

EFFECT OF A BRIEF SELF-COMPASSION INTERVENTION IN EMERGING ADULTS

Effect of a Brief Self-Compassion Intervention on Self-Compassion and Health
Behaviours in Emerging Adults

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Abstract

Sarah A. Jeffery: Effect of a Brief Self-Compassion Intervention on Self-Compassion and Health Behaviours in Emerging Adults

Non-Communicable Diseases (NCDs) are of increasing concern at global, national and individual levels. Global and national initiatives have been put in place to address the health behaviour failures that lead to NCDs. However at an individual level such failures remain all too common. Emerging adulthood (ages 18 to 25) is a time of particular health behaviour challenges, with lack of self-regulatory capacity implicated. Recent research has identified self-compassion as a possible means of bolstering self-regulatory resources. This pilot randomised controlled trial (RCT; $N = 30$) aimed to increase self-compassion and self-regulatory resources in emerging adults and help them to make positive health behaviour changes. It also aimed to test the Self-Regulation Resource Model (SRRM), which to date has only been tested in correlational studies. A brief self-compassion intervention succeeded in significantly increasing self-compassion for workshop attendees ($n = 17$) as compared with a waitlist control group ($n = 13$), with significant improvements in self-compassion during follow-up. Workshop participants also reported a significant reduction in negative affect, and significant increases in health-self efficacy and self-control, as predicted by the SRRM. However, the increase in positive affect for workshop participants was not significant. Workshop participants did engage with practice outside of sessions and practice was found to be associated with self-compassion gains. Despite the significant improvements in self-compassion and self-regulatory resources, significant improvements in the workshop group's health behaviours were not found. Implications for future research, in particular the running of a full scale RCT, are discussed.

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Author's Declaration

None of the information in this thesis has been presented before. The thesis is not based on joint research.

1. Introduction

This research focused on the delivery and evaluation of a brief self-compassion intervention (two sessions) which aimed to improve self-compassion, self-regulatory resources, and health behaviours in emerging adults (ages 18 to 25). Four health behaviours were targeted for improvement; physical inactivity, unhealthy diets, harmful use of alcohol, and tobacco use. These have been identified by the World Health Organisation (WHO) as key, causative risk factors for non-communicable diseases (NCDs), an increasing global health challenge (WHO, 2010). Rationale and relevant background literature are discussed.

1.1 The Increasing Threat of Non-Communicable Diseases (NCDs)

Non-Communicable Diseases (NCDs) are one of the greatest health challenges of our times (WHO, 2018f). Unlike infectious diseases, NCDs are not passed from person to person; instead they result from a combination of factors including genetics, environment, and health behaviour (WHO, 2018b). The main types of NCDs are cancers, cardiovascular diseases, chronic respiratory diseases, and diabetes. Together they are responsible for 89% of deaths, many of which are considered premature deaths (WHO, 2018f). As a result, NCDs are of increasing concern at global, national and individual levels. Previously, the greatest global health risks resulted from other factors. However as countries industrialize, populations benefit from improvements such as better nutrition (Fogel, 2004), availability of clean water and sanitation (Cutler & Miller, 2005), and medical advances (Cutler, Deaton, & Lleras-Muney, 2006). Life expectancy increases and a risk transition takes place, with traditional risks to health overtaken by more modern risks. These modern risks result from four key health behaviours: physical

inactivity, unhealthy diets, harmful use of alcohol, and tobacco use (WHO, 2002; WHO, 2009), all of which increase the risk of NCDs. Most NCD deaths (80% of all cases of heart disease, stroke and diabetes, and 40% of cases of cancer; WHO, 2018f) are considered preventable with actions to address the four key health behaviours (WHO, 2010).

Globally, tobacco use is one of the leading risks for mortality, killing up to half of all smokers and responsible for more than seven million deaths per year (WHO, 2018e). In the UK it was a leading cause of preventable mortality in 2016, resulting in around 78,000 deaths in England alone (Office for National Statistics [ONS], 2017). Insufficient physical activity is also a leading risk factor for many NCDs, including cardiovascular diseases, cancer and type 2 diabetes. Risk of death increases by 20 to 30% for people who are not active enough (as compared with those who meet minimum guidelines of physical activity; WHO, 2018d). Unhealthy diets also increase the risk of NCDs, with high blood glucose and being overweight or obese two of the top five global risks for mortality, responsible for six percent and five percent of deaths respectively (WHO, 2009). Finally, alcohol use results in an estimated 3 million deaths per year and is responsible for 13.5% of deaths in younger adults (aged 20 to 39; WHO, 2018a). In the UK it is the third leading risk factor for death and disability after tobacco use and obesity (PHE, 2016).

1.2 National Initiatives and Current Health Behaviour

At global and national levels action is being taken. More than 190 countries have signed up to a global action plan which aims to reduce the number of premature deaths from NCDs by 25% (WHO, 2013) and there are WHO guidelines, policies and targets to

address each of the risk factors (WHO, 2010). At national level, in the UK there are guidelines to drive policy and public awareness, and public health campaigns have been waged to tackle each of the four risk factors and improve the health of the nation (PHE, n.d.). These include ‘Stoptober’ (which encourages smokers to quit), ‘Change4Life’ (which aims to tackle childhood obesity), ‘One You Active 10’ (which encourages adults to make small changes in health behaviours), and ‘One You - Days Off’ (which encourages alcohol free days). Public health campaigns have been supported by a range of legislative and taxation changes. These include bans on smoking in public enclosed spaces and workplaces (in 2007; House of Commons, 2015), healthy eating standards for English schools (Department for Education [DfE], 2016) and the Soft Drinks Industry Levy (known as the ‘sugar tax’; HM Treasury, 2018).

Despite all this, individual health behaviour failures are common. In the UK 39% of adults (approximately 20 million people) are failing to achieve the recommended levels of physical activity (British Heart Foundation, 2017). Many people continue to make unhealthy dietary choices; exceeding maximum recommended levels of salt, sugar and saturated fat but failing to achieve target consumption levels of healthy foods. For example, only 27% of adults (age 19 to 64) eat five or more portions of fruit and vegetables per day with those aged between 16 and 24 least likely to achieve this (PHE, 2017b). Globally, obesity rates have almost tripled since 1975 with 39% of adults overweight and 13% obese in 2016 (WHO, 2018c). The figures are higher in England with 63% of adults overweight or obese in 2015 (PHE, 2017a), and childhood obesity rates that have not improved in a decade (National Child Measurement Programme [NCMP], 2017). In England almost 11 million adults drink to levels which may

adversely affect their health and 1.6 million are alcohol dependent (PHE, 2016). The true figures may be even higher as reported alcohol use tends to be underestimated (NHS Digital, 2018a). Furthermore the number of deaths due to alcohol increased by 11% between 2005/6 and 2016 (NHS Digital, 2018a). Lastly, although the extensive measures to reduce smoking in the UK have had considerable success, approximately 7.4 million adults (15%) continue to smoke (ONS, 2018b). Most smokers would like to quit (61%; ONS, 2018b) but it is notoriously difficult to do so. Of the 37% of smokers who made a quit attempt only 19% were successful even in the short term (PHE, 2015).

1.3 Emerging Adulthood and Health Behaviour Failures

Health behaviour failures can happen at any age however a considerable decline in health promoting behaviours is evident during emerging adulthood (Frech, 2012). Emerging adulthood is a phase of life-span development proposed by American Psychologist Jeffrey Jensen Arnett (Arnett, 2000; Arnett, 2004). It starts at age 18 (the age at which young people generally take on adult legal status, rights and responsibilities), and continues throughout the twenties, though the core years are considered to be ages 18 and 25 (Arnett, 2000). In many parts of the world people move more directly from adolescence to adulthood (Schlegel & Barry, 1991), taking on adult responsibilities and commitments such as full time work, marriage and children. However in western, industrialised countries such commitments are often postponed. This is the result of changes including industrialisation, the availability of safe, effective birth control, and the opening up of higher education opportunities for women (Arnett, 2000) and is reflected in national statistics. For example, continuing a long term trend, in 2015 the average age at marriage in England and Wales increased to 35.1 years for

women and 37.5 years for men (in opposite sex couples; with age for same sex couples slightly higher; ONS, 2018d). The average age of mothers at childbirth increased to 30.5 in 2017 (from 26.4 years in 1975; ONS, 2018c). In the UK 55% of women and 45% of men enter higher education by age 30, with most entering at age 18 (DfE, 2018).

Emerging adulthood is characterised by five dimensions (1) identity explorations, (2) feeling in-between, (3) possibilities, (4) self-focus, and (5) instability (Arnett, 2004). It is a time of tremendous diversity and instability compared with other life stages. For example, in the UK the vast majority of adolescents remain living at home with one or more parents (Association for Young Peoples Health, 2015), attend formal education to age 16, and continue in education or training (full or part time) until age 18 (gov.uk, n.d.). By full adulthood most people are in long term relationships, and have made more long lasting work choices. By contrast during emerging adulthood, young adults experience a huge amount of change in a relatively short period of time, with high rates of residential change as well as changes in areas such as relationships, work and world views (Arnett, 2000).

For many, emerging adulthood is a positive time of exploration and personal growth (Arnett, 2004) with comparatively little responsibility. However, it can also be extremely challenging (Arnett, 2005; Arnett, 2015). Emerging adults experience a multitude of complex social, personal, developmental and neurological changes comparable only to those of infancy (Wood et al., 2018). Perhaps not surprisingly, engagement in health promoting behaviours declines significantly (Frech, 2012). Substance use and substance use disorders (SUDs) peak in emerging adulthood (Park et al., 2006; Stone, Becker, Huber, & Catalano, 2012), as In the UK the highest prevalence

of current cigarette smoking (18%) is amongst emerging adults (ONS, 2018a). Almost all smokers (99%) have started by age 26 and in almost all cases, progression from occasional to regular (daily) smoking also happens by this age (Center for Disease Control and Prevention [CDC], 2012). A notable decline in physical activity is evident both in cross-sectional studies (e.g. Caspersen, Pereira, & Curran, 2000; Leslie, Fotheringham, Owen, & Bauman, 2001) and longitudinal studies (Corder et al., 2016).

Emerging adults are also the age group least likely to achieve recommended healthy eating targets, with less than 20% of 16 to 24 year olds eating five portions of fruit or vegetables per day (PHE, 2017b). Diet quality decreases, in particular for those entering their first year of higher education (Butler, Black, Blue & Gretebeck, 2004). It follows that emerging adulthood is a period of increased risk for excess weight gain (Levitsky, Halbmaier, & Mrdjenovic, 2004; Nelson, Story, Larson, Neumar-Sztainer, & Lytle, 2008) with a marked increase in overweight and obesity (Anderson, Shapiro & Lundgren, 2003), and experts have emphasized the need to address this (Dietz, 2017).

In terms of alcohol, consumption peaks during emerging adulthood (Jochman & Fromme, 2010) with increased prevalence of heavy drinking (Chen, Dufour & Curran, 2004) and higher levels of alcohol use typically found amongst those in higher education (Quinn & Fromme, 2011). In a recent NUS survey of 2215 students 50% reported drinking alcohol at least once a week with 79% viewing drinking and getting drunk as part of student culture (NUS, 2018). Although recent findings from the Opinions and Lifestyle Survey suggest that in Great Britain young adults (16 to 24) are less likely to drink alcohol than older adults (ONS, 2018b), this survey may disproportionately underestimate consumption since only people living in private

residences are eligible for interview. This excludes for example, all students living in halls of residence. Furthermore data from 16 and 17 year olds is reported together with data from emerging adults. This age group may consume less than legal drinkers or be less honest about their consumption in a home interview situation. Overall, the alcohol consumption of emerging adults remains cause for concern. They are the most likely to binge drink (males drinking more than eight units on their heaviest drinking day and females more than six; HM Government, 2012), with 20% reporting having drunk excessively in the previous week (ONS, 2018a). According to the Global Burden of Disease (GBD) Study, misuse of alcohol is the leading risk factor for early death for this age group (and up to age 49; GBD 2016 Alcohol Collaborators, 2016).

Rates of disease and disability are relatively low during emerging adulthood (Park Mulye, Adams, & Brindis, 2006) however this is because the consequences of health behaviour failures tend not be immediately apparent. Where symptoms are already present, emerging adults are less likely to prioritise engaging with health care providers and their stage of brain development may make therapy adherence more challenging (Cheng, Medlow, & Steinbeck, 2016). However, unhealthy behaviours developed and left unchecked at this age can lead to patterns of health behaviour failures and subsequent morbidity and mortality later in life (Daw, Margolis, & Wright, 2016). Furthermore, health issues such as obesity tend to run in families and social networks (Christakis & Fowler, 2007). Improving the health behaviour of today's emerging adults could have wider benefits, improving the health of future generations as the emerging adults of today start their own families (Dietz, 2017). Emerging adults are therefore an

important group to target in order to improve health behaviour now and for generations to come.

1.4 The Role of Self-Regulation

A substantial number of theories and health behaviour models have been developed in an attempt to predict and improve health behaviour and make sense of health behaviour failures. Recent research suggests that self-regulation plays an important role (Abraham & Sheeran, 2000). This is of particular relevance for emerging adults because they face a unique set of self-regulatory challenges.

Self-regulation is an essential psychological function. It can be understood as the ability to regulate one's behaviour in the service of goals (Forgas, Baumeister & Tice, 2009) and is therefore vital to success in life (Baumeister & Vohs, 2007). According to leading researchers in the field, Baumeister and Vohs (2007), self-regulation comprises:

1. Standards (for example having a goal)
2. Motivation
3. Monitoring (the ability to track progress)
4. Self-regulatory strength or capacity. This is needed for example to manage thoughts, manage emotions and moods, overcome temptations, distractions and impulses, and manage behaviour, facilitating progress towards goals (Baumeister & Heatherton, 1996). It is often referred to as self-control (Baumeister, Vohs & Tice, 2007).

Health behaviour is fundamentally self-regulatory (Baumeister, Heatherton, & Tice, 1994) because it requires the overriding of immediate desires and distractions on a consistent basis to achieve longer term good health (de Ridder & de Wit, 2006). Early

health behaviour theories and models omitted self-regulation and focused on health behaviour intentions (for an overview see Abraham & Sheeran, 2000). For example in the theory of planned behaviour (TPB; Ajzen, 1991) behavioural intentions were considered the most important predictor of health behaviour. However, research points to a large ‘intention-behaviour’ gap whereby medium to large changes in intention only translate to small to medium-sized behaviour changes (meta-analysis; Webb & Sheeran, 2006) and intentions are only translated into behaviour around 50% of the time (Sheeran & Webb, 2016). Health behaviour models have therefore been developed to incorporate post-intentional phases (Sniehotta, Scholz & Schwarzer, 2005), and self-regulation has emerged as a core component (Abraham & Sheeran, 2000). For example, self-regulatory capacity is central to health behaviour models such as Hall and Fong’s Temporal Self-Regulation Theory (Hall & Fong, 2007). This theoretical model includes a focus on self-regulatory capacity (as well as temporal valuations and environmental influences). It was designed to provide a complete model of health behaviour including making sense of seemingly irrational health behaviours (Hall & Fong, 2007).

Failures in the self-regulation of health behaviour can result from failures of any of the aspects of self-regulation listed above, for example, failure to define an appropriate goal or to accurately monitor progress. However, failures are common even when suitable goals are in place, people are motivated and progress is monitored. These failures happen when an individual’s self-regulatory capacity is insufficient (Heatherton & Wagner, 2011). Such failures are common and problematic (Baumeister et al., 1994; Baumeister & Heatherton, 1996).

Impaired self-regulatory capacity has been shown to adversely affect alcohol consumption, (Muraven et al., 2002), exercise, including non-adherence (e.g. Martin Ginis & Bray, 2010) and eating (Hofmann, Friese, & Roefs 2007; Sproesser Strohbach, Schupp, & Renner, 2011; Vohs & Heatherton, 2000; Ward & Mann, 2000). In a qualitative study of eighty-one obese emerging adults the most commonly reported reasons for weight gain amongst female undergraduate students were a lack of ability to control behaviours or overcome barriers, reflecting sub-optimal self-regulation (Johnson & Annesi, 2018). Conversely training in a self-control strategy has been found to be an effective way of reducing habitual unhealthy snacking (Tam, Bagozzi, & Spanjol, 2010). People lower in trait self-control report more impulse problems including overeating and problem drinking (Tangney, Baumeister, & Boone, 2004). Meanwhile those who are better able to self-regulate (scoring higher in trait self-control) are better off in a wide range of areas (including better educational grades, better self-esteem and fewer psychological problems) and less likely to engage in risky health behaviours such as harmful drinking (Quinn & Fromme, 2010).

Emerging adults face a unique set of challenges when it comes to self-regulatory capacity. Firstly, the very factors that characterise emerging adulthood also draw heavily on self-control resources. For example, instability is characteristic of this life stage. Instability may apply to many areas of emerging adult life, from instability of primary residence to work, friendships and romantic partners. Dealing with stressful life events (such as moving, starting a new job, or coping with a relationship break-up) requires self-control (Baumeister et al., 1999). A further consequence of instability is the need to manage new social relationships. Again, self-regulatory capacity is essential for this.

Furthermore, interacting with people who are not well known is a particularly demanding self-regulatory process (Forgas et al., 2009). Another characteristic of this life stage is identity exploration, yet with exploration of one's identity (for example in love, work, and world views), comes the potential for disappointment, rejection, and rejection of beliefs (Arnett, 2000; Arnett & Jensen, 1999). Managing emotional distress, again, requires self-regulation. Emerging adults experience new opportunities and freedoms (for example due to their new legal status as adults), increased independence, and reduced parental monitoring. It is a time of almost incomparable change on many levels (Wood et al., 2018). To live healthily as they navigate all of this, emerging adults need to be able to exert self-control, perhaps more than ever before.

However, the very act of exerting self-control has been found to temporarily impair subsequent self-control. This is referred to as 'ego depletion' (Baumeister et al., 1994; Baumeister, Vohs & Tice, 2007) and is the cornerstone of the 'strength model' of self-control, developed by leading self-regulation researchers (Baumeister et al., 1994; Baumeister et al., 1998). Much of the research into ego depletion has focused on the sequential-task paradigm in which randomly assigned participants in an experimental group complete a first task which requires self-control while those assigned to a control group complete a task which does not. In a subsequent task all participants must exert self-control. Participants who are ego depleted from the first task tend to perform worse on subsequent tasks requiring self-control (Hagger, Wood, Stiff, & Chatzisarantis, 2010). Ego depletion is not domain specific so, for example, exerting self-control in a cognitive task can affect self-control on a subsequent physical task (e.g., Bray, Martin Ginis, Hicks, & Woodgate, 2012; Hagger, et al, 2010). A meta-analysis of 83 relevant

studies found a medium-to-large effect of ego depletion on subsequent self-control ($d = 0.62$; Hagger et al., 2010). While there is debate about the magnitude of the effect (e.g. Hagger, et al., 2016) the weight of evidence suggests that self-regulatory impairment does moderate the intention-behaviour relationship. For example, in an experimental study Hofmann and colleagues found that dietary restraint standards were strongly related to candy consumption only for participants high in self-regulatory resources (for ego depleted participants, candy consumption was instead related to automatic attitudes; Hofmann, Rauch & Gawronski, 2007). Similar findings come from research into other areas of health behaviour such as alcohol consumption (Frieze, Hofmann & Wänke, 2008). Findings regarding the strength model of self-control are very relevant to emerging adults since much of the large body of research has involved young adults, many of whom are undergraduate students.

