Travelling to a sport event: Profiling sport fans against the Transtheoretical Model of Change

Authors: Musgrave, James; Jamson, Samantha; and Jopson, Ann

Abstract

Purpose: This article profiles the travel behaviour of sport fans against the Transtheoretical Model of Change (TTM) and its application to sport events.

Design: Using the four constructs of the TTM, we distributed a self-reporting survey to sport fans prior to home fixtures.

Findings: There is some synergy with the theorised stages of change and processes of change in this context. Notwithstanding, the results show a high level of commitment to others in the early stages of change - a movement away from the prescribed theory. Results from decisional balance and self-efficacy items reaffirm the congruence with theory and the application of the TTM to sport fans and their travel behaviour.

Originality: These results assess the application of a stage-based model of change within a sport event context; it provides an exploration of the antecedents of behaviour change indicators relevant to sport fans, thus enabling policy makers to make informed decisions about future travel behaviour change.

Key Words – Travel, Sport Events, Transtheoretical Model of Change

Travelling to a sport event: Profiling sport fans against the Transtheoretical Model of Change

Introduction

Atmospheric emissions arising from road traffic continue to increase and contribute to climate change (Gardner and Abraham, 2008; May, 2013; Borgstede et al. 2013). Ettema and Schwanen (2012) and Holden and Linnerud (2011) suggest that travel for social and leisure pastimes will increase across Europe. These trends are also supported by Valek et al. (2014). According to their study, 75.3 million adult Americans travelled for or because of sport and leisure. Conversely, the largest share of carbon emissions attributable to a leisure event is typically from transportation (Bottril et al. 2009; Harvey, 2009). Collins, Flynn, Munday, and Roberts (2007) found that visitor travel was the largest environmental impact in staging a major sport event (FA Cup, 2004), citing 73,000 attending the FA cup at the Millennium Stadium, resulting in an estimated 43million kilometres travelled, with 47% of that distance covered by private car. More recently Collins, Munday and Roberts (2012) assessed the Tour De France, Grand Depart, 2007. Results found that visitor travel accounted for 75% of the total ecological footprint of the event. By attending the event, visitor's travel footprint was 2.6 times greater than their ecological footprint at home for the same period.

Despite these externalities there is a lack of research determining underlying behaviours in leisure travel due to factors such as travelling in the company of others, frequency of travel, modal choice, timing of the event and seasonal effects. Yet the combination of these attitude, environmental and behavioural factors have frequently been used in transport

behaviour research (see for instance Spears et al. 2013, Bamberg and Schmit, 2003, Gardner, 2009 and Anable, Lane and Kelay 2006).   Models such as Transtheoretical Model of Change (TTM), have examined attitude, norms and perceived behavioural control and considered how these factors have influenced the travel decision making process. Yet, there has been little application to sport events.

This lack of research provides limited insight and a poorly constructed understanding of why certain travel choices are made and how travel behaviour in an event setting can be influenced. This lack of understanding has led to broad assumptions and has created inappropriate transport policies at regional and national levels (House of Lords Science and Technology Select Committee, 2011, May, 2013; Borgstede et al. 2013). Therefore, in this exploratory study we are interested in three things. First, to ascertain the current behaviour of fans travelling to a sport event. Second, to ascertain their openness to changing their travel behaviour and third, to explore the reasons why they travel the way they do. We have used the constructs of the TTM to synthesise these themes and hypothesised $H1_0$ "Sport Fans in different stages of change do not vary in their processes of change, self -efficacy and decisional balance ratings in line with the TTM theory" and $H1_a$ "Sport Fans in different stages of change do vary in their processes of change, self -efficacy and decisional balance ratings in line with the TTM theory".

Evidently there is a precedent of using TTM constructs in the analysis of travel behaviour and change programs. Yet studies using the TTM have often been incomplete in their analysis and methods have fallen short of testing the relationship across the TTM constructs including self-efficacy, decisional balance, PoC and SoC (see for instance Aveyard, Massey,

Parsons, Manaseki and Griffin, 2009, Hutchison et al., 2009, and Kim and Bradley, 2009). In investigating the travel behaviour of sport fans and determining antecedent factors that may influence their travel behaviour, this study will utilise the four constructs of the TTM and contribute to the realisation of sustainable tourism. As Wheeller (2012: 39) in Highan et al. (2013:949) states "All tourism involves transport, all travel involves tourism, and no form of transport is sustainable".

The first section will evaluate existing studies into travel behaviour change, followed by a critical review of the evidence related to sport fans' travel choices. The next section will outline the application of the TTM to a travel behaviour context and underline the theoretical position of this paper.

Theoretical Perspectives: The travel behaviour debate

Whilst Taniguchi and Fujii (2015) suggest there is limited understanding of how individuals modify their travel behaviour, evidence suggests otherwise. For instance in Higham et al. (2013) they establish a linear relationships between information setting and an individual's values and norms that encourage voluntary travel behaviour change. These values and norms are negotiated by specific attitudes and habits that may lead to a change in mobility patterns. Empirical evidence also points to a more heuristic and contextual viewpoint where social and cultural settings derived from institutional, political and legislative patterns can shape early learning and influence personal intentions to travel (Schwanen and Lucas, 2011). Alongside these factors Murtagh et al. (2012) purport an individual desire for autonomy, status, self-identity and privacy as mediating factors in travel behaviour.

Conversely, Anable (2005) suggests that the ability to reach agreement in how to change travel behaviour is diminished due to the diverse situational and psychological factors that affect travel choice within different segments of the population. Thornton, Evans, Bunt, Simon, King and Webster (2011) and Davies (2012) agree that a lack of consensus is due, in part, to the range of factors that affect choices in travel mode behaviour including cognitive beliefs, feelings of responsibility, perceived effectiveness of changes, personal norms, social orientation and aspirations and trust in the type of information received. Murtagh, Gatersleben and Uzzell (2012a) accept there is a melting pot of factors that can influence travel mode. Indeed these instrumental, affective and symbolic factors are also found within studies by Spears et al. (2013). They state that individuals adapt their travel as a direct result of their perceptions, attitudes and preferences. But do these factors apply to sport fans travelling to a sport event?

Is there an understanding of how and why sport fans make their travel choices?

