscale in particular, when compared to participants of low-risk sports (Bouter, Knipschild, Feij &

Volovics, 1988; Cronin, 1991; Slanger & Rudestam, 1997; Rossi and Cereatti, 1993; Wagner & Houlihan, 1994; Breivik, 1991, 1996; Freixanet, 1991). Indeed, Zuckerman (2007) presents evidence to suggest, that when comparing a range of both high and low-risk sports, the two sports where participants report the highest SSS-V (Tot) scores, and highest and third highest TAS scores respectively, are expeditionary mountaineering and skydiving.

The popularity of sensation seeking theory

Zuckerman's sensation seeking theory has gained such prominence in the existing literature that "the study of risk-taking has become virtually synonymous with sensation seeking theory" (Llewellyn & Sanchez, 2008, p. 414). Indeed, such are the multiple manifestations of risk-taking in various situations that certain personality theorists have now "adopted" the term sensation seeking "to specify physical risk-taking" (Bromiley & Curley, 1992, p. 94). Furthermore – propagated by the belief that sensation seeking is a "personality trait easily measured" (Roberti, 2004, p. 273) – research into physical risk-taking, such as participation in high-risk sport, "has narrowed to be almost synonymous with measures of the sensation seeking scale" (Bromiley & Curley, 1992, p. 94; Ferrando & Chico, 2001).

Problems with sensation seeking research

As indicated above, research into risk-taking has become virtually synonymous with sensation seeking theory in general and the SSS-V in particular (Ferrando & Chico, 2001; Llewellyn & Sanchez, 2008): a situation that has been deemed unfortunate by a number of researchers (Arnett, 1994; Bromiley & Curley, 1992; Jackson & Maraun, 1996; Roth, Hammelstein & Brähler, 2007). Studies employing the SSS-V typically conclude that all high-risk sport participants, regardless of the type of high-risk engaged in, are a homogeneous group who report elevated SSS-V scores compared to low-risk takers (see Zuckerman, 2007). Consequently, based entirely on elevated SSS-V scores, the situation has

arisen in recent decades whereby it is assumed that all participants of high-risk sport are motivated by the attainment of an increased level of stimulation or arousal (see, for example, Cronin, 1991).

However, more recently, researchers have begun to refute sensation seeking as a panoptic explanation of the motives that drive participation in all high-risk sports (Llewellyn, Sanchez, Asghar & Jones, 2008; Slanger & Rudestam, 1997). For example, although sensation seeking as measured by the SSS-V may partially explain risk-taking, the proportion of explained variance appears to be modest (Himelstein & Thorne, 1985; Horvath & Zuckerman, 1993) accounting for only around 10 per cent of the variance in behaviour (Furnham, 2004). Additionally, risk-taking behaviours can serve many different goals or functions (Cooper, Agocha, & Sheldon, 2000) and sensation seeking theory fails to account for the entire range of motives mentioned by risk takers themselves (Castanier, Le Scanff & Woodman, 2010; Cazenave, Le Scanff, & Woodman, 2007; Shapiro, Siegel, Scovill, & Hays, 1998).

The SSS-V does not measure motives

Regarding the SSS-V, Zuckerman (1979) stated that "most of the items express the preference for or desire to engage in certain kinds of behaviour, or the values compatible with such behaviour" (p. 165). In other words, the SSS-V measures an individual's propensity or desire to engage in those behaviours that Zuckerman assumed served to increase an individual's stimulation or arousal: which he termed "sensation seeking behaviours" (Zuckerman, 1994, p. 5). Thus, Zuckerman's SSS-V does not attempt to measure *motives* for engagement in high-risk sport, nor can it ever be used for such an application. Unfortunately, some researchers have erroneously concluded that high-risk sport participants' elevated sensation seeking scale scores meaningfully reflect their underlying motives for participation (e.g., Robinson, 1985; Cronin, 1991). Interestingly, speaking about personality research in

general, Zuckerman (1994) warned researchers about the aforementioned problem that now appears to plague sensation seeking research: "Trait labels are a necessary first step toward a causal theory because we must agree on what we are trying to explain, but the description of behaviour, summarized in a label, does not explain the behaviour" (p. 1). Despite the development of variations on the SSS-V existing in the current literature (e.g., Arnett Inventory of Sensation Seeking, Arnett 1994; Impulsive Sensation Seeking Scale, Zuckerman & Kuhlman, 2000) to-date there remains a need in the literature for a scale that measures sensation seeking as a *motive* for participation in high-risk sport.

The tautology of the TAS subscale

The SSS-V has attracted criticism over its forced choice format, use of outdated terminology and lack of applicability across age groups, especially for the elderly (Arnett, 1991, 1994; Roth et al., 2007). However, the most serious problem with the SSS-V is the inclusion of four items on alcohol/drug use and seven items on sport participation (see appendix E): precisely the types of behaviour examined in many of the studies employing the measure (Slanger & Rudestam, 1997). Despite its name, the thrill and adventure seeking subscale (TAS), of the SSS-V, does not actually measure thrill seeking *per se*. Rather, high TAS scores on the SSS-V only reflect high-risk sport participants' (or indeed anyone's) elevated propensity or desire to engage in certain activities that are generally regarded as high-risk activities (e.g., "I would like to try parachute jumping" and "I often wish I could be a mountain climber"). Given that mountaineers and skydivers already engage in such activities it is unsurprising, uninformative, and tautologous that they answer positively to such questions (Llewellyn & Sanchez, 2008; Roth, 2003). This is a serious confounding factor, and casts doubts on the nature of the relationship between engagement in these types of behaviour and the actual seeking of sensation (Slanger & Rudestam, 1997). Indeed, the

only conclusion that can be drawn regarding a high TAS score for athletes involved in high-risk sport is that they are willing to engage in the types of activities they currently engage in.

Sensation rewards

Zuckerman (2005) suggests that "sensation seekers are motivated primarily by the anticipated reward from the activities they seek" (p. 363). Indeed, Zuckerman (2007) suggests that high sensation seekers are willing to take physical risks – by engaging in activities such as "mountain climbing, skydiving, or scuba diving" (p. 13) – in order to experience the "sensation rewards" (p. 13) of such activities. However, to-date, no empirical evidence exists to support the assumption that any of the aforementioned high-risk activities provide their participants with a 'sensation reward'.

Qualitative research suggests that skydiving (Franken, Zijlstra, & Muris, 2006; Lipscombe, 1999) – like certain other high-risk sports such as bungee-jumping (Larkin & Griffiths, 2004) and surfing (Diehm & Armatas, 2004; Stranger, 1999) – does reportedly involve a large element of hedonic thrill, excitement, and a plethora of potentially pleasurable sensations. Skydiving – especially at the novice and intermediate levels – appears to typify high-risk activities that elicit a very intense hedonic experience while participating (Celsi, Rose & Leigh, 1993). Furthermore, interview based research has suggested that skydivers are motivated by the "intense feelings and sensations gained from the jump" (p. 284) which include "excitement, exhilaration and thrill of the freefall" (Lipscombe, 1999, p. 281) resulting in a natural high (Franken et al., 2006). The experiences of "a buzz, a body rush, a high, an adrenalin charge… are something very special to the skydiver, that produces a desire to repeat the experience" (Lipscombe, 1999, p. 218) which results in skydivers frequently claiming of themselves that they are "adrenaline junkies" (Celsi et al., 1993, p. 16). Aran (1974) suggests that the "pleasure experienced in the jump" is something upon which "all jumpers agree" (p. 138), and that after a safe landing even habituated skydivers often go

through an immediate period of "exhilaration" which includes leaping, shouting and general euphoria (Solomon, 1980, p. 697). Similar ideas are also expressed in the skydiving literature. For example, regarding his first ever skydive, experienced skydiver Jim McCormick recalls:

> My first words when I landed were, 'That was great; I want to do it again.' I said it was phenomenal immediately... I knew I wanted the same experience again. I wanted to try it one more time. I wanted to experience more of it than I was able to experience the first time. (Gutman & Frederick, 2003, p. 44)

In contrast to skydiving, expeditionary mountaineering (Lester, 1983, 2004) – as with other expeditionary activities such as Arctic expeditions (Leon, List & Magor, 2004; Leon, McNally, & Ben-Porath, 1989) and Ocean sailing voyages (Norris & Weinman, 1996) – does not seem to be motivated primarily by the anticipated sensation reward of participation. Reports of the hardships, suffering, and monotony typically endured by mountaineers are "amply catalogued in the mountaineering literature" and describe an experience that appears truly antonymous to sensation seeking (Loewenstein, 1999, p. 318). For example, Leo Houlding – who in 2007 along with Conrad Anchor retraced George Mallory's fateful 1924 attempt to reach the summit of Mount Everest – said, "Climbing isn't necessarily enjoyable at the time. Some of the stuff I'm into – the big stuff – it sometimes takes three days of carrying a heavy bag just to get to the start of the climb" (Climbing, 2009). Paul Pritchard (1997) – one of the leading British climbers of the 1980s and 1990s – and his team shuttled heavy bags on foot for an entire month to establish and adequate base camp for their chosen route before observing another team of climbers arrive, with all the requisite equipment, by helicopter. Pritchard (1997) said, "I pondered on what different memories we would each have of the approach, fantastic aerial views against a month of grind. I wouldn't trade places." (p. 136).

The mountains, especially the greater ranges, have been described as "one of the most arduous and hostile environments" known to man (Twight & Martin, 1999, p. 138).

Augmented by the fact that participation occurs far from quick evacuation or medical aid (Ewert, 1994), death rates in the greater ranges are estimated to be as high, if not higher, than almost any other high-risk sport (Langer, 2002). During participation, mountaineers knowingly face relentless cold (which can lead to frostbite), snow-blindness, sunburn, altitude sickness, cerebral and pulmonary oedema, sleeplessness, squalid conditions and hunger (Delle-Fave, Bassi & Massimini, 2003; Loewenstein, 1999; Wilkinson, 1992). Loewenstein (1999) suggests that mountaineering appears to typify an activity that is "obviously not about pleasure from consumption" (p. 317), but rather is characteristic of intense toil, tedium and struggle (Ewert, 1994; Willig, 2008). For example, Jon Krakauer (1997) – who solo climbed a new route on the notorious Devil's Thumb in Alaska and has climbed Everest – said:

> People who don't climb mountains—the great majority of humankind, that is to say—tend to assume that the sport is a reckless, Dionysian pursuit of ever escalating thrills. But the notion that climbers are merely adrenaline junkies chasing a righteous fix is a fallacy, at least in the case of Everest. What I was doing up there had almost nothing in common with bungee jumping or skydiving or riding a motorcycle at 120 miles per hour. Above the comforts of Base Camp, the expedition in fact became an almost Calvinistic undertaking. The ratio of misery to pleasure was greater by an order of magnitude than any other mountain I'd been on; I quickly came to understand that climbing Everest was primarily about enduring pain. And in subjecting ourselves to week after week of toil, tedium, and suffering, it struck me that most of us were probably seeking, above all else, something like a state of grace. (p. 135)

Similarly, Paul Pritchard (2000) has often been asked if he climbed for sensation seeking purposes:

> What about the adrenalin rush? That's a popular reason [the lay person suggests] for climbing rocks, yet I don't see it. You will get an adrenalin rush when B.A.S.E jumping or sky diving every time but not when climbing, even extreme climbing. It is much more complex than just a charge of chemicals to the brain. (foreword)

With this in mind, the present research argues that, counter to sensation seeking theory, certain high-risk expeditionary activities, such as mountaineering, are not motivated by the sensation rewards of participation.

Boredom susceptibility

The foundational rationale underpinning sensation seeking theory suggests that high sensation seekers have an elevated susceptibility to a lack of stimulation or arousal (Zuckerman, 2007). High sensation seekers display an aversion to repetitive experience of any kind, routine work, and restlessness when things are unchanging (Zuckerman, 1983). However, Loewenstein (1999) suggests that "…mountaineering suffers from the worst possible combination of long periods of stultifying boredom punctuated by brief periods of terror. On a typical ascent, the vast majority of time is spent in mind-bogglingly monotonous activities" (p. 20). Unlike skydiving, which is "a compact experience of only a few moments" (Aran, 1974, p. 127), mountaineering expeditions last days, weeks or even months at a time (Ewert, 1994) requiring extensive financial commitment, planning and preparation prior to participation (Leon et al., 1989). Even trekking to the base of a route, prior to any climbing, is often "arduous" and "dangerous" (Greig, 1985, p. 97): requiring days of acclimatisation time. Krakauer's (1997) description of ascending the Lhotse face on Everest is indicative of repetitive routine work:

> I drew two burning, laboured breaths; then I moved my left foot up and stamped the crampon into the ice, desperately sucked in another two lungfuls of air; planted my right foot next to my left, inhaled and exhaled from the bottom of my chest, inhaled and exhaled again; and slid the jumar[1] up the rope one more time. I'd been exerting myself at full bore for the past three hours, progressing in increments calibrated in inches. (p. 135)

Expeditionary mountaineering typically involves long periods of inactivity at base-camp (Delle-Fave et al., 2003) or when faced with inclement weather. For example, after attempting to climb Fitz Roy in winter Andy Kirkpatrick concluded that, "Patagonia is fairly miserable, the weather is always horrible the whole time" (Brown & Griffiths, 2008). Unable to climb due to storms Kirkpatrick found shelter by lying on his back, under a boulder, with the rock only inches from his head thus "having no stimulation for five days" (Brown & Griffiths, 2008). Similarly, the British Mountaineering Council's (BMC) 2006 expedition roundup reported understatedly that, "unstable weather plagued many expeditions to Pakistan this year" (Griffin, 2006). However, Dai Lampard (2006) more clearly details the reality of the situation in his K7 expedition report:

> We were stuck for seven days on K7 and everyday it was just snow, snow, snow, snow. We can't go down and we can't go up because the avalanche conditions were so horrendous. We were safe where we were but we couldn't go anywhere. It just went on for seven days and it was so utterly boring. I've never ever been so bored in my life. You get used to it I suppose. We went for a three hour walk around the tent once when the weather stopped for a bit.

In summary, since "the goal of sensation seeking behaviour is the increase rather than the decrease of stimulation" (Zuckerman, 1994, p. 3), expeditionary mountaineering, as

[1] A jumar is a mechanical device used for ascending on a rope

described above, seems antonymic to sensation seeking behaviour. Indeed – although it is yet to be directly measured – researchers have suggested that individuals who seek out expeditionary challenges "may be quite different" from the so-called "dare-devil sensation seeking adventurer" (Leon et al., 1989, p. 163), and that "far from pursuing thrilling experiences" mountaineers are actually motivated by alternate goals over and above the need for sensation (Delle-Fave et al., 2003, p. 95). Given the nature of the participants' experience in the mountaineering domain, sensation seeking appears fruitless as a model for trying to understand the motives for such experiences. One alternative theoretical framework that appears particularly promising for examining the motives for engagement in high-risk sport (beyond sensation seeking) centers on the constructs of emotion regulation and agency. However, such a framework has yet to be measured or tested.

Emotion regulation & Agency

The third ascent of Everest was by the 1963 American Mt. Everest Expedition (AMEE). Psychologist James Lester, who was an invited non-climbing member of the expedition, conducted an in-depth observation of the 17 man team (see Lester, 1983). Lester (2004) re-visited the study of serious mountaineers conducting a literature abstraction of over 150 years of mountaineering writings and identifying recurrent themes that permeated throughout. Following this extensive literature abstraction, 21 years after his 1983 paper, Lester (2004) said, "There is almost nothing among the speculations I offered [in the 1983 paper] that I would now disown" (p. 87).

Lester (1983, 2004) identified a number of characteristics prevalent in mountaineers, including the desire for agency, lack of interest in social interaction for its own sake, high felt need for independence, high need for achievement, and low felt need for both intimacy and affection. Lester (1983) suggests that many aspects of domestic life, specifically maintaining meaningful interpersonal relationships, "were more stressful to the average team member

than were the icy conditions in a fragile tent on a snowy ridge in a high wind with inadequate oxygen" (p. 34). Given the characteristics identified, one can easily understand how that which a mountaineer defines as 'stressful' could be different from what others identify with that term (Lester, 1983). Thus, Lester (1983) proposes that "…many of the climbers went to Everest to (among other reasons) gain relief from the stress of playing social roles or adjusting their daily lives to routines, schedules, and relationships they experienced as arbitrary and causing self-alienation." (p. 34). The influence of Lester's (1983, 2004) work can be seen woven throughout the current thesis and the formation of the hypotheses therein.

Based on the foundational work of Lester (1983, 2004), Woodman, Hardy, Barlow & Le Scanff (2010) identified that *emotion regulation* and *agency* may be key constructs underpinning the motives driving participation in expeditionary high-risk sport. Emotion regulation is the term used to characterize the diverse processes involved in initiating, maintaining, and modulating the intensity, type, or duration of emotions (Gross & Thompson, 2007; Thompson, 1994). Emotion regulation refers to actions that influence "which emotions we have, when we have them, and how we experience and express them" (Gross, 2002, p. 282). To be an agent is to influence intentionally one's functioning and life circumstances (Bandura, 2001, 2006). An agentic self presumes active and causal contributions to behavior and development (Bandura, 1989; Taylor, 1989): the self is the *author* of internal states such as intent, belief, and desire (Bratman, 1991; Little, Snyder, & Wehmeyer, 2006). The most central and pervasive mechanism of agency is individuals' beliefs regarding their capabilities to exercise control over events that affect their lives (Bandura, 1997, 2000).

Woodman et al. (2010) provided initial empirical evidence – confirming studies employing participant observation (e.g. Hunt & Daines, 2004; Leon et al., 2004; Leon et al, 1989; Lester, 1983, 2004) – that expeditionary high-risk sport participants demonstrate a difficulty with emotion regulation and a diminished sense of agency in everyday life.

Specifically, trans-Atlantic rowers and mountaineers demonstrated significantly greater *difficulty describing feelings* than sample norms and controls respectively, and mountaineers demonstrated significantly lower agency, specific to loving partner relationships, than controls. Woodman et al. (2010) showed that trans-Atlantic rowers gleaned an emotion regulation and agency benefit as a consequence of completing the difficult and arduous crossing. Specifically, rowers felt better able to identify and express their emotions and experienced a perceived increase in their interpersonal control. These data provide initial support for the emotion regulation and agency function that participation in expeditionary high-risk sport may serve. However, Woodman et al. (2010) identified limitations of their research that required attention in order to further advance this line of research. The main limitation of the Woodman et al. (2010) research was the lack of a suitable domain specific measure of emotion regulation and agency. Consequently, their quantitative research was limited to the use of examining constructs that appear to be correlated with emotion regulation (alexithymia) and agency (spheres of control) rather than examining the constructs directly. Thus, although the aforementioned research demonstrates that emotion regulation and agency are interesting constructs regarding the motives, benefits and consequences of participation in high-risk sport, this exciting field of research is in its infancy.

Summary and thesis structure

Chapter 1 has identified that, counter to a large body of research, high-risk sport participants appear not to be a homogeneous group who participate primarily for sensation seeking purposes. Indeed, regarding motives to participate in expeditionary high-risk sport, such as mountaineering, emotional regulation and agency have been identified as salient constructs worthy of further investigation.

The present thesis consists of two research chapters and a general discussion. Since the present thesis is linear in nature – with each study leading sequentially on from the next – and

to minimise repetition, the detailed theoretical rationale pertaining to agency and emotion regulation is presented in Chapter 2 rather than above in Chapter 1. However, since the research chapters have been prepared as standalone manuscripts, for submission to academic journals, there is some unavoidable overlap and repetition of a number of topics.

Chapter 2

Chapter 2 examines the different motives that drive participation in two contextually different high-risk sports – skydiving and mountaineering – from sensation seeking, emotion regulation, and agency perspectives (Study 3 and Study 4). Due to the lack of a suitable measurement instrument in the existing literature, the initial task was to create a new scale that measures sensation seeking, emotion regulation and agency as motives for participation in high-risk sport (Study 1 and Study 2). The central theoretical and applied implications of the four studies are then discussed. The decision to encompass four studies into a single extended chapter was based on a new departmental policy that postgraduate students should aim to produce 3 and 4 star research (as judged by the research evaluation framework).

Chapter 3

Chapter 3 utilized a novel qualitative approach to extend the findings of first chapter by examining three specific issues, requiring further research attention, which arose from Chapter 2. This approach involved in-depth interviews conducted with elite level mountaineers in combination with data abstracted from the mountaineering media. An alternate methodology to Chapter 2 was employed based on recommendations in the literature that suggest to best glean an individual's general notion of self it must be assessed in a variety of contexts (Bruner, 1990). The extended nature of this chapter stems from the methodological stance that, to a large degree, the richness of the data would be impaired if subject to a content analysis and reduced to set of raw themes. Thus, Chapter 3 contains extended quotes from mountaineers with the aim that the data may speak for itself (Bruner,

1990) and that the voices of the participants' would be heard (Clandinin & Connelly, 1998). Data presented in this way may evoke a response from the reader as a consequence of vicariously experiencing the life of another, even if only momentarily (Sparkes, 2002).

Chapter 4 - General discussion

Finally, Chapter 4 summarises the main findings arising from the research chapters, and identifies the strengths and limitations of the research program. The implications and future directions for research, previously identified in Chapter 2 and Chapter 3, are summarised and additional future recommendations for research are identified.

Chapter 2 - Ain't no mountain high enough:

Mountaineers' great (agentic and emotional) expectations[2]

Abstract

Research on high-risk sport activities has typically been viewed through the lens of sensation seeking. We provide evidence that comprehensively challenges that view. First, we develop and confirm the structure of a three-factor measure of the motives that underlie participation in high-risk sports across three time points (between, during, and after participating in the activity): the Sensation seeking, Emotion regulation and Agency Scale (SEAS; Study 1 and Study 2). We then use the SEAS to provide evidence for the differential motives for skydiving and mountaineering: the motive for skydiving is strongly associated with sensation seeking; the motive for mountaineering is strongly associated with emotion regulation and agency, not with sensation seeking (Study 3 and Study 4). Finally, we confirm that mountaineers have a perceived difficulty with emotion regulation and agency in everyday life, but importantly also have a greater expectation about what it means to be successful in emotion regulation and agency terms. It is these greater expectations that most successfully discriminate mountaineers from skydivers and control participants (Study 4). Researchers should no longer consider participants of high-risk adventure activities as a homogenous sensation seeking group.

[2] Based upon Woodman, T., Barlow, M., & Hardy, L. (2012). *Ain't no mountain high enough: Mountaineers' great (agentic and emotional) expectations*. Manuscript in prep.

Introduction

Why seek to scale Mount Everest,

Queen of the Air,

Why strive to crown that cruel crest

And deathward dare?

Said Mallory of dauntless quest

"Because it's there."

– Robert Service (1953)

In an interview for the *New York Times* in 1923, British mountaineer George Mallory was asked why he wanted to climb Mount Everest. He purportedly replied, "Because it's there." The answer became famous not only for its simplicity but also because Mallory died trying to climb Everest the following year. The mountain was eventually climbed successfully for the first time in 1952. Although simple and eloquent, Mallory's famous reply does little to shed light on understanding why people might voluntarily risk their own and others' life to achieve what appears to be a trivial and dangerous pursuit: to attempt to get to the top of a mountain only to come back down again. Mountaineers and psychologists continue to be seemingly baffled by the question posed the journalist 90 years ago. For example, mountaineer Dave Roberts suggested, "If the old question, the one that Mallory tried to answer is a valid one, I have given up trying to meet it rationally" (1991, p. 283). Equally, psychologists have typically satisfied themselves with explanations revolving around the sensation seeking model (e.g., Zuckerman, 1971) despite mountaineering being largely devoid of sensation provision. In this paper, we propose a comprehensive response to the journalist; a response that goes beyond the simplistic sensation seeking model. This research has potentially wide application given that participation in high-risk sport has grown

exponentially in recent years (Florenthal & Shoham, 2001; Pain & Pain, 2005) despite, or because of, society's ever-increasing focus on safety and risk reduction.

Sensation Seeking

The majority of research on motives for participation in high-risk activities has been largely conducted within a sensation seeking framework (for a review see Zuckerman, 2007). Zuckerman (1994) suggested that sensation seekers – individuals with chronically low levels of catecholamine (e.g., adrenaline, dopamine) – display a willingness to take risks in order to experience "the increase rather than the decrease of stimulation" (p. 3) and the sensation rewards of so-called "sensation-seeking activities" (Zuckerman, 1994, p. 37) such as drug use, dangerous driving, and risky sports.

The conclusion from research that is based on the sensation seeking model is typically that high-risk sport participants are a homogeneous group (Kajtna, Tusak, Baric, & Burnik, 2004) and that "the primary difference in sensation seeking tends to be between all risk sports and other kinds of sports, rather than among the different types of risky sports" (Zuckerman, 1994, p. 160). However, the assumption of homogeneity in risk-taking populations is being increasingly challenged (e.g., Delle-Fave, Bassi, & Massimini, 2003; Llewellyn & Sanchez, 2008; Llewellyn, Sanchez, Asghar, & Jones, 2008; Slanger & Rudestam, 1997; Woodman, Hardy, Barlow, & Le Scanff, 2010).

Despite this criticism, many high-risk sports – such as sky-diving (Franken, Zijlstra, & Muris, 2006; Lipscombe, 1999), bungee-jumping (Larkin & Griffiths, 2004), and surfing (Diehm & Armatas, 2004; Stranger, 1999) – do appear to involve a large element of hedonic thrill, excitement, and a plethora of potentially pleasurable sensations. Skydiving – especially at the novice and intermediate levels – appears to typify high-risk activities that elicit an intense hedonic experience while participating (Celsi, Rose, & Leigh, 1993). For example, interview based enquiry has suggested that skydivers' continued participation is motivated by

the “intense feelings and sensations gained from the jump” (Lipscombe, 1999, p. 284), which include “excitement, exhilaration and thrill of the freefall” (p. 281).

Conversely, participation in prolonged engagement high-risk sports, such as Arctic expeditions (Leon, List & Magor, 2004; Leon, McNally, & Ben-Porath, 1989), trans-Atlantic rowing (Woodman et al., 2010), expeditionary mountaineering (Lester, 1983, 2004) and ocean sailing (Norris & Weinman, 1996), seems to reflect an experience that is antonymous to sensation seeking; individuals engaged in these activities undergo hardship, suffering, and monotony on a daily basis (Loewenstein, 1999). Mountaineering not only requires extensive planning and preparation but the expedition itself – typically lasting weeks or months – is often reported as toilsome and tedious (e.g., Ewert, 1994) and any pleasure is enjoyed largely retrospectively. Jon Krakauer (1997), who climbed Everest, suggested: “People who don't climb mountains… tend to assume that the sport is a reckless, Dionysian pursuit of ever escalating thrills. But the notion that climbers are merely adrenaline junkies chasing a righteous fix is a fallacy.” (p. 135)

Researchers have suggested that individuals who seek out such mountaineering challenges are rather different from the so-called “dare-devil sensation seeking adventurer” (Leon et al., 1989, p. 163), and that mountaineers are actually motivated by alternate goals over and above the need for sensation (Delle-Fave et al., 2003, p. 95). Given the nature of the participants’ experience in the mountaineering domain, sensation seeking appears fruitless as a model for trying to understand the motives for such experiences. One alternative theoretical framework that appears particularly promising for examining the motives for engagement in high-risk sport (beyond sensation seeking) centers on the constructs of emotion regulation and agency. Such a framework has yet to be measured or tested, however.

Emotion Regulation and Agency

Emotion regulation is the term used to characterize the diverse processes involved in initiating, maintaining, and modulating the intensity, type, or duration of emotions (Gross & Thompson, 2007; Thompson, 1994). Emotion regulation refers to actions that influence "which emotions we have, when we have them, and how we experience and express them" (Gross, 2002, p. 282). To be an agent is to influence intentionally one's functioning and life circumstances (Bandura, 2001, 2006). An agentic self presumes active and causal contributions to behavior and development (Bandura, 1989; Taylor, 1989): the self is the *author* of internal states such as intent, belief, and desire (Bratman, 1991; Little, Snyder, & Wehmeyer, 2006). The most central and pervasive mechanism of agency is individuals' beliefs regarding their capabilities to exercise control over events that affect their lives (Bandura, 1997, 2000).

Mountaineers – and participants of other prolonged engagement high-risk sports – display express difficulty with emotion regulation and a diminished sense of agency in important aspects of everyday life (Hunt & Daines, 2004; Leon et al., 1989; Woodman et al., 2010). Such individuals sense that the course of their life and the emotions engendered therein are dictated and driven by forces outside of their control (Lester, 1983, 2004). Since a perceived difficulty to influence intentionally one's environment, behavior and self-regulation is widely acknowledged as antithetical to psychological well-being (Batchelor, 2007; deCharms, 1968), such individuals may seek such influence via alternate means. Specifically, certain high-risk sports may serve a compensatory function to the participant: an opportunity to experience emotion regulation and agency in a way that is perceived as being not readily available in everyday life. Indeed, it has been suggested – but not tested – that such individuals may intentionally seek out situations of chaos, stress and danger so as to demonstrate or reassert their agency and emotional control (Edwards, 1979; Lupton, 1999; Lupton & Tulloch, 2003; Lyng, 1990). In this way the experience of agency in the high-risk

domain “compensates for the lack of control” afforded to participants in their everyday life (Holyfield, 1999, p. 5). Similarly, certain high-risk sports enable the participant to initiate and modulate their own emotional expression (Woodman, et al., 2010) rather than perceiving it is dictated and driven by forces outside of their control (Hunt & Daines, 2004; Lester, 2004).

If an individual engages in high-risk sport with the specific (implicit or explicit) aim of experiencing emotion regulation and agency then there is likely an additional benefit from participation (cf. Woodman et al., 2010). That is, participants may experience a (temporary) transfer of emotion regulation and agency from the high-risk domain into important aspects of their everyday life. Such transfer effects have been purported to be the aim of engagement in high-risk sport for certain participants (Pain & Pain, 2005; cf. Smith, 2005). However, to date, while participation in prolonged engagement expeditionary activities (e.g., Ocean Sailing, Norris, & Weinman, 1996; Arctic travel, Watts, Apps & East, 1993; trans-Atlantic rowing, Woodman et al., 2010) has been shown to provide various self-regulation benefits immediately post-participation, the extent to which these benefits are perceived to transfer back into important aspects of the participants’ everyday life remains unexplored.

Purpose of the present research

The purpose of the present paper is to examine the different motives that drive participation in two contextually different high-risk sports – skydiving and mountaineering – from sensation seeking, emotion regulation, and agency perspectives (Study 3 and Study 4). Due to the lack of a suitable measurement instrument in the existing literature, the initial task was to create a new scale that measures sensation seeking, emotion regulation and agency as motives for participation in high-risk sport (Study 1 and Study 2).