Finally, the self-regulation capacity of emerging adults is hampered because areas of the brain critical to self-regulation are still developing (Casey, Jones & Hare, 2008). The regulatory system of the prefrontal cortex (PFC) is vital for motivated behaviour (as described in Ernst et al., 2006), with successful self-regulation requiring top down executive control over subcortical limbic systems (Heatherton & Wagner, 2011). However, evidence from a range of study types (including post-mortem studies, comparative studies, and human magnetic resonance imaging studies) highlights that subcortical limbic systems mature earlier than the prefrontal cortical systems needed to bring impulses under control (Casey, Jones & Hare, 2008; Taber-Thomas & Perez-Edgar; 2015). During emerging adulthood there is increased prefrontal maturation, connectivity with the limbic system, and the emergence of a new balance between

aspects of prefrontal regulatory function, forming neural foundations for more future-oriented behaviour (Taber-Thomas & Perez-Edgar; 2014). This development and maturation of the PFC remains ongoing until around age 25 (Arain et al., 2013), the end of emerging adulthood. Furthermore, imbalances in developing frontolimbic function may predispose some emerging adults to greater risk of psychological disorders and substance abuse during this period (Taber-Thomas & Pérez-Edgar, 2015).

A combination of the independence, opportunities, freedoms, and challenges of emerging adulthood and the resulting need to exert self-control, combined with the ego depletion effect, and incomplete development of the neural substrates of self-regulation appear to put emerging adults at a considerable self-regulatory disadvantage. This may provide at least a partial explanation for the notable health behaviour failures evident during this life stage. There is therefore a need to identify and investigate processes and constructs that could bolster self-regulation in emerging adults.

1.5 Self-Compassion, Self-Regulation and Health Behaviour

It has been suggested that a construct that may enable better self-regulation is self-compassion (Sirois, 2015). Self-compassion has been conceptualized as comprising (1) self-kindness, (2) common humanity, and (3) mindfulness (Neff, 2003b). This means having awareness of ones' pain, inadequacies and failures (neither avoiding nor over-identifying with them), viewing them as part of the human experience (rather than being judgemental), and treating oneself with kindness (Neff, 2003b).

Studies have found that adults higher in self-compassion score more highly on a wide range of measures of psychological wellbeing including positive affect and global self-esteem (Krieger, Hermann, Zimmerman, & Holtforth, 2015), happiness, optimism,

wisdom, personal-initiative and curiosity (Neff, Rude, & Kirkpatrick, 2007). They also tend to have lower scores on measures of psychopathology such as depression, anxiety and stress (MacBeth & Gumley, 2012). Additionally, students higher in self-compassion are better able to manage the social and academic challenges of the transition from high school to college and report less depression and homesickness and less dissatisfaction with their decision to study at university (Terry, Leary, & Mehta, 2012).

Much of the research into self-compassion has been cross-sectional, making it difficult to draw conclusions about causality (Braun, Clark & Gorin, 2016). However researchers have demonstrated that it is possible improve self-compassion, for example using the eight-week Mindful Self-Compassion programme (MSC; Neff & Germer, 2013). Relatively brief interventions had also successfully increased self-compassion (Shapira & Mongrain, 2010; Smeets, Neff, Alberts, & Peters, 2014). For example, the intervention of Smeets and colleagues consisted of weekly sessions over three weeks along with homework exercises including ongoing use of an “intervention bracelet”, completion of a self-compassion journal, a daily loving-kindness meditation, personal self-compassion phrases, writing a self-compassionate letter and, finally, reading it (Smeets et al., 2014). Increases in self-compassion are associated with increased psychological well-being (Neff, Kirkpatrick & Rude, 2007), and the effects can be relatively long lasting. For example, students who wrote a compassionate letter to themselves once a day for a week experienced significant reductions in depression up to 3 months later and significant increases in happiness up to 6 months later compared with a control group (who had written about early memories; Shapira & Mongrain, 2010).

Amount of practice has been found to be related to improvement (Neff & Germer, 2013).

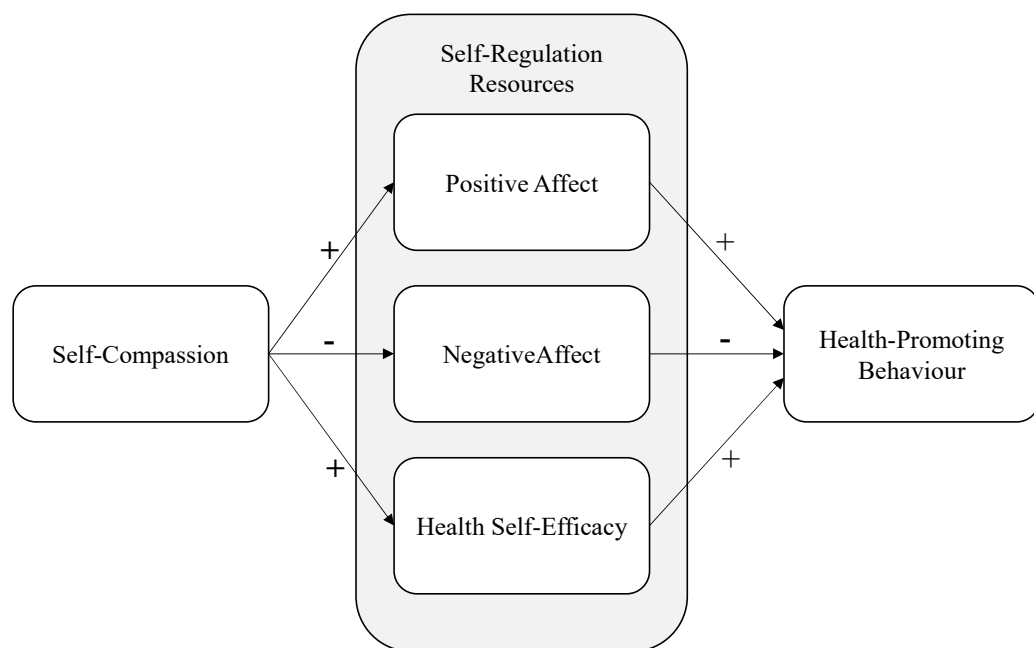
Recently, researchers have begun to investigate the relationship between self-compassion and physical health. Correlational research has demonstrated that self-compassion is positively associated with health behaviour intentions (Sirois, 2015), intrinsic motivation to exercise (Magnus, Kowalski & McHugh, 2010) and current practice of health-promoting behaviours (Sirois, 2015, Sirois, Kitner & Hirsch, 2014; Dunne, Sheffield & Chilcot, 2016). Ultimately self-compassionate people report better physical health (via indirect effects of health-promoting behaviours; Dunne et al., 2016).

Researchers have now begun to investigate the effect of self-compassion on the self-regulation of health behaviours. However to date very little experimental research has been reported. In a systematic review (Biber & Ellis, 2017) only two studies met the inclusion criteria. In their laboratory study Adams and Leary (2007) found that a self-compassion induction was positively linked to attenuating overeating after a dieting failure amongst participants prone to disordered eating behaviour. Amongst smokers wishing to quit Kelly and colleagues (Kelly, Zuroff, Foa, & Gilbert, 2010) reported that practicing self-compassionate imagery and self-talk supported smoking cessation for participants who were low in readiness to change, high in trait self-criticism, and experienced vivid imagery during intervention exercises.

A Self-Regulation Resource Model has now been developed (SRRM; Sirois, 2015) in which positive affect, negative affect and health self-efficacy act as self-regulatory resources, mediating the relationship between self-compassion and health-promoting behaviour as illustrated in Figure 1. The SRRM has been tested with an

emerging adult sample ($N = 403$) comprised of students and members of the local community using an online survey. This cross-sectional study provided initial support for the SRRM, with self-compassion found to be positively correlated with positive affect, health self-efficacy, current health behaviour, and health behaviour intentions, and negatively correlated with negative affect.

Figure 1 Self-Regulation Resource Model (SRRM; Sirois, 2015)



However, further research is needed in order to replicate these findings. Moreover, longitudinal research is needed to determine whether increasing self-compassion ultimately leads to improvements in health behaviours and, if so, whether this happens via changes to the defined self-regulatory resources. Specifically, randomised controlled trials (RCTs) will be necessary as these are considered the gold standard for establishing causality (Cartright, 2010).

Some further limitations of research to date will also need to be addressed. Firstly, the small amount of previous research in this area has used the Wellness Behaviours Inventory (WBI; Sirois, 2001) to measure health behaviours (Dunne et al., 2016, Sirois, 2015). Although the WBI has been found to have good convergent validity with other health behaviour measures (Sirois, 2007) it does not align with the four health behaviours targeted by the WHO. For example, it does not ask about alcohol or smoking and does not reflect current guidelines on physical activity. Furthermore it does include statements which are not directly related to the four risk factors, such as use of herbal supplements. Secondly, although positive affect, negative affect, and health-self efficacy are posited as self-regulatory resources in the SRRM (Sirois, 2015), no measure of overall self-regulatory capacity or self-control has been used. It is therefore not possible to definitively conclude that self-regulatory capacity improved, only that the associated resources improved.

1.6 The Present Study

Bringing together and building on research outlined above, the present study aims to develop and test the effect of a brief self-compassion intervention on a range of health behaviours in emerging adults. It will focus on the four health behaviours identified as key causative risk factors of NCDs. In line with the SRRM, the study will also examine the role of the specified self-regulation resources including a measure of overall self-control.

This is the first known study to attempt to test the SRRM for health behaviour change, therefore an intervention will be developed specifically for this purpose and participant group. A brief intervention is likely to be more practical for emerging adults,

given the inherent instability of emerging adulthood and the competing demands on attention and time (Arnett, 2004).

The study will take the form of a small, pilot RCT, testing firstly the effectiveness of the intervention, and secondly the alignment of the findings with the SRRM. It is important that this study takes the form of a pilot study in order to ensure that the intervention is not harmful, and to test the feasibility and efficacy of the intervention before conducting a larger trial. In terms of feasibility, the present study will be used to see if emerging adults will engage with this type of intervention, or whether drop-out rates will be high. It will also enable the required sample size for a subsequent full size RCT to be determined. Use of a pilot study is in line with guidelines of the Medical Research Council (MRC) which recommends an exploratory trial (MRC, 2000) or feasibility and piloting phase before running a full scale RCT (MRC, 2019 [Draft]).

1.7 Hypotheses

It was hypothesised that across time workshop participants would report greater improvements than waitlisted participants in (1) self-compassion, (2) self-regulatory resources (increased positive affect, health self-efficacy and overall self-control, and decreased negative affect), and (3) health behaviour. It was also hypothesised that for the workshop group (4) self-compassion practice would be positively related to improvement in self-compassion scores, and (5) improvements in self-compassion scores across time would be related to improvements in health behaviours. Across the whole sample, it was hypothesised that at baseline, as illustrated in the SRRM (6) self-compassion would be positively related to positive affect, health self-efficacy and overall self-regulation (self-control), and negatively related to negative affect, and (7)

current positive health behaviour (more physical activity, healthier diet, lower alcohol consumption and less smoking) would be positively related to self-compassion, positive affect, health self-efficacy and self-control but negatively related to negative affect.

2. Method

2.1 Design

This study was a pilot, waitlist-controlled Randomized Controlled Study (RCT) which was designed to compare the effect of a brief self-compassion intervention against a control condition and to test the Self-Regulation Resource Model (SRRM) of self-compassion (Sirois, 2015).

In this longitudinal, mixed design study the between participants factor was random allocation to an active condition (workshop attendance) or waitlist control condition. The within participants factor was time, with selected measures administered at baseline (T1), workshop one (T2), workshop 2 (T3), one week follow-up (T4) and six week follow-up (T5). Dependent variables (outcome measures) were self-reported self-compassion, physical activity, healthy eating, alcohol consumption, and cigarette consumption. Process measures were positive affect, negative affect, health self-efficacy, and self-control.

2.2 Participants

2.2.1. Recruitment

Ethical approval was obtained from Bournemouth University in advance of participant recruitment (BU Research Ethics Checklist Reference ID 9683, approved on 1st December 2015 (see appendix 1). Inclusion criteria were (1) age between 18 and 25 inclusive and (2) current Bournemouth University students (including those on placement). Prospective participants who did not meet these criteria were not able to take part. Potential participants were not excluded from taking part on physical or psychological health grounds. However, they were advised that if they were aware of

any pre-existing physical or psychological health condition, they should consult with relevant professionals involved in their care before agreeing to participate in this study. This was due to the focus on making changes to health behaviour.

It was anticipated that this study would primarily be of interest to Psychology students therefore posters were placed in the main thoroughfares of the Psychology department and outside relevant lecture theatres. The study was also posted on Bournemouth University research participation system (SONA). Posters and SONA directed potential participants to online information and an online consent form. Two options were offered for the workshops (consecutive Wednesdays or consecutive Thursdays).

2.2.2. Sample size.

The aim was to recruit sufficient participants to be able to run both sets of workshops (for example, with sufficient numbers for group discussion) and test the intervention in a meaningful way to inform a future RCT. In a pilot study and RCT assessing the MSC Neff and Germer (2013) reported significant gains in self-compassion with relatively small samples ($N = 21$ for the pilot study and $N = 52$ for the RCT). A sample size of between 24 and 48 was considered practical and appropriate for this pilot study.

2.2.3. Participant characteristics.

A total of 30 participants were recruited, with seventeen randomly allocated to the active (workshop) condition and thirteen to the waitlist control condition. Mean participant age was 19.77 (SD 1.04), with an age range of 18 to 23. Most participants were female (83%, $n = 25$), reflective of the larger proportion of female Psychology students at the university. A small number of participants were male (17%, $n = 5$) and no participants

reported being non-binary. The majority of participants classified themselves as White British (67%, $n = 20$) with the remaining participants representing a wide range of other ethnicities in small numbers as detailed in Table 1.

Table 1

Demographic Characteristics of Whole Sample and as a Function of Group

Variable	Whole Sample			Workshop			Waitlist		
	<i>n</i>	<i>M</i>	<i>(SD)</i>	<i>n</i>	<i>M</i>	<i>(SD)</i>	<i>n</i>	<i>M</i>	<i>(SD)</i>
Age	30	19.77	1.04	17	20.11	(1.05)	13	19.31	(0.85)
	<i>n</i>	%		<i>n</i>	%		<i>n</i>	%	
Sex									
Female	25	83		15	88		10	77	
Male	5	17		2	12		3	23	
Ethnicity									
White British	20	67		11	65		9	69	
Asian/Asian British: Indian	1	3		0	0		1	8	
Any other Asian Background	1	3		0	0		1	8	
Mixed: White & Black African	1	3		0	0		1	8	
Mixed: White & Asian	1	3		0	0		1	8	
Black/Black British: Caribbean	1	3		1	6		0	0	
Black/Black British: African	2	7		2	12		0	0	
Any Other White Background	2	7		2	12		0	0	
Any Other Mixed Background	1	3		1	6		0	0	

2.3 Materials

At each time point participants completed a survey comprised of a number of questionnaires as detailed in Table 2. Surveys were completed online except for those completed during workshops, where a paper version was provided.

Table 2

Measures by Time Point Administered

Time	T1	T2	T3	T4	T5
Outcome Measures					
Self-Compassion (SCS)	✓	✓	✓	✓	✓
Physical Activity (SPAQ-R)	✓			✓	✓
Healthy Eating (STC)	✓			✓	✓
Alcohol Consumption (DDQ)	✓			✓	✓
Cigarette Consumption	✓			✓	✓
Process Measures					
Positive and Negative Affect (PANAS)	✓	✓	✓	✓	✓
Health Self-Efficacy (CBI)	✓	✓	✓	✓	✓
Self-Control (BSCS)	✓	✓	✓	✓	✓
Additional Measures					
Health Behaviour Change			✓		
Self-Compassion Practice			✓	✓	✓

Note. SCS = Self-Compassion Scale; SPAQ-R = Scottish Physical Activity Scale (Revised); STC = Starting the Conversation; DDQ-R = Daily Drinking Questionnaire; SMOKE = cigarettes smoked in last 7 days; PANAS = Positive & Negative Affect Scale; CBI = Control Beliefs Inventory; BSCS = Brief Self-Control Scale.

2.3.1. Outcome measures

Self-Compassion Scale (SCS; Neff, 2003a).

The Self-Compassion Scale (SCS; Neff, 2003a) is a 26-item questionnaire designed to measure how self-compassionate people are in times of difficulty. It contains positive statements (such as “I try to be loving towards myself when I’m feeling emotional pain”) and negative statements (such as “I’m disapproving and judgmental about my own flaws and inadequacies”). Participants are asked to rate these using a five point Likert-type scale from ‘almost never’ to ‘almost always’. An overall self-compassion score is calculated, with higher scores reflective of greater self-compassion. It is possible to derive scores for six sub-scales (self-kindness, self-judgement, common

humanity, isolation, mindfulness, and over-identified) but for the present study only overall score was required to test the SRRM and be consistent with previous studies (in particular that of Sirois, 2015).

The SCS has been found to have good internal consistency ($\alpha=.93$) with both student and community samples (Neff, 2003a; Neff & Pommier, 2013) and is used extensively in self-compassion research.

Scottish Physical Activity Questionnaire - Revised (SPAQ-R; Bulley, Donaghy, Payne, & Mutrie, 2005).

The original Scottish Physical Activity Questionnaire (SPAQ; Lowther, Mutrie, Loughlan & McFarlane, 1999) is based on the previously validated Stanford seven day activity recall questionnaire (Blair et al, 1985). It was developed to create a physical activity questionnaire which would not require participant interview. The SPAQ has been demonstrated to be reliable, with concurrent validity with a stage of change model and an objective test (Caltrac motion sensor, excluding occupational walking, $r = 0.52$, $p < 0.05$), limited criterion validity, and a test-retest reliability of .998 (Lowther et al., 1999). It has been used to track physical activity change over time in older adults (mean age 52.9; Trinh, Mutrie, Campbell, Crawford, & Courneya, 2014). However, when tested with a (female) student population the SPAQ resulted in overestimates of physical activity (as compared with an objective measure; Bulley, Donaghy, Payne, & Mutrie, 2005). Bulley and colleagues modified the questionnaire and the revised version (SPAQ-R) was found to be more accurate. Estimates of physical activity were no longer significantly different from heart rate data. Correlation improved ($r = 0.59$) and limits of agreement analysis confirmed greater agreement between the measures (95% limits of agreement: 114.24 to 129.12; Bulley et. al, 2005). Although Bulley and colleagues only tested the SPAQ-R with females,

modifications were relevant to all students. Furthermore, in the present study, the majority of participants were female.

In the SPAQ-R participants specify the number of minutes spent each day over the previous seven days doing moderate or vigorous intensity physical activity in the following areas (1) walking while at university / placement or part-time work, (2) walking outside of university/ placement / part-time work, (3) manual labour outside work, (4) active housework, (5) dancing, (6) sport/ leisure activities or training, (7) cycling, and (8) other moderate or vigorous physical activities not already covered. A total score is calculated by adding up all minutes of physical activity. For this study a small number of very minor, non-material moderations were made to wording in the SPAQ-R. The main change was replacing the word 'outwith' (as in '*walking outwith work*'), which is not commonly used in England, with 'outside of'.