According to Regan et al. (2012) leisure travel is complex, with many related thoughts, decisions, behaviours and evaluations occurring pre and post the event. Kaplanidou et al. (2012) adds that sport tourism arises from unique interactions between people, the place and the activity. In terms of sport, this can be pre-arranged meetings/rituals with friends, the discussion of the sport before the event and the walk to the stadium. Fairley and Gammon (2005) cite tailgating (pre-game meal in the boot of the car) as an example of these interactions between people, place and the activity. Whilst tailgating may influence travel choices, it is not a ubiquitous concept and does not apply directly to this study (UK based). Notwithstanding, these examples further the sense of realism as described by Green (2008) in that modal choice is a bodily, social and political practice and linked to space, ethnicity and class. These interactions are also influenced by motives such as excitement, escapism and socialisation (Trail and James, 2001). Indeed there is evidence of the existence of 'communitas' at sport events. Burke and Woolcock (2009) find that increased use of public transport services to sport venues represents an 'intense moment of travel and co-presence'. Similarly Mokhtarian, Salomon and Redmond (2001) refer to the positive utility of travel. And that travel can be perceived as having positive outcomes but that these outcomes depend on personality, life-style and nature of the specific trip. This is broadened by Regan et al. (2012). They suggest that travel for a leisure purpose provides an opportunity for social interaction, companionship, being guided by experts, meeting counterparts and exploring one's own identity often with like-minded people. Furthering this, Fairley and Gammon (2005) and Fairley (2009) find that the mode of transport is central in creating and maintaining the identity of groups that travel and follow a sports team.

But what psychological benefit does the sport fan get from attending sport events? According to Wann, Royalty and Rochelle (2002) and Smith and Stewart (2007) the sport consumer experiences a satisfaction of psychological, social and cultural needs. These range from escapism, stimulation and entertainment, national pride; cultural celebration and to a sense of collective and personal identity. These help categorise sport fans and through categorisation enable a deeper understanding of sport fan traits and behaviours to be obtained. Snelgrove et al. (2008) reaffirm the view that sport can socialise the individual into the attitudes, beliefs, and values distinctively associated with that sport. In turn, this socialisation develops 'self-identification' and 'description of self by others' within the group of sport fans. The reinforcing fashion of one's self, cultivated by the attendance at a sport event, further strengthens loyalty to the subculture associated within the sport Furthermore, sport fan volition is influenced by objects of identification. For example, Shamir (1992) and Fairley and Gammon (2005) and Valek et al. (2014) suggest that self–identification and categorisation leads to an ethnocentric conformity which includes adherence to goals, norms and possible behaviours.

It should be noted that these types of behaviours are not isolated to sport fans, and arguments of ethnocentric conformity can be applied to other leisure groups in society such as music and movie fans (Bennett, 2012; Morey, 2012; Larson, Llundberg and Lexhagen, 2013) and also in business whereby business and leisure consumers take on homogenous characteristics in travel settings (Marcucci and Gatta, 2011; Murtagh et al. 2012). Nonetheless, the review of literature suggests limited attention given to the act of travel to a sports venue and the decision making process related to travel by sport fans. Existing

studies such as Wann et al. (1999); Yu (2010); Funk et al. (2007) and Uysal and Jurowski (1994) focus on the underlying motivation of fans to travel to a destination (intent) to see their sport rather than travel behaviour itself. For example, Yu (2010) found pride in sport fans and an affinity with sport to be the underlying motivational factors on intent to travel to watch their sport. Findings from Funk et al. (2007) report a continuum of cultural education and social-psychological motives to travel to and participate in a sport event. These findings are symptomatic of existing work where modal choice and the act of travelling within sport fans are not discussed and where studies focus more on the broad area of motivation to travel to watch sport.

An exception to this is Fairley's study on the influence of sport fandom upon a group travel setting (Fairley, 2009). Her study suggests that the interaction of group members, group cohesion and group reinforcement are at the forefront of travel choices and raise the question of whether or not 'group identity' can influence the travel choice of sport fans travelling to a sport venue. Her findings are in contrast to the generalised view taken by Barff, MacKay and Olshavsky (1982) and more recently Innocenti, Lattarulo and Pazienza (2013) where price, comfort, convenience and scenery are seen as dominating factors of travel choice. This exhaustive combination of attitude-behavioural factors related to sport fans and travel can be applied to social and environmental psychology models such as the Theory of Planned Behaviour (TPB); its forerunner the Theory of Reasoned Action (TRA); the Norm Activation Model (NAM); Social Cognitive Theory (SCT) and the Transtheoretical Model (TTM). These models have been frequently used in transport and behaviour change research and are seen to capture the factors articulated earlier (Spears et al. 2013,

Gatersleben and Appleton, 2007, Rose and Marfurt, 2007, Kenyon and Lyons, 2003, Kim and Bradley, 2009 and Adams and White, 2004).

Transtheoretical Model of Change

This study uses the TTM to assess change behaviour within sport fans. There are 2 reasons why the model is appropriate in this context: (1) According to Prochaska and Norcross (2007) the TTM has been described as an integrative and comprehensive model as it draws from a spectrum of psychotherapy and behaviour change, thus it is transtheoretical in nature. The comprehensiveness of the TTM is attributed to a variety of methods used to assess and assist in change; it's a model of intentional behaviour change which can address individual and group change and professional intervention; it can cover the whole range of change; (2) The TTM recognises that the individual or group of participants may not acknowledge their 'problem' behaviour and to change the behaviour participants do not need to be in a "therapy" programme.

There are four components to the TTM, the stage of change (SoC), the process of change (PoC), self-efficacy and decisional balance. The SoC is the central construct of the TTM and establishes when particular shifts in attitudes, intentions and behaviours are most likely to occur. The version of the model in this study specifies four stages: precontemplation, contemplation, action and maintenance. These stages are represented as a spiral - people start at the bottom the spiral in precontemplation then move through the stages in order but will typically relapse back across numerous stages. The PoC identifies how the change occurs and integrates cognitive, affective, and behavioural processes from leading theories

of psychotherapy and health psychology and can be categorised further as experiential or behavioural processes. See table 1 for definitions of each process of change.

Insert Table 1 - Process of Change Definitions

Reiterating the theoretical framework, Prochaska and DiClemente propose that the integration of stages and processes of change creates an important guide to altering behaviour. Once it is clear what SoC a person is in, theoretically one would know which process to apply in order to help the individual progress to the next SoC. Decisional balance relates to the evaluation of outcome and can facilitate progression through the stages of change. Finally, self-efficacy constructs are taken from social cognitive theory and reflects individual perception towards competency and control. Presenting tools to support control and progression of behaviour change is crucial to self-efficacy.

Methods

The researchers had to gain access to sport fans and identify a sport stadium with a 'home team' where home supporters made regular journeys to the stadium. A professional Rugby League team (UK based) agreed to participate in this cross sectional study and allowed access on match days but requested anonymity. The rugby league team have a multi-use venue which is supported well by local public transport infrastructure. Home matches are organised at regular intervals and advertised throughout a program of matches across a typical season. Unfortunately access to ticket holder information such as name and addresses was not possible. Thus the opportunity to use probability sampling was restricted. Whilst Kellow (1998) argued that a large sample size does not necessarily guarantee integrity or statistical significance, it does exert pressure on the chosen non-probability

sampling techniques to the targeted population (sport fans). To increase the likelihood of responses, convenience sampling was employed. The research team was granted access to the stadium during 3 home matches March through to May 2014. Seventeen volunteers were enlisted to help with the distribution of the self-reporting questionnaire to the sport fans before the start of each match. Only home team supporters were approached as there are more home supporters than away supporters and they travel frequently to the stadium. In order to increase participation incentives were offered to participants in the form of a prize draw. 192 usable surveys were collected.

