Materialism and Well-being in Adolescents

by

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Declaration

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Overview of Research Portfolio – Part One and Two

Materialism is associated with negative personal outcomes including reduced well-being, increased risk behaviours, lower quality relationships and reduced pro-social behaviours. Self-determination theory has been used to explain these links, suggesting that dissatisfaction with basic psychological needs underpins this relationship. The majority of the research addressing the effects of materialism is based on adult populations. This thesis aimed to determine the impact of materialism on adolescents.

Part one presents an empirical paper that investigated the association between materialism and well-being within an adolescent sample using comprehensive measures of well-being and materialism. The study also looked at whether satisfaction and frustration with basic psychological needs played an explanatory role within this relationship. Materialism within adolescence was found to be associated with reduced life satisfaction and psychological needs satisfaction had an explanatory role in this relationship. Materialism was not universally related to all well-being dimensions measured. Applications of these findings and future research directions are discussed.

Part two of this portfolio is a systematic review of the literature on materialism and well-being within adolescent populations. The findings of the review suggested that materialism was associated with increased health risk behaviours and reduced life satisfaction within adolescent populations. However, the review found large variations in the findings with some contradicting evidence. The review identified methodological issues which limited the conclusions drawn.
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Part One: Empirical Paper on Materialism and Well-being in Adolescents
Abstract

Increasing evidence indicates that materialism is associated with poorer well-being in adult populations (Kasser, 2016, Dittmar, Bond, Hurst and Kasser, 2014). This study looked at the relationship between materialism, well-being and ill-being within an adolescent population. Drawing upon self-determination theory (SDT), this study addressed whether psychological needs satisfaction and frustration played a mediating role in the relationship between materialism and well-being. Specifically, the structural model identified by Unanue, Dittmar, Vignoles and Vansteenkiste (2014) was tested. With a sample of 468 participants (age range 14-18, \( M = 15.52 \) years, \( SD = 1.06 \)) this study found that materialistic aspirations were associated with reduced life satisfaction in an adolescent population. Satisfaction with psychological needs of competency, autonomy and relatedness was found to play an explanatory role in this relationship. However, frustration with these psychological needs was not found to further explain this association. In contrast to common findings in adult samples, materialism was not universally related to all well-being dimensions measured within an adolescent sample as SDT would posit. This paper discusses other factors and theoretical perspectives that may be relevant when looking at the relationship between materialism and well-being within an adolescent population.
1. Introduction

Increasing evidence indicates that materialism is associated with poorer well-being (see Kasser, 2016, for a review and Dittmar, Bond, Hurst and Kasser, 2014, for a meta-analysis). In line with past work, (Dittmar et al., 2014; Dittmar 2008; Richins, 2004) materialism is defined as “individual differences in people’s long-term endorsement of values, goals and associated beliefs that centre on the importance of acquiring money and possessions that convey status” (Dittmar et al., 2014 p.880).

Evidence is emerging that having a materialistic orientation can have detrimental effects, including increased engagement in health risk behaviours, e.g. use of drugs and alcohol (Dittmar et al., 2014), reduced pro-social behaviours e.g. choosing to volunteer (Briggs, Landry & Wood, 2007), fewer ecologically responsive behaviours (Brown & Kasser, 2005), compulsive buying (Dittmar et al., 2014), poorer learning outcomes at school (Ku, Dittmar & Banerjee, 2012, 2014), and an increased prejudicial attitude towards minority groups (Duriez, Vansteenkiste, Soenens & De Witte, 2007). Research also suggests that the negative social consequences of materialism are vast, including poorer quality relationships (rated by friends and family, Solberg et al., 2004), lower marital quality (Carroll, Dean, Call & Busby, 2011) and the fuelling of social isolation (Pieters, 2013). This is of concern given that good quality relationships are fundamental protective factors for physical and mental health (Waldinger, Cohen, Schulz & Crowell, 2015).

1.1. Materialism and Well-being in Adolescents

There is limited research that addresses the link between materialism and well-being in young people (Barnfield, 2019; Dittmar et al., 2014). Research that has used adolescent samples shows contradicting evidence and many studies have
methodological limitations (Barnfield, 2019). The wide variation in the operationalisation and measurement of materialism and well-being in research makes overarching comparisons of this literature difficult. Furthermore, there is limited empirical research to ascertain what underlies this association between materialism and well-being within an adolescent population (Barnfield, 2019; Dittmar et al., 2014).

The effects of materialism on youth is of particular concern as young people today appear to consider extrinsic goals (money, image, social recognition) as more important than intrinsic goals (self-acceptance, affiliation, community) compared to older generations in their youth (Twenge, Campbell & Freeman, 2012). This could be due to the increasing messages displayed by advertisements, the mass media and social media that emphasise the perceived benefits of materialism (Dittmar, 2008; Twenge & Kasser, 2013). The current social climate of increased societal insecurity and disconnection (e.g. threat of unemployment, divorce and isolation), may also be a driver for materialism (Twenge & Kasser, 2013). Adolescence is a life stage whereby choices around one’s future begin to emerge, especially about future education and career direction. If adolescents begin to direct their life in pursuit of materialistic goals, this may have negative consequences for their future, communities and the environment. In the current climate of austerity and national economic difficulties, materialistic aspirations may have a greater impact on young peoples’ future well-being. It is important to research the effects of materialism and whether interventions can be created to enhance young peoples’ resilience to messages around materialism from the mass and social media.
1.2. Theoretical Perspectives

At a societal level, Inglehart’s Theory of Social Change states that as societies become materially affluent, this liberates individuals from focusing on fulfilling their materialistic needs, allowing them to prioritise values such as self-acceptance and community engagement (Inglehart 1977, 1990). This is similar to Maslow’s hierarchy of needs at an individual level, whereby only once physical and economic safety have been fulfilled can people focus on a sense of belonging and esteem (Maslow, 1943). This relates to evidence that shows money only enhances subjective well-being when it facilitates the attainment of basic needs (Diener & Biswas-Diener, 2002). These theories offer a framework to consider when thinking about materialism in young people, who are unlikely to have gained a sense of economic safety at this life stage. This financial uncertainty is positioned at a time of austerity in the UK, slow economic growth, along with economic and political uncertainty globally. Perhaps this leads adolescents to have more intrinsic motivation for materialism, to achieve security for themselves and their future family. Inglehart (1977, 1990) and Maslow’s (1943) theories consider materialism as more of a concept associated with acquiring sufficient comfort and safety, and perhaps neglect to address peoples’ desire for material and appearance ideals to convey power and status. Previous research has shown that people motivated towards money for reasons of social comparison, seeking power, ‘showing off’ and overcoming self-doubt was associated with reduced subjective well-being (Srivastava, Locke, Bartol, & Diener, 2001). This is connected to Fromm’s (1976) philosophical perspective, who argues that capitalist markets increase individuals’ focus on materialistic goals, leading people to develop a “pseudo-self” where they are defined by material possessions and an endless desire to consume. This leads people to
overlook fundamental existential questions around the meaning of life, which subsequently impedes the realisation of the true self.

Research around motivation towards materialistic goals is often grounded in self-determination theory (SDT, Deci & Ryan, 2000). SDT is an organismic theory, whereby it posits that individuals have an inbuilt tendency for psychological growth towards a stable sense of self at an intrapersonal and interpersonal level (Vansteenkiste and Ryan 2013). Individuals are not considered a passive product of their environment, but instead play a proactive role. This inherent process does not occur automatically, it requires ‘nutrients’ in the form of satisfaction with basic psychological needs of autonomy, competence and relatedness (Vansteenkiste and Ryan 2013). In this context, relatedness is defined as a need to have a close, affectionate relationship with others, to care for and experience care from others, competence is to be effective in dealing with one’s environment and autonomy is having control on life’s course, having a sense of volition and self-endorsement of one’s behaviours (Deci & Ryan 2008; Ryan & Deci 2006). SDT comprises a number of smaller theories that attend to aspects of personality and motivation. The mini-theory of relevance here is the ‘basic psychological needs theory’, which states that in order to experience well-being and optimal functioning the basic psychological needs for autonomy, competence, and relatedness need to be satisfied (Vansteenkiste, Niemiec & Soenens, 2010). SDT suggests that a focus on extrinsic goals and values (e.g. materialism) results in individuals neglecting to satisfy their psychological needs, and this therefore reduces their well-being (Deci & Ryan 2000). Increasing evidence within adult populations supports the SDT perspective (Dittmar et al., 2014). In a 2-year longitudinal study, Kasser et al. (2014) found that the extent to which participants became more (or less) materialistic, was associated with changes in their reported satisfaction with the psychological needs of autonomy,
competence and relatedness, which in turn accounted for the reported decrease (or increase) in well-being. To the author’s knowledge, no study to date addresses whether psychological needs satisfaction is a mediating factor on the relationship between materialism and well-being within an adolescent population.

SDT’s basic psychological needs theory is considered to explain both how people learn to flourish from a strength-based model perspective and how people become unwell from a pathological illness model perspective (Ryan & Deci 2000). Research has shown how satisfaction with the psychological needs of autonomy, competence and relatedness is connected to both experiencing positive well-being and ill-being, such as depression and anxiety (Kim, Kasser, & Lee, 2003; Véronneau, Koestner, & Abela, 2005). Recently, this model has been enhanced with the addition of psychological needs frustration playing a role in negative well-being, as well as a lack of psychological needs satisfaction. Psychological needs frustration is when the needs of autonomy, competence and relatedness are thwarted within social contexts (Vansteenkiste & Ryan 2013). Need frustration includes both a lack of fulfilment of needs and an experience of frustration by the environment. For example, an adolescent may experience low relatedness to their peers at school and have less vitality at school. However, they may also be actively bullied by peers and may suffer from severe stress and depression. Psychological needs frustration is considered to make individuals vulnerable to ill-being and psychopathology (Vansteenkiste & Ryan 2013). Recent research within an adult population has shown that both psychological needs satisfaction and frustration had an explanatory role in the relationship between materialism well-being and ill-being (Unanue, Dittmar, Vignoles & Vansteenkiste 2014). Researching whether this explanatory role translates into an adolescent
population will help inform future interventions that target increasing adolescents’ resilience to the negative effects of materialism.

1.3. Focus of Study

To address the gaps in the literature, this study will look at the relationship between materialism, well-being and ill-being within an adolescent population, and whether psychological needs satisfaction and frustration have a mediating role. Specifically, the structural model identified by Unanue et al. (2014) will be tested. This model was chosen as it was considered the most comprehensive study to date that addresses materialism and well-being in the context of SDT. This theoretical perspective has the most supportive evidence to date (Dittmar et al., 2014). Given the methodological limitations within published studies using adolescent samples, this study will use a comprehensive measure of materialism, which will include extrinsic goals measured relative to intrinsic goals, as research on values show that any particular value is part of a larger, dynamic system (Schwartz 1992, 2005, Burroughs & Rindfleisch 2002). SDT also posits that it is the focus on extrinsic aspirations at the detriment to intrinsic aspirations that results in reduced well-being via implications on psychological needs satisfaction/frustration (Kasser, 2016), as opposed to holding both intrinsic and extrinsic aspirations. This study will also measure three different components of materialism: (a) materialism happiness, which is the extent to which possessions and their acquisitions will lead to happiness, (b) materialism success, the use of possessions to judge success, and (c) materialism centrality, perspective that possessions are at the centre of one’s life (Richins 2004). Using a measure of materialism that incorporates an individual’s priority of extrinsic aspirations over intrinsic aspirations, alongside a measure that addresses different core aspects of materialism is considered an effective approach to measuring this multifaceted concept.
(Unanue et al, 2014). This study will also use psychometrically robust measures of well-being and ill-being, which measures the cognitive, affective and health dimensions of well-being (Unanue et al, 2014, Diener, 1984).

1.4 Aims and Predictions

Based on Unanue et al.’s (2014) contemporary and comprehensive findings in two adult samples from Chile and the UK using a SDT underpinning, this study set out to test the structural equation model demonstrating mediation illustrated in Figure 1.

![Figure 1: Hypothesised Structural Equation Model based upon Unanue et al. (2014).](image)

Note. Oval shapes represent latent variables. + = predicted positive association, − = predicted negative association, → = predicted direction of path. Paths shown are those identified as significant in both samples in Unanue et al. (2014).
Using the model illustrated in Figure 1, the following hypotheses will be tested in this study:

**Hypothesis 1:** Materialism will be negatively associated with well-being and positively associated with ill-being.

**Hypothesis 2:** Psychological needs satisfaction (of the psychological needs autonomy, satisfaction and relatedness) is predicted to have an explanatory role in the relationship between materialism and well-being (i.e. it is predicted to be a significant mediator).

**Hypothesis 3:** Subsequently, incorporating individuals’ psychological needs frustration into this model will further explain the relationship between materialism and well-being. It is predicted that need satisfaction will be primarily related with well-being and need frustration primarily associated with ill-being. However as found in Unanue et al. (2014) weaker cross paths are also expected i.e. need satisfaction may play a protective role against malfunctioning and ill-being, and need frustration may lead to lower positive well-being because individuals have developed fewer resources for growth. The predicted paths illustrated in Figure 1 are those that Unanue et al. (2014) found to be significant across both their British and Chilean samples.

2. **Method**

2.1 **Study Design and Sample Size**

This study had a cross-sectional correlational design with a convenience sample. The predictor variable was materialism, the dependant variables were well-being and ill-being and the mediating variables addressed were psychological needs satisfaction and frustration. Printed questionnaire packs (see Appendix A) containing all the measures were provided to participants in two orders to account for order effects that might cause some bias in the data. One pack of questionnaires had materialism
measures at the beginning followed by psychological needs satisfaction and frustration and then finally measures on well-being and ill-being. The second pack order was reverse ordered (the psychological needs satisfaction and frustration scale was in the middle of both questionnaire packs). The two different packs of measures were randomly allocated by alternating the ordered packs when providing them to the participants.

To ensure the study had sufficient power, a minimum sample size of 200 participants was identified. This was calculated by utilising Bentler and Chou's (1987) recommendation of ensuring at least five cases per estimated parameter (there are 40 parameters in this study).

2.2. Recruitment and Procedure

The only inclusion criteria for this study was that participants were required to be aged between 14 to 18 years old. The participants were recruited via schools and therefore they were all in full-time education. Participants were recruited from three different secondary schools in the South East of England. These schools were selected as they had expressed an interest to the university to engage in research and the university had established contacts. The schools determined which year groups could be invited to join the study. In two schools Year 10 students were invited to take part and in the remaining school Year 12 were approached to take part along with a small number (n=26) of Year 13 students who were studying Psychology A Level. The schools chose which year groups could take part based upon the year groups’ availability. The study was run at the time of public examinations, so Year 11 and the majority of Year 13 were not approached. Furthermore, many Year 12 students were away from school on work experience. As Year 10 students were under 16 years old,
an email was sent to their parents and guardians providing information about the study (Appendix B) and asking them to opt-out if they did not want to consent to their child taking part. This opt-out method was considered appropriate for this type of low risk study (British Psychological Society (BPS), 2011).

The researcher joined the chosen year groups for assemblies and presented information about the study and provided the students with information sheets (Appendix C). Following this, the students provided informed consent (see consent form in Appendix D) if they were willing to take part and then anonymously completed the questionnaire packs. This process all happened within the assembly hall and was overseen by the researcher and numerous teachers and teaching assistants. As an incentive, participants were offered to enter a prize draw to win a £25 voucher for an online marketplace.

2.3. Ethical Considerations

This study was granted favourable ethical approval by the Faculty of Health and Medical Sciences Ethics Committee at the University of Surrey (see letter in Appendix E). Participants were informed verbally and in written form that they could withdraw from the study during the completion of the questionnaires and that they did not have to answer all questions. On completion of the study, participants were provided with a debrief sheet (Appendix F) with information about where to seek support if they felt unsettled following the study. As all data was anonymised, participants could not withdraw their data after completing the study. Participants were asked to provide an email address on a separate sheet of paper if they wished to be entered into the prize draw. The study was conducted in line with BPS Guidelines (BPS, 2011).
2.4 Measures

See Appendix A which contains a questionnaire pack which contains all measures used in the study.

The Need Satisfaction and Frustration Scale (NSFS; Longo, Gunz, Curtis & Farsides, 2014) is an 18-item measure of both need satisfaction and frustration within an educational context. The three psychological needs measured were competency, autonomy and relatedness. Two subscales (both with 9-items) measures satisfaction or frustration with these psychological needs. The possible score range for each subscale of this measure is 9-63. A higher score on the need satisfaction subscale indicates higher levels of satisfaction, while a higher score on the need frustration subscale indicates higher levels of needs frustration. This measure was chosen due to the lack of robust psychometric properties of other available measures suitable for this age group, including the balanced measure of psychological needs used by Unanue et al. (2014) (Johnston & Finney, 2010; Schutte, Wissing, & Ellis, 2018; Longo et al., 2014). The NSFS has 18-items, and includes a beginning word stem of “In my studies...”. Examples of items are: “I feel completely free to make my own decisions” and “I feel I am very good at the things I do”. Participants are asked to respond on a 7-point scale ranging from 1 “strongly disagree” to 7 “strongly agree”. The NSFS is considered to have a better factor structure and internal reliability than its predecessors and good criterion validity (Longo et al., 2014). The reliability of the NSFS in this study as indicated by Cronbach’s alpha ($\alpha$) was .80 for total needs satisfaction and .77 for total needs frustration, both of which are considered an acceptable level of internal reliability (Kline, 2000). This was in line with the internal reliability reported by the authors who created this scale ($\alpha$=.70-.85, Longo et al., 2014).
**Aspiration Index– Revised** (AI-R; Kasser & Ryan 1996) is a 28-item measure of peoples’ aspirations. This measures six categories of aspirations: three of which are categorised as extrinsic aspirations (social recognition, financial success and attractive appearance) and three are categorised as intrinsic aspirations (affiliation, self-acceptance and community feeling). Each sub-category is made up of 4 or 5 items and the participant is asked to rate how important it is for the aspiration to happen in the future on a scale from 0 “not at all” to 4 “very”. Examples of items are “you will be admired by many people” and “you will help others improve their lives”. The AI-R has been shown to be reliable with strong internal consistency (Kasser & Ryan 1996). In this study the AI-R showed good to excellent internal reliability for both extrinsic aspirations and intrinsic aspirations with α’s of .90 and .87 respectively. This was similar to previous studies that used AI-R with adolescent samples (α=0.91 - 0.92, Auerbach et al., 2011).