Starting the Conversation (STC; Paxton, Strycker, Toobert, Ammerman & Russell 2011)

Starting The Conversation (STC; Paxton et al., 2011) is an eight-item questionnaire derived from a longer, previously validated, 54 item food frequency questionnaire (Jilcott et al., 2007). Participants answer eight questions on eating patterns, such as "how many servings of fruit and vegetables did you eat each day?" by selecting the most appropriate range from three numerical ranges provided. A total score is obtained by adding scores for all items, with higher scores denoting more unhealthy eating patterns. The STC has been found to be a valid measure of diet which is both stable over time and sensitive to dietary intervention (Paxton et al., 2011). In a primary care intervention study ($N = 463$; Paxton et al., 2011), Paxton and colleagues found significant correlation between STC scores and fat intake (measured using NCI Percent Energy from Fat (PFAT) screener scores; $r = .039$, $p < 0.05$). Scores were

found to be stable over time for control participants (r ranged from .40 to .62, $p < 0.05$) whereas for intervention participants the STC captured significant improvement in change scores ($M = 1.16$ as opposed to $M = 0.46$ for control participants, $p < 0.05$). Change in STC scores also correlated with dietary fat reduction scores ($r = .022$, $p < 0.05$).

The Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985).

The Daily Drinking Questionnaire is a brief tool for measuring alcohol consumption (Collins, Parks, & Marlatt, 1985). High correlations have been found between the DDQ and other self-report measures of alcohol consumption and it may be more sensitive than other measures to changes in consumption (Kivlahan, Marlatt, Fromme, Coppel, & Williams, 1990). Measures of weekly drinking have been shown to be a reliable index of alcohol related problems amongst those in higher education (Borsari, Neal, Collins, & Carey, 2001). The DDQ has been used in alcohol studies in college students (e.g. Morean & Corbin, 2008) and internal reliability of $\alpha = .79$ has been reported (Corbin, Morean & Benedict, 2008). It has also been found to be sensitive to change in alcohol consumption (Borsari & Carey, 2000). For the present study two modifications were necessary. Firstly, the DDQ asks about quantity of alcohol consumed per day over a typical week in the last 30 days. This was modified for this study to refer to the previous seven days. Secondly, the term ‘standard drink’ is not widely used in the UK therefore this was changed to ‘units of alcohol’. Examples were also amended accordingly.

Smoking (questions devised for this study).

Participants were asked if they smoked and, if so, how many cigarettes they had smoked per day over the previous seven days (following the same format as the alcohol questions).

2.3.2. Process measures.

Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988)

The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) consists of 20 words that describe different feelings and emotions. Ten are positive and ten are negative. Participants are asked to rate how they have been feeling over the past week using a 5-point Likert scale from one ('very slightly or not at all') to five ('extremely'). The PANAS provides two scores, one for positive affect and one for negative affect, with higher scores on each representing higher levels of affect. It has been shown to have good reliability and validity (Watson et al., 1988).

Control Beliefs Inventory (CBI; Sirois, 2002)

The eight item health self-efficacy subscale of the Control Beliefs Inventory (CBI; Sirois, 2003b) is designed to measure perceived health self-efficacy. Participants are asked to rate the extent to which they agree with positive items (e.g. "I am certain that with effort I can improve my health") and negative items on a 6-point Likert type scale (from 'strongly disagree' to 'strongly agree'). Higher scores reflect greater levels of health self-efficacy. The health self-efficacy subscale has been found to have good convergent validity ($r = .45$; Sirois, 2003a) with the Generalized Self-Efficacy scale (Schwarzer & Jerusalem, 1995) as well as good internal consistency ($\alpha = .84$; Sirois, 2015).

Brief Self-Control Scale (BSCS; Tangney, Baumeister & Boone, 2004)

The Brief Self-Control Scale (BSCS; Tangney, Baumeister & Boone, 2004) is a 13-item subset of the Self-Control Scale used to measure trait self-control. Participants rate statements using a five-point Likert-type scale with answers ranging from one ('not at all like me') to five ('very much like me'). Some are positively scored (e.g. "I am able to work effectively toward long-term goals" while others are reverse scored.

Higher scores reflect greater levels of self-control. The BSCS has good internal consistency ($\alpha=.83$ and $\alpha=.85$) and retest reliability (.87; Tangney, Baumeister & Boone, 2004).

2.3.3. Additional measures.

Health behaviour change (question devised for this study).

Participants were asked a single question regarding desired health behaviour change. Workshop participants were asked ‘In which area have you chosen to make a positive change to your health behaviour?’ and could choose from (1) physical activity / exercise; (2) healthy eating, (3) alcohol intake, and (4) smoking. Waitlisted participants were asked a hypothetical version of this question.

Self-compassion practice (questions devised for this study).

Workshop participants were asked how many minutes they had spent doing planned practice (i.e. practices that they had set aside time to do) each day over the previous seven days, excluding any time in the workshops. They were also asked how many minutes they had spent engaged in ad hoc practice (i.e. practice they did because it was useful in the moment) each day over the previous seven days. This excluded practice completed at workshops.

2.3.4. Written and audio materials for workshops.

The researcher and supervisor of the present study jointly agreed the workshop design and structure. Written materials were designed and developed by the researcher. Mindfulness and self-compassion audio exercises were recorded by Dr. Helen Bolderston. Written materials comprised MS Powerpoint slides presented and discussed at the workshops, and MS Word templates completed by participants at the workshops, as below. These are also included in the appendices.

1. Workshop one slides (appendix 8)

2. Workshop two slides (appendix 74)
3. Encouraging letter to self template (appendix 5)
4. Bullseye worksheet template (appendix 6)
5. Setting healthy behaviour goals (appendix 7)

Audio materials from the study can be accessed from Microsoft Dropbox (Microsoft Dropbox, n.d.).

2.4 Procedure

2.4.1. Random allocation.

Potential participants could read about the study online (see appendix 2) and request further information if needed. Informed consent was given online (see appendix 3) and participants also specified whether they preferred to attend on Wednesdays or Thursdays.

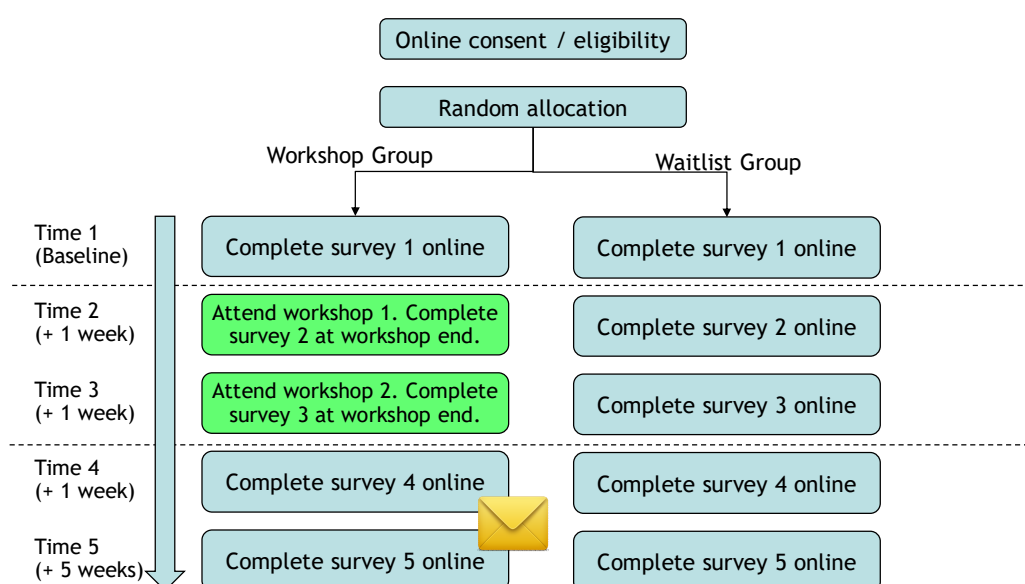
Block randomisation was completed independently by a member of the university Psychology department who was otherwise unconnected to the study. A total of 14 blocks of 6 participants were generated based on the guidance of Suresh (2011) using <http://www.randomization.com/>. These blocks were then provided to the researcher who notified participants which group they had been allocated to booked workshop participants onto their preferred days.

2.4.2. Workshop attendance & survey completion.

Workshop participants attended two workshops, either on consecutive Wednesdays or consecutive Thursdays (content was the same for each option). Each workshop lasted two hours with an additional fifteen minutes for survey completion at the end. Workshops were held in small seminar rooms at the university and facilitated by Dr. Helen Bolderston, Clinical Psychologist, with the researcher also in attendance.

Waitlisted participants only completed online surveys, one at each time point. After completion of the study they were offered the opportunity to attend workshops re-run solely for them (no waitlisted participants took up this invitation) and all materials used were made available to them. The procedure for both groups is illustrated in figure 2 and described below.

Figure 2 Procedure for Workshop and Waitlist Group



T1 (baseline).

One week before the first workshop all participants were sent an email link to the survey and given one week to complete this. Follow-up email reminders were sent during the week. Completion was a pre-requisite to further participation in the study.

T2 (workshop 1).

Workshop participants attended their first workshop one week later, on either Wednesday or Thursday (24th or 25th February). This was structured as follows:

1. Introductions and ground rules
2. Introduction to self-compassion

3. Introduction to mindfulness
4. Brief practice: ‘mindful awareness of sensations in the feet’ and group reflection
5. Break (10 minutes)
6. Brief practice: ‘mindfulness of breath’ and group reflection
7. Links between self-compassion and health behaviours
8. Brief self-compassion practice: ‘three-step self-compassion for everyday practice’ and group reflection
9. Introduction to between-session practice
10. Questions
11. Questionnaire completion

Participants were offered the opportunity to practice self-compassion between sessions and advised that this could include planned practice (brief mindfulness of breath or everyday self-compassion practice, once per day) or ad hoc practice (such as mindfulness of feet, when needed). Practices were designed to be brief so that it was realistic to find time for them, and participants could choose whether or not to practice. At the end of the workshop participants were provided with paper copies of the survey to complete. Afterwards they were sent a link to resources from the workshop (Microsoft Dropbox, n.d.) and a link to Kristin Neff’s short video on self-compassion (Neff, 2013). Participants were advised that it was useful but that it was their choice whether to watch it or not.

Meanwhile, waitlisted participants were sent an email with a link to the T2 online survey and given one week to complete this. Email reminders were sent later in the week to participants who had not yet completed the survey.

T3 (workshop 2).

Workshop participants attended their second workshop one week after the first. This was structured as follows:

1. Recap from week one
2. Brief self-compassion practice: ‘three-step self-compassion for times of difficulty’ and group reflection
3. Group reflection on the week
4. The four health areas
5. Identification of an area for health behaviour change
6. Break (10 minutes)
7. Introduction to goal setting
8. Individual health behaviour goal setting (for worksheet see appendix 7)
9. Identification of barriers
10. Brief practice (mindfulness of breath), as in workshop one
11. Writing a compassionate letter to self (for worksheet see appendix 5)
12. Explanation of the follow-up process
13. Questions
14. Questionnaire completion (final 15 minutes)

For post-workshop practice, participants were invited to work towards the health behaviour goals they had set and do planned or ad hoc practice, as before. Participants were reminded that they would receive follow-up surveys and their self-compassionate letters. Links to the self-compassion websites of Kristin Neff (Neff, n.d.) and Christopher Germer (Germer, n.d.) were provided in case participants wanted to learn more. Finally, they completed the T3 survey. This included questions on which area of health behaviour they had chosen to improve and minutes of practice undertaken over the previous week.

While workshop participants attended the second workshop, waitlisted participants were sent an email with a link to the T3 online survey and advised that they had one week to complete this. Their survey included a hypothetical version of the health behaviour question. Email reminders were sent later in the week to participants who had not completed the survey.

T4 (follow-up one week later).

One week after workshop 2, all participants were sent an email with a link to the T4 survey and given one week to complete this. For participants in the workshop group this included the additional questions about self-compassion practice. Self-compassionate letters were posted to workshop participants after T4.

T5 (follow-up six weeks later).

Six weeks after the final workshop, all participants were sent an email with a link to the T5 survey and given one week to complete this. Six week follow-up was chosen in order to enable participants to have returned from the Easter break and spent a few days back in their normal routine. The survey was the same at T5 as at T4, with a final page which thanked participants for their participation (see appendix 4). Once participants had completed the final questionnaire they were awarded SONA credits. Those in the waitlist group were also offered the opportunity to attend workshops and given access to workshop materials via the dropbox link. This was to ensure that waitlist participants could still benefit from the intervention.

2.4.3. Audio recording and adherence rating.

For RCTs testing the impact of a psycho-educational intervention it is best practice to record the therapist or facilitator to ensure that they are competently providing the intervention. Permission to record workshops was therefore agreed as part of the ethical approval process and participants were made aware that sessions might be

recorded for this purpose. There is currently no official adherence rating scale for mindfulness-based self-compassion interventions. Development of such a scale will be a necessary and important future step, but is beyond the scope of this study.

2.5 Statistical Methods

2.5.1. *Missing data*

Survey data was exported to SPSS 23 (IBM, 2015) for analysis, and anonymised. For missing items a decision was taken to adopt intention-to-treat (ITT). This is a recommended strategy (Moher, Schulz, & Altman, 2001) which gives a conservative estimate of the effectiveness of an intervention since data from all participants, whether or not they complete the study, is analysed. Individual missing items were identified and managed by calculating and inputting the sample means, as recommended by Tabachnick and Fidell (2001). An advantage of using ITT is that it results in a more accurate estimate of the treatment effect than other approaches (such as per-protocol or as-treated; McCoy, 2017). Missing surveys (where participants had missed an entire survey at a time point) were managed using Last Observation Carried Forward (LOCF; Streiner & Geddes, 2001). This is a common method of managing missing data (Spokas, Rodebaugh, & Heinberg, 2008) which involves carrying forward the last data collected from a participant. A potential risk is that it may mask harm caused by an intervention; however the risk was considered low in this case.

2.5.2. *Normality testing*

Normality was tested using the Shapiro-Wilk test (as this sample is less than 50 participants, Mayers, 2013). Data for most measures met the assumption of normality, however there were a small number of exceptions. Further exploration included a review of outliers, skew and kurtosis, z scores, and box plots. Removal of outliers could not be justified as scores appeared valid and largely consistent across time. For

health self-efficacy scores (T1, waitlist group) z-scores were acceptable (i.e. not greater than plus or minus 1.96; Mayers, 2013). This was also the case for smoking (T1 in the workshop group and T5 in the wait-list group). For self-compassion (T2 to T5 in the workshop group) and negative affect (T2, T3 and T4 in the waitlist group and T3 in the workshop group) z-scores exceeded limits and the data were positively skewed. Log transformation was administered. For self-compassion scores, log transformed data met assumptions of normality at all time points with the exception of T3 in the workshop group. For negative affect, log transformed data met assumptions of normality for all time points in the workshop group. For the waitlist group the Shapiro-Wilk test remained significant at T2, T3 and T5; however z-scores were within limits. A decision was taken to proceed with parametric testing. An alternative would have been to use non-parametric tests. However, ANOVA is relatively robust to issues of normality (Schmider, Ziegler, Danay, Beyer & Bühner, 2010).

2.5.3. Analysis strategy

Main effects were analysed using mixed (two-way) multi-factorial ANOVAs. Significant main effects were then examined using independent *t* tests and repeated measures one-way ANOVAs. Effect sizes (Cohen's *d*) were calculated. As this is a small pilot study ($N = 30$) and not fully powered, post hoc analysis was also conducted where the interaction did not reach significance but effect sizes were medium or large. This approach has been used previously in pilot studies to obtain data to inform future powered trials (e.g. Lynch, Morse, Mendelson, & Robins, 2003).

Pearson's correlations were computed to test for associations between aspects of the SRRM at baseline. Pearson's correlations were also used to test for an association between self-compassion practice and improvements in self-compassion. As the sample was too small for formal mediation analysis, residual gain (RG) scores

were calculated and Pearson's correlations computed to test for associations between (1) self-compassion practice and improvements in self-compassion, and (2) T1 to T3 improvements in self-compassion and T4 to T5 improvements in health behaviour; that is, to test whether there was a relationship between changes in self-compassion and subsequent changes in health behaviour. In order to capture health-behaviour improvements that occurred between workshop two (T3) and one-week follow-up (T4) RG scores were also calculated for T1 to T5 improvement in health behaviour (health behaviour was not measured at T3 therefore it was not possible to calculate RG T3 to T4). Residual gain scores were calculated, as recommended by Steketee and Chambless, as these account for repeat testing (Steketee & Chambless, 1992).

Two-tailed tests were reported rather than one-tailed. This was because although specific predictions about the direction of the differences between groups were made, the alternative possibility was also of interest. Contrary to predictions, Neff and Germer discovered that their control group significantly improved in self-compassion over the course of their eight-week program (Neff & Germer, 2013). While this was not predicted in this brief intervention, alternative outcomes were nonetheless of interest, particularly given that the self-compassion intervention was developed specifically for this study and was therefore untested.

3. Results

3.1. Recruitment

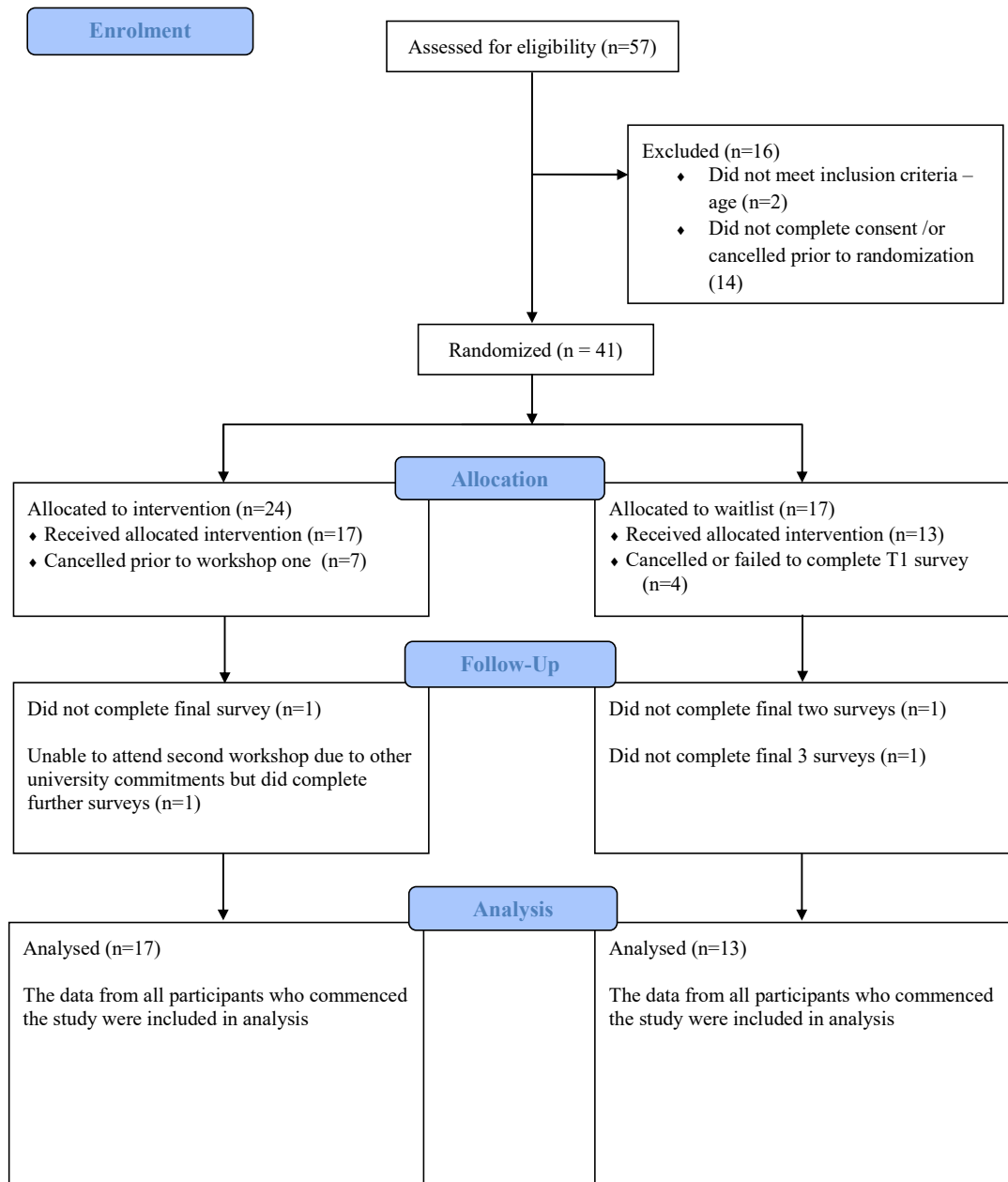
Participant recruitment took place during January and February 2016. Workshops were held in February and March 2016 and follow-up for all participants was completed in April 2016, six weeks after the final workshop.