Study 1

Measuring Sensation Seeking

Zuckerman's sensation seeking theory, and the sensation seeking scale (SSS-V; Zuckerman, Eysenck & Eysenck, 1978) in particular, have become practically synonymous with risk-taking research (Bromiley & Curley, 1992; Ferrando & Chico, 2001). There are more than four decades of research that suggest that the SSS-V is a valid and reliable instrument for identifying such individuals (Zuckerman, 2008) and discriminating them from low-risk sport participants (Breivik, 1996; Cronin, 1991; Hymbaugh & Garrett, 1974; Rossi & Cereatti, 1993; Zuckerman, 1983, 2007).

The almost exclusive use of the SSS-V has hampered research in understanding the motives that underlie participation in high-risk activities (Arnett, 1994; Ferrando & Chico, 2001; Jackson & Maraun, 1996; Roth, 2003). However, the scale is incapable of yielding insight into such motives. The SSS-V identifies individuals with a disposition, desire, or intention to engage in activities that Zuckerman assumes provide unusual, novel, or intense sensations and experiences (Zuckerman, 2008). This assumption precludes any meaningful advancement in the understanding of motives for certain activities, as these activities have already been classified within the scale. For example, despite what the name suggests, the *Thrill and Adventure Seeking* (TAS) subscale of the SSS-V does not measure thrill seeking *per se*. Rather, high TAS scores on the SSS-V reflect participants' elevated propensity or desire to engage in certain high-risk activities (e.g., "I would like to try parachute jumping;" "I often wish I could be a mountain climber"). Given that mountaineers and skydivers already engage in such activities it is unsurprising, uninformative, and tautological to suggest or to report that high-risk participants report high scores on such scales (Llewellyn & Sanchez, 2008; Slanger & Rudestam, 1997).

Unfortunately, some researchers have nonetheless erroneously concluded that high-risk sport participants' elevated Sensation Seeking Scale scores meaningfully reflect their underlying motives for participation (e.g., Cronin, 1991; Robinson, 1985). Zuckerman's SSS-

V does not attempt to measure motives for engagement in high-risk sport and it cannot be used as such. Consequently, there remains a need in the literature for a scale that measures sensation seeking as a *motive* for participation in high-risk sport.

Measuring Emotion Regulation and Agency

There is currently no measure of emotion regulation and agency motives for participation in high-risk sport (cf. Woodman et al., 2010). To date researchers have measured participants' emotion regulation and agency via participant observation (Lester, 1983), qualitative inquiry (Woodman et al., 2010), and quantitative examination of constructs that appear to be correlated with emotion regulation (e.g., alexithymia; Woodman et al., 2010) and agency (e.g., spheres of control; Woodman et al., 2010). Consequently, there remains a need in the literature for a scale that measures both emotion regulation and agency as motives for participation in high-risk sport.

Development of a new inventory

High-risk sport participants generally have difficulty in clearly articulating the motives for their behavior (Loewenstein, 1999; Roberts, 1986; Smith, 2005). This may be because participation is driven by motives that are somewhat implicit. Explicit motives are consciously accessible representations of desired and undesired future states (McClelland, Koestner, & Weinberger, 1989) and are directly linked to conscious goals and expectations (Langens, 2007). Implicit motives are unconscious and more directly linked to emotional processes (Michalak, Püschel, Joormann, & Schulte, 2006) and intrinsic incentives (Langens, 2007). When assessing motives that are more implicit in nature, the explicit motivational needs and goals that individuals ascribe to themselves cannot be interpreted as a valid indicator of their underlying motives because in general individuals are not consciously aware of the strength of their implicit motivational dispositions (Schultheiss, 2008).

Consequently, explicit item stems such as "I participate because…" were deemed unsuitable for exploring the complex motives that may underpin engagement in high-risk activities.

In light of the aforementioned arguments, we deemed it important not only to consider the motive for engaging in an activity (i.e., perceptions before participating), but also the specific effect of these motives (i.e., experiences during participation), and the transfer benefits that people may perceive that they derive as a consequence of participation (i.e., perceptions after participation). Thus, the aim of Study 1 was to develop a measure that assessed participants' experience of sensation seeking, emotion regulation and agency at three time points – before, while, and after participating in high-risk sport – with a view to identifying how participants' need for sensation, emotion regulation, and agency might change as a result of participation. The three-factor scale thus comprised three inventories: *before*, *while*, and *after* participation.

Method

Participants

The sample comprised 295 individuals who participated in a diverse range of sports – both high-risk (e.g., skydiving, mountaineering, extreme skiing, rock climbing, etc.) and relatively low-risk (e.g., basketball, hockey, athletics, etc.) – and varied regarding their ability (beginners to professional athletes). Participants were recruited via internet advertisements placed on specific sporting websites and internet forums and poster adverts placed in local sporting facilities (e.g., The National Mountaineering Center and the National Water Sports Center). The chance to win £20 (approximately US$32) on completion of all three online inventories was offered as an incentive.

Listwise deletion procedures were applied to the *before*, *while* and *after* inventories to deal with missing data, which removed 49, 38, and 37 participants, respectively. Two forms of data screening were applied to identify spurious data. The initial screen was to identify any

individuals who had block-answered by responding with the same number throughout the majority of the inventory. This screen removed any participant who had responded with the same numeric response to 29 of the 34 *before* inventory items (n = 3), to 25 of the 30 *while* inventory items (n = 12), and to 26 of the 31 *after* inventory items (n = 10). The aim of the second screen was to identify individuals who had block-answered the last part of each inventory, because it is possible to start completing the measure but end by block-answering because of boredom. Any participant who had responded with the same numeric score to 11 of the final 16 items was thus removed (*before*, n = 5; *while*, n = 1; *after*, n = 10).

The final samples for each inventory were: *before* participating n = 238 (194 men, 44 women; M_{age} = 28.58, SD = 9.09; $M_{years\ participating}$ = 9.41, SD = 8.63); *while* participating n = 244 (199 men, 45 women; M_{age} = 29.31, SD = 9.71; $M_{years\ participating}$ = 9.25, SD = 8.34); and *after* participating n = 238 (196 men, 42 women; M_{age} = 28.52, SD = 9.03; $M_{years\ participating}$ = 9.53, SD = 9.03).

Measures

The initial Sensation seeking, Emotion regulation and Agency Scale (SEAS) comprised three separate inventories: *before* participating (34 items), *while* participating (30 items), and *after* participating (31 items). The items within each inventory reflected the three proposed motivational factors – sensation seeking, emotion regulation and agency – and were developed on the basis of the theoretical perspective described in the general introduction.

Sensation seeking items were concerned with the *need for sensation* before participating, the *experience of sensation* while participating, and the *satisfaction of sensation need* after participating. Example items included “Before participating, I want to get a physical buzz,” “While participating, I get a rush of chemicals around my body that feels great,” and “After participating, I am often buzzing from the adrenaline.”

Items pertaining to emotion regulation measured a *difficulty with emotion regulation* before participating, the *experience of emotion regulation* while participating, and a *sense of emotion regulation* after participating. Example items included, "Before participating, the emotional elements of my life are difficult to deal with," "While participating, I have to deal with intense emotions," and "After participating, I find intense emotions easier to deal with."

Finally, items pertaining to agency measured a *diminished sense of agency* before participating, *experience of agency* while participating, and a *sense of agency* after participating. Example items included "Before participating, I feel like my life 'belongs' to other people," "While participating, I am in charge," and "After participating, I feel better about my ability to bring about important outcomes in my life." Participants responded to each item on a seven-point Likert scale from 1 (*completely disagree*) to 7 (*completely agree*).

Procedure

The use of online questionnaires, also known as "e-questionnaires," was deemed particularly appropriate in the present research. However, the dramatic increase in the use of e-questionnaires has sparked debate over their legitimacy and applicability as a valid and reliable method of data collection (Denscombe, 2006). Since the constructs of emotion regulation and agency addressed could be construed as rather sensitive issues, e-questionnaires were favored since they have been shown to generate greater self-disclosure from participants (Stanton, 1998) and result in lower scores on social desirability measures compared to pen and paper alternatives (Joinson, 1999). Furthermore, with such large sample sizes as in the present study, this method of data collection removes the potential for introducing error during the transcribing process by negating that need (Mangunkusumo et al., 2005). That said, online data collection is not without its disadvantages; not least of which is the anonymous nature of the Internet which may encourage individuals to participate with the express purpose of contaminating data or for financial gain (Kraut et al., 2004). As such,

we used software that utilizes cookies and IP address tracking (Qualtrics, 2009), which prevented multiple responses from the same individual in any single study and the same individual appearing in multiple studies.

Participants were informed that all responses would only be seen by the research team. If they chose to continue participants completed demographic data pertaining to the three favorite sports in which they currently participated (frequency, duration, ability/grade), followed by the three SEAS inventories (*before*, *while*, and *after* participating) completed with regard to their engagement in those sports. Participants were asked to comment only on their own experiences and not on how others might feel about the statements. Where items said "in my life" participants were asked to think about elements of their life that were important to them (e.g., relationship with a partner, friends, family, and work). The whole procedure lasted approximately 30 minutes.

Analyses

Data were analyzed using confirmatory factor analysis (CFA) partially in an exploratory fashion. Prelis 2.14 (Jöreskog & Sörbom, 2003) was used to generate a covariance matrix and Lisrel 8.54 (Jöreskog & Sörbom, 2003) was used to test the models. There is much debate in the literature regarding the specific applicability of incremental fit indices in testing model fit (e.g., Barret, 2007; Markland, 2007). It has been recommended that the chi-square be used more subjectively as an index of fit rather than a test statistic, with small chi-square values relative to degrees of freedom indicating a good fit (Jöreskog & Sörbom, 1989). Consequently a combination of Hu and Bentler's (1999) relatively conservative recommendations – with a recognition that there are no "golden rules" (Markland, 2007, p. 854; Marsh, Hau, & Wen, 2004) – and an examination of the chi-square/degrees-of-freedom ratio was employed to provide a balanced approach to testing model fit. A model was considered a good fit to the data if the Comparative Fit Index (CFI,

Bentler, 1990) and the Non-Normed Fit Index (NNFI, Tucker & Lewis, 1973) were greater than or equal to .95; the Root Mean Square Residual (RMSEA, Steiger & Lind, 1980) was less than or equal to .06 ($p > .05$); the Standardized Root Mean Square Residual (SRMR, Bentler, 1990) was less than or equal to .08; and the Satorra–Bentler (S-B) χ^2/df ratio was less than 2.00.

Results

Before participating inventory

Based on recommendations in the literature (e.g., Jöreskog, 1993) each of the three factors – sensation seeking (SS), emotion regulation (ER) and agency (AG) – were initially examined individually in order to retain only those items which were good indicators of their underlying latent variable. Post-hoc model modifications were carried out by examination of the standardized residuals, factor loadings, modification indices for Theta-delta, and theoretical considerations. Low factor loadings (< .40) demonstrated that items were poor indicators of their underlying factor, and problem residuals (> +2.00 or < -2.00) meant that the model was either under- or over-parameterized (Byrne, 1998). Single-factor CFA results indicated that the fit of the models to the data could be significantly improved by removing certain items. This process reduced the number of items retained from 11 to 7 for SS, 11 to 8 for ER, and 12 to 9 for AG (each of the three single-factor fits was then better than *S-B* χ^2 (27) = 51.75; CFI = .98; NNFI = .97; RMSEA = .06, $p = .00$; SRMR = .04; χ^2 / df = 1.92). Each factor was then paired in turn with the other two factors in order to examine its psychometric integrity in the presence of another related factor. The aim was to retain only those items that clearly loaded on the appropriate factor and to delete any ambiguously loading items before running the full model. Two-factor CFA results indicated that the fit of the models to the data could again be significantly improved by removing further items. This process led to the retention of six items in each factor. Testing the three-factor 18-item *before*

participating full-model then revealed a good fit: *S-B* χ^2 (132) = 231.40; CFI = .97; NNFI = .96; RMSEA = .06, p = .20; SRMR = .05; χ^2 / df = 1.75. Factor-factor correlations supported the discriminant validity between SS-ER (.08) and SS-AG (.12). Since the factor-factor correlation between ER-AG was moderately high (.83) a Satorra-Bentler scaled difference χ^2 test (*S-B* χ^2_{diff}) was performed (Satorra & Bentler, 2001). The three-factor model (SS; ER; AG), in which the correlations between the factors were free to be estimated, was compared with a re-specified two-factor model (SS; ER and AG) in which the factor-factor correlation between ER and AG was constrained to unity. Satorra-Bentler scaled difference χ^2 test supported the discriminant validity of the ER and AG factors (*S-B* χ^2_{diff} (1) = 65.23, p < .001), demonstrating that constraining the correlations between factors to unity led to a significantly worse fit. Internal consistency and item homogeneity of the three factors was assessed using Cronbach's alpha reliability coefficient. The subscales demonstrated good alpha reliability levels (SS = 0.87, ER = 0.84, AG = 0.86). The item-factor loadings for each subscale are displayed in Table 1.

While participating inventory

The same testing procedure was used as detailed above. Single-factor model testing, used to identify items for removal based on *a priori* criteria, reduced the number of items retained from 9 to 7 for SS, 9 to 7 for ER, and 12 to 8 for AG (each of the three single-factor fits was then better than *S-B* χ^2 (20) = 34.95; CFI = .95; NNFI = .93; RMSEA = .06, p = .35; SRMR = .05; χ^2 / df = 1.75). Two-factor model testing identified ambiguously loading items which were removed so that six items per factor remained. Testing the three-factor, 18-item, while participating full-model revealed a good fit: *S-B* χ^2 (132) = 223.32; CFI = .96; NNFI = .96; RMSEA = .05, p = .31; SRMR = .07; χ^2 / df = 1.69. Factor-factor correlations support the discriminant validity between SS-ER (.59) and ER-AG (.59). Since the SS-AG correlation was again moderately high (.85) the three-factor model (SS; ER; AG) was compared with a

re-specified two-factor model (SS and AG; ER). Satorra-Bentler scaled difference χ^2 test supported the discriminant validity of the SS and AG factors ($S\text{-}B\ \chi^2_{diff}(1) = 217.3$, $p < 0.00$) demonstrating that constraining the correlations between factors to unity led to a significantly worse fit. The subscales demonstrated acceptable alpha reliability levels (SS = 0.88, ER = 0.75, AG = 0.70). The item-factor loadings for each subscale are displayed in Table 2.

After participating inventory

Single-factor model testing, used to identify items for removal based on *a priori* criteria, reduced the number of items retained from 9 to 7 for SS, 11 to 9 for ER, 11 to 8 for AG (each of the single-factor fits was then better than $S\text{-}B\ \chi^2(27) = 54.82$; CFI = .98; NNFI = .97; RMSEA = .07, $p = .14$; SRMR = .04; χ^2 / df = 2.03). Two-factor model testing identified ambiguously loading items. Items were removed to increase model fit until six items per factor remained. Testing the three-factor, 18-item, after participating full model revealed a good fit: $S\text{-}B\ \chi^2(132) = 228.24$; CFI = .98; NNFI = .97; RMSEA = .06, $p = .22$; SRMR = .06; χ^2 / df = 1.73. Factor-factor correlations supported the discriminant validity between SS-ER (.58) and SS-AG (.52). Since the ER-AG correlation was very high (.97) the three-factor model (SS; ER; AG) was compared with a re-specified two-factor model (SS; ER and AG). Satorra-Bentler scaled difference χ^2 test supported the discriminant validity of the ER and AG factors ($S\text{-}B\ \chi^2_{diff}(1) = 5.39$, $p < 0.05$) demonstrating that constraining the correlations between factors to unity led to significantly worse fit. Nonetheless, .97 remains a very large correlation. The three subscales demonstrated good alpha reliability levels (SS = 0.89, ER = 0.89, AG = 0.91). The item-factor loadings for each subscale are displayed in Table 3.

Discussion

The aim of Study 1 was to develop a new scale – the SEAS – to measure sensation seeking, emotion regulation and agency as motives for participating in high-risk sport. The SEAS comprises three inter-related inventories that are completed retrospectively of

participation and address percepts *before* participating, *while* participating, and *after* participating. Following removal of ambiguous items, based on *a priori* criteria, fit indices for each of the three inventories suggest that the full models fit the data well. Results clearly support the three-factor structure – sensation seeking, emotion regulation and agency – in both the *before* participating and *while* participating inventories.

Although the three-factor structure was also confirmed in the *after* participating inventory, the factor-factor correlation between emotion regulation and agency was very high. The constructs of agency and emotion regulation share some conceptual interdependence since effective emotion regulation involves intentionally influencing one's affective state and presumes active contributions to one's emotional experience (cf. Gross, 1998). In other words, the emotionally regulated individual is an agent in that regulation process (Woodman et al., 2010). Furthermore, in the high-risk domain, when facing life-threatening situations, emotion regulation is a requisite facet of agency because unregulated emotions would inhibit agentic action and would be dangerous. Consequently, the agentic individual at least partially regulates emotion within the agency process. For example, Royal Robins, a famous North American climber, suggested that life-threatening situations require a person to demonstrate very high self-control and that "fear could short-circuit skill" and "one would die as a direct result of being afraid to die" (Robbins, 1973, p. 78). As such, moderate correlations between agency and emotion regulation were expected. However, the aforementioned very high factor-factor correlation was deemed worthy of further attention in Study 2, which aimed to confirm the factor structure of the SEAS obtained in Study 1.

Table 1. Item-factor loadings for the *between participation* Sensation seeking, Emotion regulation and Agency Scale (SEAS) from Study 1 and Study 2.

BETWEEN PARTICIPATION, when I have not participated for a significant period…		
	Study 1	Study 2
Sensation Seeking		
I want to get an adrenaline rush	.72	.57
I look forward to getting a physical thrill from participating	.70	.80
I look forward to the "rush" I hope to experience during participation	.84	.76
I want to get a physical buzz	.83	.91
I look forward to the physical sensations I will experience during participation	.72	.80
I feel the need to do something intensely stimulating	.59	.57
Emotion Regulation		
The emotional elements of my life are difficult to deal with	.74	.75
I am emotional (e.g. anxious, angry) without understanding why	.69	.73
I struggle to deal with stressful situations in my life	.76	.78
I can't work out which emotion I am experiencing	.56	.65
I find that emotional situations in my life stress me out	.71	.76
I feel worried about other aspects of my life, not related to the task	.66	.70
Agency		
I am prevented from achieving my goals in life	.64	.67
I feel like a passive observer of my life rather than a major "actor"	.70	.65
I feel like people or circumstances are trying to impose limits on me	.67	.63
I feel like my life 'belongs' to other people	.71	.66
I feel trapped	.77	.78
I have little belief in my ability to influence some important aspects of my life	.76	.76

Note: In Study 1, the wording for the item stem was simply: "Before participating…"

Table 2. Item-factor loadings for the *while participating* Sensation seeking, Emotion regulation and Agency Scale (SEAS) from Study 1 and Study 2.

WHILE PARTICIPATING…		
	Study 1	Study 2
Sensation Seeking		
I enjoy getting a physical thrill	.82	.74
I experience intense excitement	.67	.64
I like to get a physiological buzz	.85	.75
I enjoy the sensations I experience	.71	.57
I get a rush of chemicals around my body that feels great	.65	.76
I experience physical sensations which feel great	.86	.77
Emotion Regulation		
My emotions are sometimes very intense	.55	.59
I have to deal with stressful situations	.57	.51
I have to manage my fear	.52	.53
I prove to myself that I can deal with stressful situations	.61	.67
I have to deal with intense emotions	.75	.69
The emotions I experience are more intense than in other areas of my life	.51	.52
Agency		
If a difficult situation arises I feel able to deal with it	.49	.39
I am free from the constraints imposed on me in the rest of my life	.41	.53
I choose how far to push when I am scared	.68	.40
I am in charge	.65	.50
My actions and decisions prevent undesired outcomes from happening	.54	.47
No-one can force me to do something I don’t want to do	.48	.62

Table 3. Item-factor loadings for the *after participating* Sensation seeking, Emotion regulation and Agency Scale (SEAS) from Study 1 and Study 2.

AFTER PARTICIPATING…		
	Study 1	Study 2
Sensation Seeking		
I enjoy the feeling of adrenaline flowing around my body	.73	.74
I feel like I have satisfied my immediate need for thrill	.69	.57
I am often buzzing from the adrenaline	.84	.84
I remember how good the sensations felt during participation and want to experience them again	.66	.56
I enjoy the rush of chemicals still flowing round my body	.84	.88
I look back and think how much I enjoyed the rush	.81	.71
Agentic Emotion Regulation		
(Agency)		
I feel more able to deal with stressful situations in my life	.74	.67
I feel I have demonstrated that I can deal with intense emotions	.70	.67
I find intense emotions easier to deal with	.82	.80
I find it easier to deal with stressful situations in my life	.80	.75
I feel better for having experienced my emotions	.69	.53
I feel better able to deal with aspects of my life that would normally make me feel emotional (e.g., anxious, angry)	.78	.74
(Emotion regulation)		
I have a calmness that carries over into other aspects of my life	.58	.49
I am more confident that I can affect those aspects of my life that are important to me	.82	.80
I am more confident about facing challenges in other aspects of my life	.81	.79
I feel more influential in how events in my life unfold	.87	.80
I feel better about my ability to bring about important outcomes in my life	.83	.73
I feel more able to prevent difficulties occurring in other aspects of my life	.81	.75

Study 2

Method

Participants

The sample consisted of 296 new participants recruited using the same method as described in Study 1. The diversity of sports represented, and the participant experience therein, closely mirrored that of Study 1. Listwise deletion procedures were applied to the *before* participating, *while* participating, and *after* participating inventories to deal with missing data, which removed 43, 23, and 27 participants, respectively. Data screening – as described in Study 1 – removed a further 6 participants *before*, 12 *while*, and 24 *after*. The final samples for each inventory were: *before* participating, $n = 247$ (199 men, 48 women, $M_{age} = 28.96$, $SD = 9.78$); *while* participating, $n = 261$ (212 men, 49 women, $M_{age}=29.56$, $SD = 10.44$); *after* participating, $n = 245$ (192 men, 53 women, $M_{age} = 29.50$, $SD = 10.16$).

Measures and Procedure

All participants completed a demographics questionnaire, as in Study 1, followed by the 18-item *before* participating, *while* participating and *after* participating inventories of the SEAS developed in Study 1. The procedure was the same as that of Study 1.

Results

Before participating inventory

Results revealed a good fit for the three-factor, 18-item before participating model: *S-B* χ^2 (132) = 244.00; CFI = .96; NNFI = .96; RMSEA = .06, $p = .11$; SRMR = .06; χ^2 / df = 1.85. Factor-factor correlations supported the discriminant validity of the three-factor model (SS-AG = .08; SS-ER = .17; ER-AG = .80). The subscales demonstrated good Alpha reliability (SS = 0.87, ER = 0.87, AG = 0.85). The item-factor loadings for each subscale are displayed in Table 1.

While participating inventory

Results revealed an adequate fit for the three-factor, 18-item while participating model: *S-B* χ^2 (132) = 224.84; CFI = .94; NNFI = .94; RMSEA = .05, *p* = .38; SRMR = .07; χ^2 / df = 1.70. Factor-factor correlations supported the discriminant validity of the three-factor model (SS-AG = .49; SS-ER = .71; ER-AG = .57). The subscales demonstrated acceptable alpha reliability except AG, which was a little low (SS = 0.85, ER = 0.75, AG = 0.64). Alpha is dependent not only on the magnitude of the correlations among items but also on the number of items in a factor (Streiner & Norman, 1989). Thus, since the AG factor comprises only 6 items, Alpha of 0.64 is deemed unproblematic compared to a low Alpha in a factor with large number of items (Cronbach & Shavelson, 2004). The item-factor loadings for each subscale are displayed in Table 2.

After participating inventory

Results revealed a good fit for the three-factor, 18-item after participating model: *S-B* χ^2 (132) = 234.19; CFI = .97; NNFI = .96; RMSEA = .06, *p* = .18; SRMR = .07; χ^2 / df = 1.77. The subscales demonstrated good alpha reliability levels (SS = 0.87, ER = 0.85, AG = 0.87). The item-factor loadings for each subscale are displayed in Table 3. Factor-factor correlations supported the discriminant validity between SS-ER (.49) and SS-AG (.41). However, as in Study 1, the factor-factor correlation between ER-AG was again very high (.99) so we performed a Satorra-Bentler scaled difference χ^2 test (*S-B* χ^2_{diff}). The re-specified two-factor model – in which the inter-factor correlation between ER and AG was constrained to unity – demonstrated good fit: (*S-B* χ^2 (133) = 234.83; CFI = .97; NNFI = .96; RMSEA = .06, *p* = .18; SRMR = .07) and the Satorra-Bentler scaled difference χ^2 test confirmed that constraining the correlations between factors to unity did not significantly impair the fit (*S-B* χ^2_{diff} (1) = .45, p > 0.50). Alpha reliability levels scores for the re-specified two-factor model were good: Sensation Seeking = 0.87 and Agentic Emotion Regulation (the conjoint Emotion regulation and Agency factor) = 0.92.

Discussion

Study 2 fit indices confirmed that, for each of the three 18-item inventories (*before*, *while*, and *after* participating) that comprise the SEAS, the full models fitted the data well. Additionally, the ambiguity in Study 1 regarding the factor structure of the after participating inventory was clarified.

As previously mentioned, since the constructs of agency and emotion regulation share some conceptual interdependence (Woodman et al., 2010) the observed moderate factor-factor correlations in the *before* participating data, in both Study 1 and Study 2, were unsurprising.

In the *while* participating inventory, in both Study 1 and Study 2, emotion regulation and agency had a relatively low factor-factor correlation. This suggests that certain activities provide the experience of emotion regulation with little requisite agentic action: a speculative example may be bungee jumping. Conversely, it seems that some activities provide the experience of agency with little requisite emotion regulation: a speculative example may be hiking in a remote but relatively safe region. It is certainly plausible that certain individuals may be motivated to experience either emotion regulation or agency while participating, without necessarily seeking both.

As in Study 1, a very high factor-factor correlation existed between emotion regulation and agency in the *after* participating inventory. Consequently the three-factor model – sensation seeking, emotion regulation and agency – was rejected in favor of a two-factor model measuring sensation seeking and agentic emotion regulation. After participating, the distinction between a transferred sense of emotion regulation and a transferred sense of agency – from the high-risk domain back into everyday life – becomes blurred. That is, the transfer effects appear not to be specific to either emotion regulation or agency: rather they appear to belong to a more generic feeling of being better able to deal with important aspects

of everyday life, be they emotional or agentic demands. Many participants in dangerous sports speak of a "rosy glow" effect from their involvement in those sports. For example, regarding his attempt to solo climb the Devil's Thumb in Alaska, Jon Krakauer said, "I thought if I picked a challenge that was hard enough, and succeeded, *everything* thereafter would be alright." (Rose, 1996; emphasis added).

Study 3

In Study 3 we used the SEAS to compare the motives of mountaineers, skydivers, and a low-risk sport control group. The aim was to examine the different motives that drive participation from a sensation seeking, emotion regulation and agency perspective.

Mountaineers

Research suggests that mountaineers demonstrate express *difficulty with emotion regulation* in everyday life. Specifically, empirical and biographical evidence suggests that mountaineers display: a difficulty describing feelings (Woodman et al., 2010); below-average toleration of others' emotional needs (Hunt & Daines, 2004); avoidance of emotional sharing (Roberts, 1986); and a lack of interest in social interaction as well as a low felt need for intimacy or affection (Lester, 1983). Additionally, research suggests that mountaineers have *diminished agency* in important aspects of everyday life (Woodman et al., 2010). Agency is a theme that dominates the narratives of mountaineers (Lester, 2004). Mountaineers perceive that they struggle in a world that "threatens to invalidate or swamp them," and that they are "pawns" of other forces rather than causal agents (Lester, 1983; Lester, 2004, p. 94).

An individual will likely experience negative affect when purposeful goal-directed efforts to demonstrate emotion regulation and agency in everyday life are unsuccessful (cf. Wicklund, 1975). When faced with such situations, individuals with high self-complexity (Pyszczynski, Greenberg, Solomon, & Hamilton, 1991) can interrupt their present goal striving and award an alternative compensatory goal a higher priority than was previously the

case (Sloman, 1987). For this priority to be given, the alternate program of action should reflect the same abstract goal as the "failed" activity but with a greater likelihood of success (Carver & Scheier, 1998; Steele, 1988). Thus, the perceived difficulty in experiencing emotion regulation and agency that mountaineers report in important aspects of their everyday life (cf. Woodman et al., 2010) may translate into mountaineers' compensatory seeking of the experience of emotion regulation and agency in the high-risk domain. However, there are seemingly many compensatory activities that could provide an individual with the experience of emotion regulation and agency. As such, it is important to consider the specificity of the mountaineers' difficulty with emotion regulation and diminished agency to understand their motives for seeking emotion regulation and agency specifically in the mountaineering domain.

The mountaineers' difficulty with *emotion regulation* in everyday life appears to be such that they experience a constant, generalized and internalized low-level anxiety: "a kind of background radiation saturating existence" (Massumi, 1993, p. 24). Anxiety is "a diffuse, unpleasant, vague sense of apprehension" (Sadock & Sadock, 2007, p. 579); a response to a non-specific threat cue, the sources of which may be confusing and unclear (Cisler, Olatunji, Feldner, & Forsyth, 2010). As such, the mountaineer is likely unable to identify the origin of the anxiety, express it, or control it effectively (Woodman et al., 2010). The attraction of the mountaineering domain is that it enables participants to move from a non-specific, ambiguous and internal anxiety to a clearly identifiable and specific, externally-derived intense emotion: fear (cf. Castanier, Le Scanff & Woodman, 2010). Unlike anxiety, fear is a response to a known, external, and definite threat (Sadock & Sadock, 2007), of which there is abundance in the mountaineering domain (Twight & Martin, 1999). Fear can be an attractive alternative to anxiety since externalized relatively objective threats are more readily interpreted as within an individual's control (Chorpita & Barlow, 1998) and require explicit

rather than implicit emotion regulation (Gyurak, Gross, & Etkin, 2011; Koole & Rothermund, 2011). In other words, individuals who are having difficulty coping with the perceived internal emotional threats of everyday life can compensate by becoming hyper-vigilant at regulating emotion in a domain that is experienced as externally threatening (Gogarty & Williamson, 2009). Successful emotion regulation can diminish fear (Cisler et al., 2010; Kerr, 1997) so that the "essential joy" of mountaineering may be that it "brings about… certain tensions which were formally feared, so that one may enjoy the fact that now one can overcome them without fearing them" (Fenichel, 1939, p. 273). This argument is supported by Lester (2004) who reported that mountaineers, more than most, ardently desire a "freedom from fear" (p. 91) and that mountaineering provides the participant with "new extreme situations in which to overcome fear" (p. 91). Recent research further supports the central role of fear in seeing life in a more positive light after the fearful event (Eskine, Kacinik, & Prinz, 2012).