A self-reporting questionnaire was designed for this study using the four aspects of the TTM (1) SoC, (2) PoC, (3) Self Efficacy and (4) Decisional Balance. All TTM measures used within this study demonstrate validity and reliability in a number of studies (see Migneault et al. 2005). The survey was tailored to modal choice and behaviour change to ascertain sport fans current travel behaviours and their openness to change.

Measures

Stages of Change

The SoC measures are based upon studies using the University of Rhode Island Change Assessment (URICA). This measurement tool reflects the four stages of change model (precontemplation, contemplation, action and maintenance). The four stage model presents a valid and reliable evidence trail (see for instance Dixon et al. 2009 and Field et al. 2009) and continues to be one of the most reviewed and well regarded measures for assessing

and categorising participants in change behaviour studies, thus reinforcing it as a valid and reliable measurement of change. Where the 'problem' was noted within the 12 items across the stages, these were then contextualised to travelling to the stadium. More specifically driving to the stadium. E.g. precontemplation item "As far as I'm concerned, there is nothing wrong with the way I get to the stadium" and contemplation item "I know I should look into alternatives to get to the stadium". A 5 point Likert scale was employed (1 = strongly disagree to 5 = strongly agree).

PoC

Based upon Prochaska, Velicer, DiClemente and Fava's (1988) study in to smoking cessation, a 20 item questionnaire to test aspects of the 10 processes of change was used. The 20 items were contextualised to travelling to the stadium, e.g. Counter-conditioning "I think about how traffic pollution can affect friends and family" and Social Liberation "I recognise the impacts traffic pollution has on me, my friends and family". An even spread of experiential and behavioural processes are assessed within the measure. A 5 point Likert scale was employed (1 = strongly disagree to 5 = strongly agree).

Self-Efficacy

Given the constraints of the sample outlined earlier this study uses a single item of measurement for self-efficacy as presented by Anis (1986) in Breslin et al. (2000) and focusses upon situational confidence levels rather than situational and temptation items as described by Shwarzer (2014). It tests Negative Affect, Social/Positive, Physical and Other Concerns and Cravings and Urges. Di Noia and Proachaska (2010) suggest that the 2-factor structure has been successfully tested in a variety of health related studies and as such,

presents a robust construct. The underlying statement was "Given the scenarios below, we would like to know how **<u>confident</u>** you may feel in using an alternative to the car". Each scenario was tailored to situations that might influence participants travel behaviour. E.g. Negative affect "When I see others driving to the stadium" and social/positive affect "When I want to celebrate the match with my friends and family". Physical affect "When I am physically tired" and Cravings "When I simply want to use the car to get the stadium". A 5 point Likert scale was employed (1 = Not at all confident to 5 = extremely confident).

Decisional Balance

The 10 decisional balance items are based on original work from Janis and Mann (1977) and applied to different behaviours by Velicer et al. (1985), Di Noia and Prochaska (2010) and whereby a two component structure was identified - pros and cons. Con items reflect barriers to changing travel behaviour decisions such as "Driving to the stadium is a pleasure", whilst Pro items reflect affirmative items that may encourage a change in travel behaviour decisions such as "I would be healthier if I walked to the stadium". A 5 point Likert scale was employed (1 = Never to 5 = Always).

Results

Sample Descriptors

192 responses were received of which 83% stated that they travel to the stadium by car. 73% of participants travelled with up to 3 people and 20% travelled with 4-6 people. Nearly 29% travelled more than 16 miles to the stadium and 25.5% of the sample took 26-35 minutes to get to the stadium. 59% of responses were male. Nearly 30% of all response was from 35-44 year olds. More evenly, the results show 50.9% of participants' class themselves as the main driver to the stadium as opposed to being a passenger. Just over 65% of the sample were employed full time, with 12.5% employed part time.

Stages of Change

The findings represent stages of change and apply the stages of change measure to the sports fan context to assist in answering the $H1_a$: "Sport Fans in different stages of change vary in their processes of change, self -efficacy and decisional balance ratings in line with the TTM theory".

Cronbach's α for the scale across the 12 items measured .71, suggesting internal reliability with the scale and in line with Carey et al. (1999) who suggest that internal consistency (alpha) for the four scales range from .70 to .83. To obtain a stage of change score, the authors followed DiClemente, Schlundt and Gemmell's (2004) original method whereby mean score for each subscale was calculated, then the sum means from the Contemplation, Action, and Maintenance subscales were subtracted from the Precontemplation mean. Cut off scores were then applied as discussed by DiClemente et al. (2004) and Teixeira et al.

(2015). Those scoring 8< were categorised as Precontemplation; 8-11 were coded as Contemplation, 12-14 were categorised as Action and those above 14 were categorised as Maintenance. The majority of participants were categorised as Pre-contemplators (92%) with some categorised as Contemplators (7.5%). Given the significant drop in Action and Maintenance stages no analysis was undertaken for these categories and reduced the sample to 191. Chi-square tests were used to examine relationships between SoC and gender, season ticket holders and having dependents. Assumptions and conditions for the use of Chi-square were met namely (1) the data for the variables was independent; (2) data was treated as nominal and (3) frequencies were larger than 5 in each cell. The Chi-square test proved gender not to be significant at the 0.05 level (χ^2 = .006, df = 1, N = 191, p = 0.93) across Precontemplation and Contemplation. No significance was also reported between season and non-season ticket holders across Precontemplation and Contemplation (χ^2 = .263, df = 1, N = 191, p = 0.61). Moreover, having dependents was not significant across Precontemplation and Contemplation (χ^2 = 4.09, df = 1, N = 191, p = 0.52). Chi Squared reports no significance within drivers (χ^2 = 1.57, df = 1, N = 191, p = 0.21) across the two SoC. Finally, Chi-square reported no significance within season ticket holders (χ^2 = .263, $df = 1, N$ = 191, p = 0.61).

Process of change

Using methods by Prochaska et al. (1988) to obtain a PoC score for experiment and behavioural processes, sum item scores were calculated and divided by 10. Cronbach's α for the scale across the 20 items measured .88, suggesting good internal reliability. The mean PoC scores were assessed against participants categorised in Precontemplation and Contemplation. Data are mean ± standard deviation, unless otherwise stated.

Reinforcement Management, Counter Conditioning, Helping Relationships and Dramatic Relief scored highest within Precontemplation respondents. Conscious Raising, Dramatic Relief, Social Liberation, Helping Relationships and Counter Conditioning scored highest within contemplation respondents (table 2). The higher scored PoC items in precontemplation certainly reflect a concern for others. Yet these are more commonly seen in the latter SoC. For example, Reinforcement Management focuses upon reward sought after by others; Self-Liberation requires a commitment to oneself and others; and Counter Conditioning suggests travel alternatives can be sought.