3.2. Participant Flow

A total of 57 potential participants expressed interest in the study (as in Figure 2) by commencing the process of providing informed consent. Two exceeded the age criteria (maximum age 25) and 14 expressed an interest but either did not complete consent or cancelled prior to randomisation. A further 11 cancelled once they had been advised which group they were in (seven in the workshop group and four in the waitlist control group). Reasons given related to study commitments and inability to attend both workshop dates (for those allocated to the workshop group) or to exceeding the maximum number of SONA credits that could be earned through participation in online studies (for those allocated to waitlist control).

A total of 30 participants started the pilot study, with 17 randomly allocated to the active (workshop) condition and 13 to the waitlist control condition. In the workshop group one participant attended the first workshop but was unable to attend the second due to other university commitments. This participant did continue to complete questionnaires.

Figure 3 *Participant Flow for this Study using Consolidated Standards of Reporting Trials (CONSORT) Flow Chart*



In the completed questionnaire sets there was very little data missing (only nineteen items out of several thousand). Eight items were missed at T1, one at T2, three at T3, seven at T4 and none at T5. Missed items were individual items omitted by different

participants across different questionnaires rather than one participant failing to answer a number of questions. These were managed by calculating and inputting sample means, as recommended by Tabachnick and Fidell (2001). Where a full survey was missing at any time point (as in Table 3) LOCF was applied. For the workshop group LOCF only had to be applied in two cases. In each case one set of follow-up data was available since one participant had missed a survey at T4 but not T5 while the other had done the reverse.

Table 3

Number of Missing Surveys by Time Point and Group

Time Point	Group	
	Workshop	Waitlist
T1	0	0
T2	0	1
T3	0	3
T4	1	3
T5	1	2

Overall only 2% of data was missing from the workshop group. There were a greater number of missing surveys from the waitlist control group (in particular from one participant who failed to complete the final three surveys) and overall for the study 8% of data was missing. With LOCF applied, data from all participants to start the study was analysed in accordance with the decision to use ITT analysis.

3.3. Missing Data

Prior to data analysis a decision was taken to exclude the SPAQ-R data (physical activity) from one participant in the workshop group as they had reported an impossibly high number of minutes of exercise per day. The alcohol consumption data from another participant was also excluded as their alcohol consumption at T1 was impossibly high. Non-smokers were automatically excluded from analysis of smoking data however it was identified that two smokers in the waitlist control group

and one in the workshop group had classified themselves as smokers to T4 but as non smokers at T5. To ensure that smoking data from these participants was not automatically excluded from analysis they were given a score of zero (cigarettes smoked) at T5.

3.4. Preliminary Analysis.

3.4.1. *Baseline significance testing.*

In line with CONSORT recommendations (Moher et al., 2010), significance testing of differences between groups at baseline has not been conducted. As de Boer et al. (2015) highlight, it should be clear from the methods section whether or not randomisation has been performed adequately. Provided that it has, differences between RCT groups must necessarily be due to chance. Baseline significance testing is therefore superfluous. It can also be misleading. This occurs when results are interpreted as a measure of the size or importance of between-group differences. Differences too small to affect the outcome may be statistically significant while larger differences may be statistically non-significant, in particular in small studies (Moher et al., 2010).

CONSORT recommends that instead of baseline significance testing researchers review baseline data for differences in demographic and clinical characteristics (in particular where baseline measures are outcome measures). Although a decision has been taken not to conduct baseline significance testing, independent *t tests* conducted as part of hypothesis testing confirmed that there were no significant differences between groups at baseline on any process or outcome measure.

3.4.2. *Baseline characteristics.*

Demographic data is presented in Table 1. Mean process and outcome scores at baseline (and for all other time points) is presented Table 4. At baseline mean process

measure scores were broadly similar across groups and mean outcome measures scores were also largely comparable, with some notable points of interest. Firstly, there was wide variation in physical activity across both groups. For the waitlist group the average number of minutes physically active (including all physical activity) was 991.38 ($SD = 834.81$) and for the waitlist group the average was 987.81 ($SD = 873.71$). Nine hundred minutes is equivalent to fifteen hours. High scores with wide variation means that some participants were very active and others were much less so. Both mean activity levels and high standard deviation were similar across both groups. Secondly, a number of participants across both groups identified as non-drinkers. This reduced the number of participants with alcohol consumption data for analysis to 14 in the workshop group and 12 in the waitlist group. Finally, most participants identified as non-smokers, leaving only five in the workshop group and four in the waitlist group for data analysis. Given such small numbers, any changes to smoking behaviour must be reported with caution.

3.4.3. Mean scores by time point.

Mean process and outcome scores for all time points are presented in Table 4. For workshop participants, mean scores on all process and outcome measures changed in the predicted direction between T1 and T5 with the exception of physical activity (which reduced) and smoking (which increased).

Table 4

Mean (SD) of Process and Outcome Measures as a Function of Group

Variable	Time 1 (T1)			Time 2 (T2)			Time 3 (T3)			Time 4 (T4)			Time 5 (T5)		
	<i>n</i>	<i>M</i>	(<i>SD</i>)	<i>n</i>	<i>M</i>	(<i>SD</i>)	<i>n</i>	<i>M</i>	(<i>SD</i>)	<i>n</i>	<i>M</i>	(<i>SD</i>)	<i>n</i>	<i>M</i>	(<i>SD</i>)
Group 1 (Workshop)															
SCS _a	17	2.79	(0.75)	17	2.64	(0.66)	17	2.98	(0.59)	17	3.16	(0.61)	17	3.28	(0.61)
PANAS + _a	17	30.94	(7.44)	17	30.29	(8.32)	17	32.41	(7.44)	17	32.82	(6.43)	17	32.59	(7.19)
PANAS - _a	17	28.12	(6.25)	17	25.00	(5.33)	17	23.65	(7.03)	17	20.29	(5.06)	17	23.82	(6.68)
CBI _a	17	28.76	(6.63)	17	29.53	(6.67)	17	31.24	(6.65)	17	31.53	(6.08)	17	33.18	(6.87)
BSCS _a	17	33.00	(7.39)	17	31.35	(7.58)	17	31.53	(6.87)	17	34.47	(6.98)	17	34.41	(7.85)
SPAQ-R _b	16	987.81	(873.71)	-	-	-	-	-	-	16	744.44	(615.68)	16	692.88	(417.62)
STC _b	17	7.47	(2.74)	-	-	-	-	-	-	17	6.76	(2.31)	17	6.65	(2.15)
DDQ _b	13	12.07	(12.15)	-	-	-	-	-	-	12	11.92	(9.15)	12	10.15	(8.87)
SMOKE _b	5	31.00	(24.94)	-	-	-	-	-	-	5	33.20	(28.47)	5	34.40	(25.19)
Group 0 (Waitlist)															
SCS _a	13	2.87	(0.84)	13	2.90	(0.85)	13	2.86	(0.78)	13	2.93	(0.72)	13	2.90	(0.88)
PANAS + _a	13	29.69	(9.58)	13	31.54	(7.02)	13	29.62	(9.47)	13	27.54	(10.41)	13	30.31	(10.29)
PANAS - _a	13	24.00	(8.28)	13	22.23	(7.90)	13	21.54	(7.76)	13	21.85	(8.73)	13	21.00	(7.80)
CBI _a	13	30.77	(7.99)	13	31.92	(8.88)	13	31.00	(8.02)	13	30.15	(8.14)	13	31.92	(9.21)
BSCS _a	13	34.62	(11.07)	13	33.31	(10.58)	13	33.92	(10.05)	13	35.31	(9.92)	13	33.77	(10.12)
SPAQ-R _b	13	991.38	(834.81)	-	-	-	-	-	-	13	935.62	(679.76)	13	994.38	(685.44)
STC _b	13	5.77	(2.49)	-	-	-	-	-	-	13	5.92	(2.14)	13	6.15	(3.46)
DDQ _b	12	13.75	(11.92)	-	-	-	-	-	-	12	17.42	(12.46)	12	11.67	(8.63)
SMOKE _b	4	25.50	(17.64)	-	-	-	-	-	-	4	27.50	(19.77)	4	9.50	(19.00)

Note. SCS = Self-Compassion Scale; PANAS + = Positive & Negative Affect Scale (Positive Affect); PANAS - = Positive & Negative Affect Scale (Negative Affect); CBI = Control Beliefs Inventory; BSCS = Brief Self-Control Scale; SPAQ-R = Scottish Physical Activity Scale (Revised); STC = Starting the Conversation; DDQ = Daily Drinking Questionnaire; SMOKE = cigarettes smoked in last 7 days.

_a Process Measures _b Outcome Measures

For the waitlist group there was less difference in mean scores from T1 to T5. Some scores improved slightly (e.g. negative affect) whereas others worsened slightly (e.g. self-control, healthy eating). The most notable change was a reduction in mean smoking, however this was influenced by one waitlist participant who quit smoking.

3.5. Main Analysis

3.5.1. Impact of the intervention.

Hypothesis one: self-compassion.

It was hypothesised that across time workshop participants would report greater improvements in self-compassion than waitlisted participants. In line with this hypothesis, log transformed mean scores highlight an increase in self-compassion between T1 and T5 for the workshop group but not the waitlist group, as detailed in Table 5.

Table 5

Log Transformed Self-Compassion Scores by Group and Time

	Self-Compassion Scores								
	Main Effects			Group vs Time					
				Group 1 (Workshop)			Group 0 (Waitlist)		
Time	<i>M</i>	<i>SE</i>	<i>n</i>	<i>M</i>	<i>SE</i>	<i>n</i>	<i>M</i>	<i>SE</i>	<i>n</i>
T1	.44	.02	13	.43	.03	17	.44	.03	13
T3	.46	.02	13	.47	.02	17	.44	.03	13
T5	.48	.02	13	.51	.03	17	.44	.03	13
Group									
1 (Workshop)	.47	.03	17						
0 (Waitlist)	.44	.03	13						

Log transformed data were analysed using a mixed (two-way) multi-factorial ANOVA, as described previously. Box's M test (homogeneity of variance-covariance matrices) was significant ($p < .001$) however this has limited relevance in mixed multi-factorial ANOVA (Mayers, 2013). There was no significant effect of group (as in Table 6) however there was a significant within-group difference for time, $F(1.49, 41.79) = 5.06$, $p = .018$; $d = .43$). Bonferroni adjusted post hoc tests indicated a

significant difference in self-compassion scores between T1 and T5 ($p = .026$), a marginally significant difference between T3 and T5 ($p = .051$), and no significant difference between T1 and T3. There was also a significant interaction between group and time, $F(1.49, 41.79) = 4.70, p = .023; d = .41$. Further examination using independent t tests confirmed that there were no significant differences in self-compassion by group at any time point. A repeated measures one-way ANOVA confirmed that for workshop participants, but not waitlisted participants, there was a significant improvement in self-compassion $F(1.23, 19.60) = 7.62, p = .009; d = .69$. Bonferroni adjusted post hoc tests confirmed that significant improvements in self-compassion for workshop participants took place between T1 and T5 ($p = .014$) and between T3 and T5 ($p = .001$). The increase between T1 and T3 was not significant.

Hypothesis two: self-regulatory resources.

It was hypothesised that across time workshop participants would report greater improvements than waitlist control participants in self-regulatory resources (increased positive affect, health self-efficacy and overall self-control, and decreased negative affect). Mean scores generally changed in the predicted direction between T1 and T5 for the workshop group while they remained more constant for the waitlist control group, as detailed in Table 4. A series of mixed, multi-factorial ANOVAs were run, one for each of the three self-regulatory resources and one for overall self-control (outcomes are detailed in Table 6).

Mean positive affect increased more in the workshop group than in the waitlist control group (as in Table 4), however a mixed multi-factorial ANOVA revealed no significant main effect of group, time or interaction and effect sizes were small.

Table 6
Summary of Multi-Factorial ANOVAs for Self-Compassion & Process Measures

Process Predictor	Measure/	<i>df</i>	<i>F</i>	<i>p</i>	<i>d</i>
Self-Compassion ^a					
Group		1	0.58	.452	0.50
Error		28			
Time ^b		1	5.06*	.018	0.43
Interaction ^b		1	4.70*	.023	0.41
Error ^b		42			
Positive Affect					
Group		1	0.65	.425	0.15
Error		28			
Time ^b		1.46	0.29	.679	0.10
Interaction ^b		1.46	0.14	.804	.007
Error ^b		41			
Negative Affect ^a					
Group		1	2.53	.123	0.30
Error		28			
Time		2	5.94**	.005	0.46
Interaction		2	0.34	.712	0.11
Error		56			
Health Self-Efficacy					
Group		1	0.00	.947	0.01
Error		28			
Time		2	4.75*	.012	0.41
Interaction		2	1.70	.191	0.25
Error		56			
Self-Control					
Group		1	0.13	.719	0.07
Error		28			
Time		2	1.39	.258	0.22
Interaction		2	1.67	.198	0.24
Error		56			

Note: ^a log transformed scores; ^b Using Greenhouse-Geisser estimates of sphericity

* $p < .05$

** $p < .01$

For negative affect a mixed multi-factorial ANOVA on log transformed scores indicated no significant difference between groups but a significant within-group effect of time ($F(2,56) = 5.94, p = .005; d = 0.46$). Bonferroni post hoc tests confirmed that decrease in negative effect was significant differences between T1 and

T3 ($p = .018$) and T1 and T5 ($p = .033$). The interaction between group and time point was not significant. However, a repeated measures one-way ANOVA confirmed that the reduction in negative affect was significant for workshop participants, $F(2, 32) = 4.41, p = .020; d = .52$) but not for waitlist control participants. Bonferroni adjusted post hoc tests confirmed that this significant decrease in negative affect for workshop participants took place between T1 and T3 ($p = .032$), with the decrease between T1 and T5 marginally significant ($p = .089$).

For health self-efficacy a mixed multi-factorial ANOVA indicated that there was no significant difference between groups. There was, however, a significant within-group difference for time point ($F(2, 56) = 4.75, p = .012; d = .41$). Bonferroni post hoc tests confirmed a significant difference in health self-efficacy scores between T1 and T5 ($p = .033$). There was no significant main effect for interaction. However given the medium effect size, post hoc analysis was conducted. A repeated measures one-way ANOVA confirmed a significant increase in health self-efficacy in the workshop group, ($F(1, 16) = 8.38, p = .011; d = .60$) but not the waitlist group. Bonferroni adjusted post hoc tests confirmed that the significant increase in health self-efficacy for workshop participants occurred between T1 and T5 ($p = .032$). Increases in health self-efficacy between other time points were not significant.

For self-control a mixed multi-factorial ANOVA identified no significant main effects of group, time or interaction, as detailed in Table 6. Although not significant, the interaction effect size was medium, therefore independent t tests and a repeated measures one-way ANOVA were used to examine the data further. Independent t tests confirmed that there were no significant differences between groups at any time. However the repeated measures one-way ANOVA identified a significant increase in self-control in the workshop group ($F(2, 32) = 3.51, p = .039; d = .47$). Bonferroni

adjusted post hoc tests confirmed that this significant increase occurred between T3 and T5 ($p = .011$). Increases between other time points were not significant.

Hypothesis three: health behaviours.

It was hypothesised that across time workshop participants would report greater improvements in health behaviours than the waitlist control group. Contrary to predictions mixed (two-way) multi-factorial ANOVAs indicated that there were no significant main effects of group, time or interaction (as detailed in Table 7).

Table 7
Summary of Mixed Multi-Factorial ANOVAs for Output Measures (Health Behaviours)

Variable	<i>df</i>	<i>F</i>	<i>p</i>	<i>d</i>
Physical Activity ^a				
Group	1	0.54	.471	0.14
Error	27			
Time	2	1.18	.316	0.21
Interaction	2	0.92	.406	0.18
Error	54			
(Un)Healthy Eating				
Group	1	1.58	.219	0.24
Error	28			
Time	2	0.23	.794	0.09
Interaction	2	1.05	.356	0.19
Error	56			
Alcohol Consumption ^b				
Group	1	0.67	.423	0.17
Error	23			
Time	2	1.70	.195	0.27
Interaction	2	0.61	.548	0.16
Error	46			
Smoking ^c				
Group	1	0.64	.449	0.30
Error	7			
Time ^d	1.09	2.51	.153	-
Interaction ^d	1.09	4.09	.078 [†]	-
Error ^d	7.63			

^a $n = 16$ (workshop) and 13 (waitlist control). ^b $n = 13$ (workshop) and 12 (waitlist control). ^c $n = 5$ (workshop) and 4 (waitlist control). ^d Greenhouse-Geisser corrected values.

[†] $p < .10$

* $p < .05$

There was a marginally significant improvement in smoking in the waitlist control group ($F(1.090, 7.63) = 4.085, p = .078$) however this is based on data from only four smokers therefore this finding should be interpreted with considerable caution. Where effect sizes were medium, independent t tests or repeated measures one-way ANOVAs were conducted, and all results were non-significant.

Participants had specified which health behaviour they wanted to change, with waitlist control participants given a hypothetical version of the question (choices are detailed in Table 8). To determine whether health behaviour choice had a significant impact on health behaviour, mixed (three-way) multi-factorial ANOVAs were conducted across time points T1, T4 and T5, with both group and health behaviour choice as between participants factors.

Table 8

Health Behaviour Choice as a Function of Group and For Whole Sample

Health Behaviour Choice	Number of Participants Choosing Each Health Behaviour by Group		
	Workshop	Waitlist	Whole Sample
Physical Activity	9	6	15
Healthy Eating	6	5	11
Alcohol Consumption	0	0	0
Smoking	0	1	1
Did not Specify	2	1	3

Mixed multi-factorial ANOVAs taking into account participant health behaviour choice indicated that for physical activity and healthy eating there were no significant main effects, as detailed in Table 9. Unexpectedly, the data indicated significant findings for alcohol consumption despite no participant choosing to make a change to this behaviour. For smoking there was a significant effect of group and health behaviour choice. Overall, amongst all participants (across both groups who had chosen to improve physical activity, mean alcohol consumption reduced from 17.03 (SE 3.50) to 10.35 (SE 2.65). Repeated measures (one-way) ANOVAs

identified marginally significant changes in alcohol consumption between T1 and T5 for participants (whole sample) who chose to improve physical activity ($F(2,24) = 2.82, p = .079$) with consumption reducing significantly between T1 and T4 ($p = .012$), and the reduction marginally significant between T4 and T5 ($p = .076$).