As set out in Barnfield (2019), studies have used the AI to calculate a measure of materialism in three different ways: (a) used an absolute measure of extrinsic aspirations (Lekes, Gingras, Philippe, Koestner & Fang, 2010; Davids, Roman & Kerchhoff, 2017; Roman et al., 2015), i.e. the total score on the questions that formed the extrinsic aspiration subscale. (b) relative extrinsic aspirations (i.e. total score on extrinsic subscale minus score on intrinsic subscale, used by Auerbach et al., 2010; Auerbach et al., 2011; Williams, Cox, Hedberg & Deci., 2000) and (c) relative financial goals index (RFGI) which is often calculated by taking the average score on the financial goal questions and subtracting the average score on all the intrinsic goals measured in AI. In the main analysis of this study the AI relative extrinsic aspirations will be calculated as it makes conceptual sense and this is the same method used in Unanue et al., (2014). Specifically, to calculate relative extrinsic aspirations the method
set out by Duriez et al. (2007) was followed. In this method, the first step was to calculate individual overall mean scores and then subtract these overall means from the individual scores. Next, scores on the intrinsic items were reversed and the final relative extrinsic aspirations was calculated by computing an average of the extrinsic and (reversed) intrinsic scales. This method is considered to control for systematic response sets (Duriez et al, 2007; Schwartz & Huismans, 1995).

Material Values Scale (MVS; Richins, 2004) is a 15-item measure with three subscales of materialism: success, centrality and happiness. Total scores range from 15-75 with a higher score indicating higher levels of materialism. Examples of items are: “I like to own things that impress people” and “I’d be happier if I could afford to buy more things”. Participants respond on a Likert scale ranging from 1; “strongly disagree” to 5 “strongly agree”. Due to an administration error, one item was missed from the materialism centrality subscale, therefore this was only made up of 4 items in this study. Despite this, good internal consistency of the MVS remained with a Cronbach’s alpha of .80, in line with previous studies (α=.81, Froh, Emmons, Card, Bono & Wilson, 2011).

Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is a five-itemed scale, where participants rate statements such as “in most ways my life is close to my ideal” on a 7-point Likert scale from 1 “strongly disagree” to 7 “strongly agree”. Scores can range from 5 to 35 with higher scores indicating higher levels of life satisfaction. This scale had good internal reliability with a α=.81, similar to previous studies (α=.79, Ku, 2015).

Subjective Vitality Scale (SVS; Ryan & Frederick, 1997) is a 7-item scale, where participants respond to statements such as “I feel energised” on a 7-point scale
anchored by 1 “not at all true” and 7 “very true”. One item from this scale was not included as research has found that removal of this item increases the scale’s reliability (Bostic, Rubio and Hood, 2000). The 6-item SVS was shown to have good internal consistency with $\alpha=0.86$, similar to previous studies ($\alpha=0.88$, Taylor & Lonsdale, 2010). Score on the 6-item SVS can range from 6 to 42, with a higher score representing higher levels of reported subjective vitality.

**Positive and Negative Affect Scale** (PANAS; Watson, Clark & Tellegen, 1988) consists of two 10-item subscales measuring positive affect and negative affect. Respondents rate each item on a 5-point frequency scale ranging from “not at all” to “extremely”. The PANAS subscales have a possible score range of 10-50, with higher scores representing higher reported frequency of affect. Positive affect items include happy, interested, excited and enthusiastic. Negative affect items include distressed, upset, irritated and scared. Internal consistency reliability was $0.85$ for both the negative affect and positive affect subscales, which was in line with previous studies of adolescents ($\alpha=0.84, 0.85$, McCullough, Huebner & Laughlin, 2000)

**Revised Child Anxiety and Depression Scale** (Short Version and Depression Subscale only, RCADS-D, Ebesutani et al., 2012). The 10-items measuring depression from the RCADS (e.g. “I feel worthless”) were used. Participants are asked to indicate how often each item happens to them on a 4-point scale (0=never, 1=sometimes, 2=often and 3=always). Possible scores range from 0 to 30, with a higher score indicating high levels of depression. RCADS-D showed good reliability with an $\alpha$ of 0.87, which is an improvement compared to Ebesutani et al.’s (2012) school sample ($\alpha=0.79$).
**General Health Questionnaire** (GHQ; Goldberg et al., 1997) is a 7-item measure of mental well-being. As used in Unanue et al. (2014), this study used part A of the original scale which focuses on physical symptoms. Participants are asked to answer questions such as how often they had recently been “feeling run down” on a five-point scale from 0 “never” to 3 “always”. The item “in need of a good tonic” was removed from this scale as it was not deemed appropriate for an adolescent population. Possible scores range between 0-18 with a higher score indicating lower levels of reported mental well-being. GHQ-A had an acceptable reliability with \( \alpha \) of .77.

**The Hollingshead Four Factor Index of Social Status** (Hollingshead 1975) uses education and occupation ratings to categorise individuals into five social classes. Adolescents’ parents or guardians’ occupational and education statuses were due to be scored and combined to provide an indication of socioeconomic status using Hollingshead’s (1975) index. However, due to large amounts of missing and ambiguous data it was not possible to calculate this for the data set as the results would have been insufficiently valid and reliable. For example, participants described their parents’ occupation as “manager”, however depending on the type of manager and the size of the team/company their occupation score could range from 4 to 9. Therefore, to capture information about the socioeconomic environment of the schools, the proportions of students eligible for free school meals were reviewed instead.

**2.5. Data Analysis**

Analysis was conducted using statistical software packages SPSS 25 (IBM Corp, 2017) and SPSS AMOS 24 (Arbuckle, 2017). Structural equation modelling (SEM) was used to test the model reported in Unanue et al. (2014) with an adolescent population. The latent variable of materialism was measured by composites of the
observed variables AI and MVS and the latent variables of psychological needs satisfaction and frustration were modelled by the observed subscales with the NSFS. The latent variables of well-being/ill-being were constructed from the following observed variables: emotional well-being; positive affect (PANAS+) and SVS, life satisfaction; SLS, emotional ill-being; negative affect (PANAS-) and R-CADS-D and physical symptoms; GHQ-A. In the SEM analysis, maximum-likelihood estimation was used. The small amount of missing data (1.1%) was imputed by expectation maximisation as this was considered less biased that other missing data approaches (Enders and Bandalos 2011). A review of the variable distributions (see Appendix G) indicated that the distributions were sufficiently normal to allow for the use of SEM. All Cronbach alpha’s of the measures were >.7, indicating sufficient internal reliability (Kline, 2000).

As Unanue et al.’s (2014) model is one of multiple mediation paths the first stage of analysis was to check for the presence of direct effects between the predictor (materialism) and outcome variables (well-being) without the mediators: psychological needs satisfaction and frustration. The second stage of analysis planned (if significant direct effects were found) was to add the mediator psychological needs satisfaction to the model, followed by the addition of the psychological needs frustration mediator. The planned analysis was to compare the model fit and modelled variance of outcome variables ($R^2$) to ascertain which model best described the data. Model fit was evaluated by the following: (a) non-significant chi-square values; (b) comparative fit index (CFI)>.90; (c) standardized root mean square residual (SRMR) < 0.08 and root mean square error of approximation (RMSEA) < 0.08 (Kline, 2000). To assess whether the mediation was statistically significant, the bias-corrected bootstrapped 95% confidence
interval of the indirect path was examined. If the confidence interval did not contain zero this was interpreted as statistically significant ($p < .05$).

3. Results

3.1. Participant characteristics

In total 492 students participated in the study, with an acceptance to participate rate of over 80% across all schools. Data from 24 students was removed because it was evident that they did not complete the questionnaires carefully and/or they missed out more than two whole questionnaires. Of the 24 participants whose data was removed from the study and they had completed the demographics questionnaire ($n = 17$), all were in School Year 10 (aged 14-15), with similar numbers of males and females and similar numbers from each school.

The final sample included 468 participants, 232 identified as ‘female’, 209 identified as ‘male’ and 7 identified as ‘other’ gender. Twenty did not report their gender. The mean age of participants was 15.52 years ($SD=1.06$), 67.3% participants were in School Year 10, 27.1% in School Year 12 and 5.6% were in School Year 13. Regarding ethnicity, 86.1% reported White, 4% Mixed Race, 2.5% Asian (other), 2.1% Indian, 1.1% Black, 1.0% Pakistani and the remaining reported other types of ethnicity or did not report their ethnicity.

In regards to the socioeconomic environment of the schools, both the schools whose Year 10 students were invited to take part had a higher proportion of pupils in receipt of free school meals than the national average (13.6%, Ofsted, 2018). One was substantially higher at 33%, whilst the other was slightly higher at 18.2%. The final school (whose Year 12 and a small number of Year 13 were invited to take part) had a
lower proportion of pupils eligible for free school meals than the national average (9.5%).

3.2. Bivariate correlations

Table 1 sets out the descriptive statistics and bivariate correlations of all the measured variables involved in the main aim of the study. The well-being measures significantly correlated with one another in the expected directions, as did the materialism measures, which indicated that the adolescents answered the questionnaires meaningfully. Fundamentally, significant correlations were not found between the predictor materialism variables (AI and MVS) and the majority of the well-being measures. This meant that a key criterion for mediation analysis, a significant correlation between the causal and outcome variables (Baron & Kenny 1986), was not found. Therefore, it was not applicable to continue with the full SEM analysis. Consequently, the hypothesised model as identified by Unanue et al. (2014) did not represent a good fit for the data.
Table 1.

Descriptive statistics and inter-correlations between hypothesised study variables.

<table>
<thead>
<tr>
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<th>M</th>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
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<td></td>
</tr>
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<td>-.07</td>
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<td>-.27**</td>
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<td>.42**</td>
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<td>-.38**</td>
<td>.38**</td>
<td>-.34**</td>
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<td>8. SVS</td>
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<td>-.09</td>
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<td>-.41**</td>
<td>-.59**</td>
<td>-.28**</td>
<td>.58**</td>
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<td>9. RCADS-D</td>
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<td>.09*</td>
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<td>.54**</td>
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<td>.58**</td>
<td>-.50**</td>
<td>-.55**</td>
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<td>10. GHQ-A</td>
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<td>.38**</td>
<td>-.29**</td>
<td>.41**</td>
<td>-.33**</td>
<td>-.42**</td>
</tr>
</tbody>
</table>

Note. * p < .05, ** p < .01. Materialism measures: AI- R=Aspiration Index, MVS-T=Materialism Values Scale Total score. Well-being measures: PANAS+=Positive and Negative Affect Scale - positive affect, PANAS-= Positive and Negative Affect Scale - negative affect; SLS=Subjective Life Satisfaction; SVS=Subjective Vitality Scale; RCADS-D=Revised Children Anxiety and Depression Scale - depression subscale; GHQ-A General Health Questionnaire –Subscale A. Psychological Needs Satisfaction and Frustration measures; PNS=Psychological Needs Satisfaction, PNF=Psychological Needs Frustration

As shown in Table 1, there was a very small significant correlation between MVS and the depression scale, explaining less than 1 % variance. There was also a significant correlation between SLS and both the materialism measures: AI (r=-.18, p <.01) and MVS (r=-20, p <.01), indicating a small-medium effect (Cohen, 1988). Therefore, these latter associations was further analysed to see if psychological needs satisfaction and frustration acted as mediators of the relationship between materialism and life satisfaction.

The software SPSS AMOS was still used to explore this mediation to allow the use of the latent materialism variable (measured by both the observed variables AI and MVS). PROCESS (Hayes, Montoya & Rockwood, 2017) does not allow for the use of latent variables.
3.3. Mediation analysis – Psychological Needs Satisfaction

The results of this mediation analysis are reported in Figure 2 and Tables 2 and 3. There was a significant indirect effect of materialism on life satisfaction through psychological needs satisfaction $\beta=-.07$ BC-CI [-.142, -.001]. This represents a relatively small effect. As the bootstrapped 95% bias corrected confidence interval (BC-CI) did not contain zero, this indicates that the mediation effect observed is significantly different from zero (MacKinnon, Fairchild, & Fritz, 2007). Therefore, high materialistic values and aspirations were associated with reduced psychological needs satisfaction, which in turn was related to reduced subjective life satisfaction. As the direct effect in this model remained significant and the regression coefficient was greater than zero, this suggested that psychological needs satisfaction explained some, but not all, of the relationship between materialism and life satisfaction.
Figure 2. Diagram of mediation model

Note. * p < .05, *** p < .001 β=standardised regression coefficient. Square boxes indicate observed variables. Measures used were: MVS=Materialism Values Scale; AI=Aspirations Index; NSFS=Need Satisfaction and Frustration Scale; SLS=Subjective Life Satisfaction

Table 2.
Summary of regression coefficients, standard errors and confidence intervals in mediation analysis

<table>
<thead>
<tr>
<th>Path/Effect</th>
<th>β</th>
<th>b</th>
<th>SE</th>
<th>95% CI</th>
<th>95% BC-CI (5000 bootstraps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total effect (c)</td>
<td>-.26*</td>
<td>-.27***</td>
<td>.066</td>
<td>[-.301, -.090]</td>
<td>[-.398, -.129]</td>
</tr>
<tr>
<td>a</td>
<td>-.13*</td>
<td>-.21*</td>
<td>.097</td>
<td>[-.401, -.020]</td>
<td>[-.398, -.001]</td>
</tr>
<tr>
<td>Direct effect (c')</td>
<td>-.19*</td>
<td>-.20*</td>
<td>.055</td>
<td>[-.395, -.137]</td>
<td>[-.398, -.093]</td>
</tr>
<tr>
<td>Indirect effect (c')</td>
<td>-.07*</td>
<td>-.07*</td>
<td>.036</td>
<td>[-.142, -.001]</td>
<td>[-.142, -.001]</td>
</tr>
</tbody>
</table>

Note. * p < .05, *** p < .001. β=standardised regression coefficient. b=unstandardised regression coefficient. BC-CI bias corrected confidence intervals.
Table 3.

<table>
<thead>
<tr>
<th>Mediation analysis model fit indices</th>
<th>$\chi^2 (df)$</th>
<th>CFI</th>
<th>RMSEA</th>
<th>SRMR</th>
<th>$R^2_{SLS}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1 Total effect, Mat $\rightarrow$ SLS</td>
<td>.00(0)</td>
<td>.00</td>
<td>.358</td>
<td>.00</td>
<td>.065</td>
</tr>
<tr>
<td>Model 2 Mediator, Mat $\rightarrow$ PNS $\rightarrow$ SLS</td>
<td>16.8 (2)***</td>
<td>.956</td>
<td>.126</td>
<td>.0617</td>
<td>.289</td>
</tr>
<tr>
<td>Model 3 Mediator (Model 2) and direct effect Mat $\rightarrow$ LS</td>
<td>.14 (1)</td>
<td>1.00</td>
<td>.000</td>
<td>.0032</td>
<td>.325</td>
</tr>
</tbody>
</table>

Note.*** $p < .001$ df = model degrees of freedom; CFI = Comparative Fit Index; $R^2_{SLS}$ = modelled variance of subjective life satisfaction; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual, Mat = materialism (latent variable); SLS = subjective life satisfaction; PNS = psychological needs satisfaction

The model fit improved as the psychological needs satisfaction mediator was included in the analysis, as illustrated in Table 3. Model 1 did not include the mediator and explains 7% of the variance of life satisfaction. This model is saturated because the degrees of freedom are zero and therefore the fit indices are not meaningful. The root mean square error of approximation (RMSEA) for Model 1 also indicated that the model was not a good fit. In Model 3, the inclusion of the mediator and direct effect resulted in an increase of the life satisfaction variance explained to 33%. The model fit indicators showed an improvement in Model 3 compared to Model 1 and 2: $\chi^2$ not significant, CFI > .90, SRMR < .08 and RMSEA < .08, which all indicate that Model 3 was a good fit to the data.

Further analysis to confirm the direction of this finding was considered, however this was not possible due to model identification issues. Multigroup SEM analysis was conducted to review moderation effects of the majority gender groups. The mediation model was assessed for both males and females with paths constrained to be equal across the two different groups. These two groups did not differ significantly
χ²(3)=4.85 p>.05, and therefore gender was not considered to moderate this effect. It was not possible to conduct this dichotomous analysis for age without losing information in AMOS. As Unanue et al. (2014) found that including the demographic variables age, gender, and income did not affect the structural relationships nor the results of their main predictions, it was not considered fundamental to include these variables.

As shown in Figure 2 and Table 2 the relationship between psychological needs satisfaction and life satisfaction had the largest standardised regression coefficient (β=.54). This indicated that the more satisfied an adolescent was with psychological needs of autonomy, competence and relatedness, the more satisfied they were with their life.

3.4 Mediation Analysis – Needs Frustration

It was not possible to conduct a similar mediation analysis with psychological needs frustration as a mediator because the maximum likelihood estimation failed to converge after 500 iterations. This indicated that the model including needs frustration as a mediator did not sufficiently fit the data to complete the analysis.

3.5 Exploration of Further Materialism Variables

Many of the hypothesised correlations between materialism and well-being were not found in this study. Evidence suggests that how materialism and well-being are measured affects the resulting association between these variables (Barnfield, 2019, Dittmar et al., 2014). Therefore, it was considered valuable to compare the associations between materialism and well-being using the different composite scores from the AI scale (used in previous research, computations are described in the method) and
subscales of the MVS. This was additional exploration analysis as it was not formally set out in the initial aims and hypotheses of this study, therefore, no further regression or SEM analysis was conducted. Table 4 reports the correlations of MVS subscales and alternate ways of calculating AI scores with the other study variables.
Table 4. Descriptive statistics and inter-correlations between all study variables

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<th>12</th>
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Note.* p < .05, ** p < .01. Materialism measures: AI-R=Aspiration Index- relative extrinsic values, AI-RFGI=aspiration index – relative financial goals index, AI-A=aspiration index -absolute extrinsic values; MVS-T=Materialism Values Scale - total score. MVS= Materialism Values Scale; Well-being measures: PANAS+=Positive and Negative Affect Scale - positive affect, PANAS-= Positive and Negative Affect scale - negative affect; SLS=Subjective Life Satisfaction; SVS=Subjective Vitality Scale; RCADS-D=Revised Children Anxiety and Depression scale - depression subscale; GHQ-A General Health Questionnaire – subscale A.
Of particular interest is that MVS happiness subscale correlated with psychological needs satisfaction, needs frustration, positive affect, subjective life satisfaction, subjective vitality and depression. However, MVS centrality and MVS success did not correlate significantly with any of the well-being measures. AI relative financial goals index (RFGI) had the highest correlations with psychological needs satisfaction and frustration compared to the other materialism measures. Interestingly, AI absolute extrinsic values correlated negatively with psychological needs frustration ($r=-.12$), and positively with positive affect ($r=.14$) and subjective vitality ($r=.17$). This was opposite to the relationship predicted, as this indicated that materialism as measured by absolute extrinsic values, was related to increased positive affect and vitality.

