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# MENTAL HEALTH AND HOMELESSNESS: THE ROLE OF SELF-CONTROL

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**ABSTRACT**

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# MENTAL HEALTH AND HOMELESSNESS: THE ROLE OF SELF-CONTROL

**By Laura Bohane**

Maladaptive functioning is commonly associated with poor self-control; however being overly controlled can be equally disadvantageous. One area of research that considers this distinction is the person-centred typological approach to personality based on a pioneering classification system developed by Block & Block (1980). This systematic review draws together research, in adult populations, that considers the utility of personality types based upon this conceptualisation. Three personality types have been largely replicated in both normal and clinical populations: resilients, overcontrollers and undercontrollers. These types show utility in predicting long-term functioning and mental health, understanding heterogeneous personalities within clinical subgroups, and have implications for treatment. Some disagreement on the number of personality types deemed replicable across samples and differing methodologies does exist, and some find a dimensional approach to personality to have greater predictive utility. A typological approach does however have clinical utility over dimensional-approaches in aiding communication and planning intervention. Limitations of the literature are discussed, and future directions considered.

Numerous population groups have not been considered in terms of their personality heterogeneity. On this basis, the empirical paper explored the personality characteristics of a sample of 91 homeless men and women. It was hypothesised that within this population both overcontrolled and undercontrolled personality styles would exist, which would be differentially associated with maladaptive behaviours known to contribute to tenancy breakdown. By use of self-report measures, the sample was shown to be more undercontrolled than overcontrolled. Undercontrol was significantly associated with a range of maladaptive behaviours; however overcontrol did not show the expected relationship with restrictive behaviours. Mediation analysis, using a bootstrap analysis, found self-control to mediate the relationship between impulsivity traits related to positive affect, and maladaptive behaviours. The clinical implications resulting from these findings are discussed.

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**DECLARATION**

I, Laura Bohane, declare that the thesis entitled

"Mental Health and Homeless: The Role of Self-control"

and the work presented in the thesis are both my own, and have been generated by me as the result of my own original research. I confirm that:

- this work was done wholly while in candidature for a Doctorate degree in Clinical Psychology at this University;
- where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
- where I have consulted the published work of others, this is always clearly attributed;
- where I have consulted the published work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
- I have acknowledged all main sources of help;
- Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
- none of this work has been published before submission.

**Signed:**.....

**Date:**.....

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Thank you also to my wonderful friends on the course who have been there throughout and shared this rollercoaster journey with me; and to my co-researcher Emma Selwood for sharing the thesis experience!

A special thank you goes to my Mum and Dad, for their constant love, support and encouragement; and finally, to my partner Elliott, for being there every step of the way, for always supporting me whenever things got tough, and for having more belief in me than I had in myself.

Thank you.

# Chapter I

## Literature Review

### Resilients, Overcontrollers and Undercontrollers:

### A Review of the Utility of Personality Types in Understanding Adult Mental Health Problems and Guiding Treatment

# Introduction

## Setting the Context of the Review

Self-control is considered by many to be a socially desirable trait that is highly valued by society, whilst impulsivity and lack of control is commonly thought of as the maladaptive and undesirable opposite (Block & Block, 2006). Being overly controlled and emotionally constricted however, may in fact be equally maladaptive and as disadvantageous as being under-controlled (Block & Block, 2006; Lynch, Hempel, & Clark, in press). Poor impulse control is a symptom of a wide range of Axis I (e.g. ADHD) and axis II (e.g. BPD) disorders in the Diagnostic and Statistical Manual of Mental Disorders–IV edition (DSM-IV; American Psychiatric Association, 2000) and has been repeatedly linked to a range of problems such as substance abuse disorders (Verdejo-Garcia, Lawrence, & Clark, 2008). The role of over-control in mental health disorders however, is however less well acknowledged.

One area of the literature that has considered the dichotomy of over-control and under-control is that of personality typologies based on the constructs of ego-control and ego-resiliency, conceptualised by Block and Block (1980). Research has, in recent years, shown a renewed interest in considering personality from this typological viewpoint, and thus an up to date systematic review of the current literature in this field was felt necessary. Before systematically reviewing the literature, this introduction will present the distinction between variable-centred and person-centred approaches to personality, will introduce Block and Block's theory of personality functioning (1980) and will summarise the initial replication of three personality types (resilient, overcontrolled and undercontrolled) in children. The systematic search strategy and scope of the literature review will then be outlined. The main review will focus on reviewing studies that have attempted to empirically replicate these personality typologies in normal and clinical adult populations, and that consider the utility of this approach in understanding mental health and in guiding treatment approaches.

## Variable-centred and Person-centred Approaches

Personality has been defined as "the dynamic organization within the individual of those psychosocial systems that determine his unique adjustment to his environment" (Allport, 1937, p. 48). In the study of personality, the variable-centred trait approach is most commonly used, in which personality traits are identified that differ amongst individuals. The most influential variable-centred model of personality is the Big Five or

five-factor model (FFM) of personality description. The Big Five model characterises personality traits by five overarching dimensions, each made up of various facets of personality: Extraversion (versus inhibition) is a personal level of gregariousness, warmth, assertiveness and excitedness, and is the extent to which someone engages with the world around them, specifically socially; Neuroticism (or low emotional stability) is the extent to which a person finds the world threatening and/or distressing, and infers a tendency to experience anxiety and negative emotions; Openness to Experience**,** is a broad dimension of creativity, ideas, values, differentiated emotions, and a need for variety; Conscientiousness is the ability to control impulses, and involves levels of order, dutifulness, self-discipline, achievement striving and competence; finally Agreeableness is defined by being interpersonally pleasant and compliant, trusting and straightforward (See Block, 1995 and Goldberg, 1993 for an historical overview). The Big Five dimensions are commonly assessed by the 240 item NEO-Personality Inventory–Revised or the shorter 60 item NEO Five Factor Inventory (NEO-PI-R, NEO-FFI; Costa & McCrae, 1992).

In contrast, person-centred approaches are thought by some to capture unique information about the way in which personality dimensions are organised within individuals (Asendorpf & Denissen, 2006), and have regained interest over the last decade (supported by the growing availability of computerised statistical techniques). In a person-centred typological approach to personality, qualitatively and quantitatively distinct configurations of personality variables are produced. Such classifications, aimed at dividing individuals into homogenous subgroups, are generally called typologies in the social science literature (Morizot & Le Blanc, 2005), with individual subgroups called types. Underlying much of the work on personality typologies is the pioneering classification system developed by Block & Block (1980), based on their theory of ego-control and ego-resiliency and developed from their early work on personality configuration (Block, 1971). This classification system will be introduced below.

It is acknowledged that alternative personality typologies exist, for example, the 16 personality types described by the Myers Briggs classification system (Briggs Myers, McCaulley, Quenk, & Hammer, 1998) based upon Jung's personality typologies (See Barbuto, 1997 for a critical analysis of this approach). However, such typologies are beyond the scope of the current review, which aims to remain focussed on the utility of Block and Block's (1980) personality types in adults, particularly in clinical populations. As far as the author is aware, no paper has systematically reviewed this body of literature.

**Block and Block's Theory of Personality Functioning**

Block and Block (1980) identified two theoretical personality parameters, which they named 'ego-control' and 'ego-resiliency'. These were based on the theory of 'ego functioning' from psychodynamic theory, a theoretical component of the mind which functions to allow the individual gratification whilst also giving priority to threat avoidance. Block and Block theorised that common to all ego-functions is the control of impulse, for example inhibiting aggressive urges and delaying gratification.

**Ego-control.** Ego-control, as described by Block and Block (1980), is the degree of impulse control and modulation that an individual has. It is a dimensional concept that has over-control at one end of the continuum and under-control at the other end, and is defined as "the threshold or operating characteristic of an individual with regard to the expression or containment of impulses, feelings, or desires" (Block & Block, 1980, p. 43). Those who are 'over-controllers' were hypothesised to be constrained and inhibited, organised, avoidant and conforming, showing minimal emotional expression and delaying gratification unduly. Those at the 'under-controlled' end of the continuum however were hypothesised to be expressive, spontaneous, immediately gratifying of desires, distractible, less conforming and comfortable with ambiguity and uncertainty. The characteristics at the two extreme can be either desirable or maladaptive depending upon the situation.

**Ego-resiliency.** Ego-resiliency is defined as "the dynamic capacity of an individual to modify his/her modal level of ego-control, in either direction, as a function of the demand characteristics of the environmental context" (Block & Block, 1980, p. 48). Those with high levels of ego-resiliency (resilient individuals) are hypothesised to have resourceful adaptation to changing circumstances and environments, and flexible problem solving strategies. Those with low ego-resiliency are described as 'ego-brittle', hypothesised to show little adaptive flexibility, fixed patterns of responding and difficulty recovering from trauma. (For a full discussion on how these concepts differ from other personality variables, see Block & Block, 1980).

**Block and Block's Study of Personality**

Block and Block embarked on a longitudinal study of 130 children from the age of 3, which began in the 1970s and continued for 30 years (see Block & Block, 2006 for a full overview of the study findings). In order to assess the behavioural manifestations of the ego concepts outlined above, Block and Block developed experimenter and observer-based indexes on which to rate individuals. Using the Californian Child Q-Set (CCQ)[1] (an adapted version of the Californian Adult Q-Set (CAQ); Block, 1961), criterion definition Q-sort descriptions of a typical ego-undercontroller and ego-resilient child were developed[2]. Participants were subsequently rated on the CCQ by three informants and a composite of these ratings was correlated with the criterion definition of ego-resiliency and ego-undercontrol. This allowed for a measure of the similarity between the personality of the child and the definition of the typical ego-undercontrolled and ego-resilient child to be calculated. Construct validity of these two concepts was demonstrated by correlations of experimental based ego-resiliency and ego-control indices with CCQ data; by substantial convergent-discriminant validity of the two concepts over three time periods and across raters; and by generalisation of the concepts to samples with differing demographic characteristics.

Block and Block (1980) demonstrated a reciprocal interaction between ego-control and ego-resiliency and although they theorised that both low and high ego-control would be related to low ego-resiliency, they distinguished four personality types in children which were thought to have strong implications for interpersonal functioning. For the undercontroller, high levels of ego-resiliency allowed for a reduced expression of impulse, yet retention of spontaneity and enthusiasm (resilient undercontroller), whereas low levels of ego-resiliency led to un-modulated impulse control and a disruptive hyperactive presentation (brittle undercontroller). For the over-controller with high ego-resiliency (resilient overcontroller), a relative amount of socialisation was maintained and anxiety was reduced, however if ego-resiliency was low (brittle overcontroller), then the

[1] The CAQ Q-sort procedure involves a rater sorting a set of descriptors (e.g. personality descriptors) into ordered categories, ranging from extremely characteristic to extremely uncharacteristic according to how characteristic they are of the person being judged. The number of items allowed in each category is fixed, creating a forced choice format (Ozer, 1996). Inverse factor analysis is then commonly used to then identify clusters of people with similar Q-sort profiles.

[2] Hypothetical Q-sort descriptions were developed by three Clinical Psychologists, and showed very high agreement between raters (.91 for the ego-undercontroller Q-set and .90 for ego-resilient Q-set). See Block and Block (1980) for full methodology.

child was anxious and immobilised by unpredictability. Further replication of these personality types was however of crucial importance to move from a theoretical to an empirical conceptualisation. This introduction will finally summarise the initial attempts to replicate these personality types in children.

**Replication of Personality Types in Children**

The first empirical replications of personality types in children, based on Block and Block's (1980) conceptualisation, utilised two main methodological techniques – Inverse/Q-factor analysis and cluster analysis[3]. Robins, John, Caspi, Moffitt, and StouthamerLoeber (1996) used inverse factor analysis on caregiver Q-sort descriptions of 300 Caucasian and African American adolescent boys and found three highly replicable factors, both in the total sample and when separated by race. Using strict classification criteria[4], 292 boys were classified into types. The personality characteristics defining each type revealed unique and differing personality attributes in terms of their pattern of Big Five characteristics, and showed unique patterns of ego-control and ego-resiliency. Type 1 individuals (66%, named 'resilients') had high levels of ego-resiliency and intermediate levels of ego-control; they were well-adjusted showing above average scores on all FFM dimensions. Type 2 boys (14%, named 'overcontrollers') showed low ego-resiliency and high ego-overcontrol, they were the most agreeable, but were highly introverted and emotionally unstable. Finally, Type 3 boys (20%, named 'undercontrollers') demonstrated low ego-resiliency but high ego-undercontrol, they presented with low levels of agreeableness and conscientiousness, and were below average on levels of emotional stability and openness to experience. These findings, in line with Block and

[3] **Inverse/Q-factor analysis:** Q-sort profiles are derived and correlated with prototypical Q-sorts. Inter-correlations are factor analysed using inverse factor analysis. The resulting factors represent prototypes, and an individual's factor loadings are an index of the similarity of a person to each prototype. People are classified according to their best fitting Q-factor. **Cluster analysis**: Questionnaire scales are used. Individual profiles are grouped into homogenous clusters. The mean profile of cluster members represent the prototype, and a person's Euclidean distance to a prototype is an index of their prototypicality for the type (Asendorpf, Borkenau, Ostendorf, & Van Aken, 2001)

[4] To be classified into a personality type, individuals had to... "a) they had to load at least .40 on to the type into which they were classified. b) their second highest loading had to be at least .20 below their loading on the type into which they were classified, c) they could not load above .40 on all three types." (Robins, et al., 1996, p. 161). For those who were not classified by these criteria, a discriminant function analysis was conducted using the CCQ items as predictors of type membership for those who were classified, and used to predict membership of those not yet classified. Those that had a above a 75% probability of being classified correctly, were classified (Robins, et al., 1996).

Block's (1980) theoretical assumption, suggest that ego-resiliency has an inverted-U shaped relation with ego-control demonstrating one well-adjusted personality type and two maladaptive types. Additionally, analysis of parent and teacher behaviour ratings showed that the resilient type were most likely to be free of psychopathology, the overcontrollers were most likely to have internalising problems, and the undercontrollers were most likely to have externalising problems as well as high levels of comorbidity with internalising and externalising difficulties (Robins, et al., 1996).

Using the same methodology, Hart, Hofmann, Edelstein, and Keller (1997) replicated these three personality types, and their coherent relationship to adolescent development, in a sample of rural and urban 7-year-old Icelandic girls and boys. Asendorpf and van Aken (1999) further replicated these findings using teachers Q-sort descriptions of German children at ages 4, 5 and 6 (aggregated) and parent Q-sorts at age 10, showing a high degree of agreement across studies. The expected quadratic relationship, in the form of an inverted U-shape function between ego-control and ego-resiliency was replicated and the same rank order for each of the Big Five scales was found across types. These three types were also replicated using a different method (k-means clustering) and utilising self-report measures in Dutch adolescent sample (Dubas, Gerris, Janssens, & Vermulst, 2002), showing consistent relationships with social functioning and internalising and externalising problems. (For an explanation of the organisation of common mental disorders into internalising and externalising disorders see Krueger, 1999).

**Summary of Introduction**

Using a person-centred approach to personality, a diverse range of studies has identified the same three major personality types in children. These have been characterised in terms of Block and Block's (1980) constructs of ego-resiliency and ego-control, and have been shown to demonstrate consistent patterns of the Big Five personality traits. These findings have been replicated across gender, culture, race, language, differing assessors and through of the use different methodologies and assessment tools. These types also appear to be predictive of developmental outcomes and results suggest that these are likely to constitute a core set of generalizable personality typologies that may exist into adulthood and may be predictive of adult functioning.

## Aim and Scope of the Literature Review

The primary aim of this systematic review was to consider the utility of the above personality types in understanding adult mental health problems and in guiding appropriate treatment interventions. As such, the review aimed to consider the ability of childhood personality types to predict adult mental health difficulties; to ascertain the replicability of the above three personality typologies in a broad range of adult populations, utilising a range of measures and methodologies; to review the use of personality typologies within clinical population groups; and to highlight any treatment approaches which have been designed to target these personality types. Additionally, this review aimed to identify specific gaps in the literature that may require further investigation. To date, no review has collated the adult literature on this topic and considered the clinical implications of the findings.

### Search Strategy

In order to carry out a systematic search of the literature, the bibliographic databases Web of Science (all databases, including Medline) and PsychInfo were searched for all articles citing the Robins et al. (1996) article, as this was the first article to report on the empirical replication of the resilient, undercontrolled and overcontrolled personality types, and therefore marks a start point in the development of this literature. Additionally, a systematic search using the electronic bibliographic databases PsychINFO, PsychARTICLES, Web of Knowledge Medline and Embase was conducted, using the following search terms: 'Overcontrolled', 'Undercontrolled', 'Overcontroller', 'Undercontroller', 'Mental Health', 'Disorder', 'Psychopathology', 'Maladaptive', 'Substance Abuse', 'Substance Misuse', and 'Diagnosis'. Combinations of search terms were searched across all fields (including title, abstract, and keywords). Reference lists from identified studies were searched for additional relevant articles that met the inclusion criteria. Local experts in the field also provided relevant literature.

Retrieved articles were included if they were English language, peer reviewed empirical studies, from 1996 onwards[5], with an adult population sample, and if clinical samples related to mental health disorders as opposed to physical health, or offender populations for example. A total of 39 articles were included in the final sample. The selection process is shown in Figure 1. All identified studies are presented in Table 1, and are arranged alphabetically by author.

The included studies fell into 4 main categories: longitudinal studies as predictors of adult functioning; cross-sectional studies considering personality typologies in normal population adults; studies assessing personality subtypes within clinical samples (primarily eating disorder and post-traumatic stress disorder (PTSD) samples); and one study considering a treatment approach aimed at overcontrolled personality types.

[5] 1996 was chosen due this being the publication year of the first article to empirically replicate the three personality types based on the concepts of Block and Block (1980). Retrieving articles citing this paper was used as the first search strategy technique, therefore staying consistent with this start point in the literature seemed appropriate for alternative search strategies.

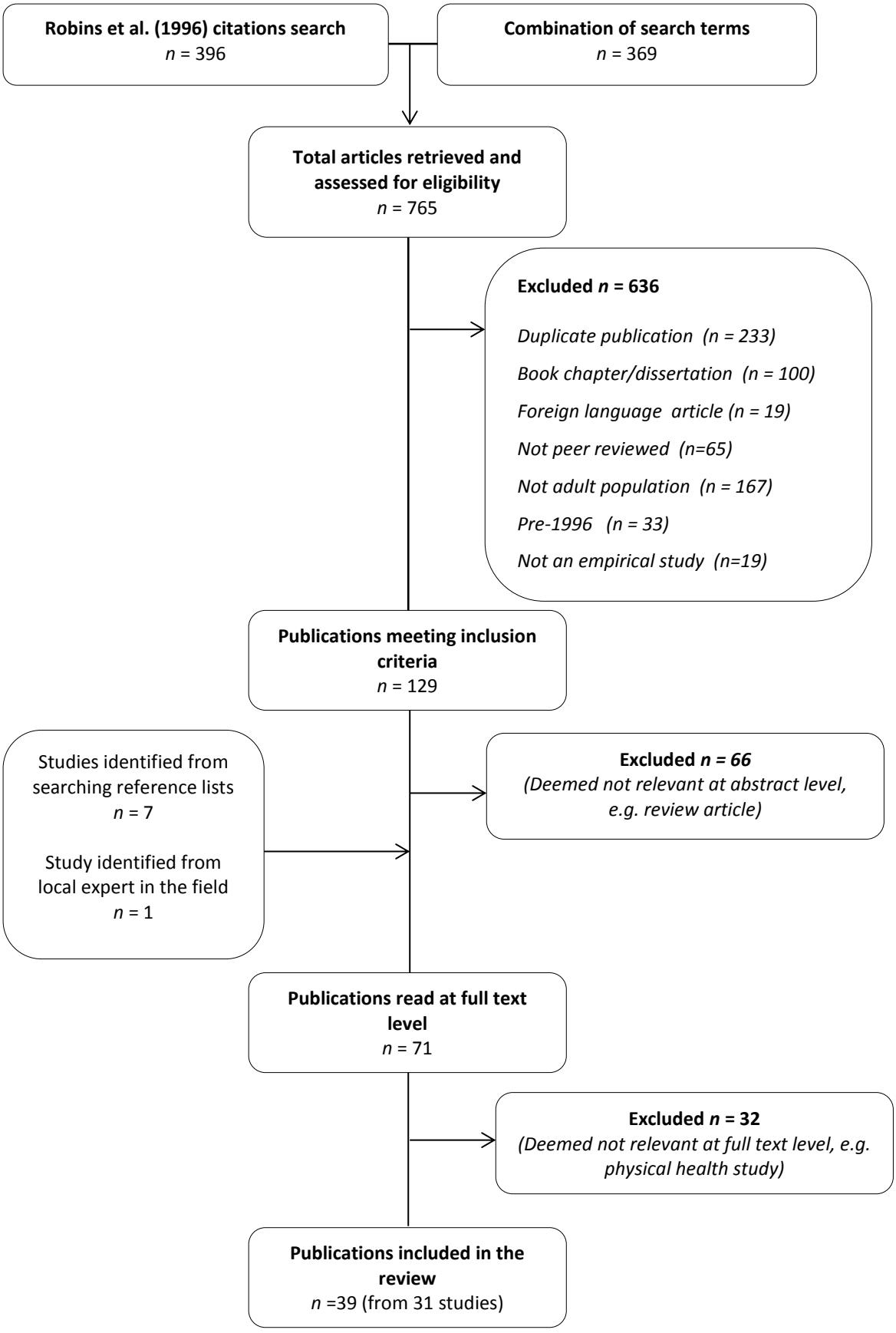



*Figure 1:* Flow Chart of Study Selection Process

Table 1:
*Studies Included in Literature Review*

| **Study and Origin** | ***N*** | **Participants** | **Research Design** | **Personality Measure** | **Clustering Procedure** | **Key Findings** |
|---|---|---|---|---|---|---|
| Asendorpf, Borkenau, Ostendorf, & Van Aken (2001)<br><br>*Germany* | 1. 730<br>2. 568<br>3. 312 | 1. Student sample<br>2. General population<br>2. Student sample | Cross-sectional and longitudinal | 1. German NEO-FFI<br>2. Adjective pairs<br>3. German NEO-FFI | Two-step clustering procedure (Ward's hierarchical clustering procedure followed by non-hierarchical *k*-means clustering procedure) | The findings provide evidence for a three-prototype model of personality description, indicating internalising tendencies for overcontrollers and externalising tendencies for undercontrollers |
| Asendorpf & Denissen (2006)<br><br>*Germany* | 153 | Participants of the Munich Longitudinal Study on the genesis of Individual Competencies (LOGIC) | Longitudinal | Teacher ratings using the German adapted Californian Child Q-Set (German CCQ) short form | Q-factor analysis. | At age 22, equal long term predictive ability was demonstrated by both types and dimensions |
| Avdeyeva & Church (2005)<br><br>*USA* | 1. 410<br>2. 493 | Filipino college students | Cross-sectional | Panukat ng Mga Katangian ng Personalidad (PKP – Measure of indigenous personality dimensions) | Two-step clustering procedure (Ward's hierarchical clustering procedure followed by non-hierarchical *k*-means clustering procedure) | A three-cluster solution was found for each gender in both samples. Types differed on measures of ego-control and ego-resiliency and showed similar patterns of Big Five dimensions to previous studies |

| **Study and Origin** | ***N*** | **Participants** | **Research Design** | **Personality Measure** | **Clustering Procedure** | **Key Findings** |
|---|---|---|---|---|---|---|
| Barbaranelli (2002)<br><br>*Italy* | 421 | Young adults aged 20-30 | Cross-sectional | NEO-Personality Inventory (NEO-PI) translated into Italian | Two-step clustering procedure (Ward's hierarchical clustering procedure followed by non-hierarchical *k*-means clustering procedure) | Replication analyses supported a three or four cluster solution, yet when a range of internal criteria were used, more clusters could be accepted as replicable. As the number of clusters increased, they become less generalisable |
| Block & Block (2006)<br><br>*USA* | 104 | Heterogeneous sample of nursery school children re-assessed into adulthood | Longitudinal | Californian Child Q-Sort (CCQ) | Q-factor analysis (Inverse factor analysis) | At age 18, females who were depressed were largely described as over-controlled at age 7, whereas males with depression had been characterised as undercontrolled as children. Individual differences in ego-control at age 3 continue to distinguish individuals at age 23. |
| Boehm, Asendorpf, & Avia (2002)<br><br>*Spain* | 1. 758<br>2. 460 | 1. Student sample aged 20-30<br>2. General population sample aged 20-30 | Cross-sectional | NEO-Personality Inventory (NEO-PI) | Two-step clustering procedure (Ward's hierarchical clustering procedure followed by non-hierarchical *k*-means clustering procedure) | The three major personality types (resilient, undercontrolled and overcontrolled) were replicated in the student sample but not in the general population sample |

