

Life in the Fast Lane:

Type A Behaviour Pattern, Sensation Seeking, and Driver Behaviour

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Abstract

This study's aim was to investigate Type A behaviour and sensation seeking in relation to Irish drivers' behaviours and quantities of penalty points. This quantitative investigation utilised correlational, quasi-experimental and cross-sectional designs. Participants, selected through purposive sampling, were 97 undergraduate students with a current driving licence. Participants were administered self-report measures of the variables and were debriefed upon completion. Weak, statistically significant positive correlations were found between Type A behaviour scores and scores on driver aggression, confidence, and risk taking. Sensation seeking scores were not significantly related to driver law breaking or risk taking scores. Neither Type A nor sensation seeking scores were significantly related to quantities of penalty points. Practical implications for these findings include driver education and insurance.

Life in the Fast Lane:

Type A Behaviour Pattern, Sensation Seeking, and Driver Behaviour

The Type A pattern of behaviour is characterised by a chronic and incessant attempt to “achieve more and more in less and less time” (Friedman, 1977, p. 593). Previous researchers have investigated the covariance of this behaviour pattern with numerous everyday variables such as: pace of life (Levine & Bartlett, 1984), group situations (Sanders & Malkis, 1982), and marital functioning (MacEwen & Barling, 1993).

Sensation seeking is characterised by an individual’s need for novel, varied, and complex sensations and experiences. Research has found sensation seeking to be associated with tattooing and body piercing (Stirn, Hinz, & Brahler, 2006), internet dependence (Lin & Tsai, 2002), and high risk-taking occupations (Musolino & Hershenson, 1977).

The objective of the current study is to investigate the Type A behaviour pattern (TABP) and sensation seeking in relation to another everyday activity - motor vehicle driving. It seems logical to assume the characteristics of Type A behaviour and sensation seeking are undesirable driver qualities. Although previous studies have investigated the influence of TABP and sensation seeking on driver behaviour (e.g. Tay, Champness, & Watson, 2003); they have never been assessed within a sample of Irish drivers. This is surprising, considering driver error is estimated to be responsible for 92% of fatal accidents on Irish roads (Road Safety Authority, 2009). In addition, these characteristics have never been examined as predictors of the quantities of penalty points currently held by drivers. Therefore, the current study will investigate the Type A pattern of behaviour and sensation seeking in relation to Irish drivers’ behaviours, and their quantities of penalty points.

The first section of this introduction looks at the construction, characteristics, and testing of the Type A behaviour pattern. The second section assesses the construct of sensation seeking, its biological basis and covariance with risky behaviours. The third section examines driver behaviour and the factors that influence it. The fourth section outlines the penalty point system and its impact on Irish drivers. The fifth section evaluates research studies that investigate the influence of TABP on driver behaviour. The sixth section critiques studies that assess the link between sensation seeking and driver behaviour.

1.1 Type A Behaviour Pattern

The Type A behaviour pattern was first reported by two Californian cardiologists in 1959; Friedman and Rosenman (as cited in Hock, 2009) hypothesised that the personality characteristics of their patients differed in comparison to the patients of other specialists. The two cardiologists developed a model of personality traits they believed were linked to coronary heart disease. This model refers to a specific pattern of overt behaviours rather than an overall personality type (contrary to popular belief) (Hock, 2009). The ‘coronary-prone’ behavioural style was labelled as pattern A; it is characterised by the following: (a) an intense, sustained drive to achieve one’s personal goals; (b) a profound tendency and eagerness to compete in all situations; (c) a persistent desire for recognition and advancement; (d) continuous involvement in multiple activities that are constantly subject to deadlines; (e) habitual tendency to rush when finishing activities; and (f) extraordinary mental and physical alertness (Friedman & Rosenman, 1959. as cited in Hock, 2009).

The researchers later developed a second set of overt behaviours; they labelled this group of traits as pattern B. The Type B behaviour pattern is characterised by the absence of Type A traits. This calmer and more even-tempered demeanour consists of indicators such as: (a) lack of drive; (b) low levels of ambition; (c) absence of time

urgency; (d) little desire to compete; and (e) infrequent involvement in deadlines (Friedman & Rosenman, 1959. as cited in Hock, 2009).

Type A traits were initially assessed through the Structured Interview (Rosenman et al., 1964). However, self-report measures of the TABP have since been developed based on the content of this interview (e.g. Yarnold, Bryant, & Grimm, 1987). Higher scores on these measures typically indicate a higher likelihood of exhibiting TABP. A study by Chesney, Ekman, Friesen, Black, and Hecker (1990) examined facial and spoken behaviour transmitted by Type A individuals. The researchers found significantly more facial expressions of ‘glare’ and ‘disgust’ displayed by Type A participants in comparison to Type B individuals (i.e. absent of Type A traits). In addition, the TABP group exhibited significantly higher rates of speech components such as: syllabic emphasis, loudness of voice, hostility, and speaking rate.

Friedman (1969. as cited in Miller & Krauskopf, 1999) suggests the TABP is an individual’s attempt to compensate for a “fundamental insecurity” (p.121), hence the obsession with social prestige. A study by Forgays (1996) found children of Type A parents tended to be Type As themselves. However, this research supports the nurturist view of behaviour, claiming the family environment independently contributes to the development of TABP. Other social factors as well as cultural and economic values may influence TABP. For example, test results or job promotions could be seen as reinforcing certain Type A responses.

Friedman and Rosenman (1959. as cited in Hock, 2009) initially assessed the ability of the Type A construct to predict coronary heart disease (CHD) within a sample of employed men. The participants were interviewed to locate individuals with fully developed Type A or Type B behaviour patterns. Blood samples were then taken to determine the cholesterol levels and clotting times of the 69 group A men and 58 group

B men. It was found that Type A individuals had significantly faster blood clotting times than Type B participants. In addition, Type As were found to have significantly higher levels of cholesterol. Results indicated a striking difference between the groups: as 28% of Type A individuals showed clear evidence of clinical CHD compared to 0% of group B.

The most popular theory explaining the link between TABP and CHD suggests Type As' have a stronger physiological reaction to stressors than other individuals. This extreme arousal increases heart rate and blood pressure as well as causing the body to produce more hormones. Exposure to these amplified reactions eventually damages the arteries, thus leading to heart disease (Matthews, 1982).

Although the Type A behaviour pattern was initially constructed to outline a behavioural style that increases the risk of developing CHD, it has since been found to influence numerous everyday situations (see p. 5). It seems logical to assume TABP would affect one of the most common daily activities – driving.

1.2 Sensation Seeking

Sensation seeking “is a trait defined by the seeking of varied, novel, complex, and intense sensations and experiences and the willingness to take physical, social, legal, and financial risks for the sake of such experiences” (Zuckerman, 1994, p. 27). Research suggests that sensation seeking is higher amongst males than females. In addition, for both genders, sensation seeking is positively correlated with age until about 16-years-old; then a negative correlation begins to emerge (Jonah, 1997). The first research into sensation seeking focused on its association to an optimal level of stimulation (Stoel, De Geus, & Boomsma, 2006). Individuals differ in this optimal level, and sensation seeking behaviours can be used to increase their level of stimulation.