Mountaineers' perceived *diminished agency* appears specific rather than generic across all aspects of their everyday life. That is, research suggests that the domain where the mountaineers' struggle for agency is greatest, and where agency perceptions are lowest, is within emotional interpersonal relationships (Lester, 1983); particularly those of a romantic nature (Woodman et al., 2010). As such, an appropriate compensatory activity is not one that provides merely a generic sense of agency but rather serves the same abstract goal as the 'failed' activity but wherein success is more likely (Taylor & Hamilton, 1997). Specifically, mountaineering affords the mountaineer an opportunity to disengage temporarily from close interpersonal relationships in everyday life and to engage in a compensatory relationship with the mountains. Interpersonal relationships and the mountains are similar to the degree that both are perceived as difficult and stressful, and reflect an emotional prolonged struggle. The difference is that in mountaineers' interpersonal relationships, the emotions that are

engendered are perceived as being dictated and driven by forces outside of their control (Lester, 1983; 2004); in the mountaineering domain, the emotions that are engendered, the course of events, and mountaineers' personal functioning are perceived as being dictated and driven by the self as an instinctively acting agent (cf. Lyng, 2005). For many mountaineers, the mountaineering domain with its inescapably romantic core (Lester, 2004) is experienced – implicitly or explicitly – as a continuation or alternative to interpersonal relationships; "a way of struggling with relationship issues away from people, but in a setting where sufficient parallels apply" (Hunt & Daines, 2004, p. 449; see also Roberts, 1986).

If participants engage in high-risk sport with the specific (implicit or explicit) aim of experiencing emotion regulation and agency while participating then they should experience an emotion regulation and agency transfer, albeit temporary, from the high-risk domain to important aspects of their everyday life (Pain & Pain, 2005; Smith, 2005). Transfer is the ability to extend what has been learned, or how one performs, in a *development* domain into alternate *target* domains (Barnett & Ceci, 2002; Detterman, 1993). Similarity between the *development* domain and the *target* domain is a critical determinant in maximizing transfer effects (Osgood, 1949; Singley & Anderson, 1989). Thus, mountaineers' (implicit or explicit) engagement in an intensely emotional, active (and romantic, see Lester, 2004) relationship with the mountains (cf. Johnston & Edwards, 1994) should help to maximize the effective transfer from the high-risk domain to emotional interpersonal relationships. Specifically, by demonstrating the ability to cope successfully with the difficult, stressful, and intensely emotional prolonged struggle with the mountains, mountaineers will enjoy an enhanced perceived ability to deal with interpersonal relationships in everyday life, which are equally experienced as a difficult, stressful, and intensely emotional prolonged struggle (cf. Bandura, 1989).

Mountaineering is an activity that seems antithetical to *sensation seeking* not least because, whilst mountaineering, "the vast majority of time is spent in mind-bogglingly monotonous activities" (Loewenstein, 1999, p. 318). The suffering and hardship that are endured in the expeditionary mountaineering domain ensure that the experience typically tends to contain a significant degree of misery. Even the kinesthetic sensation rewards that rock climbers typically report while participating (Slanger & Rudestam, 1997) seem almost entirely absent in the mountaineers' experience. For example, Jon Krakauer (1997), writing about climbing the Lhotse face on Mount Everest, described an experience that is antonymic to thrill seeking: "I drew two burning, labored breaths; then I moved my left foot up and stamped the crampon into the ice… I'd been exerting myself at full bore for the past three hours, progressing in increments calibrated in inches" (p. 135). Furthermore, biographical evidence suggests that although mountaineering can involve – on rare occasions (Loewenstein, 1999) – the experience of an "adrenaline rush," such experiences are actively avoided since they are typically associated with a loss of control (e.g., an avalanche) and an increased risk of serious injury or death (Connally, 2005; Kirkpatrick, 2011).

Skydivers

When speaking of their experience, skydivers – especially novice and intermediate skydivers – often report an "incredible high" and "an incredible adrenaline rush" (Celsi et al., 1993, p. 15) and frequently proclaim themselves as "adrenaline junkies" (Celsi et al., 1993, p. 16). After a safe landing, even habituated skydivers often report euphoria, which typically lasts two or three hours (Epstein, 1967), although some skydivers have reported that the positive affect continues for longer (Lipscombe, 1999; Solomon, 1980). For example, one skydiver reported that the "actual free fall lasts only about a minute, but the actual feeling lasts much longer than that. When I go home… I'm still feeling the thrill and excitement… the feeling just carries over" (Celsi et al., 1993, p. 9). Such is the magnitude of these

sensations that the skydiver likely feels a desire to repeat the experience (Lipscombe, 1999; Zuckerman, 2007).

Thus, skydiving appears to serve a rather different compensatory function than does mountaineering. Skydiving provides an opportunity to experience intense sensation during the activity and a concomitant satisfaction of sensation need after the activity, in a way that is perceived as being not readily available in everyday life. Given the strong drive for sensations and the strong sensations *per se* associated with the skydiving experience, any other transfer benefits (e.g., emotion regulation or agency) are likely simply a correlate of sensation seeking needs and satisfaction.

Skydivers typically experience everyday life as over-regulated, constrained, and routine (Lyng, 1990, 2005) and struggle to experience pleasure in all but the most varied, novel, and intensely stimulating situations (cf. Franken et al., 2006). Thus, skydivers' disenchantment with everyday life is likely not a result of a diminished sense of agency but rather a result of daily life not providing them with an optimal level of stimulation and arousal (cf. Zuckerman, 2007). In other words, normative everyday life likely cannot provide the desired level of stimulation to the skydiver even if the skydiver was freely able to make their own decisions, impose actions on the world, and shape outcomes. Thus, skydivers' primary motive for participation is likely the *need for sensation* rather than a *diminished sense of agency*.

Skydiving clearly requires a degree of *agency* and emotion regulation during the activity (cf. Aran, 1974). Put simply, the skydiver who jumps from an airplane and demonstrates a complete failure to display agency and to regulate emotions will die. However, the emotion regulation and agency demands on the skydiver (e.g., regulating anxiety, controlling the body in free fall, opening the canopy) are limited, both in frequency and duration, compared to the same demands on the mountaineer. In the mountaineering

domain, self-governing autonomous action and regulation of intense emotions is a requisite for survival throughout each day for days and weeks on end. As such, mountaineers should experience greater agentic and emotion regulation transfer effects than skydivers.

Hypotheses

Hypothesis 1. Skydivers, unlike mountaineers, are motivated by the sensation seeking function of participation. Specifically, compared to both mountaineers and low-risk controls, skydivers will score significantly higher on: the *need for sensation* before participating; the *experience of sensation* while participating; and the *satisfaction of sensation need* after participating.

Hypothesis 2. Mountaineers, unlike skydivers, are motivated by the emotion regulation and agency function of participation. Specifically, compared to both skydivers and low-risk controls, mountaineers will score significantly higher on: *difficulty with emotion regulation* and *diminished agency* before participating; the *experience of emotion regulation* and *experience of agency* while participating; and *agentic emotion regulation* after participating. Given that a degree of emotion regulation and agentic action is a requisite for survival in the high-risk domain, we further hypothesize that skydivers will have a greater *experience of emotion regulation* and *experience of agency* than participants in low-risk sport.

Method

Participants

Study 3 participants were drawn from the Study 1 and Study 2 sample pools based on the demographic information provided therein. Given that individuals who are high-risk sport instructors have been shown to display significantly different risk-taking profiles to those engaged in high-risk sports for recreational purposes (Cazenave, Le Scanff & Woodman, 2007), we removed instructors from both the skydiving and mountaineering samples.

Skydivers were operationalized as individuals who had completed a minimum of 24 jumps in the previous year and had never BASE jumped. Seven individuals in Study 1 and 28 individuals in Study 2 satisfied these criteria. Participants varied on the number of skydives they typically performed during an average year (M = 113.46, SD = 94.13) and the total number of years they had participated for (M = 4.54, SD = 6.94).

Mountaineers were operationalized as individuals who went on expeditions for at least 15 days annually during an average year. Additionally, mountaineers had to have completed at least one expedition in the previous year that lasted a minimum of five days, at a minimum grade of AD- (International French Adjectival System, 2011) or equivalent. Seventeen individuals in Study 1 and 11 individuals in Study 2 satisfied these criteria. Participants varied on the total number of days spent mountaineering during an average year (M = 50.82, SD = 48.83) and the total number of years they had participated for (M = 17.89, SD = 13.34).

Low-risk sport participants were defined as those individuals who had participated in sport, with a low-risk of death (e.g., football, running, golf, basketball, hockey, etc.), at least 20 times in the last year. Additionally, participants had not to have participated in sports defined as high-risk (e.g., rock climbing, paragliding, surfing) more than three times in the previous year. In order to produce an orthogonal design, were randomly selected 28 (Study 1, n = 14; Study 2, n = 14) of the 53 control participants who satisfied these criteria. Low-risk sport participants varied on the number of times in the past year they had participated (M = 95.00, SD = 60.19) and the total number of years they had participated (M = 9.35, SD = 6.60) in sports.

The final samples comprised 35 experienced skydivers (29 men, 6 women; M_{age} = 28.71, SD = 9.51), 28 mountaineers (23 men, 5 women; M_{age} = 38.04, SD = 15.61) and 28 low-risk sport participants (17 men, 11 women; M_{age} = 26.14, SD = 6.58).

Measures

The participants' responses to the demographic questionnaire and the SEAS inventories collected in Study 1 or Study 2 were used in the present study.

Procedure

No additional data were required beyond those collected in Study 1 or Study 2.

Analyses

Each inventory (*before*, *while*, *after*) contained three dependent variables (sensation seeking, emotion regulation and agency) on which the three groups (mountaineers, skydivers and controls) were compared. In the present study univariate analyses were preferred to multivariate analyses because the dependent variables were not considered as linear combinations of each other. Despite using multiple ANOVAs, no Bonferroni correction factor was required because clear *a priori* hypotheses for each effect were specified for each factor within each inventory. Thus, whilst there might be a 5% chance of obtaining a random effect on any one of the three variables, the probability of obtaining the hypothesized effects on each inventory was considerably less than 5%.

Given that emotion regulation and agency were hypothesized to be the primary motives for mountaineers' engagement in their sport while being only a correlate of skydivers' motive, we used sensation seeking as a covariate when examining the extent to which the three groups differed in the experience of emotion regulation and agency during participation. For the same reason, we also used ANCOVA to examine agentic emotion regulation differences after participating.

Results

Before participating

The ANOVA revealed a significant difference between the groups in *need for sensation* ($F_{2, 88} = 7.37$, $p < .001$). Bonferroni post-hoc tests revealed that skydivers reported

a significantly higher *need for sensation* than both mountaineers ($p < .05$) and controls ($p < .01$) who did not differ from each other ($p > .50$). There was no significant difference between the groups in *difficulty with emotion regulation* ($F_{2, 88} = 1.88$, $p = .16$), or *diminished agency* ($F_{2, 88} = 0.85$, $p = .43$).

While participating

The ANOVA revealed a significant difference between the groups in *experience of sensation* ($F_{2, 88} = 10.67$, $p < .001$). Bonferroni post-hoc tests show skydivers to report significantly greater *experience of sensation* than both mountaineers ($p < .05$) and controls ($p < .001$) who did not differ from each other ($p = .17$).

We conducted an ANCOVA to test whether the *experience of emotion regulation* remained a significant discriminating variable when the effects of *experience of sensation* were controlled. ANCOVA was deemed applicable given the linear relationship between *experience of sensation* (covariate) and *experience of emotion regulation* (dependent variable; $r = .62$, $p < .001$). After controlling for *experience of sensation* ($F_{1, 87} = 37.38$, $p < .001$) there remained a significant difference between the groups in *experience of emotion regulation* ($F_{2, 87} = 20.56$, $p < .001$). Bryant-Paulson post-hoc tests indicated that both mountaineers and skydivers reported significantly greater *experience of emotion regulation* than the control group ($p < .05$) but did not significantly differ from each other ($p > .05$). Since there was a minor violation of the assumption of homogeneity of regression slopes ($p = .05$) results of the ANCOVA should be interpreted with some caution.

ANCOVA was again deemed applicable given the linear relationship between of *experience of sensation* and *experience of agency* ($r = .69$, $p < .001$). After controlling for *experience of sensation* ($F_{1, 87} = 54.65$, $p < .001$), there remained a significant difference between the groups in *experience of agency* ($F_{2, 87} = 3.39$, $p < .05$). Bryant-Paulson post-hoc tests indicated that both mountaineers and skydivers reported significantly greater *experience*

of agency than control groups ($p < .05$) but did not significantly differ from each other ($p > .05$).

After participating

ANOVA revealed a significant difference between the groups in *satisfaction of sensation need* ($F_{2, 88} = 9.70$, $p < .001$). Bonferroni post-hoc tests revealed that skydivers reported significantly greater *satisfaction of sensation need* than both mountaineers ($p < .05$) and controls ($p < .001$), who did not differ from each other ($p > .50$).

ANCOVA was deemed applicable given the significant linear relationship between *satisfaction of sensation need* and agentic emotion regulation ($r = .44$, $p < .001$). ANCOVA revealed that *satisfaction of sensation need* was a significant covariate ($F_{1, 87} = 20.05$, $p < .001$). After controlling for *satisfaction of sensation need*, there was a significant difference between the groups for *agentic emotion regulation* ($F_{2, 87} = 5.06$, $p < .01$). Bryant-Paulson post-hoc tests indicated that mountaineers reported significantly greater *agentic emotion regulation* than both skydivers ($p < .05$) and control groups ($p < .05$), who did not differ from each another ($p > .05$).

Discussion

Hypothesis 1: Sensation seeking

Hypothesis 1 was fully supported: Skydivers displayed significantly greater *need for sensation, experience of sensation* and *satisfaction of sensation need* than both mountaineers and low-risk controls, who were undifferentiated on any of the sensation seeking factors. These results are the first clear indication that the consideration of high-risk sport participants as a homogeneous sensation seeking group (Zuckerman, 2007) is an erroneous position. Indeed, the present study is the first empirical test, and subsequent rebuttal, of that sensation seeking position. It also confirms biographies and research that has suggested that sensation

seeking is not the primary motivation for mountaineering (e.g., Krakauer, 1997; Lester, 2004; Llewellyn et al., 2008; Pritchard, 2000; Slanger & Rudestam, 1997; Woodman et al., 2010).

Hypothesis 2: Agency and Emotion regulation

Hypothesis 2 was partially supported. Although the data demonstrate that mountaineers derive an *agentic emotion regulation* transfer benefit after participation that skydivers and low-risk controls do not experience, there was no evidence that mountaineers seek out this transfer benefit to compensate for a perceived *difficulty with emotion regulation* and a perceived sense of *diminished agency* in everyday life.

After participating

In line with the hypothesis, mountaineers experienced significantly greater *agentic emotion regulation* after participating compared to both skydivers and controls, who were undifferentiated. These results provide the first empirical evidence to suggest that mountaineers experience an agentic emotion regulation transfer effect, from the high-risk domain back into important aspects of their everyday lives. These results support the notion that certain risk takers "seek to enhance their feeling of risks not because they value such heightened feelings per se, but because mastering such feelings gives them a heightened sense of personal control" (Smith, 2005, p. 198). As this is the first empirical evidence to demonstrate this transfer effect, we aim to confirm the effect in Study 4.

While participating

Both mountaineers and skydivers reported significantly greater *experience of emotion regulation* than controls while participating. Given the intense emotions elicited in the high-risk domain, this is not surprising. However, mountaineers did not report significantly greater *experience of emotion regulation* than skydivers. These results should be interpreted with some caution because of the minor violation of the assumption of homogeneity of regression slopes and the relatively small sample size. Furthermore, highly regulated emotions appear

somewhat incongruent with skydivers' significantly elevated experience of sensation, while participating, compared to both mountaineers and controls. That is, a skydiver with high emotion regulation would likely experience jumping from an airplane as low in excitement and lacking in sufficient "thrill" (cf. Campos, Frankel & Camras, 2004, Fenz, 1974; Fenz & Jones, 1972). Thus, we maintain that skydivers, unlike mountaineers, desire only to regulate their emotions to the extent that is necessary to ensure safe pursuit of their sport. Given this theoretical position and that the group mean differences were in the hypothesized direction, we retain the original hypothesis for Study 4 (albeit with a larger sample size). In summary, we maintain that while participating mountaineers will experience greater *experience of emotion regulation* than skydivers, who themselves will experience significantly greater *experience of emotion regulation* than controls.

Both mountaineers and skydivers reported significantly greater *experience of agency* than controls while participating, as hypothesized. However, counter to the hypothesis, mountaineers did not report significantly greater *experience of agency* than skydivers. This result suggests that agentic action may well be a requisite element of successful participation in the high-risk domain, regardless of the considerable contextual differences that exist between high-risk sports. Furthermore, for skydivers – unlike a heightened *experience of emotion regulation* – a heightened *experience of agency* while participating would not likely diminish the intensity of the sensations that are experienced. That said, since only mountaineers derive a transfer effect *after* participating, we maintain that the *experience of agency* is likely a primary goal for the mountaineers and likely only a correlate for skydivers, whose primary goal is the experience of sensation. Consequently, we maintain that feelings of agency are largely secondary to skydivers' sensation seeking drive and we aim to re-examine and clarify this position in Study 4. Nonetheless, we acknowledge that agentic action is a requisite across all high-risk sports. The hypothesis for Study 4 is thus:

Mountaineers will experience a significantly greater *experience of agency* than skydivers while participating, and skydivers will experience a significantly greater *experience of agency* than controls.

Before participating

The results discussed above suggest that mountaineering serves an emotion regulation and agency function for the high-risk activity participant, who derives agency and emotion regulation benefits from participation. The *before participating* data did not yield such motivational differences; that is, mountaineers did not report significantly greater *difficulty with emotion regulation* or significantly *diminished agency* before participating than skydivers or controls. This result suggests that mountaineers are not motivated to participate in mountaineering by an express desire to experience an emotion regulation and agency benefit that is perceived as not readily available to them in everyday life.

There are at least three potential explanations for this finding: (a) Mountaineers' motivation for participation is not derived from a need to regulate emotion or agency; (b) The *before participating* SEAS inventory is insufficiently sensitive to detect small to moderate effects; (c) Mountaineers report the same intensity of need for emotion regulation and agency but have higher expectations regarding the agency and emotion regulation that they *ought* to experience in everyday life. These alternative explanations are discussed in more detail below.

First, although the first explanation is plausible, it seems highly unlikely that there are no agency and emotion regulation differences between high-risk and control participants, given the strong evidence for such differences in the *during* and *after* participation data. Second, the lack of differences may have been an artifact of the *before* participating SEAS inventory. Specifically, participants were asked to agree or disagree with statements regarding their experiences before participating in high-risk sport. However, participants

were given no specific instructions regarding the time-frame to consider when responding to items. Importantly, when considering "before participating," participants may have considered only those moments immediately before participating. Such moments are likely associated with the pending (high-risk) experience rather than participants' everyday lives in the lead-up to the high-risk experience. The theoretical rationale for the mountaineers' difficulty with agency and emotion regulation is thought to be more a reflection of their everyday life than immediately before engaging in a high-risk activity; that is, the difficulty is more *between participations* (when they have not participated for a significant period of time) than before participating. We address this potential limitation in Study 4.

The third potential explanation for the null differences in the *before participating* data resides in participants' perceptions of what it means to feel effective, in agentic and emotion regulation terms. We originally hypothesized that mountaineers would perceive that they have significantly greater *difficulty with emotion regulation* and *diminished agency* in everyday life relative to skydivers and controls and the biographical evidence (e.g., Kirkpatrick, 2011; Lester, 2004) clearly points to an agentic and emotion regulation struggle with the self in everyday life. This appears to be very much an intrapersonal struggle. As such, the important "between participation" difficulty for mountaineers is not simply in relation to other individuals but also in relation to how they perceive their degree of agency and emotion regulation compared to how they perceive they ought to feel. Mountaineers have demonstrated a high felt need for control (Ewert, 1994), autonomy (Lester, 1983) and self-determination (Frederick & Ryan, 1995), enjoyment of leadership roles (cf. Leon et al., 1989; Lester, 1983), assertive individuality, and dominance (Egan & Stelmack, 2003; Knopf, 1983) particularly in interpersonal relationships (Lester, 1983). These characteristics may in fact reflect an *exaggerated expectancy* of the emotion regulation and the agency that such individuals perceive that they ought to experience as part of everyday life. According to such

a position, mountaineers will seek out the *experience of agency* and *the experience of emotion regulation* in the high-risk domain because they desire to elevate normative levels of agency and emotion regulation to a level that they feel is more normal for them. This issue is addressed and tested in Study 4.

Study 4

Study 3 provided the first empirical evidence that demonstrates that mountaineers, unlike skydivers, derive an *agentic emotion regulation* transfer effect as a result of participation. As discussed above, there remain some details about what motivates the mountaineer to return to the high-risk domain once those transfer effects have been enjoyed post-participation.

The aim of Study 4 is threefold. First, we aim to retest the hypotheses and findings from Study 3 using a larger sample.

Second, we modified the instruction set for the *before participating* inventory in order to test more precisely the hypothesis that mountaineers will experience significantly greater *difficulty with emotion regulation* and *diminished agency* – between participating – compared with skydivers and low-risk controls.

Finally, given that mountaineers are thought to have greater expectations about agency and emotion regulation experience in everyday life, we tested the multivariate hypothesis that mountaineers would have greater *difficulty with emotion regulation* and *emotion regulation expectancy* than both skydivers and low-risk controls. Similarly, we tested the multivariate hypothesis that *diminished agency* and *agency expectancy* would differentiate between mountains and both skydivers and low-risk controls.

Method

Participants

Participants were recruited by contacting specific clubs and societies (e.g., British Mountaineering Council, British Collegiate Parachuting Association, Running Clubs, etc.). Such targeted recruitment techniques are effective in minimizing the threat from respondents whose express aim is to damage data (Fielding, Lee, & Blank, 2008) or to obtain financial reward. Groups were operationalized according to the same criteria used in Study 3. Skydivers varied on the total number of jumps in the previous 12 months (M = 70.71, SD = 49.16) and total years skydiving (M = 4.12, SD = 4.21). Mountaineers varied on the total number of mountaineering days in the previous 12 months (M = 36.83, SD = 27.81), the average duration of their expeditions (M = 17.60 days, SD = 12.72), and the total number of years they had participated in mountaineering expeditions (M = 9.63, SD = 8.11). Low-risk sport controls varied on the number of days-per-year they had participated in low-risk sport (M = 184.28, SD = 125.27) and the total number of years they had participated (M = 14.64, SD = 7.69). The final groups in the present study were made up of 100 skydivers (68 men, 32 women; M_{age} = 29.19, SD = 9.01), 46 mountaineers (37 men, 9 women; M_{age} = 30.24, SD = 8.61) and 47 low-risk sport participants (29 men, 18 women; M_{age} = 29.04, SD = 12.33).

Measures

All participants completed a demographics questionnaire, as in Study 1, followed by the *while participating*, and *after participating* SEAS inventories developed in Study 1 and Study 2. Participants also completed a *between participating* SEAS inventory: a modified version of the 18-item *before participating* inventory developed in Study 1 and Study 2.

The modifications were twofold. First, we modified the item anchor from, “Before participating…” to, “Between participation, when I have not participated for a significant period…” The inventory introduction emphasized that participants should define, for themselves, what they considered to be a “significant period.” Furthermore, when responding to the items, participants were asked not to think of the moments immediately before

participating but rather to think about how they feel when it has been a significantly extended period since their last participation. As in Studies 1-3, responses to the *difficulty with emotion regulation* and *diminished sense of agency* items were scored on a seven-point Likert scale from 1 (*completely disagree*) to 7 (*completely agree*).

The second modification was the addition of a scale in the between participation inventory to measure participants' *expectancy* regarding their experience of emotion regulation and agency, between bouts of participation. This was to enable us to test the multivariate hypothesis. Specifically, we asked participants to rate how comfortable they felt about their sense of emotion regulation and agency between participation. For clarification purposes it was stated, "For example, are you agitated by the way things are or are you quite happy to feel the way you do?" Responses were recorded on a seven-point Likert scale from 1 (*It's OK to feel like this*) to 7 (*I ought not to feel like this*). To maintain consistency in the inventory layout, *expectancy* responses were collected for *need for sensation* but not analyzed.

Procedure

The data collection procedure remained unchanged from Study 3.

Results

Confirmation of Study 3 results

Between participation

ANOVA revealed a significant difference between the groups in *need for sensation* ($F_{2, 190} = 5.01$, $p < .01$). Bonferroni post-hoc tests mirrored those of Study 3: Skydivers reported significantly greater *need for sensation* than both mountaineers ($p < .05$) and controls ($p < .05$), who did not differ from one another ($p > .5$). The emotion regulation and agency results are reported later as part of the multivariate analyses.

While participating

ANOVA revealed a significant difference between the groups for *experience of sensation* ($F_{2, 190} = 10.82$, $p < .001$). As in Study 3, Bonferroni post-hoc tests indicated that skydivers reported significantly greater *experience of sensation* than both mountaineers ($p < .001$) and controls ($p < .01$) who did not differ from one another ($p > .5$).

We used ANCOVA to test whether the *experience of emotion regulation* remained a significant discriminating variable when the effects of *experience of sensation* had been controlled. ANCOVA was deemed applicable given that there was a linear relationship ($r = .33$, $p < .001$) between *experience of sensation* (covariate) and *experience of emotion regulation* (dependent variable). After controlling for *experience of sensation* ($F_{1, 189} = 35.86$, $p < .001$), there remained a significant difference between the groups in the *experience of emotion regulation* ($F_{2, 189} = 34.80$, $p < .001$). Bryant-Paulson post-hoc tests revealed that mountaineers reported significantly greater experience of emotion regulation than both skydivers ($p < .05$) and control ($p < .05$). Skydivers reported significantly greater experience of emotion regulation than controls ($p < .05$). This result confirms the original hypothesis.

We also used ANCOVA to test whether the *experience of agency* remained a significant contributing variable when the effects of *experience of sensation* had been controlled ($r = .40$, $p < .001$). After controlling for *experience of sensation* ($F_{1, 189} = 26.70$, $p < .001$), ANCOVA revealed a significant difference between the groups in *experience of agency* ($F_{2, 189} = 13.21$, $p < .001$). Bryant-Paulson post-hoc tests confirmed the finding from Study 3: Both mountaineers and skydivers reported significantly greater *experience of agency* than control groups ($p < .05$) but did not significantly differ from one another ($p > .05$).

After participating

We used ANCOVA to test whether *agentic emotion regulation* remained a significant contributing variable after the effects of the *satisfaction of sensation need* had been controlled ($r = .36$, $p < .001$). After controlling for *satisfaction of sensation need* ($F_{1, 189} = 35.66$, $p <$

.001), the difference between the groups in *agentic emotion regulation* remained significant ($F_{2, 189} = 6.58$, $p < .005$). Bryant-Paulson post-hoc tests confirmed the finding from Study 3: Mountaineers reported significantly greater *agentic emotion regulation* than both skydivers ($p < .05$) and control groups ($p < .05$), who did not differ from one another ($p > .05$).

Between participation multivariate analyses

Using only the modified *between participation* inventory, univariate ANOVAs confirmed the null hypothesis from Study 3 as expected: there were no significant differences between the groups in *difficulty with emotion regulation* ($F_{2, 190} = 2.60$, $p = .08$) or *diminished agency* ($F_{2, 190} = 0.97$, $p = .38$). We thus proceeded with tests of the multivariate hypotheses.

Expectancy

Emotion Regulation

MANOVA revealed a significant difference in *difficulty with emotion regulation* and *emotion regulation expectancy* between skydivers, mountaineers and controls, Wilks' $\Lambda = .95$, $F_{4, 378} = 2.69$, $p < .05$. Discriminant function analysis (DFA) of the first generated function – accounting for 94.4% of the total between-groups variability – revealed that perceptions of emotion regulation between participating discriminated between the mountaineers, skydivers and controls, Wilks' $\Lambda = 0.95$, $\chi^2 (4, n = 193) = 10.63$, $p < .05$. The second generated function – accounting for 5.6% of the total between-groups variability – did not discriminate between the groups, Wilks' $\Lambda = 1.00$, $\chi^2 (1, n = 193) = .61$, $p = .44$. The standardized structure coefficients for the first discriminant function revealed that both variables made a significant contribution to the discriminant function. However, *emotion regulation expectancy* ($r = 1.00$) made the greatest contribution to the discriminant function, followed by *difficulty with emotion regulation* ($r = .69$). Examination of the discriminant function at group centroids revealed that mountaineers (.37) had an elevated difficulty with,

and higher expectancy of, emotion regulation that discriminated them from both the skydivers (-.19) and controls (.05), who were not clearly discriminated from one another.

Agency

The MANOVA examining group differences in *diminished agency* and *agency expectancy* also revealed a significant multivariate difference between the groups, Wilks' Λ = .95, $F_{4, 378} = 2.67$, $p < .05$. Discriminant function analysis using the first generated function – accounting for 100% of the total between-groups variability – revealed that perceptions of agency *between participating* discriminated between mountaineers, skydivers and controls, Wilks' $\Lambda = 0.95$, $\chi^2 (4, n = 193) = 10.57$, $p < .05$. The standardized structure coefficients for the first discriminant function suggested that both variables made a significant contribution to the discriminant function. However, *agency expectancy* (.98) made the greatest contribution to the discriminant function, followed by *diminished agency* (.42). Examination of the discriminant function at group centroids revealed that mountaineers (.43) had diminished agency and a greater expectation of agency that discriminated them from both the skydivers (-.13) and controls (-.14), who were not discriminated from one another.

Discussion

Confirmation of Study 3 results

Sensation seeking

The present study retested and confirmed all the sensation seeking findings from Study 3. Specifically, as in Study 3, skydivers reported significantly greater *need for sensation*, *experience of sensation* and *satisfaction of sensation need* than both mountaineers and low-risk controls. These results again demonstrate that skydivers, unlike mountaineers, are primarily motivated to participate for the sensation seeking benefit that skydiving procures. The present paper provides the first quantitative evidence to refute directly the long-held assumption that all high-risk sport participants are motivated by the sensation

rewards of their chosen high-risk activity (see Zuckerman, 2007). Indeed, as in Study 3, the sensation seeking profile of the mountaineers is statistically similar to that of the low-risk controls; before, while, and after participation.