| **Study and Origin** | ***N*** | **Participants** | **Research design** | **Personality Measure** | **Clustering Procedure** | **Key findings** |
|---|---|---|---|---|---|---|
| Bradley, Heim, & Westen (2005)<br><br>*USA* | 148 | Females with an Axis II disorder, or subthreshold personality pathology and a history of Childhood sexual abuse (CSA) | Cross-sectional practice network approach[a] | The Schedler-Westen Assessment Proceudure-200 (SWAP-200) | Q-factor analysis (Inverse factor analysis) | Four personality types were identified amongst victims of CSA, which showed differing associations with diagnoses, adaptive functioning, and developmental histories |
| Caspi, Moffitt, Newman, & Silva (1996)<br><br>*USA/NZ* | 961 | Participants of the Dunedin Multidisciplinary Health and Development study | Longitudinal cohort study | Examiner ratings of behavioural and cognitive observations at age three | Cluster analysis using multivariate analysis | Some adult psychiatric disorders, assessed at age 21, can be linked to behavioural differences observed among children when they were aged three |
| Caspi (2000)<br><br>*USA/UK/NZ* | Approx. 1000 (97% of original sample) | Participants of the Dunedin Multidisciplinary Health and Development study | Longitudinal cohort study | Examiner ratings of behavioural and cognitive observations at age three | Cluster analysis using multivariate analysis | Early temperamental characteristics influence development over the life-course and relate to adult personality, interpersonal relationships, psychopathology and criminal activity. |
| Caspi et al. (2003)<br><br>*USA/UK/NZ* | 980 | Participants of the Dunedin Multidisciplinary Health and Development study | Longitudinal cohort study | Examiner ratings of behavioural and cognitive observations at age three | Cluster analysis using multivariate analysis | Empirical demonstration that children's early-emerging behavioural styles and temperamental qualities at age three can foretell their adult personality characteristic at age 26, across a range of data sources |

| **Study and Origin** | ***N*** | **Participants** | **Research Design** | **Personality Measure** | **Clustering Procedure** | **Key Findings** |
|---|---|---|---|---|---|---|
| Causadias, Salvatore, & Sroufe (2012)<br><br>*USA* | 136 | First time mothers and their 'at-risk' children | Longitudinal | Californian Child Q-Set (CCQ) | CCQ scores correlated with prototype scores for hypothetical ego-controlled child and ego-resilient child | Ego-resiliency was found to be a powerful predictor of adaptive functioning and internalising and externalising problems in adulthood |
| Claes et al. (2006)<br><br>*Belgium* | 335 | Female inpatients and outpatients with an Eating Disorder meeting DSM-IV criteria | Cross-sectional | Dutch adapted version of the NEO-Five-Factor Inventory | Two-step clustering procedure (Ward's hierarchical clustering procedure followed by non-hierarchical *k*-means clustering procedure) | Three personality types emerged (resilient, undercontrolled, overcontrolled). Personality type was not clearly associated with eating disorder subtype |
| Claes, Vandereycken, Vandeputte, & Braet (2013)<br><br>*Belgium* | 102 | Morbidly obese females | Cross-sectional | Dutch adapted version of the NEO-Five factor Inventory | *K*-means cluster analysis | Two personality types emerged (resilient and undercontrolled). The undercontrolled types showed more eating disordered cognitions and behaviours, higher levels of comorbidity and more avoidance coping reactions |

| **Study and Origin** | ***N*** | **Participants** | **Research Design** | **Personality Measure** | **Clustering Procedure** | **Key Findings** |
|---|---|---|---|---|---|---|
| Costa, Herbst, McCrae, Samuels, & Ozer (2002)<br><br>*USA* | 1. 1856<br>2. 486<br>3. 2420<br>4. 274 | Samples from:<br>1. The Baltimore Longitudinal Study of Ageing<br>2. The East Baltimore Epidemiologic Catchment Area Study (ECA)<br>3. The University of North Carolina Heart Study<br>4. A HIV risk reduction study | Cross-sectional | NEO-Personality Inventory (NEO-PI-R) | Two-step clustering procedure (Ward's hierarchical clustering procedure followed by non-hierarchical *k*-means clustering procedure) | Clear replication of the resilient, overcontrolled and undercontrolled personality types was found only in the ECA sample. Type membership was predicative of ego-control, ego-resiliency, and psychosocial functioning, but dimensional measures found to be better predictors |
| Denissen, Asendorpf, & van Aken, 2008)<br><br>*Germany* | 153 | Participants of the Munich Longitudinal Study on the genesis of Individual Competencies (LOGIC) | Longitudinal | Teacher rating using the German adapted Californian Child Q-Set (German CCQ) short form | Q-factor analysis | Childhood personality types are predictive of long-term trajectories of shyness and aggressiveness |
| Eaton, Krueger, South, Simms, & Clark (2011)<br><br>*USA* | 8,690 | Aggregation of data from 24 samples, consisting of four populations: Clinical, Students, Community, Military | Cross-sectional | Schedule of Non-adaptive and Adaptive Personality (SNAP) | Finite mixture modelling | Prototypes based on the SNAP were found to be externally valid but sample-dependent; however dimensional structures were highly robust across samples |

| Study and Origin | *N* | Participants | Research Design | Personality Measure | Clustering Procedure | Key Findings |
|---|---|---|---|---|---|---|
| Eddy, Novotny, & Westen (2004)<br><br>*USA* | 234 | Female patients with clinically significant eating disordered symptoms | Cross-sectional practice network approach[a] | Shedler-Westen Assessment Procedure-200 (SWAP-200) | Correlation of patients SWAP-200 score with a prototype profile score for each of the three personality types, identified in previous research (high functioning, overcontrolled, undercontrolled) | Personality type can account for more variance in sexual attitudes and behaviour than eating disorder diagnoses |
| Espelage, Mazzeo, Sherman, & Thompson, (2002)<br><br>*USA* | 183 | Female patients admitted to an outpatient eating disorder programme | Cross-sectional study using archival data | Millon Clinical Multiaxial Inventory (MCMI-II) | Ward's algorithm followed by the complete linkage method | An interpretable three factor solution emerged (High functioning, undercontrolled/dysregulated, overcontrolled/Avoidant). Cluster membership was not associated with eating disorder subtype suggesting heterogeneity of personality type within eating disorder types |

| **Study and Origin** | ***N*** | **Participants** | **Research Design** | **Personality Measure** | **Clustering Procedure** | **Key Findings** |
|---|---|---|---|---|---|---|
| Ghaderi & Scott (2000)<br><br>*Sweden* | 856 | General population sample of females | Prospective study | Mini-Markers (A short form of Goldberg's Big Five Markers) | Big Five patterns compared to the pattern of personality types in previous literature | The group found to have a first time incidence of an eating disorder (ED) showed similar pre-morbid Big Five patterns to those with a lifetime incidence of ED. This pattern resembled the undercontrolled personality type replicated in the literature |
| Goldner, Srikameswaran, Schroeder, Livesley, & Birmingham (1999)<br><br>*Canada* | 204 | Female patients with an eating disorder and general population controls | Cross-sectional | The Dimensional Assessment of Personality Pathology – Basic Questionnaire (DAPP-BQ) | Unweighted least squares factor analysis, followed by cluster analysis using Ward's method. | Three clusters were produced (rigid, severe, and mild) which showed clinical relevance. Cluster membership was associated with DSM-IV diagnosis, with most patients with Anorexia Nervosa members of the rigid cluster |
| Gramzow et al. (2004)<br><br>*USA/UK* | 199 | Psychology students | Cross-sectional | Californian Adult Q-set (CAQ) correlated with prototype ego-control and ego-resiliency scores.<br><br>Big Five Inventory (BFI) | Two-step clustering procedure (Ward's hierarchical clustering procedure followed by non-hierarchical *k*-means clustering procedure) | Ego-control and ego-resiliency were independent predictors of each of the Big Five dimensions. Cluster analysis demonstrated four replicable personality types |

| **Study and Origin** | ***N*** | **Participants** | **Research Design** | **Personality Measure** | **Clustering Procedure** | **Key Findings** |
|---|---|---|---|---|---|---|
| Herzberg & Roth (2006)<br><br>*Germany* | 1,692 | General population | Cross-sectional | German adaptation of NEO-FFI | Two-step clustering procedure (Ward's hierarchical clustering procedure followed by non-hierarchical *k*-means clustering procedure) | A five-cluster solution was evidenced. A population based approach to cluster assignment was introduced and found to be superior to the two-step clustering procedure |
| Lynch & Cheavens (2008)<br><br>*USA* | 1 | Male with chronic depression and personality disorders | Single case | N/A | N/A | A recent adaptation of DBT to target cognitive-behavioural rigidity and emotional constriction was shown to reduce levels of depression and disordered personality pathology |
| McCrae, Terracciano, Costa, & Ozer, (2006)<br><br>*USA* | 1540 | Volunteer participants from the Baltimore Longitudinal Study of Ageing | Cross-sectional | Californian Adult Q-Set (CAQ) | Q-factor analysis (Inverse factor analysis) | The factors that were extracted could be interpreted as Big Five dimensions. There were no replicable personality types |
| McDevitt-Murphy et al. (2012)<br><br>*USA* | 156 | Current diagnosis of PTSD with comorbid Personality Disorder or Major Depressive Disorder | Longitudinal | Schedule for Non-adaptive and Adaptive Personality (SNAP)<br><br>NEO-Personality Inventory (NEO-PI) | *K*-means clusters, and Ward's hierarchical methods. | Using scales from the SNAP, a three cluster solution (internalizing, externalising and low pathology) was confirmed using ward's method but did not show temporal stability at 6-month follow up |

| **Study and Origin** | ***N*** | **Participants** | **Research Design** | **Personality Measure** | **Clustering Procedure** | **Key Findings** |
|---|---|---|---|---|---|---|
| Miller, Greif, & Smith (2003)<br><br>*USA* | 221 | Male combat veterans with exposure to combat-related traumatic experience | Cross-sectional | Multidimensional Personality Questionnaire- Brief Form (MPQ-BF) | Two-step clustering procedure (Ward's hierarchical clustering procedure followed by non-hierarchical *k*-means clustering procedure) | A three cluster solution (externalising, internalising, low pathology) was found. Disposition towards externalising or internalising psychopathology may account for heterogeneity in post-traumatic disorder response |
| Miller, Kaloupek, Dillon, & Keane (2004)<br><br>*USA* | 736 | Male military veterans with a diagnosis of PTSD secondary to combat in Vietnam | Cross-sectional | Minnesota Multiphasic Personality Inventory-2 (MMPI-2) | *K*-means analysis on MMPI-2 PSY-5 scales | Three clusters identified (low pathology, internalising, externalising) which account for heterogeneity in the manifestation of PTSD and associated psychopathology |
| Miller & Resick (2007)<br><br>*USA* | 143 | Females with sexual assault related PTSD | Cross-sectional | Schedule for Non-adaptive and Adaptive Personality (SNAP) | *K*-means analysis of SNAP scales with a prior specification of three clusters | Replicated previous findings of subtypes of post-traumatic psychopathology in a sample of female sexual assault survivors. (One 'simple' cluster and two 'complex' clusters identified) |

| **Study and Origin** | ***N*** | **Participants** | **Research Design** | **Personality Measure** | **Clustering Procedure** | **Key Findings** |
|---|---|---|---|---|---|---|
| Morizot & Le Blanc (2005)<br><br>*Canada* | 269 | Representative sample of French speaking males | Longitudinal | Jesness Personality Inventory (1983) and Eysenck Personality Questionnaire (Eysenck & Eysenck, 1971) - principal components analyses and factor analysis used to create three higher order traits (see Morizot & Le Blanc, 2003) | Longitudinal cluster analysis | Identified four developmental typologies of personality which appear to be related to antisocial behaviour typologies |
| Newman, Caspi, Moffitt, & Silva (1997)<br><br>*USA* | 961 | Participants of the Dunedin Multidisciplinary Health and Development study | Longitudinal cohort study | Examiner ratings of behavioural and cognitive observations at age three | Cluster analysis using multivariate analysis | Personality types derived at age three continue to be evident in styles of adult interpersonal functioning at age 21 |
| Rammstedt, Riemann, Angleitner, & Borkenau (2004)<br><br>*Germany* | 600 | Adult twins | Cross-sectional | German adaptation of NEO-PI-R<br><br>Peer report version of German adaptation of NEO-FFI | Two step procedure (Ward's hierarchical clustering procedure followed by non-hierarchical *k*-means clustering procedure) | The three major personality prototypes could only be identified using self-report. Personality types depend strongly on personality measures and informants |

| **Study and Origin** | ***N*** | **Participants** | **Research Design** | **Personality Measure** | **Clustering Procedure** | **Key Findings** |
|---|---|---|---|---|---|---|
| Roth & Herzberg (2007)<br><br>*Germany* | 326 | General population | Cross-sectional | NEO Five-Factor Inventory (NEO-FFI) | Discriminant function algorithms inferred from cluster results of a German representative population-based sample | Personality types based on Big Five dimensions, especially the resilient type, are influenced by social desirability; however not to a greater degree than the dimensions upon which they are based |
| Sava & Popa (2011)<br><br>*Romania* | 1,039 | Representative sample of general population | Cross-sectional | DECAS Personality Inventory | Two-step clustering procedure (Ward's hierarchical clustering procedure followed by non-hierarchical *k*-means clustering procedure) | Good validity was found for a five-cluster solution of personality types in a representative population sample |
| Schnabel, Asendorpf, & Ostendorf (2002)<br><br>*Germany* | 1. 786<br>2. 730 | 1. General population aged 20-30<br>2. Normative sample aged 18-24 | Cross-sectional | 1. German NEO-PI-R<br>2. German NEO-FFI | Two-step clustering procedure (Ward's hierarchical clustering procedure followed by non-hierarchical *k*-means clustering procedure) | Three replicable personality types were found (resilient, overcontrolled, undercontrolled) across different Big Five measures. The resilient prototype could be reliably divided into two subtypes |

| **Study and Origin** | ***N*** | **Participants** | **Research Design** | **Personality Measure** | **Clustering Procedure** | **Key Findings** |
|---|---|---|---|---|---|---|
| Slutske, Moffitt, Poulton, & Caspi (2012)<br><br>*USA/NZ* | 939 | Participants of the Dunedin Multidisciplinary Health and Development study | Longitudinal cohort study | Examiner ratings of behavioural and cognitive observations at age 3 | Multivariate analyses | Children with undercontrolled temperament at age 3 were more than twice as likely to show disordered gambling at ages 21 and 32 than were children who were well-adjusted |
| Spinhoven, de Rooij, Heiser, Smit, & Penninx (2012)<br><br>*Netherlands* | 2,566 | Adults in primary and specialised mental health care | Prospective study | NEO Five-Factor Inventory (FFI) | Latent Class Analysis | Assessment of changes in comorbidity patterns of anxiety and depressive disorders over two years showed that both medium and high overcontrollers were less likely to transition to a less severe comorbidity class of anxiety and depressive disorders. |
| Thompson-Brenner & Westen (2005)<br><br>*USA* | 145 | Doctoral level clinicians who reported on their most recent female patient with bulimia nervosa. | Cross-sectional practice network approach[a] | Clinician rated personality type based on paragraph descriptions of each of the three common personality types. Forced choice, and a 1-5 rating to indicate degree of match | Clinician decision | The three personality subtypes elicited different therapeutic interventions from clinicians. Emotionally dysregulated (undercontrolled) types showed the poorest functioning, worst outcome and the most comorbidity |

| Study and Origin | *N* | Participants | Research Design | Personality Measure | Clustering Procedure | Key findings |
|---|---|---|---|---|---|---|
| Westen & Harnden-Fischer (2001)<br><br>*USA* | 103 | Psychologists and psychiatrists who reported on patients with a diagnosis of Anorexia or Bulimia Nervosa | Cross-sectional practice network approach[a] | The Schedler-Westen Assessment Proceudure-200 (SWAP-200) | Q-factor analysis (Inverse factor analysis) | Three factors emerged (high functioning, overcontrolled, undercontrolled). Within diagnosis heterogeneity found with regard to personality type. Personality categorisation strongly predicted adaptive functioning, history of sexual abuse and eating disorder symptoms |
| Wildes et al. (2011)<br><br>*USA* | 154 | Patients with a diagnosis of Anorexia Nervosa | Prospective study | Schedule for Nonadaptive and Adaptive Personality-2 (SNAP-2) | Latent Profile Analysis | Three personality types were identified (undercontrolled, overcontrolled, low psychopathology). Types have utility in predicting clinical outcomes at discharge, and treatment-seeking at follow up |

*Note:* German NEO-FFI (Borkenau & Ostendorf, 1993); Adjective pairs (Ostendorpf, 1990); German CCQ (Göttert & Asendorpf, 1989); PKP (Katigbak, Church, Guanzon-Lapena, Carlota, & del, 2002); NEO-PI; NEO-FFI (Costa & Mccrae, 1985); SWAP-200 (Westen & Shedler, 1999); CCQ (Block & Block, 1980); Dutch NEO-FFI (Hoekstra, Ormel, & de Fruyt, 1996); NEO-PI-R (Costa & McCrae, 1992); SNAP (Clark, 1993); MCM-II (Millon, 1987); Mini-Markers (Saucier, 1994); DAPP-BQ (Livesley, Jackson, & Schroeder, 1991); CAQ (Block, 1961); BFI (Benet-Martinez & John, 1998); MPQ-BF (Patrick, Curtin, & Tellegen, 2002); MMPI-2 (Butcher, Dahlstrom, Graham, Tellegen, & Kraemmer, 1989); Jesness Personality Inventory (Jesness, 1983); Eysenck Personality Questionnaire (Eysenck & Eysenck, 1971); German adaptation of NEO-PI-R (Ostendorf & Angleiter, 2004); DECAS Personality Inventory (Sava, 2008); SNAP-2 (Clark, 2009)

[a] In a practice network approach, randomly selected clinicians are asked to participant by providing data on patients, commonly the last patient they treated who met the inclusion criteria for the study.

## Personality Typologies in Adulthood

### Longitudinal Studies

The current literature search highlighted numerous longitudinal studies which provide insight into the ability of childhood personality types to predict adult outcomes. These studies will be considered, paying particular attention to the mental health outcomes seen in adulthood, before moving on to consider the literature on the replication of person-centred typologies in adults.

Two key longitudinal studies have provided the most literature on the utility of childhood personality typologies in predicting adult outcomes – the Munich Longitudinal Study on the Genesis of Individual Competencies (LOGIC; Asendorpf & Denissen, 2006; Dennissen, Asendorpf, & van Aken, 2008) and the Dunedin Multidisciplinary Health and Development Study (Caspi, 2000; Caspi et al., 2003; Caspi, Moffitt, Newman, & Silva, 1996; Newman, Caspi, Moffitt, & Silva, 1997).

**Findings from the LOGIC study.** In the LOGIC study (Asendorpf & Denissen, 2006; Dennissen, et al., 2008) the long term predictive validity of personality types and personality dimensions was compared in 154 22-year olds who at ages 4-6 had been classified by Q-sort factor analysis, into resilient (54%), overcontrolled (18%) and undercontrolled (27%) personality types. The Big Five personality factors were also assessed by Q-sort indices. Personality typologies were found to predict shyness, aggressiveness, IQ, agreeableness and conscientiousness whereas Big Five dimensions could predict aggressiveness, IQ and neuroticism (Asendorpf & Denissen, 2006). Aggression was found to be highest in the undercontrollers, however the overcontrollers' levels of aggression showed a shift from below average as children, to within average ranges by age 23 (Dennissen, et al., 2008). Starting work at an early age was found to reduce aggressive tendencies, with the timing of starting part time work mediating the relationship between childhood resiliency and changes in aggressiveness (Dennissen, et al., 2008). However, it must be noted that the measure of aggression used only measured aggression towards peers and so these findings cannot be generalised to aggressive tendencies in general. The influence of part time work on personality trajectory is also likely to be very culturally specific. Both personality types and dimensions were found to show stability, with minimal reduction in explained variance between the ages of 17 and 22, despite this being a period of immense change (Asendorpf & Denissen, 2006).

Unfortunately the small sample size in these studies did not allow for gender differences to be explored. It must also be noted that drop-out rates were highest amongst the overcontrolled and undercontrolled types (Dennissen, et al., 2008) therefore reducing the predictive power of these two types.

**Dunedin Multidisciplinary Health and Development study findings.** In the Dunedin study (Caspi, 2000; Caspi, et al., 2003; Caspi, et al., 1996; Newman, et al., 1997; Slutske, Moffitt, Poulton, & Caspi, 2012), a large birth cohort of children from Dunedin, New Zealand, underwent behavioural observations at age three. The children were categorised by factor and cluster analysis as undercontrolled, inhibited or well-adjusted. Two further clusters – confident and reserved, were also found however it was suggested that these may in fact be subsumed by the other three clusters, especially as they had not since been replicated in the literature[6]. Nine hundred and sixty one participants were re-assessed at age 21 by use of a semi-structured interview based on the Diagnostic and Statistical Manual of Mental Disorders (third edition, DSM-III; American Psychiatric Association, 1980). Multivariate logistic regression comparing inhibited and undercontrolled children to well-adjusted children showed that those in the first two groups were more likely than well-adjusted children to have one or multiple psychiatric disorders, were reported to have the most mental health problems according to informant report measures (Caspi, 2000; Caspi, et al., 1996), and were found to have poorer interpersonal adjustment and higher levels of interpersonal conflict than the well-adjusted group (Newman, et al., 1997). The inhibited children (who at age 3 were fearful and 'ill-at-ease') were most likely to be diagnosed with depression at age 21 (Caspi, et al., 1996), had lower levels of social support and poor conjugal relationships (Newman, et al., 1997), yet maintained healthy social relationships and interpersonal adjustment at work. Undercontrolled children (whom at age 3 were irritable, impulsive, and emotionally labile) showed conflicted relationships at age 21 across all social contexts (Newman, et al., 1997) and were found to be significantly over represented in all measures of antisocial behaviour and criminality (Caspi, et al., 1996). Inhibited boys were more likely than the well-adjusted group to have been convicted of a violent offence. Those boys categorised as undercontrolled at age 3 were more likely to be dependent upon alcohol, and inhibited

[6] Substantive findings ran using a combined sample of the well-adjusted, reserved and confident groups compared to the well-adjusted group alone did not change significantly; therefore comparisons at follow up were made using the well-adjusted group only (Newman, et al., 1997).

boys also showed elevated but not significant rates of alcoholism compared to well-adjusted individuals (Caspi, et al., 1996). More suicide attempts had been taken by both undercontrolled and inhibited types, in comparison to the well-adjusted types, with a far higher incidence in those that were undercontrolled (Caspi, 2000; Caspi, et al., 1996). Anxiety disorders could not be predicted by childhood typology (Caspi, 2000). By age 26, both self-reports and informant reports further confirmed the ability of childhood behaviour types to foretell adult personality characteristics and behaviours, by this point across three data sources (Caspi, et al., 2003). Additionally, those children categorised as undercontrolled at age 3 were found to be more than twice as likely to show disordered gambling habits at ages 21 and 32 than the well-adjusted children, irrespective of childhood IQ or socio-economic status (Slutske, et al., 2012).

These findings suggest that early emerging behavioural differences (based on a short observation of children at age 3) act as a risk factor for later problems. Although measures relating to ego-control and ego-resiliency were not used, the personality types that emerged showed very close resemblance to previous personality types. Adopting a three-factor solution to fit with previous research may however have prematurely missed interesting findings regarding the further two factors.

**Findings from additional longitudinal studies.** Block and Block (2006) considered the depression rates at age 18, of the children from their longitudinal study. It was found that females who were depressed at age 18 had been evaluated as overcontrolled at age 7, whereas males suffering from depression were relatively undercontrolled as young children. Additionally, evidence suggested that individual differences in levels of ego-control continued to distinguish individuals at age 23.

A prospective longitudinal study by Morizot and Le Blanc (2005) considered whether antisocial behaviour trajectories of French speaking boys could be linked to developmental personality typologies. Four personality types categorised in adolescence, noted to show conceptual similarity to the tripartite typologies found in previous studies (e.g. Robins, et al., 1996), were found to differentially relate to antisocial behaviour across time. The undercontrolled group showed some improvement of their poor behavioural control with age, as well as decreasing criminal activity, but showed a more persistent antisocial trajectory that the two ‘normative maturation’ types (which showed similarities to resilient types). The overcontrolled type had the lowest antisocial behaviour rates in adolescence; however had the most antisocial behaviour in adulthood, as well as

the most substance misuse. These findings are quite striking, however cannot be generalised to females, and the use of self-report data only means that social desirability biases cannot be accounted for.