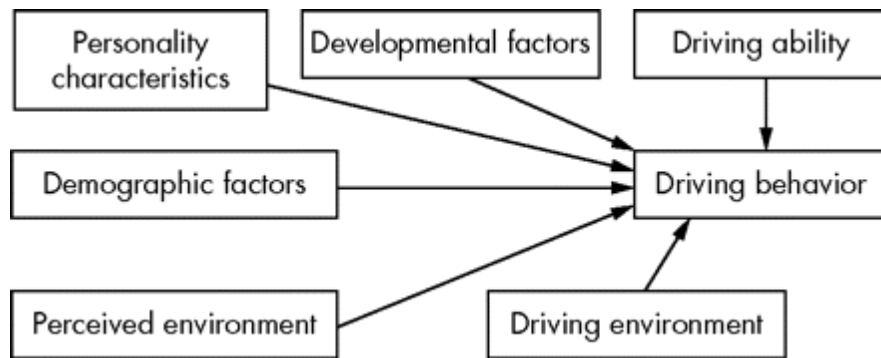
Zuckerman (1994) outlined the biological basis of sensation seeking. The researcher suggested that monoamine neurotransmitters (e.g. adrenalin, noradrenalin, serotonin, and dopamine) are the basis of this personality trait. For example, dopamine provides the positive arousal associated with novel and intense stimulation. The production of these monoamine chemical messengers is controlled by the enzyme monoamine oxidase (MAO). Research suggests that MAO is negatively correlated with sensation seeking. A study by von Knorring and Oreland (1984), amongst a sample of 1,000 army recruits, found participants with high levels of MAO had significantly lower levels of sensation seeking. An extended twin study by Stoel, De Geus, and Boomsma (2006) suggests that sensation seeking is a highly heritable personality characteristic. However, although small in comparison to genetic influences, environmental factors were also found to influence this trait.

Sensation seeking has been found to associate with a vast array of risky behaviours such as sexual risk-taking (Donohew et al., 2000), the use of illegal drugs (Stephenson et al., 2002), alcohol use (Stacy, Newcomb, & Bentler, 1993), and smoking (Zuckerman, Ball, & Black, 1990). Therefore, it seems logical to assume that sensation seeking could predict risky driving behaviour.

1.3 Driver Behaviour

In the same year that Friedman and Rosenman (1959, as cited in Hock, 2009) first reported the Type A behaviour pattern, records of Irish road fatalities began. Since then 22,882 people have lost their lives on the nation's roads. A study by the Road Safety Authority (2009) estimated driver error to be responsible for 92% of fatal road accidents in Ireland. Young drivers are most at risk on Irish roads; in fact, 38% of people killed on the nation's roads in 2010 were under the age of 25.

Shope (2006) addressed the issue of young drivers' behaviour by developing a conceptual framework of factors known to influence how young drivers behave:



Personality characteristics influence how young motorists behave on the road. Individuals with a tendency to take risks/seek sensations are more likely to be involved in a traffic accident (Zuckerman, 1980. as cited in Shope, 2006). A study by Arnett, Offer, and Fine (1997), amongst a sample of 139 young drivers (17-18yrs) and 38 adults (41-59yrs), found both sensation seeking and aggressiveness were significantly related to reckless driving behaviours such as driving 20mph or more over the speed limit, racing another car, and overtaking in a no-overtaking zone. In addition, research by Perry (1986), within a sample of 54 Californian drivers, found motorists with more Type A characteristics reported being involved in more road accidents, and reported receiving more tickets for driving offences than those drivers with less Type A characteristics.

Perceived environment refers to driving behaviours that are perceived to be acceptable by the motorist. For example, the media's portrayal of driving may encourage racing or aggressive driving.

Demographic factors account for some of the variance in young drivers' behaviour. An Garda Siochana (2010) found males accounted for 79% of road fatalities. In addition, the 16 to 30-year-old age group were found to be most at risk, representing 47% of road deaths. Furthermore, research by Perry and Baldwin (2000) found a statistically significant negative correlation between age and driver aggression;

suggesting that younger drivers are more aggressive on the road. However, Furnham and Saipé (1993) found participants' ages were not significantly related to their driver aggression scores. A study by Yagil (1998), amongst a sample of 181 university students, found females have a stronger sense of obligation to obey road laws; they are also more likely to appraise road laws positively. In contrast, males feel more confident in complying selectively with road laws. The lowest level of perceived importance of road laws relative to other laws was found among young male drivers.

Driving ability refers to a driver's knowledge (e.g. rules of the road) and skill (e.g. car handling) along with their experience of applying these attributes. Research indicates that inexperienced drivers tend to underestimate risk in comparison to more experienced motorists (e.g. Finn & Bragg, 1986; Delhomme & Meyer, 1998). Furthermore, Yagil (1998) found that males tend to overestimate their driving ability.

Developmental factors regard the affect a driver's level of physical, behavioural, or psychological development has on their behaviour behind the wheel.

Driving environment is a predictor of young drivers' behaviour. Certain environmental factors are related to risky driving. For instance, the most dangerous time for driving on Irish roads is night time: between 10pm and 2am 23% of fatal collisions occur (An Garda Síochána, 2010).

An Garda Síochána (2010) state that drivers account for 43% of road deaths, passengers for 26%, and pedestrians for 21%; while motor cyclists represent 8% of road fatalities. The Road Safety Authority (2009) claim: speeding, impaired driving, not wearing seatbelts, and unsafe behaviour by or towards vulnerable road users (e.g. children, cyclists) are the main contributory behaviours to injuries and deaths on Irish roads.

In Ireland, problematic driver behaviours are tackled through education and enforcement. Educational campaigns, such as the 'Be Safe' program for primary school

children, attempt to develop safe behaviour on the roads from a grass roots level. While, advertising campaigns (e.g. 'Crashed Lives') promote a positive change in driver behaviour. The enforcement of road traffic legislation is almost exclusively a Garda function. Motorists found guilty of driving offences are punished through the penalty point system.

1.4 Penalty Points

On the 31st of October 2002 the penalty point system was introduced in Ireland. A penalty point is a formal reprimand by the Gardaí endorsed on the licence of a driver found to have committed a road traffic offence. The law governing this system is the Road Traffic Act 2002. "The aim of penalty points is to improve driver behaviour in Ireland and reduce the levels of death and serious injury [on the nation's roads]" (Road Safety Authority, 2012b). A number of other countries operate a penalty point system, such as: Australia, Denmark, England, and Germany.

When penalty points are issued to a driver, they remain on his/her licence record for a period of three years (Road Safety Authority, 2012b). Any motorist who receives 12 penalty points within three years is automatically disqualified from driving for six months. There are currently 42 road traffic offences that result in penalty points (25/01/2012). Some of the most common infringements are: speeding (two points & €80 fine), driving while using a mobile phone (two points & €60 fine), and dangerous overtaking (two points & €80 fine). However, more serious offences (e.g. drink driving, excessive speeding) are addressed in court rather than through the points system.

A study by Landsdown Market Research (2003) found that over 80% of Irish drivers changed their driving behaviours due to the introduction of the penalty point system. The investigation, consisting of over 600 Irish motorists, also revealed that young drivers (the highest risk group) reported being more influenced by the system than any other cohort. In addition, research by Lenehan, Street, Barry, and Mullan

(2005) found a decrease in road traffic accident related admissions to an Irish trauma centre in the year following the introduction of the penalty point system.

An investigation by Davey, Wishart, Freeman, and Watson (2007), amongst a sample of 443 Australian fleet drivers, examined the influence of driving exposure on participants' receipt of penalty points or fines over the previous 12 months. Not surprisingly, participants' number of kilometres driven was found to be a statistically significant predictor of traffic offences. The researchers concluded, quite reasonably, that individuals driving greater distances per year have more opportunities to commit traffic offences.

If research were to suggest a particular behavioural style, such as Type A, or personality trait, such as sensation seeking, could predict increased rates of problematic driver behaviours (e.g. speeding, road-rage), then it would be rational to assume motorists possessing these characteristics would acquire more penalty points.

1.5 Type A Behaviour Pattern and Driver Behaviour

Tay, Champness, and Watson (2003) explored the influence of Type A behaviour on drivers' self-reported speeding amongst a convenience sample of 139 Australian drivers. The researchers found a statistically significant positive correlation between TABP scores and self-reported speeding behaviours. The investigators identified Type A participants using four items from the Bortner short rating scale (Bortner, 1969). Therefore, the accuracy of Type A classification in this study seems questionable; bearing in mind the short student version of the Jenkins Activity Survey (Yarnold, Bryant, & Grimm, 1987) (an alternative measure) consists of 21 items. Similarly, West, Elander, and French (1993) investigated TABP as a predictor of driving speed, and self-reported accident involvement within a sample of 108 British drivers. Higher Type A scores were found to predict faster driving, supporting the findings of Tay et al. (2003). However, there was no statistically significant correlation

between TABP and accident involvement. A strength of this study over that of Tay et al. (2003) is its use of the full 14-item Bortner short questionnaire; this provides greater confidence in participants' Type A scores.