Age also correlated significantly with some variables, including reduced materialism as measured by AI relative extrinsic aspirations, RFGI, AI absolute extrinsic aspirations, MVS total, MVS happiness and MVS success. This indicated that as the adolescents got older, their materialistic values decreased. Age also had significant positive correlations with psychological needs satisfaction, positive affect and life satisfaction.

### 3.6 Order effects

Two variables differed significantly in the different ordered packs, these were life satisfaction and psychological needs frustration. On average, participants who were given questionnaire pack 1, whereby they answered the well-being questionnaires (which included the life satisfaction questionnaire) after they had completed the materialism questionnaires, reported lower life satisfaction ($M=22.39$, $SE=0.38$) than those that answered the well-being questionnaires prior to materialism (questionnaire
pack 2) \((M = 23.70, SE = 0.37)\). This difference \(-1.31, 95\% \text{ CI } [-2.354, -0.275]\) was significant \(t(466) = -2.49, p < .05\), and it represented a small sized effect \((d = 0.23)\). This means that the order that the questionnaires were provided to participants affected their reports of life satisfaction.

With regards to order effects on psychological needs frustration, on average, participants who were given questionnaire pack 1, whereby they completed materialism and aspirations questionnaires prior to answering the psychological needs satisfaction and frustration scale, reported higher psychological needs frustration \((M = 37.80, SE = 0.55)\) than those that answered the well-being questionnaires prior to the psychological needs satisfaction and frustration scale (questionnaire pack 2) \((M = 35.57, SE = 0.55)\). This difference \(2.23, 95\% \text{ CI } [.699, 3.767]\) was significant \(t(466) = 2.86, p < .05\), and it represented a small sized effect \((d = 0.26)\).

4. Discussion

4.1 Summary of Findings

The aim of this current study was to ascertain whether the structural equation model identified by Unanue et al. (2014) fitted data from an adolescent population. Considering each hypothesis in turn, hypothesis 1: predicted a negative association between materialism and well-being (emotional well-being and life satisfaction) and a positive association between materialism and ill-being measures (emotional ill-being and physical symptoms). The data did not universally support hypothesis 1 across all measures of well-being and materialism. Significant associations were found between the materialism measures and life satisfaction and a very small correlation was found between the depression measure and one materialism measure (MVS). It is not always considered essential to have a predictor (materialism) and outcome (well-being/ill-
being) significant association for mediation analysis (Rucker, Preacher, Tormala, & Petty, 2011). However, in the context of the present study, using cross-sectional questionnaire data, with a reasonably large sample size and suppression effects unlikely to be present, one would expect a predictor-outcome significant correlation in a meaningful mediation process. Therefore, the materialism and well-being associations that were not significant were not included in the mediation analysis. Considering this, hypothesis 2: which predicted that psychological needs satisfaction had a mediation effect on the relationship between materialism and well-being/ill-being, could only be assessed for the relationship between materialism and life satisfaction. This study found that psychological needs satisfaction had a significant mediation effect on this relationship between materialism and life satisfaction. Therefore, the data partially supported hypothesis 2, whereby this was only found for the relationship between materialism and life satisfaction. As discussed later, this mediating effect could indicate different underlying processes. Finally, hypothesis 3: predicted that incorporating psychological needs frustration into the analysis would further explain the relationship between materialism and well-being. This was not found, when psychological needs frustration was added to the analysis the model had a very poor fit to the data, suggesting that psychological needs frustration did not have a mediating effect.

4.2. Well-being and Materialism

Using a comprehensive measure of materialism that incorporated both materialistic values, and prioritising extrinsic aspirations above intrinsic aspirations, this study found that materialism was significantly associated with reduced life satisfaction. This finding supported the recent literature review of materialism and well-being in adolescent samples (Barnfield, 2019), whereby all studies that measured
correlations between materialism and life satisfaction (Easterbrook, Wright, Dittmar & Banerjee, 2014; Froh et al., 2011; Ku, 2015; Kasser, 2014; Piko 2006) found significant associations. These studies either used a materialism values and belief measure or a RFGI measure. In this study, holding materialistic values was also associated with slightly increased depression. This supported Auerbach et al.’s (2011) study that used a Chinese adolescent sample. However, Auerbach et al.’s (2011) Canadian sample and Froh et al. (2011), did not find significant correlations between materialism and depression. In support of other literature of adolescent populations, materialism was not associated with positive or negative affect (Davids et al., 2017; Lekes et al., 2010; Roman et al., 2015). This study also did not find significant correlations between materialism and subjective vitality or physical symptoms of mental ill-being. Previous research of adolescent populations and these dimensions of well-being have not been identified.

It is of interest that the effects of materialism on life satisfaction, a cognitive dimension of well-being, appears to be emerging as a robust finding for this population. Life satisfaction as a measure of well-being is considered more global and stable than other dimensions of well-being such as positive and negative affect, which are considered to be more situational specific and subject to short-term fluctuations (Naar-King, Ellis, Frey & Ondersma, 2003). Therefore although materialism did not inclusively predict all dimensions of personal well-being, the effects on this cognitive dimension should not be overlooked.

Emerging evidence, predominantly from adult populations, is showing a link between increased materialistic aspirations and reduced well-being (Dittmar et al., 2014; Kasser, 2016). The picture within adolescent populations does not appear as clear cut, as associations across different dimensions of well-being are not robustly found.
Dittmar et al.’s (2014) meta-analysis identified that the age of participants acted as a significant moderator on the relationship between materialism and well-being, whereby the relationship was smaller for those under the age of 18. Therefore, perhaps the link between materialism and well-being is less pronounced for individuals under the age of 18 and this explains the different findings in this study compared to Unanue et al. (2014) (see Section 2.6 for theoretical explanatory discussion around this). It is important to note that the sample in this study also differed to Unanue et al. (2014) in ways other than age, including levels of materialism (as further discussed in Section 4.4).

4.3. The mediating role of psychological needs satisfaction and frustration

In this study psychological needs satisfaction had a mediating role on the association between materialism and life satisfaction. This was not full mediation, as the direct effect remained significant and therefore this ‘partial’ mediation could have four different underlying processes (Shrout & Bolger, 2002). Firstly, partial mediation could be found because materialism continues to have a direct effect on life satisfaction, even when the mediator needs satisfaction has been taken into account. Secondly, it could be that other mediators that were not measured in the study take into account some of the remaining effect between materialism and well-being, therefore the model was misspecified. Thirdly, it could be due to another model misspecification, whereby the mediator only affects some populations, e.g. those with individuals who have high levels of materialism and therefore in a sample of individuals with high and low levels of materialism, the mediating effect will be seen as partial. A final reason for partial mediation as discussed by Shrout and Bolger (2002) is that the mediator may have been measured with error, therefore underestimating its effect. Current established
psychological need satisfaction and frustration scales that measure these concepts in
general, across all areas of life, have been found to have validity and reliability concerns
(Longo et al., 2014). The NSFS measure used in this study is considered to have a better
factor structure and internal reliability than its predecessors and good criterion validity
for an adolescent population (Longo et al., 2014). However, the NSFS measures
psychological needs satisfaction and frustration specifically related to the participants’
studies. This way of measuring psychological needs satisfaction/frustration may
account for some error in the measurement of the mediator, resulting in partial
mediation. Psychological needs satisfaction and frustration with studies is considered
to be highly related to individuals’ overall general levels of satisfaction or frustration
with their psychological needs (Milyavskaya et al. 2009).

Unanue et al. (2014) found that after the addition of psychological needs
frustration into their model, the two mediators of needs satisfaction and frustration
represented full mediation in the UK sample. They concluded that the Chilean sample
showed ‘partial’ mediation as the direct path between materialism and ill-being
remained marginally significant and the direct path to negative physical symptoms
remained significant. This study however did not find support needs frustration playing
an incremental explanatory role, and therefore it does not support literature stating that
low needs satisfaction is different to needs frustration (Vansteenkiste & Ryan 2013) in
this population.

The study found a large effect size between mediator (psychological needs
satisfaction) and outcome (life satisfaction), and this was the largest effect size in the
model. Therefore, some could argue that the psychological needs satisfaction acted as
a significant mediator for this relationship because of the similarities between the
mediator and outcome variable. However, these constructs are considered distinctively
different (Leversen, Danielsen, Birkeland, & Samdal, 2012) and all the well-being measures had significant correlations with psychological needs satisfaction and frustration. This is the same as found in many other studies (Véronneau et al., 2005), including Unanue et al. (2014), and is to be expected because there are many different influences on well-being beyond materialism, that may have their effects on well-being through need satisfaction (Deci and Ryan, 2000).

As with all cross-sectional data, correlation does not imply causation. Therefore it is possible that the path found in this study could occur in another direction, i.e. levels of psychological needs satisfaction could predict the extent of materialistic aspirations which subsequently affects well-being. It was not possible to test this alternative causal link due to model specification problems, however Unanue et al. (2014) found that this alternative path direction had less support than the hypothesised model tested here.

4.4. Comparisons to Unanue et al. (2014)

As aforementioned, the final model found in Unanue et al. (2014) did not fit the data for this study. One main difference is that this study used an adolescent sample, whereas Unanue et al. (2014) had adult samples. There are also some subtle differences which may account for the different findings. Unanue et al.’s (2014) samples came from former graduate populations, whilst this had the benefit of controlling for education level in the samples, it had biasing consequences. It is possible that this educated population may have reached a sense of financial and physical security (Inglehart 1977, 1990; Maslow, 1943), where the link between materialism and reduced well-being is more prevalent (Diener & Biswas-Diener, 2002). Whilst this has some theoretical underpinning, Dittmar et al.’s (2014) meta-analysis did not find personal or household
income, nor education level, to be significant moderators in the association between materialism and well-being.

Dittmar et al.’s (2014) meta-analysis found gender to be a significant moderator in the relationship between materialism and well-being, whereby having a higher proportion of female participants was associated with a larger effect size. Unanue et al.’s (2014) samples were 59% \((N=958)\) and 53% \((N=257)\) female in their UK and Chile samples respectively. This is higher than this study, whereby the gender composition was 50% female \((N=492)\). Therefore, these different gender compositions could also be a reason why the findings in this study differed from Unanue et al. (2014).

Finally, Unanue et al. (2014) used a global measure of psychological needs satisfaction and frustration, which is conceptually preferential to a specific education domain measure used in this study. However, the measure used by Unanue et al. (2014) has been found as having some problematic factor loadings (Longo et al., 2014; Sheldon and Hilpert 2012), which could have affected the validity of their findings.

**4.5 Exploratory Findings**

Participants’ age was found to be significantly associated with materialism: older participants reported less materialistic aspirations. It is important to note that data collected from the Year 12 and Year 13 students in this study (these were the older adolescents aged between 16-18 years old) was collected from one school only and these were students who have chosen to continue with full-time education. Furthermore, this one school could be classified as in an area of comparably higher socioeconomic status than the other schools (as shown by a lower proportion of students eligible for free school meals). These are potential confounding factors and therefore this finding may not be as simple as increased age is related to decreased materialism.
In the further exploratory analysis addressing the different composites taken from the materialism measures, it was found that the MVS happiness subscale had a greater number of significant correlations with the well-being variables. However, MVS centrality and MVS success did not correlate significantly with any of the well-being measures. This is a similar picture to Piko’s (2006) findings, where MVS happiness had a significant negative correlation with life satisfaction, however MVS success did not. Therefore, perhaps striving towards materialistic aspirations has a significant effect on adolescents’ life satisfaction if they believe that it is the answer to a happy future. Overall, the varying correlations between materialism and well-being from the different composites of AI and MVS show that how you measure materialism affects the resulting correlations, as also found in Dittmar et al.’s (2014) meta-analysis.

### 4.6 Theoretical Considerations on Well-being and Materialism in Adolescents

Developmentally, adolescence is a turbulent time of identity development along with a focus on peer relations (Erikson 1959). Marcia (1966) further conceptualised Erikson’s identity formation theory to describe different states involved in identity formation during an identity crisis point such as adolescence (Marcia, 1966). These states (diffusion, moratorium, foreclosure and achievement) differ on the extent to which an individual is exploring and committing to values. The moratorium state is a common adaptive part of identity formation, where an individual has a low level of commitment to values but a high level of value exploration. Marcia’s (1966) theory is pertinent to this study, because it may provide some explanation on why samples of young people do not seem to show the same consistent association between materialistic values and reduced well-being when compared to adult populations. Adolescence is considered a key time of identity formation and therefore it may be that
they report materialistic aspirations at a time when they are exploring different values, with a low level of commitment to these values (moratorium status). Therefore, without this high level of commitment to the aspirations, the detrimental effects on well-being are perhaps not seen. The definition of materialism highlights the ‘long-term endorsement’ of materialistic values, goals and associated beliefs. It is possible that measuring materialism at a time of identity formation and exploration may not assess a long-term endorsement.

Materialism also may have some interim protective characteristics within an adolescent population, as a key objective in secondary school is to “fit in”, gaining peer acceptance (Crosnoe, 2011, Eccles, & Roeser, 2011). At a time when peer relationships are considered highly important (Erikson 1959, 1968), alongside an unstable time of identity formation, and low levels of resistance to social influence (Steinberg & Monahan, 2007), having mutual materialistic values with peers may have a function of facilitating friendships. This may increase social desirability, social acceptance and through this, status and power. Research shows that adolescents grow more similar to one another when they have selected friends on either agentic (status and power) or communal (closeness and affiliation) goals. However, in time those adolescents who had similarity in agentic goals, had increased chance of friendship termination over time (Ojanen, Sijtsema, & Rambaran, 2013). Therefore, in the short-term spending time with peers and focusing on materialistic goals may not have an immediate detrimental impact on well-being, however, this may be seen more in the long-term.

While research does show that materialism is on the rise, this compares generation ‘Boomers’ (born around 1946-1964), ‘Generation X’ (born 1965-1981) and ‘Millennials/Generation Y/Generation me’ (born 1982-1999) (Twenge, 2010, Twenge et al., 2012). Research including ‘Generation Z’ (born late 1990s onwards) is in its
infancy. Poll research in the grey literature indicates that ‘Generation Z’ may have reduced materialistic values (IPSOS, 2018) and therefore their materialistic values may not be sufficiently extensive to impact their well-being across all dimensions. However, ‘Generations Z’ have grown up with the internet and are often associated with their prolific use of media and social media (Ofcom 2016), and therefore they are subjected to associated advertising and social comparison. This poses risks, it may lead to an increased internalisation of the consumer culture ideal, which could reduce life satisfaction seen in materialistic adolescents striving towards this unrealistic ideal (Easterbrook et al., 2014 Dittmar, 2008).

A further generational factor is that this ‘Generation Z’ have grown up in considerable political and economic uncertainty. Drawing upon Inglehart’s materialism/post materialism societal theory (Inglehart 1977, 1990) and Maslow’s (1943) hierarchy of needs, given the economic climate, and adolescents’ life stage, they might not be able to focus on intrinsic aspirations over financial aspirations until they have achieved physical and economic security. Previous experimental studies have shown that materialistic values can increase due to threats of economic insecurity (Sheldon & Kasser 2008). Adolescents may have differing interpretations of financial/materialistic aspirations, they may be motivated towards extrinsic values for intrinsic reasons, such as gaining security for themselves and family and having sufficient financial resources to be able to help others. Easterbrook et al. (2014) showed that extrinsic motives to achieve materialistic ideals was negatively related to well-being in adolescents, however intrinsic motives were not. This might also help to explain why the strongest associations between materialism and reduced well-being in this sample was when materialism was measured by addressing beliefs that materialism will result in happiness (MVS happiness). It is important to note, that it would not be
possible to score extremely high on the relative extrinsic aspirations measure and materialism values scale measure if an individual only had intrinsic motivations for materialism. Many questions require extrinsic motivations for materialism e.g. “I’d like to own things that impress people”. However, some questions may have intrinsic motivators e.g. “my life would be better if I owned certain things I don’t have”.

SDT is a universal psychological theory, positing that despite environmental and cultural factors, if psychological needs satisfaction are not met (because of a focus on materialistic aspirations), subsequent reduced well-being should be found. Therefore this universal theoretical position should stand across all age groups and type of well-being measured, which was not found in this study. This universal aspect is supported by a meta-analysis undertaken by Dittmar et al. (2014), which found no moderating effect of personal income nor household income on the association between materialism and well-being. Unanue et al. (2014) also found that their link between materialism and well-being was comparable across a developed (UK) and developing country (Chile), although this conclusion is limited due to the high education level of the samples. It may be that the societal factors of austerity, political and economic uncertainty, along with the developmental stage of adolescents, have more of an explanatory role than SDT suggests, which results in these inconsistent findings.

4.7 Strengths and Limitations

The use of comprehensive measures of materialism and well-being that measure different dimensions of these multi-faceted concepts is a strength of this study. Along with this, the relatively large sample size selected from three different schools and the use of SEM to simultaneously measure the association between variables are additional
strengths. However, as with the majority of research in this area, the correlational design limits any causal interpretations.

The unexpected order effects, whereby participants who completed measures about materialistic aspirations first, reported lower life satisfaction and higher psychological needs frustration, is a limitation in this study as it suggests possible confounding factors. Using the two differently ordered packs of measures and randomly allocating these to participants mitigated this bias to some extent.

Another limitation was that the sample in this study comprised of students only attending publicly funded schools. Including privately funded schools could have addressed whether the different cultural environments of these schools affected the association between materialism and well-being. Finally, the study’s measure of SES was not fit for purpose as many adolescents did not know their parents’ occupations or gave ambiguous answers that could not be scored. However, reviewing the proportion of students in receipt of free school meals within the different schools gave some useful information about the socioeconomic environment of the schools’ catchment areas.

4.8 Application of Study

This study showed that materialism was related to reduced life satisfaction in an adolescent population. Interventions to reduce materialism could help reduce this negative effect. Previous research has shown that interventions targeted at increasing gratitude can reduce materialism and have a positive effect on young peoples’ life satisfaction (Lambert, Fincham, Stillman & Dean, 2009). This study also shows that holding beliefs that material ideals will increase happiness is associated with reduced well-being. Adolescents could be informed about this effect to help build their resilience from media that portrays material and appearance ideals.
The negative association between materialism and different aspects of well-being does not appear to be as entrenched in adolescents as within adult populations. Therefore, perhaps adolescence is an optimal time to target preventative interventions to protect individuals from the negative consequences of focusing one’s life on material consumption. Research has shown that interventions targeted at increasing self-esteem are effective in reducing materialism (Chaplin & John, 2007). Specifically, interventions looking at the benefits of experiential purchases (over tangible goods), prosocial giving and healthy social development in children have been shown to reduce materialism (Burroughs et al., 2014). These interventions also attempt to address unmet psychological needs and insecurities. As this study shows that adolescents’ satisfaction with their psychological needs of autonomy, relatedness and competence is associated with enhanced well-being, it would be beneficial for schools, families and society in general to consider how they can foster satisfaction with these psychological needs.