Finally, in the most recently reported longitudinal study, Causadias and colleagues (Causadias, Salvatore, & Sroufe, 2012) measured ego-control and ego-resiliency using the CCQ (Block & Block, 1980) in a sample of 136 children of mothers identified as 'at-risk' for parenting problems. High ego-resiliency in childhood was found to be a promotive factor for global adjustment as an adult (both at age 19 and 26). Global adjustment was also significantly negatively associated with internalising and externalising problems, further suggesting that patterns of self-regulation are important precursors for problems in adulthood.

**Summary of longitudinal findings.** Personality types derived in childhood have been found to be predictive of adult functioning. Although a range of methodologies and measures have been used, the same patterns of findings has been shown, with those categorised in childhood as overcontrollers or undercontrollers showing the most maladaptive functioning in adulthood, yet with differing patterns of internalising and externalising difficulties. A resilient personality type has been shown to be predictive of the most adaptive functioning in adulthood. The findings from Block and Block suggest that there may be some gender differences in the relationship between personality type and adult mental health functioning.

The above findings are based on personality typologies that were generated in childhood. This review will now consider the literature which has attempted to replicate these personality typologies in adult samples, across a variety of cultures using a wide range of measures and methodologies. In understanding the replicability of such types in adult populations, the utility of this approach for understanding and treating adult mental health problems can be considered.

## Cross-sectional Studies

The current literature search demonstrated that numerous studies have attempted to replicate personality typologies, based on Block and Block's (1980) conceptualisation, in a variety of adult samples, across age ranges, gender and culture, and using a variety of measures and statistical techniques.

**Cross-cultural replication of personality types.** Asendorpf, Borkenau, Ostendorf and Van Aken (2001) initiated the research on replicating personality prototypes in adulthood, by clustering adults using the NEO-Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992). Using a two-step clustering procedure[7], three samples of German adults demonstrated that they could be clustered according to three replicable personality types which the authors identified as resilient, overcontrolled and undercontrolled. These types were found to be replicable within samples using a split half procedure[8] and were found to be consistent across samples despite differing informants and methodologies. The resilient type was found to be the largest group. In general, the expected pattern of Big Five dimensions was found in each type; however some slight differences were noted in levels of Agreeableness and Openness to Experience, in comparison to descriptions seen in the childhood literature. The expected quadratic relationship between resiliency and over and under control was confirmed. The three personality types showed some stability over a 6-month period however the authors concluded that the borders between personality types are fuzzy, not discrete (Asendorpf, et al., 2001). This resulted in small variations in personality changing group membership. The authors highlighted that it is more difficult to type individuals who sit on the borders of each group explaining why in most studies, not all participants can be accurately typed. This is a limitation of clustering procedures in general.

Using the same two step clustering procedure, these three personality types were replicated using the NEO-PI in a Spanish student sample (but not a Spanish general

[7] (Wards's hierarchical procedure followed by k-means non-hierarchical clustering procedure; see Asendorpf, et al., 2001, p. 181 for full details of this method)

[8] This procedure, used to measure internal replication, involves randomly splitting the whole sample in two, and applying the two step clustering procedure to each half. The two solutions are then compared for agreement by assigning each half of the sample to new clusters based on the Euclidean distances to the cluster centres of the other half of the sample, and then comparing the new clusters for agreement with the original clusters using Cohens *k*. An agreement of at least .60 was considered acceptable (Asendorpf, et al., 2001).

population sample; Boehm, Asendorpf, & Avia, 2002) and in three further German samples, using a German version of the NEO-PI-R (Rammstedt, Riemann, Angleitner, & Borkenau, 2004; Schnabel, Asendorpf, & Ostendorf, 2002) and NEO-FFI (Schnabel, et al., 2002). Despite the apparent replication, the trait of Agreeableness was found to be higher in Spanish resilients, and lower in Spanish overcontrollers, than was found in the comparable German sample (Schnabel, et al., 2002). Additionally, Schnabel et al. (2002) found that using the NEO-PI-R, the resilient type had an acceptable two factor subtype – labelled well-adjusted (65%) and assertive (35%), which showed similarity to the additional clusters of confident and reserved in the Dunedin Longitudinal studies (Newman, et al., 1997).

In an Italian sample of 421 young adults (Barbaranelli, 2002), three personality types were derived from an Italian translation of the NEO-PI (resilient, overcontrolled/undesirable and undercontrolled). External replication with a Spanish and German sample, found the three clusters to be replicable however, again some slight differences in Big Five scale characteristics compared to previous studies were noted. Internal validation using the split half method and a bootstrapping method (see Barbaranelli, 2002 for details of using this method for internal replication of cluster analysis) found a 4-cluster solution to also be replicable, which was noted to separate out the overcontrolled and undesirable types. This study highlights the importance of using differing replication methods, and suggests that a four factor solution should not be so readily dismissed (Barbaranelli, 2002). The differences observed could be due to differing personality styles across cultures, however could also suggest that the Big Five is a culturally specific measure that does not readily fit with some European cultures.

Not all methods have found such clear replication of the three personality types. When Rammstedt et al. (2004) used peer report measures, as opposed to self-report, only a resilient cluster and a second ‘non-desirable’ cluster (representing an opposite pattern of traits) emerged. When peers rate personality characteristics, their responses may be based simply on how likable they find the person (Rammstedt, et al., 2004). In four diverse samples of American adults, Costa et al. (2002) used the NEO-PI-R, and the two step clustering procedure of Asendorpf et al (2001). Using an internal replicability criterion of a Cohen’s kappa value $\geq .60$, only one sample showed clear replication of the types, suggesting only a weak tendency for cases to cluster in the three hypothesised regions of the five factor model. Type membership was however found to be significantly associated

with ego-control and ego-resiliency. When, again, the same clustering procedure was replicated in a Filipino sample of college students (Avdeyeva & Church, 2005), using an adapted version of the NEO-PI alongside more indigenous and culture specific measures, three clusters were found in two separate samples of college students, however they only yielded internal replication kappa values of .42 for men and .46 for women. Across the two samples however, in combination, these types comprised the four quadrants presented by Block and Block (1980) - Resilient Overcontrollers, Resilient Undercontrollers, Brittle Undercontrollers and Brittle Overcontrollers, all with the expected associated Big Five traits, and corresponding external behaviours and attitudes. The authors therefore suggested an orthogonal relationship between ego-control and ego-resiliency, not a quadratic one. Gramzow et al (2004) found the same four clusters in a sample of American psychology students, using Californian Adult Q-sort scores correlated with prototypical templates of ego-control and ego-resiliency. These findings were not however replicated in a large sample of American men, despite using the same CAQ sort method (McCrae, Terracciano, Costa, & Ozer, 2006). In fact, in American males, only two replicable factors were found - one named self-esteem (which resembled the resilient type) and the other which was a continuum of nice/weak versus undesirable/strong, which had only moderate similarity to over versus under control (McCrae, et al., 2006). Although this study was based on self-report, the two groups show striking similarity to the clusters based on peer reports in the study by Rammstedt et al (2004).

**Representative general population studies.** Many of the above findings are based on relatively small samples that are not representative of the general population. Boehm et al. (2002) suggested that personality types were sample specific and could not be replicated in the general population. Two further studies have conducted analyses on large representative samples of the general population. One using a German adaptation of the NEO-FFI in a German sample (Herzberg & Roth, 2006), and the other in a large Romanian sample (Sava & Popa, 2011), using a Romanian version of the five factor model. The German study used a wide range of internal fit measures, bootstrapping methodology and subsample comparisons to determine the most replicable cluster solution – all of which provided support for a five cluster solution. The first three clusters resembled the resilient, overcontrolled and undercontrolled types, followed by a ‘confident’ and a ‘reserved’ cluster. These five clusters show similarities to the findings

of the Dunedin longitudinal study (e.g. Caspi, 2000) which was also population based; and to the two resilient subtypes in the study by Schnabel et al. (2002). The Romanian study (Sava & Popa, 2011) used a more liberal Cohens kappa cut off of .50, and found stability in both a three cluster and five cluster solution. These findings suggest that in large heterogeneous samples five clusters should be considered.

Additionally, Eaton, Krueger, South, Simms and Clark (2011) aggregated 24 studies utilising the Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark, 1993) and across 8,690 participants a seven-cluster solution was found. However this model was not replicable in any of the four subgroups of participants (clinical, student, community and military) suggesting that personality prototypes may be sample dependent. Herzberg and Roth (2006) propose that cluster results based on representative population-based sample data can be used to create algorithms as classification criteria for smaller samples, not dissimilar to the way in which questionnaires are based on representative sample norms. This alternative approach to assigning individuals to prototypes will be culturally specific and allows for greater comparison of samples.

**Summary of findings from cross-sectional studies.** In summary, the three personality typologies that were replicated in developmental literature have been shown to be commonly found in a range of cross-cultural adult samples, however not all, with replicable cluster solutions ranging from two to five. The three cluster solution seems to be most commonly found in studies using self-report measures, and representative population samples suggest that a larger number of replicable clusters may exist. It appears that there is some variability in the profiles of Big Five dimensions within each of the three common prototypes. The apparent homogeneity of these clusters may be an artefact of authors naming clusters to conform to the well-known labels (Herzberg & Roth, 2006). Additionally, the Big Five personality characteristics may be less applicable to some cultures (Boehm, et al., 2002) however population-based algorithms may be able to overcome this (Herzberg & Roth, 2006). The identification of subtypes within personality types (e.g. Schnabel, et al., 2002) requires replication within much larger samples, and will potentially require using a larger number of personality variables to look for more discrete differences. A further consideration is that most studies use a cut-off criteria for cluster selection based on a Cohen's kappa internal replication index of ≥ .60, however some see this as too conservative and not sufficient (Herzberg & Roth, 2006). A range of criteria suggested by Milligan (1981) exist for assessing replicability,

and bootstrapping approaches (Efron & Tibshirani, 1986) can be used to resample when small sample sizes exist. These approaches have rarely been used.

Finally, Roth and Herzberg (2007) have usefully noted that the socially desirable profile of the NEO dimensions clearly reflects the pattern of NEO dimensions of the resilient prototype (Roth & Herzberg, 2007). However, findings showed that although the Big Five based typologies, particularly the resilient type, were influenced by social desirability bias, this was not to a greater degree than the influence that was had on the NEO-dimensions upon which the types are based. Although this provides evidence that the resilient prototype is not simply an artefact of social desirability, the study does demonstrate the influence of social desirability on studies using self-report measures and highlights the importance of using a range of objective personality measures.

## Personality Typologies in Clinical Populations

In addition to searching for personality typologies that are replicable across a wide range of samples and methods, research has turned to looking for personality types within clinical samples of patients with particular mental health disorders. The current literature search demonstrated that, to date, this work has focussed on populations of people with eating disorders and PTSD.

### Personality Typologies in Eating Disordered Populations

Research has shown that subtyping eating disorders according to eating disorder symptomology (e.g. anorexia nervosa-restricting type) has only limited utility in informing treatment (See Peat, Mitchell, Hoek, & Wonderlich, 2009 for a review). Some studies have therefore turned to categorising patients according to personality type.

**Classification of personality types**. Of the studies extracted from the current literature search that assessed personality types in patients with eating disorders, the majority reported three clusters: one that suggested an overcontrolled or constricted personality type, one characterised by undercontrol and dysregualtion, and one high functioning/mild pathology group (Claes et al., 2006; Eddy, Novotny, & Westen, 2004; Espelage, Mazzeo, Sherman, & Thompson, 2002; Ghaderi & Scott, 2000; Goldner, Srikameswaran, Schroeder, Livesley, & Birmingham, 1999; Thompson-Brenner & Westen, 2005; Westen & Harnden-Fischer, 2001; Wildes et al., 2011). These types suggest a high degree of similarity to the typologies found in non-clinical samples, and were found across a range of American and European samples, despite the use of differing measures and methodologies. There was however no consensus as to the prevalence of patients falling into each group. A prospective study using a general population sample, found that those with a lifetime history of an eating disorder had a Big Five personality pattern which matched that of an undercontrolled personality type, as did those who went on to develop an eating disorder. This suggested that high Openness to Experience alongside low Emotional Stability and low Agreeableness may be a risk factor for the development of an eating disorder (Ghaderi & Scott, 2000).

One study considered the personality typology of obese patients, in a sample of females undergoing assessment for bariatric surgery (Claes, et al., 2013). Cluster analysis

using a Dutch adapted version of the NEO-FFI found a two factor solution to best fit the data, representing a resilient/high functioning group (43.1%) with low Neuroticism, and average scores on the remaining four dimensions, and an undercontrolled/dysregulated group (56.9%) who showed the exact opposite pattern.. This is perhaps not surprising given that rigidity and obsessiveness is rarely found in obese samples (Claes, et al., 2013).

**Eating disorder symptomology within personality types**. The eating disorder symptomology across these personality types has shown varying results. In an American female outpatient sample, no significant differences were found in eating disorder classification across clusters (Espelage, et al., 2002), however in a Canadian sample of female outpatients, Goldner et al. (1999) found that those with Anorexia Nervosa were most likely to be of the overcontrolled personality type (however noted that a large number of patients with bulimia nervosa also fell into this personality classification). In a Dutch sample, Claes and colleagues (2006) found 65% of overcontrollers to be diagnosed with Anorexia Nervosa, and over 50% of the Undercontrollers to be diagnosed with Bulimia Nervosa, whereas Westen and Harnden-Fischer (2001) found the majority of the constricted/overcontrolled types to have an Anorexia Nervosa diagnosis, and 100% of the undercontrolled type to have symptoms of bulimia nervosa. Wildes et al (2011) also found that amongst patients with Anorexia Nervosa, those with the binge-purge subtype were most highly represented in the undercontrolled cluster.

Using hierarchical multiple regression, Westen and Harnden-Fischer (2001) showed personality type to have incremental validity in predicting eating symptoms beyond categorical axis I diagnoses of eating disorder type. In the sample of obese participants (Claes, et al., 2013), the undercontrolled group showed more binge eating episodes, greater concerns about weight and shape, more maladaptive coping, and scored higher for emotional and external eating on an eating disorder measure than their resilient counterparts (EDE-Q; Fairburn & Beglin, 1994). In this group it is highly likely that eating behaviour could serve an emotion regulation function, therefore recognising these patients prior to surgery is likely to be crucially important.

**Further type-specific symptomology.** All reviewed studies that measured personality disorder (PD) diagnoses were in agreement regarding the personality disorder distributions amongst the personality types. Cluster C personality disorders (anxious and fearful disorders, e.g. obsessive-compulsive PD, avoidant PD) were commonly found in

the overcontrolled types, and Cluster B personality disorders (dramatic, emotional or erratic disorders, e.g. borderline PD, antisocial PD) were more commonly diagnosed in the undercontrolled types (Claes, et al., 2006; Goldner, et al., 1999; Thompson-Brenner & Westen, 2005; Westen & Harnden-Fischer, 2001). Most studies found the high functioning cluster to have low personality disorder pathology, with one study finding obsessive-compulsive PD in this group (Westen & Harnden-Fischer, 2001). Despite this, it should be noted that the high functioning groups were found to be more distressed and less resilient that the typical resilient personality type seen in the general population (Westen & Harnden-Fischer, 2001).

Undercontrollers were found to be more likely to have histories of abuse, hospitalisation and substance abuse (Thompson-Brenner & Westen, 2005; Westen & Harnden-Fischer, 2001; Wildes, et al., 2011). Finally, Eddy, Novotny and Weston (2004) found clear links between sexuality and personality types in eating disorder patients. Overcontrolled patients showed a more restricted sexual style, whereas undercontrolled patients (who had more binge-purge behaviours) were found to have a similar impulsive and self-destructive sexual style. Personality style accounted for more variance in sexual attitudes than did eating disorder symptoms (Eddy, et al., 2004).

**Treatment outcomes across personality types.** When considering outcomes, a prospective study of patients with anorexia nervosa enrolled on an intensive treatment programme (Wildes, et al., 2011) found that when seven univariate predictors of poor outcome were controlled for in a hierarchical multiple regression, undercontrollers showed poorer outcomes than both overcontrollers and the low pathological group. Undercontrollers were also significantly more likely than overcontrollers to discharge themselves from treatment against medical advice and were at higher risk of readmission post discharge. Additionally, in a practice network approach study, where clinicians completed measures on their most recently terminated female patient with symptoms of bulimia (Thompson-Brenner & Westen, 2005), hierarchical multiple regression found that adding personality type as a second step substantially improved prediction of global outcome and eating outcome, above predictions using frequency of bulimia behaviours and axis I comorbidity. Additionally, the authors found the high functioning group to have the shortest treatment length with the undercontrolled/dysreguated group spending the longest amount of time in treatment. Strikingly, a strong correlation was found between dysregulation and the use of psychodynamic interventions by CBT-spectrum

clinicians, suggesting that the more dysregulated a patient was, the more CBT clinicians turned to using techniques which addressed personality diatheses (Thompson-Brenner & Westen, 2005). Additionally, psychodynamic therapists reported that they became more cognitive-behavioural in their approach when working with constricted patients.

**Personality Typologies in PTSD Populations**

The current literature search highlighted that personality clusters closely resembling the resilient, overcontrolled and undercontrolled types have also been replicated amongst persons suffering from PTSD. Cluster analysis, using a brief form of the MPQ and using the MMPI-2, identified three personality clusters in male military veterans with PTSD – a low pathology group, an externalising group, and an internalising group (Miller, Greif, & Smith, 2003; Miller, Kaloupek, Dillon, & Keane, 2004). The low pathology group had the highest adaptive functioning scores, and the lowest rates of comorbid depression and alcohol disorders. The internalisers/overcontrollers had the highest levels of depression, panic disorder and social introversion, were most likely to have made a suicide attempt, and showed the highest PTSD symptom severity (Miller, et al., 2004). The externalisers/undercontrollers in comparison, showed higher levels of anger, anti-social practices and had the lowest social responsibility, with higher levels of substance and alcohol-related disorders and anti-social personality disorder (Miller, et al., 2004).

Further replication of these personality types has been found in female sexual assault survivors (Miller & Resick, 2007) who demonstrated similar behavioural and personality disorder correlates to the military veterans. Additionally, female sexual assault survivors who clustered in to the internalising group were 50% more likely to have a history of childhood sexual abuse (CSA) than the other two personality types (Miller & Resick, 2007). Replication of these three types in PTSD sufferers using the NEO-PI and a hierarchical clustering procedure commonly utilised in this field, has demonstrated that the PTSD personality types show a similar pattern of Big Five characteristics to the resilient, overcontrolled and undercontrolled personality types replicated across childhood and adult samples (McDevitt-Murphy et al., 2012). However these were not replicated using a k-means clustering procedure. Cluster assignment was not found to be stable over a 6 month period, in comparison to dimensional scores on the SNAP, which did remain stable (McDevitt-Murphy, et al., 2012). Despite this, the

authors suggest that cluster profiles may be useful in distinguishing simple PTSD (low pathological group) from complex PTSD (externalisers and internalisers; Miller & Resick, 2007).

**Personality Typologies in Additional Clinical Populations**

The current literature search highlighted two additional studies which considered personality typologies within clinical populations. Latent class analysis using the NEO-FFI found a five class solution in a large prospective study of individuals with anxiety and depression (Spinhoven, de Rooij, Heiser, Smit, & Penninx, 2012). These were interpreted as three levels of overcontrollers (high, medium and low) and two levels of resilient types (medium and high), based on the degree of Neuroticism and Extraversion present. No group representative of the undercontrolled personality type was found which, given the internalising nature of anxiety and depressive disorders, is perhaps not surprising. High overcontrollers had the highest prevalence of comorbid disorders. At two-year follow-up, latent personality class was found to be a significant predictor of transition from a more severe to a less severe class of comorbidity, however was not found to be more predictive than the dimensions of Neuroticism and Conscientiousness, suggesting that the type approach has little incremental validity over the variable-centred approach.

Finally, Bradley, Heim and Weston (2005) identified the common personality patterns in women with Childhood Sexual Abuse (CSA). Q-factor analysis using the SWAP-200 demonstrated a four-cluster solution which included an internalising dysregulated cluster (characterised by intense distress, poor affect regulation, intrusive memories and dissociative symptoms); an externalising dysregulated cluster (characterised by anger at others and external blame); a high functioning cluster (characterised by strengths such as the ability to form relationships and achieve goals despite negative affect); and a dependent cluster (characterised by idealisation of others and dependant and histrionic PD features). These grouping were found to be clinically and theoretically coherent, predicting dimensional ratings of Axis-I disorders, global assessment of functioning scores, and ratings of family backgrounds including the characteristics of the abuse. The findings show that a single aetiological variable such as CSA may be associated with differing and distinct personality configurations, and as such, grouping those with a history of CSA together for the purposes of research or treatment may impact upon research findings given the heterogeneity within the group.

However, the small sample size and the fact that all data was based on clinician ratings mean that the results require substantial replication before firm conclusions can be drawn.

**Summary of Clinical Population Findings**

The degree of convergence among cluster-analytic classifications in individuals with eating disorders and those with PTSD is high. A three factor typology appears to be robust and shows resemblance to the personality typologies originally described by Block and Block (1980). However, in those suffering from anxiety and depression, an undercontrolled personality type did not emerge, and in women who had suffered CSA a fourth 'dependant' cluster emerged. All findings do however suggest that there is significant heterogeneity across clinical samples in terms of personality types, irrespective of clinical diagnosis, and that these may have significant clinical utility. As yet there is no clear consensus on the frequency of eating disorder types within eating disordered personality types and this may in fact demonstrate the heterogeneity of personality types across eating disorder classifications.

These studies did however suffer from a range of limitations. A large majority of the participants in the eating disorder studies were both female and Caucasian. Although eating disorders have been commonly associated with white females in westernised countries, there is increasing recognition of these disorders among men, and within those from diverse ethnic, racial and cultural backgrounds (e.g. Hudson, Hiripi, Pope, & Kessler, 2007; Miller & Pumariega, 2001). The generalisability of these results is therefore narrow. Additionally, the reliance on clinician ratings and at times unvalidated questionnaires (e.g. Ghaderi & Scott, 2000) suggests the need for replication with a range of validated measures across more than one rater. Additionally, the PTSD literature at present comes from one group of researchers, using very specific subsamples of PTSD sufferers, therefore the results cannot be generalised to other samples. Finally, the cross-sectional methods commonly used mean that inferences cannot be made about the extent to which subtypes represent premorbid personality or the subsequent alteration of personality as a consequence of the trauma experienced (Miller & Resick, 2007).

## Research on Treatment Approaches for Opposing Personality Types

Finally, the literature search highlighted that there was an apparent paucity of research considering the treatment for overcontrolled versus undercontrolled personality types. Numerous authors have highlighted the importance of a case conceptualisation that takes into account a person's personality classification, encouraging treatment approaches to extend beyond specific symptoms, and suggesting that treatment approaches should be tailored to the individual's personality type, not simply their axis I diagnosis (Bradley, et al., 2005; Claes, et al., 2013; Goldner, et al., 1999; Thompson-Brenner & Westen, 2005). Some evidence suggests that personality types have more clinical utility than specific disorder subtypes (e.g. Wildes, et al., 2011) and failure to recognise these clinically relevant subtypes may hinder research if interventions are studied on highly heterogeneous clinical populations (Wildes, et al., 2011). In PTSD sufferers, Miller et al (2004) noted that treatment approaches often focus on the psychopathology of the internalising subtype, yet only 50% of PTSD sufferers in the sample were categorised into this cluster.

Causadias and colleagues (2012) suggest that undercontrollers may require the promotion of context dependent emotional expression and treatment to develop emotional control, including cognitive strategies to help delay gratification; whereas overcontrollers may need help with enhancing emotional expression and pursuit of goals. Those who are low in resiliency might also require help to improve their adaptive flexibility to aid their ability to respond to changing situations. Despite these recommendations being made in the context of eating disordered patients, they are likely to apply to people with a range of mental health needs, who may present with these differing personality types.