Mean PoC scores within contemplators show some alignment to theory. For example Social Liberation items are expected to be present within contemplation. However, high means were reported for Helping Relationships (m = 3.1) and Social-Liberation (m = 3.1). Helping Relationships is a process that encourages action through to maintenance by combing elements of trust, strong relationships and a caring environment.

Insert Table 2 - Mean Scores across Precontemplation and Contemplation

An independent-samples t-test was run to determine if there were differences in PoC scores between those in Precontemplation and Contemplation. Levene's test of homogeneity reported significance for Environmental Re-evaluation and Social Liberation and Conscious Raising, thus the assumption of equal variance was violated. These PoC items were not reported in table 3. In all other PoC items, the assumption of equal variance was maintained. Significance was found in the PoC scores between Precontemplation and Contemplation except for Dramatic Relief. For example the variation between the mean of Counter Conditioning was statistically significant, -.779 (95% CI, 1.4 to .2), *t* (189) = -2.55, *p* =

.011. The mean score in Precontemplation was 2.3 (±1.4) and in Contemplation the mean score was 3.1 (±.2). This suggests a higher engagement with PoC items in Contemplators. It reinforces the theoretical stance whereby individuals differ between early change behaviour. The effect size d was smaller than typical (d = .3), suggesting a small change in Counter Conditioning on account of SoC groups. Small effect size was also found for Reinforcement Management (d = .3) and Helping Relationships (d = .3). Typical effect size was found for Self-Liberation (d = .5), Stimulus Control (d = .5) and Self-re-evaluation (d = .5).

Insert Table 3 - T-test and Descriptive Statistics for PoC Items across SoC

SoC and PoC Correlation

The intention here was to test the relationship between the scores and ascertain if the findings reflect the theory. In other words, do the PoC Scores increase as the SoC increases? According to Prochaska and Norcross (2007) change process associated with experiential and cognitive persuasions are most useful during the earlier Precontemplation and Contemplation stages. Indeed Horiuchi et al. (2012) purports the use of experiential processes tend to peak at the contemplation stage. Behavioural PoC Items are traditionally associated with those in Action and Maintenance. In this study, most of the participants were categorised as either Precontemplators or Contemplators so there was an expectation of high engagement with experiential items as the scores increased.

A Spearman Rank-Order Correlation was used to investigate if there was a statistically significant association between SoC scores and behavioural and experiential PoC scores. For the Experiential score, Spearman Rank Correlation showed r_s (189) = .33, p = .001, suggesting respondents with a higher SoC score tended to have a higher Experiential PoC score. Using Morgan et al. (2012) guidelines, the r effect size was medium for studies in this area. The same approach was taken for Behavioural PoC scores - r_s (189) = .36, p = .001. Once again, the r effect size was medium. These results support earlier findings which reported higher PoC mean score for those categorised as Contemplators against Precontemplators. Indeed these findings support the premise that levels of engagement in PoC items move in parallel with higher SoC scores.

Self-Efficacy

Cronbach's α for the scale across the 12 items and between Precontemplation and Contemplation suggested internal reliability. Given the dominance of Pre-contemplators (92%) and Contemplators (7.5%) within this study it was important to explore where the responses sat across each SoC. According to Schwarzer (2014) results should reflect a low score in Precontemplation and as participants move towards changing their behaviour their confidence levels to abstain from particular behaviours (in this case driving to the Rugby League Stadium) should increase. The underlying statement within this SCQ questionnaire was "Given the scenarios below, we would like to know how confident you may feel in using an alternative to the car". The assumption here was that those in Precontemplation would not feel confident (present a lower mean) and those in contemplation would feel more confident (a higher mean).

There was a defining pattern with the results that showed a low mean in Precontemplation through to a high mean in Contemplation. This was a repeating pattern across each SCQ subscale (refer to table 4). These results supported the expected trends where confidence levels of participants to abstain increased through SoC.

Insert Table 4 - Self-efficacy Mean Score and Standard Deviation

An ANOVA was considered to determine the effect of SoC on SCQ scores. However, when running the tests, homogeneity of variance was violated for some of the SCQ items. Therefore, to explore the difference between SoC and SCQ subscale, a non-parametric Kruskal-Wallis analysis of variance was employed. Whilst not ideal, Derrick (2018) suggests the combination of parametric and non-parametric tests is appropriate for small samples and when assumptions are markedly violated. Assumptions of the Kruskal-Wallis test were met whereby the data was independent and there was an underlying continuity in the Likert scale. First, the median scores for each group were listed in rank order and shown in table 5. As there were only two groups (Precontemplation and Contemplation) no post hoc analyses was used to explore where the significant differences were between the SoC. The only SCQ subscale to show significance was physical SCQ χ^2 (1, *N*= 191) = 6.57, *p* = .010 with Precontemplation showing a lower mean of 93 against a Contemplation mean of 131. These items referred to the physical situation of the individual (tiredness, injury or time to plan) and their willingness to consider alternatives based on the item descriptions. It appears that the ease and availability of travel alternatives and creation of a positive social message may have an impact on the decision making of those in Contemplation and assist in behaviour change movement.

Insert Table 5 -KW Analysis of Variance between SoC and across SCQ Items

Decisional Balance

A 10 item measure was used to test pros and cons of travelling to the Rugby League Stadium for home matches. Con items reflected barriers to changing travel behaviour decisions such as "Driving to the stadium is a pleasure", whilst Pro items reflected affirmative items that may encourage a change in travel behaviour decisions such as "I would be healthier if I walked to the stadium". Within this study Cronbach's α for the scale across the 10 items measured .69 suggesting internal reliability.

Table 6 presents the mean of Pro and Con items within each SoC. To determine if there was a staged based difference between the Decisional Balance scores, an independent-samples t-test was run. In this case, the independent variable was the SoC (with two levels). There were no significant outliers in the data. There was homogeneity of variances, as assessed by Levene's test for equality of variances (Con p = .752, Pro p = .506). Table 6 underline that no significance was found in the mean scores of Pros and Cons scores across the SoC. These findings support the prescribed theory where decisional balance crossover is usually found between Contemplation and Action.

Insert Table 6 -T-test and Descriptive Statistics for PRO and CON scores across SoC

To ascertain if there was an association between decision balance score and overall SoC scores a Kendal's Tau was completed. Z scores were used for Pro and Con scores as well as SoC scores. There was a strong positive association between SoC scores and Pro item scores, τ_b = .159, p = .002. In other words as the SoC score increase so did the Pro Items suggesting

an alignment with the prescribed theory. However there was a negative association between Con Items and SoC score as you might expect, τ_b = -.194, p = .00025.

Discussion

The following section explores the results of the TTM survey applied to sport fans, their travel behaviour and the extent to which the existing model may need adapting for this context.