Emotion regulation and Agency

Study 4 confirmed the results from Study 3: Mountaineers derive an agentic emotion regulation transfer benefit after participation that skydivers and low-risk controls do not experience. Study 4 also provided support for the hypothesis that mountaineers have a significantly greater *experience of emotion regulation* than skydivers while participating. This suggests that mountaineers, unlike skydivers, are primarily motivated to seek out the *experience of emotion regulation* in the high-risk sport domain. Furthermore, as hypothesized, Study 4 demonstrated that a degree of *emotion regulation* is also experienced by skydivers thus suggesting that even participation in high sensation high-risk sports requires an element of emotion regulation. However, since overly regulated emotions may attenuate the *in situ* experience of sensation (Campos et al., 2004), skydivers likely aim to regulate their emotions only to the degree that it enables them to operate safely in the high-risk domain. Conversely, the experience of emotion regulation is central to mountaineers' engagement with their activity.

Consistent with Study 3, Study 4 revealed that the *experience of agency* is an important facet of participation in high-risk sport. Indeed, both mountaineers and skydivers reported a significantly greater experience of agency than low-risk controls, and did not significantly differ from one another. This result consistently contrasts with the initial hypothesis that stated that mountaineers would experience greater agency than skydivers while participating. We interpret this consistent result as a reflection of the need for skydivers to deploy agentic action with a view to decreasing the likelihood of error, which could be

potentially fatal. Importantly, agency in this context does not detract from the *experience of sensation*; the skydiver can experience intense sensations while also being agentic.

Study 4 again confirmed the hypothesis that only mountaineers glean a positive agentic emotion regulation transfer effect from the high-risk domain back into important aspects of everyday life. As in Study 3, mountaineers reported significantly elevated *agentic emotion regulation* compared to both skydivers and controls, who did not differ. Despite both mountaineers and skydivers undergoing a statistically similar experience of agency *while participating*, as in Study 3, skydivers did not experience a positive *agentic emotion regulation* transfer effect. Indeed, as proposed throughout, this is likely due to the *experience of agency* merely being a requisite for successful engagement with the high-risk domain. Furthermore, since skydiving is of relatively short duration, the associated *experience of agency* is likely too brief to provide any meaningful transfer of *agentic emotion regulation* into everyday life. Thus, future research that establishes whether there is an optimum participatory duration for maximizing transfer effects would be worthwhile. Additionally, it would be worthwhile to investigate whether there is a limit of constancy and intensity of the agentic and emotional challenges faced during participation below which there is likely to be no agentic emotion regulation transfer effect.

Great expectations

In Study 4 we measured participants' experiences *between* participation rather than their experiences *before* participating. This adjustment in the measurement was with a view to measure individuals' experiences following non-participation rather than their experiences immediately before participation in their chosen activity. The results from the modification to the measure corroborated those of Study 3, which focused on pre-event experiences. That is, as in Study 3, the groups did not significantly differ regarding their *difficulty with emotion regulation* and *diminished agency* between bouts of participation. Thus, the present results

indicate that the *before participating* results of Study 3 were not simply due to the measurement issue that we identified at the end of Study 3.

Multivariate hypothesis

We added an expectancy scale and conducted the associated multivariate analyses with a view to testing the hypothesis that it is mountaineers' difficulty with, and greater expectancy of, agency and emotion regulation in everyday life that is the primary motivation for participation. The multivariate analyses revealed that both *emotion regulation expectancy* and *difficulty with emotion regulation* between participations successfully discriminated between the groups, with emotion regulation *expectancy* being the most important discriminator. Mountaineers had a greater difficulty with emotion regulation and a higher expectation of emotion regulation than both skydivers and controls. Similar multivariate differences were revealed for agency, again with greater *expectancy* being the most important discriminator. Thus, the lack of support for the uni-dimensional *difficulty with emotion regulation* and *diminished agency* hypotheses in Study 3 was an artifact of not considering mountaineers' greater expectations of what degree of emotion regulation and agency they feel they ought to experience in life.

Mountaineering is thus motivated more by greater expectations of both *emotion regulation* and *agency* than by a greater difficulty with emotion regulation or a diminished sense of agency *per se*. The results provide the first evidence that mountaineers actively engage in the high-risk domain in order to glean an experience of *agency* and *emotion regulation* that satisfies a higher-than-normal perception of what life should provide in those terms.

The attractiveness and function of the expeditionary high-risk domain is that it provides the mountaineer with a domain that physically challenges the limits of the self in a way that is not readily available in even the most challenging of normative everyday

situations, and where success requires a degree of agency and emotion regulation that is consistent with such a challenge. Based on Shackleton's journals and on interviews with the surviving members of the failed 1914 expedition to the South Pole, Lansing (1959) noted that it was only during Antarctic expeditions that Shackleton found "a burden which challenged every atom of his strength", whereas in everyday life, "Shackleton's tremendous capacity for boldness and daring found almost nothing worthy of its pulling power" (p. 13). Once mountaineers have "enjoyed" a prolonged and difficult test of their agency and emotion regulation ability, they will feel more aligned with the agency and emotional experience that they feel ought to pervade their everyday life.

General discussion

Summary of results

The aim of the present research was twofold: (a) to challenge the widely held view that high-risk sport participants can be considered a homogenous sensation seeking group, and (b) to understand the underlying motives for mountaineering, an activity that appears antonymous to sensation seeking despite typically being classified as high in sensation seeking (e.g., Zuckerman, 2007). The high sensation element of some high-risk sports (e.g., skydiving) led us to test the hypothesis that skydiving is motivated by the need for sensation. Conversely, given that mountaineering typically involves a prolonged, difficult, and emotional struggle with the elements and the self, we tested the hypothesis that mountaineers are motivated by a need for emotion regulation and agency. A measure of sensation seeking, emotion regulation and agency as motives for participation in high-risk sport did not exist before this research. As such, we first developed the measure and then tested the hypotheses using that measure.

Study 1 and Study 2 charted the creation and initial validation of the Sensation seeking, Emotion regulation, and Agency Scale (SEAS). The SEAS comprises three inter-

related inventories, completed retrospectively in relation to percepts of *between* participation, *while* participating, and *after* participating. Confirmatory factor analyses across the two studies showed that the full models fitted the data well for all three inventories within the SEAS. The three-factor structure (Sensation seeking, Emotion regulation, Agency) was confirmed for the *between* and *while* participating inventories and rejected in favor of a two-factor structure (Sensation seeking; Agentic emotion regulation) for the *after* participating inventory. In Study 3 and Study 4 we implemented the SEAS to test the hypothesized differential motives of mountaineers, skydivers, and low-risk sport controls.

The present research demonstrates for the first time that skydivers and mountaineers differ in their motives for their high-risk activity: skydivers are motivated by the sensation rewards of their activity and mountaineers are motivated by the agentic emotion regulation processes of their activity. Specifically, mountaineers are motivated to engage in the high-risk domain by a significantly elevated emotion regulation and agency *expectancy* – the most important discriminators – as well as a *difficulty* with emotion regulation and *diminished* agency. The compensatory function of the mountaineering domain is thus that mountaineers experience greater *experience of emotion regulation* and *agency* during their activity compared to other life endeavors. Finally, and importantly for understanding the perceived benefits of engaging with the mountaineering domain, the agentic emotion regulation that is enjoyed post-participation in mountaineering suggests that such benefits are perceived to transfer to other important aspects of everyday life. In other words, by being agentic in a high-stress environment such as the mountains for a prolonged period of time, the mountaineer feels better able to be agentic in other prolonged high-stress environments that he/she faces in everyday life (cf. Woodman et al., 2010).

Methodological and measurement implications

These results have important implications for the continued study of motives for participation in high-risk activities. Firstly, researchers should question the appropriateness of making inferences regarding the motives for participation in high-risk activities when the sample is drawn from a diverse range of high-risk activities and subsequently treated as a homogeneous group. Indeed, based on the present results, such methods may be a source of confound for much of the extant literature.

Secondly, the present research offers a methodologically valid avenue for investigating the sensation seeking, emotion regulation and agency motives for different activities. To date, the SSS-V (Zuckerman, 1979) was used to this end but the SSS-V was neither designed for, nor capable of, measuring motives for various activities; it is simply a measure of the desire or intention to engage in high sensation activities. Such a measure clearly has no place for the study of motives for such activities, especially when participants are already engaging in such activities. The lack of a suitable measure of sensation seeking motives has also been a limitation for previous research into specific high-risk samples. For example, with a view to understanding the specific potential anxiety regulation mechanisms of skydivers, researchers recently attempted to control for sensation seeking. Woodman, Huggins, Le Scanff and Cazenave (2009) demonstrated that, after controlling for scores on the SSS-V, skydiving served a specific anxiety regulation function for alexithymic individuals only. The question remains: do skydivers enjoy such anxiety regulation once sensation as a *motive* for participation (i.e., using the SEAS) is controlled? The present data suggest that the skydivers' emotion regulation reported in Woodman et al. (2010) was likely simply a reflection of a more salient underlying *need for sensation*. Thus, researchers would do well to distinguish between attempts to study *sensation seeking motives* – in which case the SEAS would be appropriate – or attempts to study the *propensity or desire to participate in so-called sensation seeking activities* – in which case the SSS-V would be appropriate.

Great expectations

Mountaineers' greater emotion regulation and agency *expectancies* of everyday life are a significant step forward in understanding the motivation behind mountaineers' repeated striving for higher and harder achievements in the adventure domain. It appears that such individuals are less satisfied with their lot and seek in the outdoor adventure domain a means of achieving more from life. Individuals with such high expectations of themselves likely stand to have either a very fulfilling life or a very unfulfilling life with little in the way of middle achievement ground. That is, individuals who strive for ever-higher (metaphorical and literal) higher ground will either achieve such aspirations or fall short, which could lead to two very divergent life paths. The post-mountaineering life of two of the world's most celebrated mountaineers provides a striking illustration of these potential divergent paths.

Sir Edmund Hillary and Sherpa Tenzing Norgay were the first people to summit Mount Everest in 1952, 29 years after George Mallory's fateful attempt. Hillary's significant post-mountaineering accomplishments suggest that his positive goal striving and expectations of life extended far beyond the mountaineering domain. For example, Hillary became the first man to stand on both the North and South poles and on the summit of Everest and subsequently became New Zealand High Commissioner to India (Johnston, 2008). He has since been named by *Time* magazine as one of the 100 most influential people of the 20th century. Hillary's example illustrates that mountaineers' high expectations of life can result in a fulfilling life.

There is, however, a darker side to such high expectations in this domain. For example, there are a plethora of cases in the mountaineering literature of mountaineers' depression and alcoholism. Accounts of Tenzing Norgay's (Hillary's Everest climbing partner and Sherpa) life certainly describe an uncompromising pursuit of excellence insofar as Norgay's relentless striving allowed him to "turn abject poverty and obscurity into a

glorious success" (Douglas, 2003, p. 273). After his Everest success Norgay, like Hilary, continued his pursuit of excellence in other life spheres, but with mixed success. For example, although he became director of the Himalayan Mountaineering Institute (Douglas, 2003), he perceived that forces outside of his control (e.g., work and family) impinged his ambitions. For much of his life Norgay had been a moderate drinker, but in his later life he went through bouts of excessive drinking and "his last years were characterized by unhappiness and depression" (Douglas, 2003, p. 274). For two mountaineers who had enjoyed what was considered the ultimate achievement in the mountaineering domain the subsequent contrast is stark.

Given the two aforementioned divergent trajectories, it is clear that the line between success and fulfilment on one side and dejection on the other is fairly fickle and may be moderated by opportunity. That is, Hillary's relatively comfortable Western life likely contrasted rather sharply with Tenzing's relative opportunities. In a similar vein, depending on different opportunities for achievement, individuals may perceive that their only recourse to satisfying emotion regulation and agency needs is via more anti-social means such as high-risk crime, reckless driving, drug use, etc. (cf. Klonsky, 2007). The potential convergence of the underlying motivational processes that underlie such seemingly divergent activities certainly warrants research attention. Specifically, if antisocial risk-takers (e.g., criminals) were given opportunities to express their emotion regulation and agency needs in a high-risk natural environment (e.g., the mountains), it is possible that some of the mountaineering benefits revealed in the present studies would also apply to such individuals.

It is interesting to note that mountaineers' high expectations appear to share some of the characteristics of perfectionism, notably high personal standards. For example, Hillary's persistent pursuit of excellence, across multiple domains, seems representative of *adaptive perfectionism* which has been shown to be positively associated with achievement (Kobori,

Yoshie, Kudo, & Ohtsuki, 2011; Rice & Mirzadeh, 2000). Thus, if managed in an adaptive manner, an *exaggerated expectancy* of emotion regulation and agency may have a facilitative effect across multiple domains of a participant's life. Specifically, an individual with both adequate self-complexity (Larkin & Griffiths, 2004) and self-efficacy (Bandura, 2006) should demonstrate positive striving in multiple compensatory activities across numerous domains (cf. Carver & Scheier, 1998). The extent to which mountaineers' exaggerated expectancies reflect an adaptive form of perfectionism is an interesting avenue for future research. Conversely, there appears to be a darker side to mountaineers' exaggerated expectancies of agency and emotion regulation and their striving for ever-higher goals – just as maladaptive perfectionism is the flip side of high personal standards. Certainly, the potential downward achievement spiral that follows an inability to transfer the agency and emotion regulation benefits gleaned from the high-risk activity back into everyday life likely leads to an impoverished life outside of the high-risk domain. Research that sheds light on the factors that moderate the ability of high-risk activity participants to translate their high achievement in the high-risk domain to other life domains certainly appears worthwhile. Equally, the extent to which one can benefit from engagement with high-risk activities as a way of elevating achievement standards appears worthy of research attention.

For both skydivers and mountaineers, engaging in high-risk sport for the benefits that participation procures may be perceived as somewhat of a "necessity" to the participant – perhaps even as an addiction (Willig, 2008, p. 694). Thus, research attention should be given to the process by which individuals may satisfy their emotion regulation and agency needs if participation in the high-risk domain became impracticable or impossible (e.g., through injury, change in life circumstances, aging). Engagement with the high-risk domain in a more clearly pro-social fashion is one obvious avenue for such individuals (cf. Cazenave et al., 2007). We have argued that the need for sensation will be hard to meet outside the high-risk

domain and it is likely that individuals will resort to engaging in new equally high-risk activities, even if such engagement is brief and temporary, to stave off boredom.

Limitations

One limitation of the present studies is the retrospective data collection method utilized. That is, participant responses may have fluctuated as a function of the time elapsed since their previous participation in their chosen activity (cf. Yin, 2003) and this was not standardized across participants in the present design. Despite this limitation, we preferred retrospective data collection since this method tends to evaluate the individual's overall perception of the activity and thus has greater potential for examining the motives for repeated engagement in an activity (Stuart & Hull, 1992). Since implementation of the SEAS is not limited to methodologies employing retrospective data collection one solution to this limitation, and an interesting direction for future research, would be to employ the SEAS inventories in a prospective repeated measures design. Such a design would enable examination of the duration of the agentic emotion regulation transfer benefit and the satisfaction of sensation need gleaned as a result of participation. Furthermore, the factors that determine and maximize the magnitude of these benefits – for example the duration, intensity, and danger of the activity – would be addressed via such designs (cf. Norris & Weinman, 1996).

The present internet based data collection was limited by the strict safeguards that we established to prevent multiple responses from the same individual (Qualtrics, 2009). We utilized "cookies" and "IP tracking" to ensure that participants were not duplicating responses. Such a solution to this potential problem is not without its shortcomings, as potential participants may have inadvertently been excluded from the study when trying to complete the inventory from shared facilities (e.g., students in a communal campus computer laboratory). Despite this safeguard, one remaining statistical threat was the potential for

participants to provide false information pertaining to their participation in high-risk sports and ability levels therein. Of course this potential problem is not limited to the use of e-questionnaires, and beyond demanding proof of claimed participation and ability there is clearly no failsafe solution. Furthermore, that the hypothesized effects received consistent support across studies considerably mitigates the aforementioned limitations.

Conclusion

The findings in this paper provide consistent evidence that high-risk sport participants are not, and should not be considered as, a homogenous group motivated by sensation seeking rewards. Skydivers are indeed motivated by the sensations of the activity but mountaineers are motivated by the heightened emotion regulation and agency functions provided by the high-risk domain. Mountaineering appears to provide a compelling illustration of how to live life to one's potential and for each person to climb his/her Mount Everest:

> If you cannot understand that there is something in man which responds to the challenge of this mountain and goes out to meet it, that the struggle is the struggle of life itself upward and forever upward, then you won't see why we go (Mallory, 1924).

Chapter 3 - Counter-phobia, exaggerated expectancies & romantic attachments in mountaineering

Abstract

High-risk sport participants have typically been considered a homogenous group, driven by sensation seeking motives (Zuckerman, 2007). However, Barlow, Woodman & Hardy (2012)[3] provide evidence for the differential motives for skydiving and mountaineering: the motive for skydiving being strongly associated with sensation seeking; the motive for mountaineering being strongly associated with emotion regulation and agency, not with sensation seeking. The present research addresses three specific questions that arise from the Barlow et al. (2012) paper. Firstly, to what extent do mountaineers display a counter-phobic attitude? Secondly, do mountaineers exhibit generic exaggerated expectancies, of how life ought to be, across all important domains and aspects of everyday life? Thirdly, to what extent do mountaineers experience a romantic attachment to the mountains? A novel qualitative mixed-model approach was employed. Semi-structured in-depth interviews with five of Britain's best expeditionary mountaineers were combined with an abstraction of the mountaineering media (books, interviews, films, etc.). Results include extended raw quotes from mountaineers with the aim that the data may speak for itself and that the voices of the participants' would be heard (Clandinin & Connelly, 1998).

[3] Barlow, Woodman & Hardy (2012) is Chapter 2 of the present thesis.

Introduction

In a world that increasingly emphasises safety and the reduction of risk, voluntary engagement in high-risk sport is on the increase (Florenthal & Shoham, 2001; Pain & Pain, 2005). High-risk sports, such as mountaineering and skydiving, are typified by an elevated risk of physical harm where the consequences of error can be fatal. Unlike mainstream sports, such as football or basketball, high-risk sport participants regularly knowingly face the risk of serious injury, and even death, if judgment or equipment were to fail (Lyng, 1990).

Traditionally, high-risk sport participants have been considered a homogenous group who participate to satisfy a need for increased stimulation or an elevated level of arousal (see Zuckerman, 2007). However, such are the vast contextual differences (e.g. duration, preparation, and stimulation) across the spectrum of high-risk sports (Milovanovic, 2005) – and the considerable observed differences of the participants therein (Leon, McNally & Ben-Porath, 1989) – that researchers have begun to refute this assumption of homogeneity (Llewellyn, Sanchez, Asghar, & Jones, 2008; Slanger & Rudestam, 1997). Research pertaining to prolonged-engagement high-risk sport – for example expeditionary mountaineering (Lester, 1983, 2004), Arctic expeditions (Leon, List, & Magor, 2004) and trans-Atlantic sailing (Norris & Weinman, 1996) – suggests that participation is motivated by additional motives, over and above the search for an elevated level of arousal and cortical activity.

Two constructs that seem particularly salient with regards to the study of prolonged-engagement high-risk sport are *emotion regulation* and *agency* (Woodman, Hardy, Barlow & Le Scanff, 2010). Emotional regulation is the process of modifying, modulating and coping with heightened levels of positive and negative emotions (Kopp, 1989; Thompson, 1994). Agency is intentionally influencing one's life circumstances (Bandura, 2006; Taylor, 1989): an 'author' of internal states such as intent, belief and desire (Bratman, 1991; Little, Snyder,

& Wehmeyer, 2006). Also there is an external aspect of agency, which refers to action, overcoming external constraints or autonomy (Kant, 1786/1949; Bandura, 2001).

Participants of prolonged-engagement high-risk sport have been shown exhibit express difficulty with emotion regulation in everyday life, and struggle to assert the levels of agency that they desire (e.g. Lester, 1983, 2004). Recent research suggests that participation in prolonged-engagement high-risk sport may serve an agentic emotion regulation benefit for such individuals (Barlow, Hardy, & Woodman, 2007). Woodman et al. (2010) showed that, prior to participation, trans-Atlantic rowers demonstrated a difficulty describing emotions compared to sample norms. However, after completing the difficult and arduous crossing, rowers experienced a fairly global perceived emotional benefit, as well as bolstered perceptions of agency, particularly within interpersonal relationships (i.e. family and loving partner). In a second study, which controlled for time spent away from home, Woodman et al. (2010) showed that expeditionary mountaineers – who also demonstrated a difficulty describing emotions – again reported significantly lower agency in loving partner relationships than controls.

Despite growing research interest into the motives and consequences of participation in prolonged-engagement high-risk sport, from an emotion regulation and agency standpoint, domain specific measures of these constructs did not exist (Woodman et al., 2010). At best previous research had been conducted using indirect measures of the constructs. In a four study paper Barlow, Woodman & Hardy (2012) addressed this limitation. The initial two studies detailed the creation and initial validation of new a scale measuring the motives for participation in high-risk sport. The new instrument, entitled the Sensation Seeking, Emotion Regulation and Agency Scale (SEAS), is completed retrospective of participation and consists of three inventories that examine participants' experiences: while participating, after participating and between participations in their chosen activity. Both the while participating

and between participating inventories measure three factors: *sensation seeking, emotion regulation* and *agency*. The after participating inventory measures two factors: s*ensation seeking* and a conjoint factor of *agentic emotion regulation transfer*. In studies 3 and 4, Barlow et al. (2012) implemented the new SEAS to examine the differences between expeditionary mountaineers, skydivers, and low-risk sport controls (hockey, basketball, athletics, etc.). Skydivers were compared with expeditionary mountaineers since skydiving is one high-risk sport that seems antonymous to prolonged-engagement high-risk sport. Whereas skydiving lasts only a matter of minutes and often provides the participant with an "incredible high" (Celsi, Rose & Leigh, 1993, p. 15), mountaineering expeditions can last months on end (Ewert, 1994) and often involve a considerable amount of toil, hardship and monotony (Loewenstein, 1999).

Barlow et al. (2012) consistently demonstrated that participation in mountaineering, unlike skydiving, was not driven by sensation seeking motives and therefore participants should not be considered as a homogenous group motivated by sensation seeking rewards. Rather than a sensation seeking benefit, mountaineers derived a significantly greater agentic emotion regulation benefit, as a result of participation, compared to both skydivers and low-risk controls. The Barlow et al. (2012) paper was a necessary step to advance research into the emotional and agentic motivations and consequences of participation in high-risk sport. Their findings raise a number of interesting questions. The aim of the present study is to address some of those questions using a novel mixed model approach combining both qualitative interview based inquiry – with five elite level mountaineers – and abstraction from the mountaineering media (books, DVDs, articles etc.). Each research question, addressed in the present chapter, is introduced with an outline of previous research followed by the presentation of a theoretical rationale.

Counter-phobic attitude

The present author argues that the emotion regulation benefit of the mountaineering domain is that it enables participants the opportunity for three things: firstly, *an agentic choice to engage with intense emotion*, secondly, *the experience of intense emotion*, and thirdly, *the subsequent regulation of intense emotion* (Barlow, Hardy & Woodman, 2011; Fenichel, 1939; Woodman, et al., 2010; Barlow et al., 2012). The combination of these three elements represents, what Fenichel (1939) describes as, the "counter-phobic attitude" (p. 263). In the emotion regulation factor of the SEAS while-participating inventory, the *agentic choice to engage with intense emotion* is not directly measured. Rather, items primarily measure the *experience of intense emotions* (example items include, 'My emotions are sometimes very intense' and 'The emotions I experience are more intense than in other areas of my life'). Whilst the *subsequent regulation of intense emotion* is measured (e.g. "I have to manage my fear"), the items do not assess whether the experienced intense emotion is regulated to such a degree that the participant has a perceived sense of "mastery . . . owing to the overcoming" of intense emotion (Fenichel, 1939, p. 266). As such, the extent to which mountaineers must display all three elements of the counter-phobic attitude, to derive the maximum emotion regulation benefit from the high-risk domain, requires further investigation.

Approaching intense emotion

Researchers have argued that knowingly approaching intense negative emotions, such as fear, is in opposition to normal human functioning (Heimer, 1988) and in the past voluntary risk-taking has been equated with having a death wish (Freud, 1926/1955; Shneidman, 1973) or evidence of psychopathology (Adler, 1930; Deutsch, 1926; Willig, 2008). This has led certain researchers to conclude, counter to the present theoretical rationale, that "mountaineers themselves can't remember the miseries of climbing, which helps to explain why they keep returning for more" (Loewenstein, 1999, p. 319), or indeed

that mountaineers may have "buried their recollections" of the fears evoked in the mountains (Houston, 1968, p. 54). However, Fenichel (1939) suggests that under certain conditions a "person shows preference for the very situation of which he is or was apparently afraid" (p. 264). This type of fear-defence can be understood as an "overcompensation against fear" (Fenichel, 1939, p. 263), but Fenichel (1939) suggests that, much more precisely, it could be termed the "counter-phobic attitude" (p. 263). Fenichel (1939) argues that committed mountaineers are "true counter-phobic subjects" (p. 273), and from this stand point mountaineering represents a quest for strong emotions such as fear (Klausner, 1968).

Experiencing intense emotion

Barlow et al. (2012) showed that mountaineers reported experiencing significantly greater intense emotion, while participating, than low-risk controls. It appears counter intuitive to suggest that undergoing a significant *experience of intense emotion* (Barlow et al., 2012) in the high-risk domain can provide "respite" (Woodman, et al., 2010, p. 350) or "relief" from unregulated intense emotions experienced in everyday life (Castanier, Le Scanff & Woodman, 2010b, p. 482; Lester, 1983, p. 34). The present theoretical rational underpinning this argument relates to the nature of the intense emotion that is elicited in these two domains; i.e., whether it is internalised or externalised intense emotion (Woodman, Cazenave, Le Scanff, 2008). The mountaineers' difficulty with emotion regulation in everyday life appears to be such that they may suffer from experiencing a constant, generalised and internalised low-level anxiety in everyday life: "a kind of background radiation saturating existence" (Massumi, 1993, p. 24). Anxiety is "a diffuse, unpleasant, vague sense of apprehension" (Sadock & Sadock, 2007, p. 579), a response to a non-specific threat cue, the sources of which may be confusing and unclear (Cisler, Olatunji, Feldner & Forsyth, 2010). As such, the mountaineer is likely unable to identify the origin of their anxiety, express it, or control it effectively (cf. Woodman et al., 2010). The result is that for

the mountaineer, elements of daily life, such as interpersonal relationships, can be experienced negatively as a source of internalised uncontrollable intense emotion (Lester, 1983, 2004; Castanier, Le Scanff, & Woodman, 2010). The mountaineering domain enables participants to move their non-specific, ambiguous and internal anxiety to a more specific and externally derived intense emotion: fear (cf. Castanier et al., 2010). Unlike anxiety, fear is a response to a known, external, and definite threat (Sadock & Sadock, 2007), of which there is abundance in the mountaineering domain (Twight & Martin, 1999). For certain individuals, fear is an attractive alternative to anxiety since externalised definite threats are more readily interpreted as within the individuals control (Chorpita & Barlow, 1998), requiring explicit rather than implicit emotion regulation (Gyurak, Gross, & Etkin, 2011; Koole & Rothermund, 2011). In other words, individuals struggling to cope with the perceived internal emotional threats of daily life can compensate by becoming hyper-vigilant at regulating emotion in a domain that is felt to be externally threatening (Gogarty & Williamson, 2009).

Controlling intense emotions

The third element of the counter-phobic emotion regulation process is the control or regulation of intense emotion. Not only is the control of intense emotions critical for survival and optimal performance in the high-risk domain (Twight & Martin, 1999), but the "essence" of the counter-phobic emotional benefit, for the participant, is the agentic regulation of fear (Langer, 2002, p. 176). It is argued that with high levels of emotional regulation the mountaineer is able to demonstrate control over fear in the high-risk domain, rather than allowing fear to control them (Barlow et al., 2011). Indeed, Lester (2004) observes that mountaineers, more than most, display "an inexorable pushing towards new extreme situations in which to overcome fear." (p. 91). The mountaineer's agency over fear is clear – to themselves and or others – in that they are able to perform effectively in a dangerous environment: without fear exerting a debilitative effect on their performance. Controlling

fear, in the high-risk domain, is likely particularly attractive to such individuals because control over internalised anxiety, especially interpersonal anxiety, in everyday life, is rarely experienced by them (Woodman et al., 2010). Fenichel (1939) suggests that when an individual is "able to overcome without fear a situation which would formally have overwhelmed [them] with anxiety, [they] experiences a certain kind of pleasure... This pleasure is the basic component of the counter-phobic attitude" (p. 266).

In the present section, we ask the question, do mountaineers display a counter-phobic attitude? Specifically, do mountaineers display an agentic choice to engage with intense emotion? Undergo the experience of intense emotion? And subsequently regulate intense emotion to a degree whereby it has no debilitative effect on their performance?

Exaggerated expectancies

Barlow et al. (2012) used the SEAS to provide evidence for differential motives for mountaineering and skydiving from an agency and emotion regulation perspective. Specifically, in line with previous research and biographical evidence (Kirkpatrick, 2008, 2011; Lester, 1983, 2004; Woodman et al., 2010), Barlow et al. (2012) demonstrated that mountaineers have a perceived difficulty with emotion regulation and agency in everyday life. However, importantly mountaineers also demonstrated a greater *expectation* about what it means to be successful in emotion regulation and agency terms. Indeed, it was these greater expectations that most successfully discriminated mountaineers from skydivers and control participants. Thus, Barlow et al. (2012) suggested that mountaineering is motivated more by greater expectations of both emotion regulation and agency than by a greater difficulty with emotion regulation or a diminished sense of agency *per se*. The Barlow et al. (2012) results provide the first evidence that mountaineers actively engage in the high-risk domain in order to glean an experience of agency and emotion regulation that satisfies a higher-than-normal perception of what life should provide in those terms.

In this way, mountaineers' evidenced high felt need for control (Ewert, 1994), autonomy (Lester, 1983) and self-determination (Frederick & Ryan, 1995), enjoyment of leadership roles (cf. Leon et al., 1989; Lester, 1983), assertive individuality, and dominance (Egan & Stelmack, 2003; Knopf, 1983) particularly in interpersonal relationships (Lester, 1983), may in fact reflect an exaggerated expectancy of the emotion regulation and the agency that such individuals perceive that they ought to experience as part of everyday life. According to such a position, mountaineers will seek out the experience of agency and the experience of emotion regulation in the high-risk domain because they desire to elevate normative levels of agency and emotion regulation, and experience a level that they feel is more appropriate for them (Barlow et al., 2012).

One question that naturally arises from the Barlow et al. (2012) conclusion is whether mountaineers' greater expectations of what they perceive they ought to experience as part of everyday life is specific to only emotion regulation and agency? Or do mountaineers in fact exhibit generic exaggerated expectancies of how life ought to be across all important domains and aspects of everyday life?