4.9 Further Research

Materialism and well-being research in adolescents could benefit from addressing the intrinsic and extrinsic motives behind peoples’ drive for materialistic aspirations and the resulting effects on their well-being. Given the proposed theoretical position that adolescents’ level of materialism may be associated with their sense of current or anticipated economic and physical security, future research could empirically address this.

Future research would also benefit from longitudinal and experimental designs to gain more information about causal links. It would be helpful for researchers to design a measure of psychological needs satisfaction and frustration in general for an adolescent population with sufficient psychometric properties. Order effects of materialism measures need to be taken into account in future studies; if all participants
completed materialism measures first, this may result in measurement error and an inflated correlation between materialism and life satisfaction. As a general methodological issue, researchers need to check for order effects in their analysis and not assume that controlling the order of presentation of questionnaires/tools will be sufficient to mitigate this potentially powerful influencing effect. It would also be helpful to consider more behavioural measures of materialism as opposed to the reliance on self-report measures. Future studies may benefit taking into account SES and using a multiple-choice question approach for this age group. Alternatively occupation/education information about parents/guardians could be obtained directly from the parents/guardians.

5. Conclusion

To conclude, this study found that materialistic aspirations are associated with reduced life satisfaction in an adolescent population. An individual’s satisfaction with psychological needs of competency, autonomy and relatedness was found to play an explanatory role in this relationship, as posited by SDT. However, frustration with these psychological needs was not found to further explain this association. Importantly, materialism was not universally related to all well-being dimensions measured in this adolescent sample as SDT would posit and as commonly found in adult populations (Dittmar et al., 2014). Furthermore, the different measures used to assess materialism and well-being resulted in differing correlations between these constructs.
References


Richins, M. L. (2004). The material values scale: Measurement properties and
development of a short form (re-inquiries, analysis of raw data sets). *Journal of

Parenting styles and psychological needs influences on adolescent life goals and
305-312.

in social psychology: Current practices and new recommendations. *Social and
Personality Psychology Compass, 5*(6), 359-371.

Basic psychological needs as a unifying concept. *Psychological inquiry, 11*(4),
319-338.

autonomy: Does psychology need choice, self-determination, and will? *Journal of
personality, 74*(6), 1557-1586.

vitality as a dynamic reflection of well-being. *Journal of personality, 65*(3), 529-
565.

Three Language Versions of the Basic Psychological Needs Scale (BPNS): Why


List of Part One Appendices

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Appendix A: Questionnaire Pack (Order 1)

Questionnaires

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Appendix B: Information Sheet for Parents/Guardians

Parent/Guardian Information Sheet [version 2, 20/06/18]

Aspirations, Values, and Well-Being in Adolescents

Introduction

I would like to invite your child to take part in a research project. As your child is under the age of 16, this information sheet is for you to have an understanding of the project. Please take the time to read the following information carefully. If you have questions about the research or decide you do not wish for your child to be involved in this research please contact the researcher Carys (-----------@surrey.ac.uk or ------------------) within the next two weeks.

What is the purpose of the study?

This study is looking to explore adolescent’s aspirations, values and well-being. This research is particularly timely given the country’s current austerity and political/economic climate associated with Brexit.

Why is your child being invited to take part in the study?

Your child will be invited to take part in this study because they are aged between 14 -18, living in the UK, and in education. Approximately 200 participants from the UK will take part in this study.

What will your child’s involvement require?

If your child agrees to take part, I will then ask them to sign a consent form. Your child’s involvement would be on one occasion for approximately 20-30 minutes.

What will your child have to do?

Your child will be asked to complete a series of questionnaires around their aspirations, values and well-being.

Does my child have to take part?

No, your child does not have to participate. There will be no adverse consequences in terms of your child’s legal rights and their education if you (or they) decide not to participate. Your child will be given information about the study and asked whether they consent to take part.

The data collected will be anonymous and therefore it would not be possible for your child to withdraw from the study once their data has been collected (as
their data could not be identified to be removed). However, if in the process of completing the questionnaires your child decides to withdraw, then their data will not be collected and any information they have provided will be discarded.

**What will happen to data that your Child provides?**

As a publicly-funded organisation, we have to ensure when we use identifiable personal information from people who have agreed to take part in research, this data is processed fairly and lawfully and is done so on the basis of public interest. This means that when your child agrees to take part in this research study, we will use their data in the ways needed to conduct and analyse the research study.

The data they provide will be anonymous. Research data are stored securely for at least 10 years following their last access. Project data (e.g. your child’s consent form) are stored for at least 6 years in line with the University of Surrey policies. Personal data will be handled in accordance with the Data Protection Regulations.

You can find out more about how we use your information https://www.surrey.ac.uk/information-management/data-protection and/or by contacting --------------------@surrey.ac.uk

**Who is Handling My Child’s Data?**

The University of Surrey, as the sponsor, will act as the ‘Data Controller’ for this study. We will process your child’s personal data and are responsible for looking after their information and using it properly. This information will include your child’s name on the consent form and their name and email address if they have opted to be involved in the prize draw (all this information is kept separately to their anonymous questionnaire data). This is regarded as ‘personal data’ and their ethnic origin which they are providing anonymously is regarded as a ‘special category personal data’. We will use this information as explained in the ‘What is the purpose of the study’ section.

**What are the possible disadvantages or risks of taking part?**

There are no extensive disadvantages identified with your child taking part. However, sometimes answering questions that lead us to think about our lives in a new way can make us feel a little unsettled or anxious. At the end of the study your child will be given a “debriefing sheet”, encouraging them to speak to family and friends if they feel unsettled by some of the questions. The debriefing sheet will also provide details of other people and services they can contact, should they wish to speak to someone further.

**What are the possible benefits of taking part?**

There are no immediate intrinsic benefits identified, however your child may find the questionnaires interesting and thought-provoking. Your child may also
find benefits in reflecting on the questions. Your child will also be given the opportunity to be entered into a prize draw to win an Amazon voucher worth £25 (there are 4 to be won).

**What happens when the research study stops?**

The data will be analysed at a group level and written up as part of a doctoral thesis. Information about the findings will be provided to schools and sixth-form colleges involved. The research will also be put forward for research publication in a journal and presented at a conference.

**What if there is a problem?**

Any complaint or concern about any aspect of the way your child has been dealt with during the course of the study will be addressed; please contact Carys, Principal Investigator at ******@surrey.ac.uk in the first instance or my Supervisor Mary John (******@surrey.ac.uk). You may also contact someone who is independent of the research team; Dr Paul Sowden, Joint Acting Head of School and Head of Department of Psychological Sciences(----******@surrey.ac.uk).

If you wish to raise a complaint on how we have handled your child’s personal data, you can contact our Data Protection Officer Mr James Newby who will investigate the matter. If you are not satisfied with our response or believe we are processing your personal data in a way that is not lawful you can complain to the Information Commissioner’s Office (ICO) (https://ico.org.uk/). For contact details of the University of Surrey’s Data Protection Officer please visit: https://www.surrey.ac.uk/information-management/data-protection

**Will my child’s taking part in the study be kept confidential?**

Yes. Your child’s details will be held in complete confidence and we will follow ethical and legal practice in relation to all study procedures. The only personal data that will be held is your child’s name on their consent form and email address (if they choose to be entered into the prize draw). These will be stored electronically, on an encrypted memory stick and a backup copy will be stored on a password protected account on the University of Surrey server. Records of the email addresses will be destroyed after the prize draw has taken place. Personal data will be handled in accordance with the Data Protection Regulations so that unauthorised individuals will not have access to them. The list of email addresses for the prize draws will be destroyed at the end of the data collection.

Your child’s consent forms and anonymised questionnaires will be accessed, processed and securely destroyed by the principal researcher and supervisor. In order to check that this research is carried out in line with the law and good research practice, monitoring and auditing can be carried out by independent authorised individuals. Data collected during the study, may be looked at by authorised individuals from the University of Surrey, who all will have a duty of
confidentiality to your child as a participant. Your child will not be identified in any reports/publications resulting from this research and those reading them will not know who has contributed to it.

**Full contact details of researcher**

Carys – ----------------@surrey.ac.uk

Supervisor; Mary John – -----------@surrey.ac.uk

**Address:** -----------, University of Surrey, Guildford, GU2 7XH

**Telephone number** 01483 689267 and -------------------

**Who is organising and funding the research?**

This research is organised by the University of Surrey and does not have external funding.

**Who has reviewed the project?**

This research has been looked at by an independent group of people, called an Ethics Committee, to protect your child’s interests. This study has been reviewed by and received a favourable ethical opinion from the University of Surrey’s Faculty of Health and Medical Sciences Ethics Committee.

Thank you for taking the time to read this Information Sheet.

If you **do not consent** for your child to take part in this research, please email -- ----------------@surrey.ac.uk or call ------------------- **within the next two weeks.**
Appendix C Information Sheet for Student Participants

Participant Information Sheet [version 2, 18/06/18]  
Aspirations, Values, and Well-Being in Adolescents

Introduction

I would like to invite you to take part in a research project. Before you decide, you need to understand why the research is being done and what it will involve for you. Please take the time to read the following information carefully and ask questions about anything you do not understand. Talk to others about the study if you wish.

What is the purpose of the study?

This study is looking to explore adolescent’s aspirations (i.e. hopes and ambitions for the future), values and well-being.

Why have I been invited to take part in the study?

You have been invited to take part in this study because you are aged between 14 -18, living in the UK, and in education. (Please note to be eligible to take part in the study, you must be aged between 14-18 and currently in education). Approximately 200 participants from the UK will take part in this study.

What will my involvement require?

If you agree to take part, I will ask you to sign a consent form. You will be given this information sheet to keep and you can request a copy of your signed consent form.

If you are under the age of 16, your parent or guardian will also receive information about this project. Your parent/guardian will have an opportunity to state if they do not want you to take part in the project. If this happens you will be informed and you will not be able to take part.

This research project will last approximately 1 year but your involvement would only be on one occasion for approximately 20-30 minutes.

What will I have to do?
You will be asked to complete a series of questionnaires around your aspirations, values and well-being.

Do I have to take part?

No, you do not have to participate and it will not affect your education if you do not.

If you begin to answer the questionnaires and then decide you would like to stop, your questionnaires will not be collected, and all your information will be discarded. If you choose to complete the questionnaires but feel there are some questions that you wish not to complete, you may leave these blank.

The data will be anonymous and therefore once it has been collected, it would not be possible to withdraw from the study at a later stage (as your data could not be identified to be removed).

What will happen to data that I provide?

As a publicly-funded organisation, we have to ensure when we use identifiable personal information from people who have agreed to take part in research, this data is processed fairly and lawfully and is done so on the basis of public interest. This means that when you agree to take part in this research study, we will use your data in the ways needed to conduct and analyse the research study.

The data you provide will be anonymous. Research data are stored securely for at least 10 years following their last access. Project data (e.g. your consent form) are stored for at least 6 years in line with the University of Surrey policies. Personal data will be handled in accordance with the Data Protection Regulations.

You can find out more about how we use your information https://www.surrey.ac.uk/information-management/data-protection and/or by contacting dataprotection@surrey.ac.uk

Who is Handling My Data?

The University of Surrey, as the sponsor, will act as the ‘Data Controller’ for this study. We will process your personal data and are responsible for looking after your information and using it properly. This information will include your name on the consent form and your name and email address if you have opted to be
involved in the prize draw. This is regarded as ‘personal data’ and your ethnic origin which you are providing anonymously is regarded as a ‘special category personal data’. We will use this information as explained in the ‘What is the purpose of the study’ section.

**What are the possible disadvantages or risks of taking part?**

There are no extensive disadvantages identified with taking part. However, sometimes answering questions that lead us to think about our lives in a new way can make us feel a little unsettled or anxious. At the end of the study you will be given a “debriefing” sheet with people to contact if you do feel unsettled by some of the questions.

**What are the possible benefits of taking part?**

There are no obvious benefits identified, however you might find the questionnaires interesting and thought-provoking. You may also find benefits from reflecting on the questions.

You will be given the opportunity to be entered into a prize draw to win an Amazon voucher worth £25 (there are 4 to be won).

**What happens when the research study stops?**

The data will be analysed at a group level and written up as part of a report for my professional and academic qualification. Information about the findings will be provided to schools and sixth-form colleges involved. The research will also be put forward for research publication in a journal.

**What if there is a problem?**

Any complaint or concern about any aspect of the way you have been dealt with during the course of the study will be addressed; please contact Carys; Principal Investigator at ----------------@surrey.ac.uk in the first instance or Supervisor Mary John (----------------@surrey.ac.uk). You may also contact someone who is independent of the research team; Dr Paul Sowden, Joint Acting Head of School and Head of Department of Psychological Sciences (----------------@surrey.ac.uk)
If you wish to raise a complaint on how we have handled your personal data, you can contact our Data Protection Officer Mr James Newby who will investigate the matter. If you are not satisfied with our response or believe we are processing your personal data in a way that is not lawful you can complain to the Information Commissioner’s Office (ICO) (https://ico.org.uk/). For contact details of the University of Surrey’s Data Protection Officer please visit: https://www.surrey.ac.uk/information-management/data-protection

Will my taking part in the study be kept confidential?

Yes. Your details will be held in complete confidence and we will follow ethical and legal practice in relation to all study procedures. The only personal data that will be held are your consent form and email address (if you choose to be entered into the prize draw), these are kept separate to your answers to the questionnaires. The email addresses will be stored electronically, on an encrypted memory stick and a backup copy will be stored on a password protected account on the University of Surrey server. Records of the email addresses will be destroyed after the prize draw has taken place. Your personal data will be handled in accordance with the Data Protection Regulations so that unauthorised individuals will not have access to them. The list of email addresses for the prize draws will be destroyed at the end of the data collection period.

Your consent forms and anonymous questionnaires will be accessed, processed and securely destroyed by the principal researcher and supervisor. In order to check that this research is carried out in line with the law and good research practice, monitoring and auditing can be carried out by independent authorised individuals. Data collected during the study, may be looked at by authorised individuals from the University of Surrey, who will have a duty of confidentiality to you as a participant. You will not be identified in any reports/publications resulting from this research and those reading them will not know who has contributed to it.

Full contact details of researcher

Carys – 1234567890@surrey.ac.uk

Supervisor; Mary John – 1234567890@surrey.ac.uk

Who is organising and funding the research?
This research is sponsored by the University of Surrey and does not have external funding.

Who has reviewed the project?

This research has been looked at by an independent group of people, called an Ethics Committee, to protect your interests. This study has been reviewed by and received a favourable ethical opinion from University of Surrey’s Faculty of Health and Medical Sciences Ethics Committee.

Thank you for taking the time to read this Information Sheet
Appendix D: Consent Form
version 2, date 18/06/18

Aspirations, Values and Well-Being in Adolescents

Please initial each box

- I have read and understood the Information Sheet provided (version 2, date 18/06/18). I have been given a full explanation by the investigators of the nature, purpose, location and likely duration of the study, and of what I will be expected to do.

- I agree to follow with the requirements of the study as outlined to me to the best of my abilities.

- I agree for my anonymised data to be used for this study

- I agree for my special category data (ethnic origin) to be collected for the purposes stated in the information sheet.

- I understand that all project data will be held for at least 6 years and all research data for at least 10 years in accordance with University policy and that my personal data is held and processed in the strictest confidence, and in accordance with the Data Protection Regulations.

- If I decide to enter into the prize draw and provide my email address, I agree for the researchers to contact me with the results of the prize draw.

- I understand that I am free to withdraw from the study whilst completing the questionnaires at any time without needing to justify my decision, without prejudice and without my education being affected.

- As my data will be kept anonymously, I understand that it will not be possible to withdraw from the study after I have provided my data.

- I confirm that I have read and understood the above and freely consent to participating in this study. I have been given adequate time to consider my participation.

Name of participant (BLOCK CAPITALS)..........................................................
Signed ........................................................................................................
Date ............................................................................................................

Name of researcher taking consent (BLOCK CAPITALS).................................
Signed ........................................................................................................
Date ............................................................................................................
Appendix E - Ethical approval Letter from the Faculty of Health and Medical Sciences Ethics Committee at the University of Surrey

Chair's Action

Proposal Ref: 1337-PSY-17
Name of Student/Trainee: CARYS BARNFIELD
Title of Project: Aspirations, Values and Well-being in Adolescents
Supervisor: Mary John
Date of submission: 30th November 2017
Date of confirmation email: 16th January 2018

The above Research Project has been submitted to the Faculty of Health and Medical Sciences Ethics Committee and has received a favourable ethical opinion with minor conditions. Confirmation has been received that the conditions stipulated after ethical review have now been addressed and compliance with these conditions have been documented.

The final list of revised documents reviewed by the Committee is as follows:

Ethics Application Form
Detailed Protocol for the project
Participant Information sheet
Consent Form
Risk Assessment (if appropriate)
Insurance Documentation (if appropriate)

All documentation from this project should be retained by the student/trainee in case they are notified and asked to submit their dissertation for an audit.

Signed and Dated 16/01/2018
Professor Bertram Opitz
Co-Chair, Ethics Committee

Please note:
If there are any significant changes to your proposal which require further scrutiny, please contact the Faculty of Health and Medical Sciences Ethics Committee before proceeding with your Project.
Appendix F: Debriefing Sheet for Participants

Debriefing Sheet

Aspirations, Values and Well-Being in Adolescents

Thank you for participating in this study.

We hope you enjoyed completing the questionnaires and found the experience interesting. Sometimes thinking about your life in a new way can make us feel a little unsettled or anxious. If this is the case do talk to your family and friends. However, if you think others outside your immediate circle might be more helpful please find a list of contacts that you might find useful. They are all familiar with talking to young people about their health and well being

- Your school staff e.g. *(specific information provided by the school)*
- Your GP
- Childline: 0800 1111
  www.childline.org.uk (offers online and email chat)
- Samaritans 116 123 or email jo@samaritans.org
Appendix G – Histograms of Variables

Figure 1
Frequency Distribution of Aspirations Index Scale (Relative)

Figure 2
Frequency Distribution of Material Values Scale

Figure 3
Frequency Distribution of Psychological Needs Satisfaction

Figure 4
Frequency Distribution of Psychological Needs Frustration

Figure 5
Frequency Distribution of Positive Affect

Figure 6
Frequency Distribution of Negative Affect

Figure 7
Frequency Distribution of Life Satisfaction

Figure 8
Frequency Distribution of Subjective Vitality

Figure 9
Frequency Distribution of RCADS -Depression

Figure 10
Frequency Distribution of Physical Symptoms (GHQA)

Note. Gaps in histogram are due to missing data computation inputting non-integers.
Corresponding Kolmogorov-Smirnov and Shapiro-Wilk normality tests are not reported due to their conservative nature and lack of reliability in large samples (Field, 2013). Field (2013) also states that in larger samples the assumption of normality matters less as the sampling distribution will be normal (based on central limit theorem).