Table 9
Mixed Multi-Factorial ANOVAs for Output Measures by Group and Health Behaviour Choice

Outcome Measure / Predictor	<i>df</i>	<i>F</i>	<i>p</i>	η^2
Physical Activity				
HB to Change	2	0.11	.897	.010
HB to Change x Group	1	1.82	.191	.080
Error	21			
SPAQ-R x HB to Change	4	0.74	.568	.066
SPAQ-R x Group01 x HB to Change	2	1.06	.354	.048
Error	42			
Healthy Eating				
HB to Change	2	0.37	.693	.033
HB to Change x Group	1	1.49	.235	.064
Error	22			
STC x HB to Change ^a	3.20	0.94	.435	.079
STC x Group01 x HB to Change ^a	1.60	1.83	.181	.077
Error ^a	35.19			
Alcohol Consumption				
HB to Change	2	1.70	.212	.167
HB to Change x Group	1	1.05	.320	.058
Error	17			
DDQ x HB to Change	4	4.07*	.008	.324
DDQ x Group01 x HB to Change	2	0.72	.494	.041
Error	34			
Smoking				
HB to Change	2	0.30	.761	.167
HB to Change x Group	1	0.74	.452	.199
Error	3			
SMOKE x HB to Change	4	23.31**	.001	.940
SMOKE x Group 01 x HB to Change	2	13.95*	.006	.823
Error	6			

Note. HB = Health Behaviour

^a Greenhouse-Geisser corrected values.

* $p < .05$

** $p < .01$

For participants who chose healthy eating there was a marginally significant increase in alcohol consumption ($F(2,14) = 2.78, p = .096$) but no significant change between any of the three time points. When examined by group there was no significant effect of health behaviour choice on alcohol consumption.

For smoking the significant effect of group and health behaviour choice was due to one participant in the waitlist group who wanted to quit smoking and reported doing so. As only one participant had selected smoking as the health behaviour to change, further analysis comparing groups was not possible. For those who did not opt to change smoking behaviour, repeated measures one-way ANOVAs confirmed that there were no significant changes in smoking between time points, when accounting for health behaviour choice, group, or both.

Hypothesis four: self-compassion practice and gains.

It was hypothesised that time practicing would be positively related to improvement in self-compassion scores. All but one participant completed at least one self-compassion practice and mean minutes practicing increased over time (see Table 10). The large increase in practice at T5 was due to two participants who spent longer practicing (planned and ad hoc) than previously, one of whom did considerably more.

Table 10
Mean (SD) of Minutes Spent Practicing Self-Compassion by Time Point

Variable	All Workshop Participants ^a			All Workshop Participants who Practiced ^b			
	<i>n</i>	<i>M</i>	<i>(SD)</i>	<i>n</i>	%	<i>M</i>	<i>(SD)</i>
T3 Planned	17	10.94	11.65	11	65	16.91	10.32
T3 Ad Hoc	17	7.76	9.10	10	59	13.20	8.22
T4 Planned	17	9.59	12.96	8	47	20.38	11.51
T4 Ad Hoc	17	9.29	11.18	10	59	15.80	10.40
T5 Planned	17	23.71	58.07	8	47	50.38	78.56
T5 Ad hoc	17	12.76	23.49	8	47	27.13	28.57

Note. ^a Mean is calculated for the whole group, including participants who did not spend any time practicing at that time point. ^b Mean is calculated only for participants who practiced at that timepoint.

There was a strong, marginally significant relationship between ad hoc self-compassion practice at T3 and residual gains in self-compassion between T1 and T5, ($r(15) = .451, p = .069$). Other relationships were not significant though there was a medium effect size for T4 planned practice. There were strong, significant relationships between self-compassion practice at different time points.

Table 11

Correlations Between Self-Compassion Practices and Residual Gain in Self-Compassion (T1 - T5)

RG Self-Compassion / Type of Practice	1		2		3		4		5		6	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
1.RG SCS T1 to T5	-	-	-	-	-	-	-	-	-	-	-	-
2.T3 Planned	.131	.616	-	-	-	-	-	-	-	-	-	-
3. T3 Ad hoc	.451	.069	.537*	.026	-	-	-	-	-	-	-	-
4.T4 Planned	.382	.130	.696**	.002	.658**	.004	-	-	-	-	-	-
5.T4 Ad hoc	.245	.344	.648**	.005	.636**	.006	.760**	.000	-	-	-	-
6.T5 Planned	.179	.493	.665**	.004	.574*	.016	.653**	.004	.564*	.018	-	-
7.T5 Ad hoc	.237	.360	.713**	.001	.656**	.004	.733**	.001	.718**	.001	.956**	.000

* $p < .05$ (2-tailed)

** $p < .01$ (2-tailed)

Note. SCS = Self-Compassion Scale; RG = Residual Gain

Hypothesis five: gains in self-compassion and health behaviours.

It was hypothesised that improvements in self-compassion scores would be related to subsequent improvements in health behaviours. Residual gain pre-post scores were examined. For workshop participants there was a strong, negative, marginally significant relationship between residual gain in self-compassion (T1 to T3) and residual gain in alcohol consumption during follow-up (T4 to T5). Over the same time points, increases in self-compassion were strongly associated with later decreases in

alcohol consumption. Relationships between residual gain in self-compassion and residual gain in physical activity and (un)healthy eating were non-significant but were moderate to strong and in the predicted directions (as detailed in Table 12).

Residual gains in self-compassion (T1 to T3) were also correlated with residual gains in health behaviours between T1 and T5 to provide a more complete picture. This was because change could have occurred between the end of workshops (T3) and the first follow-up (T4), but health behaviour was not measured at T3. There was a strong, negative, marginally significant correlation between residual gain in self-compassion and residual gain in (un)healthy eating. Increasing self-compassion was associated with improvements to diet. Other relationships were non-significant (see Table 12), though the effect size for alcohol consumption remained moderate.

Table 12

Correlations Between Residual Gains in Self-Compassion and Residual Gains in Health Promoting Behaviours and as a Function of Group and for Whole Sample

	<i>RG SCS T1 to T3 and Health Behaviours T4 to T5</i>		<i>RG SCS T1 to T3 and Health Behaviours T1 to T5</i>	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Group 1 (Workshop)				
1. Residual Gain SCS (<i>n</i> = 17)	-	-	-	-
2. Residual Gain SPAQ-R (<i>n</i> = 16)	.319	.229	.172	.525
3. Residual Gain STC (<i>n</i> = 17)	-.395	.117	-.456 [†]	.066
4. Residual Gain DDQ (<i>n</i> = 13)	-.509 [†]	.076	-.275	.364
5. Residual Gain SMOKE (<i>n</i> = 5)	.147	.814	.306	.617

[†]*p* < .10 (2-tailed)

* *p* < .05 (2-tailed)

Note. SCS = Self-Compassion Scale; SPAQ-R = Scottish Physical Activity Scale (Revised); STC = Starting the Conversation; DDQ = Daily Drinking Questionnaire; SMOKE = cigarettes smoked in last 7 days.

3.5.2. Testing the model (SRRM).

Hypothesis six: baseline self-compassion and self-regulation.

It was hypothesised that at baseline relationships between process aspects of the SRRM would be as defined in the model (self-compassion scores would correlate

negatively with negative affect scores and positively with all other process scores, as per the SRRM). Correlational data supported the hypothesis, with strong, significant relationships between self-compassion and all other process measures as detailed in Table 13. This includes a particularly large positive (Pearson's) correlation between self-compassion and positive affect ($r(28) = .608, p < .001$).

Table 13
Correlations Between Self-Compassion and Self-Regulatory Resources at Baseline (N = 30)

Variable	SCS	PANAS +	PANAS -	CBI	BSCS
1. SCS					
2. PANAS +	.608**				
<i>P</i>	.000				
3. PANAS -	-.414*	-.387*			
<i>P</i>	.023	.035			
4. CBI	.562**	.401*	-.715**		
<i>P</i>	.001	.028	.000		
5. BSCS	.552**	.350	-.445*	.626**	
<i>P</i>	.002	.058	.014	.000	

** $p < .01$ (2-tailed)

* $p < .05$ (2-tailed)

Note. SCS = Self-Compassion Scale; PANAS + = Positive & Negative Affect Scale (Positive Affect); PANAS - = Positive & Negative Affect Scale (Negative Affect); CBI = Control Beliefs Inventory; BSCS = Brief Self-Control Scale

The data suggests that 37.0% of the variance in positive affect is explained by self-compassion. For negative affect the figure is 17.1%, for health self-efficacy it is 31.6% and for overall self-control it is 30.5%. There are strong significant relationships between all aspects of the model, except for the relationship between overall self-control and positive affect, which is marginally significant, ($r(28) = .350, p < .058$).

Hypothesis seven: baseline health behaviour.

It was hypothesised that good current health behaviour (more physical activity, healthier diet, lower alcohol consumption and less smoking) would be positively

related to self-compassion, positive affect, health self-efficacy and self-control but negatively related to negative affect. Correlational data revealed a more complex set of relationships, as detailed in Table 14.

Table 14
Correlations Between Self-Compassion, Self-Regulatory Capacity and Health Behaviours at Baseline (Spearman's Correlation Coefficient)

Process & Outcome Measures	SPAQ-R (N = 29)		STC (N = 30)		DDQ (N = 25)		SMOKE (N = 9)	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
SCS	-.160	.407	-.323	.082	-.084	.689	-.469	.202
PANAS +	.135	.486	-.007	.969	.124	.556	-.530	.142
PANAS -	-.085	.660	.146	.441	-.226	.277	.492	.178
CBI	.238	.214	-.320	.085	.002	.994	-.654	.056
BSCS	.042	.831	-.334	.072	-.403*	.046	-.447	.228

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Note. SCS = Self-Compassion Scale; PANAS + = Positive & Negative Affect Scale (Positive Affect); PANAS - = Positive & Negative Affect Scale (Negative Affect); CBI = Control Beliefs Inventory; BSCS = Brief Self-Control Scale; SPAQ-R = Scottish Physical Activity Scale (Revised); STC = Starting the Conversation; DDQ = Daily Drinking Questionnaire; SMOKE = cigarettes smoked in last 7 days.

Healthy eating was most strongly related to the SRRM, with marginally significant, negative relationships with three aspects of the model; self-compassion, health self-efficacy and self-control, as detailed in Table 14. Participants who scored more highly in these three aspects of the model at baseline also tended to be less unhealthy in their diet. For alcohol consumption there was a strong, significant, negative relationship with self-control, $r(28) = -.403$, $p = .046$. Finally, there was a strong, marginally significant, negative correlation between number of cigarettes smoked and health self-efficacy ($r(7) = -.654$, $p = .056$). There were no significant relationships between physical activity and any of the self-regulatory resources.

3.5.3. Study power.

The sample size was relatively small for this pilot study, which had implications for statistical power. In particular, changes in health behaviours did not reach statistical

significance. To determine the number of participants necessary for an appropriately powered, full scale RCT, G*Power (Faul et al., 2009) was used. Effect size from the present study was used along with a significance level of 0.05, and a power of 0.8. Power calculations suggest that the present study was adequately powered to detect significant changes in self-compassion, but larger sample sizes would be required for a full scale RCT. On the basis of the mean, within-between interaction effect sizes for health behaviours, for these variables to be fully powered a sample size of $N = 58$ would be required.

Statistically significant findings were observed for most process variables and some (such as self-compassion) were well powered. However, changes in positive affect did not reach significance. For positive affect (with effect size, $d = 0.07$, in the present study) a sample size of $N = 372$ would be required for fully powered within-between interaction. Given that the intervention is designed to be delivered to relatively small groups, this may not be feasible. A more pragmatic approach may be to further examine the role of positive affect (including potential timeframes for change) and to use this information to inform decisions regarding the sample sizes.

4. Discussion

4.1. Study Findings

The health behaviour of emerging adults is cause for concern both because of the steep decline in health behaviour that happens during this life stage, and because this life stage may set the course for health behaviour in adulthood. This pilot RCT delivered a brief self-compassion intervention which aimed to improve self-compassion, self-regulatory resources and specific health behaviours in emerging adults. It was predicted that at baseline relationships between aspects of the model would reflect those defined in the SRRM, that practice would be related to residual gains in self-compassion, and that residual gains in self-compassion would be related to subsequent improvements in health behaviour.

4.1.1. *Impact of the intervention*

Hypothesis one: self-compassion

As predicted, self-compassion scores increased significantly in the workshop group (with a large effect size; $d = .69$) whereas there was no significant increase in the waitlist control group. Relevant interventions such as the eight week long Mindful Self-Compassion (MSC) programme have succeeded in significantly increasing self-compassion (in an older group; Neff & Germer 2013). Some shorter interventions have also successfully improved self-compassion. For example, Smeets and colleagues (2014) reported a significant increase in student self-compassion after a three-week intervention, albeit with extensive between session practice. In the present study, practices were brief and any practice outside of workshops was optional. It is a positive sign then that all but one participants chose to engage with self-compassion practice at

least once during the study, with around half practicing at every time point. Furthermore, mean time spent practicing increased over the course of the study. For ad hoc practice, the increase was from eight minutes at T3 to 13 minutes at T5. For planned practice, the increase was from 11 minutes at T3 to 24 minutes at T5. This indicates that participants may have found the practices useful though they were not asked about this in the present study. Overall, these findings provide further evidence that even brief interventions, with limited between session practice, can successfully improve self-compassion in emerging adults.

Research has demonstrated that in longer term training programmes self-compassion improvements may be maintained at follow-up (e.g. Neff & Germer, 2013). In the present study self-compassion was not just maintained at follow-up; it increased significantly during both follow-up periods. This was despite only around half the participants reporting practicing regularly. During the second follow-up period (between T4 and T5) participants received a self-compassionate letter that they had written to themselves earlier in the study. Such letters can be very powerful. They are one of the self-compassion practices suggested by Neff (Neff, n.d.) and are a recommended way of eliciting self-compassion in compassionate mind training (CMT; Gilbert 2009). Given the significant increase in self-compassion between T4 and T5 it is possible that receiving this letter had a particularly beneficial impact on self-compassion levels. However, it is not possible to be certain what benefit can be ascribed to reading the letter and what may have resulted from practice, which increased in the latter stages of the study. Participants were not asked about their own perceptions of self-compassion

improvement in the present study. How and why self-compassion is maintained and increases post-intervention may be a valuable avenue for further investigation.

Hypothesis two: self-regulatory resources

As predicted, there were significant improvements to all self-regulatory resources in the workshop group, except positive affect (and no significant improvements for the waitlist group). For workshop participants there was a significant:

- Reduction in negative affect (between T1 and T3; with marginally significant reduction overall)
- Increase in health self-efficacy (between T1 and T5)
- Increase in self-control (between T3 and T5)

The lack of significant improvement in positive affect was unexpected. Higher levels of trait self-compassion tend to be significantly associated with positive affect (e.g. Neff et al., 2007). This was reflected in this study in a strong, significant, positive correlation between self-compassion and positive affect at baseline. However, the subsequent improvement in self-compassion in the workshop group was not accompanied by a significant increase in positive affect. A similar finding was reported by Smeets and colleagues (2014), with positive affect remaining relatively stable. It was suggested that a brief self-compassion intervention may simply not be enough to overcome other factors influencing short-term mood (Smeets et al., 2014), however the present study did result in a significant change in negative mood (whereas that of Smeets and colleagues did not). A possible explanation may lie in the way in which self-compassion is understood to affect mood. Self-compassion helps people to view their perceived failures and inadequacies with kindness rather than avoiding them or pushing

them away (Neff, 2003b; Neff, 2009). As self-compassion increases, negative affect should decrease. Positive feelings then, paradoxically, result from embracing negative feelings. It is feasible that there is a time lag between these two changes, with reductions in negative affect occurring earlier than subsequent increases in positive affect. Neff and Germer did not measure positive affect, however they did find significant increases in happiness and life satisfaction after the eight week MSC programme (Neff & Germer, 2013). While mean positive affect did increase for the workshop group, it may be that a longer term intervention or a greater increase in self-compassion is necessary to significantly increase positive affect.

It is worth noting that the significant increase in self-control occurred in the later stages of the study. This is consistent with the SRRM in that self-regulation resources are posited to be positive affect, negative affect, and health self-efficacy. Self-control should therefore improve only once there has been some improvement in those resources (in the SRRM, driven by an improvement in self-compassion).

Hypothesis three: health behaviours

Workshop participants chose to either improve their physical activity or healthy eating. Mixed multi-factorial ANOVAs and subsequent analysis indicated that there were no significant improvements in the workshop group's health behaviours, including when their specific choices were taken into account. A number of factors may have played a part in this. Firstly, positive affect, along with negative affect, has been found to significantly mediate the relationship between self-compassion and frequency of positive health behaviours (cross sectional study; Sirois, Kitner & Hirsch, 2015). Positive affect can bolster depleted self-regulatory capacity (Tice, Baumeister, Shmueli,

& Muraven, 2007) and should encourage a more future-oriented mindset (Pyone & Isen, 2011) which is linked to practice of health promoting behaviours (Daugherty & Brase, 2010; Dassen, Jansen, Nederkoorn, & Houben, 2016). In this study there was no significant improvement in positive affect and this may have impacted the ability of participants to make positive health behaviour changes.

Secondly, timing may have played a part. The significant increase in self-compassion occurred during the follow-up period rather than during the workshops, so behaviour change was being measured just when significant improvements in self-compassion were taking place. It is possible that there was simply not enough time to see a significant improvement in subsequent health behaviour and a longer term follow-up may have been necessary. The timing of the University Easter holidays may also have affected ability to improve health behaviour. The holidays fell during the follow-up period for this study and changes to routine may have made it more difficult for participants to stick to health behaviour plans they had made.

Thirdly, motivation was not measured. Motivation is an important aspect of self-regulation (Baumeister & Vohs, 2007). If participants were not particularly motivated this could have affected their ability to make health behaviour changes. People who signed up for the study were aware that it was related to health behaviour change so it is reasonable to assume they were motivated to some extent. However, as the study conferred a substantial number of course credits this may also have been a rationale for participating. Overall incorporating a measure of motivation would have made it possible to understand the degree to which motivation played a role in the findings.

Fourthly, some workshop participants reported high levels of physical activity at baseline and it is possible that increasing self-compassion may have given participants who already had high activity levels permission to exercise less without feelings of failure. This fits with self-compassion theory (Neff, 2003b), and with research confirming that self-compassion is protective against negative self-evaluations (Neff, Kirkpatrick & Rude, 2007).

Finally, at baseline the relationships between health behaviours, self-compassion and self-regulatory resources were not as predicted; each of the four health behaviours related differently to self-compassion and the self-regulatory resources, as discussed in the next section. Given this starting point it is perhaps unsurprising that subsequent health behaviour improvements did not follow the predicted patterns. Healthy eating was the behaviour most closely aligned with the model at baseline, with marginally significant relationships between healthy eating, self-compassion, health self-efficacy and overall self-control, and small to medium effect sizes. Encouragingly, residual gains in self-compassion were (marginally) significantly related to residual gains in healthier eating. It is possible that in a fully powered study, such gains in self-compassion could translate to significant change in eating behaviours for emerging adults.

