Investigating the Effect of Sleep on Self-Reported Attractiveness and Self-Esteem

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Abstract

The current study aimed to investigate the effect of sleep on self-reported attractiveness and self-esteem. The combining of which aimed to give a more comprehensive showing of one's self-perception. Previous research has shown that poor quality sleep can negatively affect people's self-esteem and self-reported attractiveness but has not been cohesively studied both at the same time. The current study wished to expand on what has already been found through investigating both variables together, and further highlight the significance of sleep on self-esteem and self-reported attractiveness. The current study used the Pittsburgh Sleep Quality Index (PSQI) (Appendix 1) the Rosenberg Self-Esteem Scale (RSES) (Appendix 2) and the Body Esteem Scale (BES) (Appendix 3) to investigate the research aim. 85 participants took part with ages raging from below 18 to over 65 and with a near even split of male and female participants. Spearman's non-parametric correlation found that high quality sleep was not correlated with high self-reported attractiveness. However, higher quality sleep was correlated with higher self-esteem. Higher self-esteem was also linked with higher ratings for self-reported attractiveness. The implications of these findings and their contribution to the current literature are discussed along with direction for future research.

Table of Contents

Introduction

The importance of getting enough high quality sleep cannot be overstated. Sleep has been shown to be a valuable tool in preventing the onset of health implications (Grandner et. al., 2016) . For athletes, sleep has been shown to improve performance, competitive success, and recovery (Watson, 2017), while for the general population, getting sufficient sleep has been shown to prevent accidents and human error (Dinges, 1995), so much so, that driving while sleep deprived can be compared to driving under the influence of alcohol as it impairs reaction time (Fairclough & Graham, 1999). The vast number of health implications associated with a lack of sleep includes hypertension, diabetes, obesity, heart disease, skin disease, Alzheimer's, and schizophrenia (Gradner et. al., 2018; Reutrakul and Van Cauter, 2018; Nagai, Hoshide, & Kario, 2010; Albuquerque et. al., 2015; Winsky-Sommerer et. al., 2019). In spite of the growing literature highlighting how important sleep is, a 2016 sleep survey in Ireland showed that 36% of participants slept less than 6 hours a night (The Natural Sleep Company, 2016). Of the participants who reported to get between 6 and 8 hours, 66% of them described their sleep quality as poor. This may be seen as just as big a problem for ones health as Pilcher and Sadowsky (1997) highlights that sleep quality should be considered just as important as total sleep quantity. Such statistics illustrate the sleep epidemic the world is experiencing and the strain it is putting on health services. Chattu et. al., (2019) highlights this, and mentions that sleep can be a useful tool as an early risk indicator for the possible physical health implications that may follow.

Health implications associated with a lack of sleep are not confined to one's physical health. Poor sleep has been linked with an increase likelihood in developing mental disorders such as depression and anxiety (Alvaro, Roberts, & Harris, 2013; Nutt, Wilson, & Patterson, 2008). In addition to this, general well-being and self-reported quality of life appears to improve when sleep quality and quantity is high. Lyall et. al. (2015) reported that disruption in one's circadian rhythm negatively impacts cognitive functioning, subjective wellbeing, and mood. These findings are further supported in those who suffer from bipolar and major depressive disorder, as quality of life improved as sleep improved (Slyepchenko et. al.,

2013). The current literature suggests that sleep is not only helpful in the prevention of the onset of mental disorders but may also be highly beneficial in the treatment of such disorders. While awareness of the importance of sleep has grown exponentially in recent times, the general population, as mentioned, still do not take their sleep seriously. However, lacking sleep for a short period of time can be enough to allow the onset of the aforementioned health implications (Milojevic and Lukowski, 2016).

The literature is conclusive that sleep is paramount for total health. However, it is less extensive in investigating more subjective measures that while not medically diagnosed, are important in general well-being. Self-esteem and self-reported attractiveness, as the current study investigates, may be worth considering further. Self-esteem and self-reported attractiveness, for the purpose of the current study, are both examined in order to create a more well-rounded view of overall self-perception. One's thoughts about themselves extends beyond either the mental or the physical but encompasses them both. The current study's first two research aims were to investigate the effects of sleep on self-perception through examining the correlation between sleep and self-reported attractiveness, and between sleep and self-esteem. This was a worthwhile topic to study as it further illustrates the importance of sleep as done in previous studies. Primarily, much of the current literature examined the importance of sleep on physical wellbeing. Such benefits of high quality sleep include lowering the risk of developing infectious illness, cardiovascular disease, and cancer (Irwin, 2018). High quality sleep has also been shown to improve health related behaviours such as taking an effort to manage stress, and maintain a healthy diet (Chen, Wang, & Jeng, 2006). Previous literature has gone so far as to prove that maintaining high quality sleep is a necessity to health (Remar et. al., 2021). The current study aimed to supplement such literature by investigating the effect of sleep on self-reported attractiveness and self-esteem. Such research is worthwhile due to the effect of self-perception on health and wellbeing (Bolognini et. al., 1996), while there is also a positive correlation between low levels of self-esteem and high levels of depression and anxiety (Nguyen et. al., 2019). Negative body image has also been associated with higher levels of depression in female medical undergraduate students (Manaf, Saravanan, & Zuhrah, 2016). These findings suggest that improvements in

mental health may improve one's self-perception. The influence of sleep on mental wellness therefore leads to thoughts that those who experience greater quality and quantity of sleep may perceive themselves in a more positive manner. Investigation into this topic is minimal yet sleep as an intervention to improve one's perception of themselves may be beneficial. Based on the findings of previous studies showing the benefits of sleep for positive mental health, the current study investigating the benefits of sleep for positive self-perception is likely to also find a positive correlation. Such findings would be worthwhile for the general population as having high levels of self-esteem has been shown to be a beneficial personality trait, being associated with happiness and an improved ability to handle rejection, and perseverance (Baumeister et.al., 2003; Summer and Baumeister, 2002)

