

UNIT 3 HEALTH PSYCHOLOGY – EXTERNAL EXAM

Studies you will need to know for your exam in
Jan 2020 – the date hasn't been released yet

Applied Psychology

BTEC Level 3 Nationals in Applied Psychology

Additional Guidance for Unit 3

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Section C Studies – 6 studies	page 34

Learners will be assessed on their understanding of the key principles of the studies alongside their strengths and limitations when applied to a particular scenario. They will not be expected to recall the year and how the study was conducted.

Make sure you can summarise them and APFCC them

Aims
Procedure
Findings
Conclusions
Criticisms

Also try to think of a practical application that they can be used for as the second exam is based on case studies and applying theory.

Section A Studies

Study 1: Health Belief Model – Becker (1978) Compliance with a medical regimen for asthma

Background

Numerous studies have shown that adherence to medical advice, i.e. following doctors' instructions, is worryingly low, especially in relation to low-income populations where **non-adherence** can be as high as **60%**. The health belief model (HBM) has tried to explain this, suggesting that whether a person engages in healthy or risk-taking behaviour may depend on their perception of the (a) threat of the illness, such as susceptibility and seriousness, (b) the benefits in, or ability to, reducing this seriousness or susceptibility, and (c) the barriers to continuing the health behaviour, i.e. financial, social, etc. The HBM also suggests that there needs to be a cue to action to trigger a specific response, and these cues can be internal (symptoms) or external (health promotion campaigns/media). However, most research looks at situations such as screening, getting a diagnosis or preventing disease rather than looking at **chronic conditions** such as asthma which needed long term compliance to a health behaviour, which is what Becker tried to test in this study.

Aim

To use the health belief model to explain a mother's adherence to treatment for their asthmatic children.

Method

During the period October 1976 through February 1977, a total of **117 mothers** of children, aged between 9 months and 17 years, previously diagnosed as asthmatic, brought their children to the emergency facility for treatment of an **asthma attack**. These women were asked to cooperate in a study to learn more about *the 'problems mothers have in taking care of their children's health'* and about *'worries and problems in dealing with asthma'*. In total, **111 interviews** were used for analysis. Respondents (mothers) ranged from 17 to 54.

The interview, which took 45 minutes, dealt with the mothers' general health motivations and attitudes, i.e. their faith in doctors and effectiveness of medication, their views about their child's susceptibility to illness and asthma, how serious they thought asthma is, how much it interferes with their child's education, how much embarrassment it causes, and how it interferes with the mother's activities. A **covert evaluation** of compliance was also made by **drawing blood** (from the children) to test for **presence of the drug** used in asthma medication. However, this was not done on every occasion – only 80 out of 111 had blood taken. The self-reports of administration were then compared with the available blood samples.

Results

1. There was a **positive correlation** between a mother's belief about her child's susceptibility to asthma attacks and compliance with administering prescribed asthma medication. Therefore, the more the mother believes her child is susceptible the more likely they are to comply with treatment.
2. There was also a **positive correlation** between the mother's perception of the child having a serious level of asthma and administering of the prescribed medication. (The higher the perception of seriousness, the more they comply with treatment.)
3. Mothers who reported that the child's asthma interfered with their **personal activities** were more likely to comply with treatment.

4. Mothers who saw that the asthma **interfered in the child's schooling** were more likely to comply with treatment.
5. Interestingly, there was **more compliance** among those mothers who showed **scepticism** towards the clinician's abilities and expressed dissatisfaction with their communications.
6. Mothers reported **four barriers** to administering the medication: disruption of normal activities, difficulty finding places to get prescriptions, child complaints about the taste of the medication and problems with the schedule for administering the medication.
7. **Demographic variables** such as marital status and educational level were associated with compliance, with married mothers and those with a higher level of education more likely to comply.

Conclusion

The health belief model therefore is **useful** when trying to predict levels of adherence with medical regimes, and health related behaviours, even with chronic conditions such as asthma. All of the major HBM components were good predictors of health-related behaviour, with only the faith in doctors behaving differently to what the HBM would expect – although not surprising as some of those who were compliant still ended up at the emergency room. Perhaps this says more about the treatment itself than the doctors.

Evaluation

Strengths	Weaknesses
<p>The study did not only use self-reported compliance but also took blood samples to test compliance, making the study and the results more reliable.</p> <p>This study has practical application as it shows that if health professionals can communicate the seriousness/susceptibility of a disease to individuals then levels of compliance would improve – improving health behaviours.</p> <p>This study showed that the HBM can predict behaviour, which means that it has predictive validity (it will accurately predict a behaviour will happen in the future).</p>	<p>As the study looked at correlations between variables we cannot establish cause and effect, we can only see a relationship between variables.</p> <p>The study only used female participants, i.e. mothers, therefore we cannot generalise these results to a wider population, i.e. men (fathers).</p> <p>There may have been some element of social desirability/demand characteristics in the interviews lowering reliability.</p>

Study 2: Health Belief Model – Carpenter (2010) A meta-analysis of the effectiveness of health belief model variables in predicting behaviour

Background

This second health belief model (HBM) study also looks at the effectiveness of the HBM in predicting behaviour. However, this was a **meta-analysis** which means that the researchers looked at a number of studies that have been completed by other researchers, and then combined the results of these studies to come up with an overall finding/conclusion.

Carpenter also looked at the importance of **longitudinal studies** (studies over a longer period of time) when trying to predict behaviour. He suggested that the length of time between measurement of health belief model variables and the measurement of behaviour should be examined; as the impact of these beliefs on behaviour may fade over time. It may be that people have had conversations with friends, read a book, or even gained better access to health care, and any of these experiences could change people's health beliefs after they have been measured.

Hypothesis

The length of time between belief measurement and behaviour measurement will be negatively correlated with the effect size of each of the four HBM predictor's ability to predict behaviour.

Procedure - Study selection

The studies used had to measure at least some of the HBM variables. Also, the studies had to be **longitudinal** in design, but those giving their participants an intervention targeting the HBM variables in between were excluded. A total of **18 studies** were finally chosen, conducted between 1982 and 2007 and having a total sample of **2,702**.

Measurements

Studies were analysed according to:

- the length of time between the measurement of the HBM variables and the measurement of health behaviour
- whether they looked at a treatment outcome, or a preventative behaviour whether this was a drug-taking behaviour (taking prescribed drugs), or some other behaviour
- the percentage of people that actually changed their behaviour, and
- the correlation between each HBM variable (susceptibility, severity, barriers and benefits) and the behaviour.

Results

- 1) Severity** - There was a **slight positive relationship** between the subjects' estimates of how severe a given negative health outcome would be and their likelihood of adopting the target behaviour (the higher the severity, the more likely the health behaviour). This relationship was at its largest when the study was looking at taking **prescribed drugs** which suggests that there is something about taking prescription drugs which makes people consider the severity of the consequences for not taking them. Time was only positively related to behaviour outcomes, if that behaviour is measured shortly after the HBM variables are measured – the longer the length of time the less severity has an effect on behaviour.

- 2) **Susceptibility** – There was **virtually no relationship** between susceptibility beliefs and behaviour. The only time there was a positive effect was when it looked at the likelihood of a subject complying with a **drug-taking** regime. There was no difference between preventative and treatment behaviour – they both showed no relationship. The longer the period between HBM variable measurement and behavioural outcome measurement, the weaker the relationship is between susceptibility and behavioural outcomes.
- 3) **Benefits** – There was a positive relationship between the subjects’ perceptions of the benefits of adopting a behaviour and their likelihood of performing the outcome behaviour. When the health behaviour was treatment for a negative health outcome (illness) then the effects of benefits were at their smallest, though there was still a positive effect. Time was a moderating effect for benefits, with the longer the time between measurement of HBM variables and behaviour outcomes, the weaker the effect of benefits as a behavioural predictor.
- 4) **Barriers** – The effects of a subject’s perception of the barriers to performing the outcome behaviour on their likelihood of performing the behaviour were consistently the largest of the four HBM variables. The higher the perception of barriers, the less likely the behaviour will occur. Barriers were a weaker predictor of behaviour when the behavioural outcome was treatment rather than prevention. Time between measurement of HBM variables and behaviour outcomes had little effect.

Conclusion

The HBM model variables vary in their effectiveness, with benefits and barriers being the strongest predictors of behaviour. Severity was weak, and susceptibility was almost always unrelated to behaviour – perhaps this is due to the majority of the subjects already being diagnosed with a disease as obviously they are already susceptible. This suggests that only two of the four variables are effective at predicting behaviours. Zimmerman and Vernberg (1994) suggest that the HBM no longer applies well to an understanding of prevention of chronic disease and is therefore no longer effective – this meta-analysis supports that view. Interventions should focus on the benefits and barriers of a particular behavioural outcome.

Evaluation

Strengths	Weaknesses
<p>A meta- analysis allows a large amount of research to be used to come to a conclusion without the cost and time taken to do the actual research itself.</p> <p>The study has practical application. As well as showing that the HBM may not be an accurate predictor of long-term behavioural change, it also shows that consistently the strongest predictors of behaviour were perceived barriers and benefits. This knowledge could be used in health promotion and awareness campaigns to ensure higher levels of behavioural change are an outcome.</p>	<p>There was only a small number of studies used in the study as many researchers do not provide enough statistical information in their analysis for them to be used in this type of study. This limits the generalisability of the study.</p> <p>In addition, many of the measures in the studies varied in quality and type. This means that there is doubt over whether the HBM constructs were accurately measured. This lowers the validity of the study.</p>

Study 3: Locus of Control – Rotter (1966) Generalized expectancies for internal versus external control of reinforcement

Background

According to Rotter, **locus of control** can affect a person's decision of whether to adopt a health behaviour or not. Locus of control can be either internal or external. Those with an **internal** locus of control will be **more likely** to adopt health behaviours as they feel as they are in control of their life and therefore their health. **Externals**, however, are **less likely** to adopt health behaviour as they believe that external factors are in control on their life and their health, i.e. they may believe they will be ill no matter what they do so don't bother changing.

Aim

To investigate the effects of internal and external locus of control on behaviours. This was a **review article** which summarises current understanding of a topic area through the use of previously published studies.

Sample

The sample was several pieces of research which looked into a person's perception of their ability to control an outcome, dependent on reinforcement given. The Rotter I-E (internal external) scale was used in the studies across a variety of situations to see whether it could predict a number of behaviours. The scale contained a number of pairs of statements, one representing external and one representing internal locus of control. Those taking the test were told to select one statement in each pair that they more strongly believed in. Once completed, a total score was given which would suggest whether the individual had an internal or external locus of control.