Romantic attachments

Woodman et al. (2010) showed that mountaineers demonstrated significantly greater difficulty describing feelings and significantly lower agency in loving partner relationships, than controls. Since a perceived inability to intentionally influence ones environment, behaviour and self-regulation is widely acknowledged as commensurately aversive (Brehm, 1966), and antithetical to psychological well-being (Batchelor, 2007; deCharms, 1968), mountaineers may seek out the experience of agency and emotion regulation via alternate means. Specifically, an individual with high self-complexity (Pyszczynski, Greenberg, Solomon, & Hamilton, 1991) may focus goal directed attention on an alternative compensatory goal that is not presently focal (Sloman, 1987). Priority is given to alternate

programs of action that reflect the same abstract goal as the 'failed' activity, but where success is more likely (Carver & Scheier, 1998; Steele, 1988). For this reason, Barlow et al. (2012) argue that mountaineers seek out the experience of agency and the experience of emotion regulation, in a romantic attachment with the mountaineering domain, to compensate for their perceived difficulty experiencing emotion regulation and agency in their romantic relationships in everyday life. Specifically, the mountaineer temporarily disengages from close interpersonal relationships in everyday life, which are perceived as a difficult, stressful, and intensely emotional, prolonged struggle wherein the engendered emotions are dictated and driven by forces outside of their control (Lester, 1983; 2004). Instead, s/he engages in a compensatory romantic attachment with the mountains: a domain that the mountaineer also experiences as a difficult, stressful, and intensely emotional prolonged struggle. However, importantly in the mountaineering domain the engendered emotions, course of events, and the mountaineers' personal functioning, are perceived as dictated and driven by themselves as instinctively acting agents (cf. Lyng, 2005). It is suggested that for many mountaineers, the mountaineering domain with its inescapably romantic core (Lester, 2004) is experienced – implicitly or explicitly – as a continuation or alternative to romantic interpersonal relationships (Roberts, 1986): "a way of struggling with relationship issues away from people, but in a setting where sufficient parallels apply" (Hunt & Daines, 2004, p. 449). Johnston & Edwards (1994) suggest that mountaineers involve themselves as active, rather than passive, participants in long-term relationships with the mountaineering domain; although, the degree to which they are successful in achieving "mutually beneficial relationships" (Johnson & Edwards, 1994, p. 473) is debatable (Adams, 1992; Fisher, 1990).

This argument underpins the Barlow et al. (2012) theoretical rationale. However, since the SEAS measures agency and emotion regulation in all the 'important elements' of the participant's 'life' (e.g. Work, Family, Friends, Relationship with your partner etc.), the

role of the mountaineers' relationship with the mountains is yet to be fully understood. As such, the question remains, to what extent do mountaineers experience a romantic attachment to the mountains?

Method

Participants

Mountaineers in the mountaineering media

Direct quotes, from many of the world's best mountaineers, were abstracted from the mountaineering media. Participant details are provided in-line with the quotes in the results section.

Interviewees

Five of Britain's most elite-level mountaineers, both present (n = 3) and from the recent-past (n = 2), were approached personally and invited to be involved in the study. The mountaineers (n = 5, M_{age} = 49.83, SD = 6.62), identified here with pseudonyms, have between them completed cutting-edge expeditions and first ascents in some of the most difficult and dangerous mountain ranges in the world. Their achievements have been hailed as some of the most ground-breaking ever made by British mountaineers.

Measures & Procedures

Media abstraction

Firstly an abstraction of mountaineering media was performed utilizing autobiographies, biographies, magazine articles, videos, recorded interviews and blogs from many of the world's best mountaineers. Bruner (1990) suggests that retrospective inquiry, through "autobiography" (p. 119), provides a viable and valid means of assessing an individual's agency and motives. Media abstraction was deemed particularly important in this particular research setting (Clandinin & Connelly, 2000) because the subject of motives is

perhaps *the* central theme of the mountaineering literature and reveals myriad clues about participant motives (Loewenstein, 1999; Johnston & Edwards, 1994).

It was deemed impractical to include data in the results from every source that was consulted during the media abstraction process. Thus, a bibliography is included at the end of this thesis (see appendix D). This details every source that was consulted during the media abstraction process, both those directly quoted in the results section of the present chapter and those that are not.

Interviews

Secondly in-depth interviews, based upon a semi-structured interview guide (see appendix F), with five elite-level mountaineers were conducted. All interviews were carried out one-to-one, without any interruptions, at a location of the participant's choice. The flexible nature of the process, and the individual responses of the participants, resulted in interviews of differing lengths. On average, each interview lasted approximately one and a half hours. Only the interview with Neil was completed over two separate sessions. With the aim of putting the participant at ease, the interview began with topics that were deemed least intrusive (i.e. how the participant became involved in mountaineering and their early experiences of participation). The more sensitive topics were subsequently addressed later in the interview (i.e. emotions, feelings, relationships etc.).

The interview guide ensured each participant was asked the same broad open-ended primary questions, with similar clarification and elaboration prompts, in order to obtain responses that were as consistent as possible in terms of depth and complexity (Fontana & Frey, 2005; Denzin & Lincoln, 2005). Participants were still be able pursue the interview in the direction they deemed most appropriate (Mishler, 1986). This had the advantage of allowing participants the opportunity to express themselves in their preferred manner while

retaining the systematic nature of data collection between participants (Patton, 1990). Based on recommendations in the literature (cf. Geertz, 1973, 1983; Spradley, 1979), the media abstraction process was conducted prior to developing the interview guide, enabling the researcher to be further sensitive regarding the language and experiences of elite mountaineers in general and the interviewees in particular. This minimised interviewer insinuation, assumption and the introduction of bias (Ericsson & Simon, 1984; Lincoln & Guba, 1985). Interviews with three other expert level mountaineers were performed as a pilot study. This data was not analysed. Rather, it served to familiarise the researcher with using the interview guide. Nvivo 9 was used to categorise both data obtained from media abstraction and the verbatim interview transcripts.

The research team

The present research team are themselves all expeditionary mountaineers including one International Federation of Mountain guides (IFMGA) mountain guide with first ascents in the greater ranges. As such, the interviewer, and the extended research team, has been immersed in the culture and language of mountaineering for many years. This extensive domain knowledge ensured the semi-structured interview guide was both comprehensible and meaningful to elite level mountaineers. Furthermore, domain knowledge enabled the intricacies of the participant's stories to be clearly understood and consequently meaningful follow-up questions and prompts could be made (Bruner, 1990).

Despite following the semi-structured interview guide the researcher recognises that, as a mountaineer, his own personal interpretations of the narrative may have influenced the direction of the interviews. Rather than deem this as a limitation, the research team consider this a strength (Clandinin & Connelly, 1998): since with all research of this kind, "facts are just what there aren't, there are only interpretations" (Nietzsche, 1887/2003, p. 139). Furthermore, the interviewees were more open to talk with "one of their own" [Dave].

However, as a mountaineer the researcher recognises he was initially quite humbled meeting such ‘giants’ of the mountaineering world.

Results & Discussion

Counter-phobic attitude

Approaching intense emotion

Results suggest that mountaineers are very conscious of the intense emotions that will be evoked should they enter the mountaineering domain. Andy Kirkpatrick (2008) said, “Why was I going back to this wilderness with a sinking heart? It made no sense. Patagonia terrified me. Before this trip I’d wake up and feel gripped with anticipated horrors, thoughts of the cold, the wind, the endless abseils” (p. 254). For Neil, one of the very things that first attracted him to the mountaineering domain was the opportunity to seek out challenges that would evoke intense emotion within him. He recalls the first group of mountaineers he ever met:

> They seemed to be living a totally different life to everybody I’d ever known all my life up to that point. They seemed to be taking risks, you know, challenging themselves, being scared, everything in general a lot of people in main stream life don’t do and avoid with probably good reasons. Well these people basically sought them out and faced them head on. I wanted that too.

Prior to attempting a route, experienced mountaineers are able to estimate the likely emotional impact of a given climb (based on route danger, technical difficulty of the route, team experience, weather conditions etc.). Thus, mountaineers are not only aware that they will face fear and other intense emotions but they use their agency, in the form of situation selection (one form of emotion regulation; Gross, 1998), to ensure they influence their experience of fear. For example, Andy Kirkpatrick said, “You get to the bottom [of the

climb], really, really scared. If you're not scared, do something harder. You don't do it for fun" (Brown & Griffiths, 2008).

Both Paul and Neil suggested that if something scares them they have to approach it. Paul said, "I can't back down from fear. I dare myself to face it and then I can't back down". Neil described a second attempt at a new route that previously had almost killed him:

> Why did I go back? Well I really struggle, and always have done, with things that scare me. Basically, if things scare me I am not going to walk away from them, I'm going to stand up to them. Living with myself, and the fear, is worse than actually taking it on face-on.

When asked why he got into big-wall climbing Doug Scott said, "I had this crazy thing about seeking out the biggest overhangs. Somehow I was seeing if I couldn't come to terms with the exposure" (Mountain Equipment, 2011). Dean Potter (2009) suggests that if a challenge in the high-risk domain evokes fear within him he feels the need to approach it: "Like a moth to a flame – I can't help myself." Potter's rock climbing accomplishments have become some of the most celebrated of their kind in the extreme sports community (Ransom, 2010). However, in reference to falling, Potter suggested, "During all these times… on the rock I was afraid of the air. I always thought if I enter the air I'd be a dead man" (National Geographic, 2012). Thus, typical of counter-phobic behaviour, Potter actively approached his fear of falling by turning his attentions to the mastery of BASE jumping and wing-suit flying (cf. Fenichel, 1939). In 2009 Potter climbed the Eiger in Switzerland and BASE jumped off flying almost four miles: breaking the Guinness World Record for the longest BASE jump (National Geographic, 2012). As a consequence Potter suggests, "Now I'm more comfortable in the air than I am holding onto the rock" (National Geographic, 2012) suggesting a perceived sense of mastery over the very fear which he perceived had once

controlled him. Thus, in reference to falling off the rock during a free-BASE[4] ascent of the Eiger, Potter (2009) now suggests, "I can turn the worst possible thing, into the best possible thing: dying to flying" (National Geographic, 2009).

Experiencing intense emotion

Barlow et al. (2012) demonstrated that high-risk sport participants – both mountaineers and skydivers – experienced significantly greater intense emotion while participating than low-risk sport controls. This finding is clearly supported in both the interview data and mountaineering literature in the present chapter. In reference to mountaineering in Alaskan, Dave Roberts (1986) said: "In the twenty years since the Huntington climb, I have never lived through a five-day span of comparable [emotional] intensity" (p. 3). Similarly, Neil said that, "A mountaineer is certainly never going to experience anything as intense as going and getting on a big hill" before suggesting, "anyone who says they are not going through those emotions is either lying or they're an android". All interviewees reported experiencing a variety of different intense emotions during expeditions. The most commonly reported emotional states were boredom, agitation, excitement and loneliness. However, when asked what emotion is most frequently experienced on a difficult expedition, when operating at one's limit, all participants gave similar responses to both Dave – "Fear, utter and abject fear" – and Neil – "Fear and trepidation".

Dean Potter (2009) said, "I just want emotions rushing through me that normally aren't there in everyday life." Whilst participating in activities with an inherent risk of death – for example solo rock climbing – Potter suggests "the feeling totally overwhelms me… I wish I could find that without risking my life but right now it's the only way I know how to

[4] Dean Potter – who was the first person ever to free-BASE – said, "Free-BASE is climbing with parachute protection: free-solo." Since there are no ropes to protect a fall: "the only thing that is protecting you is the parachute on your back" (DesnivelVideos, 2010).

find it." Similarly, Ron suggests that mountaineering allows him a unique emotional opportunity:

> You're in touch with your primal nature and it's magnificent and it fills you up with incredibly different emotions and it's a very life affirming thing, very positive thing. And that probably is the most overwhelming thing, it's the strongest thing in the mountains, it's probably one of the main reasons why I go to the mountains.

Dean Potter and Ron all seem to suggest that, in line with the current theoretical rational, the intense emotions in the high-risk domain are different from the intense emotions experienced in everyday life. Specifically, the high-risk domain primarily elicits externally derived emotions, such as fear, that require explicit rather than implicit emotional regulation. Since they have a clear source, externalised definite threats are likely more readily interpreted as within the individuals' control (Chorpita & Barlow, 1998). Dave said, "You are approaching maybe more primal emotions than you are at home . . . If I fall down there I'll die, it's obvious why I'm scared". In this way – despite the mountaineer experiencing a plethora of intense emotions in the high-risk domain – the mountains can be experienced place that is 'free' from the emotional demands of everyday life:

> The beauty for me of big wall climbing is that the moment you step from the ground, your life is suspended –in every sense of the word – with days or weeks of honest hard work, the bizarre joy of struggle, the escapism. Up high there would be no bills to pay, *no emotional demands*, no distractions, only climbing, dawn till dusk, and the reward of seeing the sunset at the end of the day. This is why I was there. I needed to escape from normality. To leave the din of my life, leave my thoughts and troubles behind. The only thing that always seemed to be simple was this piece of rock. [emphasis added] (Andy Kirkpatrick, 2008, p. 51)

Controlling intense emotion

Goffman (1969) likened adventure to a character contest where emotions are aroused yet controlled. Ron Kauk – who established some of Yosemite's hardest routes in the 1970's and 1980's – said, "Climbers aren't all about risk taking, thrill seeking and all that. It's more about that commitment to staying calm and staying in control" (Gill & Gill, 2008). Laberge (2003) – a specialist solo climber – said, "While climbing solo, you experience moments of intense stress and you manage to dominate them" (p. 33). The importance of controlling intense emotions in the mountaineering domain is clear to Andy Kirkpatrick (2008): "I knew that the most important technique I could learn, above that of knots and karabiners and pulleys, was the ability to control my fear" (p. 207). Fenichel (1939) suggests "that the essential joy in sport is that one activity brings about in play certain tensions which were formally feared, so that one may enjoy the fact that now one can overcome them without fearing them" (p. 273). This idea is eloquently expressed by Nietzsche (1878/1986): "Thus a man climbs on dangerous paths in the highest mountains so as to mock his fears and trembling knees" (p. 74).

Controlling, dominating, or overcoming fear is not a one-time act that subsequently renders impotent any future effects of fear. Rather, mountaineers appear to engage in a prolonged struggle to maintain on-going control over fear in the mountains, as opposed to allowing fear to control them. Indeed, results suggest the oft portrayed idea in the media of climbers being "fearless" individuals (Beaumont, 2012, p. 18) is merely a fallacy. For example, Neil recalled "hyperventilating with fear" prior to ascending a dangerous chimney and clearly describes his agency in the emotion regulation process: "I try to bring the whole situation under control. You can't bring a whole massive face down to your level but by just taking the whole situation, in control... I step back, I focus and I perform."

In certain situations the mountaineers' extreme control over fear is such that both the mountaineering literature, and interview data, contain reports of remarkable periods where fear may be expected but is absent (cf. Kerr, 1997) confirming that emotion regulation strategies can diminish an individual's fear (Cisler et al., 2010). For example Andy Kirkpatrick (2008) recalls a time when he was on a desperately hard Scottish winter climb, "The two ropes arc, plucking out questionable protection, but the big one stays put. There should be great fear, there should be great doubt, but all I see is possibility" (p. 6). In the same way Rick confirms this idea:

> When I went to solo the Eiger you imagine that would be the most fear as a climber you can ever have, the Eiger in winter. Without doubt the most terrifying mountain in the world, but I had no fear whatsoever, in fact the lack of fear was almost scary, I was so excited really.

In line with our theoretical rationale – that this is a fear which has been sought out, experienced and subsequently controlled – when asked if he experienced fear during the month of planning prior to the route and immediately prior to the ascent, Rick answered, "Oh yeah, there was a lot of fear then". Importantly, these moments of controlling fear appear not to be a consequence of underestimating the seriousness of the situation. Specifically, the climber may well attempt to exert total control over fear *because* they recognise they are in mortal danger, rather than experiencing no fear because they fail to recognise the inherent danger of the situation. For example, after taking "a large air-fall from a roof when I stripped a nut from a rock-ice sandwich" (p. 86), Paul Pritchard (1997) said, "I had to wrestle with myself for control of my mind. There was no place for emotion here, only room for non-judgemental corrections and an awareness that an accident could have catastrophic consequences" (p. 86). Similarly, Andy Kirkpatrick (2008) said:

> As I moved on, the wall and the sun at my heels, I felt no fear at all, only the immense joy at being in such a position, the exhilaration of my life in that moment burning through the fear of a death that could perhaps come to me at any moment. It's not every day you attempt the hardest, most dangerous pitch of your life. With no gear to hold a fall, any mistake would be terminal: a two-hundred-foot fall onto the ledge. These are only facts. It was strange and unexpected, but I felt no anxiety, no fear, no emotion. A river of clear water flowed through me. Everything I had ever done had led to this point and I was ready. (p. 265)

Results suggest that the benefit of controlling fear extends beyond optimal performance, and consequently survival, to a psychological benefit for the mountaineer. As a young boy Alain Robert (2009) recalls how he "was afraid of everything, you know lacking in self-confidence and being shy... I was so afraid of heights when I was young". Regarding the fact he can now control his fear, to such a degree that he is able to solo-climb skyscrapers, Robert (2009) says, "For me it is a kind of reward because, it's like… I won't say I am dominating the height but at least I am capable to dominate my fear." Sir Edmund Hillary said,

> When you're afraid, the blood surges in the veins and so on. If you get rigid with fear, quite obviously, fear is not a very satisfactory characteristic to have, but if it's a stimulating factor, then I think you can often extend yourself far more than you really believe is possible. And instead of being just a mediocre person, for a moment anyway, you become someone of considerable competence. (Sir Edmund Hillary interview, 1991)

In this way, the 'reward' for actively approaching fear is that the mountaineer can "conquer his [or her] anxiety anew by putting himself in the path of danger, with the hope that he will re-experience the wonderful sensation of a child vanquishing a fear for the first

time" (Thackray, 1991, p. 6). However, since the underlying anxiety is never really dealt with "the 'counter-phobic attitude' may really be regarded as a never-ending attempt at the belated conquest of an unmastered infantile anxiety" (Fenichel, 1939, p. 267). In other words, such individuals are likely continually drawn to the high-risk domain, as Dean Potter (2009) puts it, "like a moth to a flame". That said, regarding the failure to deal with the underlying anxiety, Fenichel (1939) argues that "When we see that many people with counter-phobic attitudes nevertheless consciously feel a good deal of pleasure inspite of this failure, and avoid becoming aware of the anxiety still operative in them, we must admit that they are relatively well off" (p. 269).

Results suggest that high-risk sport participants are not always successful in their attempts to dominate or control intense emotion. Regarding his failed attempt to walk the world's highest and longest highline, Dean Potter (2009) admitted that – unusually for him – he was unable to dominate his fear, suggesting he felt "pretty terrified out there [on the line] most of the time [during the failed attempts]". Experiencing intense fear in the mountaineering domain, and not managing to control it, dramatically decreases ones technical climbing quality, efficiency, and diminishes ones chances of survival (Connally, 2005; Nieuwenhuys, Pijpers, Oudejans, & Bakker, 2008; Delle-Fave, Bassi, & Massimini, 2003). This is highlighted by Royal Robbins (1973),

> The terrible thing about free soloing difficult routes that are within one's capacity, is the chance that faced with ultimate danger and the need for ultimate self-control, one's nerve might fail and cause an error. That's the irony of it, that fear could short-circuit skill, and that one would die as a direct result of being afraid to die. (p. 78)

For Dave, unregulated fear is often a result of a perceived lack of agency, "The fear comes mostly on the approaches in the Alps . . . if random rock-fall or avalanches are a

serious possibility." However, Dave continued saying: "But once you're climbing [the fear] is mostly gone because you're in control. It's that not being in control that leads to fear I think." Although Paul said, "I rarely have doubts, or fear [whilst climbing]", he too described a loss of control leading to a period of uncontrolled fear. Having climbed solo through a section of "paper thin, brittle ice" Paul found himself in a position he could not retreat from. Paul recalled:

> I was trying to talk to myself on that climb. 'Right this is getting dangerous isn't it?' Alarm bells go off. 'Here we go'. It's spiralling out of control, things are developing to a degree that if I carry on like this I know [the ice] is going to break-off . . . It's horrendous, it's the worst possible feeling [knowing you are going to fall]. It's OK when you just fall off and it's quick but when you are out of control and you know you are fighting for your life, I think that's the worst. Your hand uncurls and off you come.

Summary

These results provide the first empirical support for Fenichel's (1939) suggestion that activities such as mountaineering "may in general be designed as a counter-phobic phenomenon." (p. 273). Specifically, results suggest that in the high-risk domain mountaineers display an agentic choice to engage with intense emotion, the experience of intense emotion, and the subsequent regulation of intense emotion. The reward for the mountaineer, of displaying a counter-phobic attitude, is a renewed perceived sense of being capable of dominating or overcoming their fear. Controlling externally derived fear in the high-risk domain may be particularly attractive to individuals who perceive they struggle to control internally derived anxieties in everyday life (Castanier et al., 2010). In an attempt to demonstrate mastery over fear, the mountaineer puts his/her life at risk; it is literally life threatening. For the mountaineer, dealing with internally derived intense emotions in

everyday life may be perceived as so difficult that they are willing to face the possibility of death, in order to demonstrate control over externally derived intense emotion. Thus, by dominating and controlling their fear in the mountains – and even experiencing a perceived temporary "freedom from fear" (Lester, 2004, p. 91) – the mountaineer may find a safety in the mountains which they perceive they cannot readily experience in everyday life. Indeed, "there is a huge irony in how much risk the climber will seek and accept in pursuit of that safety" (Lester, 2004, p. 97).

The observed counter-phobic benefits of participation in high-risk sport may have wide implications for many non-mountaineering individuals. Anxiety disorders are the most common mental illness in the United States of America, affecting 40 million adults (18% of U.S. population) at a cost of more than $42 billion a year (Greenberg et al., 1999). As such, cost effective non-pharmacological treatments of anxiety are important avenues of future research (Heuzenroeder et al., 2004). The underlying principles of counter-phobia are evident in Meichenbaum's (1985) development of stress inoculation training (SIT) which itself is based upon the principle of a medical vaccination wherein exposure to a weaker form of a disease enables an increased resistance to ward off more severe diseases. Through a process of graduated exposure, and natural accommodation, the body eventually develops defences to successfully combat the strongest concentration of a given disease. From this perspective, individuals are exposed to challenging but manageable levels of stress and as their coping skills improve they are exposed to larger doses of stress, until they have developed their coping skills to effectively deal with the most stressful possible situations (Burton, 1990). Gaining successful control over fear at sequential stages enables one to gain a sense of agency over their emotions (Burton, 1990). As argued in the present thesis, this increased sense of agentic emotion regulation transfers back into the individual's life based on domain similarity (cf. Meichenbaum, 1985). With this in mind, future research would do well to

explore the potential beneficial effects of exposing sufferers of chronic anxiety to controllable perceived risks in the outdoor adventure domain (for example, a high-ropes course or abseiling). Research appears to suggest that transfer – from the outdoor adventure domain into everyday life – may be further increased by educating participants on salient emotion regulation strategies for managing their immediate externalised fears and highlighting – post-participation – the similarities between the outdoor adventure domain and everyday life (cf. Mace & Carroll, 1985). In this way, research could test the long term effects of individual's increased ability to manage internalised anxiety in their everyday life as a consequence of dealing with ever increasing externalised stressors in a domain that is perceived as risky. Practically such strategies need to be analysed in terms of a cost-benefit-ratio (Heuzenroeder et al., 2004). Thus, future research would do well to determine the time period, or requisite number of sessions of 'stress inoculation' in the outdoor adventure domain, that is required prior to seeing significant anxiety control benefits in an individual's everyday life.

Exaggerated expectancies

Emotion regulation expectancy & difficulty

Results from the present study support the Barlow et al. (2012) finding that mountaineers struggle with emotion regulation in everyday life. Neil said, "I'm probably not very good at with dealing with emotionally demanding situations in relationships. I've probably never been that good at it. I would say 80% of my time I'd prefer to run away from them than face them." Dean Potter (2009) suggests that situations in everyday life which he perceives are intensely emotional – such as public speaking and interacting with relative strangers – make him "terrified" and are his "worst nightmare". Similarly, Rick describes experiencing the emotional elements of everyday life as even more challenging than expeditions:

> The thing is that people don't realise that life's not that easy. People think the climbing is the hard thing, but the climbing is the easy bit really because you either succeed or fail. It's the living in-between, living with yourself really, that's not easy. It's like a constant battle with your emotions, you've got all these constant worries.

Joe Simpson (1994) suggests that it is only in the mountains where the mountaineer "steps out of the living world of anxiety into a world where there is no room, no time for such distractions" (p. 276). Jonny Dawes – one of the best rock climbers of his generation – recalls: "I think school was just a world of panic to me" (Beaumont, 2012). Similarly, Andy Kirkpatrick (2008) suggests that "normal life" has "countless worries" (p. 181) and that the emotions therein seem to "bewilder" him (p. 200). Kirkpatrick (2008) recalls his difficulty describing these internalised emotions to his then wife Mandy:

> It was Sunday morning early in June 2001, the beginning of my journey to solo one of the hardest climbs in the world, certainly the hardest climb of my life. And my life was falling apart. I was running away. I thought about trying to explain why I was going, why I was so compelled to climb. But I just know those words would be transparent and wouldn't come close to how I really felt. No words could explain why. Nothing I say could make her [his wife] understand. There was no sense to it, only the absurdity of travelling half way around the world to climb a lump of rock . . . I was about to solo a climb so hard only the best had attempted it, a route I doubted I could do. Yet in that moment the thing I feared the most was climbing those stairs, climbing up to face her to say goodbye. What if you never see the baby growing inside her? I was everything I despised. They will be better off without you. As I have done many times before, I opened a box in my head and placed the feelings inside, closed the lid and moved on. (p. 15)

Agency expectancy & impingement

Research suggests that mountaineers exhibit a high felt need for agency and perceive everyday life is a domain wherein their agency is impinged (Lester, 1983, 2004; Woodman et al., 2010). Kelly Cordes – one of the few mountaineers who climbs in Patagonia during the winter – contrasts the high agency of Alpinism with his agentic experience in everyday life: "One of the cool things about Alpinism is that you end up being responsible for your own decisions, which doesn't happen in today's world hardly at all anymore" (Patagonia Video, 2008). Regarding his desire for agency in everyday life Rick said,

> I really hate being controlled; I really hate having to do things. I always wanted to live life by my terms not by anybody else's. But in life you can't control things, like when you get a tax bill and you have to pay all this money, all of a sudden it affects all the plans you had. You think 'how can I get out of this?' or 'how can I not pay it?' but you know you have to. Or kids' holidays where you'd planned to go the Alps for a month, so you can't go climbing because there are two weeks of kids' holidays there.

Colorado mountaineer Barbara Zeller describes the perceived impingement on her agency in everyday life,

> Most people today are secure, financially and socially…. We have all the conveniences and comforts, but it's like living in an elaborately decorated cell….There is nothing mystical about the way we are controlled and over-governed by rules and systems. Others control you. You are like a puppet; you don't make your own moves….Sure, [climbing] is an escape, but it's escape from the control of others…If it is escape, it's escape from others back to yourself. You get yourself back again for a while. (Jenkins, 1979, p. 20)

Neil contrasts his agency in life with agency in the mountains and seems to suggest that agentic action is easier in the mountains due to the lack of conjoint interpersonal considerations,

> I have greater control in the mountains than I do in relationships because [in relationships] you're dealing with another person, so you've got to kind of give and take and compromise. So you definitely have greater control with your future, your decisions, and everything when you're climbing in the mountains.

The language mountaineers use to describe their desire for agency certainly seems to represent an exaggerated expectancy of agency (cf. Barlow et al., 2012). Indeed, Rick said, "You should *never* let anyone else define your potential" [emphasis added] and Dean Potter (2009) suggests, "I am after this feeling of *total* control. That's what I'm after in all of life and for now [high-risk sport is] the way I find it" [emphasis added]. When asked whether he believed his personal need for agency was greater than that of the majority of other people Dave replied:

> It must be. Like when we came back from [the expedition[5]] in 1993, there wasn't a single day for thirteen years where I didn't think about going back. It was unfinished business, and it's very hard having something taken away from you by circumstances that are outside of *your control*: the weather, stoves breaking, birds nicking the food, and shit like that. Because *you* haven't got to the level where *you* have said, 'I can't do it anymore'. We hadn't failed because of *us, our limits and our choices* and that's what's so frustrating about it. [emphasis added]

In the same way, when Ron was asked whether he felt his desire for agency was greater than that of other people he said,

[5] Expedition name removed to maintain anonymity

> I think for myself I'm a bit of a control freak . . . I guess I probably try to apply that desire for control to most parts of my life with various degrees of success. Probably where it's been unsuccessful is where it's not been appropriate to do that. For a long time relationships, where you probably have to be a lot more reactive or whatever, you can't have a one-sided relationship. There are one-sided relationships but they're not worth having in my view. It took me a long time to understand that, and I think that's why my relationships have failed because I've not been able to react maybe, I don't know. And I guess self-employed that was a big decision so I could have more control over what I was doing, so that's probably similar.

Such is the mountaineers' high felt need for agency in everyday life that high-risk activities involving the "abandonment of agency" (Larkin & Griffiths, 2004, p. 222), such as substance abuse, were described as commensurately aversive by the interviewees (c.f. Brehm, 1966). Ron said,

> I think that part of the [not wanting to do] drugs thing and the [not wanting to go] bungee jumping thing is that you have no real control over it. You're not an agent in it at all: you're just reacting to what's happening. Whereas in mountaineering there are external risks but even then by your decision making you should be attempting to control it. I really like that process, that's where the skill is in mountaineering. It's in not taking all the risks but knowing which risks are worth it, which you think you can have control over or they're justifiable, and sort of working a path through all these hazards. When you can behave skilfully in a hostile dangerous environment that is really, really fulfilling.