Reference

Part Two: Literature Review on Materialism and
Well-being in Adolescents
Abstract

Increasing evidence shows that materialism is associated with poorer well-being, however there is a paucity of research based on adolescent populations. Key theoretical perspectives including self-determination theory and the consumer impact model are used in the literature to explain this concerning link, with emerging evidence supporting these theories. This literature review sought to capture the research on materialism and well-being within adolescent samples and to address whether empirical evidence of mediating and moderating factors support the key theoretical perspectives. The review found large variations within the relationship between materialism and different facets of well-being, with some contradicting evidence. The most conclusive links appeared to be between materialism and (a) increased health risk behaviours and, (b) reduced life satisfaction within an adolescent population. Limited studies illustrating mediating and moderating factors were found. The limitations of the current literature and recommendations for future research are discussed.
1. Introduction

1.1 Materialism

Many countries, particularly contemporary industrialised nations with the focus on consumption, profit and economic growth, expose individuals to messages promoting the pursuit of money, the right self-image and possessions (Dittmar, 2008). Materialism is defined in the Cambridge dictionary as a “belief that having money and possessions is the most important thing in life” (Cambridge Dictionary, 2019). In line with previous research, this review used an extended definition of materialism: “individual differences in people’s long-term endorsement of values, goals and associated beliefs that centre on the importance of acquiring money, and possessions that convey status” (Dittmar, Bond, Hurst, & Kasser, 2014, p.880).

Materialism is considered a multifaceted concept. This includes beliefs associated with materialism as identified by Richins and Dawson (1992): a) materialism happiness; belief that acquiring possessions is essential in the pursuit for happiness, b) materialism success; belief that people’s level of success can be judged by the number and quality of possessions accumulated and, c) materialism centrality; believing that possessions and their acquisition are central to one’s life, providing meaning to life. This last point is closely associated with another facet of materialism, the goals one strives towards to fulfil materialistic desires. This relates to research on goal content, whereby aspirations are often separated into extrinsic and intrinsic goals (Grouzet et al., 2005). Extrinsic goals are defined as those that depend on the contingent reactions of others and are typically concrete in nature e.g. goals for financial success, appearance ideals and social recognition (Kasser & Ryan, 1996). Conversely, intrinsic goals are associated with the actualising and growth tendencies considered natural in humans e.g. goals for self-acceptance, affiliation, and community feeling (Kasser &
Ryan, 1996). Extrinsic and intrinsic goals are considered to be in a relative opposition to one another (Grouzet et al., 2005, Burroughs & Rindfleisch, 2002). Materialistic goals are categorised as extrinsic aspirations and researchers use extrinsic aspiration measures to address individuals’ levels of materialism (Kasser and Ryan, 1996). However, this would appear to go beyond the definition of materialism as it also incorporates appearance image and social recognition, which addresses desires for popularity and an ideal body image. This relates to Dittmar’s (2008) position that materialism and appearance ideals are strongly related and may be better conceptualised as an overarching consumer culture value orientation (Easterbrook, Wright, Dittmar, & Banerjee 2014).

In summary, materialism is a multifaceted concept incorporating different materialistic beliefs and extrinsic goals, with some researchers incorporating both materialistic goals and appearance goals when measuring materialism.

1.2. Well-being

Well-being is commonly known as “a state of feeling happy and healthy” (Cambridge Dictionary, 2019). The extent to which someone feels this state depends on many factors, including optimal functioning in psychological and social domains and minimal levels of illness and distress (Rose et al., 2017). Researchers face significant challenges trying to measure well-being, not only because of the multiple factors involved, but measurements often rely on self-report measures. These are affected by an individual’s ability to accurately reflect on their well-being and can be influenced by their motivations for social desirability (Caputo, 2017). Researchers (Dittmar et al., 2014; Kasser, 2016) take many approaches to conceptualising and measuring well-being, this includes using measures of subjective well-being, life
satisfaction, anxiety and depression, positive and negative affect and levels of engaging in health risk behaviours. Research comparing studies of well-being have difficulties synthesizing the results when a wide array of approaches to measuring well-being have been taken (Dittmar et al., 2014). Some researchers are calling for measures of well-being to incorporate both the ‘feeling’ (i.e. one’s state of mind) and ‘functioning’ elements of well-being as opposed to just measuring one element (Rose et al., 2017). Literature on well-being has drawn distinctions between cognitive evaluations and affective factors of well-being and set out how they both have a roles in the conceptualisation and operationalisation of well-being (Eger & Maridal, 2015).

1.3. Materialism and Well-being

Findings from research suggests that placing greater priority on materialistic values and goals is associated with lower psychological and physical well-being (see Kasser, 2016, for a review and Dittmar et al., 2014, for a meta-analysis). The majority of this evidence is based on adult populations and there is a paucity of research on the effects of materialism on youth i.e. those under the age of 18 years old (Dittmar et al., 2014). Studies looking at materialism across the life-span suggest that there is a curvilinear trajectory, with the lowest levels during middle age and increased levels before and after this (Jaspers & Pieters, 2016). Materialism within youth appears to be on the rise, especially for those in their adolescent years nearing the age of 18 years old (Twenge et al., 2010). Therefore, it is vital that the associated effects on adolescents’ well-being are understood. Longitudinal research has shown that between the ages of 18 and 30, individuals who became less orientated towards materialism had reduced mental health difficulties, whilst those who increased their materialistic aspirations had increased mental health problems (Kasser et al., 2014). Ascertaining the effects of
Materialism on youths will inform future intervention-based research, as this may be a suitable age to target preventative interventions to enhance individuals’ resilience to the effects of materialism.

1.4. Theoretical Perspectives

Self-determination theory (SDT) has been used to explain the link between materialistic values and poorer well-being. This theory posits that individuals are on a natural path of self-enhancement and they require satisfaction of three key psychological needs: autonomy, relatedness and competence, for well-being to be optimised (Vansteenkiste, Lens & Deci, 2006; Deci & Ryan 2000). Therefore, a focus on extrinsic goals and values results in individuals neglecting to satisfy these psychological needs of autonomy, relatedness and competence reducing their well-being (Deci & Ryan 2000). Increasing evidence within adult populations supports the SDT perspective (Dittmar et al., 2014), in that individuals with a materialistic orientation experience poorer well-being due to dissatisfaction with their main psychological needs.

Another theoretical perspective that is linked to SDT, and has been used to explain the link between materialism and well-being, is the stress generation framework (Auerbach et al., 2011). The majority of research to date examines the stress relation framework with depression (Liu & Alloy, 2010), which sits alongside cognitive behavioural theories of depression, whereby an individual with depression has beliefs, expectations and characteristics which are likely to contribute to the occurrence of negative events in their lives i.e. these events are somewhat dependant on the individual’s presentation. The occurrence of these negative events then results in increased depression, resulting in a maintenance cycle of depression (Beck, Rush, Shaw
Auerbach et al. (2011) expand this theory to extrinsic aspirations, whereby individuals who are orientated towards extrinsic aspirations, have certain characteristics, behaviours, and lower quality interpersonal relationships, which contribute to the generation of dependant stressful events and subsequent reduced well-being. This model is linked to SDT, whereby the priority of extrinsic goals to the detriment of intrinsic goals results in poorer interpersonal relationships and the generation of specific behaviours and characteristics which can result in increased stressful events.

The final theoretical perspective that features in the literature using adolescent samples is the consumer culture impact model (Dittmar, 2008). This model describes how individuals internalise the messages in the media about how one should look, and what one should own. This results in individuals receiving unrealistic and continually changing messages about appearance and materialistic ideals. Subsequently, individuals are left feeling inadequate, which results in a deterioration in their well-being (Dittmar, 2008). This theoretical standpoint has emerging evidence. For example, Ashikali and Dittmar (2012) have shown that priming materialism increases the focus of appearance on women’s self-concept and activates discrepancies between their true appearance and ideal, particularly in women who are highly materialistic.

1.5. Focus of Literature Review

A search of the literature suggested that there is no published literature review to date that has addressed the association between materialism and well-being only within an adolescent population. In light of concerns that the modern age consumer culture is affecting adolescents’ levels of materialism (Bauer, Wilkie, Kim, & Bodenhausen, 2012) and that materialism in youth is on the rise (Twenge et al., 2010),
this review seeks to answer the following questions: how does materialism within adolescence affect well-being? and what moderating and mediating factors are associated with this relationship? This will help to provide further insight into what may protect young people from possible negative impacts of materialism and contribute to the theoretical literature.

2. Method

2.1. Search Strategy

Searches were conducted in the following online databases: Psychology and Behavioural Sciences Collection; Child and Development and Adolescent Studies; CINAHL; Medline; PsycARTICLES; PsycINFO, Pubmed and Web of Science. Three sets of search terms based on those used in Dittmar et al.’s (2014) meta-analysis were used: (i) materialism, (ii) well-being and, (iii) adolescents. Specifically, the following terms were used:

- materialism OR material values OR materialistic aspirations OR financial success OR extrinsic goals OR financial aspirations OR financial goals OR "love of money"
- subjective well-being OR well-being OR wellbeing OR anxiety OR happiness OR affect OR depression OR life satisfaction OR risky behaviour OR risk OR physical health OR compulsive buying OR excessive spending OR relationship quality OR competitiveness OR co-operation OR school achievement OR school motivation or performance OR competence
- young people OR youth* OR adolescent* OR young adults OR child* OR teenager* OR student* OR junior* OR pupil* OR girl* OR boy*.

See Appendix B, Table 1 for full details of the database searches.
The inclusion criteria for this review were:

- adolescent population, defined as UK secondary school age 11-18 years old (if a study’s sample included individuals with ages inside and outside of this range then the mean age was required to be within 11-18 years old);
- an established measure of materialism, with sufficient validity and reliability information (e.g. acceptable Cronbach’s alpha ($\alpha$)$>.6$ Kline, 2000);
- at least one measure of well-being; the different types of well-being measures that were included were: life satisfaction, subjective well-being (SWB), affect, health risk behaviours (e.g. smoking) and common mental health disorders (anxiety and depression). Self-esteem and less common mental health disorders e.g. compulsive buying, were excluded as these were considered a less direct measure of well-being;
- quantitative study;
- peer-reviewed journal articles;
- published since year 2000; this timescale was selected as a balance between gaining up-to-date literature and obtaining a sufficient number of studies to achieve a meaningful review;
- English language.

Once initial papers were selected, an ancestry approach was taken: whereby the references of the initial identified empirical papers and reviews were examined to check all the relevant papers had been found. Papers that had referenced the selected papers were also reviewed. The final selected papers were reviewed for their findings, methodological approach, quality, theoretical stance and limitations A meta-analysis was not conducted due to concerns over study heterogeneity, several different
conceptualisations of materialism and well-being and the presence of confounding factors (Borenstein, Hedges, Higgins, & Rothstein, 2009).

2.2. Assessing Study Quality

To assess the quality of the studies the Standard Quality Assessment Criteria for Evaluating Primary Research Papers from a Variety of Fields (Kmet, Cook, & Lee, 2004) were used. This assessment tool was chosen as it allows the assessment of different study designs: cross-sectional, longitudinal and experimental. The tool consists of 14 criteria addressing recruitment, sample size, measurement, confounding bias and reporting, which subsequently provides a quality score. A table setting out the quality appraisal of the studies included in this review can be found in Appendix C.

The quality tool does not take into account the advantages of different study designs, for example the superiority of experimental and longitudinal designs over cross-sectional. Therefore, the type of study design was also reviewed when considering study quality.

3. Results

3.1 Study Selection

A total of 1,032 studies were initially identified after the removal of duplicates. These studies were then reviewed to address whether they met the inclusion criteria. Initially, the titles of the papers were reviewed and those that indicated they did not meet the criteria were excluded. Ambiguous titles remained in the pool of papers for the next level of screening: review of the abstracts. If the abstract indicated that a paper met the inclusion criteria or provided insufficient information to ascertain this, these papers were carried forward to the final level of screening: review of the whole paper.
Fifteen papers met the inclusion criteria for this review. Figure 1 sets out a PRISMA flow diagram illustrating how these papers were selected. No further papers were identified in the ancestry search approach or other subsequent searching following identification of papers from the database searches.
Figure 1: PRISMA Flow Diagram of Study Selection adapted from: Moher, Liberati, Tetzlaff, Altman and the PRISMA Group (2009)
3.2 Study Characteristics

Table 1 describes the key characteristics and quality ratings of studies included in the review. The majority of studies were cross-sectional, three studies used a longitudinal design (Auerbach et al., 2010; 2011; Study 2 in Ku, 2015) and one study used an experimental paradigm (Kasser et al., 2014). The sample sizes across the studies included in this review were varied, ranging from 71 to 2218 with an average of 615 participants \((SD=543)\). The studies were carried out in a range of countries including USA, Canada, China, South Africa, Hungary and UK. Two studies were carried out in two different countries (Lekes, Gingras, Philippe, Koestner, & Fang, 2010; Auerbach et al., 2011), which both compared a Chinese sample to either a Canadian or North American sample.
# MATERIALISM AND WELL-BEING IN ADOLESCENTS

## Table 1. Descriptions of key characteristics and quality ratings of studies included in the systematic review

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>Region</th>
<th>N</th>
<th>Age</th>
<th>Sample Demographic Information</th>
<th>Materialism Measure</th>
<th>Well-being measures</th>
<th>Other measures</th>
<th>Design</th>
<th>Quality Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auerbach et al.</td>
<td>2010</td>
<td>China</td>
<td>406</td>
<td>Range =14-19</td>
<td>50% Female Average household income $3.1k</td>
<td>AI-R(Ext) α=.92</td>
<td>RBQ-A α=.81-.85.</td>
<td>ALEQ α=.92 -.96</td>
<td>Longitudinal 6-9 months</td>
<td>96</td>
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<td></td>
<td>Range =14-19</td>
<td>50% Female Average household income $3.1k</td>
<td>AI-R(Ext) α=.91</td>
<td>CES-D. α=.92 -.94.</td>
<td>ALEQ α&gt;.70</td>
<td>Longitudinal 6 months</td>
<td>96</td>
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<td>SD =0.95</td>
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<tr>
<td>Davids, Roman, &amp; Kerchhoff</td>
<td>2017</td>
<td>South Africa</td>
<td>457</td>
<td>Range =12-18</td>
<td>54% Female 56.4% Multiracial 42.3% Black African 1.4% White.</td>
<td>AI α=.80</td>
<td>PANAS α=.65</td>
<td>Health-Promoting Lifestyle Profile II α=.85</td>
<td>Cross-sectional</td>
<td>88</td>
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<td>SD =0.45</td>
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<tr>
<td>Easterbrook Wright, Dittmar &amp; Banerjee</td>
<td>2014</td>
<td>UK</td>
<td>160</td>
<td>Range =8-15</td>
<td>50% Female &gt;90% white British Proportion of children receiving free school meals above national average</td>
<td>YMS α=.83</td>
<td>LS9 - adapted. α=.82.</td>
<td>MMS - intrinsic α=.66, extrinsic α=.94, AMS - intrinsic α=.97, intrinsic (2-items r=.47***)</td>
<td>Cross-sectional</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M =11.81</td>
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<td>Authors</td>
<td>Year</td>
<td>Region</td>
<td>N</td>
<td>Age</td>
<td>Sample Demographic Information</td>
<td>Materialism Measure</td>
<td>Well-being measures</td>
<td>Other measures</td>
<td>Design</td>
<td>Quality Rating</td>
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<tr>
<td>Flouri</td>
<td>2004</td>
<td>UK</td>
<td>2218</td>
<td>Range =11-19</td>
<td>45% Female 62.2% White British</td>
<td>MS $\alpha$ = .72</td>
<td>SDQ $\alpha$ = .83</td>
<td>SEScale $\alpha$ = .81</td>
<td>Cross-sectional</td>
<td>96</td>
</tr>
<tr>
<td>Froh, Emmons, Card, Bono &amp; Wilson</td>
<td>2011</td>
<td>USA</td>
<td>1035</td>
<td>Range =14-19</td>
<td>49% Female 65% White 15.5% free school meals 67.1% parent home-owner</td>
<td>MVS $\alpha$ = .81</td>
<td>BMSLSS $\alpha$ = .72 CES-DC $\alpha$ = .89</td>
<td>GQ $\alpha$ = .76, GRAT-short form $\alpha$ = .81, GAC $\alpha$ = .86</td>
<td>Cross-sectional</td>
<td>96</td>
</tr>
<tr>
<td>Goldberg, Gorn, Peracchio &amp; Bamossy</td>
<td>2003</td>
<td>USA</td>
<td>547</td>
<td>Range =9-14</td>
<td>52% Female</td>
<td>YMS (created within study) test-retest reliability .85, $\alpha$ = .75</td>
<td>Happiness rated by parents - 1 item measure</td>
<td></td>
<td>Cross-sectional</td>
<td>71</td>
</tr>
<tr>
<td>Kasser et al. Study 4</td>
<td>2014</td>
<td>USA</td>
<td>71</td>
<td>Range =10-17</td>
<td>50% Female 96% White 51% family income $&gt;$ $100,000</td>
<td>Al-RFGI 4 -items and $100 windfall gift scenario. No $\alpha$ reported, but previously validated measures and factor analysis reported</td>
<td>SWLS $\alpha$ = .81, .80 and .80. RCMAS $\alpha$ = .79, .94 and .75.</td>
<td>SEScale $\alpha$ = .82, .85, .80</td>
<td>Experimental</td>
<td>79</td>
</tr>
<tr>
<td>Authors</td>
<td>Year</td>
<td>Region</td>
<td>N</td>
<td>Age</td>
<td>Sample Demographic Information</td>
<td>Materialism Measure</td>
<td>Well-being measures</td>
<td>Other measures</td>
<td>Design</td>
<td>Quality Rating</td>
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<tr>
<td>Ku</td>
<td>2015</td>
<td>China</td>
<td>1047</td>
<td></td>
<td>Younger Range 11-14, M=12.94 SD=.96, Older Range 15-18, M=16.57 SD=.83 Younger - 48% female, Older - 63% female ≈ 33% report living in public housing estates, comparable to the Hong Kong population.</td>
<td>AI - RFGI α =.75 -.82 for the intrinsic and financial goals for the two age groups.</td>
<td>SWLS α=.79 for both age groups.</td>
<td></td>
<td>Cross-sectional</td>
<td>96</td>
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<tr>
<td>Study 1</td>
<td></td>
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<td></td>
<td>Study 2</td>
<td></td>
<td>229</td>
<td></td>
<td>Younger M=14.26 Range 12, SD=.46, Older M=16.80 Range 13, SD=.74 Younger 42% female, Older 58.8% female 55% living in low-rental public housing estates</td>
<td>all α across waves range .74 -.91.</td>
<td>α ranged .74-.81 across waves/groups</td>
<td></td>
<td>Longitudinal</td>
<td>(9 months)</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>China</td>
<td>515</td>
<td></td>
<td>Range 12, M=15.50 56% Female</td>
<td>AI - R α&gt;.75</td>
<td>PANAS - α&gt;.75. Self-Concept Measure α=.83 (Combined PANAS with self-concept)</td>
<td>PASS α&gt;.75</td>
<td>Cross-sectional</td>
<td>92</td>
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<tr>
<td>Lekes, Gingras, Philippe, Koestner &amp; Fang.</td>
<td></td>
<td>North America</td>
<td>567</td>
<td></td>
<td>Range 12, M=14.17 48% Female</td>
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</table>
# Materialism and Well-being in Adolescents