Research by Karlberg and Uden (1998) supported that of West, Elander, and French (1993): finding no statistically significant difference in the frequency of road traffic accidents between Type A and B drivers. In addition, near-accidents did not differ as a function of behavioural style amongst the 135 Swedish drivers sampled. However, the investigators found a statistically significant positive correlation between scores on the 'time pressure' subscale of TABP and accident involvement. They concluded: 'time pressure' makes individuals drive faster resulting in a greater frequency of accidents. A possible weakness of this study is its classification of accident and near-accident involvement based on participants' memory of the previous seven years. In contrast, the use of the Structured Interview (Rosenman et al., 1964), the most valid and reliable measure of TABP (Yarnold & Bryant, 1988), is a strength. Fatima, Munawar, and Arshad (2006) provided further evidence that TABP cannot predict road accident involvement. In their study, consisting of 119 Pakistani drivers, no statistically significant difference was found in the number of self-reported accidents between Type A and B drivers. However, a closer look at the study's methodology reveals an apparent gender bias, as no females were included in the sample; while only 18 participants admitted being involved in an accident, suggesting the test may have lacked significant statistical power.

The claim that TABP cannot predict road accident involvement does not have uncontested support. A study by Evans, Palsane, and Carrere (1987) found Type A bus drivers had significantly more road accidents than their Type B counterparts. In addition, Indian Type A drivers blew the horn, braked, and passed other vehicles significantly more than Type B motorists. The researchers concluded that several

predictable differences exist between Type A and B drivers. A strength of this study is its use of archival records to determine accident involvement rates of the 200 bus drivers sampled, preventing socially desirable responding. Similarly, Nabi et al. (2005) found participants' risk of serious road traffic accidents increased proportionally with TABP scores. Type As were also more likely to exceed the speed limit, and use a mobile phone while driving. The researchers attributed these results to characteristics such as 'time urgency' and the desire to do more than one thing at a time. The sample size of 11,965 initially appears to be a strength of this study, but closer inspection reveals it consists of only middle aged (39-54 years) employed or recently retired individuals.

Perry and Baldwin (2000) examined the influence of TABP on various driving behaviours and attitudes. The researchers found statistically significant positive correlations between Type A scores and accident involvement, driver aggression, impatience while driving, risky driver behaviour, confidence in risk taking, law breaking, and driver self-evaluation. In addition, Type A drivers reported being involved in significantly more accidents, and having greater aggression on the road than Type B motorists. A strength of this study over those previously mentioned is that it explores not only drivers' behaviours but their attitudes as well. However, not controlling for potential extraneous variables, such as 'years of driving experience' or 'annual mileage,' could be a weakness.

1.6 Sensation Seeking and Driver Behaviour

Research by Zakletskaia, Mundt, Balousek, Wilson, and Fleming (2009), amongst a sample of 1587 college students over the age of 18, found sensation seeking to be a statistically significant predictor of self-reported alcohol-impaired driving. In contrast, Mann et al. (1987. as cited in Jonah, 1997) found no statistically significant correlation between participants' sensation seeking scores and their self-reports of

drink-driving. However, relying on self-reports of drink-driving could be a possible weakness in both studies; as respondents may not willingly disclose their participation in this illegal behaviour.

A study by Clement and Jonah (1984), controlling for age, driving experience and exposure, amongst a sample of 130 male and 155 female university students, found a positive correlation between participants' reported usual speed on a clear road with a 100km/h limit and their sensation seeking scores. Similarly, research by Yu and Williford (1993) found a moderate positive correlation (0.45) between sensation seeking and reported risky driving (e.g. speeding) within a sample of 878 impaired-driving offenders.

Beirness (1995. as cited in Jonah, 1997) examined the influence of sensation seeking on car-crash involvement. The researcher classified 1,501 high-school students into either a crash or no-crash group based on their driving records. Results indicated that the crash group had higher sensation seeking scores than those in the no-crash group. In contrast, a study by Clement and Jonah (1984) amongst a sample of 285 university students, found no relationship between sensation seeking scores and motor vehicle collisions. However, the sample size of this study is more than five times smaller than that of Beirness (1995. as cited in Jonah, 1997). On a more positive note, both studies targeted road users in the highest risk cohort (i.e. under the age of 25).

1.7 Conclusion and Study Rationale

The Type A behaviour pattern was initially constructed to outline a specific pattern of overt behaviours that increase the likelihood of developing coronary heart disease. However, research on TABP has extended beyond its initial roots, with investigators studying the influence of this behavioural style on numerous everyday situations. One of these activities is motor vehicle driving. Studies have suggested that TABP influences driver behaviour (Perry, 1986; Evans, Palsane, & Carrere, 1987;

West, Elander, & French, 1993; Perry & Baldwin, 2000; Tay, Champness, & Watson, 2003; Nabi et al., 2005), but these findings do not have uncontested support. Similarly, the personality trait of sensation seeking has been found to predict various risky driving behaviours such as drink-driving (Zakletskaia, Mundt, Balousek, Wilson, & Fleming, 2009), and speeding (Clement & Jonah, 1984). However, evidence to the contrary also exists. In addition, the influence of TABP and sensation seeking on driver behaviour has never been examined within a sample of Irish drivers. This is surprising, considering driver error is estimated to be responsible for 92% of Irish road fatalities (Road Safety Authority, 2009). In an attempt to reduce these road fatalities and improve driver behaviour the Irish government introduced the penalty point system. Although previous studies have investigated the influence of TABP and sensation seeking on driving violations, these characteristics have never been examined as predictors of the quantities of penalty points currently held by drivers. Therefore, the purpose of the current study is to address these shortcomings in the existing literature.

The current study will investigate if relationships exist between Type A behaviour scores, sensation seeking scores, quantities of penalty points, and various aspects of driver behaviour (aggression, law breaking, confidence, excitement, and risk taking) within a sample of Irish motorists. In addition, the influence of demographic factors (gender, age), driving experience and exposure on the variables will be assessed.

1.8 Hypotheses

Hypothesis 1: Based on the findings of Perry and Baldwin (2000), it is hypothesised that statistically significant positive correlations will be found between TABP scores and scores on the driver behaviour variables of aggression, frequency of risk taking, and confidence in risk taking.

Hypothesis 2: In line with Perry (1986); Evans, Palsane, and Carrere (1987); West, Elander, and French (1993); Tay, Champness, and Watson (2003); and Nabi et al.

(2005), it is predicted that there will be a statistically significant positive correlation between participants' TABP scores and their quantities of penalty points.

Hypothesis 3: Consistent with Yagil (1998), it is expected that males will score significantly higher on confidence in risk taking, frequency of risk taking, and law breaking than females.

Hypothesis 4: Following the results of Yagil (1998), it is envisaged that males will possess significantly more penalty points than females.

Hypothesis 5: Based on the findings of Yu and Williford (1993); and Arnett, Offer, and Fine (1997), it is hypothesised that statistically significant positive correlations will be found between sensation seeking scores and scores on the driver behaviour variables of law breaking, and frequency of risk taking.

Hypothesis 6: In line with Clement and Jonah (1984), it is predicted that there will be a statistically significant positive correlation between participants' sensation seeking scores and their quantities of penalty points.

Hypothesis 7: Consistent with Perry and Baldwin (2000), it is expected that there will be a statistically significant negative correlation between participants' ages and their scores on the driver behaviour variable of aggression.

Hypothesis 8: Following the results of Finn and Bragg (1986); and Delhomme and Meyer (1998), it is envisaged that there will be a statistically significant negative correlation between participants' years of driving experience and their frequency of risk taking scores.

Hypothesis 9: In agreement with the findings of Davey, Wishart, Freeman, and Watson (2007), it is hypothesised that there will be a statistically significant positive correlation between participants' hours per month of driving exposure and their quantities of penalty points.

Method

2.1 Materials

A standardised cover letter outlined the purpose of the research and instructions for participation (see Appendix A for cover letter). The subsequent measures were all self-reported, paper and pencil questionnaires (see Appendix A for questionnaire measures).