Results

- 1) Rotter found that individuals identified as internal by the I-E scale tended to prefer **gambling** on 'sure things' (ones where they are almost always going to win) and did not like betting on anything with high odds (so less likely to win). Externals would wager more money on risky bets and would also be more prone to cognitive biases such as gambling fallacy, where they would bet on a number just because it hadn't come up in a while.
- 2) Internals were found to be significantly more successful than externals in altering the attitudes of others, however, they were also more resistant to **persuasion** and **attitude change** than externals. This could mean that they are able to deal with **potential threats** better than externals, i.e. temptations to try drugs/alcohol/perform risk taking behaviours.
- 3) An internal locus of control appeared to be associated with the amount of self-control a person has. Rotter found that **smokers** tended to be more likely to have an external locus of control than non-smokers, and that individuals who **quit smoking** after a health warning on a cigarette packet (usually from a health professional) were more likely to have an **internal** locus of control – though belief in the message was no different between externals and internals.
- 4) Using Asch's conformity test (see Unit 1 studies) this study looked at a subject's willingness to agree with a majority even if they were obviously not correct. Subjects were then allowed to gamble (with experimenter's money) on how correct their judgements were. Internals **conformed significantly less** to the majority and bet more money on themselves when going against the majority than externals did.

Conclusion

Rotter believed that whether you are internal or external could come from cultural factors, socioeconomic differences, and parenting style. What he did notice from his summary of studies was how consistent the results were, and this led him to the conclusion that locus of control is a significant predictor of behaviour and this is the same across a number of different behaviours. This suggests that people will behave very differently when faced with the same situation dependent on whether they are external or internal. Internals are more likely to gain information from the situations in their life in order to improve future behaviour if they were to meet the same or similar situation again. They would also be more likely to improve their behaviour and create positive change, and also be more able to resist temptation from others.

Evaluation

Strengths	Weaknesses
<p>If, as suggested, locus of control can predict behavioural change, or health behaviours, and internals are better for this reason, then treatments such as Cognitive Behaviour Therapy (CBT) can be used to change an individual's locus of control.</p> <p>Real life situations have also shown the impact of internal locus of control. For example, Oliner and Oliner (1988) found that rescuers of Jews in WW2 were more likely to have a high level of internal locus of control – showing that they are less likely to conform to orders.</p>	<p>As this study used secondary sources (research completed by others) we cannot be certain of the reliability of the measurements used by the other researchers, which would in turn cause the reliability of the study to be lowered.</p> <p>This study suggests that our actions are determined by our locus of control ignoring free will.</p>

Study 4: Locus of Control – Abouserie R (1994) Sources and levels of stress in relation to locus of control and self-esteem in university students

Background

Currently, the incidence and causes of stress are attracting growing attention among researchers and professional organisations. Research shows that the **adverse effects of stress** cost society dearly, both in terms of individual suffering and the economic burden of medical expenses, absence from work, and occupational injuries. Stress can predispose individuals to CHD, allergic reactions and muscle-related disorders amongst others. However, university students as a sample have not featured much in stress-related studies. Such investigations that have used students have concentrated on those studying medicine. Increased anxiety in students usually comes from academic expectations and performance, and also developing relationships. This study was designed to investigate the academic sources of stress and life stress levels in a general sample of university students. The study was also designed to investigate the interaction of two potential variables – **locus of control and self-esteem** – and students' stress levels.

Aim

1. To identify the academic sources of stress, and consequent stress levels in university students.
2. To investigate gender differences if any in sources and levels of stress in students.
3. To examine the relationship between sources, levels of stress and locus of control.

Method

The sample consisted of 675 2nd year undergraduate students from the University of Wales in Cardiff. A number of questionnaires were administered.

1. **Academic Stress Questionnaire** – looks at apparent causes of stress, i.e. exams and results, conflict with lecturers, conflict with peers, and financial problems amongst others.
2. **Life Stress Questionnaire** – covers different aspects and symptoms of psychological stress which leads to a total stress score which would be categorised as low, moderate, serious and very serious.
3. **Locus of control questionnaire** – looks at aspects of locus of control most closely related to academic learning at university level. The scale consisted of 12 items that relate to success and 12 that relate to failure – there was a mixture of internal and external and internal questions which led to a total score.
4. **Self-esteem scale** – using Likert scales.

Results

- a) **Sources of stress** – the highest source of stress was examinations and results, followed by studying for exams, need to do well, and essays or projects. Housing, and conflict with college systems were low sources of stress.
- b) **Students' life stress** – the majority of students were in the moderate stress category, with 10% in the serious stress, and 12% having no stress. There was no one in the very serious stress category.
- c) **Gender differences** – Stress levels in females were higher than males
- d) **Personality variables** – there was a significant positive correlation between locus of control and academic stress, which suggests that students with external control beliefs are more stressed than internals. However, there was no correlation between locus of control and life stress, indicating perhaps that the locus of control scale is biased towards academic issues. There was a negative

correlation between self-esteem and academic and life stress (low self-esteem means higher stress).

Conclusion

Results show that students are most affected by stress directly related to their academic studies, and that most students suffer moderate levels of stress. Results also show that the external locus of control is associated with higher levels of academic stress. In other words, students who believe they have control of their situation are less stressed than those who believe that things happen by luck or external forces. This raises the question of whether academic counselling would help students change their locus of control to being more internal.

Evaluation

Strengths	Weaknesses
<p>As suggested above, these results show the importance of academic counselling in helping students cope with academic stress – making this study useful.</p> <p>The sample consisted of a large number of students (675) from a variety of different departments from the University of Wales increasing generalisability.</p>	<p>A number of questionnaires were completed in this study. There is a possibility that these are not reliable measures of stress as they can be subject to social desirability bias and demand characteristics.</p> <p>The students were only from the University of Wales and therefore the results may not be applied to different countries or even different universities.</p> <p>This study only shows a correlation between academic stress and locus of control and so cause and effect cannot be established. Perhaps higher levels of academic stress causes an external locus of control and not the other way around.</p>

Study 5: Locus of Control – Krause (1986) Stress and Coping: Reconceptualising the Role of Locus of Control Beliefs

Background

There is significant interest in the relationship between stressful life events and psychological well-being. One of the most frequently investigated factors is **locus of control beliefs**, with people having external locus of control seemingly more susceptible to stress. Internals, however, believe they can master or even alter their environment, which leads to coping behaviours which can alter, prepare for, or avoid stressful events as they arise. A number of studies have agreed with the idea that internals cope better with stress than externals. However, most of these studies have been carried out with young or middle-aged samples and researchers need to know whether these processes also occur in older populations. In addition, some researchers have suggested that extreme internals and extreme externals are more vulnerable to effects of stress; extreme internals may be so overcome with trying to control a situation and outcome that they suffer with extreme anxiety and depression.

Hypothesis

'The effects of stressful life events on depressive symptoms are stronger among older adults with extreme internal and extreme external locus of control beliefs than among elderly people with moderate internal and moderate external locus of control'.

Procedure

The participants were identified through a **random community survey** of people 65 and over who lived in **Texas**. All participants were **retired** and did not live in an institution. In total, **351** completed interviews were obtained each participant was given **\$10** for their participation. 66% were women and 34% were men. The sample was ethnically diverse, but majority white.

Depressive symptoms were measured by the **Centre for Epidemiologic Studies Depression Scale (CES-D)**. Three factors were measured on this scale:

- a) **Depressed Affect** – assesses feelings of sadness, loneliness, and depression.
- b) **Somatic and Retarded Activities** – appetite problems, and difficulties with sleeping.
- c) **Positive Affect** – assesses feelings of happiness, hopefulness, and enjoyment of life.

Stressful life events were assessed with a checklist that was created by selecting items from a list of **77 life events**. These were grouped into areas such as: involving the respondents children, spouse, other relatives, friends, neighbourhood, finances and crime. There was also a variety of miscellaneous events. Totals were simply obtained from summing up the number of life events in which the participant was the central figure.

Locus of control beliefs were measured with a shortened version of the **Rotter I-E locus of control scale**. Two factors were gained from this scale:

- a) **Effects of chance** (how much you believe external forces (chance) affect an outcome) – a high score reflected an external locus of control.
- b) **Mastery beliefs** (your belief about how much you can control a success/failure outcome) – a high score reflects an internal locus of control, low score an external LOC.

Demographic variables such as age, gender, marital status, race, education and total family income were all controlled for.

Results

1. Both extreme internal and externals (as measured by mastery control/belief) felt the effects of stress on depressive symptoms more than moderate externals and internals showing that extreme cases are vulnerable to the effects of negative stressful events.
2. The effects of stress on feelings of sadness, loneliness and depression (depressed affect) were stronger in those elderly adults who believed **in the effect of chance** than among those elderly adults who **do not** believe in the effects of chance.
3. Effects of stress on appetite and sleep (somatic and retarded activities) are stronger in elderly adults who believe in the **effects of chance** than those older adults with internal beliefs.
4. **Extreme internals** reported an average of only **1.53** negative stressors in which they were a central figure whereas extreme externals reported an average **2.20** events suggesting that extreme internals having coping behaviours that help them avoid stressful situations before they occur.

Conclusion

This study shows that just saying internals cope better with life events than externals is too **simplistic**. It suggests that older adults with extreme internal mastery control may be vulnerable to the effects of negative stressful events. There are, however, some advantages in having an extreme internal locus of control such as **engaging in coping behaviours** that help them **avoid** stressful events. Therefore, having an extreme internal LOC is a mixed blessing. Such beliefs have positive effects as they promote stress avoidance, but they also have negative effects with those stressors that can't be avoided.

Evaluation

Strengths	Weaknesses
<p>This study shows that internals, in general, avoid stressors better than externals, which means that interventions should be targeted at increasing the level of control elderly people have over their lives. However, as it shows that those with extreme internal don't deal with those stressors which cannot be avoided very well, coping behaviours can be targeted to ensure that these people can deal with unavoidable stress.</p>	<p>Many of the measures used self-reports and rating scales. These may not be reliable as they can suffer from social desirability and demand characteristics.</p> <p>The sample was only from one area in one country (USA) therefore it may be that the results cannot be generalised to the wider population. It was also majority white which again may not represent the diversity in Texas, never mind the rest of the US and the world.</p>

Study 6: Theory of Planned Behaviour – Louis et al (2009) Stress and the Theory of Planned Behaviour: Understanding Healthy and Unhealthy Eating Intentions

Background

A healthy diet is beneficial throughout the lifespan, with poor nutrition linked to **life-threatening illnesses and earlier mortality**. Despite the advantages of healthy eating, poor dietary habits are common, and **rising obesity** suggests that this is increasing. This study is designed to provide a test of one psychological model of health decision making – the theory of planned behaviour. The theory of planned behaviour (TPB) suggests that actions come from intentions to engage in the behaviour. Intentions are predicted from three variables – perceived behavioural control, subjective norms and personal attitudes towards the behaviour. This research also looks at **stress** and its relationship with the TPB and poor eating behaviours. Finally, it will look at **body image discrepancy** and how it is related to the planned behaviour model.