One study in the current literature search, by Lynch and Cheavens (2008) has introduced a treatment approach aimed specifically at those with overcontrolled personality types. Lynch and Cheavens (2008) suggest that paranoid PD, obsessive-compulsive PD and avoidant PD all share features associated with cognitive and behavioural rigidity, restricted emotional expression, distrust of others, limited relationships and control of the environment. The treatment approach is based on a biosocial theory, which posits that genetic vulnerability for heightened sensitivity to negative emotional stimuli, influenced by negative socio-biographic feedback, leads to aversive emotions, resulting in emotional constriction and rigid behaviour. Following a similar format to standard Dialectical Behaviour Therapy (DBT; Linehan, 1993), the new

approach introduces a ‘Radical Openness’ module, and the induction of positive mood states prior to behavioural exposure, emphasising skills to maximise openness and flexibility, and to reduce rigid thinking and behaviour A single case illustration (Lynch & Cheavens, 2008) demonstrated the use and positive outcome of a this approach to treat emotional constriction and cognitive-behavioural rigidity, in a male suffering from depression, paranoid PD and Obsessive-compulsive PD. Although few conclusions can be drawn from one case study, the study does highlight the potential strengths of designing a treatment based on shared common features amongst disorders as opposed to aiming treatments at specific disorder symptoms.

## Limitations of the Literature

The current literature review has demonstrated that the three personality prototypes replicated in developmental literature, based on the concepts of ego-control and ego-resiliency (Block & Block, 1980), are largely replicable within adult populations and show utility for predicting and understanding adult mental health problems, and in guiding treatment to better suit the needs of the individual. However, the findings are not quite this clear cut, and as with any literature there are limitations which require consideration. The limitations of individual studies have been discussed throughout the review; however a summary of the major overarching limitations will be presented.

Firstly, although there is agreement that personality prototypes have fuzzy, rather than discrete borders (Asendorpf, et al., 2001) varying standards have been used in the literature to determine how to assign participants to clusters. When using factor analysis, studies utilising stricter criteria of how an individual must load onto a factor to be typed leave many participants un-clustered, which suggests that the clusters used may not be accurately capturing the breadth of personality functioning. Additionally, in studies utilising cluster analysis, an internal replicability of Cohens kappa $\geq .60$ was used by many to confirm replicable clusters (e.g. Asendorpf, et al., 2001; Rammstedt, et al., 2004), however some studies used more liberal cut-offs (Sava & Popa, 2011). Most studies utilised just one method of assessing replicability, whereas numerous methods exist that can be used in combination to ensure that the most internally and externally replicable cluster solution is accepted. Barbaranelli (2002) suggests that cluster solutions beyond the three typical factors should not be so readily dismissed.

In line with this, there is a theme in the literature of authors choosing to name their three clusters according the well-known resilient, overcontrolled and undercontrolled personality types which they are hoping to replicate, despite considerable variation across studies in how these prototypes differ on dimensions of the Big Five. This can be misleading when making comparisons between studies, and means that interesting variations across cultures may be missed. Future research should carefully consider the constellation of personality dimensions within each cluster before determining how well they replicate previous findings.

Further research is also required to address the common methodological flaws of small sample sizes and unvaried data report sources, and needs to assess more

heterogeneous populations with regard to sex, gender, race and ethnicity. This is especially true in the clinical population literature which is currently sparse. Biases can exist in both clinician report data, with the validity of the clinical judgements often not known, and also in self-report data where individuals may be susceptible to social desirability bias for example. A combination of sources, which can be cross-compared is therefore likely to give a more reliable and valid measure from which to form conclusions. Additionally, for the PTSD literature in particular, a small group of authors are currently dominating the research in this area. Author biases in interpretation are inherent in research and participants will also likely come from a similar geographical area. Therefore it is crucial that additional research groups replicate or challenge such findings.

An important limitation of the current literature reviewed is the small number of clinical populations in which research into personality types has been conducted. Given the likely implications for treatment, it is essential that research expands to a wider range of people, especially socially excluded populations such as prison and homeless populations. Such populations often get missed in the research literature yet the development of successful treatment approaches which address underlying personality pathology which may underlay numerous comorbid mental health problems or maladaptive behaviours, is crucial to successful outcomes for these individuals and for society.

Finally, in considering the limitations of the search strategy itself, the search terms were very specific, which did not allow for comparison between different theoretical approaches to personality typologies or to self-control. However, the aim of the review was to consider the utility of the conceptualisation of personality types originally based on Block and Block's construct of ego-control and ego-resiliency, and the focussed review has allowed for a detailed discussion of this.

## Implications of the Literature Review

The current literature review has highlighted many implications for both clinical practice and for research. Firstly, by understanding the long-term outcomes of childhood personality types, it is possible that preventative work can be more appropriately tailored to the individual based upon their personality typology. For example, in children showing signs of maladaptive functioning, preventative strategies may be angled towards early symptoms of depression in those identified as overcontrolled, or towards potential antisocial behaviour in undercontrollers. Additionally, improving ego-resiliency, which has been shown to be a promotive factor for global adjustment as an adult (Causadias, et al., 2012), could prove to be beneficial in those children found to be low in emotional flexibility.

The second implication is that of communication. There is some disagreement in the literature with regard to the utility of trait versus type approaches, with some studies findings type approaches to outperform the variable approach in predicting long term outcomes (e.g. Asendorpf & Denissen, 2006) and others finding the type approach to have little incremental validity over variable-centred approaches (e.g. Spinhoven, et al., 2012) and to be less stable over time (e.g. Eaton, et al., 2011). However, when it comes to communication of personality structure, there is agreement that using typologies has more clinical utility, despite the possibility of less statistical prediction. Summarising personality information under one label may be a good compromise between information overload and simplification. This is likely to be especially important when sharing information with policy makers, with clients and when treatment planning. A description of a category allows for a fairly complex mental image that includes those features described by the variables given, but also many more than can be assumed from the typology (Schnabel, et al., 2002). Additionally, personality type appears to predispose an individual to certain behaviours, however by making this explicit to patients, they can be helped to make choices about the behaviours in which they engage.

Thirdly, the findings presented in this review have implications for assessing and treating heterogeneous clinical populations with common mental health diagnoses. Classification of patients based on personality type may have more clinical utility than present approaches to subtyping disorders such as eating disorders by axis I subtype alone (Wildes, et al., 2011). Taking into account underlying personality type when treating Axis I disorders is likely to be crucial to both treatment outcome and to the development

of new treatments. As has been demonstrated in the PTSD literature, treatment approaches often focus on the psychopathology of one personality subtype only, with patients assumed to be homogeneous within this classification, whereas they may in fact show the exact opposite pattern of personality (Miller, et al., 2004). Populations that may be commonly assumed to be very emotionally undercontrolled (for example, the homeless population) may in fact show heterogeneity in personality type that, without assessment, would be missed in the development of treatments interventions. Treating presenting symptomology alone, e.g. disordered eating behaviours and cognitions, may be adequate in the high functioning types, however for those in the over and undercontrolled clusters, symptom focussed treatment may fail to address the personality structure that gives rise to the underlying context of the symptoms (Westen & Harnden-Fischer, 2001). Additionally, comorbid mental health problems could be addressed by treatments that target underlying personality processes. This not only has implications for treatment approaches, but also for the classification of mental disorders. Westen and Harnden-Fischer (2001) suggested that subtypes of personality functioning should be built into Axis I classifications, which fits with a view held by many at a time where change in the classification of personality disorders is taking place (see Tyrer, 2007 for a discussion on personality diatheses and classification of disorders). Some however, may view this as another diagnosis that patients will be labelled with, as opposed to typical variation within normal personality functioning.

In order for personality type to be considered in treatment planning, clinicians must be able to measure such personality characteristics. One suggestion has been that cluster analysis based on representative population samples can be used to create algorithms to allow individuals to be assigned to a prototype based on the population in which they are present (Herzberg & Roth, 2006). Although this approach may allow for more culturally specific comparison data to be available, it is not necessarily a realistic solution for the clinician, who may benefit more from self-report or clinician-rated measures to assess the degree of ego-control and ego-resiliency of an individual. Two self-report measures do exist – the Ego-resiliency scale (ER; Block & Kremen, 1996) and the Ego-undercontrol scale (UC; Letzring, Block, & Funder, 2005), however to date, these have been rarely used amongst clinical populations.

Further, the presence of such heterogeneity within clinical groups has implications for the validity of research findings. If research is conducted upon samples categorised only by an Axis I disorder which are assumed to be somewhat homogeneous, differing

personality styles which have been shown to have differing associations with treatment outcome (e.g. Thompson-Brenner & Westen, 2005; Wildes, et al., 2011), are likely to impact upon research outcomes.

Finally, treatment approaches that address underlying personality pathology are currently aimed mainly at those who would fall into the undercontrolled personality type, for example DBT (Linehan, 1993). However, overcontrolled personality types may require quite different treatment approaches. Lynch and Cheavens (2008) suggest that currently, therapies for chronic depression have been ineffective in some because they fail to target the underlying personality features that are present, particularly the emotionally constricted personality types. A large multi-site clinical trial is currently underway, headed by Lynch, extending the principles of DBT to refractory depression for people with overcontrolled personality styles.

## Conclusions and Future Directions

This review has drawn together the literature which has developed as a result of the personality prototypes first conceptualised by Block and Block in 1980, based on their theoretical conceptualisation of the constructs of ego-control and ego-resiliency. The findings have demonstrated that these personality types are largely replicable across a range of cultures and populations, and that they provide clinical utility in predicting and understanding adult functioning and mental health. Not only does understanding individuals in terms of constellations of personality traits help to predict long term functioning, but it aids in the understanding of the heterogeneity within clinical subgroups commonly assumed to be homogeneous based on their clinical symptomology, and aids in the prediction of treatment success. Full agreement has not been reached on the 'correct' number of personality typologies that are replicable and theoretically coherent, and a range of limitations need addressing to allow for more accurate comparison across studies for greater generalisability of results. However, the findings have allowed for a range of useful implications to be considered, specifically regarding the aiding of communication between clinicians, patients and researchers, and considerations for assessment, disorder classification, and treatment approaches.

In addition to overcoming the limitations in the current literature as discussed above, a variety of future directions exist for this area of research. In order to allow for the routine measurement of self-control amongst people with mental health difficulties, the development of measures to accurately assess this construct is crucial. Two measures do exist which require further validation within clinical populations (Block & Kremen, 1996; Letzring, et al., 2005). Additionally, further prospective studies are required to understand the premorbid personality characteristics of clinical populations and to allow for more preventative treatment programmes to be developed. Finally, treatment approaches need to be considered which address the maladaptive functioning associated with an emotionally constricted personality style. The notion that too much self-control can be as maladaptive as a lack of control requires continued attention in the research literature, in order for clinical populations to benefit from a greater understanding and awareness of overcontrolled personality types.

# Chapter II

## Empirical Paper

### A Cross-Sectional Study Exploring the Relationship between Trait Impulsivity, Self-Control and Maladaptive Behaviours in a Homeless Population

# Introduction

Homelessness is a significant and complex problem in the UK for both the homeless individuals and for society. Understanding and meeting the needs of this vulnerable and socially excluded population group is therefore of crucial importance, however research into the psychological factors implicated in homelessness is still in its infancy. This study aims to advance understanding of the pathways leading to homelessness, specifically exploring temperamental and personality characteristics underlying the maladaptive behaviours that can be associated with repeated tenancy breakdown and subsequently homelessness (Homeless Link, 2009).

## Overview of Homelessness

Rates of homelessness in the UK are increasing. A recent 'rough sleeping count' estimated that 2,181 people were sleeping rough[9] in England on a given night (Department for Communities and Local Government (DCLG), 2012b), a 23% increase from the year previous. This single night snapshot does not however begin to capture the true prevalence of homelessness within the UK. Homelessness stretches far further than those sleeping 'on the street', to include both the statutory homeless (those recognised by local authorities as being homeless), and the vast number of 'hidden homeless' not often counted in government statistics. The 'hidden homeless' refers to those people who have no permanent home of their own, for example those residing in homeless hostels, shelters, and those sleeping on a friends sofa. Taking these individuals into account, the total number of people in the UK with no permanent place to live was estimated to be up to 380,000 in 2003 (Crisis, 2003), a number which is likely to have increased in recent years given the economic downturn. For the current study, 'homelessness' refers to single adults and includes those that sleep rough, those who have no permanent place to live (e.g. reside in squats), and those housed in shelters or homeless hostels.

With rates of homelessness on the rise, understanding and meeting the needs of these individuals is now more crucial than ever. Government policies have a history of focussing on only the practical and social needs of this population (e.g. DCLG, 2003; Office of the Deputy Prime Minister, 2005). Newer legislation under the current coalition

[9] Sleeping rough refers to those sleeping or bedding down in the open air (e.g. on the street, doorways, bus shelters) or in buildings or other places no designed for habitation (e.g. sheds, cars, stairwells).

government had initially focussed on tackling rough sleeping only (DCLG, 2011b), however a recent report, outlining a vision of prevention of homelessness, suggests bringing together government departments to work jointly with local authorities and voluntary sector organisations with the aim of supporting all of those at risk of homelessness (DCLG, 2012a). Despite these policies, rates of homelessness have increased in in both 2011 and 2012 (DCLG, 2011a, 2012c), the first increases seen since 2003. Current economic and social policy developments are all predicted to have an impact upon homelessness (Crisis, 2012). In order to develop successful services, research must endeavour to understand the complex pathways that lead to homelessness and contribute to tenancy breakdown.

**Pathways to Homelessness**

The homeless population are a complex and highly heterogeneous group, defined only by the place in which they are found, rather than by particular demographic or psychological criteria. Despite this, in common in this population lies a multifaceted array of difficulties that can both lead to and be a consequence of becoming homeless. In understanding the pathways to becoming and remaining homeless, research is in agreement that a complex interaction exists between macro factors (such as lack of employment and housing difficulties) and numerous individual factors (such as childhood abuse and neglect, mental health and substance abuse problems; Morrell-Bellai, Goering, & Boydell, 2000). The current study aims to further understand these individual factors, specifically the maladaptive behaviours commonly associated with mental health problems.

**Mental Health Problems and Maladaptive Behaviours**

It is widely agreed that an increased level of mental health difficulties are found in the homeless population in comparison to the general population. A large meta-analysis by Fazel and colleague's (Fazel, Khosla, Doll, & Geddes, 2008) reviewed 29 studies on the prevalence of serious mental disorder in people who are homeless in western countries. The most common problem was found to be alcohol and drug dependence, with pooled prevalence estimates of 37.9% and 24.4% respectively. Psychotic illness showed an average prevalence of 12.7%, similar to rates of major depression (11.4%). Additionally, estimates of personality disorder prevalence ranged from 2.2% to 71% (pooled estimate of 23%), with all but one sample estimating higher rates of personality

disorders in this population than in community samples. This in in line with government statistics which suggest that up to 60% of adults living in homeless hostels may have a personality disorder (DCLG & National Mental Health Development Unit, 2010).

A high prevalence of 'maladaptive' or 'problem' behaviours are also commonly found in the homeless population, which can be as a result of or associated with mental health problems. Maladaptive behaviours have been defined as those behaviours that interfere with everyday functioning, that are potentially damaging to the self or others, that are socially defined as a problem and that usually elicit some form of social control response (Kingston, 2009)[10]. Problem behaviours are commonly found together, for example self-harm and alcohol abuse (Haw, Hawton, Casey, Bale, & Shepherd, 2005) or sexual promiscuity and substance abuse (Caldeira et al., 2009) and as such have been theorised to have similar dispositional risk factors, the most common of which is impulsivity (Kingston, Clarke, & Remington, 2010). Behaviours such as alcohol and substance misuse, risky sexual behaviour, aggression and deliberate self-harm have been commonly reported in homeless populations (e.g. Brown et al., 2012; Day, 2010; Edens, Mares, & Rosenheck, 2011; North, Smith, & Spitznagel, 1994; Philippot, Lecocq, Sempoux, Nachtergael, & Galand, 2007; Taylor, Stuttaford, Broad, & Vostanis, 2006; Tyler, Melander, & Noel, 2009), however a paucity of research has considered maladaptive behaviours such as restrictive eating, binge eating and excessive exercise in this population. Kingston et al. (2011), in the validation of their Composite Measure of Problem Behaviours, found that the Restrictive Eating and Excessive Exercise subscales did not correlate with the other factors, and suggest the possibility of a different contributing factor to these two types of problems. One proposed explanation is that restrictive eating and excessive exercise may occur in people who are more emotionally constricted and over-controlled as opposed to those who are more emotionally expressive (Kingston, et al., 2011). Consideration of the factors underlying this range of maladaptive behaviours in people who are homeless is required. The concepts of impulsivity and self-control and the relationship between then will now be introduced.

[10] Maladaptive behaviours as defined here by Kingston et al., (2011) include: Deliberate Self Harm, Sexual Promiscuity, Excessive Exercise, Restrictive Eating, Binge Eating, Excessive Internet/computer game use, Nicotine use, Excessive alcohol use, Illicit drug use, and Aggression.

**The Role of Impulsivity in Maladaptive Behaviours**

Despite impulsivity being commonly reported as a risk factor for a range of maladaptive behaviours, widely ranging definitions of impulsivity have been used over time. Clarity was gained by a new conceptualisation of impulsivity (initially by Whiteside and Lynam, 2001) which suggested that there are four distinct facets of impulsivity, which are discrete psychological processes that lead to impulsive like behaviours. These facets were labelled Urgency, Premeditation (lack of), Perseverance (lack of) and Sensation Seeking, and can be measured by the UPPS Impulsive Behaviour scale (Whiteside, Lynam, Miller, & Reynolds, 2005). Building upon this work, a meta-analysis of impulsivity measures, conducted by Sharma, Markon & Clark (2012) also showed the construct of impulsivity to be best conceptualised as distinct 'impulsigenic traits', which underlie the behavioural manifestations of impulsive behaviours (Clark, 2005; Sharma, Kohl, Morgan, & Clark, 2013; Sharma, et al., 2012). Three traits were identified, which were largely consistent with Whiteside and Lynam's (2001) facets, except that Premeditation and Perseverance did not emerge as separate factors. The three traits, which strongly resembled Tellegen's 'Big Three' personality traits (1982) were labelled as 'Extraversion/Positive Emotionality' (E/PE), 'Disinhibition versus Constraint/Conscientiousness' (DvC/C) and 'Neuroticism/Negative Emotionality (N/NE). Factor analysis demonstrated that E/PE included the Sensation Seeking subscale of the UPPS Impulsive Behaviour scale, DvC/C included the Perseverance and Premeditation subscales, and N/NE included the Urgency subscale. The DvC/C trait is characterised by scores which range from undercontrol to overcontrol, with scores in the mid-range seen as the most adaptive (Sharma, et al., 2012). The UPPS subscales of Perseverance and Premeditation are therefore highly related to the concept of self-control (see below).

The subscale of Urgency has been shown to be a predictor of a range of maladaptive behaviours including marijuana use, eating problems, bulimic symptomology, aggression, alcohol use and borderline personality disorder symptomology (Anestis, Selby, & Joiner, 2007; Claes, Vandereycken, & Vertommen, 2005; Fischer, Anderson, & Smith, 2004; Fischer, Smith, & Anderson, 2003; Lynam & Miller, 2004; Miller, Flory, Lynam, & Leukefeld, 2003). This inability to resist acting rashly in search of immediate relief from negative emotion fits with Linehan's (1993) understanding of suicidal and parasuicidal behaviours in Borderline personality disorder. The subscale of Sensation Seeking has been shown to be a predictor of alcohol and drug

use and risky sexual behaviour (Cyders, Flory, Rainer, & Smith, 2009; Donohew et al., 1999; Miller, et al., 2003). Urgency and Sensation Seeking have been found to be the most important traits for differentiating clinical groups from a control group (Whiteside, et al., 2005).

Cyders et al. (2007) later added an additional scale to the UPPS, the 'Positive Urgency Measure' (PUM), developed to measure a person's tendency to act rashly in response to positive affective states, and found this to be uni-dimensional and distinct from the original four constructs of the UPPS (Whiteside & Lynam, 2001). This scale has been found to predict risky actions likely to occur when a person is in a positive mood, such as increased quantity of alcohol consumption illegal drug use and risky sexual behaviour (Cyders, et al., 2009; Cyders, et al., 2007; Zapolski, Cyders, & Smith, 2009).

These impulsigenic traits (Sharma, et al., 2012) can be viewed as a person's temperamental or characteristic level of impulsivity, which appear to be strongly associated with a range of maladaptive behaviours. However, separate to our characteristic impulsivity level is our mechanism for self-control.

**Self-control and Maladaptive Functioning**

Our control of impulse is theorised to differ from our temperamental levels of impulsivity (Block & Block, 1980) with people having characteristic levels of "urges and surges" (pp. 46), yet differing mechanisms for how they control these. Although our innate degree of impulsiveness has been shown to be predictive of maladaptive behaviours, it is theorised that what determines behaviour may be the personality characteristic of self-control. Lynch and colleagues have proposed a neuro-regulatory model of personality and socio-emotional functioning (Lynch, et al., in press) which posits that self-control tendencies determine an individual's behaviour. These self-control tendencies represent an individual's ability to yield to or inhibit their automatic response tendencies which are influenced by how incoming stimuli are perceived and evaluated; a person's temperament and socio-biographic history is suggested to influence these perceptions and evaluations.

Lynch, Hempel and Clark (in press) suggest that difficulties with self-control can be separated into two quite opposite forms, 'under-control' (characterised by disinhibition and chaotic intense relationships) and 'over-control' (characterised by rigid inhibition and distant cautious relationships), and suggest that these underlie two classes of psychopathology: emotionally over-controlled disorders and emotionally under-controlled

disorders. This concept corresponds with the personality theory of Block and Block (1980).

**Block and Block's Theory of Personality Functioning**

Block and Block (1980) conceptualised the personality dimensions of 'ego-control' and 'ego-resiliency' (based on the theory of 'ego-functioning' from psychodynamic theory), as constructs for understanding motivation, emotion and behaviour (Letzring, et al., 2005). Ego-control, a dimensional concept of impulse control, was defined as "the threshold or operating characteristic of an individual with regard to the expression or containment of impulses, feelings, or desires" (Block & Block, 1980, p. 43), with over-control at one end of the continuum and under-control at the other end. Ego-resiliency was defined as "the dynamic capacity of an individual to modify his/her modal level of ego-control, in either direction, as a function of the demand characteristics of the environmental context" (p. 48). Those at the over-control end of the ego-control dimension were suggested to be inhibited, organised, and excessively constrained, denying themselves pleasure, yet able to carry out repetitive tasks. Those at the under-control end however were suggested to express emotion and impulses immediately, to be spontaneous and easily distracted, and to be unable to delay gratification (Funder & Block, 1989). Either is thought to be adaptive or maladaptive depending upon the situation. Those with high levels of ego-resiliency are thought to be able to adapt their level of control depending on the circumstances, leading to good psychological adjustment. If ego-resiliency is low ('ego-brittle'), it is theorised that individuals will exercise their only known way of control, and this may lead to maladaptive behaviour (Block & Kremen, 1996).

**Personality Typologies**

Using a person-centred typological approach, three personality types (resilients, undercontrollers, and overcontrollers), based on the concepts of ego-control and ego-resiliency, have been replicated in the literature, in both children and adults (e.g. Asendorpf, et al., 2001; Asendorpf & van Aken, 1999; Hart, et al., 1997; Robins, et al., 1996). Typically, undercontrollers and overcontrollers have demonstrated low ego-resiliency, and resilient individuals have shown average levels of ego-control with high ego-resiliency (demonstrating a quadratic relationship between the two concepts). However, some disagreement exists, with other studies demonstrating an orthogonal

relationship between the concepts of ego-control and ego-resiliency (e.g. Gramzow, et al., 2004). Those categorised as under-controlled have been shown to be prone to more externalising behaviours such as anti-social behaviour, aggression, alcohol use, and binge-purge behaviours (Caspi, et al., 1996; Dennissen, et al., 2008; Newman, et al., 1997; Westen & Shedler, 1999a; Wildes, et al., 2011) whereas those defined as over-controlled have been found to be more socially isolated, and prone to internalising disorders such as depression (Caspi, et al., 1996), and anorexia nervosa (Westen & Shedler, 1999a; Wildes, et al., 2011). Additionally, over-control has been linked to cluster A and C personality disorders (e.g. paranoid, schizotypal, schizoid; obsessive-compulsive, avoidant , dependent), whereas under-control has been linked to cluster B personality disorders (e.g. borderline, antisocial, histrionic, narcissistic; Claes, et al., 2006; Lynch & Cheavens, 2008; Lynch, et al., in press; Thompson-Brenner & Westen, 2005). Those high in ego-resiliency have been found to be more adaptive, self-disciplined and self-assured (Lönnqvist, Mäkinen, Paunonen, Henriksson, & Verkasalo, 2008). The need for treatment planning to take personality style into account in addition to specific axis I symptoms has been consistently highlighted in the literature (Bradley, et al., 2005; Claes, et al., 2013; Lynch & Cheavens, 2008). Therefore, understanding the self-control style of homeless individuals and how this interacts with impulsivity traits and subsequent maladaptive behaviours is crucial to successful interventions.