A background questionnaire was used to obtain participants' demographic information (gender, age), driving experience, exposure, and quantities of penalty points. To determine driving experience, participants were asked to indicate how many years they had been driving. Respondents were then requested to indicate how many penalty points they possessed. To assess driving exposure, participants were asked how many hours per month, approximately, they spend driving.

The Student Jenkins Activity Survey (SJAS) (Yarnold, Bryant, & Grimm, 1987) was used to measure Type A behaviour pattern (TABP). According to Yarnold and Bryant (1988), this is the most frequently employed method of assessing TABP. The origins of the SJAS lay in the 54-item adult version of the Jenkins Activity Survey (Jenkins, Zyzanski, & Rosenman, 1979): a measure developed as an alternative to the expensive and time-consuming Structured Interview (Rosenman et al., 1964).

The SJAS is a 21-item instrument that consists of three sub-scales: hard driving/competitive (items 1, 8, 9, 10, 11, 12, 15, 16, 19, 20, 21), rapid eating (items 3, 4), and rapid speaking (items 5, 6). The hard driving/competitive sub-scale consists of items such as: would people who know you well agree that you have less energy than most people? The rapid eating factor contains questions like: has your spouse or some friend ever told you that you eat too fast? In addition, the rapid speaking sub-scale uses items such as: when you listen to someone talking, and this person takes too long to come to the point, do you feel like hurrying them along?

The SJAS is scored by assigning one point to each Type A response: 1a or b, 2a, 3a or b, 4a, 5a, 6a, 7c, 8a or b, 9a or b, 10a or b, 11c, 12d, 13a or b, 14a, 15c, 16c, 17a, 18c, 19c, 20a, 21a. The total score for the participant is the sum of Type A responses, ranging between 0 and 21.

Research by Yarnold, Mueser, Grau, and Grimm (1986) assessed the reliability of the SJAS. The investigators found that the internal consistency (Cronbach's Alpha) of the SJAS ranged from .40 to .72. In addition, the measure was found to have excellent stability, with test-retest reliabilities ranging from .90 to .96 (separated by two weeks), and .74 to .86 (separated by three months). Although not a great amount of information on the validity of the SJAS is available, the adult version of the Jenkins Activity Survey has been found to be a predictor of clinical coronary disease, indicating good predictive validity (Corcoran & Fischer, 2000).

Sensation seeking was measured by the 10-item forced-choice version (form v) of the Thrill and Adventure Seeking sub-scale of the Sensation Seeking Scale (Zuckerman, Eysenck, & Eysenck, 1978). A meta-analysis conducted by Jonah (1997) indicates that this sub-scale of the sensation seeking scale possesses the strongest relationship to risky driving; and was chosen by Tay, Champness, and Watson (2003) for this reason.

Items on this sub-scale express a desire to engage in risky activities that provide sensations of speed or danger, such as parachute jumping. Because the majority of the activities are uncommon, most items are expressed as an intention (I would like ...), rather than reports of actual experience (Zuckerman, 1994).

The sub-scale is scored by assigning 0 to non-sensation seeking responses, and 1 to sensation seeking responses. The total score for the participant is calculated by summing their sensation seeking responses; scores range between 0 and 10. Zuckerman (2007) suggests that the internal consistency (Cronbach's Alpha) of the Thrill and

Adventure Seeking sub-scale is .91. Research by Ridgeway and Russell (1980) assessed the concurrent validity of the Thrill and Adventure Seeking sub-scale. The researchers found a weak ($r = .24$) statistically significant positive correlation between participants' scores on the sub-scale and their willingness to volunteer for an emotionally arousing experience ("exactly what sensation seekers are defined as seeking" (p. 662)).

The Driver Behaviour Questionnaire (Furnham & Saipe, 1993) was used to measure participants' driving behaviour. This is a 25-item instrument that consists of five sub-scales: aggression (items 2, 10, 11, 12, 20), law breaking (items 16, 17, 18, 19, 21, 22), confidence in risk taking (items 4, 19, 22, 23, 24, 25), excitement (items 2, 4, 5, 21), and risk taking (items 3, 19, 20, 23).

Participants respond to questionnaire items on a four-point scale (always = 4, often = 3, seldom = 2, never = 1). To prevent response style bias, items 1, 5, 16, 18, 21, and 22 are reverse-coded. Participants' total score for each sub-scale is calculated by summing the values assigned to their responses for each factor. Total scores range from 5 to 20 for aggression, 6 to 24 for law breaking, 6 to 24 for confidence in risk taking, 4 to 16 for excitement, and 4 to 16 for risk taking.

Furnham and Saipe (1993) initially assessed the internal reliability of the Driver Behaviour Questionnaire as a single measure of risk taking. They found a Cronbach's Alpha value of .79. Despite this acceptable internal consistency, a factor analysis subsequently revealed five underlying dimensions: aggression, law breaking, confidence in risk taking, excitement, and risk taking; thus suggesting that the measure possesses good factorial validity.

Research by Furham and Saipe (1993), amongst a sample of 73 drivers, found statistically significant correlations between driving convictions and scores on the sub-scales of law breaking and confidence in risk taking, indicating good predictive validity. In addition, statistically significant positive correlations were found between

participants' levels of psychoticism and their scores on the factors of law breaking, confidence in risk taking, and excitement.

2.2 Participants

In accordance with Cohen (1992), a sample size of 97 was necessary for .80 power to detect a medium effect size. This non-probability sample of 97 individuals was selected through purposive sampling: as participants were required to be college students in possession of a current driving licence. All participants were undergraduate students: 53.60 percent (N = 52) of which were third year students studying psychology in the Dublin Business School, Aungier Street; while the other 46.40 percent (N = 45) were first year students studying aviation technology in the Dublin Institute of Technology, Bolton Street. Of the 97 individuals who took part in the study, 56.70 percent (N = 55) were male and 43.30 percent (N = 42) were female. Participants' ages ranged from 18 to 48 (mean = 24.43, S.D. = 6.57). Participants received no compensation for taking part in the study.

2.3 Design

This quantitative questionnaire based study employed a multi-method design. A correlational design was used to investigate the presence of relationships between variables as they occur naturally. In addition, a quasi-experimental design was employed to make comparisons between pre-existing groups; as random assignment of participants to groups was not possible. Furthermore, a cross – sectional research design was used to study the influence of age simultaneously, as a longitudinal approach was not viable.

For hypothesis 1, the predictor variable was participants' Type A behaviour scores; the criterion variables were driver aggression, frequency of risk taking, and confidence in risk taking scores. For hypothesis 2, the predictor variable was participants' Type A behaviour scores; the criterion variable was quantity of penalty

points. For hypothesis 3, the between-participants independent variable was the gender of the respondent; thus consisting of two levels (i.e. male or female); the dependent variables were driver confidence in risk taking, frequency of risk taking, and law breaking scores. For hypothesis 4, the between-participants independent variable was the gender of the respondent; the dependent variable was quantity of penalty points. For hypothesis 5, the predictor variable was respondents' sensation seeking scores; the criterion variables were driver law breaking, and frequency of risk taking scores. For hypothesis 6, the predictor variable was participants' sensation seeking scores; the criterion variable was quantity of penalty points. For hypothesis 7, the predictor variable was participants' ages; the criterion variable was driver aggression score. For hypothesis 8, the predictor variable was respondents' years of driving experience; the criterion variable was driver frequency of risk taking score. Finally, for hypothesis 9, the predictor variable was participants' hours per month of driving exposure; the criterion variable was quantity of penalty points.

2.4 Procedure

After obtaining permission from the college lecturers, perspective participants were asked at the beginning of class if they would be willing to complete a questionnaire booklet. The first item in the booklet was a cover letter outlining the participant's right to withdraw at any time, the confidential nature of the study, and a brief description of its rationale. In addition, participants were informed that there were no correct or incorrect answers to the questions. The cover letter was followed by the background questionnaire, the Jenkins Activity Survey (Yarnold, Bryant, & Grimm, 1987), the Driver Behaviour Questionnaire (Furnham & Saipe, 1993), and finally, the Thrill and Adventure Seeking sub-scale (Zuckerman, Eysenck, & Eysenck, 1978).