This elevated desire for agency is confirmed by Dave who – despite the relative safety of riding a roller coaster compared to mountaineering – said, "I can't go on those bloody fairground rides because I'm too aware of being out of control, or that I'm not in control of it,

and that's why I don't like it." Similarly, when talking about on route decision making, Paul suggested he only takes risks in situations which he can exert some level of agency over the subsequent success or failure: "It's got to be controlled. I'm not a gambler although some people must think I am, but I'm not at all actually." Indeed, all interviewees expressed the idea that they would not actively take a risk in the mountains if, like Paul put it, "…it feels like Russian Roulette". Alex Lowe – widely considered one of his generation's finest all-around mountaineers (Gutman & Frederick, 2003) – confirms this idea:

> There's a fascination and an appeal in doing this [mountaineering] in a situation that's potentially risky, but rather than being a risk taker as such, I consider myself and my climbing peers to be risk controllers, and we just enjoy being in this situation and keeping risk at a reasonable level. I think being in a risky environment wakes up some part of my psyche that lies dormant through a lot of the rest of my life, the sort of mundane aspects of life. (Gutman & Frederick, 2003, p. 93)

Similarly, Al Alvarez (1985) suggests,

> The pleasure of risk is in the control needed to ride it with assurance so that what appears dangerous to the outsider is, to the participant, simply a matter of intelligence, skill, intuition, coordination – in a word, experience. Climbing in particular is a paradoxically intellectual pastime, but with this difference: you have to think with your body. Every move has to be worked out in terms of playing chess with your body. If I make a mistake the consequences are immediate, obvious, embarrassing, and possibly painful. *For a brief period I am directly responsible for my actions*. In that beautiful, silent, world of mountains, it seems to me worth a little risk. [emphasis added] (p. 291)

When asked how much influence they felt they had over their own functioning, and to what extent they made causal contributions to the course of an expedition, all interviewees' responses seemed to mirror one another. Dave proposed his agency was, "Everything, total, apart from objective dangers" and Paul suggested, "99% percent I'd say. I'm humble enough to admit I'm never in total control over the elements." Neil answered:

> 100% I'd have said . . . You can't, in a way, really control the events on a big face apart from your physical side. And you can't control the weather, you can only control the decisions you make. If you're half way up a big face and the weather comes in, you can control whether you carry on, stay, or you go down.

So great is the agency Neil ascribes to himself in the mountaineering domain that even the times when he has nearly lost his life, due to the seemingly uncontrollable elements of the mountaineering domain (storms, avalanches, rock fall etc.), he judges the failure has resulted from a personal lack of agentic resources rather than attributing the failure to an external locus of causality: "If you have an epic you have basically failed in some respects because you haven't got the skills to get through, you haven't got the control needed and you've chosen wrong."

Ron suggests that whilst he feels has no control over elements such as avalanches that he still aims to act in an agentic manor, "When a big avalanche comes down next to you and you just laugh at it, and you're just like 'come on mountain give me more', it's absolute rubbish, you have no control – but you're trying to control it." Similarly, whilst acknowledging she is not in total control of the elements, and objective dangers, Alison Hargreaves does ascribe herself a high level of agency over her environment in the high-risk domains,

> "I would argue that if something falls on you, then you shouldn't be there. You've made the wrong decision. People always say to me, 'There's all these objective dangers'. But as far as I'm concerned, 99% of objective dangers you can be in control of. If a serac [pinnacle of ice] falls on you, there's a slight chance of being in the wrong place at the wrong time but generally it was your decision to be there. If you're on a glacier when it's dangerous, then you were wrong." (Frohlick, 2006, p. 482)

General expectancies

The mountaineering media suggests that mountaineers tend to judge themselves by a very strict standard (Krakauer, 1996) and place higher than average achievement demands upon themselves (Coffey, 2005). For example, Ron places high expectancies on himself, to exceed what others could attain: "I want to live a life that's fulfilling but also there's an ego part of me that wants it to be an exceptional life, to be different and better than what other people did." Ron concludes, "So that's part of why I go climbing".

Mountaineers tend to exhibit a disdain for vulnerability of all kinds, especially in themselves but also in others (Houston, 1968). Indeed, research has suggested the specific distain of physical weakness is representative of high-risk sport participants' elevated expectancy of immortality (Langer, 2002; Lyng, 2005; Segrave, 2000). Dave Roberts (1986) suggests,

> Behind a mystique of adventure, toughness, footloose vagabondage – all much needed antidotes to our culture's built-in comfort and convenience – may lie a kind of adolescent refusal to take seriously aging, the frailty of others, interpersonal responsibility, weakness of all kinds, the slow and unspectacular course of life itself. (p. 189)

In his biographical account of Christopher McCandless's fatal Alaskan expedition, Jon Krakauer (1996) draws parallels between his own mountaineering experiences and motivations and those of McCandless. Krakauer suggests that one thing he and McCandless had in common was that, "[McCandless] had incredibly high standards he set for everyone, especially himself. He felt he was always failing himself: he didn't run the race fast enough, he wasn't pure enough in his thoughts" (Rose, 1996). Similarly, Andy Kirkpatrick (2008) said,

> It seemed that no matter how hard I climbed, the thing that was pushing me on could not be satisfied. On the summit I would feel free of it, but in the days that followed it would creep back. Some people have described it as a rat that gnaws away inside you and must be fed. For me it was something else, it was a rat that denied ever being fed. No matter how hard I climbed, I seemed to have the inability to just be happy with what I'd done. I was always undermining my own achievements. (p. 206)

Andy Kirkpatrick seems to suggest that, like McCandless, the expectancies he places on others are the same unobtainable high-standards he demands of himself. Despite "the terrible conditions in the mountains with the tons of snow and high winds bringing a death a day" (p. 24) Andy Kirkpatrick (2011) along with Ian Parnell – "one of Britain's greatest living alpinists" (Kirkpatrick, 2011, p. 23) – attempted the Maria Callas Memorial route on the Les Droites: a route that was yet to succumb to a second ascent. Andy Kirkpatrick (2011) recalls,

> I thought Ian was climbing too slowly, coughing and wheezing as he went. He was too weak, and because of him I knew we were going to fail . . . I hated him for being weak because I knew how weak I was. (p. 24)

The ensuing altercation meant that "something was broken" in their friendship "for the short term at least" (p. 24). However, when they eventually climbed together again and attempted Fitz Roy, in Patagonia, during winter, Kirkpatrick (2011) once again recalls:

> We moved together, and every time Ian slowed, or tried to place gear, I'd shout up 'Keep moving!' or 'Don't bother with gear, you're not going to fall.' It was like our time on Les Droites again, Ian trying his best, while I bullied from behind wanting more than that. (p. 85)

Dave "demands a hell of a lot" of himself in the mountains but also of others,

> I hate hearing of expeditions that set off for an objective but then don't get on the mountain because it has turned out to be too frightening or too hard. Maybe they have saved their lives but I mean that isn't what it is about to me. If you are going, you have to have a go at it. Otherwise you should be just coming back on the plane and saying sorry [to your sponsors] here's your money back.

Dave was asked, 'Do you place high expectancies upon yourself in all aspects of life?' he replied,

> Yeah, I think I do... it's probably why I've chosen to be self-employed and why I pick the jobs I do. I don't pick the easy jobs, I pick the most difficult. Even if they don't pay as much as the easy jobs . . . I turn down quite lucrative jobs if they are too easy. A lot of the work I chose is quite challenging, it's got to be or else what's the point?

Rick and Ron were asked the same question. Ron said, "The thing that pushes me all the time in everything, whether it's writing a book or taking photos, is this high ceiling of what I want to achieve… it carries over to every bit of your life". Rick's response was,

> Yes, but that's what the human condition is supposed to be isn't it? We're supposed to be going at 100% all the time I think. I think animals, unless humans are involved, are meant to be going to their full potential until they die aren't they? They're not meant to slow down. Sadly human beings have got to the point [in daily life] where they can do nothing really.

Sir Edmund Hillary who, with Tenzing Norgay, was the first to summit Mount Everest in 1953, spoke of his belief that having exaggerated self-expectancies was important in maximising one's abilities:

> I've always felt that it's far more important to set your sights high. Aim for something high, and even fail on it if necessary. To me, that's always been more impressive than someone who doesn't ask for very much and achieves it. That's not a great deal of satisfaction, in my view. Setting your sights high and extending what were, in my case, modest abilities to the utmost... If you succeed, you certainly get a tremendous sense of satisfaction. (Sir Edmund Hillary interview, 1991)

However, beyond maximising modest abilities to the upmost, results suggest that mountaineers exaggerated expectancies have additional implications in their lives. Ron said, "I'll never be happy as a Dad because I don't think I'll ever reach what my ideal Dad is. I try and be better than my Dad was, and I am, but you'll never ever be satisfied really." Similarly Rick said, "I have such a mad life. I spend most of my time travelling, working and trying to do too many things and just about managing to do it. You're never really happy with what you're achieving though." Rick went on to express an idea that was repeated, in some form, by each interviewee "So you're living at 100%, full-on all the time, but you know that's not your potential. Your potential is double what you're currently doing".

What Rick and the other interviewees appear to be suggesting is that they engage in purposeful goal directed behaviours with the aim of living up to their generic exaggerated expectancies. However, regardless of the magnitude of the challenges they overcome in their everyday lives, the interviewees perceive they remain disparate from their exaggerated reference values (cf. Carver & Scheier, 1998). In such instances, discrepancy induced negative affect ensues (Wicklund, 1975): e.g. to paraphrase Rick, the mountaineer is "...never really happy with what [they are] achieving."

The following quotes indicate why mountaineers may perceive they are unable to live up to their exaggerated expectancies in spite of success in normative situations in everyday life. Neil said,

> Personally I don't think I can reach my limit in everyday life. That is possibly the reason I return over and over again to the mountains. There is nothing in my life that I've found, at the moment, which challenges me and pushes me as much – mentally and physically – than going and putting myself in a situation where I have to exert a lot of skills and control to keep living. Let's face it, there's nothing in normal life – I hate using the word normal, but there's nothing in any individual's life – unless you're probably going to die, and unless you're going to push yourself physically to the very, very brink, which could do that.

Similarly, Dave said,

> I've never found I've reached as far as I could go with anything day-to-day. Without being able to go and do certain things I do feel trapped, if that's the right word. You know you are capable of so much more but you can't go and do it because you are farting around with everyday things. It's nice to be not shackled to everything

else – I definitely don't mean relationships – I personally just haven't got a lot of time for stuff that I consider doesn't really matter that much.

Dave was probed further on this idea, 'So day-to-day, what if anything would be able to push you, and extend you, to your absolute limit?' he replied:

> I think we are missing it. It's got to be within us as human beings, but in the Western society in which we live we are not pushed to, and exposed to, our limits. Then loads of people start thinking they can't do things, but we can, as human beings, it's phenomenal what we can do. We live in such a comfortable situation most of the time, most of us have no idea about our capabilities and just what we could do in extreme circumstances . . . We've got capabilities that we don't even know about and I think very often those capabilities appear without us realising that they have done. In these circumstances [the crux difficulty on a dangerous climb] you need to pull them out. You might not be consciously aware that something's happened... but you somehow find another gear. . . I quite enjoy that because generally you've pushed yourself so far past your comfort zone that you're fighting for your life literally . . . That fight, I enjoy it. I enjoy just the graft, and I enjoy being able to see just how far, and how much human beings can do. People say you're going on holiday [when you go mountaineering] but I've never looked upon it like going on holiday. You're here to work. You're going to work harder than you ever bloody work at doing anything. You go sport climbing[6] if you want a holiday.

Dave's idea that mountaineering reveals "capabilities that we don't even know about" is echoed by Kelly Cordes: "That Great Trango trip made me realise just how much you're

[6] Sport climbing is a form of rock climbing that relies on permanent anchors, fixed to the rock, for protection. Such anchors mean sport climbing is typically safer than traditional climbing, where the rock is typically devoid of permanent anchors and where climbers must place removable protection as they climb. Thus, sport climbing places an emphasis on gymnastic-like ability, strength, and endurance – as opposed to the adventure, risk-management and self-sufficiency which characterize traditional rock climbing.

capable of, like so much farther beyond what you probably think you can do. I've come to realise that whatever you think your limit is probably half of what you can actually do" (Patagonia Video, 2008).

The mountaineers' perception that their everyday life cannot provide an adequate test of their physical and mental limits may be one reason why they continually engage with the high-risk domain. It may be that only in the mountaineering domain do mountaineers perceive they can find a challenge that can push them to their very limit (cf. Lester, 2004; Loewenstein, 1999) and enables them to transcend "for a while from the prison of our little selves" (Noyce, 1958, p. 220). For example – based on both Sir Ernest Shackleton's journals, and interviews with the surviving members of the failed 1914 expedition to the South Pole – biographer Lansing (1959) suggests, that only during Antarctic expeditions did Shackleton find "a burden which challenged every atom of his strength", whereas in "ordinary situations" of everyday life, "Shackleton's tremendous capacity for boldness and daring found almost nothing worthy of its pulling power" (p. 13). Neil said,

> Mountaineering is not just an escape from troubles in everyday life . . . If it were you're going to be exactly the same person with the same experiences and facing the same situations [upon your return]. Whereas if you go to the mountains and you see a whole new different thing, you feel a whole new different thing. Every mountain isn't the same, every expedition is different, all your situations are different and you become more world-wise a bit more enlightened a bit more *aware of your own limits and capabilities* – physically and mentally. You've experienced different things, you've put yourself *through more emotions*, and probably thought about different things and *different emotions* and so when you come back from that *you've got a whole new limit*. [emphasis added]

Paul spoke about trying sequentially harder mountaineering objectives: “Wales, Scotland, the Alps and the Himalayas… I’m fully aware that I’m climbing nearer to my limit all the time, the idea of finding that limit is fascinating.” Dave said, “I quite enjoy being at the absolute bloody limit, when you’ve pushed yourself so far past your comfort zone that you’re fighting for your life literally.” However, both Dave and Neil qualified their statements about the search for their limit. Neil said, “I’ll push my limit, as long as I am in control. I’ve no desire to lose that control and push to the point of oblivion.” This idea was echoed by Dave who suggested that the fulfilment came from being at his limit and knowing he was “pretty good” at controlling and influencing the outcome: “You’ve got to have certain things set up before pushing that far. For example, I can remember all 88 anchor stations on [that route[7]]. So whatever happened I knew exactly where I am going on the way down.”

The nature of the mountaineering domain, as described in the Canadian Alpine Journal, seems ideal to push mountaineers to their physical and mental limit: “...the weather is changeable, protection questionable, route-finding bewildering, rock fall frequent and descents tedious. In short, it's everything you could ever ask for” (Hickey, 2010, p. 74). However, Rick described how not all expeditions provide him with the challenge he was hoping for. In reference to soloing the one of the world’s hardest aid climbs, Rick said, “When I got to the top it wasn’t really as hard as I thought it was going to be so you can’t ever win. It’s either not as hard as you wanted it to be or it’s too hard and you weren’t as good as you thought you were.” Indeed, on a different occasion, despite achieving the first ascent of a new route in Patagonia, Rick was left “immensely disappointment and unfulfilled” because although he expected the route to be difficult he “simply went up a gully, scrambled up a ridge, got to the top and got back down again.” For Rick, expeditions “where you fight and almost got to the top, or you really struggle and then you get there, they're kind of better.

[7] Route name removed to maintain anonymity

Sometimes in trying to get to the top you have an experience that's way harder than just climbing, so it's measured by experience not by the summit." In the same way, Doug Scott suggested, "On a failure, more interesting things happen, you've quite often gone to your limit and learnt more about yourself" (Mountain Equipment, 2011).

When the interviewer deemed saturation had been reached on the topic of exaggerated expectancies, prior to moving on, he always asked each interviewee if there was anything else they would like to add or discuss. Dave added, "I wonder if we [mountaineers] are trying to beat chaos? You've made me think now, my brain will hurt tonight." Neil said, "I wonder if we mountaineers are all really hunting for that epic, that's going to push us to the very brink so that we can come out of it alive."

Summary

As in Barlow et al. (2012), the present results show that mountaineers' perceive that in everyday life their agency is impinged and that they have a greater *expectation* of agency compared to non-mountaineers. Furthermore, results showed that although mountaineers perceive they have difficulty with emotion regulation in everyday life. However, results do not support the Barlow et al. (2012) finding that mountaineers perceive they have a greater expectation of emotion regulation in everyday life. The evidence, pertaining to mountaineers' percepts of emotion regulation in everyday life, did not refute the Barlow et al. (2012) finding rather there was a simply lack of direct evidence – supportive or otherwise – in either the mountaineering literature or the interviews. This lack of abstracted evidence is understandable given that research suggests mountaineers have significantly greater *difficulty describing feelings* than controls (Woodman et al., 2010). Indeed, David Roberts (1986) notes that mountaineers' "gawkiness about the interpersonal" means that "the whole problematic area of the interpersonal stays veiled in climbing autobiographies" (p. 188), and questions whether mountaineers are simply "inherently intolerant of the gentle domestic side of life? Or

is there perhaps a peculiarly British reticence about discussing these things" (p. 188). That said, the present author still notes his personal surprise at the almost complete dearth of data pertaining to mountaineers' emotional experiences in everyday life. This dearth is particularly striking given the rich, frequent and detailed accounts by mountaineering authors of the externalised emotions elicited in the high-risk domain (see *counter-phobic attitude* section above). This observation raises an interesting question – one that is beyond the focus of the present chapter – as to whether mountaineers' significant difficulty describing emotion is specific to internalised, rather than externalised emotion? Although direct evidence pertaining to mountaineers' expectations of emotional regulation in everyday life was too limited to support or reject the Barlow et al. (2012) finding, it is worth reiterating the indirect evidence. Since the evidenced *counter-phobic attitude* of mountaineers (see above) is representative of an "overcompensation against fear" (p. 263), *indirectly* results seem to suggest that mountaineers do display, more than most, a desire to dominate or control intense emotion and thus demonstrate emotion regulation.

The primary focus of the present section was to establish the extent to which mountaineers' exaggerated expectancies in everyday life were specific to emotion regulation and agency. Or, do mountaineers in fact exhibit generic exaggerated expectancies across all important domains and aspects of everyday life? Results suggest that mountaineers' exaggerated expectancies are not limited only to emotion regulation and agency. Rather, mountaineers seemingly place uncompromising achievement demands on themselves, and others, across multiple important aspects of their lives.

Furthermore, the present results provide greater clarity to the Barlow et al. (2012) findings. Specifically, mountaineers do not demonstrate an exaggerated expectancy of the opportunities life *ought* to afford them. Indeed, results are not demonstrative of individuals who are resentful that they do not get their just deserts in everyday life. Rather, mountaineers

seem to be continually dissatisfied with their own personal accomplishments: regardless of the significance or magnitude of those accomplishments. Results suggest that mountaineers perceive their own experiences or achievements *ought* to be greater than they currently are. As Rick put it, "So you're living at 100%, full-on all the time, but you know that's not your potential. Your potential is double what you're currently doing."

The world increasingly emphasises safety and the reduction of risk (Adams, 1995). In Western society, ever increasing limitations are imposed on an individual's agency, in an attempt to minimise their exposure to danger (Furedi, 2006). In reaction, the mountaineer does not merely cry: 'This is not how things *ought* to be' or 'society *ought* not to treat me this way'. Rather, results suggest, mountaineers actively attempt to transcend the constraints of everyday life and, in the mountains, aim to fulfil the potential of the self. Mountaineers demonstrate an agentic refusal to be shackled by the limitations that, they perceive, are being imposed upon them by modern society. Indeed, rather than avoid risk, the mountaineer aims to demonstrate mastery over risk. Rather than abandon agency, and thus seek to be devoid of personal responsibility, the mountaineer seeks out opportunities to demonstrate agency. Al Alvarez (2000) said,

> To put yourself into a situation where… the life you lose may be your own… adds an element of seriousness to your drab, routine life. Perhaps this is one reason why climbing has become increasingly hard as society has become increasingly, disproportionately, coddling. (p. 16)

Results suggest that mountaineers perceive that an entirely risk-averse and mollycoddling society places limitations on themselves, and others, which are actually false limits. Mountaineers attempt to transcend the dictates of modern life and, for a brief period in the mountains, function at a level more aligned with, what they perceive is, their 'true limit'. Indeed, for individuals who have such high expectations of themselves in everyday life, the

high-risk domain appears particularly attractive. Specifically, only in the mountains do mountaineers perceive that they can face a test that pushes them to their absolute mental and physical limit. Without the opportunity to push to their absolute limit, in everyday life or indeed the mountains, mountaineers perceive they are disparate from their exaggerated reference values against which they judge themselves (Carver & Scheier, 1998). Unaddressed this leads to discrepancy induced negative affect (Wicklund, 1975) as clearly described by Doug Scott: "What if we didn't actually just push that little bit harder and take it to our limit, wouldn't we be forever dissatisfied?" (Mountain Equipment, 2011).

Interestingly, the mountaineers' attitude is not representative of a sense of superiority over non-mountaineering individuals. Mountaineers do not perceive that their desire for ever increasing accomplishments should necessarily distinguish them from other individuals. Rather, results suggest that mountaineers believe that continual striving is how everyone *ought* to live. Indeed, mountaineers appear to generalise the exaggerated expectancies they place upon themselves, onto other people. In this way, mountaineers seem to demand the same uncompromising, and potentially unobtainable, standards of other individuals which they demand of themselves.

The principle weakness of assessing elevated expectancies using such self-report measures is that mountaineers may well be motivated to claim that they attain, in the mountains, something that is unobtainable in everyday life. Such claims would likely help them to justify and substantiate their own beliefs about the value of engaging in expeditionary high-risk activities and negate the guilt of participating in an "inherently selfish activity where I might die and leave [my wife] to cope on her own" (Dave). Future research would do well to utilise 'other-report' methods – from friends, family, loving partners etc. – to establish the extent to which significant others perceive that mountaineers display observable exaggerated expectancies in everyday life.

Romantic Attachments

The parallel between the experience of the mountains and the experience of interpersonal and romantic relationships is woven throughout the mountaineering literature (Hunt & Daines, 2004). For example, after his personal study into the motives driving mountaineers, Dave Roberts (1986) suggests that mountaineers may use the mountaineering domain as metaphor for interpersonal relationships: "How much of the appeal of mountaineering lies in its simplification of interpersonal relationships, its reduction of friendship to smooth interaction (like war), its substitution of an 'Other' (the mountain, the challenge) for the relationship itself?" (p. 189).

During the first ascent of the extremely difficult North Face of Chang Himal in Nepal, Nick Bullock (2010) recalls how he and his climbing partner Andy Houseman "are creeping like thieves. We're scared the mountain might hear our approach." (p. 3) Once on the climb, when the ice became thin and hollow, Bullock (2010) suggested that "The ice spoke to me" (p. 4): the mountains warning to Nick that he will fall if the "ice detached in a sheet with me still stood on it." (p. 4). Julie Tullis (1987), refers to the eight thousand meter plus mountain of Broad Peak in the Gasherbrum massif as "only playing" (p. 249) after finding her lost ice axe. It is suggested that the parallel between the mountains and interpersonal relationships is likely one reason why mountaineers tend to anthropomorphise the mountains in this way (cf. McGrath, 2012).

Romantic interpersonal relationships are typically made up of many synergetic component parts: such as love for the other, perception of beauty, sexual attraction, commitment, hard-word, etc. Thus, we examined the extent to which mountaineers' romantic attachment with the mountains also involve these elements.

Love & beauty

Interviewee Paul said, “A key element of why I love the mountains” is that “even in the worst conditions I pick up on the beauty of the place I’m in, and how majestic it is”. Climbing literature has many accounts of mountaineers describing the physical beauty of the mountains. Wilfrid Noyce (1954), a member of the 1953 British expedition that made the first ascent of Mount Everest, said, “Ever since a small boy, I have loved just to look at the mountains, to see them in different lights and from different angles, to feel their rough rock under my fingers and the breath of their winds against my feet . . . I am in love with the mountains” (p. 24). Dean Potter, mountaineer, BASE jumper and highliner said: “People just think I’m a lunatic, or an adrenaline junkie, but that’s not really what’s going on with me. The beauty is mostly what I’m concerned with” (Chin, 2011). Paul Pritchard (1997) recalls, “It was 1986… that same year my intense relationship with Red Wall begins” (p. 39). Although, Pritchard’s first “horrific” climbing experience on Red Wall meant he “vowed never to return” he reports, “We were back there the next day. For me it was love at second sight.” (p. 40). Andy Kirkpatrick (2011) describes the first glimpse of the Patagonian mountain he had set out to climb saying, “Fitz Roy appeared, the head and shoulders of a giant peeping over the horizon. My climber’s heart began to race.” (p. 78). René Desmaison (1982) – a “prolific mountaineer with... 114 first ascents of routes in the Alps, Andes and Himalaya to his credit” (Bauer & Signorelli, 2007) – suggested that “In spite of this catalogue of horrors . . . winter climbing was to become a challenge no serious climber could resist. Two drugs, then – danger and beauty. And for me, each renders the other infinitely more potent.”

Sexual attraction

In some instances the climber’s appreciation for the beauty of the mountains, or a climb, appears to extend as far as sexual attraction, lust, and infatuation. When studying his latest climbing objective Alain Robert (2010) – nicknamed ‘The Human Spider’ after solo-

climbing some of the world's tallest buildings – describes how the climb "playfully reveals a little more of herself and seduces me. I must climb her. I must." (p. 25). Robert (2010) used a stratagem that was "rather illegal" (p. 25) in order to get "the chance to gaze at my temptress through the window of a helicopter" (p. 25) and comments, "The proximity to my temptress affects me even more. Resistance is futile." (p. 25). Paul Pritchard (2000) describes the process of developing a relationship with a climb: "I mentally [pictured] the free route up it [the wall]. There is a certain joy to doing this, you get a feel for the route and it gives you something in return to visualise. You build up a relationship. You and the rock. This route would be all consuming now, would captivate me, until I did it" (p. 35). In response to the assertion that mountaineering is an unrelenting misery, one French Everest ascentionist suggested to Loewenstien (2007), "no no, you have it all wrong. Eet ees not miserable, eet is wonderful – like making love to a beautiful woman." (p. 4). Similarly, Mark Wilford (2007) – the first American to solo the Eiger North Face and considered one of the most proficient and diverse alpinists in the world (Alpinist, 2007) – said: "Climbing gives me something that a female can give me, I feel a great comfort, a completeness there that's almost orgasmic." (p. 11). Doug Haston said, "In winter, the mountains seem to regain their primitive, virginal pride, and no more do the howling, littering, summer masses tramp their more accessible slopes" (Connor, 2003, p. 104). Here Haston seems to suggest that although individuals with limited skill may be able to steal the beauty of the mountain in the summer, in the winter the mountains are like an untouched virgin: only available to 'real' mountaineers. On her return to climbing after a twelve month forced break, Sophie Wynne-Jones (2010) describes multiple facets of her relationship with climbing, including infatuation:

> Even when your heart races and fear takes you, when you come back, it's not hard to remember why you love this so much. Surely it's not simply for the rush, the quick-fix, the lustful high? It's more of a love, one that forgives the arguments, the

> mistakes, the lows, the absences. It's an intoxicating infatuation that blinds you and heals you. (p. 74)

Persistence and effort

Julie Tullis (1987) recognises the contextual similarities between mountaineering and interpersonal relationships in everyday life:

> There are many comparisons to be made between mountains and the human race. You can love them but you do not always have to like them, and I often have a love/hate relationship, particularly when struggling for survival. There are times when you are sad to leave them, but others when you are relieved, glad to be away from the inevitable sheer hard work of achieving the closeness necessary to get to know them. But in a while you long to be back and start dreaming, hoping, planning, scheming to make it possible . . . Mountaineering is very akin to love. There are times of intense pleasure and satisfaction and others of utter frustration and hurt. (p. 216 - 219)

Andy Kirkpatrick has been accused – albeit typically by the layperson and not by experienced mountaineers – of over emphasising, and primarily reporting on, the toil, tedium and suffering inherent in expeditionary mountaineering. However, Kirkpatrick's (2011) response is clear: "I always felt the Romantic view of mountains was only for the long retired or those who could only imagine what it would be like, for poets not climbers. For me it was just a battle, and that's the only way you could write it up." (p. 83). That said, Kirkpatrick (2011) recalls his personal "realisation on the Reticent Wall, that to survive on a hard climb you must…[have] love for yourself, for your [climbing] partner, treating him like you must treat yourself; and for the mountain, as something to be loved not hated" (p. 58). Similar to Kirkpatrick, Desmaison (1973) finds that "on this same mountain that's taking your life" you also see "beautiful stars in the coal black sky, those little twinkling gems, those little fantastic

worlds" and thus concludes "you can't hate it, not even now" (p. 78). In these quotes Tullis, Kirkpatrick, and Desmaison seem to suggest that, as with romantic relationships in everyday life, 'the inevitable sheer hard work' of a relationship with the mountains, is not viewed an unwanted or negative part of the relationship but rather an element that is accepted as a 'necessary' element of a successful relationship.

The 'other' lover

If the mountaineering domain provides the mountaineer with a fulfilling romantic attachment, then being "in love with the mountains" (Noyce, 1954, p. 24) may be perceived as an attractive "alternative" to finding love in romantic relationships in everyday life (Hunt & Daines, 2004, p. 449). For Dean Potter, one attraction of an on-going relationship with the mountaineering domain is that – unlike his experience of interpersonal relationships in everyday life – the mountains are dependable: "All my life, in the last twenty years, something that has at least been consistent for me, that isn't taken away from me or can't fall away is the rock" (Mortimer & Rosen, 2010). This falls in line with Hunt & Daines (2004) suggestion that for mountaineers, "With human relationships the fear of being dropped is ever present, whilst in contrast the rock is seen as eternally holding" (p. 443). Although Dave Roberts (1986) admits that, "Some of the worst moments of my life have taken place in the mountains" he also experiences positive affect in the mountains that he perceives he does not attain anywhere else:

> But nowhere else on earth, *not even in the harbours of reciprocal love, have I felt pure happiness take hold of me and shake me like a puppy*, compelling me, and the conspirators I had arrived therewith, to stand on some perch of rock or snow, the uncertain struggle below us, and bawl our pagan vaunts, to the very sky. It was worth it then." [emphasis added] (p. 209)

For other mountaineers, like Joe Simpson, their romantic attachment to the mountains – rather than being an alternative to romantic relationships in everyday life – is an on-going "love affair" (Osmond, 2007) that co-exists in competition to their romantic interpersonal relationships. Indeed, Dave Roberts (1986) suggests that for him – and mountaineers at large – "the poor fugitive wife" typically plays a "shadowy role" because "the mountains are the mistress" (p.188). Rick suggested, "I suppose with my wife, all she wanted was me. I wanted more than her. It's almost like having an affair because I'm always thinking about the mountains so that's really hard to live with". In 'The human spider returns' documentary (Robert, 2009) Nicole Robert, Alain's wife, alleges that she is second in Alain's affection behind climbing. This is demonstrated physically in the fact that on the walls and ceiling around their marital bed, Alain Robert has bolted rock-climbing holds on which he can climb. Robert (2010) does not describe climbing as being a love-affair away from his wife; rather, he suggests that climbing buildings is akin to cheating on the "loyal" mountains themselves (p. 25). In describing his growing fascination with solo-climbing the 200m Elf tower in Paris Robert (2010) says, "Once, twice, ten times, I return there, to study the towering structure, to restudy and reconsider it" (p. 24). This leaves Robert (2010) wondering, "Am I falling in love? Am I going to cheat on my loyal cliffs for a new concrete and glass mistress?" (p. 25). He answers his own question by saying, "If Chicago (Robert's first experience of climbing skyscrapers) was a reckless one night stand, when I look at the Elf Tower I feel deeply agitated. I am charmed." (p. 25).