The majority of sport fans travel to the stadium by car with others. They are certainly committed to the sport, with 29% travelling over 16 miles and taking up to 35 minutes to get the stadium. Given this context, it is not surprising that 92% of the participants were categorised as 'precontemplators' and according to the TTM, do not recognise travel by car to the stadium as a problem behaviour.

Notwithstanding, further analysis suggest the predominance of 'precontemplators' may reflect the arbitrary nature in which participants are classified in the SoC and / or represent a rejection of the notion that the car is seen as an underlying 'problem behaviour'.

In analysing whether sport fans in different stages of change vary in their processes of change in line with the TTM theory, the findings support the premise that levels of engagement in PoC items move in parallel with higher SoC scores, thus supporting $H1_a$. Yet there were a few anomalies. Those in Precontemplation have a high concern for others, which is usually seen in participants moving from Action to Maintenance SoC. For example participants scored highly on Reinforcement Management items that focus on reward sought after by others and Self-Liberation items that requires a commitment to oneself and

others.   Clearly the synergy between the stages and process of change might not fit with the context of this study; sport fans look towards relationships with their travelling group to gain support and encouragement far earlier than what is seen in other studies of problem behaviours and social change. Given this, questions remain over the synergy between PoC and SoC constructs and their applicability to the context of travel behaviour of sport fans? It is clear that sport fandom and communitas is a fundamental characteristic of this group and may assist in future travel behaviour change interventions. And that central to creating and maintaining the identity of groups that travel and follow a sports team is to promote 'group identification'.

This argument may exemplify the challenge in applying SoC categorisation to a particular behaviour and/or context. DiClemente et al. (2004) accepts that the categorisation of SoC is more complicated when the target behaviour is complex and or the potential goals are multi-faceted. This study certainly reflects this commentary. For example, travel is recognised by many as multi-faceted (see for instance Regan et al. 2012, Kaplanidou et al., 2012 and Green, 2008). These multi-faceted interactions are between people (shall I travel with others?); place (where are we travelling to and for how long?); social institutions (does the rugby team promote alternative travel modes?) and political institutions (does the local council support and provide incentives to use alternative travel modes to the car?). Contemporaneously, travel decisions are placed against broader considerations such as time, frequency, family circumstances, cost, status, safety and convenience (Innocenti, 2013). Moreover, travel mode choices are made against a backdrop of motives such as excitement, escapism and socialisation of the sports fan. And in this study participants may be armed with all the facts (both precontemplators and contemplators scored high on social

liberation items such as "I recognise the impacts traffic pollution has on me, my friends and family" Social liberation) but continue to see the car as the answer to their problem rather than the problem behaviour itself. Thus the sheer complexity of the decision in travelling to the stadium (refer to earlier considerations of people, place, social and political institutions) may be so overwhelming to each participant that they simply don't consider alternatives and default to ingrained habit. This may go some way to explaining the lack of consideration to alternative modes of travel and the dominance of 'precontemplators' in these results.

Whilst it is premature to dismiss the application of the SoC to the context of sport fan travel, it is worth noting that these findings endorse Rhodes et al. (2004) and Sutton's (2001) view that discrete SoC are difficult to establish given the arbitrary nature of cut off scores and simplified item based algorithms that ascertain self-reporting behavioural intentions. It highlights the underlying contextual challenges that face the TTM when the 'problem behaviour' moves beyond the realms of addiction and health.

Overall participants had low levels of confidence to abstain from the car when travelling to the stadium. The findings reflected the theorised progression of low mean in Precontemplation to a higher mean score in Contemplation. Moreover, the results indicate little significance of stage effect on the results as expected. Thus supporting $H1_a$. Whilst it has been stated by Prochaska and Norcross (2007) that participants do not need to accept they have a problem behaviour it may be a variable that clearly affects the effect of the TTM within the decision making process of modal choice and how to get to a sport venue.

Decisional Balance results support the H1$_a$. As the SoC score increased so did the Pro items (affirmative change). To recap, Decisional Balance explores the comparative gains and losses of certain behaviours. These gains and losses are a mix of personal losses for oneself, gains for significant others and self-approval or disapproval and approval from others. It is clear from the results that the respondents have an awareness of the social ("driving has a negative impact on health") and moral complexities ("local air pollution and family and friends suggest looking at alternatives") that travel decisions can generate. But ultimately and as Sheeran (2002) purports, participant's ability to change is constrained by the context he/she finds himself in and the resources available. In this case, getting to the match on time together and leaving the match on time, together. Thus, decisional balance may be superseded by perceived levels of control. Indeed for these participants evidence suggests that there is a social acceptance of the car and as a consequence they may be less likely to change. Thus applying simplistic Pros and Cons statements to decision making simplifies what is a complex and socially constructed process. Indeed, Green (2008) argues that modal choice sits within a social and political framework which is linked to physical space, ethnicity and class. Given the limited control over such factors as availability and cost, participant's perception of the Cons may persist above and beyond any Pro items (affirmative beahviours). Therefore, it may be easier to increase this awareness than it is to decrease pre-existing beliefs in order to generate cognitive dissonance and form pro-environmental behaviours.

Conclusions and future research.

Sport fans do not see the car as a problem behaviour - in other words getting to the stadium. They recognise the impact their behaviour has but appear committed to using the car in the future. Underlying these decisions are the physical considerations such as location and distance, convenience, a concern for other and the value of travelling together.

Overall the TTM model behaves as theorised - the expected behaviour of low levels of confidence within precontemplators and a higher level of confidence in abstaining as one progresses through the stages of change is prevalent. Yet there are some anomalies. For example, the mixture of behavioural and experiential PoC items found with precontemplators and contemplators is more commonly seen in the latter stages of change. This study has argued that the characteristics of those in the lower stages of change may need reviewing given the context of this study. For example the strong affinity towards others and the concern towards the group within this specific population may have influenced the response to PoC items and the context of the study may have influenced the way in which participants perceive their current travel decision as a problem.

Nonetheless, further research is needed to clarify the existence of mediating factors on a larger scale. Moreover supporters of different sports may react differently and therefore a future area of research could be to explore fan reaction in other sports such as football, cricket and tennis. Indeed, exploring the underlying demographic influences may also influence utility of change behaviour policies. For instance analysis shows that there is no demographic influence between the stages of change. This trend is repeated in PoC, where gender shows no difference between the mechanisms that in theory should influence movement between the stages. However, there is less engagement in PoC items from

drivers versus passengers, suggesting a strong attachment to the car from this group. These characteristics will assist any future policies or interventions related to travel behaviour within a sport event context.