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>Region</th>
<th>N</th>
<th>Age</th>
<th>Sample Demographic Information</th>
<th>Materialism Measure</th>
<th>Well-being measures</th>
<th>Other measures</th>
<th>Design</th>
<th>Quality Rating</th>
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</thead>
<tbody>
<tr>
<td>Manolis &amp; Roberts</td>
<td>2012</td>
<td>USA</td>
<td>1329</td>
<td>M 14.7</td>
<td>55% Female, 51% Caucasian</td>
<td>YMS reduced to 3 items, correlated with original .87. ( \alpha = .65 )</td>
<td>CSES. As in YMS, measure reduced to 3 items, reduced measure correlated with original .85. ( \alpha = .67 )</td>
<td>Time affluence (TA) measure reduced to 3 items, correlated with original .83. ( \alpha = .77 )</td>
<td>Cross-sectional</td>
<td>71</td>
</tr>
<tr>
<td>Maras, Moon, Gupta &amp; Gridley</td>
<td>2015</td>
<td>UK</td>
<td>71</td>
<td>BSG: M 13.68 SD = 0.92</td>
<td>BSG: 48% Female, MSS: 59% Female</td>
<td>YMS ( \alpha = .73 )</td>
<td>SDQ (self-report) ( \alpha ) not reported</td>
<td>Time affluence (TA) measure reduced to 3 items, correlated with original .83. ( \alpha = .77 )</td>
<td>Cross-sectional Pilot</td>
<td>71</td>
</tr>
<tr>
<td>Piko</td>
<td>2006</td>
<td>Hungary</td>
<td>1114</td>
<td>Range = 14.21 M= 16.5 SD = 1.3</td>
<td>60% Female</td>
<td>MS - &quot;materialism success&quot; ( \alpha = .73 ) &quot;materialism happiness&quot; ( \alpha = .83 )</td>
<td>SWLS ( \alpha = .85 )</td>
<td>SES self-report and academic achievement self-report</td>
<td>Cross-sectional</td>
<td>92</td>
</tr>
<tr>
<td>Roman et al.</td>
<td>2015</td>
<td>South Africa</td>
<td>853</td>
<td>M= 16.96 SD = 1.12</td>
<td>57% female, Ethnicity: 45.7%; Multiracial 26.4%; Black African 20%; White 6.6% Indian/Asian</td>
<td>AI ( \alpha = .90 ) (extrinsic) and ( \alpha = .81 ) (intrinsic)</td>
<td>PANAS ( \alpha = .81 ) for positive affect and ( \alpha = .78 ) for negative affect</td>
<td>Cross-sectional</td>
<td>88</td>
<td></td>
</tr>
</tbody>
</table>
## MATERIALISM AND WELL-BEING IN ADOLESCENTS

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
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<th>Age</th>
<th>Sample Demographic Information</th>
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<th>Well-being measures</th>
<th>Other measures</th>
<th>Design</th>
<th>Quality Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williams, Cox, Hedberg &amp; Deci</td>
<td>2000</td>
<td>USA</td>
<td>271</td>
<td>Range 1-4-18</td>
<td>53% Female 81% White</td>
<td>AI-R Ext α &gt; .80 for all subscales</td>
<td>RBI</td>
<td></td>
<td>Cross-sectional</td>
<td>83</td>
</tr>
</tbody>
</table>

**Notes:**
- N = sample size, α = cronbach’s alpha.
- BSG = Behavioural support group.
- MSS = main stream school.
- TA = Time Affluence.
- *estimated from age frequency information provided by authors.

**Materialism measures:**
- AI = Aspiration Index (Kasser & Ryan 1993)
- AI-R = AI-Revised (Kasser & Ryan 1996)
- (Ext) = relative importance of extrinsic goals
- RFGI = relative financial goals index
- MS = Materialism Scale (Richins & Dawson 1992)
- MVS = Material Values Scale (Richins 2004)
- YMS = Youth Materialism Scale (Goldberg, Gorn, Peracchio & Bamossy 2003)

**Well-being measures:**
- BMSLSS = Brief Multidimensional Students' Life Satisfaction Scale (Seligson et al. 2003)
- CES-D = Centre for Epidemiologic Studies Depression Scale (Radloff 1977)
- CES-DC = Centre for Epidemiologic Studies Depression Scale for Children (Weissman et al. 1980)
- R-CMAS = Revised Children's manifest anxiety scale (Reynolds and Richmond 1985)
- CSES = Core Self Evaluation Scale (Judge et al. 2003)
- LS = Life satisfaction
- LSS = Life satisfaction Scale (Huebner 1991)
- MASC-SF = Multidimensional Anxiety Scale for Children - Short Form (March 1997)
- PANAS = Positive and Negative Affect Scale (Watson, Clark & Tellegen, 1988)
- RBQ-A = Risky Behaviour Questionnaire for Adolescents (Auerbach et al., 2010)
- SDQ = Strengths and Difficulties Questionnaire (Goodman, 1997)
- SWLS = 5-item satisfaction with life scale (Diener, Emmons, Larsen & Griffin, 1985)

**Other measures:**
- ALEQ Revised = Adolescents Life Events Questionnaire (Hankin & Abramson, 2002)
- AMS = Appearance Motives Scale (Easterbrook et al., 2014)
- CCIS = Consumer culture ideals scale (Easterbrook et al., 2014)
- GAC = Gratitude Adjective Checklist (McCullough, Emmons, & Tsang, 2002)
- GRAT = Gratitude, Resentment and Appreciation Test (Thomas and Watkins, 2003)
- GQ = Gratitude Questionnaire (McCullough et al., 2002)
- MMS = Materialistic Motives Scale (Easterbrook et al., 2014)
- PASS = Perception of Autonomy Support Scale (Robbins, 1994)
- RBI = Risk Behaviour Index (Williams, Cox, Hedberg & Deci, 2000)
- SATAQ-3 = Sociocultural attitudes towards appearance questionnaire Scale -3 (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004)
- SES = Socioeconomic Status
- SEScale = Self-esteem scale (Rosenberg, 1965).
3.3. Participant Characteristics

The mean age of the participants within these studies ranged between 11.5 and 16.96 years old, with an average of 14.4 years old ($SD =1.7$). The majority of studies included a relatively even gender split: five studies had a slightly higher female percentage (greater than 55%, Auerbach et al., 2010 (Canadian sample); Ku, 2015 (Study 1, older population); Lekes et al., 2010; Piko, 2006; Roman et al., 2015), while one study, Ku (2015, Study 2, younger population) had a slightly lower female percentage (42%). With regards to socioeconomic status (SES), some studies report having a more affluent (Kasser et al., 2014) or deprived (Easterbrook et al., 2014) population compared to national averages. Where ethnicity data was reported, the majority of studies (not including the samples from China and South Africa) had a high percentage of white or Caucasian ethnic origin (>60% in most studies).

3.4. Materialism Measures

Studies used standardised measures of materialism: Youth Materialism Scale (YMS, Goldberg, Gorn, Peracchio & Bamossy 2003), Material Values Scale (MVS, Richins 2004) and Aspiration Index (AI, Kasser & Ryan 1996) and as specified in the inclusion criteria, all studies reported sufficient psychometrics for their measures. The MVS is a measure of three facets of materialism: success, centrality and happiness and the YMS measures the extent to which materialistic values are held. AI measures the importance of different aspirations categorised as intrinsic aspirations (in the areas of self-acceptance, affiliation and community) and extrinsic aspirations (financial goals, social recognition and appealing appearances). Of the studies that used AI, three (Lekes et al., 2010; Davids, Roman, & Kerchhoff, 2017; Roman et al., 2015) used an absolute measure of extrinsic aspirations, i.e. the total score on the questions that formed the
extrinsic aspiration subscale. The remaining five studies that used AI, calculated either a score for relative extrinsic aspirations (i.e. total score on extrinsic subscale minus score on intrinsic subscale, used by Auerbach et al., 2010; 2011; Williams, Cox, Hedberg & Deci., 2000) or relative financial goals index (RFGI) which was calculated in two different ways. Ku (2015) calculated RFGI by taking the average score on the financial goal questions and subtracting the average score on all the intrinsic goals measured in AI. Kasser et al. (2014), however, took the average score of the questions addressing the financial aspirations and subtracted the average score of all goals measured by AI (intrinsic and remaining extrinsic goals). Therefore, participants in Kasser et al.’s (2014) study who had high levels of social recognition and appearance goals (also considered an element of, or closely related to materialism, Dittmar, 2008) would have reduced RFGI scores. Kasser et al. (2014) incorporated other measures in their overall measure of materialism to provide a more comprehensive measure. They included a 4-item materialism survey created by the authors addressing materialism values e.g. “when I grow up I want to have a really nice house filled with all kinds of cool stuff” (Kasser et al., 2014, p.13) and a windfall exercise based on Kasser (2005), whereby participants reported how they would spend a $100 windfall gift using four different categories. The amount they placed in “buy stuff I want” (Kasser et al., 2014, p.14) was used to assess materialism.

3.5 Overview of Bivariate Findings

Table 2 sets out a summary of the bivariate and multivariate findings for the studies included in the review. Forty-two percent of all the correlations reported in all the studies reported a significant negative relationship between materialism and well-being. Fifty-two percent of correlations reported across the study were not significant
and five percent of the correlations reported a significant positive relationship between materialism and well-being. The majority of these studies showed the predicted relationship, whereby materialistic values were associated with poorer well-being. Twelve of the fifteen studies reviewed identified at least one significant association between a well-being measure and materialism in the hypothesised direction. The size of this relationship varied from $r = .03$ to $.40$ with $M = .23$ ($SD = .11$). It is important to note that this is an average of the effect sizes without considering the quality of the studies and sample sizes as this is not a meta-analysis. The largest effect sizes were found in the measurement pairs: relative importance of extrinsic aspirations and risky behaviours (in China, Auerbach et al., 2010), life satisfaction and relative importance of financial aspirations (in China, Ku, 2015), peer/emotional problems and materialism (in UK, Maras, Moon, Gupta & Gridley, 2015) and finally life satisfaction and a measure of both materialism values and relative importance of financial aspirations (in USA, Kasser, 2014). Two studies reported no significant relationships between well-being and materialism (Davids et al., 2017 and Roman et al., 2015), both of these South African studies were looking at associations between extrinsic life goals (absolute) and positive and negative affect. Two studies showed significant correlations in the opposite direction to that expected, i.e. materialism was associated with increased well-being. Firstly, the Canadian sample within Auerbach et al.’s (2011) study found relative extrinsic aspirations was significantly associated with decreased anxiety, and not significantly related to depression. Secondly, the Chinese sample in Lekes et al. (2010) found absolute extrinsic goals were related to enhanced well-being (measured by combining positive affect, self-concept and reversed negative affect).
## MATERIALISM AND WELL-BEING IN ADOLESCENTS

**Table 2.** Summary of Bivariate, Regression and Structural Equation Modelling findings from the Studies included in this Systematic Review

<table>
<thead>
<tr>
<th>Authors</th>
<th>Materialism Measure</th>
<th>Well-being Measure</th>
<th>r</th>
<th>Regression and SEM Analysis</th>
<th>Covariates and Other Predictors</th>
<th>Mediator</th>
<th>Moderator</th>
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<tbody>
<tr>
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<td>Age</td>
<td>Gender</td>
<td>SES</td>
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<tr>
<td>Auerbach et al. (2010)</td>
<td>Extrinsic Aspirations (relative)</td>
<td>Risky Behaviour</td>
<td>.30***</td>
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<tr>
<td>Auerbach et al. (2011)</td>
<td>Canada</td>
<td>Depression</td>
<td>ns</td>
<td>1.6**</td>
<td>✓</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Anxiety</td>
<td>-.23***</td>
<td>ns</td>
<td>✓</td>
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</tr>
<tr>
<td>China</td>
<td>Extrinsic Aspirations (relative)</td>
<td>Depression</td>
<td>.15***</td>
<td>1.84*</td>
<td>✓</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Anxiety</td>
<td>ns</td>
<td>ns</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>Davids, Roman, &amp; Kerchhoff (2017)</td>
<td>Extrinsic Goals (absolute)</td>
<td>Positive Affect</td>
<td>ns</td>
<td>ns</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Authors</td>
<td>Materialism Measure</td>
<td>Well-being Measure</td>
<td>$r$</td>
<td>Regression and SEM Analysis</td>
<td>Covariates and Other Predictors</td>
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<td>Moderator</td>
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<td>Age</td>
<td>Gender</td>
<td>SES</td>
</tr>
<tr>
<td>Easterbrook et al. (2014)</td>
<td>Materialism</td>
<td>Life Satisfaction</td>
<td>-.24**</td>
<td>$ns$ direct in SEM (sig indirect effect through CCIS)</td>
<td>✓</td>
<td>✓</td>
<td>School, CCIS Appearance and Materialism Extrinsic and Intrinsic Motives Factors</td>
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<tr>
<td>Flouri (2004)</td>
<td>Materialism</td>
<td>SEBDs</td>
<td>.22***</td>
<td></td>
<td></td>
<td></td>
<td>Ethnicity Special education services Gratitude</td>
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<td>Froh et al. (2011)</td>
<td>Materialism</td>
<td>Depression</td>
<td>$ns$</td>
<td>$ns$ $ns$ ✓ ✓ ✓ ✓</td>
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<tr>
<td></td>
<td></td>
<td>Life Satisfaction</td>
<td>-.10**</td>
<td>.14**</td>
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<tr>
<td>Goldberg et al. (2003)</td>
<td>Materialism</td>
<td>Happiness</td>
<td>-.03*</td>
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<tr>
<td>Kasser et al. (2014) Study 4</td>
<td>Relative financial aspirations and materialism values</td>
<td>Anxiety</td>
<td>$ns$</td>
<td>$ns$</td>
<td>$ns$</td>
<td>$ns$</td>
<td>(Experimental design: see text in Section 3.6.2 for details of experimental findings)</td>
</tr>
<tr>
<td>Authors</td>
<td>Materialism Measure</td>
<td>Well-being Measure</td>
<td>$r$</td>
<td>Regression and SEM Analysis</td>
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<td>Covariates and Other Predictors</td>
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<td>Age</td>
<td>Gender</td>
<td>SES</td>
<td>Other Well-being Factors</td>
</tr>
<tr>
<td>Ku (2015)</td>
<td>Relative financial aspirations</td>
<td>Life Satisfaction</td>
<td>-.20*** (O)</td>
<td></td>
<td></td>
<td></td>
<td>- .32*** (O) ns (Y)</td>
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<tr>
<td>Study 2</td>
<td></td>
<td>Wave 1:</td>
<td>-.21* (O)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Wave 2:</td>
<td>-.17* (Y)</td>
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<td></td>
<td></td>
<td></td>
<td>-.33***(O)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>-.36*** (Y)</td>
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<tr>
<td>Lekes et al. (2010)</td>
<td>Extrinsic goals (absolute)</td>
<td>Positive and negative emotions and self-concept</td>
<td>.13**(China) ns (North America)</td>
<td>0</td>
<td></td>
<td></td>
<td>ns (SEM)</td>
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<tr>
<td>Manolis &amp; Roberts (2012)</td>
<td>Materialism</td>
<td>Subjective Well-Being</td>
<td>-.06*</td>
<td>-.22***</td>
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<td>Behavioural Support</td>
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<td>BSG: all subscales: ns</td>
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</table>
### Authors

**Materialism Measure**

- Piko (2006): Materialism Success
- Roman et al. (2015): Extrinsic Life Goal importance (Absolute)
- Williams et al. (2000) Study 2: Extrinsic Values (relative)

**Well-being Measure**

- Life Satisfaction
- Positive Affect
- Risk behaviours

### Regression and SEM Analysis

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<tr>
<td>Piko (2006)</td>
<td>Materialism Success</td>
<td>Life Satisfaction</td>
<td>Model 1: 0.09*&lt;br&gt;Model 2: .006*&lt;br&gt;Model 1: -0.39***&lt;br&gt;Model 2: -0.27***</td>
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<td>Positive Affect</td>
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<td>Parenting styles&lt;br&gt;Intrinsic goals&lt;br&gt;Needs frustration and satisfaction</td>
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<td>Williams et al. (2000) Study 2</td>
<td>Extrinsic Values (relative)</td>
<td>Risk behaviours</td>
<td>.21***</td>
<td>0.17**</td>
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</table>

### Note

- *p < .05; **p < .01; ***p < .001; ns=not significant; 'trending towards significance p=0.07 (participants who reported more materialistic values had a 2.87 higher chance of being classified as high risk for emotional problems); r=Pearson’s correlation coefficient of relationship between materialism and well-being measures; β=standardised regression coefficient; b=unstandardised regression coefficient; BSG=behavioural support group; CCIS=consumer culture ideals scale (Easterbrook et al., 2014); LS=life satisfaction; MSS=main stream school; O=older population in sample; SEBDs=social-emotional behavioural difficulties; SEM=structural equation modelling; TA=time affluence; Y=younger population in sample.
3.6 Overview of Main Findings for each Type of Well-being Measured

3.6.1. Depression. Two studies addressed the link between materialism and depression, Auerbach et al. (2011) measured depression using the Centre for Epidemiologic Studies Depression Scale (CES-D, Radloff 1977) and Froh, Emmons, Card, Bono and Wilson (2011) used the Centre for Epidemiologic Studies Depression Scale for Children (CES-DC, Weissman et al.1980). Interestingly they both had similar ages of adolescents within their samples but used different versions of this measure. Both versions of this measure had good internal reliability reported ($\alpha > .89$). In these two studies there were three reported relationships between depression and materialism. Two of these three relationships were not significant when depression was correlated against relative extrinsic aspirations (Canada) and materialism values and beliefs (USA) (Auerbach et al., 2011; Froh et al., 2011). In Auerbach et al.’s (2011) Chinese sample, relative extrinsic aspirations were significantly related to increased depression ($r = .15 \ p < .05$).