Hypotheses

- 1) Stress will **moderate** the relationship of attitudes, perceived control and subjective norms to unhealthy eating.
- 2) **Life stress** will impact on healthy eating, independent of body-image discrepancy (a known stressor that has been shown to play a role in unhealthy eating decisions).

Procedure

Participants were **154 male and female** students aged between 17 and 33. They were all recruited from the student body of a **large Australian University**. The majority were recruited from the **1st year psychology group** in exchange for partial course credit. Height and weight were recorded for each participant. The participants also completed a questionnaire measuring demographic data, life stress, perceptions of body image, and planned behaviour variables in relation to healthy eating.

- 1) **Life stress** - life stress was measured subjectively using questions such as 'how is your living situation?' 7 point Likert scales were used ranging from -3 (extremely stressful) to +3 (extremely relaxing).
- 2) **Body-image discrepancy** - Measured using the graphical Body Image inventory. This measured the difference between participants' perceptions of their own body image ('which drawing looks most like your current figure?') and participants' perceptions of an ideal body image from their gender (which figure do you want to look like?).
- 3) **Attitudes, subjective norms, and perceived behavioural control:** These were assessed using scales with three items each. For example, for subjective norms a sample item is: '*people who are important to me think I should eat healthily over the next two weeks*: which participants rated on a 7-point scale ranging from -3 (very unlikely) to +3 (very likely).
For perceived behavioural control: '*For me to eat healthily in the next two (2) weeks, it is...*,' which participants rated on a 7-point scale ranging from -3 (extremely difficult) to +3 (extremely easy).
- 4) **Eating intentions:** Intentions to eat healthy or unhealthy foods were measured with a weekly scale which looked at the frequency of 30 food choices over a 2-week period. Participants had to say how often in the next two weeks would you eat or consume the following?.....Which they rated on an 8-point scale from 0 (never) to 7 (every day).

Results

Healthy Eating Intentions

- Positive attitudes towards healthy eating were linked to healthy intentions.
- Subjective norms were not related to healthy food intentions.
- No interactions between life stress and planned behaviour were obtained.
- When all other interactions were controlled for, however, including the slight effect of attitudes, there was a slight trend between perceived control and healthy eating intentions.

Unhealthy eating intentions

- Those with acute body discrepancy intended to eat more unhealthy food, whereas those with higher life stress intended to eat less unhealthy food.
- Perceived control over their ability to eat healthily was linked to lower unhealthy eating intentions, but those who perceived more social pressure to eat healthily (subjective norms) actually had higher intentions to eat unhealthily.
- Attitudes towards the behaviour did not affect unhealthy intentions.
- Stress moderated the effects of subjective norms and perceived control. As expected, when experiencing high levels of stress, subjective norms were ignored.
- At low levels of stress, subjective norms favouring healthy eating were associated with higher unhealthy eating intentions.
- At low stress perceived control reduced unhealthy eating intentions and these effects were weakened at high stress.

Conclusion

The results provide some support for the planned behaviour model in relation to healthy eating choices. However, stress moderated the impact of the planned behaviour variables on unhealthy eating intentions, especially in relation to subjective norms and perceived control. Perceived control seemed to be the only consistent variable from the planned behaviour model that was associated with low unhealthy eating intentions, and higher healthy eating intentions – the other two variables received less support. These results have implications for interventions, perceived control was the key to getting students to eat healthily. Therefore, interventions should concentrate on the barriers that reduce healthy eating and promote unhealthy foods. Creating favourable attitudes is also a target but this needs to be alongside raising control. In addition, if stress is a moderating factor on these variables then targeting stress is also important, although creating social pressure on students to eat healthily is ineffective.

Evaluation

Strengths	Weaknesses
This study is useful as it targets young adults, who are key when trying to improve eating habits, and looks at the role of stress which has had less attention. The results therefore are useful for planning interventions for young adults, i.e.	This study was a snapshot study which looked at a very short period of time. This is a limitation as we do not know the long-term effects of stress and planned behaviour variables on healthy eating.

<p>targeting stress alongside reducing the barriers to healthy eating. This could have positive effects on health in the future.</p>	<p>The use of self-reports is always problematic, especially in relation to sensitive topics such as unhealthy eating behaviour and body image. This could lead to social desirability making the answers less reliable. Objective measures of stress could be used in the future.</p> <p>The participants were taken from one Australian university, this mean that the results may not generalise to the wider population.</p> <p>This study provides a mixed level of support for the ability of TPB to predict behaviours. It also suggests that factors such as stress may weaken the model's ability to predict behaviour.</p>
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Study 7: Theory of Planned Behaviour – Cooke et al (2016) How well does the theory of planned behaviour predict alcohol consumption? A systematic review and meta-analysis

Background

Alcohol consumption is the **third biggest risk factor** to health in developed countries. It leads to harm from both chronic (long term) and acute (many drinks in one session) intake. **Liver disease**, which is associated with alcohol, is the fifth biggest cause of death in the UK. The Theory of Planned Behaviour (TPB) has been used to predict a number of behaviours; however, the strongest relationships have been found with **positive health behaviours** such as physical activity, whereas there were weak relationships when applying the TPB with more negative behaviours such as smoking. Until recently, there had not been a large amount of research looking at the links between TPB and alcohol consumption, and therefore the main aim of this study is to provide an up to date review and meta-analysis of the application of TPB to alcohol consumption.

Method

Forty Studies were identified and reviewed. Each study measured intentions to consume alcohol, drink within certain limits or abstinence. Studies had to include **direct measures** of attitudes, subjective norms and perceived behavioural control. In some studies, perceived behavioural control (PBC) was measured using items which looked at perceived control and self-efficacy separately. Therefore, items used to measure PBC were coded separately .

Perceived control would be questions such as:

'It is up to me whether I engage in binge drinking in the next week.'

Self-efficacy would be questions such as:

'For me, to engage in binge drinking in the next week would be easy.'

From these questions, measures were categorised as a 'pure' measure of Perceived control, a pure measure of self-efficacy, or a mixed measured of PCB.

As alcohol consumption can be defined differently, light and heavy drinking was separated by amount of ethanol consumed – the cut-off point being **56g of ethanol**. From this, alcohol consumption was categorised in five ways:

- **getting drunk** – drinking just with the intention of getting drunk
- **heavy episodic drinking** (more than 56g of ethanol in one sitting)
light episodic drinking (less than 56g of ethanol in one sitting)
- **quantity of drinks consumed** - subjective ratings of likelihood of drinking amount in one sitting.
- **not drinking at all.**

Results

- ***Intentions to drink unsurprisingly had a strong positive relationship with actual alcohol consumption.***
- **Attitudes** had the **strongest relationship** with intentions (more positive the attitude to drinking the higher the intention to drink).
- **Subjective norms** had a **stronger relationship** with intentions to drink than PBC (the more positive the perception of social approval the more likely the intention to drink).

- **Stronger perception of control (PC)** over alcohol consumption did not always lead to high intentions to drink – in fact a weak perception of control often led to higher consumption.
- **Type of drinking** moderated the effects of attitudes on intentions with episodic drinking having a stronger relationship with intentions than other forms of drinking.
- Subjective norms had a **larger relationship** with intentions during light episodic drinking than any other pattern of consumptions (the next was not drinking at all).
- There was a **stronger negative relationship** between PBC and intentions to drink alcohol when participants were drinking to get drunk’ (in other words a low perception of control over alcohol consumption led to higher intentions to drink alcohol when people were just out ‘to get drunk’).
- **Higher confidence (self-efficacy)** in your ability to consume alcohol is associated with stronger intentions to drink alcohol, and higher consumption.

Conclusion

Overall this study shows the TPB is **useful** when applied to intention to drink alcohol. The strongest relationships were found between attitude and subjective norms and intentions to drink, and a medium correlation was found for PBC. Interestingly, when separating PBC out to PC and SE, **it is self-efficacy** which has the strongest relationship with intentions to drink whereas PC had a small negative relationship with intentions. This suggests that PBC may have less of an effect on health risk behaviour than health promotion behaviours. Episodic drinking is also more associated with TPB variables than just going to ‘get drunk’.

Evaluation

Strengths	Weaknesses
<p>As this was a reviews article looking at 40 different studies a large amount of data can be analysed to come up with a final conclusion, making the study more valid.</p> <p>This study showed that the Theory of Planned Behaviour is useful when looking at drinking intentions, which means that it can be a useful tool to try and get people to change behaviour especially when trying to change attitudes towards drinking which has shown to be a strong predictor.</p>	<p>This difference in results for episodic drinking and getting drunk may just be down to the more precise nature of the definition of episodic drinking than anything else, participants may interpret ‘getting drunk’ very differently.</p> <p>There may have been issues with data collection and analysis in the studies that we do not know about which may have affect their reliability and validity, this would be the same for this study.</p>

Study 8: Self-Efficacy – Bandura and Adams (1977) Analysis of self-efficacy theory of behavioural change

Background

Self-efficacy is the **amount of self-belief** we have in our competence to successfully complete a task and produce a favourable outcome. Self-efficacy comes from four main sources of information: mastery experiences, observing others be successful, verbal persuasion, and emotional and physiological states such as levels of anxiety/stress. This study looks at **systematic desensitisation (SD)** as a treatment for behavioural change (in this case attempting to treat a phobia) and how it can raise self-efficacy. Systematic desensitisation is based on **classical conditioning**, and on the basis that anxiety produces the avoidance behaviours seen in phobias. Therefore, in order to treat a phobia, you need to substitute relaxation for that anxiety. To do this, patients are taught relaxation techniques, they then create a **hierarchy of fear** which goes from a situation that creates the least anxiety for the phobia at the bottom, right up to the most anxiety at the top. Patients then work their way up the fear hierarchy gradually, only moving on when they are comfortable with the situation. This study looks at how SD changes behaviour through its interaction with self-efficacy, as it lessens emotional arousal, one of the four areas that might lower self-efficacy in an individual.