Lastly, an unexpected significant reduction in alcohol consumption occurred for all participants who chose physical activity as the behaviour they would like to improve. It is unclear why this occurred. The majority of participants had selected physical activity as the behaviour they wanted to change, so this result may simply be the result of changes that affected the alcohol consumption of all participants (e.g. Easter holidays,

proximity to deadline dates and exams). Given the small sample size, this effect may be worth examining further in a future, larger study.

Hypothesis four: self-compassion practice and gains

In the present study participants were invited to engage in brief practices (both planned and ad hoc) in their own time. Practices were deliberately designed to be brief so that they could be easily incorporated into daily life, but it was left up to participants whether they chose to engage with practice or not. A marginally significant relationship between time spent on ad hoc self-compassion practice at T3 and residual self-compassion gain (T1 to T5) was identified. No other relationships were significant. There was, however, a medium effect size for T4 planned practice. Other studies (Neff & Germer, 2013; Smeets et al., 2014) have required participants to complete much more practice in their own time. It is possible that if participants were encouraged to practice, they would make greater self-compassion gains. However the benefits of encouraging participants to decide whether or not to practice (rather than obliging them to) are firstly that self-reports of time spent practicing may be more truthful and secondly, that practicing is therefore an active choice. In the present study, there were strong, significant relationships between minutes of self-compassion practice across time points. Participants tended to be consistent in their practice over the course of the study. All but one participant practiced at least once, with around half practicing at all time points. This is encouraging because it suggests that they found the practice palatable and, potentially, beneficial. It would be useful to capture participant perspectives on this.

Hypothesis five: self-compassion and health behaviour gains

For workshop participants residual gain in self-compassion was examined in relation to residual gain in health behaviours. Residual gain in self-compassion (T1 to T3) was strongly associated (marginally significant) with decreases in alcohol consumption during follow-up. Relationships between residual gain in self-compassion and residual gain in physical activity and (un)healthy eating were non-significant but with moderate to strong effect sizes and in the predicted directions (as detailed in Table 12). Residual gain in self-compassion (T1 to T3) was also strongly associated (marginally significant) with diet improvement (T1 to T5). The small sample size may have affected these findings; in a fully powered study, some of these might reach significance. Also, as the significant improvement in self-compassion actually took place during the follow-up period (not T1 to T3, in which the improvement was non significant), examining T1 to T5 residual gain in self-compassion with health behaviour at an even later follow-up than those included in the present study (for example six months post-intervention) might yield results more consistent with the hypothesis.

4.1.2. Testing the SRRM

Hypothesis six: baseline self-compassion and self-regulation

This study provides partial support for the SRRM. At baseline, relationships between self-compassion and measures of self-regulatory capacity were all significant in the directions predicted by the SRRM. This replicates the findings of Sirois (2015). Furthermore, a measure of self-control itself was used in this study (but not in that of Sirois, 2015). It is therefore possible to conclude that self-compassion is strongly, positively related to overall self-control, not just to the proposed self-regulatory

resources (positive affect, negative affect, and health-self efficacy) suggested by Sirois (2015).

Hypothesis seven: baseline health behaviour

The picture was more complex for the four health behaviours, each of which related differently to self-compassion and the self-regulatory resources. For example, lower alcohol consumption at baseline was significantly associated only with greater self-control. Other relationships were non-significant and effect sizes were small. For smoking, the only close to significant relationship was with health self-efficacy (negatively related) though there were non-significant relationships between smoking and all aspects of the model, with large effect sizes. For physical activity there were no close to significant relationships with process aspects of the model and effect sizes were small.

There are a number of possible explanations for baseline findings not reflecting the relationships predicted by the SRRM. One possibility is a problem with one or more of the measures employed. However, the reliability and validity of measures has been previously confirmed, with the exception of the smoking questions which simply reflected the format of the DDQ to ask about number of cigarettes smoked over the last seven days. The SPAQ-R is the questionnaire that resulted in the most unexpected findings, with no significant relationships with any of the process measures. This questionnaire was modified for use with female students (Bulley et al, 2005). It may be that for male participants it was less suitable; however even if this were the case it could only have affected a small number of participants since most were female. Another possibility is that presenting the questions in an online survey format rather than on

paper affected the accuracy of responses. The SPAQ-R paper form used design features to clearly delineate different types of physical activity and could be opened as a double page spread to review most answers at a glance. As the questionnaire involved entering minutes spent each day on a range of different activities, it may have been easier to complete and check for correctness in paper format than when presented as part of an online survey. One participant had to have their SPAQ-R data excluded as it was impossibly high, and it is possible that the usability of online version of the form contributed to their erroneous answers. If this is the case, other participants may also have made (less obvious) errors. Overall scores and subsequent analysis may therefore have been affected.

Another possible factor is that previous significant findings between health behaviours and other aspects of the SRRM have relied heavily on the Wellness Behaviours Inventory (WBI) as a measure of health behaviour. In a meta-analysis of their own data ($N = 3,252$), Sirois, Kitner and Hirsch (2015) reported that thirteen of the independent samples used the WBI and the other two samples employed a small number of questions about health behaviour such as missing sleep and skipping meals. The ten items in the WBI cover a wide range of health and wellness related behaviours not included in this study such as sleep and use of dietary supplements. Furthermore, the WBI does not include health risk behaviours such as smoking. In the present study data on each of the four health behaviours is captured using specific questionnaires which go to greater levels of detail including quantifying amounts consumed and time spent. Such differences in what is being measured may account for at least some of the differences between the findings of Sirois (2015) and of this study.

4.2. Feasibility of the intervention

This pilot study has succeeded in demonstrating that the intervention is safe (with no reported problems) palatable (with a low drop-out rate from the workshop condition and engagement with the home practice), and feasible. Workshops were able to run in a busy university setting, using university teaching rooms. The one area which appeared to be a challenge for participants was completion of surveys amongst waitlist control participants. This highlights the need to take steps to keep a waitlist control group (if used) engaged.

4.3. Limitations of the present study

There were a number of limitations to the current study. Some of these were as a result of this being a small-scale pilot study, others were not. Firstly there was no active control group. Use of a waitlist control group is common and appropriate for a small pilot study testing a new intervention, but the lack of active control means that we cannot be certain to what extent other factors (such as simply having contact time and attention) influenced outcomes. Secondly, the sample was relatively small. Again, this is acceptable when piloting a new intervention. Furthermore, it could be argued that testing a new intervention with a relatively small cohort is the most ethical approach. Nonetheless, this meant that the study was somewhat underpowered and that, in turn, made it challenging to fully interpret some of the null findings, although the calculation of effect sizes helped in this respect. The issue of sample size was exacerbated for analysis of health behaviour change because workshop participants chose which health behaviour to change. This effectively split the workshop group in two for analysis of

health behaviour change as just over half chose physical activity and the others chose healthy eating.

The sample was relatively homogenous; all participants were Psychology undergraduates and most of these were white females. Women tend to be slightly less self-compassionate than men, with the gender gap greater amongst ethnic minorities (Yarnell et al., 2015). Findings from this study would therefore not necessarily generalise to other emerging adult populations, for example to predominantly male or non-white populations, to those not in higher education or to clinical populations in this age range. However, in terms of age, participants were representative of the emerging adult life stage.

A further limitation was reliance on self-report questionnaires. Objective measures such as the doubly labelled water method for physical activity (DLW; Westerterp, 2009) are the gold standard, but are often substantially more expensive and time consuming. They were therefore not considered appropriate for this pilot study. However, there is a tendency for self-report data to yield less accurate, reliable data. For example, self report data has been shown to over-estimate physical activity (Schaller, Rudolf, Dejonghe, Grieben, & Froboese, 2016) and under-estimate alcohol consumption (Stockwell et al., 2004) in particular when consumption is heavy (Northcote & Livingston, 2011). Given the lack of significant findings for physical activity in this study, and the concerns about potential for errors in the online form, it may be worth identifying another means of capturing physical activity data. That could mean identifying a different self-report questionnaire that works better in an online format, or determining a relatively cost-effective way of obtaining objective data. For example, accelerometers have recently

been successfully used (in a large scale study; Doherty et al., 2017) and smartphone applications (apps) have been used to complement self-report data (Dunton et al., 2014).

Missing data was a limitation of this study with eight percent of data missing overall. A positive point is that very little data was missing for workshop participants. However, a number of waitlist control participants missed entire questionnaire sets, some at more than one time point. Those who had hoped to take part in the study and earn a substantial number of course credits may have been less motivated to complete the online surveys alone as these offered less in terms of experience and course credits. For future research it will be important to use an active control group, and this should address the issue as these participants would be offered some kind of intervention experience as well as a greater number of credits, reflecting the greater time commitment. Alternatively if a waitlist control group is used, there is a need to provide participants with an incentive to complete surveys at all time points.

It must also be noted that a number of participants dropped out after random allocation. Reasons given related to inability to attend both workshops (for those allocated to the workshop group) or to participate in another online study (for those allocated to the waitlist control group). Nonetheless it is possible this may have affected randomisation. The timing of the study may have influenced drop-outs. The study was run between February and April due to the MRes schedule. Running the study earlier in the academic year, or even at the start of the calendar year would mean that those allocated to the workshop should have fewer competing deadlines while those allocated to the waitlist would not have reached the limit for SONA credits from online studies.

Finally, the follow-up period for this study was six weeks. This was the longest feasible follow-up period given the workshop dates and MRes submission deadlines at the time. However, given that the intervention resulted in a significant improvement in self-compassion during follow-up, it would be useful to increase the follow-up period to determine whether health behaviour or other aspects of the model would improve in a longer timeframe.

4.4. Conclusions and future prospects

This pilot study highlighted that the newly developed, brief, self-compassion intervention successfully increased self-compassion, self-regulatory resources (with the exception of positive affect), and overall self-control. It also provided partial support for the SRRM. It has demonstrated that the intervention is safe, feasible, and palatable to emerging adult participants, and has also provided a number of findings to help guide future research. An important next step will be to develop this study into an appropriately powered, full scale RCT, addressing the limitations identified. For example, an active control condition (such as provision of health behaviour information) could be included. Recruiting for the study earlier in the university calendar might overcome some of the issues of retention as well as addressing timing issues for behaviour change. Given the significant increases in self-compassion reported at follow-ups, there is a clear rationale for longer term follow-up questionnaires, for example at 6 months and a year post intervention. These would also enable comparison of this brief intervention with the MSC (Neff & Germer, 2013) over the same time timeframe.

Recruitment of a wider range of participants would make findings more generalisable. This may be particularly valuable because research indicates that some of the emerging adults likely to experience the greatest decline in healthy behaviours are those who are single parents, and those going directly into full time work without first completing higher education. These individuals are also at greater risk of longer term low engagement in positive health behaviours (Frech, 2014).

Health-promoting behaviours such as physical activity and healthy eating tend to cluster, as do health-risk behaviours such as smoking and alcohol consumption. Recent research suggests that targeting multiple health behaviours (as in the present study) may be more effective than targeting individual behaviours. This is the case, in particular, if the type of behaviours are similar; either all health-promoting behaviours or all health-risk behaviours (Lippke, Nigg, & Maddock, 2011). In the present study four health behaviours were included. When given a choice of which health behaviour they would like to improve (hypothetically or not) all but one participant chose to improve physical activity or healthy eating. These two health-promoting behaviours may prove to be a particularly good combination for a future study if the potential issues with SPAQ-R can be addressed. Given the unexpected reduction in alcohol consumption amongst participants (waitlist and workshop) who chose to improve their physical activity levels it may also be worth capturing data on other health behaviours, even if these are not targeted for improvement.

Finally, the SRRM only deals with the self-regulation aspect of health behaviour change. Other factors have also been found to play a role. For example, according to Temporal Self-Regulation Theory (TST) a combination of intentions (driven by beliefs

and temporal valuations), behavioural pre-potency (past behaviour, habit, perceived cues) and self-regulatory capacity drive actual behaviour (Hall & Fong, 2007). It may therefore be valuable to consider integrating the detail of the SRRM into a more comprehensive health behaviour theory such as TST (Hall & Fong, 2007) as this would enable the impact of other factors to be explored.

Emerging adulthood is critical time for health-behaviour, with a clear decline in positive health behaviours evident (Frech, 2012). Self-regulation capacity is essential to engagement in health-promoting behaviours and, ultimately, to long term good health and longevity. However, incomplete brain development means that the self-regulation capacity of emerging adults is not fully developed (Casey et al. 2008). Furthermore, the inherent characteristics of emerging adulthood place high demands on self-regulatory capacity, and this in turn exacerbates the ego depletion effect. Self-compassion has been posited as a means for bolstering self-regulatory resources, as illustrated in the SRRM. This pilot study has demonstrated that even brief, pragmatic interventions can significantly improve self-compassion and self-regulation capacity in emerging adults. However, more work is needed to take this forward in order to be confident of helping emerging adults improve their health behaviours. Ultimately, doing this should help them to lead longer, healthier lives, with the affects of their healthier choices felt for generations to come.

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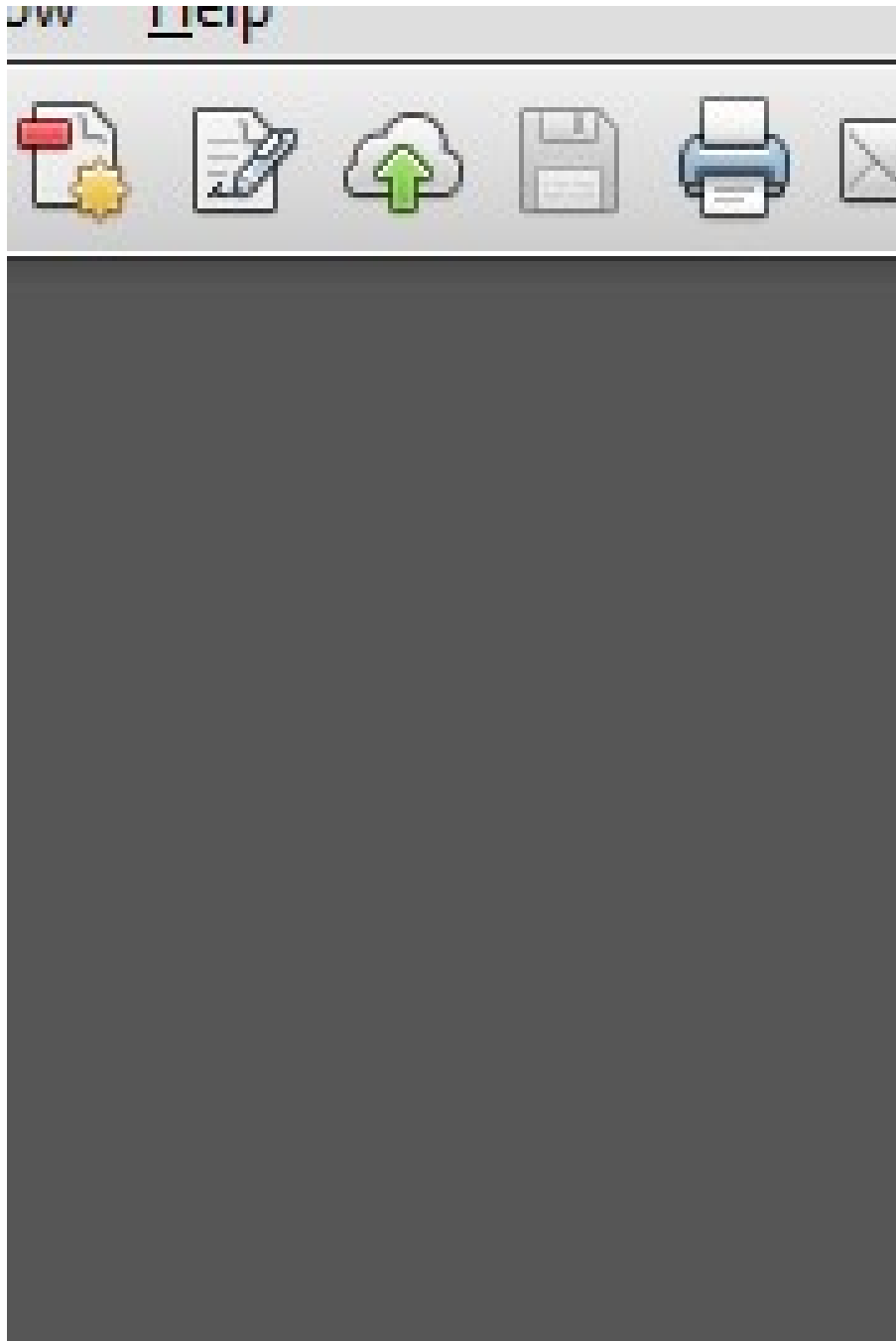
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Appendices

1. Ethical Approval



2. *Participant Information Sheet*

Participant Information Sheet

Effect of a brief, mindfulness based, self-compassion intervention on health-related behaviours (e.g. physical activity and alcohol use) in emerging adults (age 18-25)

You are invited to take part in this research project. Before you decide whether you would like to participate, please take time to read the following information carefully, and to understand why the research is being done and what it will involve. You may discuss this with others if you wish. If there is anything that is not clear, or if you would like more information, please feel free to ask us. Take time to decide whether or not you wish to take part.

The researcher is Sarah Jeffery (Counsellor and Bournemouth University MRes student). Dr Helen Bolderston (Chartered Clinical Psychologist and Lecturer in Psychology) will be supervising this project and will be the main workshop facilitator, supported by Sarah.

Purpose of the research:

The purpose of this research is to assess the effect of a brief, mindfulness based, self-compassion intervention on health-related behaviours in emerging adults (age 18-25). There is a substantial body of research that highlights that those higher in self-compassion (people who have a kindly attitude to themselves) are better off in many aspects of psychological wellbeing. Recent studies have also begun to investigate the relationship between self-compassion and physical wellbeing, finding that those higher in self-compassion have better intentions of looking after their physical health. The focus of this research will be to build on previous research, delivering a brief, mindfulness based self-compassion intervention across two, brief workshops, and looking at the effect on a range of health-related behaviours such as physical activity and alcohol use.

Taking part is voluntary. If you do decide to take part, you will be given this information sheet to keep. You will also be asked to give your consent online. You can withdraw from the study at any point up until the point where the data are processed and become anonymous (at which point your identity cannot be determined) without it affecting any benefits that you are entitled to in any way (such as credits if you are a psychology student). If you wish to withdraw from the study at any point, you do not have to give a reason.

What would taking part involve?

Participation involves, firstly, being randomly assigned to either a workshop group (workshop group A or group B) or to the waitlist control group.

If you are assigned to a workshop group, you will need to:

1. Complete a number of questionnaires focused on health behaviours, self-compassion and mood (on surveymonkey)
2. Attend two x 2.25 hour workshops (total 4.5 hours attendance) on:

- Group A. Wednesday 24th February (workshop 1) and Wednesday 2nd March (workshop 2). Both sessions start at 1pm in Talbot Campus. Room to be confirmed.

OR

- Group B. Thursday 25th February (workshop 1) and Thursday 3rd March (workshop 2). Both sessions start at 1pm in Talbot Campus. Room to be confirmed.