**Measurement of Ego-control and Ego-resiliency**

In past research, personality types have been categorised by use of labour intensive Q-sort procedures followed by inverse factor analysis (e.g. Robins, et al., 1996) or by cluster analysis based on dimensional personality measures such as the NEO-PI-R (Costa & McCrae, 1992). The present study did not aim to cluster participants in this way, but to measure, for the first time, the characteristic levels of ego-control and ego-resiliency in a population of people who are homeless. Self-report measures of ego-resiliency (Ego-resiliency Scale; Block & Kremen, 1996) and ego-control (Ego-undercontrol Scale; Letzring, et al., 2005) were therefore utilised which were empirically developed by Block and Block over the years but that have only more recently been published and validated. As far as the author is aware, this study will be the first to use these measures in a homeless population. Identifying a patient's self-control tendencies is crucial due to the influence this may have on planning treatment, with those exhibiting under-controlled patterns requiring interventions to enhance control, and those who are

more over-controlled requiring interventions that may enhance their level of emotional expression (e.g. Causadias, et al., 2012; Lynch & Cheavens, 2008).

**The Current Study**

The psychological characteristics of people who are homeless are still relatively unknown, yet are crucial in understanding and meeting the needs of this population. Studying the temperamental impulsivity and self-control tendencies of this vulnerable section of the population will help to understand just one pathway to the maladaptive behaviours so commonly associated with remaining homelessness. Although a wealth of research questions need to be answered with regard to the personality characteristics of this population, here it is anticipated that understanding the role of self-control tendencies and their relationship with maladaptive behaviours will help in determining the most effective treatment targets and strategies for these multiply excluded members of society. Additionally, the study aims to answer a question in the literature posed by Kingston et al (2011) as to the factors that contribute to Restrictive Eating and Excessive Exercise that separate them from other problem behaviours, and aims to provide support for one pathway of the neuro-regulatory model proposed by Lynch and colleagues (Lynch, et al., in press).

**Research Objectives**

The following hypotheses were tested:

**$H_1$)** **a)** A bimodal distribution will be found on the Ego-undercontrol scale, demonstrating that both over-controlled and under-controlled personality types exist in a population of people who are homeless.

**b)** Levels of ego-control will be differentially associated with levels of ego-resiliency, with both low and high scores on the Ego-undercontrol scale associated with low ego-resiliency.

**$H_2$)** Ego-undercontrol will be positively correlated with the following maladaptive behaviours: Sexual Promiscuity, Binge-eating, Excessive Alcohol Use, Illicit Drug Use, Deliberate Self-harm and Aggression; and will be negatively correlated with Excessive Exercise and Restrictive Eating.

**$H_3$)** The relationship between temperamental trait impulsivity (Negative Urgency, Positive Urgency, Sensation Seeking) and maladaptive behaviours will be mediated by ego-control.

# Methodology

## Design

The current study employed a cross-sectional correlation and mediation design utilising self-report questionnaires to measure the concepts of trait impulsivity, ego-control, ego-resiliency and maladaptive behaviours, in a population of homeless men and women.

## Sample

**Sampling strategy**. An opportunity sample was recruited from five homeless hostels in the city of Southampton, all of which were third sector organisations. Recruitment took place over 15 sessions with 1-5 visits to each hostel[11].

**Justification of sample size.** An *a priori* power calculation was conducted to determine the required sample size to detect a medium effect size when using correlational analysis. G* power, version 3.1, indicated a sample size of 64 would be sufficient to detect a medium effect size ($r = .30$), where power was .8 and $\alpha = .05$ (Cohen, 1992). Fritz and Mackinnon (2007) conducted a series of empirical simulations to determine sample sizes needed when using a bootstrap method (see analysis section). It was concluded that, when using the bias corrected bootstrap method, 71 subjects would be needed to detect a medium effect size with .80 power. It was also suggested that as empirical mediation analyses are often underpowered this sample size should be used as a lower limit.

**Inclusion/exclusion criteria.** Male and female adults who were currently homeless were included in the study[12]. Individuals were excluded if they were unable to understand written or spoken English to a level sufficient to accurately complete the questionnaires[13]. Participants were not excluded due to drug or alcohol dependence, to

[11] Recruitment took place with a co-researcher (a trainee Clinical Psychologist) also investigating self-control within the homeless population.

[12] A broad definition of homelessness was used. This refers to single people who have nowhere to live and includes those that sleep rough (in the open air or in places not designed for habitation), those who have no permanent place to live (e.g. reside in squats) or those housed in shelters or homeless hostels.

[13] The exclusion criterion was approved by the University of Southampton School Of Psychology Ethics Committee.

enable a representative sample of the population to be captured[14].

**Participant Demographics**

One hundred and nine participants were recruited from a pool of approximately one hundred and eighty (61% recruitment rate). Eighteen participants (17%) were excluded from the statistical analysis, as shown in Figure 2. The final sample consisted of 91 participants (83% of recruited sample). The majority of participants were male (*n* = 72, 79.1%), and White British (*n* = 80, 88%). Gender estimates of the homeless population (80% male; Crisis, 2009) indicate that the current sample is representative of the gender distribution in the population. Full demographic information is provided in Table 2.

[14] Participants were asked to return on another day if they were intoxicated to ensure informed consent and valid results were gained.

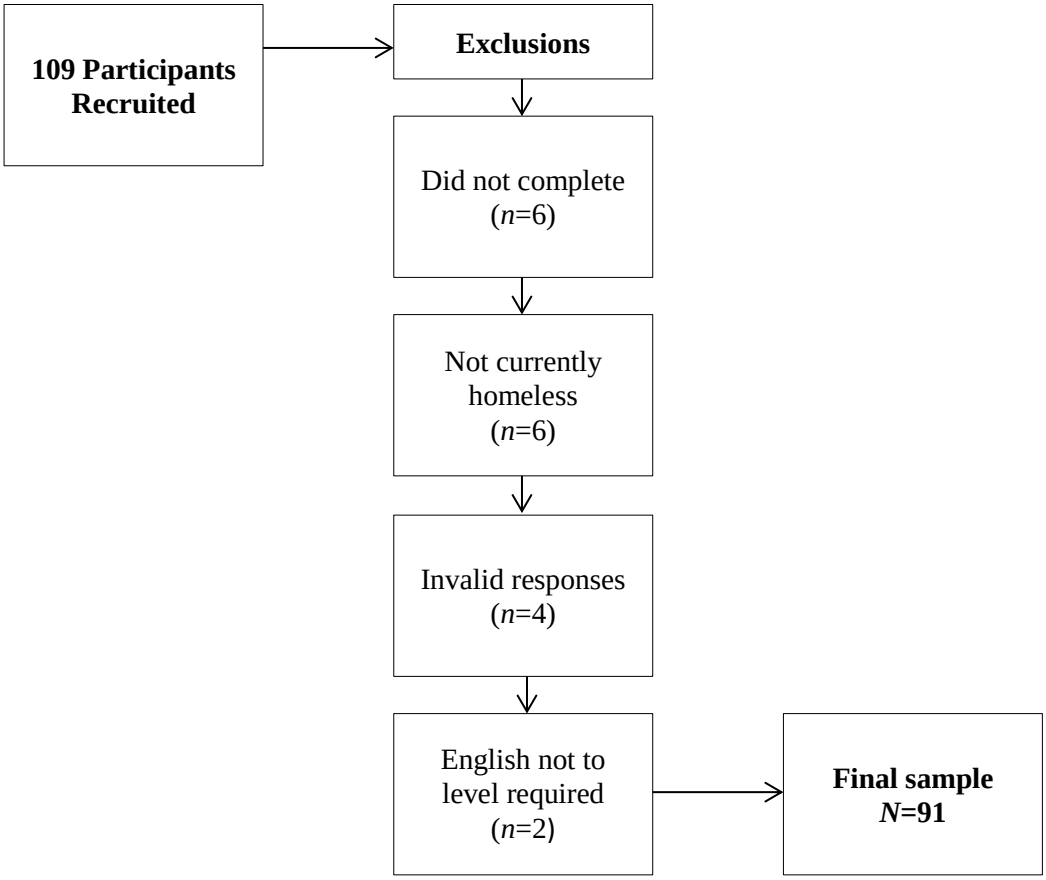



*Figure 2.* Participant Exclusions

*Note: Did not complete:* Participants completed less than 50% of items. *Not currently homeless:* Participants were living in private accommodation despite still attending hostel outreach services. *Invalid Responses:* A succession of same responses was given across the questionnaires, irrespective of reversed items. *English not to level required:* English was not a first language and the participant was unable to fully comprehend the questionnaire items, despite understanding the consent procedure.

Table 2.

*Demographic Information for Final Sample (N=91)*

| **Variable** | **Category** | ***n*** | **Frequency %** |
|---|---|---|---|
| Age (years) | 18-25 | 17 | 18.7 |
| | 26-35 | 28 | 30.8 |
| (*M* = 36.47, *SD* = 11.13, | 36-49 | 34 | 37.4 |
| *range* = 18-66) | >50 | 12 | 13.2 |
| Gender | Male | 72 | 79.1 |
| | Female | 19 | 20.9 |
| Ethnicity | White British | 80 | 87.9 |
| | White Irish | 2 | 2.2 |
| | White Other | 3 | 3.3 |
| | White and Black Caribbean | 1 | 1.1 |
| | White and Black African | 1 | 1.1 |
| | White and Asian | 1 | 1.1 |
| | Indian | 1 | 1.1 |
| | Other | 1 | 1.1 |
| Accommodation Status | Homeless Hostel | 77 | 84.6 |
| | Homeless Shelter | 1 | 1.1 |
| | Overcrowded Housing | 2 | 2.2 |
| | Street Homeless | 3 | 3.3 |
| | Friends Sofa | 2 | 2.2 |
| | Other | 6 | 6.6 |
| Length of Current | < 1 month | 7 | 7.7 |
| Episode of Homelessness | 1-6 months | 41 | 45.1 |
| (months) | 7-12 months | 12 | 13.2 |
| | 1-5 years | 24 | 26.4 |
| (*M* = 14.46, *SD* =31.52 , | > 5 years | 3 | 3.3 |
| *range* = 0.3 - 276*)* | Not stated | 4 | 4.4 |

| Variable | Category | *n* | Frequency % |
|---|---|---|---|
| Age when First Homeless | <18 | 10 | 11 |
| | 18-25 | 26 | 28.6 |
| (*M* = 30.14, *SD* =11.39 , | 26-35 | 25 | 27.5 |
| *range* = 13-57*)* | 36-49 | 22 | 24.2 |
| | >50 | 7 | 7.7 |
| | Not stated | 1 | 1.1 |
| Number of Episodes of | Once | 33 | 36.3 |
| Homelessness | 2-4 | 29 | 31.9 |
| | 5-10 | 24 | 26.4 |
| (*M*=4.04 , *SD* = 4.50, | 11-19 | 1 | 1.1 |
| *range* = 1-30*)* | 20+ | 2 | 2 |
| | Not Stated | 2 | 2.2 |
| Current Homeless Status | First episode < 1 month | 2 | 2.2 |
| | First episode > 1 month | 32 | 35.2 |
| (Episode and length of | Repeated episode < 1 month | 5 | 5.5 |
| time currently homeless) | Repeated episode > 1 month | 48 | 52.7 |
| | Not stated | 4 | 4.4 |

**Measures**

Each participant was provided with a questionnaire pack consisting of: A measure of distress at the start and end of the pack (appendix A), a demographic questionnaire (appendix B) and four self-report questionnaires assessing impulsivity, ego-control, ego-resiliency, and maladaptive behaviours (appendices C-F). To minimise susceptibility to order effects, the order in which the self-report measures appeared in the pack was counter-balanced (randomisation of measures was completed by use of an online random number generator to produce sets of pseudo-random numbers).

**UPPS-P Impulsive Behaviour Scale.** The UPPS-P is the UPPS Impulsive Behaviour Scale (Whiteside & Lynam, 2001) with the addition of the Positive Urgency Measure (PUM; Cyders, et al., 2007). These scales have been used together to form the UPPS-P in recent literature (e.g. Carlson, Pritchard, & Dominelli, 2013).

The UPPS is a 45-item self-report scale with four subscales: Urgency (12 items), (lack of) Premeditation (11 items), (lack of) Perseverance (10 items) and Sensation Seeking (12 items). Respondents are required to indicate how strongly they agree with each statement, on a four point Likert-type scale ranging from 1 (agree strongly) to 4 (disagree strongly). Reverse scoring is used, and the subscales are named to ensure that all scales run in the direction such that higher scores indicate more impulsive behaviour. Internal consistency coefficients for all scales have been previously shown to range from between 0.82 and 0.91, and adequate differential and construct validity has been demonstrated (Whiteside, et al., 2005). The current study used the Urgency[15] (from now on called Negative Urgency) and Sensation Seeking[16] subscales only, as the subscales of Premeditation and Perseverance have been found to underpin the trait of Disinhibition versus Constraint/Conscientiousness, which relates highly to the concept of self-control (Sharma, et al., 2012).

The PUM (Cyders, et al., 2007) is a 14-item measure of a person's tendency to act rashly in response to positive affective states. Participants are required to respond using a 4-point Likert-type scale ranging from 1 (*agree strongly*) to 4 (*disagree strongly*). The PUM has been found to be uni-dimensional, distinct from the four constructs of the UPPS, and predictive of risky actions likely to occur when a person is in a positive mood. The scale has shown excellent internal consistency ($\alpha = .94$). The authors conclude that Positive and Negative Urgency are two distinct facets of a broader mood based rash action – Urgency.

[15] Urgency is defined as the "tendency to experience strong impulses, frequently under conditions of negative affect" (Whiteside, et al., 2005, p. 685). Those who score high on this scale are likely to engage in impulsive actions in order to alleviate their negative emotions.

[16] Sensation Seeking is defined as incorporating two aspects – the first is a "tendency to enjoy and pursue activities that are exciting", with the second being "an openness to trying new experiences that may or may not be dangerous" (Whiteside & Lynam, 2001, p. 686). High scorers enjoy taking risks and dangerous activities.

**Ego-undercontrol scale (UC).** The Ego-undercontrol scale (Letzring et al., 2005) is a 37-item self-report scale which measures the range between the two poles of the personality construct of ego-control (over-control to under-control) as conceptualised by Block and Block (1980). Respondents are required to rate how much they agree or disagree with the statement on a 4-point Likert-type scale from 1 (disagree very strongly) to 4 (agree very strongly). High scores correspond with under-control, and under-control was found to be negatively correlated to items definitive of over-control (Letzring, et al., 2005). The scale has been shown to adequately measure the construct of ego-control, and the items have been found to adequately tap a single factor (Letzring, et al., 2005). Internal consistency has been previously found to be slightly below the level of acceptability ($\alpha = .63$), with similar means and $\alpha$ reliabilities across ethnic groups, however no alternative measure currently exists to measure this dimensional construct. The self-report measure was found to be consistent with the theoretical conceptualisation of the concept of ego-undercontrol, based on its correlations with Q-set personality characteristics. Unfortunately no data exists as to the test-retest reliability or convergent validity with similar scales.

**Ego-resiliency scale (ER).** The Ego-resiliency scale (Block & Kremen, 1996) is a 14-item self-report measure, which measures the concept of ego-resiliency, as defined by Block and Block (1980). Respondents are asked to rate each statement according to a 4-point Likert-type scale from 1 (disagree very strongly) to 4 (agree very strongly). No items are reversed scored. High scores indicate high ego-resiliency, with low scores indicating ego-brittleness. The scale has been shown to have acceptable internal consistency ($\alpha = .72$ to .76; Block & Kremen, 1996; Letzring, et al., 2005) and a test-retest reliability of .51 for females and .67 for males respectively, adjusted for attenuation over a five year developmentally significant period (Block & Kremen, 1996). The ER was found to be consistent with the theoretical conceptualisation of the concept of ego-resiliency, based on its correlations with Q-set personality characteristics (Letzring, et al., 2005). The ER scale has also been found to be positively related to the big five personality traits of extraversion, agreeableness, conscientiousness and openness in females, and to extraversion and openness in males (Letzring et al., 2005).

**The Composite Measure of Problem Behaviours (CMPB).** The CMPB (Kingston et al., 2011) is a 46-item self-report inventory designed to measure a wide

range of potentially maladaptive behaviours. The measure was designed as a composite measure of other scales measuring individual maladaptive behaviours (See Kingston, et al., 2011 for details of individual behaviour scales). The CMPB measures ten potentially maladaptive behaviours and a total composite score. The current study utilised the Total Composite score, and the subscales of Excessive Alcohol Use, Deliberate Self-harm, Restrictive Eating, Binge Eating, Illicit Drug Use, Sexual Promiscuity, Excessive Exercise and Aggression[17].

The CMPB items aim to measure ones tendency to engage in certain behaviours as opposed to ones motivation to act. Respondents are asked to rate the extent to which each statement characterises them, using a 6-point Likert-type scale from 1 (very unlike me) to 6 (very like me). For example; 'It's like me to sometimes actively seek out drugs for personal use (this includes cannabis)'. Ten items are reverse scored.

The CMPB has demonstrated adequate psychometric properties. Most subscales were found to be multicollinear ($r \geq .70$) with the validated scales from which the items were derived (with the exception of Binge Eating, Restrictive Eating and Sexual Promiscuity), suggesting good construct validity. Additionally internal consistency of the composite and the subscales were all above the Cronbach's alpha level of .70 and reliability estimates were shown to be stable over 2-week, 2-4 month, and 8-14 month intervals (Kingston, et al., 2011).

**Procedure**

**Approach to recruitment.** Participants were recruited from five homeless hostels in the city of Southampton between October and November 2012. An initial meeting with each hostel manager allowed the purpose of the study, practical considerations, and issues of consent and safety to be discussed. Upon agreement for involvement, each service was provided with a poster to advertise the study (appendix G), a flyer containing the dates that the researchers would be at the hostel (appendix H) and an information sheet for staff (appendix I) providing written information on the nature of the study. The poster informed potential participants that they would receive a £10 supermarket voucher to compensate them for their time.

[17] The additional subscales of Nicotine Use and Excessive Internet/Computer Game Use were not used in the correlational analysis due to their lack of relevance to the hypothesised research questions.

**Recruitment procedure.** Recruitment and data collection was completed jointly with another researcher[18]. A 'drop-in' format was used to maximise recruitment in a setting that required flexibility. Each potential participant was given a verbal explanation of the study and confidentially and consent procedures (see appendix J) and a written information sheet (appendix K). Participants were asked to complete a consent form (appendix L) and a screening form indicating their reading ability and preference for completion of the questionnaire pack (appendix M). Each questionnaire pack had a unique ID number, linked to the ID number on the consent form (stored separately) ensuring linked anonymity.

All participants completed the questionnaire pack in a room with the researchers present, either independently, with some help, or in an interview format where each question was read aloud (this was done in a private room if required). The researchers were available at all times to answer questions and to offer support or guidance to all participants.[19] Questionnaire packs took an average of one hour to complete. A distraction task was provided on the penultimate page, in the form of three comic strip jokes (appendix N), prior to the second measure of distress scale.

Upon completion of the questionnaire pack, researchers checked the measure of distress scales for any change in distress, before sealing questionnaires in an envelope. Participants were verbally debriefed as well as given a debrief sheet (appendix O). Participants were given the opportunity to ask questions, and were provided with a £10 supermarket voucher to compensate them for their time in participation. If any concern was felt for the participant, a member of staff was notified[20].

**Ethical considerations.** The study received full ethical approval from the University of Southampton Ethics Committee (appendix P) and was sponsored and insured by the University of Southampton (appendix Q). To ensure the well-being of all participants, the information giving and debrief process was thorough. Agreement from

[18] The co-researcher was a trainee Clinical Psychologist also investigating self-control within the homeless population. Questionnaire packs therefore contained three additional questionnaires from the co-researchers' study (included in the counterbalancing procedure). The only questionnaires shared by the researchers were the ER and UC. The research design, research questions, data analysis and interpretation of results were carried out independently by the author.

[19] The support offered involved explaining questions, wording, or the scale for responding.

[20] Concern was felt for two participants who left the room suddenly without fully completing the questionnaires. A staff member checked the wellbeing of these participants and reported back to the researchers.

hostel staff to support the recruitment process and to offer support to any participant who was distressed by the process (although this was not anticipated) was an important aspect of the ethical process. The measure of distress provided an additional method to optimise the chance that any distress caused could be noted and acted upon. A Clinical Psychologist was also available for consultation, however this was not required.

**Analysis Strategy**

Analyses were conducted using Predictive Analytics Software (PASW) version 20.0. Minor amounts of missing data (< 1%), found to be missing at random, were accounted for using mean subscale substitution in order to maintain the sample size. Descriptive statistics were calculated and normality tests conducted to assess variable distributions. A one-way between-groups ANOVA was calculated to assess differences in Ego-resiliency scores amongst independent groups with varying levels of Ego-undercontrol. Correlation analyses were conducted to determine which maladaptive behaviours were related to ego-overcontrol and ego-undercontrol. Finally, the mediation analyses were tested using a bias corrected bootstrapping approach.

**Mediation analysis.** Mediation analysis is used to help to explain how, or by what means, an independent variable (X) affects a dependant variable (Y) through indirect or mediator variables. In a simple mediation model (with one mediating variable), as shown in Figure 3, *X*'s causal effect can be apportioned into its *indirect effect* on *Y* through *M* and its *direct effect* on *Y* (path *c'*). Path *a* represents the effect of *X* on the proposed mediator, whereas path *b* is the effect of *M* on *Y* partialling out the effect of *X*. The indirect effect of *X* on *Y* through *M* can then be quantified as the product of *a* and *b* (i.e., *ab*). The *total effect* of *X* on *Y* can be expressed as the sum of the direct and indirect effects: $c = c' + ab$. Likewise, *c'* is the difference between the total effect of *X* on *Y* and the indirect effect of *X* on *Y* through *M*—that is, $c' = c - ab$ (Hayes, 2009).

Numerous methods exist to test mediation effects. The 'causal steps strategy' (Baron & Kenny, 1986) had been the most commonly used approach in psychological literature (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). However this approach has, in recent years, been criticised for requiring the indirect effect to have a normal sampling distribution and for yielding low statistical power (MacKinnon, et al., 2002; Preacher & Hayes, 2008). MacKinnon and Fairchild (2009) report that tests based on this assumption provide inaccurate data and often fail to detect mediated effects even

when they exist. The resampling method of 'bootstrapping' (Bollen & Stine, 1990; Efron & Tibshirani, 1986) has become an increasingly popular method of testing indirect effects (Preacher & Hayes, 2004; Preacher, Rucker, & Hayes, 2007). MacKinnon, Lockwood, and Williams (2004) compared methods for testing mediated effects and concluded that "the bias-correct bootstrap is the method of choice" (p. 123) finding it to have the most statistical power and average Type I error rates. Resampling methods are also particularly useful when sample sizes are small (MacKinnon, et al., 2004).

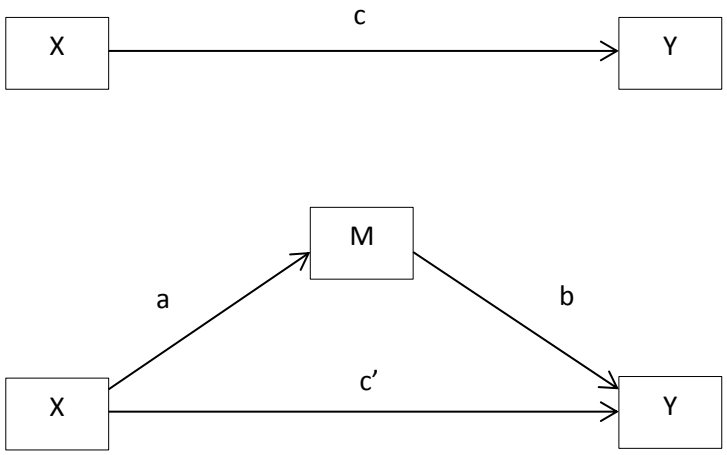



*Figure 3.* Simple Mediation Model.

# Results

## Preliminary Statistics

Preliminary statistics assessed whether data (*N*=91) conformed to assumptions of normality. Exploration of total scores using stem and leaf plots did not identify any extreme outliers. Kolomogorov-Smirnov tests and measures of skewness and kurtosis showed normal distributions for all total and subscale variables with the exception of the CMPB subscales of Sexual Promiscuity and Deliberate Self-Harm. Attempted transformation of these subscales using loglinear, square root and reciprocal methods did not produce normally distributed data, with Kolomogorov-Smirnov tests remaining significant. Non-parametric analyses were therefore performed on these subscales where necessary.