Hypothesis

‘Eliminating emotional arousal alone would enhance self-efficacy but the levels attained would vary.’

‘The higher and stronger the efficacy expectations installed by the systematic desensitisation, the greater the reductions in avoidance behaviour.’ (The higher the levels of self-efficacy obtained from the treatment the less the participant would avoid the phobic object.)

Procedure

Ten subjects whose lives had been negatively affected by a **chronic snake phobia** were recruited through a **newspaper advertisement**. There were nine females and one male, aged between 19 and 57.

1. Prior to treatment – There were three measurements taken pre-treatment:

- a) Behavioural avoidance** – participants went through a series of tasks which required them to get into increasingly threatening interactions with a boa constrictor. Those who couldn’t even enter the same room as a snake scored zero, whilst those who could lift a snake from a cage were considered insufficiently fearful and excluded.
- b) Fear arousal** – The degree of fear shown when each situation was described, and also when it was actually performed, was rated by the participants on a 10-point scale. The two scores were averaged.
- c) Efficacy expectations** – This was taken after they had performed the avoidance tasks, so they had some idea what would be expected of them. This included whether they felt they would be able to perform a list of performance tasks given to them. For each task they rated the strength of their expectations to be successful from 0 to 100 (in ten-point units) ranging from high uncertainty to complete certainty. The self-efficacy level was then the number of tasks rated as higher than 10, and the self-efficacy strength was the scores across tasks divided by the number of tasks.

2. The Treatment (Systematic Desensitisation)

A female therapist administered SD to subjects individually. Relaxation techniques were first taught, and these were then paired with increasingly threatening situations which consisted of

imaginary representations of snakes in increasingly aversive situations. Some of the less threatening would be looking at toy replicas of snakes, and some of the most threatening would be imagining handling live snakes. Each image would be presented until no anxiety was shown, and then they would move up the hierarchy. This was continued until the subject's anxiety was eliminated.

3. Post-treatment measures

The same assessments in the pre-treatment phase were re-administered within a week of completion of treatment. The subjects were initially tested with a corn snake and then the boa used pre-treatment. The same person administered both pre- and post-treatment tests.

Results

Higher levels of self-efficacy were found post treatment. This higher self-efficacy was **positively correlated** with higher levels of snake interactions, and less avoidance behaviours. Therefore, the higher the self-efficacy the more they would interact with snakes. This means that the high level of self-efficacy has led to less arousal at the prospect of performing tests they have previously avoided. Therefore, fear arousal was **reduced** by the treatment approach through a higher level of self-efficacy.

Conclusion

Systematic desensitisation enhanced levels of self-efficacy which then led to an increased belief that a subject was able to cope with their snake phobia and interact with snakes. This shows that levels of self-efficacy are important in behavioural change.

Evaluation

Strengths	Weaknesses
<p>This study has important implications for behavioural change. As self-efficacy is so important in change then maybe interventions should target self-efficacy and help enhance it, as this will mean that behavioural change is more likely.</p> <p>The study used a standardised procedure, and controlled extraneous variables, therefore it could be repeated to test for reliability.</p>	<p>The sample used was small, and almost exclusively women. It may be that the results would not be the same for a mainly male sample, therefore the results may not be generalisable.</p> <p>Self- reports were used, and this causes problems of social-desirability. Perhaps subjects under reported their fears as they didn't want to look scared, or maybe they over-reported their fears as they thought this was expected of them (demand characteristics)</p>

Study 9: Self-Efficacy – Marlatt et al (1985) Self-efficacy and addictive behaviour

Background

Perceived self-efficacy plays a unique role in the field of addictive behaviours. Beliefs not only influence the **initial development** of addiction, but also the ability of an individual to change their behaviour and give up their habits. For example, in both the initiation and modification of smoking, individuals are faced with a choice to begin smoking and also to try and quit. This review looks at the role self-efficacy plays in **preventing the onset of addiction** (known as resistance self-efficacy) or having the ability to quit (coping self-efficacy) However, it is worth noting that self-efficacy can also be involved in attempts to initiate a habit such as smoking, i.e. asking yourself ‘can I inhale without choking’, ‘have I got what it takes to be a smoker’. If you are confident in both of those you may start smoking.

The Review

This review explores the various way self-efficacy theory applies to change in addictive behaviour in a number of ways. This review doesn't have a procedure, just a series of articles looking at the current understanding of self-efficacy and addiction including research already completed.

1. How self-efficacy is involved in the initiation of or resistance to drug use

The development of an addictive behaviour pattern involves two phases:

- a) **The initial use** – prevention programmes have focused on enhancing **resistance self-efficacy** to deter initial drug use. Research has shown that low resistance self-efficacy coupled with pro-drug social influences predicts both intentions and actual use of alcohol and tobaccos by adolescents. As a result, preventative interventions should focus on training adolescents to **resist social pressures** and internal temptations.
- b) **The reduction of self-harm of the addictive behaviour** – such as promoting drinking in moderation and/or abstinence. Research has shown that early experimentation with alcohol/drugs may set the stage for addiction problems in early adulthood. Therefore, intervention should concentrate on harm-reduction goals which are achievable for adolescents, and will therefore raise their **harm reduction self-efficacy**, their belief that they can moderate their behaviour. The High-Risk Drinkers Project assigned drinkers who were interested in changing their behaviour to one of two conditions (1) cognitive behavioural therapy which focused on enhancing self-efficacy to maintain moderate drinking, or (2) an alcohol information class which concentrated on the negative consequences of drinking. There was also a control group that were assessed only. Findings showed that the CBT group achieved the greatest reduction in consumption; showing the effectiveness of harm reduction self-efficacy.

2. Self-efficacy for change, treatment, and relapse prevention

Self-efficacy is a critical factor in behavioural change, starting with a commitment for action. Coping efficacy and recovery efficacy are then central to actual behavioural change.

- a) **Coping efficacy** is the ability to cope with high risk situations such as negative emotional states, conflicts and social pressures without relapsing. Research has shown that relapse prevention techniques such as CBT aim to raise self-efficacy and prevent relapse. Glossop et al studied 80 opiate addicts immediately after discharge and again 6 months later and asked subjects to rate

their ability to stay off opiates over 6 periods of time (from straight after hospital to rest of your life) and found self-efficacy scores predicted drug use at both 2 and 6 months after discharge. Other studies looking at coping efficacy shows that low coping self-efficacy during treatment programmes for alcohol addiction led to longer stays in treatment and discharge under more negative circumstances. These studies show that coping efficacy is important when looking at potential for change, successful treatment and also preventing relapse.

- 3. Recovery self-efficacy** is a person's reaction to a setback, and recovery efficacy is a way to teach addicts to 'bounce back' from their setbacks and not see it as a sign of personal failure. Little research has been done on the role of self-efficacy following a setback, however studies have shown a helplessness reaction to the first setback which are attributed to internal factors such as lack of willpower; and this leads to even greater chances of relapse. Therefore, trying to restore self-efficacy following a setback is vital. Research suggests that by recognising the trigger to the relapse, the client can be taught coping strategies to reverse the course of that behaviour – helping clients not be overwhelmed with that one failure.

Conclusions

The findings of this review show that, first, self-efficacy is a major factor in all stages of smoking and alcohol addiction and could be used to structure treatments in a number of ways. Self-efficacy can help develop treatments that help raise personal efficacy to gain better outcomes, i.e. concentrate on personal attainments through achievable targets for behaviour. Second, self-efficacy can be used to identify people at greater risk for difficulty. For example, those who are unwilling to change at that time, and those in greater risk of relapse. Self-efficacy interventions can be targeted at these people through extra training and support through time. Finally, efficacy judgements can be used to assess which particular place poses a greater risk for individuals. Coping efficacy interventions can be targeted at specific situations, therefore raising coping efficacy to ensure there is a lesser chance of relapse.

Section B studies

Study 1: Causes of stress – Rahe et al (1970) Prediction of near-future health change from subjects' preceding life changes

Background

In 1967, Holmes and Rahe developed a **questionnaire** called the Social Readjustment Rating Scale (SRRS) to identify **major stressful life events**. Each of the 43 life events was awarded a Life Change Unit (LCU) depending how traumatic it's seen by a large sample of participants. A **total value** for stressful life events was worked out by adding up the scores for each event experienced over the last **12 months**.

- If a person had less than 150 LCU they have a 30% chance of suffering from stress.
- 150-299 LCU equates to a 50% chance of suffering stress.
- Over 300 LCU means a person has an 80% chance of developing a stress related illness.

Aim

The aim of the study was to investigate whether scores of the Holmes and Rahe SRRS correlated with the subsequent onset of illness.

Method

2664 males aboard three US Navy cruisers - two in Vietnam and one in the Mediterranean, with a **range of educational and maritime** experience and of varying ranks, were given the SRRS prior to a cruise of approximately 6 to 8 months in duration. They were asked how many life events they had experienced in the previous 6 months. The total score on the SRRS was given for each participant.

Over the following 6 months, records were kept of illness of over **90%** of the men who had completed the questionnaire (**a total of around 2500 men**). A research physician went aboard to review all changes reported. The **correlation** between Life Change Units (LCUs) and frequency of illness were recorded. The participants and medical departments were unaware of the aims of the project.

Results

- The results across the ships showed that there was a **small but significant** positive correlation (+0.0118) between life change scores and illness scores. Although small, it did show that there was a relationship between LCUs and the number of reported illness throughout their time at sea. As frequency of illness went up, so did Life Change Units.

Conclusion

The researchers concluded that as LCUs were positively correlated with reported illness, therefore the higher numbers of life events led to a greater chance of stress related ill health. Most of the illnesses reported were minor but this may be due to the nature of the participants. Predictions were stronger in older and married sailors. It is worth noting, however, that as the correlation wasn't perfect (the perfect correlation would be +1.00) then life events were not the only factor which leads to illness.