The consequences of bigamy

In any extra-marital affair the individuals involved – by choice or otherwise – stand to get hurt. So it is with the mountains: but in this instance the cost could be life itself. For example, Paul describes the reality of engaging in such a high-risk romantic attachment, "To me [mountaineering] is just that on-going love affair I fell into when I was an adolescent and

I've never fallen out of it, even though it nearly killed me." Pep Masip – "one of the stars of big-wall climbing" (Kirkpatrick, 2011, p. 16) – recognised in Andy Kirkpatrick (2011) the stresses and strains of maintaining competing relationships: "Climbing is like a lover, and your wife knows this. Whenever you are together, no matter how much you love your family, your thoughts are only of your lover, of climbing." (p. 17). Indeed, this is an idea that Kirkpatrick (2011) recognises in himself, and in regard to maintaining romantic relationships pondered, "Who could live with someone as bad as me? To know that fundamentally, and no matter how much they denied it, you were never really first in their thoughts, the person to come back to, to fill the times in between [expeditions]" (p. 115).

Typically, this leaves the mountaineer with a dilemma: to attempt to maintain both relationships or end one? Anderl Heckmair (1975) said, "Occasionally in my life I have come to places where the way divided. Always I have chosen the one that led back into the mountains, even when a woman stood in the other road" (p. 34). Joe Simpson's view was different, "We did something we loved with a passion and it was life enhancing and life defining and yet it was killing our friends and nearly killing us" (Osmond, 2007). However, after considering the deaths of his friends and his own close calls Simpson says, "My love affair with risk-taking had cooled. I didn't want to play this game anymore" (Osmond, 2007). Similarly, Andy Kirkpatrick (2008) – and especially his then wife Mandy – recognised that his love for climbing could well kill him:

> [Mandy] was normal. She wouldn't and couldn't accept the fact that the thing you loved could be the thing that killed you. She knew me better than anyone, and knew the harder I climbed, the harder I would want to climb, so she feared that one day I wouldn't come back . . . She wanted a normal life and what I wanted was abnormal. (p. 179)

Andy Kirkpatrick seems to suggest that he would welcome it if his passion, or need, for approaching life threatening situations in the mountains were to diminish like Joe Simpson's (Osmond, 2007). Kirkpatrick (2011) records a conversation, with climbing partner Ian Parnell, after an uncharacteristic aborted attempt at the second ascent of 'Omega' on the Petites Jorasses: "'Maybe you're falling out of love with climbing,' said Ian, as the sky towards Chamonix turned red, and the rising sun lit up the spires of the Aiguilles, one by one." (p. 119). In response Kirkpatrick (2011) simply said, "I really hope so" (p. 119).

Counter evidence

Neil was asked to what extent he thought interpersonal relationships and the mountaineering domain shared similarities, "None whatsoever" he responded. Similarly, Dave was very clear about the extent to which he actively engaged in a relationship with the mountains, "I wouldn't go away and think of it as a relationship, categorically not. No, absolutely not . . . My relationship with my wife started with climbing and went from there. Climbing has always been a part of *our* relationship". For Dave, although he acknowledges the beauty of the mountains, he believes, "It's a bit of a bonus, the view and everything but I don't think it's what motivates a mountaineer." Dave continued "I mean you can have some pretty stunning views [whilst mountaineering] but you can get that at the bottom of our garden [with] the clouds and the sun in particular formations. So no – it's not that." This idea is confirmed by Dave Roberts (1986) who goes as far as to suggest that, "Love of nature seems to have little to do with it [why elite mountaineers go mountaineering]. Superclimbers are, on the whole, uncheerful about hiking, impatient with the weather, insensitive to the subtleties of the landscape." (p. 187). Similarly, Loewenstein (1999) said, "The much-vaunted beauty of the mountains is overplayed [as a motive]. Aside from subtle distinctions between, say, limestone and granite, one glacier, couloir, corniced ridge, or jagged peak looks much like another." (p. 312).

Ron does “seek out a relationship with the landscape and a connection with the hills” by “dabbling in rock-climbing, mountain running and walking” and also during the “extensive walk-ins” to reach the base of a route. Ron said,

> When you walk up to advanced case camp I think there’s a very childlike discovery aspect to it. There are beautiful looking things so that’s very exciting. It’s like hopping from one rock-pool to the next rock-pool, to see what you can see. You look around different ridges or different vistas and that’s really exciting and really rewarding. That’s one of my favourite bits of the expedition. It’s pre-climb but it feels very much part of the climb in that you're preparing yourself.

However, Ron was very clear that once he reaches the route his focus shifts, and experiencing a relationship with nature and the mountains “is not at all the reason I go mountaineering . . . in fact high-up it’s pretty barren and grim, mostly to be endured rather than enjoyed.”

Summary

The evidence from the mountaineering literature appears to provide a clear indication that, at least for certain individuals, mountaineering serves as a continuation or alternative to romantic attachments in everyday life. Interestingly, the interview data offers minimal support for the idea that mountaineers have a romantic attachment to the mountains. Indeed, although Ron reported a relationship with nature through a variety of comparatively low-risk outdoor activities, only Paul and Rick offered limited evidence that they viewed the high-risk mountaineering domain as relational in nature. In contrast, Dave and Neil categorically refuted the suggestion they engaged in a relationship with the mountains and avoided further discussion on the topic.

Initially, the data abstracted from the mountaineering literature and interview data appear incongruent. However, two salient points appear to bring some clarity to this finding. Firstly, it makes intuitive sense that the abstracted mountaineering literature primarily contains supportive rather than contradictory evidence for such an idea. Specifically, any author would likely give very short shrift to a topic that they personally deem irrelevant to their chosen subject. Thus, mountaineering authors, who do not view the high-risk domain as relational in nature, likely chose to not address the topic as opposed to raising it and subsequently dismissing it. Secondly, interview participants likely found such a private and personal topic difficult to discuss, with full-disclosure, in a face-to-face interview with a researcher whom they had just met for the first time. Indeed, this supports the previously discussed research finding that mountaineers have a significantly greater *difficulty describing feelings* than controls (Woodman et al., 2010) and reportedly favour avoiding emotional sharing (Roberts, 1986) and emotional intimacy (Leon et al., 1989). This evidenced difficulty describing feelings is likely less problematic when writing about ones emotions compared to speaking about them in a face-to-face interview (Pennebaker, 1989). Compared to a verbal exchange, in writing, authors have a greater 'physical distance' from the reader which has been shown to provide a perceived freedom from judgements and social constraints (Pennebaker, 1991). In this way, writing may provide "a mechanism of emotional expression in circumstances where interpersonal expression is not viable" for certain individuals (Smyth, 1998, p. 174). Furthermore, the author recognises that a limitation of the present research may have been that his personal interviewing technique may not have been sufficiently strong to draw out the evidence, and thus obtain full-saturation, on such personal questions face-to-face. The problem of discussing emotions with individuals who find emotional expression not only difficult but also possibly aversive has no easy solution. However, one avenue for future research may have arisen from a situation that initially may have been deemed a limitation of

the present research. Specifically, unlike the other four interviews, the interview with Neil – upon his request – was split across two separate occasions. The present author noted that during the first interview with Neil – as is typical in such interview based enquiry (Bruner, 1990) especially with elite athletes (cf. Gogarty & Williamson, 2009) – there was an initial period where Neil displayed a reluctance to disclose information beyond the surface level and appeared cautious to answer any questions that he deemed weren't strictly 'on topic'. By way of an example (from a separate interview), when Dave was asked, 'How easy do you find it to maintain relationships of a romantic nature?' he replied, albeit in a jocular manor, "What on earth has that got to do with mountaineering?" However, as was the case in each of the five interviews, Neil became more open, and more willing to discuss difficult topics (relationships, emotions etc.), as the interview proceeded. That said, Neil maintained a steadfast reluctance to talk about romantic relationships beyond a very superficial level. However, during the second interview Neil appeared very willing to talk about romantic relationships and how his climbing life has been impacted and influenced by the relationships he had engaged in. Neil suggested that it was the period of "contemplation following the first interview" that enabled him to see the personal relevance of the topics under discussion. This has interesting implications for future qualitative research in this area. It is noteworthy that the combined duration of the two interviews with Neil was not meaningfully different to the duration of the other four interviews. Rather, it appears that a period of "contemplation" enabled Neil to further examine his personal motives and experiences in light of the topics raised in the initial interview. In a similar vein, the research team acknowledge their understanding of these complex topics has evolved over many years and therefore it is more than reasonable to suggest that participants in such studies may benefit from a period of contemplation between interviews. In studies where multiple interviews are not possible

future research would do well to explore the extent to which participants benefit from reading in-depth information and having a period of 'contemplation' prior to the interview.

General summary

The aim of the present chapter was to examine three salient issues that were identified in the Barlow et al. (2012) research via a novel mixed model approach which combined qualitative interview based inquiry and abstraction from the mountaineering media. One limitation of this novel mixed model approach is that it relies almost entirely on participant recall. Participant self-report on their own behaviours, intentions, and meaning can often result in the presentation of contradictions or inconsistencies, sometimes even within the same breadth (Nisbett & Wilson, 1977). This problem is likely augmented by participants who have difficulty in articulating feelings, concepts and ideas that they barely understand themselves (Loewenstein, 1999; Roberts, 1986; Smith, 2005) and that maybe somewhat implicit in nature anyway (Woodman et al., 2010). Indeed, it has been noted that individuals may construct inventive and plausible explanations for their actions retrospectively that may not reflect what actually occurred (Nisbett & Wilson, 1977). However, as Bruner (1990) argues, it does not matter whether the account conforms to what others might say who were witnesses, nor whether the account is "true" or indeed "self-descriptive" (p. 120). Rather, research interest lies "only in what the person thought he did, what he thought he was doing it for, what kinds of plights he thought he was in and so on" (Bruner, 1990, p. 120).

Relatively few athletes have the language or philosophy to interpret the altered states associated with sporting participation (Murphy, 1977) and researchers may often be hindered by the apparent inability of participants' to clearly articulate their experiences (McInman & Grove, 1991). As such, the interviewees recruited in the present study were not only amongst the UK's best mountaineers but were known to be both articulate and – as evidenced in their writings, lectures or interviews – to have given the subject of 'motives for participation in

mountaineering' significant consideration. Whilst this approach yielded content rich data, the research team are aware of the dangers of only utilizing articulate members of sporting subcultures for research purposes (Sparkes, 2003). However, the wide variety of sources and individuals consulted during the media abstraction process goes a long way to compensate for this limitation.

In conclusion, the findings in this chapter provide evidence to suggest that mountaineers have generic exaggerated expectancies pertaining to their experiences and achievements in everyday life. This exaggerated expectancy is characteristic of a continual striving to reach ones 'limit': be that physical, mental, or both. The mountaineers' perceived difficulty of attaining their limit in everyday life is such that they seek out a challenge in the high-risk domain that they perceive is more difficult, stressful and dangerous than anything they can face in daily life. Such is the mountaineers' intolerance for vulnerability and weakness of all kinds – in others but mainly in themselves – that their own internal anxieties evoke a counter-phobic reaction within themselves. Specifically, mountaineers seek out, experience and control intense fear in the high-risk domain in an attempt to feel free from the perceived controlling power of anxiety in everyday life. Given these characteristics some mountaineers may choose to engage in a romantic attachment with the mountains as an attractive alternative to romantic relationships in everyday life.

Chapter 4 - General discussion

Thesis summary

The motives that underpin engagement in high-risk sport have long fascinated psychologists (Lester, 1983) since what reward could be worth risking one's life to achieve? (Heimer, 1988). For the past four decades the popular answer, arising from the literature, has been that it is the "sensation rewards" (Zuckerman, 2007, p. 13) of high-risk sport that certain individuals are willing to take physical risks in order to experience. From this sensation seeking theoretical standpoint, high sensation seekers are chronically under-aroused in normal situations and will engage in certain activities that are typically perceived as risky, such as high-risk sport, in order to increase their level of stimulation or arousal to a more optimal level (Zuckerman, 1994, 2005). For example, interview based research has suggested that participation in skydiving is motivated by the "intense feelings and sensations gained from the jump" (p. 284) which include "a buzz, a body rush, a high, [and] an adrenalin charge" (Lipscombe, 1999, p. 218).

Despite its popularity, sensation seeking theory fails to account for the full range of motives mentioned by risk takers themselves (Castanier, Le Scanff & Woodman, 2010). Furthermore, certain high-risk activities seem antonymic to the seeking of sensation rewards and attaining an increased level of arousal. Indeed, research suggests that expeditionary activities, such as mountaineering, are typically "mind-bogglingly monotonous" (Loewenstein, 1999, p. 20) and the participants therein "may be quite different" from the so-called "dare-devil sensation seeking adventurer" (Leon, McNally & Ben-Porath, 1989, p. 163). Thus, the starting point of the present thesis was that there must be additional motives, over and above sensation seeking, that motivate participation in expeditionary activities such as mountaineering.

Based on the work of Lester (1983, 2004), Woodman, Hardy, Barlow & Le Scanff (2010) identified that the constructs of *emotion regulation* and *agency* play an important role in motivating participation in expeditionary high-risk activities, over and above sensation seeking motives. Due to the lack of a suitable measurement instrument in the existing literature, the initial task, in Chapter 2 of the present thesis, was to create a new scale that measured sensation seeking, emotion regulation and agency (SEAS) as motives for participation in high-risk sport (Study 1 and Study 2). The new inventory was designed to measure motives for engaging in an activity (i.e., perceptions before participating), the experiences associated with participation (i.e., experiences while participating), and the transfer benefits derived as a consequence of participation (i.e., perceptions after participating). The scale thus comprised three 18-item inventories: *before*, *while*, and *after* participation. Fit indices confirmed that, for each of the three inventories that comprise the SEAS, the full models fitted the data well. Results demonstrated that the three-factor structure (Sensation seeking, Emotion regulation, Agency) should be accepted for the *between* and *while* participating inventories but rejected in favor of a two-factor structure (Sensation seeking; Agentic emotion regulation) for the *after* participating inventory.

Study 3 and Study 4 of Chapter 2 utilized the SEAS to test the hypothesized differential motives of mountaineers, skydivers, and low-risk sport controls. Results demonstrated for the first time that skydivers and mountaineers differ in their motives for their high-risk activity: skydivers are primarily motivated by the sensation rewards of their activity and mountaineers are primarily motivated by the agentic emotion regulation processes of their activity. Specifically, mountaineers are motivated to engage in the high-risk domain primarily by a significantly elevated emotion regulation and agency *expectancy* as well as a *difficulty* with emotion regulation and *diminished* agency. The results provide the first evidence that mountaineers actively engage in the high-risk domain in order to glean an

experience of *agency* and *emotion regulation* that satisfies a higher-than-normal perception of what life should provide in those terms. The compensatory function of the mountaineering domain is thus that mountaineers experience greater *experience of emotion regulation* and *agency* during their activity compared to other life endeavors. In understanding the perceived benefits of engaging with the mountaineering domain it is important to note that the agentic emotion regulation that mountaineers' enjoy post-participation is perceived to transfer to other important aspects of their everyday life. In other words, by being agentic in a high-stress environment such as the mountains for a prolonged period of time, the mountaineer feels better able to be agentic in other prolonged high-stress environments that he/she faces in everyday life (cf. Woodman et al., 2010).

The aim of Chapter 3 was to examine three specific issues, requiring further research attention, which arose from Chapter 2. The method involved in-depth interviews conducted with elite-level mountaineers, in combination with raw quotes abstracted from the mountaineering media.

Firstly, Chapter 3 aimed to further understand the extent to which *counter-phobia* (Fenichel, 1939) underpins the emotion regulation benefit of the mountaineering domain. Results demonstrated that mountaineers do display an *agentic choice* to engage with externalised intense emotion, the *experience* of externalised intense emotion, and the subsequent *regulation* of that intense emotion. Importantly, the benefit of displaying this counter-phobic attitude in the mountaineering domain is that mountaineers experience an enhanced perception of control over internalised intense emotion in everyday life.

Secondly, Chapter 3 aimed to further understand mountaineers evidenced exaggerated expectancies: both specific to emotion regulation and agency and also the extent to which these exaggerated expectancies were pervasive across all important aspects of mountaineers' lives. Results suggest that mountaineers' exaggerated expectancies are not limited only to

emotion regulation and agency. Rather, mountaineers seemingly place uncompromising achievement demands on both themselves and others across multiple important aspects of their lives. For individuals who have such high expectancies in everyday life the high-risk domain appears particularly attractive. Specifically, only in the mountains do mountaineers perceive that they face a test that pushes them to their absolute mental and physical limit.

Thirdly and finally, Chapter 3 aimed to explore the extent to which mountaineers display a romantic attachment to the mountaineering domain. Results suggest that, at least for certain individuals, mountaineering serves as a continuation or alternative to romantic attachments in everyday life. For such individuals engaging in a romantic attachment to the mountains seemingly has negative implications for maintaining successful romantic attachments in everyday life. Thus, the mountaineer engages in a continual struggle to either maintain a romantic attachment in both the mountains and everyday life simultaneously, or attempt to forego one and solely engage in the other. Interestingly, evidence of mountaineers' romantic attachments to the mountains was more replete in the abstracted media than in the interview data. Since this likely represents mountaineers' evidenced difficulty describing feelings (Woodman et al., 2010) it has important implications for future research designs with such individuals.

Theoretical & methodological implications

Homogeneity should not be assumed in risk-taking populations

The present results suggest that participants of diverse high-risk sports (such as mountaineering and skydiving) should not be considered as a homogenous group whose participation is driven by the same motives. Researchers should question the appropriateness of making inferences regarding the motives for participation in high-risk activities when the sample is drawn from a diverse range of high-risk activities and subsequently treated as a homogeneous group. Indeed, based on the present results, such methods may be a source of

confound for much of the extant literature. Furthermore, the extent to which contextually similar high-risk sports (e.g. expeditionary activities such as mountaineering, round the world sailing and trans-Atlantic rowing) are driven by similar or different motives should be explored and not assumed.

Sensation seeking as a motive

There are more than four decades of research which confirms that Zuckerman's SSS-V (Zuckerman et al., 1978) is a valid and reliable instrument for identifying individuals with the propensity or desire to engage in high-risk activities (Zuckerman, 2008). However, the SSS-V was neither designed for, nor is it capable of, measuring motives for various activities and yet to date it has been used to this end due to the lack of a suitable alternative. The SEAS is the first valid measure of sensation seeking (and emotion regulation and agency) as a motive for participation in high-risk sport. Thus, researchers would do well to distinguish between attempts to study *sensation seeking motives* – in which case the SEAS would be appropriate – or attempts to study the *propensity or desire to participate in so-called sensation seeking activities* – in which case the SSS-V would be appropriate.

Future directions already identified

The future directions for research, previously identified in the present thesis, are collated below.

Exaggerated expectations and perfectionism

Individuals with high expectations of themselves likely stand to have either a very fulfilling life or a very unfulfilling life with little in the way of middle achievement ground. That is, individuals who display an uncompromising pursuit of excellence will likely follow very divergent life paths dependent on the attainment, or otherwise, of their lofty aspirations. With this in mind the extent to which mountaineers' exaggerated expectancies reflect an

adaptive form of perfectionism, or indeed a maladaptive form, is an interesting avenue for future research. Research that examines the factors that moderate the ability of high-risk sport participants to translate their high achievement in the high-risk domain to other life domains certainly appears worthwhile. Equally, the extent to which one can benefit from engagement with high-risk activities as a way of elevating achievement standards appears worthy of research attention.

Compensation opportunities

A perceived inability to intentionally influence ones environment, behaviour and self-regulation is widely acknowledged as commensurately aversive (Brehm, 1966), and antithetical to psychological well-being (Batchelor, 2007; deCharms, 1968). Thus, individuals are likely motivated to explore various means of attaining agency and emotion regulation in everyday life. However, if pro-social opportunities for experiencing emotion regulation and agency in everyday life are perceived as unavailable (cf. Salmela-Aro, 2009), individuals may perceive that their only recourse to satisfying emotion regulation and agency needs is via more anti-social means such as high-risk crime, reckless driving, drug use, etc. (cf. Klonsky, 2007). Thus, future research would do well to examine whether antisocial risk-takers (e.g., criminals) can experience the agentic emotion regulation benefits that mountaineers report in the present research, as a consequence of the opportunity to express their emotion regulation and agency needs in the high-risk natural environment (e.g., the mountains).

Maximising transfer

Study 3 and Study 4 of Chapter 2 demonstrate that despite both mountaineers and skydivers undergoing a statistically similar experience of agency while participating, skydivers did not experience a positive agentic emotion regulation transfer effect. Indeed, this is likely due to the experience of agency merely being a requisite for successful engagement

with the high-risk domain. Furthermore, since skydiving is of relatively short duration, the associated experience of agency is likely too brief to provide any meaningful transfer of agentic emotion regulation into everyday life. Thus, future research that establishes whether there is an optimum participatory duration for maximizing transfer effects would be worthwhile. Additionally, it would be worthwhile to investigate whether there is a limit of constancy and intensity of the agentic and emotional challenges faced during participation below which there is likely to be no agentic emotion regulation transfer effect and at which the transfer effect is maximised (cf. Norris & Weinman, 1996). The SEAS could be employed in a prospective repeated measures design to address this issue. Furthermore, such as design would allow researchers to examine the *duration* of both the agentic emotion regulation transfer benefit and the satisfaction of sensation need gleaned as a result of participation. However, researchers would do well to recognise that the arousal 'high' of skydiving may well impair the skydivers' ability to accurately report their emotional experiences immediately post participation (Revelle & Loftus, 1992).

High-risk activities as stress inoculation training

Results from Chapter 3 demonstrate that the emotion regulation benefit of participation in mountaineering is in the *agentic choice* to engage with externalised intense emotion and the *experience* and subsequent *regulation* of externalised intense emotion. Thus, the mountaineer benefits from an increased belief in their ability to control intense emotion. Controlling externally derived fear in the high-risk domain may be particularly attractive to those individuals who perceive they struggle to control the internally derived anxieties of everyday life (Castanier et al., 2010). From this perspective mountaineering could be viewed as a self-managed form of stress inoculation training (cf. Meichenbaum, 1985). As such, these results have implications for how activities, perceived as risky, may be used as an effective non-pharmacological treatment for non-mountaineering individuals, who struggle to

deal with their own internalised anxieties in everyday life. Future research would do well to explore the potential beneficial effects of exposing sufferers of chronic anxiety to controllable perceived risks in the outdoor adventure domain (for example, a high-ropes course or abseiling). In this way, future research could test the long term effects of individual's increased ability to manage internalised anxieties in their everyday life as a consequence of dealing with ever increasing externalised stressors in a domain that is perceived as risky.

Beyond self-report methods

In Chapter 3, results demonstrated that – as a consequence of exaggerated expectancies – only in the mountains, unlike in everyday life, do mountaineers perceive they can find a challenge that may test them to their physical and mental limit. A limitation of assessing elevated expectancies using self-report measures such as the SEAS is that mountaineers may be motivated to report that they attain in the mountains something that is unobtainable in everyday life in order to substantiate their own beliefs about the value of engaging in expeditionary high-risk activities. Thus, future research would do well to utilize 'other-report' methods – from friends, family, loving partners etc. – to establish the extent to which significant others perceive that mountaineers display observable exaggerated expectations in everyday life. Furthermore, such methodologies would be useful in exploring transfer effects from the high-risk domain back into everyday life. Specifically, of interest would be the extent to which significant others report a significant improvement in the mountaineer's ability to emotionally regulate post-expedition. Indeed, such methodologies would go some way to establishing the extent to what the transfer effects that mountaineers report are purely perceptual – i.e. an increased belief in ones' ability to demonstrate agentic emotion regulation in everyday life – or if the transfer effects represented an enhanced set of skills and resources, developed in the high-risk domain, and utilised in everyday life.

Contemplation to aid emotional expression

In-depth interviews, regarding emotional topics, with participants who a typically display a dislike for emotional sharing, difficulty describing feelings and lack of interest in social interaction will likely be a severe challenge to any researcher. Thus, strategies to aid participant's emotional expression are worthy of future research. The extent to which interviews conducted over multiple sessions might yield a greater depth of emotionally rich content should be explored. Specifically, are individuals – who have a difficulty describing feelings – better able to express their emotions after a significant period of contemplation and rumination regarding topics that are new to them and require high-levels of introspection? Additionally, increased 'physical distance' from the intended recipient of emotional information has been shown to aid emotional openness and expression for certain individuals (Pennebaker, 1989, 1991). Thus, future research could examine the extent to which e-questionnaire techniques might provide "a mechanism of emotional expression" that otherwise is perceived as "not viable" in face-to-face interviews, for individuals who have a difficulty describing feelings (Smyth, 1998, p. 174).

Additional future directions for research

High-risk sport as escape from self-awareness

An important finding in the present thesis is that mountaineers, unlike skydivers, derive a significant agentic emotion regulation benefit from participation in high-risk sport. In this way, mountaineering serves a *compensatory* function to the mountaineer: an opportunity to experience emotion regulation and agency in a way that is perceived as being not readily available to them in everyday life. However, *compensation* is not the only method through which an individual may seek to deal with discrepancy induced negative affect.

Self-regulation theory (Higgins, 1987, 1996; Carver & Scheier, 1998) suggests that attention focused on the self leads to awareness of discrepancies between one's goals in a particular situation and one's current status in relation to that goal. Purposeful goal directed

behaviour is viewed as an attempt to reduce such discrepancies. However, in accordance with Duval and Wicklund's (1972) theory, if attempts to reduce these goal discrepancies fail negative affect ensues (e.g. anxiety, guilt, depression etc.). In response to this 'failure' the "easiest" (Taylor & Hamilton, 1997, p. 352) way to deal with discrepancy induced negative affect, rather than *compensate*, is to *escape* from self-awareness is by disengaging from the failed task or activity and turning attention away from the self (Duval & Wicklund, 1972; Taylor & Hamilton, 1997). That is to say, if focusing on difficulties in important problems that are close to the core of the self is aversive, then doing something to impair one's ability to focus at that high-level can reduce the aversiveness (Carver & Scheier, 1998).Turning off high-level self-awareness by sheer cognitive effort is like only to be partly successful (Wicklund, 1975) and as such alternate means of escaping self-awareness are often employed: for example substance abuse (Butterfield, & Leclair, 1988); alcohol use (Hull, 1981); binge-eating (Heatherton & Baumeister, 1991); sport (Segrave, 2000).

Results in Chapter 3 indicate that escaping from self-awareness via activities requiring the "abandonment of agency" (Larkin & Griffiths, 2004, p. 222) and a total loss of awareness of self-awareness – such as drug and alcohol abuse – may be commensurately aversive to mountaineers who demonstrate an elevated desire for agency in everyday life (Lester, 2004). Furthermore, survival in the high-risk domain appears maximised to the extent that mountaineers display increased rather than decreased levels of agency (Twight & Martin, 1999). This raises an interesting question, is mountaineering inherently incongruent with escape from self-awareness?

Carver & Scheier (1998) suggest that an individual may *escape* from discrepancy induced negative affect without abandoning agency and without attaining a total loss of self-awareness. Carver & Scheier (1998) propose that an alternate method of impairing one's own ability to focus attention on a high-level discrepancy is to completely focus attention on a

lower-level goal. Stepping attention downward, to a more concrete low-level of function, protects the person, albeit temporarily, from awareness of higher-level discrepancies within the self (Kirschenbaum, 1987; Baumeister & Heatherton, 1996). In this way escape focused behaviour represents a kind of mental disengagement from the higher-level value that is causing the negative affect (Carver & Scheier, 1998). This bears similarities to *cognitive deconstruction* whereby the individual forsakes their normal mode of understanding and encountering the world in complex sophisticated and integrative terms, and rather views their experiences as a set of stimuli, simple associations and immediate responses (Vallacher & Wegner, 1985, 1987; Wegner & Vallacher, 1986; Pennebaker, 1989). Such cognitive deconstruction enables an awareness of self and action in concrete, short-term ways, focusing on movements and sensations whilst thinking only of proximal, immediate tasks and goals (Baumeister, 1990b). This is an idea expressed by Andy Kirkpatrick (2008),

> Appreciation of the moment is one of the best aspects of climbing, something that I find missing from normal life, with its countless worries. On a wall there are no thoughts of savings, promotions or pensions. *Your future only stretches as far as the next two shiny bolts at the belay above*. [emphasis added] (p. 118)

This represents a psychological effort to confine awareness to the immediate present as a way of avoiding integrative, meaningful thought and thus, instead of being aware of the self as part of an on-going network of relationships, commitments, long-term ambitions, one is aware of self only as a physical thing (a body) (Baumeister, 1990).

This alternate method of escaping discrepancy induced negative affect has implications for future research into high-risk sport. Indeed, through mountaineering the mountaineer may attain a temporary escape from discrepancy induced negative affect by entering a domain wherein survival demands hyper-awareness of the self in the immediate present (Pennebaker, 1989b): diminishing the individuals capacity to focus on the high-level

self-discrepancies from which they are temporarily escaping (Carver & Scheier, 1998). For example, Baumeister (1990b) suggests that "awareness may be very sharp and intense in the deconstructed state, such as when one faces an immediate physical danger" (p. 92).

This idea is confirmed by Jon Krakauer (1996) who suggests that,

> On a difficult climb… your attention becomes so intensely focused that you no longer notice the… strain of maintaining nonstop concentration... Hours slide by like minutes. The accumulated clutter of day-to-day existence — the lapses of conscience, the unpaid bills, the bungled opportunities, the dust under the couch, the inescapable prison of your genes — all of it is temporarily forgotten, crowded from your thoughts by an overpowering clarity of purpose and by the seriousness of the task at hand. At such moments something resembling happiness actually stirs in your chest, but it isn't the sort of emotion you want to lean on very hard. (p. 143)

Future research should explore the extent to which the process by which mountaineering may serve an escape function to the participant, are different to the process by which socially unaccepted forms of risk-taking, such as substance abuse, serve an escape function. Specifically, of central interest is the extent to which mountaineers find escape via hyper-awareness of the self in the high-risk domain contrasts to escaping self-awareness via the abandonment of agency and total loss of self-awareness during drug/alcohol abuse (cf. Larkin & Griffiths, 2004).

With this in mind, the escape function of certain high-risk activities that require an elevated abandonment of agency – for example bungee jumping– may share greater similarities to the escape function of substance abuse than with the escape function of activities such as mountaineering. Indeed, the question remains, do all high-risk activities provide the participant with a degree of escape from self-awareness – albeit via different

processes – but only certain high-risk activities provide a compensation function to the participant? Furthermore, since negative affect is a product of meaningful interpretations of self-discrepancies, deconstructing these interpretations – for example by focusing only on physical movements and immediate tasks and goals in the high-risk domain – provides a relative release from the negative affect (c.f. Pennebaker, 1989b). Thus, the extent to which mountaineers are primarily motivated by reducing negative affect, as opposed to increasing positive affect, seems worthy of further investigation (see Castanier et al., 2010).