Both Auerbach et al. (2011) and Froh et al. (2011) conducted multivariate analysis with depression as an outcome measure. Froh et al.’s (2011) regression analysis found materialism did not significantly predict depression when controlling for gender, age, SES, ethnicity, special education services and gratitude. Auerbach et al. (2011) however, found relative extrinsic aspirations significantly predicted increased depression in both China and Canada, when taking into account initial depression, anxiety and gender. This relationship was also found to be mediated by dependant interpersonal stress in both countries, as theoretically predicted from the stress generation framework model. Surprisingly, non-dependant interpersonal stress was also found to mediate this relationship in China. This result conflicts with the Canadian sample and possibly indicates some cultural differences. Auerbach et al.
(2011) is a longitudinal study assessed to be of high quality (see section 3.7) and therefore the longitudinal findings can be given more weight when compared to Froh et al. (2011)’s cross-sectional finding which found a non-significant regression coefficient for the relationship between materialism and depression (this study was also assessed to be of high quality).

3.6.2 Anxiety. Two studies (Auerbach et al., 2011; Kasser, 2014) looked at the association between materialism and anxiety, measured by Multidimensional Anxiety Scale for Children Short Form (MASC-SF, March 1997) and the Revised Children's Manifest Anxiety Scale (R-CMAS, Reynolds and Richmond 1985). Auerbach et al. (2011) reported a non-significant correlation in China, however in Canada, relative extrinsic aspirations was significantly associated with reduced anxiety ($r=-.23 \ p < .001$). Kasser et al. (2014) reported non-significant correlations between anxiety and materialism (relative importance of financial aspirations and materialism values) across three time periods. These findings were weaker than materialism and life satisfaction correlations reported in this study (Kasser et al., 2014).

Auerbach et al. (2011) longitudinal study also conducted regression analysis and found that materialism did not significantly predict anxiety when initial anxiety, depression and gender were included as covariates (this was the case for both the Chinese and Canadian samples). Therefore, this study’s contradicting bivariate finding of materialism being associated with decreased anxiety in the Canadian sample should be interpreted with caution given that the prospective findings were not significant. This study had a conservative approach within their multiwave analysis, as they controlled for initial anxious symptoms and depression, reducing the bias from confounding factors. This study was longitudinal and therefore the findings can be considered more robust that cross-sectional research. However, this study had a relatively short
timeframe (6 months) which may have limited the researchers’ ability to assess the longitudinal effects of materialism on anxiety levels.

Kasser et al. (2014) was the only study within this review to have an experimental design. The study’s intervention was based upon an established financial education program designed to orient adolescents away from “spending” and towards “sharing” and “saving”. This intervention decreased adolescents’ materialistic values, whilst materialistic values within the control group slightly increased, therefore ‘intervention vs control’ was a significant predictor of changes in materialism. However, Kasser et al. (2014) did not find their predicted significant interaction effect of ‘condition x initial levels of materialism’ on the well-being dependant variables (life satisfaction and anxiety). However, this interaction effect was significant for changes in self-esteem i.e. adolescents who had strong materialistic views initially and received the intervention, had subsequent increases in self-esteem, whilst adolescents who did not receive the intervention and had initially high levels of materialism, showed increased levels of materialism and decreased levels of self-esteem. This study stands out as being the only study addressing the experimental manipulation of materialism and its effects. However this study has some key limitations set out in section 3.7 which should be considered alongside the interpretation of these results.

3.6.3 Life Satisfaction, Subjective Well-being and Happiness. Six studies measured life satisfaction, using the Life Satisfaction Scale (Huebner, 1991; Easterbrook et al., 2014), Brief Multidimensional Students' Life Satisfaction Scale (Seligson et al., 2003; Froh et al., 2011), and the 5-item Satisfaction with Life Scale (Diener, Emmons, Larsen & Griffin, 1985; Ku, 2015; Kasser, 2014; Piko, 2006). One study measured subjective well-being using the Core Self Evaluation Scale (Judge et al., 2003) while Goldberg et al. (2003) measured happiness by asking the parents of
adolescents one question about the happiness of their child. All of these studies except for Ku (2015) and Kasser et al. (2014) used a materialism values and belief measure. Ku (2015) and Kasser et al. (2014) used a RFGI measure.

All of these studies showed a significant relationship between materialism and life satisfaction, SWB and happiness in the expected direction (i.e., materialism was associated with reduced well-being), with effect sizes ranging from $r=.03$ to $.40$. Goldberg et al.’s (2003) happiness measure was related to materialism with an effect of $r =.03$, however the validity and reliability of this measure of well-being is questionable and this is one of the reasons this study was given a lower quality score (see Appendix C for quality assessment).

Five of the studies that looked at life satisfaction, SWB and happiness conducted a regression analysis. Easterbrook et al.’s (2014) structural equation model (SEM) in their cross-sectional study found that extrinsic motives for materialism and appearance aspirations did not significantly predict life satisfaction directly. Instead, they identified that materialism and appearance extrinsic motive factors only predicted life satisfaction indirectly, through its effect on consumer culture ideals factor. This was measured by a Consumer Culture Ideals Scale (CCIS) created by the authors within the study to address the extent to which individuals internalise appearance and materialism ideals. This scale included some adapted questions of the YMS that were conceptually equivalent, whilst incorporating other aspects related to culture ideals, including internalising messages from the media, i.e. “I wish I was rich like the celebrities on TV” (Easterbrook et al., 2014, p.6). This new scale had similarities to measures of materialism (it correlated highly with the YMS ($r=.66 \ p< .001$)) and therefore it could also be interpreted that this way of measuring materialism also predicted life satisfaction.
In Piko’s (2006) cross-sectional regression model materialistic success and materialistic happiness predicted life satisfaction: $\beta=0.09^*$ and -0.39*** respectively. Interestingly materialistic success was related to slightly improved well-being.

In Ku’s (2015) study 2, the longitudinal study found that the path from initial materialism to subsequent life satisfaction (controlling for the effect of initial life satisfaction, gender and SES) was only significant for older adolescents, $\beta=-.32 \ p < .001$, not younger adolescents, $\beta=-.06$, ns. Therefore, the age of participants affected the long-term effect of materialism on life satisfaction, with older adolescents being at greater risk of materialism impacting their well-being. As this high-quality study has a longitudinal design, the results can be given more weight than the cross-sectional findings within the review. Ku’s (2015) finding around the effect of age is important to note, especially as some studies (Auerbach et al., 2010; 2011 (also longitudinal); Roman et al., 2015) did not include age as a covariate within their multivariate analysis. Of note, Froh et al. (2011) found materialism did not significantly predict reduced life satisfaction when controlling for, gender, age, SES, ethnicity, special education services and gratitude.

In Manolis and Roberts (2012) hierarchical regression model, materialism significantly predicted SWB ($\beta=-.06 \ p < .05$). They also found that time affluence (the amount of time one feels they have i.e. how rushed, hectic or busy one feels) moderated this effect. Their moderation analysis found a significant materialism main effect ($\beta=-.22 \ p < .001$), time affluence main effect ($\beta=.33 \ p < .001$) and materialism x time affluence interaction ($\beta=-.05 \ p < .01$). The slope analyses reveal that time affluence reduces the negative effects of materialism on SWB most prominently under conditions of moderate time affluence (not too busy but not too much spare time either).
As discussed in the previous section (3.6.2), Kasser et al. (2014) used an experimental paradigm and found that reductions in levels of materialism were not found to affect life satisfaction. When considering the results of Kasser et al. (2014) the limitations set out in section 3.7 should be considered alongside.

**3.6.4 Positive and Negative Affect.** Three studies (Lekes et al., 2010; Roman et al., 2015; Davids et al., 2017) looked at materialism associated with positive and negative affect, using the Positive and Negative Affect Scale (PANAS, Watson, Clark & Tellegen, 1988). Roman et al. (2015) and Davids et al. (2017) did not find significant results. It is interesting to note that these studies used an absolute measure of extrinsic aspirations for their materialism measure. Therefore it is not possible to determine whether the non-significant findings suggest that materialism did not impact positive and negative emotions or whether materialism measured this way impacted the findings. Lekes et al. (2010) also used the PANAS, combined with a measure of self-concept, to measure well-being and found that this had an unexpected positive relationship with materialism (measured by an absolute measure of extrinsic aspirations) in their Chinese sample \( (r = .13 \ p < .01) \). No significant relationship was found in their North American (USA and Canada) sample.

In Roman et al. (2015) cross-sectional study materialism was found to significantly predict reduced positive affect, when parenting styles, intrinsic life goal importance, needs frustration and needs satisfaction were taken into account. However, materialism did not significantly predict negative affect in the same analysis. Davids et al.’s (2017) multivariate analysis did not find significant findings on the association between positive and negative affect and materialism when mental behaviour and intrinsic goals were covariates.
3.6.5 Risky Behaviour. Two studies (Auerbach et al., 2010; Williams et al., 2000) measured the effects of materialism on risky behaviour. One study used the Risky Behaviour Questionnaire for Adolescents self-report, which included aggressive and/or violent behaviours, alcohol and drug use (Auerbach et al., 2010). Williams et al. (2000) used the Risk Behaviour Index (RBI) which consisted of 5 questions taken from the 1992 Youth Risk Behaviour Survey (CDCP, 1993). Both of these studies used a relative extrinsic aspirations measure of materialism and found a significant relationship with risky behaviour ($r = .21$ and .30).

With regards to multivariate analysis, Williams et al. (2000) cross-sectional study, controlling for demographic variables (age, father's education, gender, and ethnicity) and including parental autonomy support, found that relative extrinsic aspirations predicted risky behaviour ($\beta = .17$, $p < .01$). With regards to moderation analysis, only the interaction between students’ grade level (equivalent to school year in the UK) and extrinsic aspiration was significant, indicating that as students advanced in grade level, the relationship between extrinsic aspiration and risk behaviours became stronger.

Auerbach et al.’s (2010) longitudinal study did not report regression findings for materialism directly predicting future risky behaviour but they did identify that negative life events fully mediated the relationship between materialism and future risky behaviour.

3.6.6 Social Emotional and Behavioural Difficulties (SEBD). Two studies measured SEBDs, they both used the Strengths and Difficulties Questionnaire (SDQ, Flouri et al, 2004; Maras et al., 2015). Flouri et al (2004) reported the relationship of total SEBD with materialism and found a significant relationship ($r = .22$, $p < .001$).
Maras et al. (2015) looked at subscales of the SDQ and only found significant relationships for peer problems ($r=.39$) and hyperactivity ($r=-.37$) within the mainstream school (MSS) subgroup of their sample, and no significant findings for the participants within the receiving behavioural support group (BSG). Of note is the particularly small sample size of this study: $n=44$ in MSS group and $n=27$ in BSG group. Both of these studies used a materialism values and belief measure.

Maras et al. (2015) also looked at logistic regression of materialism predicting SEBD (classified as high or low risk) for the whole sample (MSS and BSG groups). They found that materialism predicts conduct problems ($\beta=1.07 \ p<.05$) and emotional problems ($\beta=1.06 \ p=0.06$). The latter finding was trending towards significance. Further analysis identified that participants who report more materialistic values had a 2.87 times higher chance of being classified into the high-risk group for emotional problems. Materialism did not significantly predict hyperactivity, peer problems or prosocial behaviour.

3.7 Quality of Papers. The quality assessment of the papers included in the review can be found in Table 1, Appendix C. The papers all scored reasonably highly on the Standard Quality Assessment Criteria for Evaluating Primary Research Papers from a Variety of Fields (Kmet, Cook, & Lee, 2004) with scores ranging from 71 (Goldberg et al., 2003, Manolis & Roberts, 2012; Maras et al., 2015) to 96 (Auerbach et al, 2010; 2011; Flouri, 2004; Froh et al., 2011; Ku, 2015). A strength of this tool is that it can be used across heterogeneous studies with different design paradigms. However, this also means it has limitations. The tool does not give credit to experimental/longitudinal paradigms that have more advanced bias control and can provide some causal information. Therefore, when interpreting the results, the type of study paradigm was considered alongside this quality assessment tool.
Many studies within this review are cross-sectional and therefore do not allow exploration of causation. The longitudinal and experimental studies provide inconclusive evidence as to whether the relationship between materialism and well-being is uni- or bi-directional. The three longitudinal studies included in this review (Auerbach et al., 2010; 2011; Ku, 2015) were assessed as high-quality studies (rated 96% by the quality tool). However, one common limitation was that they all measured materialism and well-being over a relatively short time frame (6-9 months), impacting upon the studies’ ability to assess the long-term effects of materialism. Kasser et al.’s (2014) experimental study is advanced in this field, addressing whether levels of materialism can be manipulated and the subsequent effects on well-being. However, it is important to note some key limitations in this study which affect the interpretation of the results found within Kasser et al., (2014). Firstly, the adolescents in the control group who did not receive the intervention had no attentional control contact with one another, as opposed to the three sessions (lasting three hours each) of contact the intervention group received. Therefore, increases in self-esteem found in the intervention group in this study could have been due to the social interactions through these meet-ups (which may have activated more intrinsic values). Furthermore, this study had strong demand characteristics; the intervention clearly portrayed that materialistic values were considered negative. This may have impacted adolescents’ self-report levels of materialism following the intervention. The sample used in this study were also described as "upper middle class" (Kasser et al., 2014, p.12), therefore generalisability may be limited. This opportunity sample may have also been more motivated to reduce materialism than the general population, as the majority of the sample were recruited from churches. It could be possible that church goers are more
motivated to ensure their aspirations are in line with more of a community focus than materialism.

The majority of studies included in this review clearly described the study’s objectives and used an appropriate study design and analysis to address these. Other common quality strengths were detailed demographic descriptions of sample and detailed reporting of results. Studies in this review commonly lost quality scores in the area of insufficient description of the selection process and therefore it is difficult to assess selection bias. However, the descriptions of the characteristics of the samples often indicated that the samples had a good level of generalisability. Some studies also lost quality scores for limited controlling of confounding variables, however a common strength of the majority of these studies was that many included demographic variables (e.g. age, gender, academic achievement, father and mother schooling and SES self-assessment) in their analysis, therefore allowing some control for confounding effects. A few studies had relatively small sample sizes (Easterbrook et al., 2014; Kasser et al., 2014; Maras et al., 2015) which may have affected the statistical power of the study.

All studies used self-report measures. These have limitations, including whether individuals have insight into their well-being/aspirations, are able to accurately reflect on this and not be influenced by social desirability. For measures of materialism we are interested in adolescents’ perceived importance of materialistic values and therefore a self-report method seems appropriate. Never the less, social desirability still plays a part, as adolescents may report an idealised view of prioritising intrinsic aspirations. However, the way they organise their lives may contradict this.
4. Discussion

4.1 Summary of Findings

The literature reviewed found a range of relationships between materialism and well-being. The most conclusive links appear to be between materialism and (a) increased health risk behaviours and (b) reduced life satisfaction. This supports Dittmar et al.’s (2014) meta-analysis, which looked at 753 effect sizes from 259 predominately adult samples, and found that health risk behaviours had the strongest link with materialism. The studies in this review were less conclusive about the effects of materialism on anxiety, depression and affect. The review also identified that the measures used to assess materialism are likely to impact the findings. Studies that used either a relative measure of extrinsic aspirations or measured materialism values and beliefs appeared to have more significant relationships with well-being than measures that used an absolute measure of extrinsic aspirations.

The majority of studies in this review used a cross-sectional methodology. Three studies used a longitudinal design and found that materialism predicted life satisfaction (in an older adolescent sample, Ku, 2015), risky behaviour through the effects of negative life events (Auerbach et al., 2010) and increased depression (Auerbach et al., 2011). The one experimental study identified in this review did not find that changes in materialism affected adolescents’ anxiety or life satisfaction (materialism was associated with changes in self-esteem, Kasser et al., 2014).

4.2. Overview of Possible Explanations for Contradicting Findings

Whilst the majority of studies showed that having materialistic aspirations was associated with experiencing worse well-being, a few findings within the review contradicted this and some findings found a non-significant link between these
constructs. Four possible explanations emerge for the contradicting evidence within the studies. Firstly, most studies neglected to assess the extrinsic and intrinsic motives for materialism values. Easterbrook et al. (2014) found that extrinsic and intrinsic motives for materialistic values had different relationships with well-being. This may be of particular interest in different cultures where intrinsic motives for materialism aspirations may be quite prevalent, for example, in more collectivistic societies (see the next section (4.3) for further discussion on cultural influences).

Secondly, perhaps different aspects of materialistic values affect adolescents’ well-being in different ways. For example, Piko (2006) found that ‘materialism success’ (i.e. judging yourself and other’s level of success by the number and quality of possessions accumulated) predicted increased well-being, whereas ‘materialism happiness’ (acquiring possessions is essential in the pursuit of happiness) was negatively associated with well-being. This links to the former point about the different motives individuals may have for their materialistic aspirations.

Thirdly, the different types of materialism measures adopted create complexity. The focus of the measures included some taking a multi-faceted stance measuring materialism values and beliefs, some were relative measures, and others were absolute measures. Measures addressing materialism beliefs and values are conceptually different to measures of relative importance of extrinsic and intrinsic aspirations. Alongside this, it is important to consider the difference of measuring absolute importance of aspirations compared to relative importance, which takes into account that any given value is held within an individual’s complex value system (Schwartz & Sagiv, 1995; Grouzet et al., 2005; Kasser & Ryan 1996). As the absolute measures of materialism appeared to have less significant associations with well-being, this may suggest that this measure is missing out on capturing a values interaction effect that the
relative measures may be addressing. Associated with this, measures of absolute and relative extrinsic aspirations do not capture whether individuals are holding incompatible values (i.e. high levels of both extrinsic and intrinsic values), which may be a cause of tension and affect their well-being.

A final reason for the contradicting findings in this review may be due to the array of well-being measures used, which address different elements of well-being. The impact of materialism on life satisfaction appeared to emerge clearly from the literature, which may be related to the ever changing goals of a materialist, especially when they are trying to keep up with current trends, and therefore they are never able to feel fulfilled (Dittmar, 2008). Risky behaviour and materialism appeared to also have a strong correlation. This may be due to behaviours such as consuming alcohol and smoking, are being used as coping strategies to manage the demands of extrinsic aspirations, or it may be that these behaviours are considered “cool” and therefore are engaged with to achieve social desirability. Measures of anxiety, depression and affect do not appear to consistently have a significant association with materialism. Overall, similar to the discussion around measures of materialism, as the well-being measures discussed in this review address different elements of well-being, it may be advantageous to look at a more comprehensive measurement of well-being, taking into account these different elements and researching the association with materialism.