1. Complete follow-up questionnaires one week after the workshops (on surveymonkey)
2. Complete follow-up questionnaires five weeks after the workshops (on surveymonkey)

Workshops will be audio recorded for '*facilitator adherence rating*' – this is so that the adherence of the workshops to the named intervention (mindfulness based self-compassion) can be rated. The recording will be focused on the facilitator, not participants, and participants will not be identified on it. A randomly chosen set of audio clips from the recordings will be securely transferred to an expert on mindfulness who will rate the intervention itself. No audio material will be used for any other purpose, and the recording will be destroyed when all personal materials such as questionnaire responses are destroyed.

If you are assigned to the waitlist control group, you will need to:

- Complete questionnaires on surveymonkey:
 1. Before the week of Thursday 25th February
 2. During the week of Thursday 25th February
 3. During the week of Thursday 3rd March
 4. One week later
 5. Five weeks later

We anticipate that the workshops will be beneficial to participants; therefore we will run additional workshops once the study is completed (these will be in April/May). If you were allocated to waitlist control but would like to attend the workshops, you are welcome to sign up for these. There is no obligation to attend and they do not form part of the study. This means that everyone who signs up to participate in the study will be able to experience the workshops, if they would like to.

What the workshops will cover:

At these workshops you will learn about self-compassion from a theoretical perspective and will also have the opportunity to learn some practical ways of increasing your own self-compassion, with a focus on changing some physical health-related behaviours such as taking part in physical exercise or reducing alcohol intake.

What is expected of me:

- Please only sign up for this study if you are able to attend both of the workshops (either group A or group B) on the dates / times provided above.
- Please note that if you have a pre-existing physical or psychological health condition, it is your responsibility to consult with the relevant professional involved in your care before agreeing to participate in this study. If you have any questions or concerns please discuss these with the research supervisor, Dr Helen Bolderston, Chartered Clinical Psychologist.

- If allocated to a workshop group, you will need to attend both workshops – this will include learning about self-compassion as well as completing some practical exercises such as discussing aspects of self-compassion in pairs. You will also need to complete a number of questionnaires as outlined above.
- If allocated to the waitlist control group, you will need to complete a number of questionnaires on surveymonkey as outlined above. We will run some additional workshops once the study has finished so that you can have the opportunity to attend these if you would like to do so (however these will not form part of the study).

What happens after the workshops:

Anonymised data from the questionnaires will be analysed to understand the effect of the mindfulness based, self-compassion workshops on health-related behaviours (e.g. taking part in physical activity).

Possible disadvantages of taking part?

You will need to dedicate time to attending both workshops and completing questionnaires beforehand and at follow up.

Also, if you have a pre-existing mental or physical health condition, you need to discuss this with an appropriate professional involved in your care before giving your consent to participate. This is because you may decide you would like to make changes to a health-related behaviour (e.g. physical activity) as a result of this study and it is your responsibility to ensure that any changes you choose to make are suitable for you.

Possible advantages of taking part?

Whilst there are no guaranteed benefits for people participating in the project (other than course credits for Psychology undergraduate students) it is hoped that these workshops will help you to be more compassionate to yourself. Higher levels of self-compassion are associated with many aspects of psychological wellbeing and it is anticipated that an increase in self-compassion should also have a positive effect on health-related behaviours.

Confidentiality

All the information that we collect about you during the course of the research will be kept strictly confidential. You will not be able to be identified in any reports or publications.

All data relating to this study will be kept for a minimum of 5 years at a BU password protected secure network, as per usual psychology research guidelines. If you wish to obtain a summary of the completed study findings, you may do so from the researchers.

Data collected during the course of the project will be used for the researcher's MRes project and may also be used as part of the researcher's PhD.

What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?

The kind of information we will be looking for is captured in a number of questionnaires which ask about things like your mood, how self-compassionate you are, and your practice of health-related behaviours (such as physical activity and alcohol use). This is relevant because we want to understand whether the intervention helps you to be more self-compassionate, what the effect of this is on health related behaviours, and the extent to which specific other factors (such as mood) are involved in the process.

Contact for further information:

Sarah Jeffery: i7606555@bournemouth.ac.uk

Helen Bolderston: hbolderston@bournemouth.ac.uk

Phone: 01202 961456

Address: Department of Psychology, Faculty of Science and Technology, Bournemouth University, Talbot Campus, Fern Barrow, Poole, Dorset, BH12 5BB.

Complaints:

If you wish to make a complaint about any aspect of this study, please contact Professor Matt Bentley, who is the Deputy Dean for Research and Professional Practice for the Faculty of Science and Technology:

Email: mbentley@bournemouth.ac.uk

Phone: 01202 962203

Address: Professor Matt Bentley FLS FSB
Deputy Dean (Research and Professional Practice)
and Professor of Marine Biology
Faculty of Science and Technology
C227 Christchurch House
Bournemouth University
Talbot Campus
Poole
BH12 5BB

Thank you for taking the time to read this information.

3. Participant Consent Form

Online Consent Form

Full title of project: *Effect of a brief, mindfulness based, self-compassion intervention on health-promoting behaviours in emerging adults*

Researcher:

Sarah Jeffery, MRes Student

Researcher email address: i7606555@bournemouth.ac.uk

Supervisor:

Helen Bolderston, Lecturer in Psychology

Supervisor email address: hbolderston@bournemouth.ac.uk

Room: P252 (Poole House)

Please click on the following buttons to consent to participate in this study:

Click here

I have read and understood the participant information sheet for the above research project and confirm that I have had the opportunity to ask questions.	
I understand that my participation is voluntary and that I am free to withdraw from the study without giving reason and without there being any negative consequences, up to the point where the data are processed and become anonymous (at which point my identity cannot be determined). In addition, should I not wish to complete any particular workshop activity, I am free to decline.	
I understand that if I have any pre-existing mental or physical health issues, I am responsible for consulting with the appropriate professional involved in my care before participating in this study.	
I give permission for members of the research team to have access to my responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the outputs that result from the research.	
I understand that data collected in the course of this study will be used in an MRes project and may also be used in the researcher's future PhD project.	
I agree to take part in the above research project.	

4. *Participant Debrief*

Participant Debrief Sheet

Full title of project: Effect of a brief, mindfulness based, self-compassion intervention on health-promoting behaviours in emerging adults

Debrief: Research to date has shown that people who are more self-compassionate (who have a kindly attitude to themselves) are better off in many aspects of psychological wellbeing. Recent research has also begun to identify positive links between self-compassion and health related behaviours (such as taking part in exercise).

This study was designed to increase participant self-compassion and investigate the effects of that on health related behaviours.

The findings form part of the researcher's MRes project and may feed into the researcher's PhD. Findings may also be used to shape future psycho-educational and therapeutic interventions for students.

If you are concerned about any issues that have been raised for you through taking part in this study, you may find it helpful to speak to your personal tutor.

Alternatively, you may find it helpful to contact Student Wellbeing:

Student Wellbeing

Bournemouth University

Talbot House

Talbot Campus

Poole

BH12 5BB

Tel: +44 (0) 1202 965020 (voicemail out of hours/vacations)

Email: studentwellbeing@bournemouth.ac.uk

<https://www1.bournemouth.ac.uk/students/health-wellbeing/student-wellbeing>

Or, you could contact Dr Helen Bolderston ,the project supervisor and workshop facilitator, who is an experienced Clinical Psychologist:
hbolderston@bournemouth.ac.uk

Thank you for participating

5. *Encouraging Letter to Self Template*

Encouraging Letter to Self

Please use the space below to write a brief letter to yourself - to be posted to you in a couple of weeks' time.

Remind yourself of your goals and why they matter to you. Remind yourself of anything that you've learned in these workshops that might be helpful to you.

Make the letter as encouraging and kindly as you can; the kind of letter you would write to a friend who you wished well.

This letter is for you only. It will be kept in a sealed envelope and then posted to you.

My Encouraging Letter to Self:

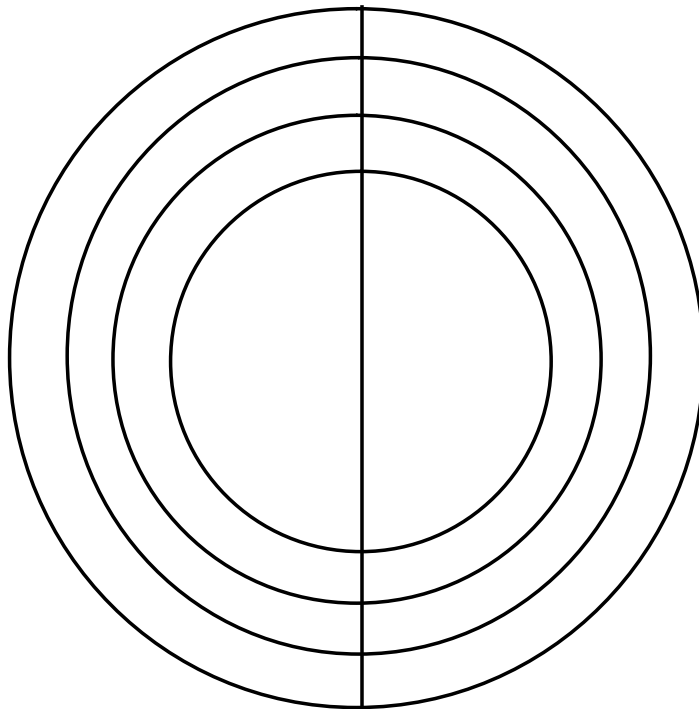
6. *Bullseye Template*

Make an X on the dartboard in each health behaviour area to show where you stand in relation to that behaviour area, thinking about your behaviour over the last week

The closer your behaviour is to how you want it to be, the close to the bull's-eye your X needs to be

There are 4 areas so you'll have 4 Xs on the dartboard

The health behaviour area I am choosing to particularly focus on over the next few weeks is:



7. *Setting Healthy Behaviour Goals Template*

Setting Healthy Behaviour Goals

It is important to set **SMART** and **SAFE** goals.

SMART Goals:

- **Specific:** specify the actions you will take, when and where you will do so, and who or what is involved. Example of a vague or non-specific goal: “I will go for a walk this week.” A specific goal: “I will go for a walk along the beach from Café Riva in Southbourne to Bournemouth pier, on Wednesday afternoon, starting at 2pm.
- **Measurable:** Establish concrete criteria for measuring progress toward the attainment of each goal you set. How many units of alcohol a day? How many pieces of fruit? How many minutes swimming?
- **Attainable:** The goal should be realistically achievable. Take into account your health, competing demands on your time, financial status, and whether you have the skills/equipment/money to achieve it. It’s better to achieve a series of small goals, than feel overwhelmed by a bigger goal and never get started.
- **Relevant:** The goal should be relevant to what you want to achieve in the area you are targeting. It should take you a step in the direction you want to go, no matter how small that step is.
- **Time-bound:** A goal should be grounded within a time frame. With no time frame tied to it, it’s easy to keep putting off starting. Set a day, date and time for it. If this is not possible, set as accurate a time limit as you can.

Safe Goals:

Safe goals are essential. This workshop and these goals are about boosting your health in ways that are kindly to yourself. So, that means:

- No sudden dramatic changes (e.g. Trying to run 10 miles when you don’t usually run more than 100m)
- No restrictive, overly-controlled diet. So, focus on choosing healthier food options.
- ✓ Seeking appropriate support (e.g. Using NHS Stop smoking resources)
- ✓ Seeking advice when you are not sure (from your GP or other healthcare provider, from qualified staff at the gym etc.)

Setting Your Healthy Behaviour Goals

In this exercise, you will write down a graduated series of goals, starting from very small, simple goals that can be achieved right away, to longer-term goals that may not be achieved for months.

Step 1. The health behaviour area I am particularly focussing on is (select one):

<input type="checkbox"/> Physical Activity / Exercise	<input type="checkbox"/> Alcohol Intake
<input type="checkbox"/> Healthy Eating	<input type="checkbox"/> Smoking Reduction

Step 2: Some of my goals are:

An Immediate Goal (something small and simple I intend to do in the next 24 hours)

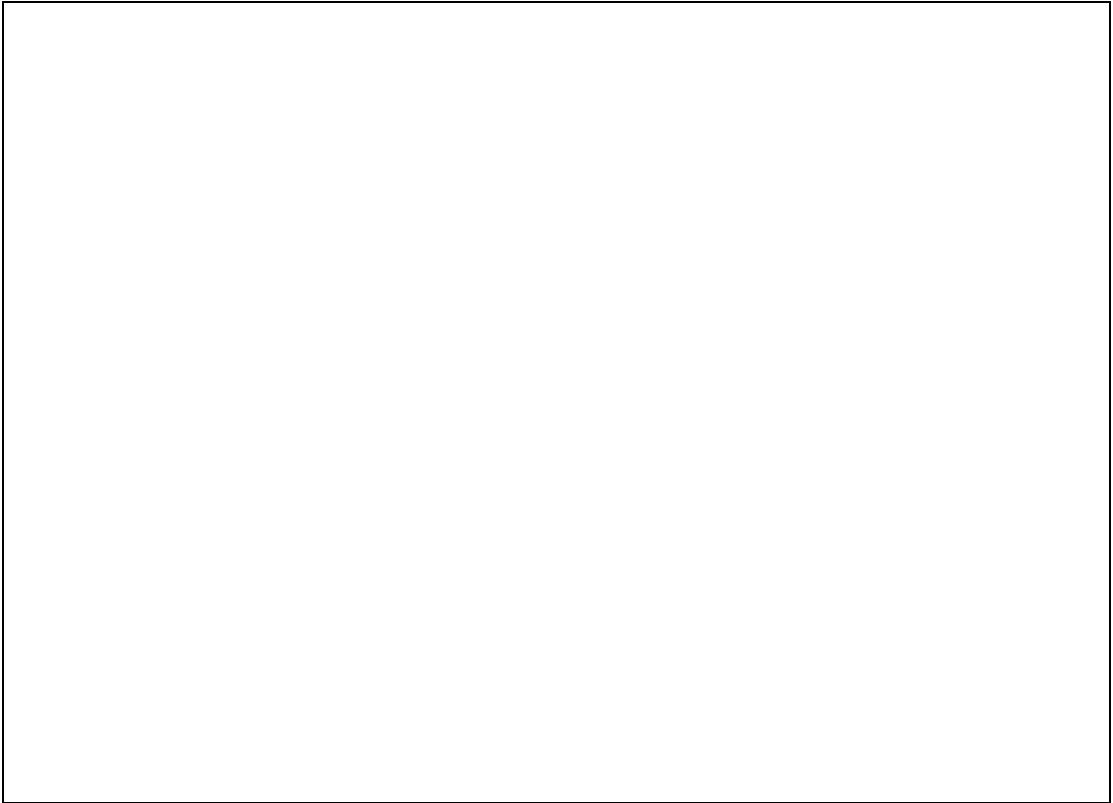
Short Term Goals (things I intend to do over the next few days):

Medium Term Goals (things I intend to do over the next few weeks):

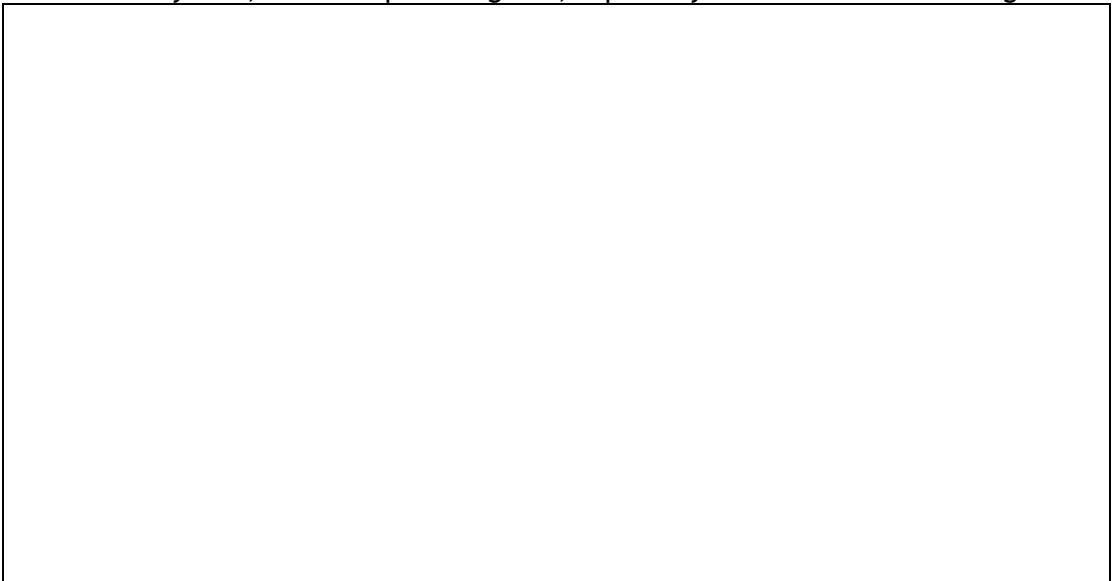
Long Term Goals (things I intend to do over the next few months):

Step 3: Some potential barriers to me achieving these goals are:

Practical, external barriers. E.g. I don't have a swimming costume; I'm very busy with other things at the moment:

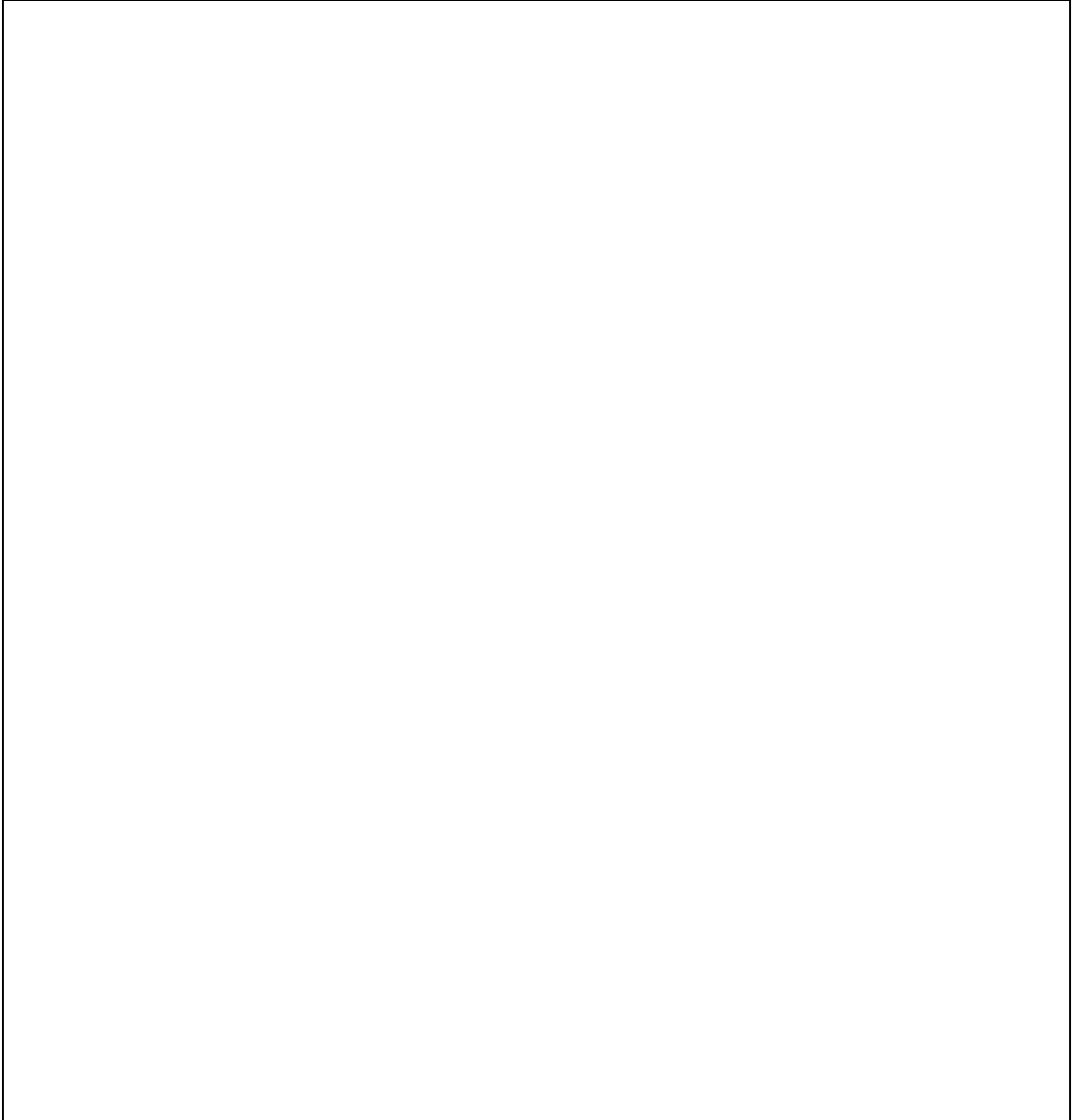


Personal barriers. How might I get in my own way? E.g. I feel self-conscious going for a walk on my own; I tend to put things off, especially if I don't feel like doing them:



Step 4: Some potential solutions are:

Potential Solutions (remember to bring self-compassion):

A large, empty rectangular box with a thin black border, intended for the user to write down potential solutions. The box is currently blank.