When the questionnaires were completed, participants were thanked for their contribution, debriefed, and the opportunity was made available to ask any questions.

For administrative purposes an identification number was assigned to each questionnaire. All the data collected were then inputted into SPSS; and reverse-coded items were recoded into the same direction as the other scores in preparation for statistical analysis.

2.5 Data Analysis

Descriptive statistics were calculated to summarise the data. To examine relationships between variables, where both sets of scores were not normally distributed, Spearman's rho correlations were calculated. To investigate differences between two normally distributed independent samples, independent t tests were used; whereas Mann-Whitney U tests were carried out to examine differences between groups where both independent samples were not normally distributed.

Results

3.1 Descriptive Statistics

Student Jenkins Activity Survey (Yarnold, Bryant, & Grimm, 1987) scores can range from 0 to 21. Participants' scores on this measure in the current study had a mean value of 6.95 and a standard deviation of 3.36. On the Thrill and Adventure Seeking sub-scale (Zuckerman, Eysenck, & Eysenck, 1978) possible scores can range from 0 to 10. Participants' scores on this sub-scale in the current study had a mean value of 6.18 and a standard deviation of 2.68. Participants' years of driving experience had a mean of 5.56 years and a standard deviation of 6.11 years. The mean number of hours per month participants spent driving was 29.88 and the standard deviation was 29.18 hours. Drivers can possess between 0 and 11 penalty points. Participants' quantities of penalty points in the current study had a mean value of 0.33 and a standard deviation of 0.89.

Descriptive statistics were calculated for the five sub-scales on the Driver Behaviour Questionnaire (Furnham & Saipe, 1993). It is possible to score anywhere from 5 to 20 on the aggression sub-scale. Participants' scores on aggression in the current study had a mean value of 10.37 and a standard deviation of 2.53. On the law breaking sub-scale scores can range from 6 to 24. In the current study, respondents' law breaking had a mean score of 12.49 and a standard deviation of 2.76. Scores can range from 6 to 24 on the confidence in risk taking sub-scale. Participants' confidence in risk taking scores in the current study had a mean value of 14.17 and a standard deviation of 2.61. On the excitement sub-scale it is possible to score anywhere from 4 to 16. Participants' excitement scores in the current study had a mean value of 10.15 and a standard deviation of 1.81. Respondents can score between 4 and 16 on the frequency of risk taking sub-scale. In the current study, respondents' frequency of risk taking had a mean value of 8.72 and a standard deviation of 2.18. Additional statistical characteristics of the sample are presented in Table 1.

Table 1

Participants' Minimum and Maximum Scores

Variable	N	Minimum	Maximum
Type A behaviour score	94	0	16
Sensation seeking score	94	0	10
Years of driving experience	97	1	28
Hours per month spent driving	97	0	180
Quantity of penalty points	97	0	4
Driver aggression	97	6	17
Driver law breaking	94	6	18
Driver confidence in risk taking	93	7	20
Driver excitement	97	6	14
Driver frequency of risk taking	96	4	15

3.2 Inferential Statistics

Hypothesis 1: Analysis of the data using Spearman's rho indicated that Type A behaviour scores were significantly positively correlated with driver aggression scores ($\rho = .189, p < .05, 1\text{-tailed}$). The variables were thus weakly correlated, with increases in Type A behaviour tending to be associated with increases in driver aggression (see Appendix B, Figure 1 for scatter plot).

Similarly, a Spearman's rho correlation found a statistically significant positive relationship between Type A behaviour scores and driver frequency of risk taking scores ($\rho = .222, p < .05, 1\text{-tailed}$). The variables were thus weakly correlated, with increases in Type A behaviour tending to be associated with increases in driver risk taking (see Appendix B, Figure 2 for scatter plot).

Furthermore, a Spearman's rho correlation found a statistically significant positive association between Type A behaviour scores and driver confidence in risk taking scores ($\rho = .186, p < .05, 1\text{-tailed}$). The variables were thus weakly correlated, with increases in Type A behaviour tending to be associated with increases in driver confidence in risk taking (see Appendix B, Figure 3 for scatter plot).

Hypothesis 2: A Spearman's rho correlation found that there was no statistically significant association between participants' Type A behaviour scores and their quantities of penalty points ($\rho = .109, p > .05, 1\text{-tailed}$).

Hypothesis 3: Analysis of the data in Table 2 using the independent samples t test indicated that driver confidence in risk taking was significantly higher among males than among females ($t(91) = -2.634, p < .05, 1\text{-tailed}$).

Table 2

The Mean Driver Confidence in Risk Taking Scores for both Males and Females

Gender	N	Mean	S.D.
Male	53	14.77	2.43
Female	40	13.38	2.65

Similarly, analysis of the data presented in Table 3 using the Mann – Whitney U test indicated that driver frequency of risk taking scores were significantly higher among males than among females ($Z = -2.736, p < .05, 1\text{-tailed}$).

Table 3

The Median Driver Frequency of Risk Taking Scores for both Males and Females

Gender	N	Median
Male	54	9
Female	42	8

In contrast, an independent samples t test found that there was no statistically significant difference between the driver law breaking scores of males (mean = 12.74, S.D. = 2.93) and those of females (mean = 12.17, S.D. = 2.61) ($t(92) = -0.971, p > .05, 1$ -tailed). The groups thus appear to have equivalent levels of driver law breaking.

Hypothesis 4: A Mann – Whitney U test found that there was no statistically significant difference in quantities of penalty points between males (median = 0) and females (median = 0) ($Z = -0.191, p > .05, 1$ -tailed). The groups thus appear to possess equivalent quantities of penalty points.

Hypothesis 5: A Spearman's rho correlation found that there was no statistically significant association between sensation seeking scores and driver law breaking scores ($\rho = .163, p > .05, 1$ -tailed). Similarly, analysis of the data using Spearman's rho indicated that sensation seeking scores were not significantly correlated with driver frequency of risk taking scores ($\rho = .159, p > .05, 1$ -tailed).

Hypothesis 6: Analysis of the data using Spearman's rho found no statistically significant correlation between levels of sensation seeking and quantities of penalty points ($\rho = -0.093, p > .05, 1$ -tailed).

Hypothesis 7: A Spearman's rho correlation found that there was no statistically significant association between participants' ages and their scores on the driver behaviour variable of aggression ($\rho = .013, p > .05, 1$ -tailed).

Hypothesis 8: Analysis of the data using Spearman's rho indicated that years of driving experience were not significantly correlated with driver frequency of risk taking scores ($\rho = -0.013, p > .05, 1$ -tailed).

Hypothesis 9: A Spearman's rho correlation found a statistically significant positive relationship between participants' approximate hours per month of driving exposure and their quantities of penalty points ($\rho = .224, p < .05, 1$ -tailed). The

variables were thus weakly correlated, with increases in time spent driving tending to be associated with increases in quantity of penalty points.

Discussion

The primary aim of the current study was to investigate if relationships exist between Type A behaviour, sensation seeking, quantity of penalty points, and various aspects of driver behaviour (aggression, law breaking, confidence, excitement, and risk taking) within a sample of Irish motorists. The current study's secondary objective was to assess the influence of demographic factors (gender, age), driving experience and exposure on the motorists' behaviours and quantities of penalty points.

Previous research has suggested that Type A behaviour influences driver behaviour (Perry, 1986; Evans, Palsane, & Carrere, 1987; West, Elander, & French, 1993; Perry & Baldwin, 2000; Tay, Champness, & Watson, 2003; Nabi et al., 2005), but these findings do not have uncontested support (Karlberg & Uden, 1998; Fatima, Munawar, & Arshad, 2006). Similarly, sensation seeking has been found to predict risky driver behaviour (Clement & Jonah, 1984; Zakletskaia, Mundt, Balousek, Wilson, & Fleming, 2009), but evidence to the contrary also exists (Mann et al., 1987. as cited in Jonah, 1997). Thus, the current study sought to resolve these inconsistencies in the existing literature.