Evaluation

Strengths	Weaknesses
<p>One of the first attempts to link life events to stress. This could have practical implications for interventions such as coping strategies, social support, etc.</p> <p>This was a large sample of participants across three ships and a number of ranks therefore generalisability was higher.</p>	<p>The fact that only Naval personnel were used is a weakness. They are offshore and therefore less prone to colds and other viruses than the general population, reducing generalisability.</p> <p>Retrospective recall of events over a period of time may be unreliable.</p> <p>There are general problems with the SRRS as a measure of stress. Some of the events on the questionnaire were culturally biased, i.e. Christmas was on there – this only applies to certain cultures – lowering the validity.</p> <p>In addition, self-reports such as the SRRS ignore individual differences. For example, some people hate Christmas and find it extremely stressful whereas some others absolutely love Christmas and do not find it stressful at all. This means it may not be an accurate measure of stress and therefore lack validity.</p>

Study 2: Causes of Stress – Kanner et al (1981) Comparison of two modes of stress measurement: daily hassles and uplifts versus major life events

Background

One of the features of stress research up until recent times was its **preoccupation with dramatic events** and severely problematic situations. Life events became of interest when Holmes and Rahe proposed that the readjustment required by major life changes substantially increases the risk of illness. One problem is, however, that the relationship between life events and illness is still **very small**, and that it provided no clues on **HOW** and **WHY** these life events cause illness, just that they do. The aim of this study, therefore, is to take a different approach to stress and ill health, one which looks at **minor annoyances** that we may face every single day of our lives – known as **daily hassles**. Researchers suggest these hassles, i.e. losing things, traffic jams, financial problems and arguments may be correlated more with stress and ill health than major life events. However, assessing daily hassles means also assessing daily uplifts, those positive experiences which may buffer against stress disorders. Uplifts may be such things as hearing good news. This study, therefore, looked to see whether daily hassle really are a **greater predictor** of ill health than life events.

Aim

To compare the Hassles and Uplifts scale with the Life Events Scale as predictors of psychological symptoms of stress such as ill health.

Method

The sample consisted of **100 respondents** (52 women and 48 men) aged 45-64 who participated in a 12-month study of stress, coping and emotions. The participants were white, with a decent level of education, and an adequate income. They were from the **bay lake area** in California. The study used the daily hassles scale which comprised of 117 hassles, and the uplifts scale which consisted of 135 uplifts which were closely related to the content areas of the hassles scale.

All tests were sent out to participants **one month** before the study actually began or as 'homework': to be filled out prior to monthly assessments (interviews). This made sure that all participants had access to the tests once the study began. A prearranged time of the month was set to fill out the homework questionnaires to make sure the intervals between completions were relatively stable (there were some variations however).

The schedule for the participants was:

- The Hassles and uplift scales were administered **once a month** for 9 consecutive months as part of the 12-month longitudinal study.
- A life events scale was administered **twice**, once as part of a mail out one month prior to the study (to ask about the 6 months before the study began) and again as part of the 10th month assessment. This scale concentrated mostly on negative life events.
- Hopkins Symptom Checklist (for symptoms such as anxiety and depression) and the Bradburn Morale Scale (positive and negative emotions) **once a month** for nine months.

Results

1. For both hassles and uplifts overall frequency scores were **generally consistent** from month to month.
2. For men, life events were positively correlated with hassles (the more life events the more hassles) and negatively correlated with uplifts (the more life events the less uplifts).
3. For women, life events positively correlated with both hassles and uplifts.
4. Daily hassles were a **considerably better predictor** of psychological symptoms i.e. stress/ illness than life events.

Conclusions

- From the results of this study it can be suggested that daily hassles are a better predictor of stress in life than major life events, and therefore a more **reliable measure**.
- Hassles are more **strongly associated** with adaptational outcomes such as wellbeing, and social functioning than life events.
- Hassles contribute to **psychological symptoms** whatever life events have happened. However, it may be worth noting that this is correlational, and it may be that negative symptoms can lead to reporting of daily hassles.

Evaluation

Strengths	Weaknesses
<p>This is a longitudinal study which means it can study over a period of time (in this case 12 months). This means it is a more valid measure of human behaviour than snapshot studies.</p> <p>This has practical application as it shows that smaller events can cause more stress than infrequent life events, this means that interventions can be put into place for individuals who are suffering from stress, and coping strategies implemented.</p> <p>Both the Hassles and Uplifts scale and the SRRS (life events scale) looked at previously continue to be used in research today, this means that psychologists believe that self-reports are a creditable measure of stress.</p>	<p>Kanner acknowledged himself that the repetitive nature of the tasks over a long period of time may have affected the results as people may have got bored or fatigued with the task.</p> <p>The self-reports (questionnaires) themselves were very long, with over 250 items in the hassles and uplifts scales alone this may mean that participants don't pay attention throughout the questionnaire. This may lower the reliability of the measure.</p>

Study 3: causes of stress - Johansson et al (1978) Social psychological and neuroendocrine stress reactions in highly mechanised work

Background

Modern technology in the workplace has **increased efficiency** in the workplace but also increased the **monotony** of the job and the repetitiveness. It has also led to a demand for **increased productivity**, which is machine based and requires a **high amount** of attention. This change in the workplace, according to research, can lead to low self-esteem, low job and life satisfaction and even a **higher incidence of ill health**. The strain of this may be due to **under stimulation** (due to the boring/repetitive nature of the work) and **over stimulation** (need to high levels of productivity and constant attention may lead to more information being inputted into the brain than it can process). This can lead to a decrease in performance levels, and a lower sense of wellbeing, and an increased level of adrenaline in the system which is related to the stress response. In a survey in the 1970s, it was found that a group of sawyers, edgers and graders in a Swedish sawmill displayed a higher than expected frequency of disorders, and interviews suggested a higher number of complaints about the monotony, the high level of attention needed, and mental stress of the job. This current study was carried out as a part of a long-term project to look at all these factors, and to research the link between highly mechanised work and stress reactions.

Aim

To investigate the psychological and physiological stress response in two separate categories of employees in a Swedish sawmill.

Procedure.

The sample consisted of two separate groups:

- **High risk group** – 14 sawyers, edgermen and graders
- **Control group** – 10 stickers, repairmen, maintenance workers, etc.

All participants were shift workers on performance related pay. They all worked indoors, or close by the sawhouse, they encountered high noise levels, and had similar physical working positions.

Differences between the two groups.

- The high-risk group had better lighting but were exposed to more dust and vibrations, and higher noise levels.
- High-risk group had a higher risk of accidents from cuts and launched objects, the control group had a greater risk of slipping, stumbling, etc.
- The high risk job was more monotonous and had little possibility of control in the work place, or creativity. It was more isolated and had a heavier responsibility for production levels (and therefore pay for themselves and fellow workers).

Both groups were studied on **two separate days** during a work shift and during non-work activities at home (which provided a baseline). Work measures were collected during the 1st or 2nd day of a morning shift week and baseline measures during the first day of an afternoon shift. Interviews were carried out on a third occasion.

Each participant had to provide a **daily urine sample** as soon as they arrived at work, and at four other times throughout the day. They also completed self-reports which tested their mood and levels of

alertness. For the baseline measure the urine sample was taken at the same time of day, but when they were at home.

From the urine sample, **Catecholamine** levels were measured. This was specifically related to the levels of **epinephrine (adrenalin)**. Body temperature was also measured at this time. Caffeine and nicotine consumption was also measured as this may have confounded these results.

After each urine collection, participants also **rated themselves** on mood and wakefulness. They did this through single words such as ‘sleepiness’, ‘irritation’, ‘calmness’, ‘rush’, ‘efficiency’, ‘well-being’ which they then rated on a scale from ‘none at all’ to ‘maximal’ (as great as possible).

Results

- The adrenaline levels of the high-risk group were **twice the levels** of their baseline (when it was taken at home). These levels continued to rise throughout their work day.
- The control group peaked at **1 ½ times** their baseline but this decreased throughout the day.
- The high-risk group had **higher ratings of irritability** and being **rushed** than the control group but had lower ratings of well-being.

Conclusion

The results indicate that repetitive, machine-paced and attention-demanding work as found in the Swedish sawmill contributed to a high level of stress in the high-risk group and was a risk to their wellbeing. In addition, the fact that income level mainly depends on the performance of the high-risk group may contribute to this stress.

Evaluation

Strengths	Weaknesses
<p>As well as using self-reports the researchers also use physiological measures such as adrenalin levels as taken from urine sample – this a more reliable way or measuring stress than self-reports alone.</p> <p>There is a practical application to this study; if workplaces are aware that certain types of work can lead to high stress levels than adjustments can be made to ensure a higher level of satisfaction and well-being for their workers i.e. providing variety/control for their workers.</p>	<p>The data reported was based on a limited sample of Swedish workers at a single plant and 2 days of observation of each participant only. In this case the possibility of generalising the results to other places/types of work is limited.</p> <p>There may be other variables that have contributed to the stress levels of the workers that haven’t been measured i.e. problems at home, financial difficulties etc. This may lower the validity of the study.</p>

Study 4: Link between stress and ill health - Kiecolt-Glaser (1984) Psychosocial modifiers of immunocompetence in medical students.

Background

Data from a number of studies have suggested that stress affects your immune system. This is because the stress hormone can suppress the immune system and lowers the numbers of **Natural Killer cells (NK cells)** which fight bacteria and viruses. These alterations will lead to an increased susceptibility to a number of diseases such as Coronary Heart disease, and digestive issues such as ulcers. However, the majority of studies completed on this topic area have been done on **animals rather than humans**, and therefore this study looks to investigate the link between a naturally occurring stressor and the immune system, and in this case, students taking exams.

Procedure

Volunteers for the research were gained from a 1st year medical student class from Ohio. In total, **75 students** (28 females and 49 males) agreed to participate; their average age was 23.

- An initial blood sample was drawn from the students **1 month after** a major exam and one month prior to the series of final examinations taken in the first year. The second blood sample was taken on the first day of the final exam week, after students had completed their first two examinations. Both were scheduled during the middle of the day.
- The Brief Symptom Inventory (BSI), a **53-item checklist**, provided data on nine-symptom dimensions and three areas about distress. These items were rated on a five-point scale from zero (not at all) to four (extremely) according to the amount of discomfort the problem caused in the last week. This was completed at the same time blood samples were taken.
- The SRRS was administered at the time of the first blood test. It was used to assess **life changes** that had occurred within the last year. This was used to divide the students into high stress and low stress groups.
- **The UCLA Loneliness scale** was also included during the first measurement which provided a subjective measure of the participants' interpersonal relationships. The median score was used to divide them into high and low loneliness groups.

Results

Natural killer cell (NK) activity was measured in the **student's blood samples**. A **lower level** of NK cells in the blood would mean a compromised immune system.

- It was found that there was a **significant decrease** in NK cell activity from the first measure prior to the final exams and the second sample during the exams.
- The high stress/high life events group also had **lower NK activity** than the low stress group.
- The high loneliness scorers have **lower NK activity** than the low scorers.