## Descriptive Statistics

**Chronbach's alpha and mean scores for research variables[21].** Internal consistency was calculated for all research variables of interest, using Chronbach's alpha (Table 3). All total scores met the widely accepted criteria for adequate reliability ($\alpha >$ .70) as did majority of subscales scores, with the exception of Restrictive Eating, Binge Eating and Aggression. The internal consistency of the Restrictive Eating subscale was particularly poor. The decision was made to keep the scale in the analysis, due to the exploratory nature of the study, however results must be interpreted with caution. Mean scores for each of the research variables were also calculated by gender (as shown in Table 4) as gender differences on these scales have not previously been investigated in this population.

[21] Descriptive statistics are reported for the CMPB subscales of Nicotine Use and Excessive Internet Use however no further analyses are conducted on these variables due to their lack of relevance to the research questions.

Table 3.

*Chronbach's Alphas for Research Variables (N = 91)*

| **Research Variable** | **Subscale** | **α** | ***M*** | ***SD*** |
|---|---|---|---|---|
| Ego-undercontrol Scale (UC) | UC Total Score | .82 | 3.00 | 0.37 |
| Ego-resiliency Scale (ER) | ER Total Score | .78 | 2.84 | 0.46 |
| Impulsive Behaviour Scale (UPPS-P)[22] | Negative Urgency | .85 | 33.01 | 7.23 |
| | Sensation Seeking | .84 | 32.96 | 8.13 |
| | Positive Urgency | .93 | 34.93 | 10.19 |
| Composite Measure of Problem Behaviours (CMPB) | Excessive Alcohol Use | .84 | 3.67 | 1.57 |
| | Binge Eating | .68 | 2.57 | 1.27 |
| | Sexual Promiscuity | .78 | 2.49 | 1.46 |
| | Aggression | .64 | 3.31 | 1.23 |
| | Restrictive Eating[23] | .34 | 2.56 | 0.96 |
| | Deliberate Self-harm | .80 | 1.96 | 1.27 |
| | Excessive Exercise | .72 | 3.23 | 1.30 |
| | Illicit Drug Use | .90 | 3.52 | 1.64 |
| | Nicotine Use | .63 | 4.00 | 1.17 |
| | Excessive Internet Use | .72 | 2.43 | 1.23 |
| | TOTAL CMPB | .83 | 3.04 | 0.64 |

[22] To allow for direct comparison with previous literature, mean total scores are presented for the UPPS-P subscales, whereas mean item scores are presented for all other questionnaires and subscales.

[23] The extremely low chronbach's alpha level here is noted. Removal of one item from the subscale increased internal consistency of the subscale to α = .58. However, as this is still a poor reliability level and as changing the content of a published measure compromises the ability to make comparisons between studies, the decision was made to keep all subscale items but to interpret the results with great caution.

Table 4.

*Mean Scores by Gender*

| Research Variable | Subscale | Mean (SD) | |
|---|---|---|---|
| | | **Males (*n*=72)** | **Females (*n*=19)** |
| Ego-undercontrol (UC) | UC Total Score | 3.04 (0.37) | 2.85 (0.33) |
| Ego-resiliency (ER) | ER Total Score | 2.82 (0.46) | 2.91 (0.48) |
| Impulsive Behaviour Scale (UPPS-P) | Negative Urgency | 32.91 (7.26) | 33.47 (7.27) |
| | Sensation Seeking | 33.48 (8.33) | 30.95 (7.15) |
| | Positive Urgency | 35.30 (10.08) | 33.55(10.76) |
| Composite Measure of Problem Behaviours (CMPB) | Excessive Alcohol Use | 3.75 (1.56) | 3.36 (1.65) |
| | Binge Eating | 2.56 (1.30) | 2.62 (1.15) |
| | Sexual Promiscuity | 2.67 (1.44) | 1.79 (1.34) |
| | Aggression | 3.35 (1.15) | 3.14 (1.53) |
| | Restrictive Eating | 2.44 (0.92) | 3.00 (1.00) |
| | Deliberate Self-harm | 1.88 (1.11) | 2.28 (1.74) |
| | Excessive Exercise | 3.39 (1.31) | 2.85 (1.22) |
| | Illicit Drug Use | 3.57 (1.61) | 3.32 (1.80) |
| | Nicotine Use | 4.05 (1.13) | 3.82 (1.33) |
| | Excessive Internet Use | 2.32 (1.13) | 2.84 (1.51) |
| | Composite TOTAL | 3.05 (0.61) | 2.98 (0.73) |

**Ego-undercontrol scale.** The current sample were found to have higher levels of ego-undercontrol (*M*= 3.0) than have been previously demonstrated in studies using student populations (e.g. Hampson, Severson, Burns, Slovic, & Fisher, 2001 (*M*=2.34); Letzring, et al., 2005 (*M*= 2.64)). No clinical population estimates have been found in the literature, suggesting that this may be the first use of the UC scale in a population more representative of a clinical sample. Exploration of the UC scale mean scores for males and females (3.04 vs. 2.85) using an independent samples *t*-test showed marginally insignificant gender differences (t (89) = 1.959, *p* = .053).

**Ego-resiliency scale.** The current sample demonstrated a mean ego-resiliency score (2.84) that was lower than that found in a sample of 188 undergraduate students (*M*=3.05; Letzring, et al., 2005). Exploration of the ER scale mean scores for males and females (2.82 vs. 2.91) using an independent samples t-test demonstrated no significant gender differences ($p > .457$).

**UPPS-P Impulsive Behaviour Scale.** . When comparing the current sample to a healthy control group in a recent study (Albein-Urios, Martinez-Gonzalez, Lozano, Clark, & Verdejo-Garcia, 2012), the current sample scored higher on Negative Urgency (33.01 vs. 21.8) and Positive Urgency (34.93 vs. 21.1) and marginally higher on Sensation Seeking (32.96 vs. 31.5). Independent samples t-tests showed no significant gender differences on any of the three UPPS-P subscales (*p* values ranged from .229 to .765).

**Composite Measure of Problem Behaviour.** The highest scoring (most common) maladaptive behaviour in the current sample was Nicotine Use ($M = 4.0$) followed by Excessive Alcohol Use (*M*=3.67), with Deliberate Self-harm being the least common behaviour (*M*=1.96). The Composite Total mean in the current sample (3.04) was higher than that of a self-declared clinical (2.61) and non-clinical (2.42) sample in a previous study (Kingston, et al., 2011). The maladaptive behaviours found in the current sample show a similar pattern to those in a recent study using the CMPB in a homeless population (Day, 2010).

Exploration using independent *t*-tests showed significant gender differences between males and females on the Restrictive Eating subscale ($M = 2.44$ v 3.0, $t(89) = 2.31$, $p = .023$) suggesting that women engaged in more restrictive eating behaviours than men. For the subscales that were non-normally distributed, a Mann-Whitney test showed that Sexual Promiscuity in males was significantly higher than in females (*Mdn* = 2.5 vs. 1.0) $U = 387.5$, $z = -2.93$, $p = .003$. The remaining CMPB subscales and Total Composite score demonstrated no significant gender differences (*p* values ranged from .117 to .862).

**Distribution of Ego-control and Ego-resiliency Scores**

In order to explore hypothesis 1a, histograms and scatter plots were graphed to assess the distribution of ego-control and ego-resiliency in the current sample. As shown in Figure 4, the distribution of scores on the UC scale was normal, with a slight skew towards higher levels of ego-undercontrol. This finding demonstrates that the bimodal distribution predicted was not present in this sample. A scatterplot (Figure 5) showed the distribution of participants' levels of ego-undercontrol and ego-resiliency. Only one participant scored below the median (2.5) on both the UC and ER scales. A large majority of participants were found to score above the median on the UC scale (*n*=84), and of these, the majority scored above the median on the ER scale (*n*=69). These results suggest that the majority of participants, from a sample of people who are homeless, have higher than average levels of ego-resiliency and are more under-controlled than over-controlled[24].

[24] Supplementary analyses using additional demographic data revealed that ego-control positively correlated with the number of years that individuals had been homeless ($r$ = .304, $p$ = .004). No causal relationship can be assumed however. Ego-resiliency scores did not correlate with demographic data relating to length of time homeless or age of first becoming homeless.

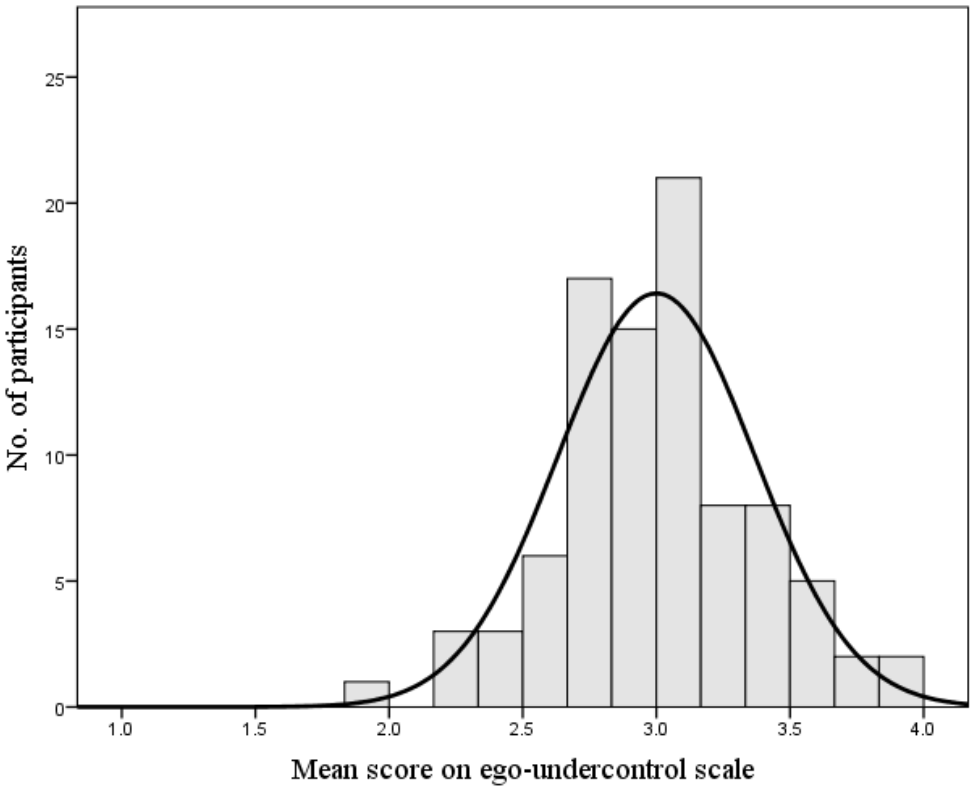



*Figure 4.* Distribution of Ego-undercontrol Scale Scores
*Note: M*=3.0, *SD* = .37, *N*= 91.

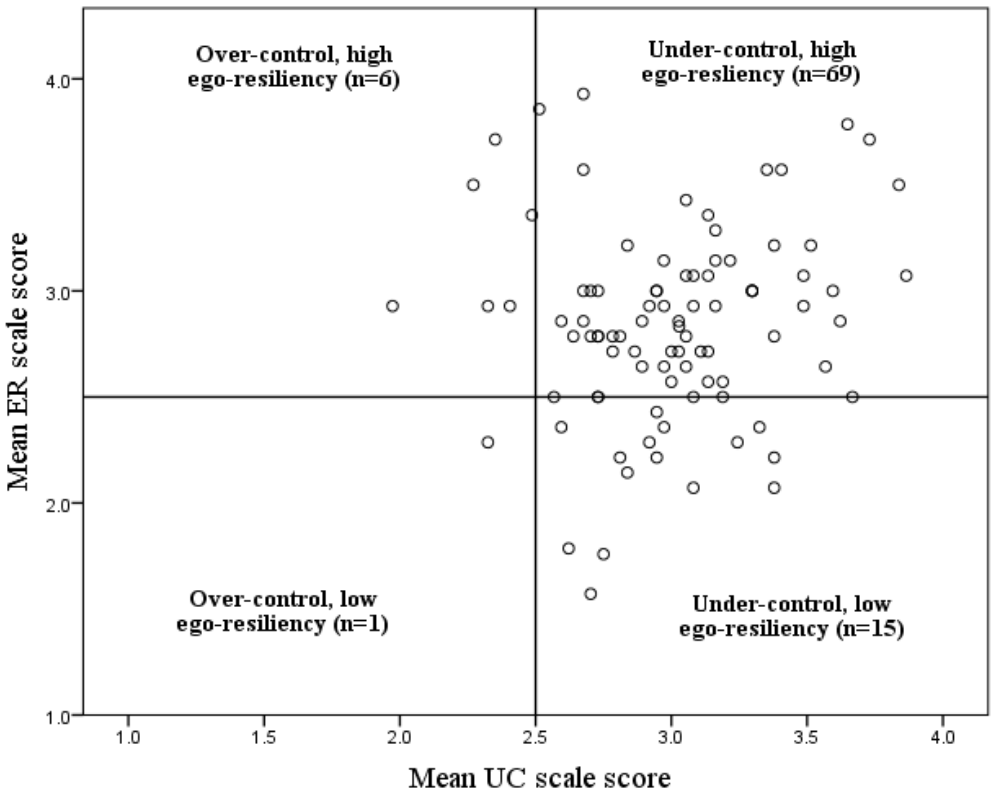



*Figure 5.* Scatterplot of Ego-undercontrol Scale and Ego-resiliency Scale Scores Using a Median Split.

In order to determine whether high levels of Ego-undercontrol were differentially associated with Ego-resiliency scores (hypothesis 1b), a tertile split was used to categorise participants into three levels of ego-control relative to the sample scores on the Ego-undercontrol scale (the lowest scoring 33.3%, middle 33.3% and highest 33%)[25]. A one way between-groups ANOVA with ego-resiliency as the dependant variable and three levels (low, medium and high) of ego-undercontrol as the independent variable was found to be non-significant ($F$ (2, 88) = 1.84, $p$ = .165), suggesting that ego-undercontrol scores were not differentially associated with ego-resiliency scores. Hypothesis 1b was therefore rejected.

**Correlation analysis**

In order to test hypothesis 2, correlation coefficients were calculated between the ego-undercontrol scale and subscales of the CMPB (Table 5) after scatter plots were assessed for linearity. As hypothesised, a significant positive correlation was found between ego-undercontrol and the CMPB subscales of Excessive Alcohol Use, Binge Eating, Sexual Promiscuity, Aggression and Illicit Drug use, suggesting that participants with higher levels of Ego-undercontrol engage in more of these maladaptive behaviours. Deliberate Self-harm did not however correlate significantly with Ego-undercontrol. The CMPB subscales of Restrictive Eating and Excessive Exercise did not show a significant negative correlation with Ego-undercontrol as hypothesised, however the direction of association was negative. One consideration for this null finding is the low number of participants scoring as over-controlled on the Ego-undercontrol scale.

[25] Ideally, threshold scores would be have been used, however the data was not conducive to splitting the participants in this way, due the spread of scores. This does mean that the scores are not a true representation of over and under control, but provide data relative to the sample.

Table 5.

*Correlation Coefficients Between the Ego-undercontrol Scale and CMPB Subscales*

| | UC Scale | | |
|---|---|---|---|
| **CMPB subscale** | **Correlation Co-efficient ($r/r_s$)** | **Sig. (1 tailed)** | **Coefficient of determination ($R^2$)** |
| Excessive Alcohol Use | .33 | .001 | 10.6% |
| Binge Eating | .34 | .000 | 11.8% |
| Sexual Promiscuity[a] | .37 | .000 | 13.8% |
| Aggression | .24 | .012 | 5.7% |
| Restrictive Eating | -.07 | .268 | n/a |
| Deliberate Self-harm[a] | .06 | .275 | n/a |
| Excessive Exercise | -.04 | .356 | n/a |
| Illicit Drug Use | .34 | .000 | 11.8% |

*Note:* UC Scale = Ego-undercontrol scale (Letzring, et al., 2005); CMPB = Composite Measure of Problem Behaviour (Kingston, et al., 2011).

[a] Spearman's correlations were calculated for the CMPB subscales of Deliberate Self-harm and Sexual Promiscuity due to them not conforming to the assumption of normality. All other correlations used Pearson's correlation coefficients.

**Post-hoc correlations by gender[26].** In order to ascertain more detail as to why the three subscales of Deliberate Self-harm, Restrictive Eating and Excessive Exercise may not have significantly correlated with the Ego-undercontrol scale, post-hoc correlation analyses by gender were calculated. Previous findings have suggested that patterns of relationships between ego-concepts and personality characteristics may differ between males and females (e.g. Block & Block, 2006; Letzring et al., 2005). Exploration showed that Deliberate Self-harm did not correlate significantly with Ego-undercontrol for males ($r_s$ = .106, $p$ =.188) or for females ($r_s$ = -.042, $p$ =.432) however the direction of the relationship did differ. A significant negative correlation was found between Excessive Exercise and Ego-undercontrol for females ($r$ = -.434, $p$ = .032) suggesting that for females Excessive Exercise is associated with low Ego-undercontrol (over-control)

[26] Supplementary analyses showed that additional demographic data such as age first homeless, number of times homeless, and number of years homeless, did not significantly correlate with engagement in maladaptive behaviours ($p$ > .05).

however these variables showed no correlation for males ($r$ = .001, $p$ = .496). Finally, Restrictive Eating did not significantly correlate with Ego-undercontrol for males ($r$ = -.093, $p$ = .218) or females ($r$ =.286, $p$ =.118) however the small associations showed opposing directions. The low sample size of females ($n$ = 19) and the low internal consistency of the Restrictive Eating subscale mean that no strong inferences can be made from this data, however they do suggest that exploration of gender differences in future studies may prove to be of interest.

**Mediation Analysis**

It was hypothesised (hypothesis 3) that ego-control, as measured by the Ego-undercontrol scale, would mediate the relationship between temperamental traits of impulsivity and maladaptive behaviours. Three separate mediation analyses were conducted, with each of the three independent subscales of the UPPS-P as predictors, using an SPSS macro for bootstrapping (Preacher & Hayes, 2008). Bootstrapping is a computer-based method that generates an empirical representation of the sampling distribution of the indirect effect by repeatedly resampling (with replacement) from the available data set numerous times (typically 5000), treating the data set as a representation of the population. The distribution of these indirect effect estimates are ordered from smallest to largest, to enable lower bound and upper bound confidence intervals to be set, yielding a percentile-based bootstrap confidence interval (which can be improved by bias-correction; MacKinnon, et al., 2004). If zero does not fall between the lower and upper bound then it can be concluded that the indirect effect is not zero, thus the null hypothesis can be rejected (Hayes, 2009; Preacher, et al., 2007).

In the present study, mediation analyses were conducted using the bootstrapping method to compute bias corrected confidence estimates around the indirect effect. The 95% confidence interval of the indirect effects was obtained with 5000 bootstrap resamples (Table 6). In the first analysis, ego-control (UC scale) was assessed as a mediator of the relationship between Positive Urgency and maladaptive behaviours (CMPB Total composite score). The overall model accounted for approximately 15% of the variance in maladaptive behaviours ($R_2$ = .15, $p$ < . 01). The bootstrap analysis demonstrated that Positive Urgency has an indirect effect on maladaptive behaviours, with the effect occurring though ego-control (95% bootstrap CI (.004, .77)). Secondly, ego-control was assessed as a mediator of the relationship between Sensation Seeking and maladaptive behaviours. The overall model accounted for approximately 13% of the

variance in maladaptive behaviours ($R_2$ = .13, $p$ < . 01) and the bootstrap analysis demonstrated that Sensation Seeking also has an indirect effect on maladaptive behaviours, with the effect occurring though ego-control (95% bootstrap CI (.13, .95)). Analyses revealed however that there was no significant indirect effect of ego-control on the relationship between Negative Urgency and maladaptive behaviours. See Appendix R for a diagrammatic representation of these findings.

Table 6.
*Bootstrap Analysis Results (with Ego-undercontrol (M) mediating the relation between Negative Urgency (IV), Positive Urgency (IV) or Sensation Seeking (IV) and Maladaptive Behaviours as measured by the CMPB Total Composite Score (DV))*

| | Effect of IV on M (a path) | Effect of M on DV (b path) | Total effects (c path) | Direct effect (c' path) | Indirect effect (a x b) | BC 95% CI | | |
|---|---|---|---|---|---|---|---|---|
| Independent Variable *(IV)* | *Coeff (SE)* | *Coeff (SE)* | *Coeff (SE)* | *Coeff (SE)* | *Coeff (SE)* | Lower | Upper | $R^2$ |
| Positive Urgency | .66 (.12)** | .52 (.24)* | 1.00 (0.28)** | .66 (.32)* | .34 (.20) | 0.004 | 0.77 | .15** |
| Sensation Seeking | .62 (.17)** | .71 (.23)** | .69 (0.37) | .25 (0.38) | .43 (.20) | 0.13 | 0.95 | .13** |
| Negative Urgency | 1.13 (0.16)** | .43 (0.26) | 1.54 (0.40)** | 1.05 (0.49)* | .49 (0.37) | -0.21 | 1.27 | .17** |

*Note:* BC = bias corrected bootstrapping confidence intervals; 5000 bootstrap samples; CI = Confidence Interval. *N*=91.

*$p < .05$, **$p < .01$.

M = Mediator, DV = Dependent Variable.

# Discussion

The present study aimed to investigate the relationship between self-control, temperamental impulsivity traits, and maladaptive behaviours in a population of single homeless adults. The study sought to add to the current literature base on pathways to becoming and remaining homeless by understanding the factors leading to the maladaptive behaviours so commonly implicated in homelessness. Additionally the study is the first, as far as the author is aware, to explore the self-control tendencies of homeless adults in relation to the concepts of ego-control and ego-resiliency. Understanding the self-control types of people who are homeless is thought to be necessary to ensuring that interventions are developed to best suit the needs of this population.

## Summary of Key Findings

In the first study known to examine the self-control tendencies of the homeless population, the vast majority of participants were found to be more under-controlled than over-controlled, with average to above average levels of ego-resiliency. Additionally, levels of ego-undercontrol (low, medium and high) were found not to be differentially associated with ego-resiliency. High levels of ego-resiliency suggest that these homeless individuals should be able to adapt their levels of ego-control to the demands of the situation (Block & Block, 1980). Using correlation coefficients, as predicted, ego-undercontrol was found to be positively correlated with the CMPB subscales of Excessive Alcohol Use, Binge Eating, Sexual Promiscuity, Aggression and Illicit Drug Use, suggesting that those who are more under-controlled engage in a higher level of such behaviours. Restrictive Eating and Excessive Exercise were hypothesised to correlate negatively with ego-undercontrol (and therefore be associated with over-control) however these findings were not confirmed. The non-significant associations were however in the predicted direction adding some support to the suggestion that these two subscales of the CMPB may have a different contributing factor to the other factors – namely over-control. Finally the mediation analyses, using a bootstrapping methodology, found self-control, as measured by the Ego-undercontrol scale to significantly mediate the relationship between Sensation Seeking and maladaptive behaviours, and Positive Urgency and maladaptive behaviours, but did not mediate Negative Urgency and maladaptive behaviours. The mediated effect did not reduce the direct effect to zero in any of the analyses, suggesting that not all of the variance can be explained by self-

control, and therefore other factors are also likely to play a part in mediating these relationships.

**Discussion of Key Findings**

Returning to hypothesis 1, in understanding why higher than predicted levels of ego-resiliency were found in the present sample, it is possible that becoming homeless may lead to an increase in ego-resiliency, with individuals having no choice but to learn to adapt to changing situational demands. Alternatively, those homeless individuals who reside in hostels may be the most flexible and ego-resilient within the population – a trait which may have enabled them to successfully reside in hostel accommodation without eviction. These suggestions require empirical exploration. Additionally, the high level of ego-undercontrol in the current sample is an interesting finding. This may be a true representation of the homeless population, with the majority having under-controlled personality types and very few presenting as over-controlled, however it is possible that this may also be due to a sampling or measurement bias (see limitations section below). The quadratic relationship between ego-control and ego-resiliency, which has been previously demonstrated (e.g. Asendorpf, et al., 2001) was not replicated.