In spite of the large body of existing literature, the influence of Type A behaviour and sensation seeking on driver behaviour has never been examined within a sample of Irish drivers. Furthermore, although previous researchers have investigated the impact of Type A behaviour and sensation seeking on driving violations, these characteristics have never been examined as predictors of the quantities of penalty points currently held by drivers. Therefore, the current study aimed to address these shortcomings in the existing literature.

4.1 Interpretation of Results

Hypothesis 1 predicted that statistically significant positive correlations would be found between Type A behaviour (TABP) scores and scores on the driver behaviour

variables of aggression, frequency of risk taking, and confidence in risk taking. The results of the current study supported this hypothesis; as weak, statistically significant positive correlations were found between TABP scores and driver aggression scores, TABP scores and driver frequency of risk taking scores, and TABP scores and driver confidence in risk taking scores. These findings indicate that higher levels of Type A behaviour predict greater aggression, frequency of risk taking, and confidence in risk taking when driving.

The results of the current study are consistent with those of previous researchers: Perry and Baldwin (2000) also found statistically significant positive correlations between drivers' Type A behaviour scores and their levels of aggression, risk taking, and confidence in risk taking behind the wheel.

Hypothesis 2 suggested that a statistically significant positive correlation would be found between participants' Type A behaviour scores and their quantities of penalty points. However, the results of the current study indicated that this is not the case; as no statistically significant association was found between TABP scores and quantities of penalty points.

The findings of the current study initially appear to conflict with those of earlier researchers. Type A behaviour has previously been found to be a statistically significant predictor of self-reported speeding (West, Elander, & French, 1993; Tay, Champness, & Watson, 2003; & Nabi et al., 2005), erratic driving (Evans, Palsane, & Carrere, 1987), and law breaking (Perry & Baldwin, 2000). However, one extraneous variable present in the current study, but not in those of the earlier researchers, may account for this inconsistency – you have to be caught to possess penalty points.

Hypothesis 3 stated that males would score significantly higher on confidence in risk taking, frequency of risk taking, and law breaking than females. The results of the current study partially supported this hypothesis. As predicted, males' mean confidence

in risk taking was found to be significantly higher than that of females. Similarly, males scored significantly higher on frequency of risk taking than females. However, contrary to expectations, the groups were found to have equivalent levels of driver law breaking.

The current study's results concur with Yagil's (1998) observation that males feel more confident in complying selectively with road laws than females. However, the absence of a significant difference between the groups on law breaking raises the possibility of a social desirability response bias: although anonymity and confidentiality were assured, it is quite plausible that participants may have been reluctant to disclose their engagement in illegal activities.

Hypothesis 4 predicted that males would possess significantly more penalty points than females. The results of the current study did not support this hypothesis: no statistically significant difference in quantities of penalty points was found between males and females. Although Yagil (1998) found that young male drivers had the lowest perceived importance of road laws, more recent research by Landsdown Market Research (2003) found that over 80 percent of Irish drivers reported changing their driving behaviour following the introduction of the penalty point system in 2002; this may explain the discrepancy between the current study's findings and those of Yagil (1998).

Hypothesis 5 suggested that statistically significant positive correlations would be found between sensation seeking scores and scores on the driver behaviour variables of law breaking, and frequency of risk taking. Although the results of the current study did not indicate the hypothesised statistically significant correlations, the results approached significance in the expected direction for both tests: sensation seeking scores and law breaking scores ($p = .061$); sensation seeking scores and frequency of risk taking scores ($p = .065$).

Numerous previous researchers have found that sensation seeking levels can predict risky driving: Yu and Williford (1993) found a moderate positive correlation between sensation seeking and reported risky driving. Similarly, research by Arnett, Offer, and Fine (1997) found a statistically significant relationship between sensation seeking and reckless driving. The non-normality of the data in the current study forced the use of Spearman's rho to examine the existence of correlations. It is felt that if a larger, normally distributed sample were obtained, thus allowing the use of Pearson's r , statistical significance would be achieved.

Hypothesis 6 stated that a statistically significant positive correlation would be found between participants' sensation seeking scores and their quantities of penalty points. The results of the current study did not support this hypothesis: no statistically significant correlation was found between sensation seeking levels and quantities of penalty points.

At first glance the findings of the current study appear to contradict those of previous researchers: Clement and Jonah (1984) found a statistically significant positive correlation between drivers' sensation seeking scores and their self-reported usual speed on a clear road with a 100km/h limit. However, as implied earlier, self-reported speeding is not the same as being apprehended by the Gardaí for speeding.

Hypothesis 7 envisaged that a statistically significant negative correlation would be found between participants' ages and their scores on the driver behaviour variable of aggression. The results of the current study did not support this hypothesis: no statistically significant correlation was found between age and driver aggression.

The current study's results are contrary to Perry and Baldwin's (2000) observation that younger drivers are more aggressive on the road. However, the present findings mirror those of Furnham and Saipé (1993); indicating that drivers are never too old for road rage!

Hypothesis 8 claimed that a statistically significant negative correlation would be found between participants' years of driving experience and their frequency of risk taking scores. However, the results of the current study indicated that this is not the case: no correlation of statistical significance was found between the variables.

Existing literature (e.g. Finn & Bragg, 1986; Delhomme & Meyer, 1998) suggests that inexperienced drivers tend to underestimate risk relative to more experienced motorists. Although this could logically increase the likelihood of risky driving, these lower estimates would naturally extend to self-reports; thus presenting a possible explanation for the current study's results.

Hypothesis 9 stated that a statistically significant positive correlation would be found between participants' hours per month of driving exposure and their quantities of penalty points. The current study's results supported this hypothesis; as a weak, statistically significant positive correlation was found between driving exposure and quantities of penalty points.

The findings of the current study are consistent with those of Davey, Wishart, Freeman, and Watson (2007). Furthermore, these findings support the earlier assertion that being/not being caught committing a road traffic offence is an extraneous variable that could logically explain some of the variance in drivers' quantities of penalty points: those who spend more time on the road are more likely to get caught breaking a road law.

An alternative interpretation of these results can be made according to the theory of cognitive dissonance (Festinger, 1957). If a participant held the attitude that they are a good or safe driver and subsequently admitted to possessing penalty points, these conflicting cognitions may have given rise to a state of tension known as cognitive dissonance. In order to reduce this dissonance and self-justify their possession of

penalty points, participants may have exaggerated the amount of time they spend driving per month.

4.2 Strengths and Weaknesses

A strength of the current study is its use of the full 21-item Student Jenkins Activity Survey (Yarnold, Bryant, & Grimm, 1987) to measure Type A behaviour pattern. In doing so, the study accurately assessed Type A levels amongst the sample of undergraduate students. This is in contrast to research by Tay, Champness, and Watson (2003) which claimed to measure Type A levels using only four items from the Bortner short rating scale (Bortner, 1969).

A second strength of the current study is that 82 percent of individuals sampled belong to the cohort that is most at risk on the roads. As mentioned earlier, research by An Garda Siochana (2010) found that the 16 to 30-year-old age group account for 47 percent of road fatalities in Ireland. The driving behaviour of this cohort is therefore of paramount importance.

A third strength of the current study is that it assessed the influence of drivers' experience and exposure on their behaviours behind the wheel. This is in contrast to research by Perry and Baldwin (2000) that examined the correlates of accident involvement without accounting for driving exposure, and studied the predictors of driver self-evaluation without mentioning driving experience.

A weakness of the current study is its reliance on self-reports to measure driver behaviour. Although this method is common in previous studies, it is not without its problems. One such problem is that the sample of the current study is self-selected: consisting of only the individuals who agreed to participate. A second problem is the potential for social desirability response bias. Admitting to the law breaking behaviours assessed on the Driver Behaviour Questionnaire (Furnham & Saipé, 1993) may be perceived as socially undesirable; leading participants to underreport them. The use of

unobtrusive observation such as that employed by Evans, Palsane, and Carrere (1987) is an alternative to self-reported measures that would avoid these problems.