Conclusion

Kiecolt-Glaser concluded that even **mild chronic stressors** (as examinations were seen to be) has a significant effect on immunosuppression (reduction in the effectiveness of immune system) associated with increased distress in a young and otherwise healthy population. Both **stressful life events and**

loneliness appear to be associated with lower NK function, and the association between life events and NK activity perhaps show that the accumulation of stressful events can have negative consequences on health.

Evaluation

Strengths	Weaknesses
<p>The fact that this study used humans is a strength. As stated, most previous research had been done on animals therefore this shows that the effect on the immune system can be generalised to humans also.</p> <p>The study used an objective and reliable measure of NK activity, blood tests, so the results cannot be biased by experimenter effects or social desirability as may be the case with interviews/self-reports.</p> <p>This study used a repeated measures design (same participants in each condition) and therefore there would be no effects of individual differences/participant variables in the results.</p>	<p>This study used a self-selected (volunteer) sample which means it could be biased. It may be that the students who volunteered are those who are more likely to feel stressed about their exams.</p> <p>The age range of the students is quite small and being medical students relatively young. It may be that if the study is done on older people/no students we may find that stress has a greater effect on the immune system, meaning that the results can only be generalised to a limited population.</p> <p>This was a natural experiment and therefore wasn't very well controlled. There may be other variables that may have affected the NK activity, i.e. other minor stressors/hassles the students had at that time, arguments with peers/family, etc. So, we cannot say for sure that it was the exams that caused the drop in NK activity.</p>

Study 4: Biological approach to smoking: Vink et al (2005) Heritability of smoking initiation and nicotine dependence, dopamine receptors

Background

In contrast to other aspects of smoking behaviour such as initiation, little attention has been paid to the **genetics** of nicotine dependence. Only one study, at this point, had addressed the genetics of nicotine dependence, which looked at the relationship between the genetics of initiation of smoking, and nicotine dependence. This found that the majority of genetic risk factors for smoking initiation were shared with nicotine dependence, but there was a set of genetic factors that only influenced nicotine dependence alone. Genetic factors contributed **72%** of the variation of nicotine dependence with the rest being due to unique environmental factors. However, this study only looked at women.

Procedure

This study was part of an ongoing **twin/family study** on health-related behaviour of the Netherlands Twin Register, that assesses families with adolescent and young adult twins every 2/3 years since 1991.

In total, **1572 Dutch twins** were used in the study. Zygosity was based on questionnaire data, or when available DNA results. There were 868 **Monozygotic** (identical) male and female twin pairs, and 413 **dizygotic** (non-identical) male and females, and 291 dizygotic opposite sex twins.

Data on smoking behaviour was collected **longitudinally** every 2/3 years between 1991 and 2000 and 61% of the twins participated more than once. Subjects were classified as non-smokers when they reported that they had **never smoked** or when they **tried smoking** a few times but never reported being a regular smoker. If an individual reported to having smoked regularly in one of the surveys they were classed as an **ever smoker**.

In the 2000 survey only those classified as smokers or ex-smokers filled in the FTND – a test for nicotine dependence. This test contained six items which produces a score between 0 and 10 with higher scores indicating higher nicotine dependence. Items included ‘*how soon after you wake up do you smoke your first cigarette?*’ and ‘*do you find it difficult to refrain from smoking in places where it is forbidden?*’

Results

- When looking at Individual differences (variation) in smoking initiation, **44%** could be explained by genetic factors, **56%** environmental factors in both males and females.
- For nicotine dependence, **75%** of the individual differences (variance) was explained by **genetic factors**. The remaining variance was explained by unique environmental factors.
- This study suggests that there are two routes to non-smoking: an individual can be a non-smoker due to **genetic and/or environmental factors** that influence initiation or because that individual is **low on the nicotine dependence dimension**.

Evaluation

Strengths	Weaknesses
This was a large sample therefore the study may be generalisable	The study was only done on twins in the Netherlands, so it may not apply to twins outside of the Netherland

<p>The study was longitudinal so looks at behaviour over time. It also means that a large amount of data can be gathered making the study more valid.</p> <p>Zygoty was confirmed not only by self-reports but also DNA when available which makes the tests more reliable.</p>	<p>Nicotine dependence was measured by a number of scales on self-reports, these measures may not be valid due to social desirability and demand characteristics.</p>
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Study 5: Cognitive Explanation of Gambling – Griffiths (1994) The role of cognitive bias and skill in fruit machine gambling

Background

Gambling has been increasingly in the news, especially due to the concerns about the gaming industry and its effect on younger players. Griffiths' work came from an acknowledgement that learning theories couldn't explain addictive gambling, especially relapse after abstinence, and that it was a more complex process than first thought. Recent studies have shown that there may be a **strong cognitive bias** involved in gambling behaviour. Wagenaar suggests a number of **thought processes** that go on with a person is gambling, and most of these thought processes are **distorted** as they are selected on the wrong occasions. In addition, it has been suggested that many of the choices gamblers make are irrational – if they were rational they wouldn't gamble at all with the odds against them!

Aim

The aim of this study, therefore, was to compare the behaviour of regular (RG) and non-regular fruit machine gamblers (NRGs).

Hypotheses

1. There are no differences between RGs and NRGs on objective measures of skill.
2. RGs produce more irrational verbalisations than NRGs.
3. RGs are more skill orientated (i.e. focused on skills involved in gambling) than NRGs on subjective measures of skill (assessed by self-reports and interviews).

Procedure

60 participants took part; half were **regular gamblers** (at least once a week) and half were **non-regular gamblers** (once a month or less). Of the gamblers only one was female, of the non-regular gamblers 15 were female (gender imbalance but more men do gamble). The participants were recruited through **posters** placed around a local British university. A number of RGs were also recruited **via a gambler** known by the author.

The study took place in a **real-life arcade** in order to create a realistic environment for the gamblers (many previous studies took place in laboratories). Each participant was given £3 to gamble on a fruit machine in a **local arcade**; this money was equal to **30 free plays**. They were all asked to stay on their machine for at least **60 gambles** (i.e. break even and win back £3). At this point they were allowed to either keep the £3 winnings or carry on gambling. Although using someone else's money may lessen the risk to the gamblers, Griffiths hoped that allowing them to **keep their winnings** would compensate for this.

Behavioural data (dependent variables)

Each player was tested individually according to **seven variables**: total plays, total time, in minutes, of play, play rate, i.e. total number of plays in a minute, end stake, i.e. total winnings after a play session, total number of wins, and win rate in terms of time and number of plays.

Thinking aloud

Half the participants were **randomly allocated** to the thinking aloud condition. Only half were chosen as there was a concern it would affect behaviour. The thinking aloud group had to say out loud **every thought**

that goes through their mind, even if it seems irrelevant. This led to a 4th hypothesis that thinking aloud participants would take longer to finish the task than the non-thinking aloud group.

Skill judgements were assessed through semi-structured interviews where participants were asked their opinion on the level of skill needed to play a fruit machine.

Results

The study only found two significant differences on the seven dependent variables. (behavioural)

- 1) Regular gamblers had a higher playing rate of eight gambles a minute, compared to six for NRGs.
- 2) RGs who thought aloud had a lower win rate (in plays) and therefore made fewer gambles between each win than the other groups.

This supports hypothesis one in the main.

Other interesting but not significant findings were that regular gamblers were seen to spend more time on the fruit machine by having more gambles using the same initial stake. This may imply that RGs have more skill, but these may just mean that the skill of RGs is little more than being able to gamble up small wins into larger ones using nudge and hole buttons. Also, once 14 RG **broke even** at 60 gambles, **10** went on to gamble more until they **lost everything**. In contrast, of the seven NRG who broke even, only **two** stayed on and lost everything.

Thinking aloud

- Regular gamblers made significantly higher number of irrational verbalisations than NRGs especially '*personification of the fruit machine*' – 'the machine likes me'. Regular gamblers also made more rational verbalisations in particular reference to the number system – '*I got a 2 there*'.
- Non-regular gamblers made significantly more rational verbalisation mainly from confusion, i.e. '*What's going on here?/I don't understand this*' or miscellaneous utterances such as '*I think I'll get a bag of crisps after this*' **THIS supports hypothesis 2.**
- The thinking aloud condition did take longer to gamble than those who were not 'thinking aloud' but this difference was **not significant**.

In the semi structured interviews, RGs suggested that an equal amount of chance and skill would be needed for playing, whereas NRGs suggest it's mostly chance. RGs would also suggest that there they are above average or totally skilled, whereas NRGs would suggest their skill is below average. **Supporting hypothesis 3.**

Conclusions

- RGs **do not behave any differently** to NRGs as there were no overall differences on the seven measures supporting hypothesis 1.
- RGs **think differently** as regular gamblers produced more irrational verbalisations than non-regular gamblers. Therefore, they have different cognitive thought processes than NRGs, this supports hypothesis 2 and the idea of **cognitive bias** as a reason for gambling.
- Regular gamblers were more **skill orientated** in their self-report ratings than non-regular gamblers. Therefore, they think there is more skill involved than there actually is. This supports hypothesis 3.

Evaluation

Strengths	Weaknesses
<p>This study is high in ecological validity as it took place in a real-life arcade, meaning that the results are more able to be applied to real life.</p> <p>This has practical application as it was shown that the thinking aloud technique showed the irrational thoughts gamblers have. This has been used within cognitive therapy as part of the treatment for gambling as changing irrational thoughts to rational ones are part of the process.</p>	<p>There is a potential ethical issue due to giving money to non-regular gamblers. It may be that you are causing them to become more regular gamblers.</p> <p>There is a question of whether this can be applied to other forms of gambling such as horse racing due to the increased separation between the gambler and the consequences of that form of gambling. However, due to the same type of variable reinforcement schedules etc it may be that it can be applied.</p> <p>The sample was mainly gained through other gamblers that he already had recruited (snowball technique). This may not be representative as they may all have similar traits to each other (due to the fact they were recommended by each other) and therefore may not be representative. In addition, they were all from the UK which again may limit representativeness.</p>

Section C Studies

Study 1: Hovland Yale Model of Persuasion – Hovland and Weiss (1951) The influence of source credibility on communication effectiveness

Background

This study has two major objectives; firstly, to examine how **source credibility**, i.e. trustworthy and unworthy sources, affect an audience's acquisition of information and change in opinion, and to investigate whether the **effect lasts over time** (retention). Before this study there was a lack of research on the attitude of an audience to the communicator. Early communication studies did not pay much attention to the idea of credibility, and therefore the link between credibility and persuasion had not been investigated. Therefore, this study was one of the first to try and establish a correlation between the two.