4.3 Cultural Factors and Transferability of Findings across Cultures

Two findings using Chinese samples differed from the other papers in this review. Auerbach et al. (2011) found that dependant interpersonal stress provided some explanation on the association between depression and materialism in Canada and China, as theoretically predicted from the stress generation framework model.
However, the authors also found that non-dependant interpersonal stress mediated this relationship in China, which was not hypothesised and conflicted with the Canadian sample results. Furthermore, Lekes et al. (2010) found that absolute extrinsic goals were related to enhanced well-being in their Chinese sample.

Chinese culture can be considered more collectivistic than western cultures. Therefore, it is possible that adolescents’ performance in relation to some extrinsic goals (e.g. future career prospects and earning power) can reflect strongly on their family and community. This may then be associated with stress in non-interpersonal domains, explaining some of the relationship between extrinsic aspirations and depression (Auerbach et al., 2011). This is associated with a fear of losing “face” (mianzi) within that culture (Auerbach, Abela, Zhu, & Yao, 2007). These different cultural factors could explain why absolute extrinsic goals may also be related to some enhancement of well-being in Chinese cultures (Lekes et al., 2010).

4.4. Theoretical Links with Review Findings

With regards to factors that may explain the relationship between well-being and materialism, few studies reviewed addressed mediating and moderating factors. Furthermore, no studies reviewed the same mediating and moderating factors and therefore none of these findings have been replicated.

As posited in the stress generation framework, one study found evidence that adolescents with higher extrinsic aspirations experience increased dependant stressful events (i.e. stressful events that are somewhat created by the individual, Auerbach et al., 2010). This is linked to SDT, whereby prioritising extrinsic aspirations over intrinsic aspirations limits the individual’s ability to meet their psychological needs of autonomy, competence and relatedness. This subsequently creates more stress for the
individual and their relationships, worsening their well-being. Whilst studies in the review drew upon SDT concepts, none of these studies directly addressed whether having psychological needs satisfaction in the areas of autonomy, competence or relatedness mediates the relationship between well-being and materialism for adolescents.

Manolis and Roberts (2012) approached the topic of materialism and well-being from a business background with a focus on the effects that consumerism goals have on adolescents’ time affluence (the amount of time they feel they have, i.e. how rushed, hectic or busy they feel). This is related to SDT, because time affluence can be considered to be associated with the amount of time people have available to nurture their intrinsic goals (e.g. self-acceptance, affiliation and sense of community). Manolis and Roberts (2012) found that time affluence moderated the effect of materialism and reduced well-being, whereby materialism had a stronger impact on adolescents who had too little or too much time affluence. This partly supports SDT as adolescents who have high materialistic aspirations and feel very busy may have insufficient time for themselves to devote to intrinsic aspirations. However, the finding that the negative effects of materialism are also enhanced when adolescents feel they have a lot of time does not map directly onto the SDT perspective. This perhaps supports more of the consumer culture impact model (Dittmar, 2008), where adolescents with high materialism and spare time, may spend more time ruminating on not meeting their materialism and appearance ideals and dwell on their comparisons to others.

Easterbook et al. (2014) also found some preliminary evidence to support the consumer culture impact model (Dittmar, 2008). They found that adolescents who were extrinsically motivated to achieve appearance and materialism goals, internalised cultural ideals portrayed by the media, which subsequently reduced their well-being.
However, some of the measures used in this study are still in their infancy, and the large correlation between the consumer culture internalisation scale and the extrinsic materialistic motives measure suggest they may be loading onto a similar underlying construct.

4.5. Implications of Review for Future Research

As this literature survey has identified contradicting evidence and methodological flaws in this area, it would be beneficial for more studies to investigate the link between materialism and well-being within adolescents. Future research would benefit from using longitudinal and experimental designs to ascertain the directionality of the association between materialism and well-being and to ensure other unmeasured variables are not confounding correlations. In general, it would be beneficial for future research to consider using more comprehensive measures of materialism and well-being to further understand the connections between these multifaceted constructs. As set out by Kasser (2016), future research would benefit from refining materialism measures and identifying which have the strongest psychometric properties. Another area which the current measures do not appear to capture is whether individuals are holding incompatible values (i.e. high levels of both extrinsic and intrinsic values), which may be a cause of tension and affect their well-being. Associated to this, is the question as to whether different motivations for extrinsic aspirations can explain the contradicting findings in this literature. Therefore it would be beneficial for studies to establish and use measures of extrinsic and intrinsic motivations for materialistic aspirations. It would also be beneficial for future research to consider the development of behavioural measures of materialism or to incorporate informant reports, in an attempt to reduce the limitations of the universal use of self-report measures.
The literature would benefit from more studies addressing the underlying theoretical reasons for relationships between materialism and well-being. The consumer culture impact model (Dittmar 2008) posits that negative consequences of materialism is associated with large discrepancies between ideal self and actual self, which outside of the materialism literature have been shown to reduce well-being (Higgins, 1987). Future studies using adolescent samples could investigate whether individuals engage in upward social comparisons with the ‘attractive and rich’, which subsequently reduces their well-being. Further studies should also empirically address SDT and the link between well-being and materialism, i.e. measuring the possible mediation factor of satisfaction with the psychological needs of autonomy, competence and relatedness. SDT appears to be the most supported theory across adult populations (Dittmar et al., 2014).

4.6 Applications of Review on Clinical Practice

This review is also relevant to clinical practice in public health, education and politics. It would be helpful for schools and public health to educate adolescents about the possible negative effects to their well-being of prioritising extrinsic aspirations at the detriment to intrinsic aspirations. Interventions could also address the development of resilience to internalising constant messages from the media about how one should look and what one should own. These are particularly pertinent areas given the increasing concerns about the well-being of youths and the effects of social media (Keles, McCrae & Grealish, 2019).

This review also supports Diener & Seligman (2004) and Kasser’s (2016) call for measures of societies’ well-being to be explicitly incorporated into economic indicators used to determine the state of an economy and society. The current economic
indicators do not capture the possible negative consequences on citizens’ well-being of a capitalist economy that focuses on individualism and productivity. If well-being was incorporated into economic indicators, this would help focus political attention on this important factor when considering domestic policies.

5. Conclusion

Research on the effects of materialism on well-being within adolescents remains inconclusive. There is evidence to suggest that holding materialistic aspirations may have an impact on adolescents’ life satisfaction and likelihood of engaging in risky behaviour. The heterogeneity of studies in this area and methodological limitations means that it is difficult to draw clear conclusions from the literature. Therefore, further research would benefit from using comprehensive measures of materialism and well-being, sophisticated research paradigms and assessing underlying theoretical links.
References


MATERIALISM AND WELL-BEING IN ADOLESCENTS


_Introduction to meta-analysis_. Cornwall, UK: John Wiley & Sons.


## List of Part One Appendices

**Appendix A**  
Guidelines for Authors for publishing in the Personality and Individual Differences Journal

**Appendix B**  
Comprehensive Account of Online Database Searches

**Appendix C**  
Quality Assessment of Review Papers
Appendix A - Guidelines for Authors for publishing Review in the Personality and Individual Differences Journal

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## Appendix B– Comprehensive Account of Online Database Searches

Table 1

<table>
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<th>Database</th>
<th>Search Terms</th>
<th>Limiters</th>
<th>No. Papers</th>
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<tr>
<td><strong>Via EBSCOhost interface:</strong></td>
<td><em>All searched within abstract:</em> (materialism or material values or materialistic aspirations or financial success or extrinsic goals or financial aspirations or financial goals or &quot;love of money&quot;) AND (subjective well-being or well-being or wellbeing or anxiety or happiness or affect or depression or life satisfaction or risky behaviour or risk or physical health or compulsive buying or excessive spending or relationship quality or competitiveness or co-operation or school achievement or school motivation or performance or competence) AND (young people or youth* or adolescent* or young adults or child* or teenager* or student* or junior* or pupil* or girl* or boy*)</td>
<td>Since 2000 Peer-review English</td>
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<tr>
<td>Psychology and Behavioural Sciences Collection; Child &amp; Development &amp; Adolescent Studies; CINAHL; Medline; PsycARTICLES; PsycINFO</td>
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<td>As above</td>
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<td>As above and then the following relevant categories were selected: Psychology multidisciplinary, Psychology Educational, Psychology Social, Business, Social Sciences Interdisciplinary, Psychology applied, economics, psychology developmental, sociology, family studies, psychology, psychology experimental, psychiatry, psychology clinical, substance abuse, social issues, women’s studies</td>
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<td>Web of Science</td>
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### Appendix C – Quality Assessment of Review Papers

**Table 1**

*Quality Assessment of Papers using Standard Quality Assessment Criteria for Evaluating Primary Research Papers from a Variety of Fields (Kmet, Cook, & Lee, 2004)*

<table>
<thead>
<tr>
<th>Authors</th>
<th>Objectives sufficiently described</th>
<th>Design evident and appropriate</th>
<th>Selection Process Described and Appropriate</th>
<th>Participant characteristics sufficiently described</th>
<th>Random allocation for interventions</th>
<th>Blinding for interventions</th>
<th>Exposure measure defined and robust</th>
<th>Outcome measure defined and robust</th>
<th>Appropriate sample size</th>
<th>Analytic methods described and appropriate</th>
<th>Some estimate of variance is reported for the main results</th>
<th>Controlled for confounding?</th>
<th>Results reported in sufficient detail?</th>
<th>Conclusions supported by the results?</th>
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<td>Auerbach et al. (2010)</td>
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<td>23/24</td>
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<td>23/24</td>
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<tr>
<td>Davids et al. (2017)</td>
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<td>0</td>
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<td>21/24</td>
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<td>Easterbrook et al. (2014)</td>
<td>2</td>
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<td>Flouri (2004)</td>
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<td>Froh et al. (2011)</td>
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<td>Goldberg et al. (2003)</td>
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<td>0</td>
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<td>Kasser et al. (2014) Study 4</td>
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<td>Ku (2015)</td>
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<tr>
<td>Manolis &amp; Roberts (2012)</td>
<td>2</td>
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### MATERIALISM AND WELL-BEING IN ADOLESCENTS

<table>
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<tr>
<th>Authors</th>
<th>Objectives sufficiently described</th>
<th>Design evident and appropriate</th>
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<th>Participant characteristics sufficiently described</th>
<th>Random allocation for interventions</th>
<th>Blinding for interventions</th>
<th>Exposure measure defined and robust</th>
<th>Outcome measure defined and robust</th>
<th>Appropriate sample size</th>
<th>Analytic methods described/justified and appropriate</th>
<th>Some estimate of variance is reported for the main results</th>
<th>Controlled for confounding?</th>
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<td>Maras et al. (2015)</td>
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<td>Roman et al. (2015)</td>
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<td>Williams et al. (2000)</td>
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<td>20/24</td>
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**Note:** 2 = criteria sufficiently met, 1 = partially met criteria, 0 = did not sufficiently meet criteria. N/A = not applicable.
Part Three: Summary of Clinical Experience
Throughout my training I have gained substantial experience in psychological assessments, including risk assessments, formulation incorporating theory-practise links and evidence-based interventions. I have utilised supervision and reflective spaces to continually develop and improve my practise. I have worked within Multi-Disciplinary Teams, liaised with other services/agencies and I have joint worked with a number of professionals including mental health nurses, systemic therapists, occupational therapists and social workers. I have gained the following specific experience in each individual placement:

**First Year Placement – Secondary Care Community Mental Health Team for Working Age Adults and Acute Inpatient Adult Service – 12 months**

I worked with working age adults (18-65yrs) presenting with a range of moderate to severe mental health difficulties including anxiety (e.g. obsessive-compulsive disorder (OCD) and panic disorder), depression, psychosis, bipolar affective disorder, complex trauma (with a diagnosis of personality disorder) and emotional regulation difficulties. My work was predominantly on an individual basis and primarily informed by Cognitive Behavioural Therapy (CBT) and Behavioural Therapies (including Exposure Response Prevention (ERP)). I also co-facilitated a Behavioural Activation group for adults with depression and ran some coping strategy groups on the ward. During this placement I used standardised psychometric assessments including PHQ-9, GAD-7, CORE-OM, PSYRATS, PSWQ, Y-BOQS and OCI. I also completed two neuropsychology assessments, using the WAIS-IV and ABAS-III.

Furthermore, I co-facilitated a health-care assistant training day and I ran a session on empathy, communication and supporting service-users. I also ran a
“bitesize” training session on Autism Spectrum Conditions and Communication to ward staff within an inpatient unit.

Finally, I conducted a service-evaluation around access to psychological interventions for people experiencing psychosis from the community mental health team.

**Second Year Placement 1: Community Mental Health Team for Older People – 6 months**

During this placement I worked with older adults (aged 65+) with mental health needs and/or cognitive difficulties. I carried out direct work with individuals with a range of difficulties including anxiety (e.g. panic and generalised anxiety disorder), depression, phobia in the context of previous trauma, health anxiety, interpersonal difficulties and cognitive/memory difficulties. This work was mainly informed by CBT, Acceptance and Commitment Therapy (ACT) and Schema Therapy.

I conducted two neuropsychology memory and cognitive assessments which included using subtests from WAIS-IV, WMS-IV, MWHCST, D-KEFS, TOPF, Graded Naming Test, KBNA and Hayling and Brixton.

I co-facilitated a training on motivational interviewing to staff across mental health, social care and physical health teams. I also facilitated a complex case discussion with the staff team.

**Second Year Placement 2: Children and Adolescent Community Mental Health Team (Tier 3) – 6 months**

I worked with young people aged 10-17 and their families. I also on occasions worked with the schools the young people attended. The young people presented with a range of difficulties including motor tics, OCD, low mood and emotional regulation
difficulties. The work was informed by CBT, ERP and Habit Reversal Training. I also worked indirectly with parents using the PACE (Playfulness, Acceptance, Curiosity and Empathy) approach from Dyadic Developmental Psychotherapy. I also co-facilitated a group for young people experiencing anxiety informed by CBT.

I used standardised measures throughout this placement, such as ChOCI (R and P), RCADS, SDQ, CORS, BADS, Yale Tic Severity Score and Social Anxiety Scale. I conducted cognitive assessments using the WISC-V and WPPSI-IV. I also carried out a developmental history assessment as part of an Autism Spectrum Disorder (ASD) assessment. I co-presented a workshop on Managing Aggression and Violence in young people with ASD to a parent group with a parent who had lived experience.

Third Year Placement 1: Community Team for People with Learning Disabilities (Social Services) – 6 months

During this placement I worked with adults who had a diagnosis of Learning Disabilities and the systems around them, including families, day centres, supported living services and residential support services. Clients were referred for a range of reasons including mental health difficulties (such as anxiety, depression and emotional regulation) and challenging behaviour (including hitting, calling emergency services and refusing to get into organised transport). The work on this placement was informed by Positive Behaviour Support and Systemic Therapy, predominantly using approaches that draw upon social constructionist perspectives. Throughout this placement I adapted my approaches to increase the accessibility when working with clients directly. The standardised measures I used on this placement included mini-MANS, CORE-LD and BBAT. I also conducted two cognitive assessments using the WAIS-IV and ABAS. I also provided staff training on attachment to a supported living service.
Third Year Placement 2: Specialist Placement: Children and Adolescent Mental Health Service for Looked After Children (Social Services) – 6 months

My final placement was working with children and young people (aged between 4-17) who are in foster care or on a special guardianship order. The children and young people have predominantly experienced developmental trauma which has subsequent effects on their emotional regulation, cognitive ability, attachment, relationships and their sensory processing. The work has involved direct work with the young people that has been informed by DDP, CBT and trauma focused -CBT. The work has also included some indirect work with foster carers that was informed by DDP, theraplay and systemic therapy. Measures I used on this placement include CRIES-13, RCADS, CORS, MIMS- informed assessment and GBO.
Part Four: Table of Assessments Completed During Training
### PSYCHD CLINICAL PROGRAMME

**TABLE OF ASSESSMENTS COMPLETED DURING TRAINING**

#### Year I Assessments

<table>
<thead>
<tr>
<th>ASSESSMENT</th>
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<tr>
<td>WAIS</td>
<td>WAIS Interpretation (online assessment)</td>
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<tr>
<td>Practice Report of Clinical Activity</td>
<td>A Cognitive Behavioural Assessment of a Male in his mid-twenties for Depression and Pain Management</td>
</tr>
<tr>
<td>Audio Recording of Clinical Activity with Critical Appraisal</td>
<td>Audio Recording and Critical Appraisal of a Cognitive Behavioural Therapy Formulation Session with a female in her mid-twenties who has Panic Attacks</td>
</tr>
<tr>
<td>Report of Clinical Activity N=1</td>
<td>An Exposure and Response Prevention Intervention with a male in his early 60s with chronic Obsessive and Compulsive Disorder</td>
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<tr>
<td>Major Research Project Literature Survey</td>
<td>Literature Survey on Materialism and Well-being in Adolescents</td>
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<tr>
<td>Major Research Project Proposal</td>
<td>Materialism, Well-being and the Mediating Role of Psychological Needs Satisfaction and Frustration in Adolescents</td>
</tr>
<tr>
<td>Service-Related Project</td>
<td>Audit of Access to Psychological Therapies for Individuals with Psychosis, within a Secondary Care Community Mental Health Team</td>
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#### Year II Assessments

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<td>Report of Clinical Activity – Formal Assessment</td>
<td>Neuropsychology Assessment of John, a male in his mid 70s who was referred due to memory difficulties</td>
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<tr>
<td>PPLD Process Account</td>
<td>Process Account of a Personal and Professional Development Group for Trainee Clinical Psychologists</td>
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#### Year III Assessments

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<tr>
<td>Presentation of Clinical Activity</td>
<td>Habit Reversal Training For Tics with 16 Year Old Male</td>
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<tr>
<td>Major Research Project Literature Review</td>
<td>Empirical Paper on Materialism and Well-being in Adolescents</td>
</tr>
<tr>
<td>Major Research Project Empirical Paper</td>
<td>Literature Review on Materialism and Well-being in Adolescents</td>
</tr>
<tr>
<td>Report of Clinical Activity</td>
<td>Working with a Woman (who is in her forties and has a diagnosis of learning disabilities) and her Support Network using a Systemic Approach</td>
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<tr>
<td>Reflective Portfolio</td>
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