Limitations

The small sample size has had an impact upon the level of analysis surrounding SoC categories, such as those in Action. Given the fragility of the sample, under and over estimation of the impacts can occur. However, where necessary caution was noted throughout the findings and in discussion of the study. These results are also moderated by the self-reporting method used in this study. Given the complex nature of items in the survey such as personal losses for oneself and gains for significant others, there may be disconnect between the participants interpretation of each item. Consequently, future studies may look at adopting alternative techniques, such as motivational interviewing to explore items from a participant led approach across PoC, Decisional Balance and Self-efficacy. Finally, debate could be applied to the choice of case study. There are many constraints that context can put upon a person's ability to change. In this instance those constraints are the timing of the match, location of the venue and relative infrequent nature of the trips. Thus, the underlying cause of participant behaviour may have been due to the characteristics of the case study and not just the design of the items or challenges in operationalising aspects of the TTM. A single case design and small sample can provide over estimates and underestimates as noted by Moser and Bamberg (2008). Whilst the author accepts these limitations, it has never been suggested that a case study approach should be seen as representative of the entire sector.

Reference list

- Adams, J. and White, M. (2004) "Why don't staged based activity promotion interventions work?" Health education research - theory and practice, 20, 237-243. doi: 10.1093/her/cyg105

- Anable, J. (2005) Complacent car addicts' or aspiring environmentalists'? Identifying travel behaviour segments using attitude theory, *Transport policy,* 12, 65-78. doi:10.1016/j.tranpol.2004.11.004

- Anable, J.; Lane, B. and Kelay, T., (2006) An evidence base review of public attitudes to climate change and transport behaviour. Final Report to the Department for Transport, July, London.

- Aveyard, P., Massey, L., Parsons A., Manaseki, S. and Griffin C. (2009) *The effect of Transtheoretical Model based interventions on smoking cessation,* Social Science and Medicine, 68, 397-403

- Bamberg, S. and Schmidt, P. (2003) "Incentives, morality or habit? Predicting students' car use for university routes with the models of Ajzen, Schwartz and Triandis". *Environment and behaviour,* [online], 35, 264-285. Doi: 10.1177/0013916502250134

- Barff, R., MacKay, D., and Olshavsky, R. W. (1982). "A selective review of travel-mode choice models". *Journal of Consumer Research*, 370-380.

- Bennett, l. (2012) Music Audiences: An Introduction. Journal of Audience and Reception Studies, 2, 200-205.

- Borgstede, C., Andersson, M. and Johnsson, F. (2013) Public attitudes to climate change and carbon mitigation—Implications for energy-associated behaviours. *Energy Policy,* 57, 182-193. doi: 10.1016/j.enpol.2013.01.051

- Bottrill, C., Papageorgiou, S and Jones, M. (2009) Jam Packed, part 1: audience travel emissions from festivals. London, Julie's bicycle. From http://www.juliesbicycle.com/media/downloads/jb-TravelReport-sm-may09.pdf

- Breslin, F. C., Sobell, L. C., Sobell, M. B., and Agrawal, S. (2000). A comparison of a brief and long version of the Situational Confidence Questionnaire. *Behaviour Research and Therapy*, *38*(12), 1211-1220. Doi:10.1016/S0005-7967(99)00152-7

- Burke, M., and Woolcock, G. (2009). Getting to the game: travel to sports stadia in the era of transit-oriented development. Sport in Society, 12/7, 890-900 Carey, K.B., Purnine, D.M., Maisto, S.A. and Carey, M.P. (1999). "Assessing readiness to change substance abuse: A critical review of instruments". Clinical Psychology: Science and Practice. [online]. 6(3), pp.245-266. DOI: 10.1093/clipsy.6.3.245

- Collins, A., Flynn, A., Munday, M., and Roberts, A. (2007). Assessing the environmental consequences of major sporting events: The 2003/04 FA Cup Final. *Urban Studies*, *44*(3), 457-476.

- Davies, N. (2012). What are the ingredients of successful travel behavioural change campaigns? Transport Policy, 24, pp.19-29.doi: 10.1016/j.tranpol.2012.06.017

- Derrick, B., White, P. and Toher, D. (2018). Parametric and non-parametric tests for the comparison of two samples which both include paired and unpaired observations. Journal of Modern Applied Statistical Methods.DOI:

- DiClemente, C. C., Schlundt, D., and Gemmell, L. (2004). Readiness and stages of change in addiction treatment. *American Journal on Addictions*, *13*(2), 103-119.

- DiNoia, J. and Prochaska, J.O. (2010) Dietary Stages of Change and Decisional Balance: A Meta-Analytic Review, *American Journal of Health Behaviours*, 34/5, 618-632.

- Dixon, J.B., Laurie, C.P., Anderson, M.L., Hayden, M.J., Dixon, M.E. and O'Brien, P.E. (2009) Motivation and readiness to change and weight loss following adjustable gastric band surgery", *Obesity – A research journal*, 17, (4). doi 10.1038/oby.2008.609.

- Ettema, D., and Schwanen, T. (2012). "A relational approach to analysing leisure travel". *Journal of transport geography,* 24, 173-181.doi: 10.1016/j.jtrangeo.2012.01.023

- Fairley, S. (2009). The role of mode of transport in the identity maintenance of sport fan travel groups *Journal of Sport and Tourism, 14(2)*, 205-222.

- Fairley, S., and Gammon, S. (2005). Something lived, something learned: Nostalgia's expanding role in sport tourism. *Sport in Society*, *8*(2), 182-197.

- Field, C. A, Adinoff, B., Harris, T. R., Ball, S. A. and Carroll, k. M. (2009) "Construct, concurrent and predictive validity of the urica: data from two multi-site clinical trials". Drug and alcohol dependence, [online], 101, 115-123. DOI: 10.1016/j.drugalcdep.2008.12.003

- Funk, D. C., and Bruun, T. J. (2007). The role of socio-psychological and culture-education motives in marketing international sport tourism: A cross-cultural perspective. *Tourism Management,28*(3), 806-819. Doi: 10.1016/j.tourman.2006.05.011

- Gardner, B. (2009). Modelling motivation and habit in stable travel mode contexts *Transportation Research Part F: Traffic Psychology and Behaviour*, *12*(1), 68-76. Doi:10.1016/j.trf.2008.08.001

- Gardner, B and Abraham, C. (2008) Psychological correlates of car use: A meta-analysis, *Transportation Research Part F*, 11 (1), 300-311.

- Gatersleben, A. and Appleton, K.M (2007) Contemplating cycling to work: attitude and perceptions in different stages of change. *Transportation Research Part A,* 41, 302-312. doi:10.1016/j.tra.2006.09.002

- Green, B. C., (2008). Sport as an agent for social and personal change. Management of sports development, pp.129-147.

- Harvey, E. (2009). Greening live earth UK. In R. Raj and J. Musgrave (Eds.) Event Management and Sustainability, pp. 195-205 : Oxford: CABI.

- Higham, J., Cohen, S.A., Peeters, P. and Gössling, S. (2013). Psychological and behavioural approaches to understanding and governing sustainable Mobility, Journal of Sustainable Tourism. 21:7, 949-967. doi: 10.1080/09669582.2013.828733

- Holden, E. and Linnerud, K. (2011). Troublesome leisure travel: The contradictions of three sustainable transport policies. *Urban Studies*, 48(14): 3087-3106.