Hypothesis

- Students' opinion **would change** towards the direction advocated by the communicator more when the communicator is perceived to be trustworthy (in other words, students would be more persuaded by a high credibility source than a low one).
- After the 4 weeks of presentation, students would **be more inclined** to take the position presented by the low credibility source than they did immediately after the presentation, because they will have disassociated the source from the content after a period of time (known as the **sleeping effect**).

Procedure

The experiment was conducted on a **student sample** taken from a history class in Yale University. The study presented the same information on a certain topic area to 2 groups of students, one of which received the information from a **high credibility source** and the second from a **low credibility source**.

Students' own opinions on the particular topics were taken (through the use of opinion questionnaires):

- five days before the presentation
- immediately after the presentation, and
- four weeks after the presentation.

The questionnaires included questions from three categories: the students' **evaluation** of the credibility of the source, **facts and arguments** presented by the sources (testing recall), and their **own opinion** about the issue.

The two groups of students were given both **positive and negative** articles about four topics; anti-histamine drugs, the steel shortage, atomic submarines and the future of movie theatres (all seen to be controversial topics at that time). The information given was said to be either from (1st group) a high credibility source, or (2nd group) a low credibility source (but the information was actually identical). The high credibility source could be a journal article whereas a low credibility source could be a tabloid newspaper.

Results

1. In 14 of the 16 possible comparisons, the low credibility sources were seen as being less justifiable or fair than the high credibility sources.
2. Opinion approval ratings were **much higher** for the high credibility sources.
3. People changed their mind **more often** with high credibility sources.
4. There was **no difference** in retention between the two groups.
5. Over time there was a **decrease in agreement** with the higher credibility source, and an increase with the low credibility source. This could be due to the sleeper effect where people will forget where the information came from (source) and change their opinion to be more in favour of it.

Conclusion

No matter the communicator, information is acquired and forgotten to the same extent. However, the communicator did affect the amount of opinion change which suggests that a **higher credibility source** is more likely to change the opinion of the person reading the information. This did not **last over time**, however, and over time the long-term opinion whether from the high or low credibility source is the same. It could be that those reading the high credibility source **forget** the information and therefore drop that opinion, or those reading the low credibility source forget that the source has low credibility and therefore feel better about the information and **change** their opinion.

Evaluation

<u>Strengths</u>	<u>Weaknesses</u>
<p>The study had a standardised procedure which means it can be repeated to be tested for reliability.</p> <p>This study has practical implications for persuasion as it suggests that if short term attitude change is needed then source credibility is important. However for long term change, evidence and message are likely to be most influential, and should be concentrated on by health professionals.</p>	<p>The study was done on a student sample from Yale University, this means that the sample may not be representative of the general population, and therefore cannot be generalised.</p> <p>This study may be a produce of its time, it may be that issues that are of relevance today may not produce the same results.</p>

Study 2: Fear Arousal Theory – Janis and Feshbach (1953) Fear arousal and dental hygiene

Background

This study was set out to test one type of variable in persuasive communication, the **arousal of fear or anxiety**. **Fear appeals** are often used to influence attitudes and behaviours. For example, the adverts about HIV in the early 80s often depicted gravestones in order to shock people into taking care of their sexual health. It is suggested that when emotion is aroused by fear appeals the audience will become more **highly motivated** to accept the recommendations given on the adverts; however, a change in behaviour is not always the consequence of fear appeals. Under certain conditions other types of **defensive reactions** are seen: if anxiety is aroused some people **do not pay attention** to try and get rid of the anxiety; or it may be that the audience will **actively try and avoid** exposure to the content again.

Aim

This study aims to investigate the consequences of using fear appeals in persuasive communications that are presented in group situations, especially in relation to the adverse effects to the communication that may occur due to defensive reactions from the audience.

Procedure

The entire freshman class (**200 students**) of a **large Connecticut high school** was divided into **4 equal groups** on a **random basis**. The four groups were similar in terms of age, sex, educational level and IQ. The mean age for each group was around 15 years old, and there were roughly even numbers of females and males in each group. A **15-minute illustrated lecture** was prepared in three different forms, all of which contained the same essential information about causes of tooth decay, and the same series of recommendations concerning oral hygiene processes. Each one was delivered by the **same speaker**. Each recording was supplemented by about 20 slides which were shown on the screen in a prearranged sequence to **illustrate various points** made by the speaker. The only difference in the lectures was the amount of **fear-arousing material** presented.

- **Form 1** – contained a **strong fear appeal**, emphasising the painful consequences of tooth decay, diseased gums and other dangers. Used phrases such as ‘This could happen to you’.
- **Form 2** – contained a **medium fear appeal** in which the dangers were described in a more mild and factual manner. Less audience focused.
- **Form 3** – presented a **minimal fear appeal** which rarely mentioned the consequences of tooth neglect. Most of the information was neutral looking at the growth and functions of the teeth. In other aspects Form 3 was the same as 1 and 2.

The illustrations used in each lecture reflected the differing level of fear. For the strong fear group there were **vivid pictures** of tooth decay and mouth infections whereas the minimal fear group just had pictures of x-rays and diagrams of decay.

A **control group** were given a similar lecture on the functioning of the **human eye**.

Data was collected using questionnaires which were completed **one week** before the study began (containing dental hygiene questions) and then **on the day** of the lecture. This questionnaire asked about their **emotional response** to the lecture. One week after the lecture a final questionnaire was completed to see whether their **dental hygiene had changed**.

Results

- The findings showed that all three experimental groups had the same amount of **knowledge** about dental hygiene after the lectures.
- The strong fear group said their lecture was **'interesting'** and also demonstrated more **anxiety** about tooth decay (42%) than the minimal fear group (24%).
- The strong fear group also thought that the lecture was **more horrible or disgusting** and suggested that the slides were too unpleasant.

Behaviour change

Condition	Behavioural change (%)
Minimal Fear Group	36%
Moderate Fear group	22%
Strong Fear Group	8%
Control Group	0%

Conclusion

The overall effectiveness of a communication is likely to be reduced significantly by the use of strong fear appeal messages. This could be because when strong fear emotion is aroused, and is not relieved by reassurances in the message, the audience will be motivated to ignore the message, or reduce the importance of the threat.

Evaluation

Strengths	Weaknesses
<p>This study has practical application as it shows the most effective way of using fear appeals in campaigns.</p> <p>The study was well controlled and standardised. This means it can be repeated to test for reliability.</p>	<p>The sample consisted of first year high school students therefore it is difficult to generalise it to wide population. In addition, this study was only on dental hygiene so we do not know whether it would apply to other fear appeals such as drink-driving, smoking.</p> <p>The study did not take into account other factors which may have changed dental hygiene behaviour such as symptoms of tooth decay a participant may have i.e. pain and therefore may be seen to be too simplistic.</p>

Study 3: The Elaboration Likelihood Model - Petty, Cacioppo, and Goldman (1981) Personal Involvement as a Determinant of Argument-Based Persuasion

Background

It has been suggested that there are two basic routes to persuasion. One route is based on the thoughtful consideration of arguments to the issue known as the **central route**, whereas the other is based on a more **peripheral route**, based on positive or negative cues in the persuasion argument. These could be as basic as food, or more secondary such as a **powerful or attractive source**. These cues may shape attitudes or allow a person to decide what a position to adopt without the need to engage in any issue relevant arguments. If these cues are so powerful, then it may be that no issue relevant arguments are needed to change attitudes. Researchers suggest, however, that which route is more important depends on your **personal involvement** with an issue. Therefore, his study was designed to provide a **direct test** of the argument that when you are **highly involved** with an issue, **the central route** is more important, whereas when it is not an issue that you feel any personal involvement in, the **peripheral cues** may be more important.

Hypothesis

1. An issue-relevant argument (central route) becomes a more important determinant of persuasion as the personal relevance of an issue increases.
2. Peripheral cues in the persuasion situation become more important as personal involvement with an issue decreases.

Procedure

145 male and female undergraduates from the **University of Missouri** participated in order to receive extra credits in an introductory psychology course. In the research the students were told that the university was undergoing an academic revolution and that the new chancellor was looking for recommendations about policy changes to be initiated. The subjects were also told that that the chancellor had asked several groups and individuals to prepare policy statements.

After reading these background comments, the subjects **heard a message** (all by the same male speaker) suggesting that all seniors were required to take a **comprehensive new exam** in their major area and that all students would need to pass this to graduate. After listening they had to rate the concept proposed, such as **how favourable** they were to the idea.

The researchers manipulated **three independent variables**:

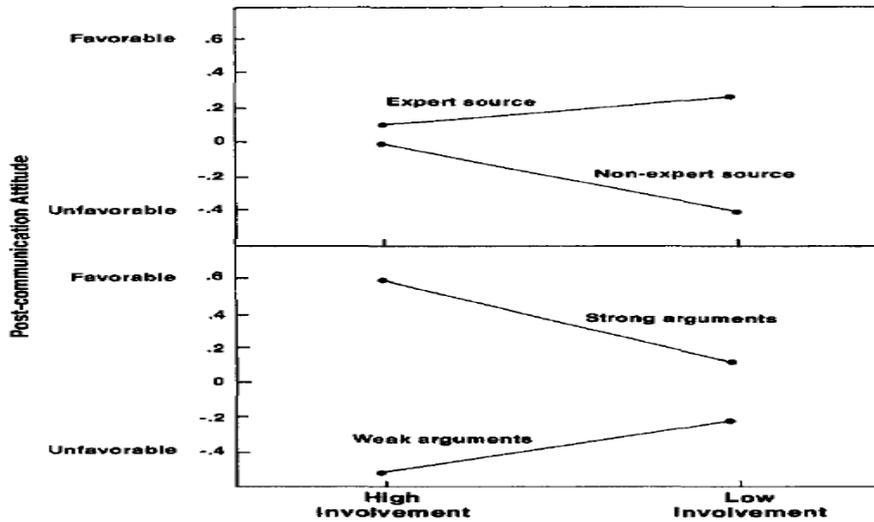
- **Message strength** – The message either contained **strong arguments** characterised by persuasive data and statistics about the positive effects of the exam at other universities, or **weak arguments** which contained individual quotations and personal opinions only.
- **Source expertise** – The message was either supposedly prepared by an **expert source** (the Carnegie Commission on Higher Education which was chaired by a professor of Education at Princeton University) or by a **non-expert** source (a class at a local high school).
- **Personal relevance** – the students were either told that the new exam would begin before they had graduated, which would make it of **high personal relevance**, or that it would not begin until after they had already graduated, making it of **low personal relevance**.