Difficulty describing feelings

Difficulty with emotion regulation may be a risk-factor for subsequent self-harm since individuals who self-injure have been shown to be less able to appropriately process or deal with their high-levels of negative affect (Paivio & McCulloch, 2004). Indeed, Polk & Liss (2007) demonstrated that *difficulty describing feelings* is strongly related to the propensity for self-harm in college students. Expeditionary high-risk sport participants demonstrate a significant difficulty describing feelings in everyday life (Leon et al., 1989; Lester, 1983; Woodman et al., 2010), and experience a subsequent perceived generalized emotion regulation benefit post expedition: resulting in a greater perceived ability to describe their feelings (Woodman et al., 2010). Thus, future research would do well to explore the extent to which certain high-risk sports can serve as an alternative to self-harm for those individuals who struggle to deal with their negative affect. This line of reasoning adds further credence to the theoretical stance that the affective benefit of the expeditionary high-risk domain, to the participant, is a decrease in negative affect as opposed to an increase in positive affect (cf. Castanier et al., 2010).

Difficulty with emotion: The benefits

Mountaineers evidenced difficulty describing feelings (Woodman et al., 2010) and avoidance of emotional sharing (Roberts, 1986) may have a profoundly disruptive effect on

their personal lives and frequently hamper their interpersonal relationships (cf. Taylor, Bagby & Parker, 1997). However, in the high-risk domain these very same characteristics may cease to be a hindrance to the mountaineer, and rather be advantageous. Individuals who have difficulty describing feelings, and thus display a low-expressivity of emotion, deal with negative emotions differently to individuals who have high-expressivity (cf. Gross, John & Richards, 2000). Emotional-suppression may be one – conscious or unconscious – form of emotion regulation used by individuals with low emotional expressivity to deal with negative emotion (Gross & Levenson, 1993). Such individuals "have, during the course of their socialisation, been punished for displaying in overt displays emotionality and have learned to [automatically and with little reflection] inhibit such displays" (Lanzetta & Kleck, 1970).

Future research would do well to examine the extent to which such automatic behaviours are facilitative of enhanced performance in the high-risk domain: when dealing with heightened levels of intense negative emotion such as fear. Additionally, there appears to be few domains wherein a lack of emotional expressivity is rewarded. Thus, future research should explore whether the high-risk domain can provide an opportunity for powerful mastery experiences for young people who have a difficulty describing feelings and thus struggle finding their place in a world that increasing demands emotional expression (cf. Pennebaker, 1989b).

The dangers of *not* engaging in high-risk sport

For both skydivers and mountaineers, engaging in high-risk sport for the benefits that participation procures may be perceived as somewhat of a "necessity" to the participant – perhaps even as an addiction (Willig, 2008, p. 694). Thus, in Chapter 2 it was proposed that research attention should be given to the process by which individuals may satisfy their exaggerated emotion regulation and agency needs if participation in the high-risk domain became impracticable or impossible (e.g., through injury, change in life circumstances,

aging). It was proposed that engagement with the high-risk domain in a more clearly pro-social fashion (e.g. as a firefighter) is one obvious avenue (cf. Cazenave et al., 2007). Indeed, such individuals – with adequate self-complexity (Larkin & Griffiths, 2004) and self-efficacy (Bandura, 2006) – will likely employ positive goal striving across multiple compensatory activities. In this way, exaggerated expectancies of emotion regulation and agency may serve as a facilitative effect across multiple domains of a participant's life.

However, there is likely a dark-side to forced disengagement with the high-risk domain for those individuals without the adequate self-complexity to shift goal directed efforts to an alternate pro-social risk-taking activity. Indeed, as described above, mountaineering may negate the need to engage in destructive behaviours, such as self-harm, for those individuals who struggle to deal with negative affect. Baumeister and Scher (1988) suggest that a major cause of self-destructive choices is the desire to escape from aversive emotional states and from high self-awareness. Therefore, forced disengagement with the high-risk domain may leave such individuals more prone to self-harm as form of escape from negative affect (Laye-Gindhu & Schonert-Reichl, 2005). This potential problem is not limited to mountaineering populations but rather is applicable also to skydivers since research suggests that "those who are thrill seekers… may be more prone to self-injury" than non-thrill seeking individuals (Joiner, 2005, p. 72): especially if sensation seeking needs cannot be met in an alternate manor.

However, for mountaineers, results of the present thesis highlight an important additional risk factor of forced disengagement with the mountaineering domain. Specifically, high standards and expectations – evidenced in mountaineering populations in the current thesis – combined with current, specific failures, setbacks, or stresses which foster acute disappointment are the general situational causes of escapist suicide (Baumeister, 1990b). Thus, "suicide may arise either because standards are unrealistically high or because events

are unusually bad (or both)" (Baumeister, 1990b, p. 91). Furthermore, whereas for the majority, death is a fearsome prospect, "people who have habituated to the fear of death [such as experienced high-risk sport participants] are [more] capable of extreme forms of self-injury" such as suicide (Joiner, 2005, p. 92). Whereas systems exist to aid ex-drug-addicts and recovering alcoholics to integrate effectively into society, future research would do well to explore the extent to which such systems could benefit high-risk sport participants. Indeed, this is an important topic since in the last 45 years suicide rates have increased by 60% worldwide and in the UK, for people aged 15-24, suicide is the second biggest cause of death after road accidents (World Health Organisation, 2011).

Initial statistical research into the prevalence of suicide in ex-high-risk sport participants may aid in establishing the extent of this potential problem. However – although it was both unintended and beyond the scope of the study – evidence arose during the interviews in Chapter 3 that suggests such statistics would likely not illuminate the problem. Researchers interested in this area would do well to listen to experienced mountaineers on the topic of suicide; since in mountaineering suicide may take a different form to more typical methods of suicide. Specifically, Dave, Neil and Ron suggested they can clearly observe a very real distinction between an expedition where the challenge is at the very limit of the mountaineer's capabilities, and an expedition that was so far beyond the mountaineer's abilities that it was "tantamount to suicide" [Dave]. With this in mind, the study of suicide in high-risk populations following 'forced disengagement', whilst interesting, may only partially encompass the problem. Rather, it appears that some mountaineers chose *continual engagement* in expeditions with increasing risks as an attractive, yet potentially fatal, alternative to the high-levels of negative affect experienced in everyday life.

Specificity of transfer

Mountaineers experience a significant agentic emotion regulation transfer benefit, after participating, that skydivers do not. The present research measured transfer from the high-risk domain into 'important' aspects (e.g., relationship with a partner, friends, family, and work) of the participant's everyday life. Thus, future research could investigate further the specificity of these evidenced transfer effects. Specifically, do those mountaineers who engage in an active relationship with the mountains, experience maximal transfer into romantic relationships in their everyday lives?

Strengths & weaknesses of the thesis

One of the main strengths of the present thesis and the studies therein, is the wide variety of measurement techniques employed. Since to best glean an individual's general notion of self it must be assessed in a variety of contexts (Bruner, 1990), the application of various quantitative and qualitative methods in the present thesis has enabled "a comprehensive analysis of the research problem" (Creswell, 2008, p.14). Within the quantitative methodologies the current research includes scale development, non-experimental hypothesis testing and 'e-questionnaires' (including the most up-to-date software and data protection safeguards). Qualitative methodologies include in-depth interviews with elite athletes, and data abstraction from a variety of multimedia sources. The main limitation of the present thesis from a research training perspective is the absence of a study employing a true experimental design. That said, the requisite statistical techniques of a true experimental design have been demonstrated within the non-experimental hypothesis testing utilised in present body of work.

Personal reflections

We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time.
– T.S. Eliot (1942)

My personal experience of completing this PhD has many parallels with a mountaineering expedition. At times the experience has been characterised by struggle, stress, toil, and difficulty. However, during my PhD, as in the mountains, these experiences were typically sought out and revelled in rather than avoided: experienced and controlled rather than evaded. Various 'summits' were attained and celebrated throughout the course of my studies with an acute awareness that "the moment of victory is much too short to live for that and nothing else" (Navratilova, 1986, p. iv). I have benefitted significantly from having great teachers and role models – both within and outside of the academic world – without whom this journey would have been impossible. At the end of five years of research training I believe I may have finally begun to understand – for the first time – the depths of the research question I set out to answer. With regard to the question I set out to answer of myself: I have my answer. The PhD journey ends in the knowledge that this is actually merely the true beginning of my journey as an academic and the start of a whole new set of adventures in my life.

Whom have we conquered? None but ourselves.
Have we won a kingdom? No and yes.
We have achieved an ultimate satisfaction, fulfilled a destiny.
To struggle and to understand, never this last without the other.
– George Mallory, 1924.

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Appendices

Appendix A: SEAS - While participating inventory

Sensation seeking, Emotion regulation and Agency scale: While participating inventory

The following questionnaire contains a number of statements that high-risk sports participants have used to describe their experiences WHILE participating.

Please read each statement carefully and then select the appropriate number to the right of the statement indicating how much you agree with the statement (from completely disagree to completely agree). Please give only one answer for each statement.

We are interested only in your experiences, not in how others feel about these things. Please think very carefully about each statement before answering. There are no right or wrong answers, so please be frank and give an honest appraisal of yourself.

While participating…		COMPLETELY DISAGREE					COMPLETELY AGREE
1	I get a rush of chemicals around my body that feels great						
2	I have to manage my fear						
3	I choose how far to push when I am scared						
4	I experience physical sensations which feel great						
5	I am free from the constraints imposed on me in the rest of my life						
6	I have to deal with stressful situations						
7	I enjoy getting a physical thrill						
8	I have to deal with intense emotions						
9	I am in charge						
10	I like to get a physiological buzz						
11	If a difficult situation arises I feel able to deal with it						
12	I prove to myself that I can deal with stressful situations						
13	I enjoy the sensations I experience						
14	The emotions I experience are more intense than in other areas of my life						
15	My actions and decisions prevent undesired outcomes from happening						
16	I experience intense excitement						
17	My emotions are sometimes very intense						
18	No-one can force me to do something I don’t want to do						

Appendix B: SEAS - After participating inventory

Sensation seeking, Emotion regulation and Agency scale: After participating inventory

The following questionnaire contains a number of statements that high-risk sports participants have used to describe their experiences AFTER participating.

Please read each statement carefully and then select the appropriate number to the right of the statement indicating how much you agree with the statement (from completely disagree to completely agree). Please give only one answer for each statement.

We are interested only in your experiences, not in how others feel about these things. Please think very carefully about each statement before answering. There are no right or wrong answers, so please be frank and give an honest appraisal of yourself.

When the questions say "my life", please think about elements of your life that are important to you (e.g. Work, Family, Friends, Relationship with your partner etc).

	After participating…	COMPLETELY DISAGREE					COMPLETELY AGREE
1	I am often buzzing from the adrenaline						
2	I feel I have demonstrated that I can deal with intense emotions						
3	I feel more influential in how events in my life unfold						
4	I look back and think how much I enjoyed the rush						
5	I find intense emotions easier to deal with						
6	I have a calmness that carries over into other aspects of my life						
7	I remember how good the sensations felt during participation and want to experience them again						
8	I am more confident about facing challenges in other aspects of my life						
9	I find it easier to deal with stressful situations in my life						
10	I enjoy the rush of chemicals still flowing round my body						
11	I feel better for having experienced my emotions						
12	I am more confident that I can affect those aspects of my life that are important to me						
13	I feel like I have satisfied my immediate need for thrill						
14	I feel more able to deal with stressful situations in my life						
15	I feel better about my ability to bring about important outcomes in my life						
16	I enjoy the feeling of adrenaline flowing around my body						
17	I feel more able to prevent difficulties occurring in other aspects of my life						
18	I feel better able to deal with aspects of my life that would normally make me feel emotional (e.g., anxious, angry)						

Appendix C: SEAS - Between participating inventory

Sensation seeking, Emotion regulation and Agency scale: Between participating inventory

This section refers to your experiences of life BETWEEN bouts of participation (i.e., when you have not participated for what you consider to be a significant period of time). You can define for yourself what you consider to be a significant period.

When answering these questions do not think of the moments immediately before participating. Rather, think about how you feel when it has been a significantly extended period since your last bout of participation. When the questions say "my life", please think about elements of your life that are important to you (e.g. Relationship with a partner, Family, Friends, Work, etc).

This section is slightly different from the previous two sections you have completed. In this section each statement requires TWO responses.

Firstly, please respond to each statement using the same "Completely Agree" to "Completely Disagree" format that you have been using up until now. This first response refers to your actual experience of life when you have not participated for a significant period.

After each response in the first column, please give a response to each statement in the second column also – the second response refers to how you FEEL about your actual experience. Specifically how comfortable are you about how you have responded in the first column. For example, are you agitated by the way things are or are you quite happy to feel the way you do? It is a measure of how comfortable or uncomfortable you are about feeling this way.

As an example, when responding to the item "I am prevented from achieving my goals in life" you may 'Completely Agree' with this statement and select '1'. However, you may feel agitated or uncomfortable that you feel prevented from achieving your goals in life and therefore respond to the second part of the question with a '7'. This would indicate that you believe you 'ought not to feel like this'. Similarly, when responding to the item "I struggle to deal with stressful situations in my life" you might respond with a '2' because you do indeed feel that stressful situations in your life are difficult to deal with. However, if you are comfortable with this feeling and accept that this is just how life is, you will likely respond to the second column with a low number indicating that you feel 'comfortable about this'.

		Response 1							Response 2						
Between participating, when I have not participated for a significant period…		**COMPLETELY DISAGREE**						**COMPLETELY AGREE**	IT'S OK TO FEEL LIKE THIS						I OUGHT NOT TO FEEL LIKE THIS
1	I look forward to getting a physical thrill from participating														
2	I feel worried about other aspects of my life, not related to the task														
3	I feel like people or circumstances are trying to impose limits on me														
4	I look forward to the "rush" I hope to experience during participation														
5	The emotional elements of my life are difficult to deal with														
6	I feel like my life 'belongs' to other people														
7	I feel the need to do something intensely stimulating														
8	I can't work out which emotion I am experiencing														
9	I feel trapped														
10	I want to get an adrenaline rush														
11	I am prevented from achieving my goals in life														
12	I look forward to the physical sensations I will experience during participation														
13	I struggle to deal with stressful situations in my life														
14	I feel like a passive observer of my life rather than a major "actor"														
15	I want to get a physical buzz														
16	I am emotional (e.g. anxious, angry) without understanding why														
17	I have little belief in my ability to influence some important aspects of my life														
18	I find that emotional situations in my life stress me out														

Appendix D: Bibliography

A bibliography of the sources consulted during the media abstraction process in Chapter 3: both those quoted directly in the results section of the Chapter 3 and those that are not.

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Appendix E: Sensation Seeking Scale Form V

The Sensation Seeking Scale form V, Zuckerman, Eysenck & Eysenck, 1978.

Instructions: Each of the items below contains two choices, A and B. Please circle which of the choices most describes your likes or the way you feel. In some cases you may find items in which both choices describe your likes or feelings. Please choose the one which better describes your likes or feelings. In some cases you may find items in which you do not like either choice. In these cases mark the choice you dislike least. Do not leave any item blank. It is important you respond to all items with only one choice, A or B. We are interesting only in your likes or feelings, not in how others feel about these things or how one is supposed to feel. There are no right or wrong answers as in other kinds of tests. Be frank and give your honest appraisal of yourself.

1	A. I like "wild" uninhibited parties B. I prefer quiet parties with good conversation
2	A. There are some movies I enjoy seeing a second or even third time B. I can't stand watching a movie that I've seen before
3	A. I often wish I could be a mountain climber B. I can't understand people who risk their necks climbing mountains
4	A. I dislike all body odours B. I like some of the earthly body smells
5	A. I get bored seeing the same old faces B. I like the comfortable familiarity of everyday friends
6	A. I like to explore a strange city or section of town by myself, even if it means getting lost B. I prefer a guide when I am in a place I don't know well
7	A. I dislike people who do or say things just to shock or upset others. B. When you can predict almost everything a person will do and say he or she must be a bore.
8	A. I usually don't enjoy a movie or play where I can predict what will happen in advance B. I don't mind watching a movie or play where I can predict what will happen in advance.
9	A. I have tried marijuana or would like to. B. I would never smoke marijuana
10	A. I would not like to try any drug which might produce strange and dangerous effects on me B. I would like to try some of the drugs that produce hallucinations
11	A. A sensible person avoids activities that are dangerous B. I sometimes like to do things that are a little frightening
12	A. I dislike "swingers" (people who are uninhibited and free about sex) B. I enjoy the company of real "swingers

13 A. I find that stimulants make me uncomfortable
B. I often like to get high (drinking liquor or smoking marijuana)

14 A. I like to try new foods that I have never tasted before
B. I order the dishes with which I am familiar so as to avoid disappointment and unpleasantness

15 A. I enjoy looking at home movies, videos, or travel slides
B. Looking at someone's home movies, videos, or travel slides bores me tremendously

16 A. I would like to take up the sport of water skiing
B. I would not like to take up water skiing

17 A. I would like to try surfboard riding
B. I would not like to try surfboard riding

18 A. I would like to take off on a trip with no pre-planned or definite routes, or timetable.
B. When I go on a trip I like to plan my route and timetable fairly carefully

19 A. I prefer the "down to earth" kinds of people as friends
B. I would like to make friends in some of the "far-out" groups like artists or punks

20 A. I would not like to learn to fly an airplane
B. I would like to learn to fly an airplane

21 A. I prefer the surface of the water to the depths
B. I would like to go scuba diving

22 A. I would like to meet some persons who are homosexual (men or women)
B. I stay away from anyone I suspect of being "gay" or "lesbian"

23 A. I would like to try parachute jumping
B. I would never want to try jumping out of a plane, with or without a parachute

24 A. I prefer friends who are excitingly unpredictable
B. I prefer friends who are reliable and predictable

25 A. I am not interested in experience for its own sake
B. I like to have new and exciting experiences and sensations even if they are a little frightening, unconventional, or illegal

26 A. The essence of good art is in its clarity, symmetry of form, and harmony of colours
B. I often find beauty in the "clashing" colours and irregular forms of modern painting

27 A. I enjoy spending time in the familiar surroundings of my home
B. I get very restless if I have to stay around home for any length of time

28 A. I like to dive off the high board
B. I don't like the feeling I get standing on the high board (or I don't go near it at all)

29 A. I like to date persons who are physically exciting
B. I like to date persons who share my values

30 A. Heavy drinking usually ruins a party because some people get loud and boisterous
B. Keeping the drinks full is the key to a good party

31 A. The worst social sin is to be rude
B. The worst social sin to be a bore

32 A. A person should have considerable sexual experience before marriage
B. It is better if two married persons begin their sexual experience with each other

33	A. Even if I had the money, I would not care to associate with flighty rich persons in the "jet set"
	B. I could conceive of myself seeking pleasures around the world with the "jet set"
34	A. I like people who are sharp and witty even if they do sometimes insult others.
	B. I dislike people who have their fun at the expense of hurting the feelings of others
35	A. There is altogether too much portrayal of sex in movies
	B. I enjoy watching many of the "sexy" scenes in movies
36	A. I feel best after taking a couple of drinks
	B. Something is wrong with people who need liquor to feel good
37	A. People should dress according to some standard of taste, neatness and style
	B. People should dress in individual ways even if the effects are sometimes strange
38	A. Sailing long distances in small sailing crafts is foolhardy
	B. I would like to sail a long distance in a small but seaworthy sailing craft
39	A. I have no patience with dull or boring persons
	B. I find something interesting in almost every person I talk to
40	A. Skiing down a high mountain slope is a good way to end up on crutches.
	B. I think I would enjoy the sensations of skiing very fast down a high mountain slope

Scoring key for the SSS form V

Thrill and adventure seeking		**Boredom susceptibility**		**Experience seeking**		**Disinhibition**	
3	A	2	B	4	B	1	A
11	B	5	A	6	A	12	B
16	A	7	B	9	A	13	B
17	A	8	A	10	B	25	B
20	B	15	B	14	A	29	A
21	B	24	A	18	A	30	B
23	A	27	B	19	B	32	A
28	A	31	B	22	A	33	B
38	B	34	A	26	B	35	B
40	B	39	A	37	B	36	A

Appendix F: Semi-structured interview guide

- I'd first like to thank you for agreeing to be interviewed.
  - During this interview I want to discuss your reasons for participation in mountaineering and the role that mountaineering plays in your life.
  - I'm particularly interested in what it is about mountaineering that draws us back over and over again to the high risk mountaineering domain.
    - This is a question that has been repeated asked throughout the course of mountaineering history but is one that is very difficult to answer.
- We could discuss it at length for days to cover everything so rather than that I'd like to ask you:
  - Specifically for your opinions on some of our research findings
  - Other things that we may not have considered that you believe are an important part of why you climb
- I might present you with some quotes from your published work, other mountaineering literature and also from other mountaineers we've spoken to and get your opinions, experiences and insights in relation to them.
- Throughout the interview I'll be asking you about your perceptions and experiences in the mountaineering domain and contrasting them with your experiences of everyday life and in particular relationships with other people
  - If for whatever reason there is anything you don't want to answer that's totally fine
    - Feel free to with draw at any point
  - All answers will be strictly confidential and heard only by myself and my supervisors Lew Hardy and Tim Woodman. Any element of this interview that we would like to report in a thesis or scientific paper will be firstly run by you. Only things with your express permission to print will be reported.
- For the purposes of accuracy I would like to record the interview if that is OK with you?
  - If at any point you do not understand my questions or I do not make myself clear then please let me know rather than answering the question you think I might me trying to ask.
- Why don't we start by you telling be a bit about how you got into climbing in the first place
  - Details about family attachments, significant relationships, school/teenage years,
  - What inspired you to take up climbing?
  - Have you ever guided clients or / been responsible for others lives in a paid capacity?
  - Other sports participated in
- On-going mountaineering experiences
  - Last time you did a serious expedition, upcoming expeditions

<u>Sensation Seeking</u>

- I'd like to start out by talking about the adrenaline rush, which is what a lot of outside observers of high-risk sport typically cite as the primary motive for participation in high-risk sports. This is the idea that participation is motivated by the attainment of a buzz, rush or thrill.

Buzz & Thrill

- What is your view on the adrenaline rush being a primary motivator for you?
  - **Before** participating: Setting out to achieve it, **During**: Get a buzz, **After**: Feel better for a time, miss the buzz

Sensation Rewards (physical sensations)

- Can you talk me through a climb and tell me about the physical sensations you experience whilst climbing?
  - Pleasant sensations, Unpleasant sensations
  - Rock climbing vs. mountaineering
  - Frequency of pleasant and unpleasant sensations
- Physical sensations **after** climbing both positive and negative
  - Physical sensations you look forward to / don't look forward to after non-participation
- If someone who had never been mountaineering before asked you to sum up what it is like **physically** to be part of a big expedition how would you describe it?

Monotony and tedium (Psychological sensations)

- What is your experience of mountaineering being 'monotonous' and 'tedious'?

Pain & Pleasure

- What is your experience of suffering on expeditions?
- What is your experience of pain as pleasure?
  - Why do you think you enjoy a sport that entails suffering?
  - How does this affect the routes you chose to climb?

Summary

- I've talked to you about the physical sensations of climbing as I understand them but just to be certain I haven't missed anything important
  - Is there anything else you'd like to tell me in regard to the sensations you experience during climbing, after climbing, or when you have not participated for a while?

<u>While participating: Emotion Regulation</u>

- What is the emotional experience of mountaineering?
- Can you talk me through a climb and describe the emotions you experience whilst you are climbing? [Prior, whilst climbing, belaying, bivi, pre-crux, post-crux]
  - What is the most dominant emotion you experience when you are climbing?
    - Describe: Intensity, duration, modulation, onset, and cessation.
  - [Prompt] You haven't said anything about:
    - E.g., Fear, Guilt, Sadness, Relief, Joy, Loneliness, Excitement
- How essential is it that you experience fear
  - **While** climbing? (If not, go to next paragraph) or **before** climbing?
- Would you still climb if it didn't make you afraid?
    - How does this affect the routes you chose to climb?
  - If you couldn't go climbing would you do something similar?
    - E.g., Round the world sailing etc.
  - Do you actively seek out fear in other domains of life?
- How do you regulate those intense emotions? (Displaying emotional control)
- What is your experience of having to control and deal with your emotions when climbing?
  - Please give an example of [attempts at] regulating emotion
  - What happens if you don't manage to deal with your emotions?
- How do you deal with these intense emotions?
  - "Wrestle for control of the mind" how difficult is it?
  - "There should be fear but there is not"
- Why do you think you are able to deal with the intense emotions in the mountains when other people often are not?

Summary

- Clarify: What I think you have said. Prompt: Anything else I have missed

<u>While participating: Agency</u>

- What is the agentic experience of mountaineering? Prompts:
  - Influencing the direction of the expedition
  - Shaping the outcomes and progress toward the goal.
  - Chose how far to push when they were scared
  - When difficult situations arose they felt they had the ability to deal with it.
  - Bring about desired outcomes, initiate goal directed behaviour, directly responsible
- Agentic regarding:
  - Decisions, Environment, Personal functioning, Route, Success/failure, "Own saviour"
- Luck & chance: "If it were guaranteed it wouldn't be a test of your agency."
- "Free from constraints imposed on them in the rest of their lives"
  - Escape
    - What is 'escaped from'
- Control is a word that appears quite frequently in biographical reports of mountaineers. The word control often is applied to many different things; control of mental fear, control of physical fear (shaking & breathing), control of decisions,
  - If I were to give you an impossibly open ended question and say to you:
    - Tell me about your experience of 'control' during expeditions
- How do you display agency in a domain that is difficult to shape and influence?
  - How are you able to display agency in such a high stress, high risk situations?

Summary

- Clarify: What I think you have said. Prompt: Anything else I have missed

<u>After participating: Emotion Regulation & Agency</u>

- How do you feeling following displaying agency, following regulating intense emotions?
- How do you feel after an expedition, once it's over and you're back safe?
  - What is your experience of having a feeling of well being, after you have displayed control over intense emotions and demonstrated the ability to act with agency throughout difficult, stressful and dangerous circumstances?
    - "Purged of emotion"; "Stronger, more able to cope"; "Increased self- belief"
- Probe specific examples given earlier by participant:
  - How those experiences make you feel afterwards

Transfer

- We have data to suggest that, following participation, mountaineers more than participants of other high and low risk sports get what we call transfer effects from mountaineering into their everyday lives.
  - What I mean by transfer is that the positive feelings from the mountaineering domain carry over into other aspects of their life.
- To what extent do these feelings we've spoken about carry over into other aspects of your life?
  - "Stronger" & "Increased self-belief" in life as well as the mountains
  - Into interpersonal relationships: Family, Friends, Loving Partner, and Work etc.
- To what extent does mountaineering share similarities with your daily life? (If not covered)
  - Quote: "Both domains have fear, loneliness and uncertainty" Thoughts on this?
- To what extent do the resources developed in mountaineering aid in everyday life?

  - "Controlling fear"; "Learning how to love"
- To what extent do you change as a person?
  - How do you notice that change?
    - Relating to other people; People relating to you; Perceptions of yourself
  - Do you notice a difference in
    - Your relationships, Difference in your partner, How he/she relates to you; How you relate to her; same questions with friends and family.
  - Lead into self-discrepancies
    - What is the duration of the change that you notice

The 'Cycle' in mountaineering

- (Use now or at the end)
  - Away on expedition
    - "Vow to quit"; Distain for the mountaineering domain; "Happy to not climb"
  - Return home
    - "Happy for a period"; "Old doubts creep in"
  - Desire returns [6]
    - "Need a fix"; "Feeding the rat"; "The rat that denies being fed"
  - Go on an expedition
    - "Idealise home life"

Summary of after participating

- Clarify: What I think you have said. Prompt: Anything else I have missed

<u>Between participation, when you have not participated for a significant period: Emotion Regulation & Agency</u>

- We've talked about your experiences during and after expeditions but now I'd like to talk to you about your experiences between expeditions, when you have not participated for what you consider to be a significant period of time.
  - Naturally a lot of biographies and interviews focus solely on the 'during' and immediately 'after' stages of expedition, however this period of between expeditions is very interesting.
- Start with a very open question before asking more specific questions:
  - What is it about the mountains that is different from your experience of everyday life?
  - Or what can you get, or who can you be in the mountains that everyday life doesn't provide the opportunity for?
- What impact does non-participation have on your life?
  - Relationships affected?
  - How you view yourself?
- What is the greatest consequence of non-participation?
  - Trigger to participate, i.e., What makes you decide it's time for another expedition
    - Prompt: Financial, Sponsor, Boredom, Negative-affect, Challenge, etc.
- When you climb do you hope it'll change you in some way?
- Biggest positives about returning to everyday life?
  - Biggest negatives?

Emotion

- What is your experience of the emotional demands of everyday life?
  - Specifically: Romantic relationships, Family, Friends, Work etc.

- Many people would say that a romantic relationship with a partner provide the strongest and most intense emotions but I have quotes from mountaineers that suggest that mountaineering provides them with the strongest and most intense emotions they have ever experienced.
  - What are your thoughts on that?
    - How do the emotional experiences in mountaineering differ from the emotional experiences in everyday life?
      - Paul Pritchard: "No place for emotion"
      - Andy Kirkpatrick: "Purged of emotion"
- Compare and Contrast emotions in everyday life with emotions in the mountains
  - Specifically: Intensity, Duration, Controllability
    - The tap concept of turning emotions on/off: Possible in the mountains? In life?
- What is it about the emotional experience of mountaineering that you can't get in everyday life? Prompt: Relationships

Agency

- In between big trips, when you have not participated for a while,
  - What are your experiences of being an agent in everyday life?
  - How much agency do you have in: Work, Family, Loving Partner etc.
    - "Not directly responsible"
    - "Escape" from the constraints
      - Prompt escape if not covered earlier

Summary of between

- Clarify: What I think you have said. Prompt: Anything else I have missed

<u>Other</u>

- What constitutes a successful expedition
  - What is the ultimate goal of the expeditions you are on?
  - Getting to the top? (Sponsors), Returning safely (Loving partner), "Truth about oneself" (Limit)
    - Quote "Getting to the top too easily made it worthless"
- Limits
  - Active search for ones limit; Limits in everyday life;
- Purging & pleasurable pain (masochism)
- Self-discrepancies: Ought/Ideal

<u>Conclusion</u>

- Is there anything you can tell me in relation to why you climb that we have not covered?

<u>Prompts</u>

- Can you tell me a bit more about...
- Can you give me an example of...
- Can you expand on that a little...
- What are your experiences of...
- How does X affect you...
- What do you mean by X exactly...
- Can you clarify what you mean by...
- I think you're saying to me that...