In exploring hypothesis 2, all predicted positive correlations between ego-undercontrol and maladaptive behaviours were significant except for the correlation between ego-undercontrol and the Deliberate Self-harm subscale of the CMPB. This finding may be due to the low levels of deliberate self-harm engaged in by the current sample, or may suggest that self-harm is not associated with ego-control. One hypothesis is that deliberate self-harm may occur in individuals who are undercontrolled (e.g. as seen in borderline personality disorder) and in those who are emotionally constricted, where self-harm may present as a maladaptive coping strategy for emotional release. The positive correlations found are consistent with research suggesting that under-control is associated with a range of behaviours that have been linked to externalising disorders such as anti-social behaviour, aggression, alcohol use, and binge-purge behaviours and cluster B personality disorders (e.g. Caspi, et al., 1996; Dennissen, et al., 2008; Newman, et al., 1997; Wildes, et al., 2011). In understanding the lack of significant negative correlations between self-control and the CMPB subscales of Excessive Exercise and Restrictive Eating, post-hoc analyses highlighted the possibility that some maladaptive behaviours may be differentially associated with over and under-control in males and females. These findings require replication in a much larger sample. Additionally, the

Restrictive Eating subscale had an unacceptable internal consistency level (α = .34) and so results utilising this subscale need to be replicated, preferably using an alternative measure of restrictive eating behaviours, as this does not appear to be a valid measure of the construct.

The findings from the mediation analyses give some support to the neuro-regulatory model of personality and socio-emotional functioning, as theorised by Lynch et al. (in press). This theory posits that self-control tendencies, which are influenced by temperament and socio-biographic history, determine an individual's behaviours. The significant indirect effect of Sensation Seeking and Positive Urgency on maladaptive behaviours through ego-control, empirically demonstrates part of this pathway.

Sensation Seeking and Positive Urgency can both be viewed as traits relating to positive affect whereas Negative Urgency is related to negative emotionality (Clark, 2005; Sharma, et al., 2012). The current study therefore demonstrates that self-control, as measured by the Ego-undercontrol scale, mediates the relationship between impulsivity traits related to positive affect, and maladaptive behaviours, but not does mediate the relationship between negative affective traits and subsequent maladaptive behaviours. Other factors may be implicated in mediating this relationship, for example, support has been found for the hypothesis that experiential avoidance mediates the relationship between intense negative affect and maladaptive behaviours (Kingston, et al., 2010) suggesting that maladaptive behaviours may provide short-term reinforcement by reducing aversive emotions.

**Contributions and Implications for Clinical Psychology**

This is the first study known to the author to consider the ego-control and ego-resiliency characteristics of a homeless population, and the relationship of these constructs to the maladaptive behaviours so commonly seen in this group of society. Exploring the individual factors implicated in homelessness is crucial in understanding and meeting the needs of this population. Given the rising rates of homelessness in the UK (DCLG, 2011a, 2012c), this is now more necessary than ever. Additionally, this is the first known study to consider the mediating role of ego-control in the relationship between temperamental impulsivity traits and maladaptive behaviours.

The current mediation analysis has enabled one of the fundamental processes underlying maladaptive behaviour engagement to be identified. Findings demonstrated that impulsivity traits associated with positive affect impact upon engagement in

maladaptive behaviours through their influence on self-control tendencies. Intervening in these processes should therefore have an impact upon the resulting behaviours. Maladaptive behaviours are commonly experienced comorbidly (Kingston, et al., 2011) and therefore interventions that can address a common factor rather than individual symptoms are likely to be of greater benefit. Those individuals exhibiting under-controlled patterns of responding are likely to require interventions to enhance control, whereas those who are more over-controlled may require interventions that enhance emotional expression, increase flexible responding and decrease habitual over-control (Causadias, et al., 2012; Lynch & Cheavens, 2008, Lynch et al. in press) utilising therapies therapy such as DBT for emotionally constricted disorders (Lynch & Cheavens, 2008).

The negative consequences of over-control are often more difficult to identify in individuals, whereas under-controlled behaviours such as aggression and substance misuse are often more prominent to an observer or assessor and can highlight more overtly the need for support. This may be particularly so in a homeless population, where difficulties associated with over-control may produce less crisis situations, and less public disorder. Over-controlled individuals may also be less likely to seek out treatment given their level of emotional constriction. Assessing for the self-control tendencies of an individual, alongside any psychological assessment, is therefore crucial to ensure that treatment programmes are appropriately matched to self-control style. Although the findings of the current study suggest that many people who are homeless have a more undercontrolled style of self-control, it should not be assumed that all homeless populations will show such patterns. If this style of functioning is assumed for somebody who is in fact very over-controlled, strategies to enhance control are only going to further increase lack of emotional expression and emotional constriction.

**Limitations of the Study**

There are a number of limitations of the current study which require discussion. The first limitation to consider is that of sample bias. Firstly, participants were recruited via hostels in Southampton City; therefore it is not possible to confirm that the results will be generalisable to the rest of the UK. Secondly, sampling biases may also have determined the personality characteristics of the recruited sample and could account for the high levels of ego-undercontrol and ego-resiliency that this sample exhibited. In an opportunity sample, those choosing to take part in a study may reflect a certain

personality type, perhaps those who are more extraverted or those more self-assured and adaptive. However, hostel staff did encourage residents to participant who may not normally have volunteered. A 61% recruitment rate of the available population was achieved, with a gender ratio matching that of the larger homeless population, suggesting a good representation of the available sample. Additionally, 85% of participants in the current sample were residing in a homeless hostel, which may represent a very different sample to the street homeless for example. It was not possible to compare the street homeless to the hostel homeless in the current study, due to an extremely low number of street homeless in the sample (3 participants, 3.3%). Such comparisons will require future investigation; however sensitive research with street homeless populations will require careful ethical consideration. Finally, although females were adequately represented in terms of the gender ratio's found in the wider population, the number in the current study was not adequate to draw firm conclusions on gender differences.

A second limitation to consider is the questionnaire measures utilised in the present study. Firstly, it is possible that the Ego-undercontrol scale was less able to identify over-controlled personality styles. It appears that there are more statements on the questionnaire that relate to under-control than to over-control. This fits with Letzring, Block and Funders's (2005) finding that when considering correlations between the Ego-undercontrol scale and the average Q-item ratings upon which the questionnaire was based, the Ego-undercontrol scale was significantly positively correlated with 32 items and significantly negatively correlated to just 14 items. Although the scale is designed to measure both favourable and unfavourable characteristics of under and over control (Letzring, et al., 2005), it appears that statements indicative of over-control are more likely to be phrased as favourable characteristics (e.g. 'I keep out of trouble at all costs'), whereas statements indicative of under-control appear more likely to carry negative connotations (e.g. 'I often get involved in things I later wish I could get out of'). It is a possibility that in a population of people who are homeless who engage in a range of maladaptive behaviours, which may have contributed to their homelessness status, participants may be more likely to rate themselves as less favorable. This may influence scoring towards the higher end of the Ego-undercontrol scale. This hypothesis would however need to be tested, and unfortunately, as yet, a better dimensional measure of ego-control does not exist. Utilising an additional measure such as the Personal Need for Structure Scale (Thompson, Naccarato, Parker, & Moskowitz, 2001) could have added to the measurement of over-control in the current study.

Additionally, the reliability and validity of the CMPB needs to be questioned. The CMPB showed very poor internal consistency for the subscale of Restrictive Eating and slightly below the recommended Cronbach's alpha level of .7 for the subscales of Binge Eating and Aggression, all below the reliability coefficients demonstrated upon validation of the scale (Kingston, et al., 2011). Observational data suggested that participants required most support when completing the CMPB, especially when questions involved negative statements such as "it is like me to never resort to violence". The low literacy level of some participants[27] appeared to impact upon validity of responding, and should be taken into account in future studies. In order to better understand the Restrictive Eating behaviours of people who are homeless, the original scale from which the CMPB eating subscales were constructed could be utilised (the Three Factor Eating Questionnaire; Stunkard & Messick, 1985). Finally, in considering the CMPB, no timescale is provided in the instructions to respondents. Numerous participants commented that they may have engaged in behaviours previously, but no longer did so due to partaking in a rehabilitation programme for example. This may affect the validity of the results depending upon how respondents choose to answer the questions (i.e. 'currently' or 'ever'). This finding also highlighted that participation in a rehabilitation programme or a current intervention may have acted as a confounding factor that was not controlled for.

The third limitation to take into consideration in the current study is the sole reliance on self-report data, which is known to suffer from several drawbacks, one of which is social desirability bias. Debate exists around controlling for socially desirable responding, however a recent review has suggested that social desirability is a stable personality trait that should not be statistically removed from tests, as this will remove true variance in the data (Fleming, 2012). In order to minimise the likelihood of participants responding in a socially desirable manner, 'evaluation apprehension' (Fleming, 2012) was reduced by using procedures that allowed for optimal confidentially by reassuring participants that there were no right or wrong answers and by encouraging participants to be honest. Creating a non-threatening environment has been suggested to be important in gaining accurate reporting in a homeless population (Gelberg & Siecke, 1997) and this was taken into consideration. Additionally, participants did not have anything to gain by presenting themselves in an optimal light as the study was not linked

[27] 60% of people who are homeless have been found to have qualifications below level two or no qualifications (Crisis, 2006).

to any personal outcomes, for example, treatment suitability. Despite their limitations, self-report measures do allow for the measurement of variables that would be difficult to assess through other means, for example, the measurement of ones tendency to engage in risk taking behaviours. This self-report data was cross-sectional in nature, which does not allow for causality to be inferred, however, the mediation analysis is able to suggest a causal route.

A final consideration is that of drug and alcohol use. As can be seen from the current findings, many participants reported using alcohol and illicit drugs and may have been under the influence of such substances when partaking in the study. This is likely to have impacted upon the validity of responses however all possible attempts were made to limit this, for example, by carrying out recruitment sessions in the morning and by asking participants to return the next day if they were deemed to be under the influence of a substance.

**Future Directions**

As one of the first studies to explore the constructs of ego-control and ego-resiliency in the homeless population, this study will need to be replicated with a larger, more representative sample. Future studies would benefit from recruiting a broader range of individuals, including those that sleep rough, those from ethnic minorities, females and homeless youth.

To further the current findings it will be important to measure personality disorders (utilising a measure such as the SCID-II for example; First, Gibbon, Spitzer, Williams, & Benjamin, 1997) in addition to maladaptive behaviours, to determine the relationship between ego-control, ego-resiliency and personality disorders in people who are homeless. Additionally, it would be beneficial to gain a more detailed understanding of the personality types in this population by replicating personality typologies as demonstrated in the personality literature, for example by use of Q-sort procedures and inverse factor analysis (e.g. Gramzow, et al., 2004) or by the use of a Big Five personality measure and cluster analysis techniques (e.g. as described by Asendorpf, et al., 2001). These procedures can be lengthy however, and there is still the need for a better dimensional measure to be developed to accurately measure the construct of ego-control, with equal weighting given to both over-controlled and under-controlled personality characteristics. This will be crucial not only for research purposes but also for individual

use within clinical practice to allow for the measurement of such personality types to inform intervention.

In order to further empirically test the neuro-regulatory model of personality and socio-emotional functioning (Lynch, et al., in press), studies will ultimately need to combine both temperamental and sociobiographic data in order to understand the combined influence of these factors upon self-control tendencies and subsequently upon behaviour. Additionally, longitudinal studies are required to further consider the causal relationship between research variables and to consider changing behaviours over time.

Finally, research will be required to measure the impact of psychological interventions aimed at increasing or decreasing self-control in the homeless population, to determine the impact upon maladaptive behaviours and subsequently upon an individual's ability to gain and maintain a suitable tenancy.

## Conclusion

Homelessness in the UK is on the rise (DCLG, 2011a, 2012c), therefore understanding and meeting the needs of the homeless population is now more crucial than ever. This cross-sectional questionnaire study of a sample of 91 homeless adults, exploring the personality characteristics underlying maladaptive behaviours, found the majority of participants to be under-controlled, rather than over-controlled in their self-control style, and found ego- undercontrol to be significantly related to a range of maladaptive behaviours. This sample has also demonstrated higher levels of ego-resiliency than were predicted, which may be as a result of homeless participant's need to adapt to changing situations or which may represent a sample bias of those residing in hostel accommodation. Crucially, this study has shown that self-control mediates the relationship between impulsivity traits related to positive affect, and maladaptive behaviours. These findings aid the understanding of a common pathway to maladaptive behaviours and provide support to the neuro-regulatory model of personality and socio-emotional functioning theorised by Lynch and colleagues (Lynch, et al., in press). Working on this common mechanism may prove more useful than addressing individual maladaptive behaviours and symptomology. Further research is required to replicate and generalise the current findings to wider samples, to overcome some of the methodological shortcomings of the current study, and to advance the understanding of self-control in the homeless population.

# Appendices

# **APPENDIX A:** MEASURE OF DISTRESS SCALE

## Measures of distress

**How do you feel right now?**

**Please place a mark on the line to show how upset you feel:**

Not upset _____ Extremely

at all upset

**APPENDIX B:** DEMOGRAPHIC QUESTIONNAIRE

**INFORMATION ABOUT YOU** (demographics form)

1. What is your current age? _____

2. Are you male or female? **(please tick)** ☐ Male ☐ Female

3. What is your ethnicity? **(please tick one box)**

| | | | |
|---|---|---|---|
| White British ☐ | White & Black Caribbean ☐ | Indian ☐ | Chinese ☐ |
| White Irish ☐ | White & Black African ☐ | Pakistani ☐ | Caribbean ☐ |
| White other ☐ | White & Asian ☐ | Bangladeshi ☐ | Black African ☐ |
| | White & Other ☐ | Asian other ☐ | Other ☐ |

4. What is your current circumstance with regards to accommodation? **(please tick one box)**

| | | |
|---|---|---|
| Sleeping on the streets ☐ | Staying in a squat ☐ | Staying in a shelter ☐ |
| In derelict buildings ☐ | Staying on friends sofa's ☐ | Staying in homeless hostel ☐ |
| Other outdoor _____ ☐ | Overcrowded housing ☐ | Other _____ |

5. When was the first time you became homeless? Approximate date _____

6. How old were you when you first became homeless? Approximate age _____

7. How many different times you have been homeless? Approximately _____ times

8. How long have you been homeless this time? Approximately ____ years _____ months

**APPENDIX C:** UPPS-P IMPULSIVE BEHAVIOUR SCALE

**UPPS-P**

Below are a number of statements that describe ways in which people act and think. For each statement, please indicate how much you agree or disagree with the statement. If you **Agree Strongly** circle **1**, if you **Agree Somewhat** circle **2**, if you **Disagree somewhat** circle **3**, and if you **Disagree Strongly** circle **4**. Be sure to indicate your agreement or disagreement for every statement below.

| | | Agree Strongly | Agree Some-what | Disagree Some-what | Disagree Strongly |
|---|---|---|---|---|---|
| 1 | I have trouble controlling my impulses | 1 | 2 | 3 | 4 |
| 2 | I generally seek new and exciting experiences and sensations. | 1 | 2 | 3 | 4 |
| 3 | When I am very happy, I can't seem to stop myself from doing things that can have bad consequences. | 1 | 2 | 3 | 4 |
| 4 | I have trouble resisting my cravings (for food, cigarettes, etc.). | 1 | 2 | 3 | 4 |
| 5 | I'll try anything once | 1 | 2 | 3 | 4 |
| 6 | When I am in great mood, I tend to get into situations that could cause me problems. | 1 | 2 | 3 | 4 |
| 7 | I often get involved in things I later wish I could get out of. | 1 | 2 | 3 | 4 |
| 8 | I like sports and games in which you have to choose your next move very quickly. | 1 | 2 | 3 | 4 |
| 9 | When I am very happy, I tend to do things that may cause problems in my life. | 1 | 2 | 3 | 4 |
| 10 | When I feel bad, I will often do things I later regret in order to make myself feel better now. | 1 | 2 | 3 | 4 |
| 11 | I would enjoy water skiing. | 1 | 2 | 3 | 4 |
| 12 | I tend to lose control when I am in a great mood. | 1 | 2 | 3 | 4 |
| 13 | Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse. | 1 | 2 | 3 | 4 |
| 14 | I quite enjoy taking risks. | 1 | 2 | 3 | 4 |
| 15 | When I am really ecstatic, I tend to get out of control. | 1 | 2 | 3 | 4 |

| | | Agree Strongly | Agree Some-what | Disagree Some-what | Disagree Strongly |
|---|---|---|---|---|---|
| 16 | I would enjoy parachute jumping. | 1 | 2 | 3 | 4 |
| 17 | When I am upset I often act without thinking. | 1 | 2 | 3 | 4 |
| 18 | Others would say I make bad choices when I am extremely happy about something. | 1 | 2 | 3 | 4 |
| 19 | I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional. | 1 | 2 | 3 | 4 |
| 20 | When I feel rejected, I will often say things that I later regret. | 1 | 2 | 3 | 4 |
| 21 | Others are shocked or worried about the things I do when I am feeling very excited. | 1 | 2 | 3 | 4 |
| 22 | I would like to learn to fly an airplane. | 1 | 2 | 3 | 4 |
| 23 | It is hard for me to resist acting on my feelings. | 1 | 2 | 3 | 4 |
| 24 | When I get really happy about something, I tend to do things that can have bad consequences. | 1 | 2 | 3 | 4 |
| 25 | I sometimes like doing things that are a bit frightening. | 1 | 2 | 3 | 4 |
| 26 | I often make matters worse because I act without thinking when I am upset. | 1 | 2 | 3 | 4 |
| 27 | When overjoyed, I feel like I can't stop myself from going overboard. | 1 | 2 | 3 | 4 |
| 28 | I would enjoy the sensation of skiing very fast down a high mountain slope. | 1 | 2 | 3 | 4 |
| 29 | When I am really excited, I tend not to think of the consequences of my actions. | 1 | 2 | 3 | 4 |
| 30 | In the heat of an argument, I will often say things that I later regret. | 1 | 2 | 3 | 4 |
| 31 | I would like to go scuba diving. | 1 | 2 | 3 | 4 |
| 32 | I tend to act without thinking when I am really excited. | 1 | 2 | 3 | 4 |
| 33 | I always keep my feelings under control. | 1 | 2 | 3 | 4 |
| 34 | When I am really happy, I often find myself in situations that I normally wouldn't be comfortable with. | 1 | 2 | 3 | 4 |

| | | Agree Strongly | Agree Some-what | Disagree Some-what | Disagree Strongly |
|---|---|---|---|---|---|
| 35 | I would enjoy fast driving. | 1 | 2 | 3 | 4 |
| 36 | When I am very happy, I feel like it is ok to give in to cravings or overindulge. | 1 | 2 | 3 | 4 |
| 37 | Sometimes I do impulsive things that I later regret. | 1 | 2 | 3 | 4 |
| 38 | I am surprised at the things I do while in a great mood. | 1 | 2 | 3 | 4 |

# **APPENDIX D:** EGO-UNDERCONTROL SCALE

**UC Scale**

Please rate the following statements by circling the number that corresponds to the degree you either agree or disagree with the statement.

| | *Disagree very strongly* | | | *Agree very strongly* |
|---|---|---|---|---|
| 1. I tend to buy things on impulse. | 1 | 2 | 3 | 4 |
| 2. I become impatient when I have to wait for something. | 1 | 2 | 3 | 4 |
| 3. I often say and do things on the spur of the moment, without stopping to think. | 1 | 2 | 3 | 4 |
| 4. I can remember ‘‘playing sick’’ to get out of something. | 1 | 2 | 3 | 4 |
| 5. I have often had to take orders from someone who did not know as much as I did. | 1 | 2 | 3 | 4 |
| 6. When I get bored, I like to stir up some excitement. | 1 | 2 | 3 | 4 |
| 7. Some of my family have quick tempers. | 1 | 2 | 3 | 4 |
| 8. People consider me a spontaneous, devil-may-care person. | 1 | 2 | 3 | 4 |
| 9. I often get involved in things I later wish I could get out of. | 1 | 2 | 3 | 4 |
| 10. I have been known to do unusual things on a dare. | 1 | 2 | 3 | 4 |
| 11. I have sometimes stayed away from another person because I thought I might do or say something that I might regret afterwards. | 1 | 2 | 3 | 4 |
| 12. I do not always tell the truth. | 1 | 2 | 3 | 4 |
| 13. My way of doing things can be misunderstood or bother others. | 1 | 2 | 3 | 4 |
| 14. Sometimes I rather enjoy going against the rules and doing things I am not supposed to. | 1 | 2 | 3 | 4 |

| | *Disagree very Strongly* | | | *Agree very strongly* |
|---|---|---|---|---|
| 15. At times, I am tempted to do or say something that others would think inappropriate. | 1 | 2 | 3 | 4 |
| 16. At times I have very much wanted to leave home. | 1 | 2 | 3 | 4 |
| 17. I would like to be a journalist. | 1 | 2 | 3 | 4 |
| 18. I like to flirt. | 1 | 2 | 3 | 4 |
| 19. Some of my family have habits that bother and annoy me very much. | 1 | 2 | 3 | 4 |
| 20. At times I have worn myself out by undertaking too much. | 1 | 2 | 3 | 4 |
| 21. In a group of people I would not be embarrassed to be called on to start a discussion or give an opinion about something I know well. | 1 | 2 | 3 | 4 |
| 22. I would like to wear expensive clothes. | 1 | 2 | 3 | 4 |
| 23. I am against giving money to beggars. | 1 | 2 | 3 | 4 |
| 24. It is unusual for me to express strong approval or disapproval of the actions of others. | 1 | 2 | 3 | 4 |
| 25. I like to stop and think things over before I do them. | 1 | 2 | 3 | 4 |
| 26. I don't like to start a project until I know exactly how to proceed. | 1 | 2 | 3 | 4 |
| 27. I finish one activity or project before starting another. | 1 | 2 | 3 | 4 |
| 28. I am steady and planful rather than unpredictable and impulsive. | 1 | 2 | 3 | 4 |
| 29. On the whole, I am a cautious person. | 1 | 2 | 3 | 4 |

| | *Disagree very Strongly* | | | *Agree very strongly* |
|---|---|---|---|---|
| 30. I do not let too many things get in the way of my work. | 1 | 2 | 3 | 4 |
| 31. I keep out of trouble at all costs. | 1 | 2 | 3 | 4 |
| 32. I consider a matter from every viewpoint before I make a decision. | 1 | 2 | 3 | 4 |
| 33. I am easily downed in an argument. | 1 | 2 | 3 | 4 |
| 34. I have never done anything dangerous for the fun of it. | 1 | 2 | 3 | 4 |
| 35. My conduct is largely controlled by the customs of those about me. | 1 | 2 | 3 | 4 |
| 36. It makes me uncomfortable to put on a stunt at a party even when others are doing the same sort of thing. | 1 | 2 | 3 | 4 |
| 37. I find it hard to make small talk when I meet new people. | 1 | 2 | 3 | 4 |

**APPENDIX E:** EGO-RESILIENCY SCALE

**ER Scale**

Please rate the following statements by circling the number that corresponds to the degree you either agree or disagree with the statement.

| | *Disagree very strongly* | | | *Agree very strongly* |
|---|---|---|---|---|
| 1. I am generous with my friends. | 1 | 2 | 3 | 4 |
| 2. I quickly get over and recover from being startled. | 1 | 2 | 3 | 4 |
| 3. I enjoy dealing with new and unusual situations. | 1 | 2 | 3 | 4 |
| 4. I usually succeed in making a favorable impression on people. | 1 | 2 | 3 | 4 |
| 5. I enjoy trying new foods I have never tasted before. | 1 | 2 | 3 | 4 |
| 6. I am regarded as a very energetic person. | 1 | 2 | 3 | 4 |
| 7. I like to take different paths to familiar places. | 1 | 2 | 3 | 4 |
| 8. I am more curious than most people | 1 | 2 | 3 | 4 |
| 9. Most of the people I meet are likeable. | 1 | 2 | 3 | 4 |
| 10. I usually think carefully about something before acting. | 1 | 2 | 3 | 4 |
| 11. I like to do new and different things. | 1 | 2 | 3 | 4 |
| 12. My daily life is full of things that keep me interested. | 1 | 2 | 3 | 4 |
| 13. I would be willing to describe myself as a pretty ‘‘strong’’ personality. | 1 | 2 | 3 | 4 |
| 14. I get over my anger at someone reasonably quickly. | 1 | 2 | 3 | 4 |

# **APPENDIX F:** COMPOSITE MEASURE OF PROBLEM BEHAVIOURS

**Maladaptive behaviours Questionnaire**

This questionnaire is designed to ask you about a range of behaviours that you may, or may not, engage in. It includes 46 statements and you are required to rate the extent to which each statement characterises you, using the scale below

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Very unlike me | Quite unlike me | A little unlike me | A little like me | Quite like me | Very Like me |

For example, if you read a statement and think "it's very unlike me to do X" you would write a "1" next to the statement. If you think "that's only very slightly like me" write '4', or if you think "it's very like me to do that", write '6'.