8. *Workshop One Slides*



Self-Compassion & Health

Workshop One

Dr. Helen Bolderston & Sarah Jeffery

9.



Workshop One

Session Plan
➤ Introductions
➤ Ground rules
➤ Introduction to self-compassion
➤ Mindfulness & first mindfulness practice
➤ <i>10 minute break</i>
➤ Mindfulness of breath practice
➤ Links with health behaviour
➤ 3 step self-compassion practice
➤ Any questions
➤ Time to complete questionnaires

10.

11.

BU Bournemouth University
Ground Rules



KEEP CALM

AND...

- ✓ Turn phones off or to silent
- ✓ Share only what you feel comfortable sharing
- ✓ Be respectful of other workshop participants - confidentiality
- ✓ If you have any concerns about the sessions or practices, do contact us between sessions or afterwards
- ✓ Arrive in plenty of time after breaks & for the session next week

12.

3

BU Bournemouth University



- Your name
- BU course & year

13.

4

14.

15.



Self-Compassion

16.

5



Exercise: Brief Chat in Pairs

- What do you think is meant by the term '*self-compassion*'?
- What does it mean to you?

17.

6

18.



Self-Compassion Definition

Self-compassion is extending compassion to oneself, in particular in times of perceived inadequacy, failure, or suffering.

Kristin Neff defines self-compassion as including self-kindness, common humanity, and mindfulness.

19.

7



Self-Compassion

Self
Kindness

Common
Humanity

Mindfulness



20.

8

21.

22.

BU Myths about Self-Compassion
Bournemouth University

Lots of people find it hard to be self-compassionate or even to think about trying to:

1. "I won't be motivated if I don't criticize myself"
2. "Self-compassion is self-pity"
3. "I'm indulging myself if I'm self-compassionate"
4. "Self-esteem is more important than self-compassion"

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BU Self-Compassion vs **Self-Criticism**
Bournemouth University



Many believe self-criticism will help motivate them...

...Research shows that this is not the case.

More self-compassionate people have greater personal initiative to make changes. The motivational power of self-compassion comes from the desire to be healthy, to reduce personal suffering.

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Self-Compassion vs Pity

Self-pity: We become immersed in our problems and feel like we are the only ones who are suffering. Self-pity also tends to exaggerate the extent of personal suffering.



With self-compassion, we still experience suffering but without these feelings of isolation and disconnection. It helps us to take a more balanced, objective perspective

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Self-Compassion vs Self-Indulgence



Self-indulgence is about getting or doing anything and everything we want without thoughts of well-being. It numbs and denies our suffering and, while it might make us feel better briefly, in the long term it doesn't serve us well.

Self-compassion is about becoming aware of our suffering and treating ourselves in ways which are kindly and beneficial to our health and wellbeing.



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BU Self-Compassion vs **Self-Esteem**
 Bournemouth University



Self-esteem = global evaluation of our self-worth

- ✗ Highly unstable: depends on our latest successes/failures
- ✗ To have high self-esteem, we need to feel special and above average
- ✗ May have to build ourselves up (and put others down) to feel ok

Self-compassion is not based on self-evaluation – we don't have to feel better than others to feel good about yourself; we all deserve compassion. Self-compassion is always available - it isn't dependent on external circumstances.

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BU Self-Compassion Research...
 Bournemouth University

Research highlights that:

"Self-compassionate people are less depressed and anxious, have better emotional coping skills, are less afraid of failure, are more intrinsically motivated to learn and grow, are happier, more curious and wise, and feel more connected to others"

"Importantly, these mental health benefits are not obtained through a process of judging or evaluating the self – by stuffing oneself into a box labeled "good" versus "bad."... All human beings are worthy of compassion, the self included."

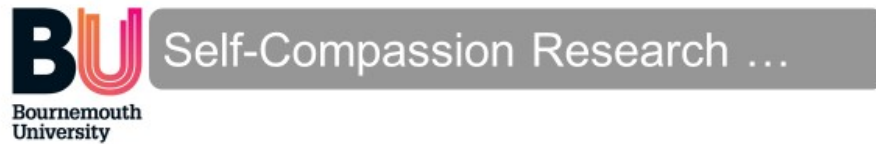
(Kristen Neff, 2009)



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A wealth of research confirms the psychological benefits of self-compassion:

- ✓ Predicts **emotional well-being** more so than self-esteem
- ✓ Associated with greater feelings of **social connectedness** and **life satisfaction**, and less anxiety and depression
- ✓ Is associated with **happiness, optimism, wisdom, curiosity, exploration, personal initiative**, and **positive affect**
- ✓ Provides **emotional resilience** – self-compassionate people had more perspective on their problems and were less likely to feel isolated by them
- ✓ Is associated with **greater personal initiative to make needed changes** in one's life. Self-compassionate individuals do not berate themselves when they fail, therefore are more able to take on new challenges

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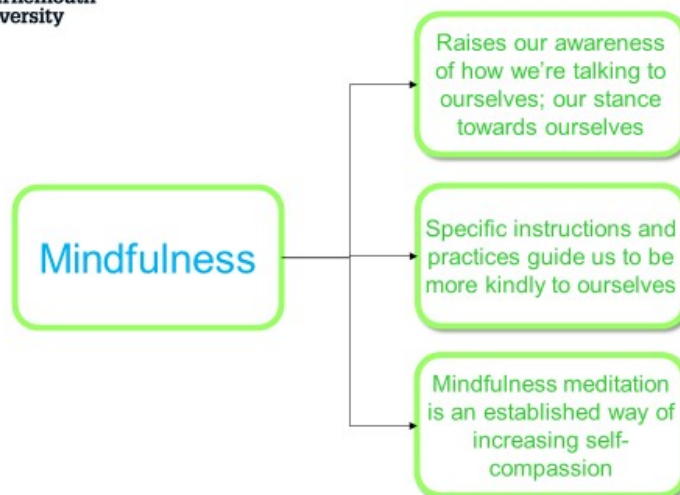
What is Mindfulness?

- A type of meditation
- Roots in eastern spiritual traditions, particularly Buddhism
- All major religions have a meditative aspect/practice
- *Taught in health and educational settings in a non-religious way, as a life skill*

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Mindfulness and Self-Compassion



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Mindfulness of Feet



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Please be back and ready to start again in 10 minutes!

Break

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Brief Mindfulness of Breath



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Mindfulness Definition

Mindfulness has been defined as the awareness that arises through:

“Paying attention in a particular way: on purpose, in the present moment, and non-judgmentally”

(Jon Kabat-Zinn, 1994)

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Brief Mindfulness of Breath



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Self-Compassion & Health

The aim of these workshops is to *increase your self-compassion & help you to make positive health behaviour changes in areas you want to*

How do you think self-compassion might be related to health behaviour & health behaviour change?



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BU Self-Compassion & Health
 Bournemouth University

To be healthy, we have to consistently override immediate needs and wants in the service of our longer term goals for good health...

- Let's say we make a plan to get fit by going running 3 times a week ...
- ...all goes well at the start – we're feeling motivated!
- But making the healthy choice requires ongoing exercising of self-control (a finite resource)



or



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BU Challenges...
 Bournemouth University

- Our *self-control resources can be depleted by exertion*. E.g. if we used lots of self control to focus on completing an assignment, we may not have enough left to choose the run over the sofa
- *Emotional distress* can result in short term emotional regulation (e.g. by distraction) being prioritised over other self regulatory goals. So, if we're upset we seek immediate comfort or distraction e.g. having a glass of wine on the sofa instead of going for the run we planned



In the short term, we feel better... but then we start to feel bad that we didn't stick to our plan... we may be self-critical... we may feel shame, guilt, emotional distress... this can lead to more avoidance . . .we can easily get into a downward spiral

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Self-compassion helps us by:

- ✓ **Enabling us to be deal better with our failures** and be more accepting of ourselves, thereby reducing the emotional distress we experience when we fall short of our targets
- ✓ **Stopping the downward spiral.** Instead of beating ourselves up for one unhealthy choice, we can acknowledge how we feel about it, view our choice in the context of common humanity, and be kind to ourselves. One lapse no longer becomes a downward spiral

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Self-compassion is associated with effective self-regulation, healthy intentions, and practice of healthy behaviours.

- ✓ Involves desire for health and well-being, and is associated with **greater personal initiative to make needed changes**
- ✓ Is **positively associated with self-regulation & negatively associated with chronic self-regulation failure**
- ✓ **Allows failures to be taken less personally** e.g. healthy eating lapses
- ✓ Is **positively associated with health-behaviour intentions** and with **practice of health-promoting behaviours**
- ✓ Is associated with **greater intrinsic motivation to exercise** (versus extrinsic motivation)
- ✓ Can **improve self-regulation in smokers wanting to quit**

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BU Bournemouth University

3 Step Self-Compassion Practice

3-Step Self-Compassion Practice (Everyday Version):

1. This is a time when I want to be kind to myself
2. All people do better when there's some kindness in their lives
3. A kindly act towards myself right now might be...

What do we mean by kind actions?

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Between Session Practice

Planned Practice:

- *Mindfulness of Breath*: 5 mins, once a day
- *3 Step Self-Compassion (Everyday Practice)*: briefly, once a day

'As and When' Practice:

- *Mindfulness of feet*: whenever you feel it would be useful

We've developed short practices to fit easily into your day. It's your choice to do this – will you make a kindly choice?

Just Notice:

- *Notice how you are in terms of health behaviours* (1) healthy eating, (2) exercise - vigorous and moderate (3) smoking (4) alcohol use. No need to make any changes but next week we'll ask you in which of these areas you'd most like to make a change for the better.

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Resources

- We have put the brief mindfulness of breath and the 3-step compassion practice on Dropbox for you to download:
<https://www.dropbox.com/sh/usuwvcjme1n1ma3/AArayrQ4isXY7ILznaqv3fYa?dl=0>
- *For a useful recap on self-compassion, see Kristin Neff's TED talk 'The Space Between Self-Esteem and Self Compassion'*
<https://www.youtube.com/watch?v=lvTZBUSplr4>

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74. Workshop Two Slides



Self-Compassion & Health

Workshop Two

Dr. Helen Bolderston & Sarah Jeffery



Workshop Two

Session Plan

- Welcome back & reminder of ground rules
- 3 step self-compassion practice (times of difficulty)
- Recap from last week
- Your experiences over the last week
- Choosing a health behaviour area to focus on
- *10 minute break*
- Identifying your goals and barriers to your success
- Brief mindfulness practice
- Compassionate letter to self
- Any questions
- Time to complete questionnaires

BU Ground Rules
Bournemouth University


KEEP CALM
AND...

- ✓ Turn phones off or to silent
- ✓ Share only what you feel comfortable sharing
- ✓ Be respectful of other workshop participants - confidentiality
- ✓ If you have any concerns about the sessions or practices, do contact us between sessions or afterwards
- ✓ Arrive in plenty of time after breaks & for the session next week

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BU 3 Step Self-Compassion Practice
Bournemouth University

3-Step Self-Compassion Practice (Everyday Version):

- 1.This is a time when I want to be kind to myself
- 2.All people do better when there's some kindness in their lives
- 3.A kindly act towards myself right now might be...

What do we mean by kind actions?

BU 3 Step Self-Compassion Practice
 Bournemouth University

3-Step Self-Compassion Practice (For Times of Difficulty or Struggle)

1. Saying to yourself, "This is a time of difficulty," and placing your hand somewhere on the body where it'll feel comforting.
2. Saying to yourself, "Difficulty/suffering/pain is part of being human. All humans struggle."
3. Asking yourself, "What can I do that would be a kind action, right now?"

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BU Recap: We Learnt...
 Bournemouth University



That self-criticism isn't actually the best motivator...



That self-pity isolates us while self-compassion connects us...



That self-indulgence ignores our health and wellbeing while self-compassion prioritises it...



That self-esteem is unstable and requires us to judge ourselves against others...

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BU Bournemouth University
Recap: We Learnt ...

Self-compassion has many psychological benefits (e.g. greater emotional resilience and happiness, less fear of failure) and it has none of the downsides of self-esteem



“All human beings are worthy of compassion, the self included.”

(Kristen Neff, 2009)

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BU Bournemouth University
Recap: We Learnt About...



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BU Recap: We Learnt...
 Bournemouth University

- The need to use self-control when trying to stick to long term health behaviour goals



or



- The challenges of **self-control depletion** and **emotional distress** – which result in choices that make us feel better in the short term, but may lead to us being **self-critical** and experiencing more **emotional distress**. We can easily get into a **downward spiral**...
- How self-compassion helps us by:
 - ✓ Enabling us to deal better with our failures
 - ✓ Stopping the downward spiral

BU Recap: We Practiced...
 Bournemouth University



BU Exercise: Brief Chat in Pairs
Bournemouth University

Your experiences over the last week?

- Noticing health behaviours
- Planned practice: Mindfulness of breath & 3 step self-compassion practice
- As and when practice: Mindfulness of feet
- Anything else you think might be relevant?

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BU Self-Compassion & Health
Bournemouth University



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Self-Compassion & Health

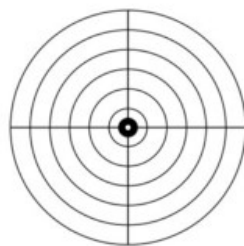
The aim of these workshops is to *increase your self-compassion & help you to make positive health behaviour changes in areas you want to*

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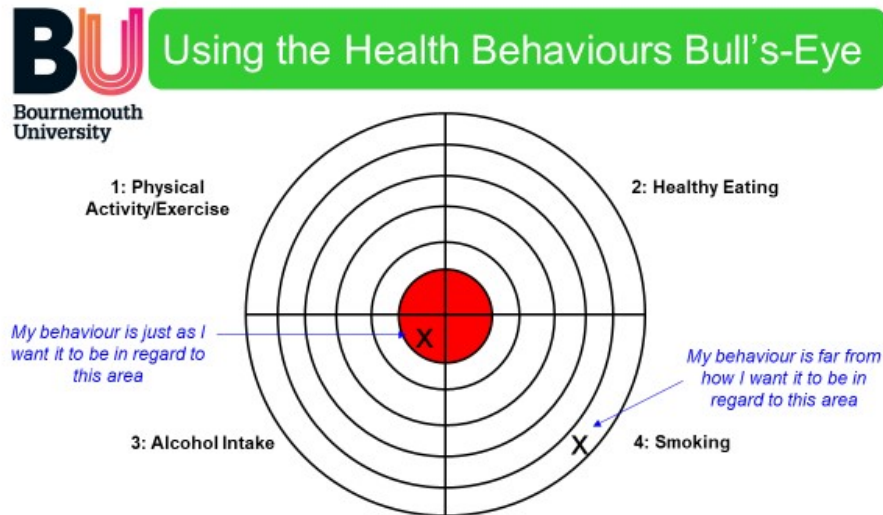
Exercise: Choosing a Health Area

In which area would you most like to make a positive change to be more healthy?



1. Healthy eating?
2. Physical activity/ exercise?
3. Reducing smoking?
4. Reducing alcohol intake?

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- Make an X on the dartboard in each of the four health behaviour areas to show where you stand, thinking about your behaviour over the last week
- The closer your behaviour is to how you want it to be, the closer to the bull's-eye your X needs to be

BU Exercise: Bullseye
Bournemouth University

Talk through with your partner:

1. Does one area stand out as the one where you want to particularly make changes over the next few weeks?
2. Why does it stand out? The easiest one to make changes? The one where change is most needed?

If it is not clear which area you want to focus on, your partner helps you talk it through, bringing a kindly voice to the discussion!

3. Decide on 1 area to particularly focus your efforts over the next few weeks – write in on your worksheet

If you're struggling with this, call Helen or Sarah over for a consultation with your pair



Please be back and ready to start again in 10 minutes!

Break


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Setting Good Goals



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Exercise: Goals

Using the worksheet, write down a graduated series of goals:

- Starting from very small, simple goals that can be achieved right away...
- ...to longer-term goals that may not be achieved for weeks or months

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Exercise: Barriers

In pairs, discuss:

1. What external barriers might get in the way? What can I do to deal with those?
2. How might I get in my own way? What comes up for me when I think about trying to make this change? How can I use self-compassion to help?

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Brief Mindfulness of Breath



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Compassionate Letter to Self



Follow the instructions provided. When you have finished the letter, seal it in the envelope provided and address it. All letters will be kept, unopened, in a locked cabinet in a locked room in the university and will be posted out to you

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Post-Workshop Actions

Health Behaviour Changes:

- *Remember the goals you have set for yourself and work towards those as you planned, using your goals worksheet*

Planned Practice:

- *Mindfulness of Breath: 5 mins, once a day*
- *3 Step Self-Compassion (Everyday Practice): briefly, once a day*

'As and When' Practice:

- *3 Step Self-Compassion (for Times of Difficulty or Struggle): as needed*
- *Mindfulness of Feet (as needed)*

<https://www.dropbox.com/sh/usuwvcjme1n1ma3/AAArayrQ4isXY7lLznaqv3fYa?dl=0>

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Post Workshop...

1. Self-Compassionate Letters: These will be posted back to you in a couple of weeks time
2. Questionnaires: In (1) one week & (2) six weeks time you will receive a link to complete relevant questionnaires

Thank you for participating so far & good luck with your practice and your health behaviour changes!

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Additional Resources

Much of the material in these workshops is based on the work of Kristin Neff and Christopher Germer.



You can find Kristin's website here:
<http://self-compassion.org/>



You can find Christopher's website here:
<http://www.mindfulselfcompassion.org/>

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