- Horiuchi, S., Tsuda, A., Prochaska, J.M., Kobayashi, H. and Mihara, K., 2012. Relationships between Stages and Processes of Change for Effective Stress Management in Japanese College Students. Psychology,3(06), p.494. doi: 10.4236/psych.2012.36070

- House of Lords. (2011). Behaviour Change Report, House of Lords Science and Technology Select Committee, Authority of the House of Lords: London.

- Hutchison, A.J., Breckon, J.D. and Johnston, L.H. (2009) "Physical Activity Behaviour Change Interventions Based on the Transtheoretical Model" Health Education and Behaviours. 36/5, 829-845. doi: 10.1177/1090198108318491

- Innocenti, A., Lattarulo, P., and Pazienza, M. G. (2013). Car stickiness: Heuristics and biases in travel choice. *Transport Policy*, *25*, 158-16. doi:10.1016/j.tranpol.2012.11.004

- Janis, I.L. and Mann, L., (1977)." Decision making: A psychological analysis of conflict, choice, and commitment. New York: Free press.

- Kaplanidou, K., Jordan, J.S., Funk, D. and Rindinger, L.L. (2012). Recurring sport events and destination image perceptions: Impact on active sport tourist behavioral intentions and place attachment. Journal of Sport Management, 26(3), pp.237-248

- Kellow, J.T. (1998). Beyond statistical significant tests: the importance of using other estimates of treatment effects to interpret results evaluation. American Journal of Evaluation,19(1), pp.123-134. doi: 10.1177/109821409801900112

- Kenyon, S., and Lyons, G (2003) The value of integrated multimodal traveller information and its potential contribution to modal change. *Transportation research part F*, 6**,** 1-21.doi: 10.1016/S1369-8478(02)00035

- Kim, Y.H and Bradley, J.C. (2009). *Effects of a transtheoretical model-based stage-matched intervention to promote physical activity among Korean adults,* International Journal of Clinical and Health Psychology, 9/2, 259-273.

- Larson, M., Lundberg, C., and Lexhagen, M. (2013). Thirsting for vampire tourism: Developing pop culture destinations. Journal of Destination Marketing and Management, 2(2), 74-84.

- Marcucci, E., and Gatta, V. (2011). Regional airport choice: consumer behaviour and policy implications. Journal of Transport Geography, 19(1), 70-84.

- May, A.D. Urban Transport and Sustainability: The Key Challenges. International Journal of Sustainable Transportation,7:3, 170-185. doi: 10.1080/15568318.2013.710136

- Migneault, J.P., Adam, T.B., and Read, J.P. (2005). Application of the Transtheoretical Model to substance abuse: historical development and future directions, Drug and Alcohol Review, 24, 437-448.

- Mokhtarian, P.L., Salomon, I. and Redmond, L.S. (2001). Understanding the demand for travel: It's not purely'derived'. Innovation. The European Journal of Social Science Research, 14(4), pp.355-380.doi: 10.1080/13511610120106147

- Morey, A. (Ed.). (2012). Genre, reception, and adaptation in the" Twilight" series. Ashgate Publishing, Ltd.

- Morgan, G.A., Leech, N.L., Gloeckner, G.W. and Barrett, K.C. (2012). IBM SPSS for introductory statistics: Use and interpretation. (5th Edition). London: Routledge

- Moser, G. and Bamberg, S. (2008). "The effectiveness of soft transport policy measures: A critical assessment and meta-analysis of empirical evidence" *Journal of Environmental Psychology*, 28(1), pp.10-26, doi: 10.1016/j.jenvp.2007.09.001

- Murtagh, N., Gatersleben, B. and Uzzell, D. (2012). Multiple identities and travel mode choice for regular journeys, Transportation Research Part F, 15, 514-524. doi: 10.1016/j.trf.2012.05.002

- Prochaska, J.O., and Norcross, J.C. (2007) "Systems of Psychotherapy", (7th Ed), Belmont, CA: Brooks/Cole Engage Learning

- Prochaska, J. O., Velicer, W. F., DiClemente, C. C., and Fava, J. (1988). Measuring processes of change: applications to the cessation of smoking. *Journal of consulting and clinical psychology*, *56*(4), 520.

- Rhodes, R.E., Berry, R., Naylor, PJ. And Wharf-Higgins, J. (2004) Three-Step Validation of Exercise Behaviour Processes of Change in an Adolescent Sample", *Measurement in Physical Education and Exercise Science*, 8:1,1-20, doi: 10.1207/s15327841mpee0801_1

- Rose, G., and Marfurt, H. (2007). Travel behaviour change impacts of a major ride to work day event. Transportation Research Part A, 41, 351-364. doi: 10.1016/j.tra.2006.10.001

- Regan, N., Carlson, J. and Rosenberger III, P.J. (2012). Factors Affecting Group-Oriented Travel Intention to Major Events. Journal of Travel and Tourism Marketing. 29:2, 185-204. doi: 10.1080/10548408.2012.648550

- Schwanen, T. and Lucas, K. (2011). Understanding Auto Motives. In Lucas, K., Blumenberg, E. and Weinberger, R. (eds) Auto Motives. Understanding Car Use Behaviours. Bingley, Emerald.

- Schwarzer, R. (2014). *Self-efficacy: Thought control of action*. Taylor and Francis.

- Shamir, B. (1992)." Some correlates of leisure identity salience: Three exploratory studies". Journal of Leisure Research, 24(4), pp.301-323, doi: 10.1080/00222216.1992.11969898

- Sheeran, P. (2002) Intention—Behavior Relations: A Conceptual and Empirical Review. European Review of Social Psychology, 12:1, 1-36, doi:10.1080/14792772143000003

- Smith, A.C.T. and Stewart, B. (2007) The Travelling Fan: Understanding the Mechanisms of Sport Fan Consumption in a Sport Tourism Setting", Journal of Sport and Tourism, 12:3, 155 – 181. doi: 10.1080/14775080701736924

- Snelgrove, R., Taks, M., Chalip, L., and Green, B. C. (2008). How visitors and locals at a sport event differ in motives and identity. Journal of Sport and Tourism, 13(3), 165-180.

- Spears, S. Houston, D. and Boarnet, M.G. (2013). Illuminating the unseen in transit use: A framework for examining the effect of attitudes and perceptions on travel behaviour". Transportation Research Part A: Policy and Practice, 58, pp.40-53. doi: 10.1016/j.tra.2013.10.011

- Sutton, A. (2001). Back to the drawing board? A review of applications of the transtheoretical model to substance use". *Addiction,* 96**,** 175-186. doi 10.1046/j.1360-0443.2001.96117513.x

- Taniguchi, A. and Fujii, S. (2007). Process model of voluntary travel behavior modification and effects of travel feedback programs. Transportation Research Record: Journal of the Transportation Research Board. doi: 10.3141/2010-06.