After they had heard the message, the subjects were told that because their personal views might influence the way they rate the broadcast quality, a measure of their own opinion was desired. There were two measurements:

- 1) They were asked to rate the concept '**comprehensive exams**'.
- 2) They rated the **extent to which they agreed** with the proposal about the comprehensive exam.

These scores were averaged to give an overall attitude towards comprehensive exams.

Results



Results found (top box) that students attitude towards the concept, in the high personal involvement condition, were **not particularly influenced** by the expertise of the source and their attitude was relatively neutral whether they had an expert or non-expert source. However, students in the low personal involvement condition were **significantly affected** by the expertise of the source. When the source was an expert their attitude towards the concept was **favourable**, however when source was a non-expert their attitude was **negative**.

Results also found (bottom box) that in the low involvement condition students were only **slightly influenced** by the quality of the argument. However, in the high involvement condition they were **significantly affected**. Weak arguments led to **highly unfavourable** attitudes towards the concept, whereas strong arguments produced an **extremely favourable** attitude towards the concept.

Conclusion

These findings fit in with the idea that when an issue is important to the students, they engaged in thoughtful processing of the message itself. Conversely, when the message was largely irrelevant they simply used the expertise of the source to formulate their attitude rather than the message itself.

Evaluation

Strengths	Weaknesses
<p>This has practical application as the realisation that the effects of the message will be different dependent on the personal involvement of the audience will mean that health promotion campaigns can be tailored better to the audience, and therefore alter behaviour more effectively.</p>	<p>This study uses self-reports (namely Likert scales) in order to measure attitude to the concept. These may not be reliable due to demand characteristics and/or social desirability.</p> <p>The sample was taken from one area in America and was comprised of students. This is not a representative sample and therefore the results may not be able to be generalised to the wider population. For example, students may have different thinking.</p>

Study 4: Rational non-adherence – Bulpitt and Fletcher (1988) Importance of well-being in hypertensive patients

Background

Adherence to medical advice means **doing as we are told** by medical professionals and being sensible about our health. However, people are not always obedient to requests from authority figures and in fact we are **more likely to ignore** health requests than we are to actually comply with them. **Rational non-adherence** suggests that people make a rational and logical choice not to adhere, and that people have weighed up the situation and decided it is against their own interests to adhere. These reasons could be due to the side effects, confusion, the belief that the treatment isn't helping, the cost of medication or a belief that the treatment is only masking the symptoms. Within this study Bulpitt and Fletcher look at treatments for **hypertension** (high blood pressure) and how they may affect levels of adherence.

Aim

To review research on adherence in patients with hypertension.

Procedure

This was a **review article** which looked at a number of studies of non-adherence in hypertensive patients specifically looking at the problems associated with taking the prescribed drugs for hypertension. The studies were analysed to identify the **physical effects** associated with the drug treatment on an individual's everyday life, i.e. work, their physical and psychological well-being, hobbies, etc.

Results

The researchers found that medication for hypertension had several side effects, for example, sleeping, dizziness, impotence and weakened cognitive functioning. From the study by **Curb et al (1985)** Bulpitt and Fletcher showed that the medication for hypertension was effective and did reduce blood pressure. Despite this, however, **8% of the men in the study stopped** taking their medication mainly due to the fact that one of the side effects was **sexual problems** such as impotence and premature ejaculation!

Conclusion

It was concluded that patients are **less likely** to adhere if the side effects (the costs) outweigh the benefits of treatment – especially when the problems that they are treating (hypertension) have very few/no symptoms the majority of the time. Men especially are more likely to reject the treatment as it has a negative effect on sexual performance.

Evaluation

Strengths	Weaknesses
This study has practical application as it shows the issues with side effects are one of the main reasons for non-adherence – this means that it is important to lessen the side effects of medication, or make sure all	One of the problems with secondary research is that you can never be sure of the reliability and validity of the original data collection methods – and if there were problems this would then be the same for the current research.

patients know the benefits of taking them outweigh the costs.

This also supports the health belief model as it shows that the barriers (costs) to treatment outweighs the benefits which means that the individual does not continue with the health behaviour (taking the medication).

Study 5: Improving Adherence – Lustman et al (2000) Fluoxetine for depression in diabetes: a randomized double-blind placebo-controlled trial

Background

Long-term adherence to a healthy lifestyle and medication can be difficult and can place strain on an individual. It is therefore not a surprise that depression is common in patients with illnesses such as diabetes. Depression is associated with **poor glycaemic** (blood sugar level) control and is linked to an increased risk for **diabetic complications**. This study looked at whether treating the depression with **fluoxetine** can improve adherence, and therefore the health, of diabetic patients.

Procedure

The researchers recruited subjects from within the **Washington University Medical Centre community** and through adverts in the **Missouri area**. **60** patients were recruited who had either type 1 (26) or type 2 (34) diabetes, and also had a **major depressive disorder**. Volunteers were excluded if they had a history of suicidal behaviour, bipolar disorder, psychotic disorder, current alcohol or substance abuse disorder, or on psychoactive medication.

Participants were randomly assigned to either:

- 1) A group receiving **daily fluoxetine tablets for 8 weeks**. The level of Fluoxetine started at 20mg a day (given in the morning) and was raised to 40mg (given in the morning) dependent on clinical response and side effects.
- 2) A control group receiving identical looking **placebos**.

This a **double-blind study** which means that neither the researchers or the participants knew who had been given the fluoxetine or the placebo. The level of depression for all participants was measured through **self-reports/psychometric tests**.

Physiological measures such as **blood sugar levels**, were recorded pre and post experiment (day 56). These were measured through blood tests which measures a patient's average blood sugar levels over the last 2/3 months. This was used to measure adherence to their diabetic medical regime.

Results

There were 54 patients that completed the study (three withdrew from each condition, one due to side effects, one due to heart issues, and the others didn't give any reasons).

Two key findings are:

- 1) The participants who were given Fluoxetine were **significantly less depressed** than the control group.
- 2) Improvements in mean glucose levels were **greater** in the Fluoxetine group than in the control group – however this was not significant.

Conclusion

Diabetic patients had better control over their blood sugar levels after treatment with Fluoxetine, probably due to improved adherence to their treatment. This provides support to the idea that patient adherence can be improved by reducing their level of depression using Fluoxetine.

Evaluation

Strengths	Weaknesses
<p>This is a useful study for enhancing our understanding of why people do not adhere. It also shows that depression can be a problem for adherence and if this is treated then adherence can improve.</p> <p>Using a double-blind study means that neither the experimenter or the participants can affect results, increasing the reliability of the study.</p>	<p>The sample contained only people with diabetes, so we are unsure whether this could be applied to other illnesses/populations. There were only 60 participants and therefore this may affect generalisability.</p> <p>This was only a short-term study, looking at short term effects. It may be that these effects would not be the same in the long term.</p> <p>Is it ethical to deny a group access to fluoxetine in that 8-week period? Could this mean that their depression gets worse? This is potential harm to the participant.</p>

Study 6: Improving Adherence – Volpp et al (2009) A Randomized, Controlled Trial of Financial Incentives for Smoking Cessation, adherence reminder packages – telephone calls, SMS, cognitive behavioural therapy

Background

Smoking is the **leading cause** of premature death in the USA. Previous studies of **financial incentives** for smoking cessation in work settings have not shown that such incentives have significant effects on cessation rates, but these studies have had limited scope, and the incentives used may have been insufficient.

Procedure

A total of **878 employees** of a multinational company in the US were recruited via surveys within the workplace. Employees were eligible to participate as long as they were at least 18 years of age, and they smoked five or more cigarettes a day. All participants were followed for at least **12 months**; only those who were confirmed to have stopped smoking through a biochemical test within those 12 months, were followed for an **additional six months**. Participants were randomly assigned to either:

- 1) receive information about smoking-cessation programmes (442) or,
- 2) receive information about programmes **plus financial incentives** (436).

The financial incentives were **\$100** for completion of a smoking-cessation programme, **\$250** for cessation of smoking within 6 months after study enrolment. This cessation was tested and confirmed by a biochemical test. Finally, **\$400** was given for abstinence over an additional 6 months after the initial cessation, also confirmed by a biochemical test.

All participants were **contacted three months** after enrolment and asked whether they'd **stopped** smoking. Participants who reported complete abstinence for at least seven days before being contacted were **interviewed** for a more thorough assessment. Participants who didn't report abstinence were contacted after another three months (six months) for the full follow up assessment. Six months after completing their first full interview nine months for that reporting abstinence at three months; 12 months for those interviewed at six months), everyone was interviewed again. People who had reported that they had stopped smoking at any point had a **biochemical test** (through saliva or urine test) to confirm abstinence.

Secondary end points included **enrolment** in a smoking cessation programme; **completion** of a smoking-cessation programme; **rate of smoking cessation** within six months after study enrolment; and **rates of cessation** at 3, 9 and 15 months, or 6, 12 and 18 months after enrolment.

Results

The incentive group had **significantly higher** rates of smoking cessation than did the information-only group 9 or 12 months after enrolment (14.7% compared to 5%) and 15 and 18 months after enrolment (9.4% compared to 3.5%). Incentive group participants also had significantly higher rates of enrolment in a smoking-cessation programme (15.4% compared to 5.4%), completion of a smoking-cessation programme (10.8% compared to 2.5%) and smoking cessation within the first 6 months after enrolment (20.8% compared to 11.8%).

Conclusions

In this study of employees of one large company, financial incentives for smoking cessation **significantly increased** the rates of smoking cessation.

Evaluation

Strengths	Weaknesses
<p>This shows that financial incentives can be used to change behaviour, meaning that interventions for hard to change behaviour can be targeted using incentives.</p> <p>This is a larger sample than many previously done on the use of financial incentives which means it can be generalised.</p> <p>Smoking cessation was confirmed not only through self-reports but also saliva and urine tests, meaning that results are more reliable due to the use of objective measures.</p>	<p>There is a possible ethical issue in that offering substantial financial incentives may have unintended consequences that some people may initiate the behaviour in order to gain the financial incentives of stopping.</p> <p>Does this get to the root cause of the behaviour? Or will the participant only stop due to the money? Perhaps once the study finished and they have gained the money they may resume smoking.</p> <p>The study was only done on employees at one workplace in the US meaning it is not representative of the general population. Perhaps there was something specific about this sample that achieved these results, meaning it cannot be generalised.</p>