Before completing the questionnaire, please take note of the following points:

Where questions refer to internet use, this means non-work related use such as chat rooms, surfing the net etc. Where questions refer to sexual behaviours, this includes both foreplay and all forms of sexual intercourse. Where questions refer to drugs, this means the use of illegal drugs. This would include, for example, Cannabis, Cocaine, Ecstasy etc. Where questions refer to smoking, this means tobacco.

**Please read each statement carefully and answer as honestly as possible**. **All answers are anonymous. Please do not leave any answers blank**.

It's like me to ....

| | | |
|---|---|---|
| 1 | say no to drugs (this includes cannabis) | 1 2 3 4 5 6 |
| 2 | be pre-occupied by thoughts about smoking when smoking is prohibited | 1 2 3 4 5 6 |
| 3 | sometimes consume more than 6 alcoholic drinks in one evening | 1 2 3 4 5 6 |
| 4 | ignore dietary details (e.g., calorie content) when choosing something to eat | 1 2 3 4 5 6 |
| 5 | exercise even when I am feeling tired and/or unwell | 1 2 3 4 5 6 |
| 6 | sometimes intentionally prevent scars or wounds from healing | 1 2 3 4 5 6 |
| 7 | smoke tobacco | 1 2 3 4 5 6 |
| 8 | surf the net/play computer games before doing something else that needs doing | 1 2 3 4 5 6 |
| 9 | generally have no interest in taking drugs (this includes cannabis) | 1 2 3 4 5 6 |
| 10 | sometimes engage in sexual activities with someone I have only just met. | 1 2 3 4 5 6 |
| 11 | find that my work performance or productivity suffers because of my internet/video game use. | 1 2 3 4 5 6 |
| 12 | never resort to violence. | 1 2 3 4 5 6 |
| 13 | sometimes actively seek out drugs for personal use (this includes cannabis). | 1 2 3 4 5 6 |
| 14 | feel irritation/frustration if I am in a non-smoking environment. | 1 2 3 4 5 6 |
| 15 | sometimes scratch or bite myself to the point of scarring or bleeding. | 1 2 3 4 5 6 |

| | | |
|---|---|---|
| 16 | sometimes feel pre-occupied with the internet/computer games. | 1 2 3 4 5 6 |
| 17 | skip doing exercise for no good reason. | 1 2 3 4 5 6 |
| 18 | drink a lot more alcohol than I initially intended. | 1 2 3 4 5 6 |
| 19 | have a long list of things that I dare not eat. | 1 2 3 4 5 6 |
| 20 | feel excitement and/or tension in anticipation of getting drunk. | 1 2 3 4 5 6 |
| 21 | be content if I am prevented from exercising for a week. | 1 2 3 4 5 6 |
| 22 | always stop eating when I feel full. | 1 2 3 4 5 6 |
| 23 | prefer being in places where smoking is prohibited. | 1 2 3 4 5 6 |
| 24 | control my temper. | 1 2 3 4 5 6 |
| 25 | deliberately take small helpings as a means of controlling my weight. | 1 2 3 4 5 6 |
| 26 | exercise more than three times a week. | 1 2 3 4 5 6 |
| 27 | sometimes eat to the point of physical discomfort. | 1 2 3 4 5 6 |
| 28 | sometimes feel tension and/or excitement in anticipation of doing exercise. | 1 2 3 4 5 6 |
| 29 | sometimes cause myself direct bodily harm by, for example, cutting or burning myself. | 1 2 3 4 5 6 |
| 30 | only eat when I am hungry. | 1 2 3 4 5 6 |
| 31 | unsuccessfully try to cut back my use of the internet/computer games | 1 2 3 4 5 6 |
| 32 | be excited by the opportunity of taking drugs (this includes cannabis) | 1 2 3 4 5 6 |
| 33 | sometimes get so angry that I beak something | 1 2 3 4 5 6 |
| 34 | sometimes have more than one sexual partner. | 1 2 3 4 5 6 |
| 35 | sometimes engage in sexual actives with someone when really I shouldn't | 1 2 3 4 5 6 |
| 36 | easily limit my use of the internet or video games | 1 2 3 4 5 6 |
| 37 | feel the urge to have a cigarette. | 1 2 3 4 5 6 |
| 38 | sometimes feel that I need to take drugs (this includes cannabis) | 1 2 3 4 5 6 |
| 39 | go out with friends who are drinking, but opt to stay sober | 1 2 3 4 5 6 |
| 40 | sometimes think that I might have a drugs problem (this includes cannabis). | 1 2 3 4 5 6 |
| 41 | avoid eating when I am hungry | 1 2 3 4 5 6 |
| 42 | find it difficult to stop eating after certain foods | 1 2 3 4 5 6 |
| 43 | be aggressive when sufficiently provoked | 1 2 3 4 5 6 |
| 44 | feel the urge to intentionally harm myself | 1 2 3 4 5 6 |
| 45 | sometimes feel that I need an alcoholic drink | 1 2 3 4 5 6 |
| 46 | sometimes claim I have already eaten when this is not true | 1 2 3 4 5 6 |

Kingston, J. L., Clarke, S., Ritchie, T., & Remington, B. (2011). Developing and validating the "composite measure of problem behaviors". *Journal of Clinical Psychology, 67,* 736-751.

# **APPENDIX G:** POSTER ADVERTISING STUDY

# Would you like to take part in a research study?

**And receive a**

# £10

# FOOD VOUCHER

**To find out more please take a flyer or speak to a member of staff**

**We are Trainee Clinical Psychologists. We are hoping that our research will help develop understanding of some of the difficulties that homeless people face, and contribute to improving the services available to you.**

**APPENDIX H:** FLYER ADVERTISING RECRUITMENT DATES

# A study looking at the psychological experiences of homeless people

Researchers: Laura Bohane, Emma Selwood, Dr. Nick Maguire

## Would you like to take part in a research study and receive a....

## £10 FOOD VOUCHER FOR ASDA

What is the study about?

- Looking at the psychological experiences and behaviours of homeless people
- This may help us to improve services for homeless people

What happens if I take part?

- You will be asked to complete some questionnaires, which will take between an hour to an hour and a half to complete
- You can do this on your own, or with one of the researchers
- Two researchers will be there to explain the study and to help you if you need it
- To thank you for taking part, you will be offered a £10 food voucher

**Want to take part?**

- **Please ask a member of staff for an information leaflet**
- **We will come here to do the study**
- **The dates and times that we will be coming are below**
- **Please turn up at a time below to take part**

| Dates | Time |
|---|---|
| | |
| | |
| | |
| | |
| | |

**APPENDIX I:** INFORMATION SHEET FOR STAFF

UNIVERSITY OF Southampton

## A study investigating the psychological experiences of people who are homeless

Laura Bohane, Emma Selwood and Dr Nick Maguire

# Information for Staff

We are Trainee Clinical Psychologists at the University of Southampton. As part of our qualification we undertake a research study investigating an area of our interest within the field of Clinical Psychology.

**Aim of study**

Our study aims to increase the psychological understanding of the potential pathways and maintaining factors associated with homelessness. We are hoping that people using your service may be interested in participating in this study.

We are looking into how individual personality traits and life experiences influence behaviours associated with homelessness. In particular we are focussing on a theory which suggests that the experience of homelessness may be influenced by emotional control – this may include over or under control.

**What does it involve?**

Participants will be asked to complete a set of questionnaires. These will be asking questions about:

- Previous life experiences
- Relationships with others
- Behaviours that people engage in
- Personality traits
- Ways of managing situations

Questionnaires will be completed independently by the participants, and not shared with anyone else. These can be completed in a group format or 1-1 if participants have difficulty reading.

It is possible that some questions may bring up emotional responses as they are about the individual's personal experiences and some participants may need extra support from staff afterwards.

Completion of these questionnaires should take approximately an hour, and no more than an hour and a half, and participants will be given a £10 Asda food voucher once finished to thank them for their participation.

Once the study is complete, we will provide you with feedback on the results. If you have any questions please do not hesitate to contact us.

# **APPENDIX J:** VERBAL SCRIPT

UNIVERSITY OF Southampton
School of Psychology

**A study investigating the psychological experiences of people who are homeless**

Laura Bohane, Emma Selwood and Dr Nick Maguire

# Verbal Script for Research Participants

We are Laura Bohane and Emma Selwood, Trainee Clinical Psychologists from the University of Southampton. We are requesting your participation in a study regarding the experiences and personality characteristics of homeless people and the difficulties that they have faced. This will involve completing a number of questionnaires, which should take about an hour. These will be asking questions about:

- Previous life experiences
- Relationships with others
- Personality traits
- Behaviours that you engage in
- Ways of managing situations

Some questions will relate to personal or stressful childhood experiences.
You will be asked to choose whether to complete the questionnaires alone, with help, or in an interview style format. Personal information will not be released to or viewed by anyone other than researchers involved in this project. Results of this study will not include your name or any other identifying characteristics.

Your completion of the questionnaires will be taken as evidence of your giving informed consent to participate in this study and for your data to be used for the purposes of research, and that you understand that published results of this research project will maintain your confidentially.

Your participation is voluntary and you may withdraw your participation at any time.

If you have any questions please ask them now.

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: +44 (0)23 8059 4663, email slb1n10@soton.ac.uk

**APPENDIX K:** INFORMATION SHEET

UNIVERSITY OF Southampton
School of Psychology

**A study investigating the psychological experiences of people who are homeless**

Laura Bohane, Emma Selwood and Dr Nick Maguire

# Participant Information Sheet

**Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form.**

**What is the research about?**
We are Emma Selwood and Laura Bohane. We are both Trainee Clinical Psychologists at the University of Southampton. This study is being done as part of our training.
We are researching the experiences and personal characteristics of homeless people and the difficulties that they face. It is hoped that the study may help in creating more suitable and better services for homeless people

**Why have I been chosen?**
Individuals who are in contact with some hostels or street outreach teams in Southampton and London are being asked if they would like to take part in the study.

**What will happen to me if I take part?**
If you decide to take part, we will meet just once and we will explain the study in more detail. If you agree to take part, we would ask you to sign a consent form so that we know you have understood what we are asking you to do. You will then be asked to fill in some questionnaires, asking you about yourself and your experiences. You can fill these questionnaires in on your own, or with some help. These questionnaires should take about an hour to complete. These will be asking questions about:

- Previous life experiences
- Relationships with others
- Personality traits
- Behaviours that you engage in
- Ways of managing situations

Some questions will relate to personal or stressful childhood experiences.
After you have completed the questionnaires, we will explain again what the study is about, and ask if you have any questions. We will also ask if any of the questions upset you, or if you wanted to talk about any of them. If you agree to take part in the study, you will receive a £10 food voucher to thank you for your time and effort.

**Are there any benefits in my taking part?**
We don't know much about people who become homeless. The more we do know, the more we might be able to stop it happening in the future, and the more we may be able to help people who do find themselves with nowhere to live. Your taking part is an important part of this knowledge.

**Are there any risks involved?**
Occasionally, some questions on the questionnaires may lead you to feel upset. If this happened, you can choose to take a break from filling in the questionnaires, or you could choose to stop completely.

**Will my participation be confidential?**
All the information you give us will be kept entirely confidential to the researchers. The information that you give us will have linked anonymity – this means that your questionnaires will have a code on them that is linked to your name and your signed consent form. When the research study is written up, there will be no information included that could identify who you are.

All questionnaires will be stored in a locked cabinet to which only the researchers will have the key. When the information is put on to a computer, this will be password protected. This is in accordance with the Data Protection Act, British Psychological Society Code of Ethics and Conduct, and the University of Southampton's Code of Practice.

**What happens if I change my mind?**
You can change your mind at any time, and stop the study without giving us any reason. This would not affect any care or help you are receiving from the hostel or outreach team.

**What happens if something goes wrong?**
It is highly unlikely that anything would go wrong. If you were not happy with the way things had gone, you could speak to either us or our supervisor. Alternatively, you could speak to the Chair of the Ethics Committee at Southampton University: Ethics Committee, Psychology, University of Southampton, SO17 1BJ, UK. Phone: +44 (0)23 8059 4663, email slb1n10@soton.ac.uk

**Where can I get more information?**
If you had any more questions, we would encourage you to contact us first: Laura Bohane (lab1g10@soton.ac.uk or Emma Selwood (es2g10@soton.ac.uk). You could also speak to our supervisor, Dr Nick Maguire (Nick.Maguire@soton.ac.uk on 023 8059 7760).

**Thank you very much for taking the time to read this.**

**APPENDIX L:** CONSENT FORM

UNIVERSITY OF Southampton
School of Psychology

**A study investigating the psychological experiences of people who are homeless**

Laura Bohane, Emma Selwood and Dr Nick Maguire

# Consent Form

*Please initial the box(es) if you agree with the statement(s):*

| | |
|---|---|
| I have read and understood the information sheet (20.08.2012; version 2.0) and have had the opportunity to ask questions about the study. | ☐ |
| I agree to take part in this research project and agree for my data to be used for the purpose of this study | ☐ |
| I understand my participation is voluntary and I may withdraw at any time without my legal rights being affected | ☐ |

***Data Protection***
*I understand that information collected about me during my participation in this study will be stored on a password protected computer and that this information will only be used for the purpose of this study. All files containing any personal data will be made anonymous.*

Name of participant (print name)……

Signature of participant……..

Date……

**APPENDIX M:** SCREENING FORM

UNIVERSITY OF Southampton
School of Psychology

**A study investigating the psychological experiences of people who are homeless**

Laura Bohane, Emma Selwood and Dr. Nick Maguire

# SCREENING FORM

ARE YOU ABLE TO READ ONE OF THE DAILY NEWSPAPERS (E.G. THE MIRROR, THE INDEPENDENT)?

☐ **YES** ☐ **NO**

ARE YOU ABLE TO FILL IN YOUR OWN BENEFIT FORMS WITHOUT ANY HELP/SUPPORT?

☐ **YES** ☐ **NO**

FOR THIS STUDY, HOW WOULD YOU PREFER TO FILL IN THE QUESTIONNAIRES?

Please tick one box. You will be able to change your mind on the day, if you wish.

☐ FILL IN QUESTIONNAIRES BY MYSELF

☐ FILL IN QUESTIONNAIRES WITH SOME HELP

☐ FILL IN QUESTIONNAIRES IN AN INTERVIEW

**Participant name:** **ID number:**

# **APPENDIX N:** COMIC STRIP DISTRACTION TASK

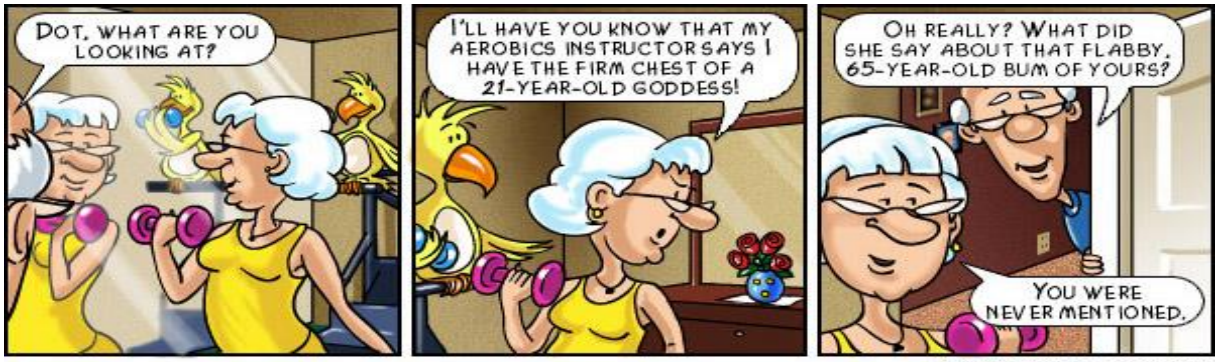
UNIVERSITY OF Southampton

# A study investigating the psychological experiences of people who are homeless

Laura Bohane, Emma Selwood and Dr Nick Maguire

## INSTRUCTIONS

This is an optional task which can be completed any time after taking part in the research study. Please read each of the jokes below and rate how funny you found each one on the scale provided.




Not funny at all 1_____2_____3_____4 Very funny


Not funny at all 1_____2_____3_____4 Very funny


Not funny at all 1_____2_____3_____4 Very funny

**APPENDIX O:** DEBRIEF FORM

UNIVERSITY OF Southampton
School of Psychology

**A study investigating the psychological experiences of people who are homeless**

Laura Bohane, Emma Selwood and Dr Nick Maguire

# Participant Debriefing Sheet

Thank you for taking part in our study, during which you completed some questionnaires asking you about your personality, the things that you do and feel, and your past experiences.

The information that you have provided will be used to understand more about people who are homeless, including what may lead to them becoming homeless, and the type of help or support that may be useful to them. This might be useful in the future to help other people who are homeless, or help people avoid becoming homeless in the first place.

Once again, the results of this study will not include your name or any other identifying characteristics. The research did not use deception.

When the research is finished, a summary of the main findings will be provided to the hostels/outreach centre. If you wish to see this, you can ask staff to show you. If you have any further questions please contact Laura Bohane (lab1g10@soton.ac.uk) or Emma Selwood (es2g10@soton.ac.uk) or Dr Nick Maguire (Nick.Maguire@soton.ac.uk or 023 8059 7760).

Because some of the questions have asked about difficult things that might have happened in the past, you might feel upset. If so, you might find it useful to talk to someone about this. You could talk to us, staff at the hostel/outreach service, your doctor, or maybe a friend.

Here are two groups that can also give you advice.

- Samaritans: Samaritans gives confidential non-judgemental emotional support, 24 hours a day for people who are feeling upset. 08457 90 90 90.

- Shelter: Shelter is a charity that gives advice, information and advocacy to people in housing need. Their free housing advice helpline is 0808 800 4444.

Thank you for your participation in this research.

Signature _____ Date _____

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: +44 (0)23 8059 4663, email slb1n10@soton.ac.uk

**APPENDIX P:** CONFIRMATION OF ETHICAL APPROVAL

# Your Ethics Submission (Ethics ID:1329) has been reviewed and approved

ERGO [DoNotReply@ERGO.soton.ac.uk

Bohane L.A. 18 July 2012 12:36

Submission Number: 1329
Submission Name: The relationship between Temperament, Emotional Control and Maladaptive Behaviours in a Homeless Population
This is email is to let you know your submission was approved by the Ethics Committee.

Please note that you cannot begin your research before you have had positive approval from the University of Southampton Research Governance Office (RGO) and Insurance Services. You should receive this via email within two working weeks. If there is a delay please email rgoinfo@soton.ac.uk.

Comments
None
Click here to view your submission

# Research Governance Feedback on your Ethics Submission (Ethics ID:1329)

ERGO [DoNotReply@ERGO.soton.ac.uk]

Bohane L.A.01 August 2012 12:29

Submission Number 1329:
Submission Title The relationship between Temperament, Emotional Control and Maladaptive Behaviours in a Homeless Population:
The Research Governance Office has reviewed and approved your submission

You can begin your research unless you are still awaiting specific Health and Safety approval (e.g. for a Genetic or Biological Materials Risk Assessment) or external ethics review (e.g. NRES).The following comments have been made:

"No issues, your letter will be with you shortly"
---
ERGO : Ethics and Research Governance Online
http://www.ergo.soton.ac.uk
---
DO NOT REPLY TO THIS EMAIL

**APPENDIX Q:** CONFIRMATION OF SPONSORSHIP AND INSURANCE

UNIVERSITY OF Southampton

Miss Laura Bohane
School of Psychology
University of Southampton
University Road
Highfield
Southampton
SO17 1BJ

RGO Ref: 8685

06 August 2012

Dear Miss Bohane

**Project Title The relationship between Temperament, Emotional Control and Maladaptive Behaviours in a Homeless Population**

This is to confirm the University of Southampton is prepared to act as Research Sponsor for this study, and the work detailed in the protocol/study outline will be covered by the University of Southampton insurance programme.

As the sponsor's representative for the University this office is tasked with:

1. Ensuring the researcher has obtained the necessary approvals for the study
2. Monitoring the conduct of the study
3. Registering and resolving any complaints arising from the study

As the researcher you are responsible for the conduct of the study and you are expected to:

1. Ensure the study is conducted as described in the protocol/study outline approved by this office
2. Advise this office of any change to the protocol, methodology, study documents, research team, participant numbers or start/end date of the study
3. Report to this office as soon as possible any concern, complaint or adverse event arising from the study

Failure to do any of the above may invalidate the insurance agreement and/or affect sponsorship of your study i.e. suspension or even withdrawal.

**On receipt of this letter you may commence your research but please be aware other approvals may be required by the host organisation if your research takes place outside the University. It is your responsibility to check with the host organisation and obtain the appropriate approvals before recruitment is underway in that location.**

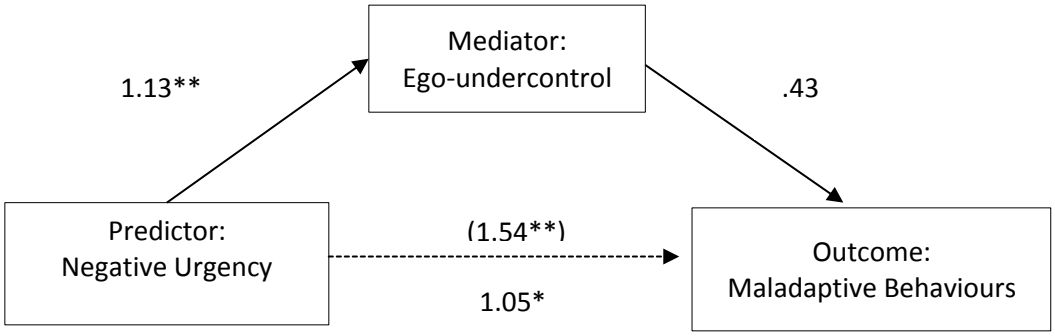
May I take this opportunity to wish you every success for your research.

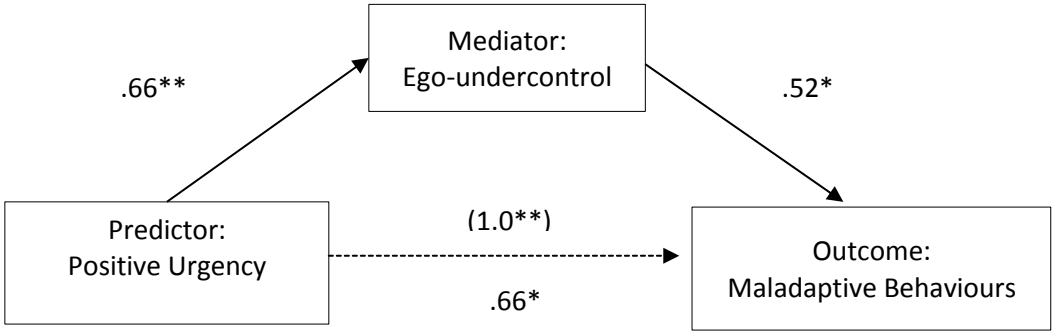
Yours sincerely

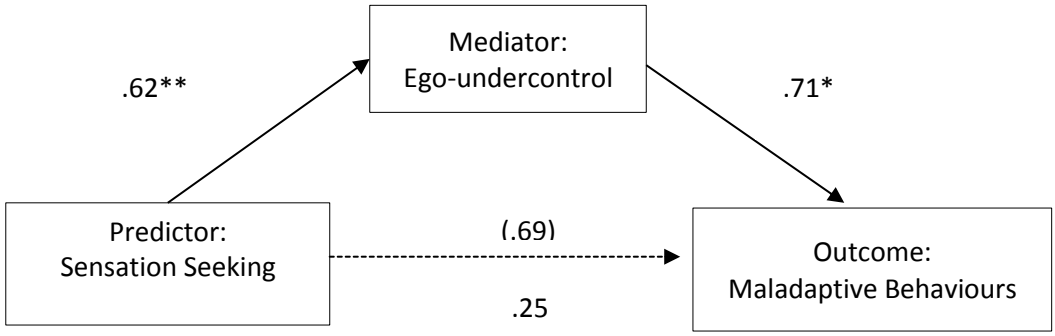
Dr Martina Prude
Head of Research Governance

Tel: 023 8059 5058
email: rgoinfo@soton.ac.uk

# **APPENDIX R:** DIAGRAMMATIC REPRESENTATION OF MEDIATION ANALYSES


Mediator:
Ego-undercontrol
1.13**
.43
Predictor:
Negative Urgency
(1.54**)
1.05*
Outcome:
Maladaptive Behaviours


Mediator:
Ego-undercontrol
.66**
.52*
Predictor:
Positive Urgency
(1.0**)
.66*
Outcome:
Maladaptive Behaviours


Mediator:
Ego-undercontrol
.62**
.71*
Predictor:
Sensation Seeking
(.69)
.25
Outcome:
Maladaptive Behaviours

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