A second weakness of the current study is that it found positive correlations between Type A behaviour and driver behaviours, not causal relationships. Based on the current study's findings it cannot be said, for example, that Type A behaviour causes risky driving. Research by Friedman (1977) suggests that "when Type A subjects can identify nothing in their environment to ignite their sense of time urgency or hostility, they frequently slip into Type B behaviour" (p. 594); therefore, it could be the case that driving causes Type A behaviour to emerge. The lack of scientific control in the current study also allows the possibility that the relationships found could be due to a third variable. A quasi-experiment that makes comparisons between Type A and Type B individuals, although not perfect, would be a step in the right direction.

4.3 Practical Implications and Future Research

A practical implication of the current study regards driver education. Educational campaigns for drivers such as those created by the Road Safety Authority could incorporate information about drivers' characteristics such as Type A behaviour that are linked to risky driving. The campaigns could alert drivers to these characteristics and demonstrate techniques to alter them (e.g. Friedman et al., 1986). A second practical implication of the current study regards driver insurance. As mentioned by Furnham and Saipe (1993), for a small cost, insurance companies could better predict safer drivers by incorporating assessments of drivers' personality characteristics such as Type A levels. However, before these applications could be undertaken more research is required.

The first direction that future research could take would be to move away from a correlational design. A quasi-experimental research design could be employed if a researcher had access to a large sample of drivers. Extreme scores (e.g. mean +/- 1 S.D.)

could be used to identify genuine Type A and Type B respondents. This would allow comparisons between groups on various facets of driver behaviour.

Another alternative direction that future research could take would be to move away from self-reported measures. Driver behaviour could be assessed through unobtrusive observation similar to the approach taken by Evans, Palsane, and Carrere (1987); while Type A behaviour could be measured using the Structured Interview (Rosenman et al., 1964). However, this approach is likely to be very costly and time consuming.

A population that requires consideration in future research is that of individuals who drive for work. A recent campaign by the Road Safety Authority (2012a) targeted at these individuals suggests that one-third of fatal road collisions involve drivers who are using their vehicle for work. This highlights the importance of replicating the current study amongst a sample drawn from this population.

A fourth direction that future research could take would be to examine the Big 5 dimensions of personality (i.e. openness, conscientiousness, extraversion, agreeableness, and neuroticism) in relation to Irish drivers' behaviours. This could be carried out by administering the NEO-PI-R (Costa & McCrae, 1992) alongside the Driver Behaviour Questionnaire (Furnham & Saipie, 1993).

4.4 Conclusion

In summary, the current study found that drivers with greater levels of Type A behaviour are more likely to be aggressive on the road, as well as being more inclined to take risks and feel confident in doing so. The drivers' sensation seeking levels were not significantly related to their frequency of risk taking or law breaking. They did, however, approach statistical significance in the expected direction and thus cannot discount the previous research linking sensation seeking to risky driving. Neither Type A nor sensation seeking levels were significantly related to drivers' quantities of penalty

points; whereas, not surprisingly, driving exposure was. As hypothesised, male drivers were found to score significantly higher than females on frequency of risk taking and confidence in risk taking. However, statistical analysis indicated no significant difference between the groups on law breaking.

There are practical implications for the current findings in driver education and insurance; but future research is required before any applications could be undertaken. Future research could move away from a correlational design and take a quasi-experimental approach to investigate the influence of Type A behaviour on driver behaviour. Another direction future research could take would be to replicate the current study amongst a sample of drivers who use their vehicle for work. Alternatively, the Big 5 dimensions of personality could be examined in relation to Irish drivers' behaviours.

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Appendix A

Cover Letter

Dear participant,

I am a final year psychology student carrying out research for the purpose of meeting course requirements. I would greatly appreciate your input by completing this questionnaire. However, it is only for licensed drivers: please complete it only if you have a driving licence (e.g. provisional, full, etc.). It will take approximately 6 – 8 minutes to complete. There are no “correct” or “incorrect” answers; the important thing is to answer each question as it is true for you. Your answers are considered strictly confidential – for research purposes only.

You are free at anytime to withdraw from completing the questionnaire.

If you have any questions or concerns about the questionnaire, please contact me:



Thank you for your cooperation,

Martin O'Connor.

Background Questionnaire

What is your gender?

Female

Male

What is your age? ____

How many years have you been driving? ____

How many penalty points do you have? ____

How many hours per month, approximately, do you spend driving? ____

The Student Jenkins Activity Survey (Yarnold, Bryant, & Grimm, 1987)

1. Is your everyday life filled mostly by:

- Problems needing solutions
- Challenges needing to be met
- A rather predictable routine of events
- Not enough things to keep me interested or busy

2. When you are under pressure or stress, do you usually:

- Do something about it immediately
- Plan carefully before taking any action

3. Ordinarily, how rapidly do you eat?

- I'm usually the first one finished
- I eat a little faster than average
- I eat at about the same speed as most people
- I eat more slowly than most people

4. Has your spouse or some friend ever told you that you eat too fast?

- Yes, often
- Yes, once or twice
- No, no one has told me this

5. When you listen to someone talking, and this person takes too long to come to the point, do you feel like hurrying them along?

- Frequently
- Occasionally
- Almost never

6. How often do you actually "put words in his mouth" in order to speed things up?

- Frequently
- Occasionally
- Almost never

7. If you tell your spouse or a friend that you will meet them somewhere at a definite time, how often do you arrive late?

- Once in a while
- Rarely
- I am never late

8. Do most people consider you to be:

- Definitely hard-driving and competitive
- Probably hard-driving and competitive
- Probably more relaxed and easy going
- Definitely more relaxed and easy going

9. Nowadays, do you consider yourself to be:

- Definitely hard-driving and competitive
- Probably hard-driving and competitive
- Probably more relaxed and easy going
- Definitely more relaxed and easy going

10. How would your spouse (or a close friend) rate you?

- Definitely hard-driving and competitive
- Probably hard-driving and competitive
- Probably more relaxed and easy going
- Definitely more relaxed and easy going

11. How would your spouse (or best friend) rate your general level of activity?

- Too slow. Should be more active.
- About average. Is busy most of the time.
- Too active. Needs to slow down.

12. Would people who know you well agree that you have less energy than most people?

- Definitely yes
- Probably yes
- Probably no
- Definitely no

13. How was your “temper” when you were younger?

- Fiery and hard to control
- Strong, but controllable
- I almost never get angry

14. How often are there deadlines in your courses?

- Daily or more often
- Weekly
- Monthly
- Never

15. Do you ever set deadlines or quotas for yourself in courses or other things?

- No
- Yes, but only occasionally
- Yes, regularly

16. In college, do you ever keep two projects moving forward at the same time by shifting back and forth from one to the other?

- No, never
- Yes, but only in emergencies
- Yes, regularly

17. Do you maintain a regular study schedule during holidays such as Christmas, and Easter?

- Yes
- No
- Sometimes

18. How often do you bring your work home with you at night or study materials related to your courses?

- Rarely or never
- Once a week or less often
- More than once a week

19. When you are in a group, do the other people tend to look to you to provide leadership?

- Rarely
- About as often as they look to others
- More often than they look to others

In the two questions immediately following, please compare yourself with the average student at your college.

20. In sense of responsibility, I am:

- Much more responsible
- A little more responsible
- A little less responsible
- Much less responsible

21. I approach life in general

- Much more seriously
- A little more seriously
- A little less seriously
- Much less seriously

Thrill and Adventure Seeking sub-scale (Zuckerman, Eysenck, & Eysenck, 1978)

For each of the following pairs of statements, please mark the one that most describes your likes or the way you feel.

I often wish I could be a mountain climber.

I can't understand why people would want to risk their necks climbing mountains.

A sensible person avoids activities that are dangerous.

I sometimes like to do things that are a little frightening.

I would like to take up the sport of water-skiing.

I would not like to take up water-skiing.

I would like to try surfboard riding.

I would not like to try surfboard riding.

I would not like to learn to fly an airplane.

I would like to fly an airplane.

I prefer the surface of the water to the depths.