- Teixeira, L.C., Rodrigues, A.L.V., Silva, Á.F.G.D., Azevedo, R., Gama, A.C.C. and Behlau, M. (2013). "The use of the URICA-VOICE questionnaire to identify the stages of adherence to voice treatment". In Codas Vol. 25, No. 1, pp. 8-15. Sociedade Brasileira de Fonoaudiologia.

- Thornton, A., Evans, L., Bunt, K., Simon, A., King, S. and Webster, T. (2011). "Climate change and transport choices". Department for Transport Commissioned Report: London.

- Trail, G., and James, J. (2001). The motivation scale for sport consumption: Assessment of the scale's psychometric properties. Journal of Sport Behavior, 24, 108–127

- Uysal, M. and Jurowski, C. (1994). Testing the push and pull factors". Annals of Tourism Research, 21(4), pp.844-846. doi: 10.1016/0160-7383(94)90091-4

- Valek, N. S., Shaw, M., and Bednarik, J. (2014). Socio-demographic characteristics affecting sport tourism choices: A structural mode", Acta Gymnica, 44(1), 57-65. doi: 10.5507/ag.2014.006

- Velicer, W. F., DiClemente, C. C., Prochaska, J. O., and Brandenburg, N. (1985). "Decisional balance measure for assessing and predicting smoking status". *Journal of personality and social psychology*, [online] *48*(5), 1279. doi: 10.1037/0022-3514.48.5.1279

- Wann, D.L., Bilyeu, J.K., Brennan, K., Osborn, H.and Gambouras, A.F (1999) an exploratory investigation of the relationship between sport fans' motivation and race. Perceptual and Motor Skills, 88, 1081-1084.doi: 10.2466/pms.1999.88.3c.1081.

- Wann, D.L., Royalty, J.L., and Rochelle, A.R. (2002). Using motivation and team identification to predict sports fans' emotional responses to team performance. *Journal of Sport Behaviour*, 25(2), 207–216.

- Yu, C. C. (2010). Factors that influence international fans' intention to travel to the United States for sport tourism. Journal of Sport and Tourism, *15*(2), 111-137. doi 10.1080/14775085.2010.498249

Table 7 - Process of Change Definitions

PoC	Definition
Consciousness raising (Experiential)	Efforts by the individual to seek new information and to gain understanding and feedback about problem behaviour
Dramatic Relief (Experiential)	Affective aspects of change, often involving intense emotional experiences related to the problem behaviour
Environmental re-evaluation (Experiential)	Consideration and assessment by the individual of how inactivity affects the physical and social environments
Self-re-evaluation (Experiential)	Emotional and cognitive re-appraisal of values by the individual with respect to problem behaviour
Social liberation (Experiential)	Awareness, availability, and acceptance by the individual of alternative lifestyles in society
Self-liberation (Behavioural)	The individual's choice and commitment to change the problem behaviour, including the belief that one can change
Reinforcement management (Behavioural)	Changing the contingencies that control or maintain problem behaviour/lifestyle
Counter-conditioning (Behavioural)	Substitution of alternative behaviours for the problem behaviour
Stimulus control (Behavioural)	Control of situations and other causes that support problem behaviour
Helping relationships (Behavioural)	Trusting, accepting, and utilising the support of others during attempts to promote behaviour change

Table 8 - Mean Scores across Precontemplation and Contemplation

Process of Change	Precontemplation (N=177)		Contemplation (N = 14)	
	M	SD	M	SD
Conscious Raising	1.9	.76	3.4	1.1
Dramatic Relief	2.2	.85	3.4	1.0
Environmental Re-evaluation	2	.70	3	1.1
Self-re-evaluation	2	.90	2.9	.95
Social Liberation	2.1	.75	3.1	1.2
Counter Conditioning	2.3	1.1	3.1	.73
Helping Relationships	2.2	1.4	3.1	1.1
Reinforcement Management	2.5	.79	3	1.1
Self-Liberation	2.1	.81	2.9	.98
Stimulus Control	1.9	1.1	3	1.3

Table 9 - T-test and Descriptive Statistics for PoC Items across SoC

| | SoC | | | | | | | 95% CI for Mean Difference | | | | |
| | Precontemplation | | | | Contemplation | | | | | | | |
	M	SD	n		M	SD	n		t	df	p	d
Dramatic Relief	2.2	.85	177		3.4	1.1	14	1.9,1.1	-4.769	189	.261	
Reinforcement Management*	2.5	.79	177		3	1.1	14	.9, .1	-2.237	189	.026	.32
Counter Conditioning*	2.3	1.1	177		3.1	.73	14	1.4, .2	-2.556	189	.011	.37
Helping Relationships*	2.2	1.4	177		3.1	1.1	14	1.6, .1	-2.212	189	.028	.32
Self-Liberation*	2.1	.81	177		2.9	.98	14	1.2, .38	-3.613	189	.001	.52
Stimulus Control*	1.9	1.1	177		3	1.3	14	1.75, .53	-3.718	189	.0002	.54
Self-Re-evaluation*	2	.90	177		2.9	.95	14	1.42, .43	-3.685	189	.003	.53

* $p < .05$.

Insert Table 10 - Self-efficacy Mean Score and Standard Deviation

SCQ Subscale	Precontemplation (n=177)		
	Mean	**SD**	**Alpha**
Negative Affect	2.11	.86	.83
Social/Positive	2.33	.92	.80
Physical and Other Concerns	2	.84	.85
Cravings and Urges	2	.92	.83
SCQ Subscale	**Contemplation (n=14)**		
	Mean	**SD**	**Alpha**
Negative Affect	2.66	1.06	.96
Social/Positive	2.71	1.05	.92
Physical and Other Concerns	2.79	1.06	.95
Cravings and Urges	2.76	1.09	.95

Table 11 -KW Analysis of Variance between SoC and across SCQ Items

SCQ Subscale	n	Category	χ^2	p
Cravings		Mean Rank	2.47	0.115
Precontemplation	177	94.25		
Contemplation	14	118.14		
Negative Affect		Mean Rank	3.58	0.058
Precontemplation	177	93.9		
Contemplation	14	122.5		
Physical		Mean Rank	6.56	0.01
Precontemplation	177	93.17		
Contemplation	14	131.82		
Social		Mean Rank	2.32	0.127
Precontemplation	177	92.25		
Contemplation	14	117.10		

Table 11 -KW Analysis of Variance between SoC and across SCQ Items

Table 12 -T-test and Descriptive Statistics for PRO and CON scores across SoC

	SoC							95% CI for Mean Difference			
	Precontemplation				Contemplation						
	M	SD	n		M	SD	n		t	df	p
PRO	2.51	.76	177		2.94	.75	14	.21, -.84	-4.769	189	.054
CON	3.17	.60	177		3.21	.72	14	.17, -.38	-2.237	189	.059

* p < .05.