I would like to go scuba diving.

I would like to try parachute jumping.

I would never want to try jumping out of a plane with or without a parachute.

- I would like to dive off the high board.
 I don't like the feeling I get standing on the high board or I don't go near it at all.
-
- Sailing long distances in small crafts is foolish.
 I would like to sail a long distance in a small but seaworthy sailing craft.
-
- Skiing fast down a high mountain is a good way to end up on crutches.
 I think I would enjoy the sensations of skiing very fast down a high mountain slope.
-

Driver Behaviour Questionnaire (Furnham & Saipe, 1993)

	Always	Often	Seldom	Never
Do you wear a safety belt when driving?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you do things on the spur of the moment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you gamble or bet?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you get bored with dull, day-to-day work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you base your behaviour on the motto "better safe than sorry"?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you do regular sports or exercise?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you do competitive sports?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In general do you compete much with others?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you compete with other car drivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you act in an aggressive manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you openly express your anger towards other drivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you consciously feel aggressive when driving?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does your impatience in traffic jams make you drive faster?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you ignore road signs, or speed up just before traffic lights turn red?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you feel intimidated by traffic Gardaí?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are you fully honest with the law?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you "bend" rules?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you were speeding and saw a stationary Garda car, would you then observe the speed limit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you drive faster than the speed limit assuming it to be safe?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you take driving risks assuming you will get away with them (e.g. speeding, ignoring a sign)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you were driving in fog on the motorway and a 70 km/h limit was signalled, yet all drivers were travelling at 120 km/h, would you still drive at 70 km/h?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you usually care if you break an important road law?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you enjoy the sensation of driving on the "limit" (of safety)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you feel you drive safely when consciously breaking the law?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you feel you take dangerous situations in your stride when driving?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix B

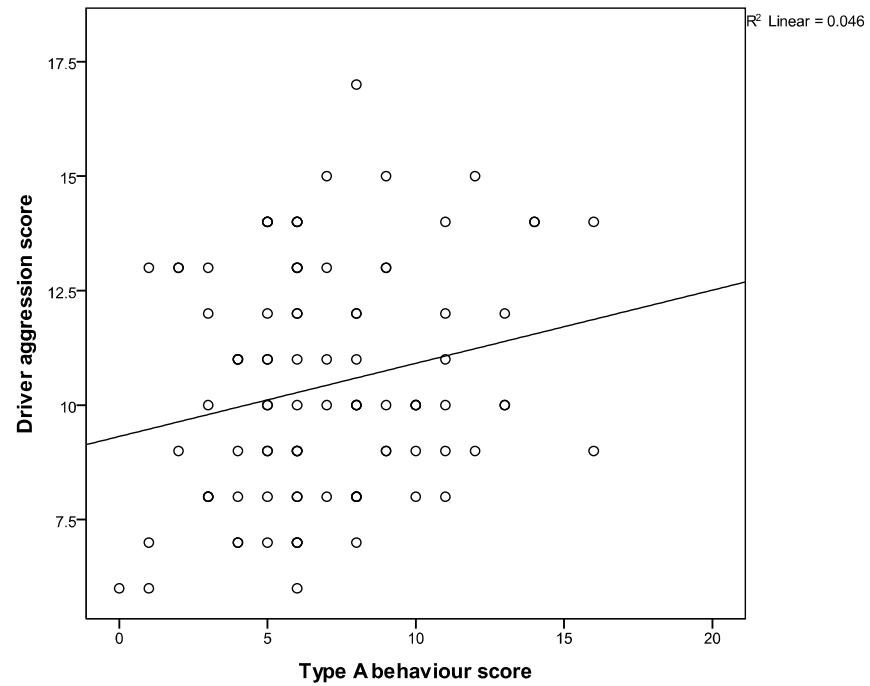


Figure 1. A Simple Scatter Plot of Type A Behaviour Scores and Driver Aggression Scores.

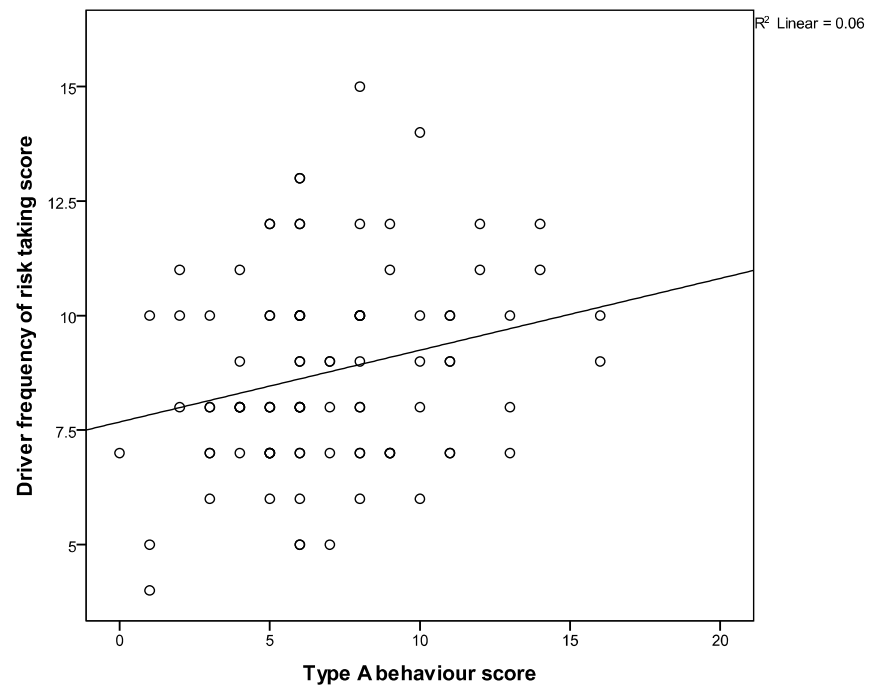


Figure 2. A Simple Scatter Plot of Type A Behaviour Scores and Driver Frequency of Risk Taking Scores.

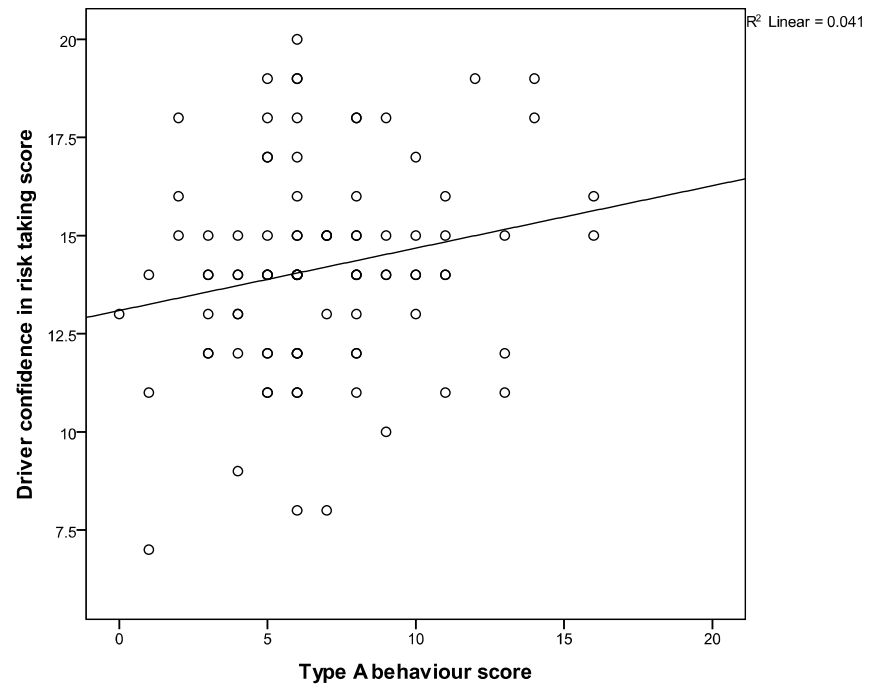


Figure 3. A Simple Scatter Plot of Type A Behaviour Scores and Driver Confidence in Risk Taking Scores.