Understanding one's self-esteem is important. Higher levels of self-esteem have been associated with a more positive mindset, and a greater ability to bounce back from unfortunate circumstances (Baumiester et. al., 2003). The benefits that occur from such high levels of self-esteem continue as school children, highschool, and college undergraduate students' levels of self-esteem are predictive of depressive symptoms (Kim & Cicchetti, 2009; Negoven and Bagana, 2011). In a study of 2,000 participants in the UK 55% of men have been reported to not thinking they are liked by other people, while 56% of women do not believe they are liked (Geehair, 2021). Such findings further highlight the statistics that show that low levels of self-esteem are common. How much one sleeps has been shown to be an indicator of their levels of self-esteem and optimism (Lemola et. al., 2013). It was found that getting between 7 and 8 hours sleep can lead to higher self-esteem when compared to getting less than six, or more than nine hours. On the other hand, self-esteem has also been shown to be a predictor of sleep quality. Decreased levels of self-esteem has been associated with decreased sleep duration (Conti and Adams, 2014). This highlights the bi-directional relationship that exists between sleep and self-esteem. Therefore, as the current study investigates whether sleep is related to improved self-esteem, it may be the pre-existing levels of self-esteem that effects how much they sleep rather than sleep being the predictor. A lack of sleep can also lead to behaviours that effect self-esteem (Pérez-Fuentes et. al., 2019). Poorer sleep has been shown to

indirectly effect healthcare workers self-esteem as it is associated with emotional eating, followed by lowering self-esteem. The importance of high quality sleep is further examined in younger children (between 11 and 14) as those who reported poorer sleep also reported poorer levels of self-esteem and depressive symptoms (Fredrikson et. al., 2004). The literature extensively shows the relationship between sleep and self-esteem. The current literature shows a bias towards adolescents when examining sleep and self-esteem. Fredrikson et. al. (2004) found that those between the ages of eleven and fourteen who slept less showed greater signs of low self-esteem. Lower self-esteem at adolescents has then also been shown to be a predictor of higher depressive symptoms up to two decades later (Steiger et. al., 2014).

As the current study aims to investigate sleeps effect on self-perception in a broader sense, self-reported attractiveness will also be examined. Creating and maintaining high levels of body and image satisfaction has been shown to have several significant benefits. In young women with mental disorders, body confidence has been shown to improve their mood and their medication taking tendencies (Lee and Jang, 2021). Self-reported attractiveness is also likely influenced by how much sleep one gets, as Sundelin et. al., (2017) found that those who received less sleep were perceived as less attractive. However, the mentioned study examined the perception from other people rather than the sleep-deprived participants. Similar findings highlighted those who are sleep deprived were perceived as less attractive with features of the eyes, mouth and skin effected (Sundelin et. al., 2013). Interestingly however, Holding et. al. (2019) did not replicate these findings. A more objective measure was used measuring facial features colour using spectrophotometry found no change in attractiveness between those who are sleep deprived and those who are well rested. However, this may highlight humans views on attractiveness of others is a more subjective experience and attempting to measure it in an objective manner is therefore problematic. Ultimately, getting enough sleep is associated with being perceived as more attractive, and can help prevent aging features such as wrinkles developing (Chervin et. al., 2013; Oyetakin-White et. al., 2015). However, the current study is unique to the literature currently available as it aims to examine a relationship between sleep and self-reported attractiveness, while also examining self-esteem. This is done in order to create a

broader view of one's self-perception, which is a more complex topic than just self-reported attractiveness or self-esteem on their own. Such studies have not previously been done. Similar to higher levels of self-esteem having benefits to one's wellbeing. The same can be seen when investigating self-reported attractiveness. Positive body-image has been shown to be related to positive wellbeing in patience with morbid obesity (Yazdani et. al., 2018). High levels of self-perceived attractiveness are also associated with higher levels of confidence in social settings, and in decision making, while also being linked to lower scores for depressive symptoms and improved mental health (Bale and Archer, 2013; Jiang et. al., 2021; Borraz-León et. al., 2021).

The final aim of the current research is to investigate whether there is a link between sleep quality and self-perception. For the current study, self-perception is measured through levels of self-esteem and self-reported attractiveness. The current literature available leads one to believe that high sleep quality will be associated with more positive self-perception in participants. A lack of sleep has been shown to increase pessimistic thoughts (Nota and Coles, 2015). Such poor thoughts can therefore result in poor thoughts on oneself and one's appearance. Interestingly, higher levels of attractiveness do not necessarily correlate with higher levels of self-esteem (Mares et. al., 2010). It was found that those adolescents with higher levels of attractiveness experienced lower levels of baseline self-esteem. However, these findings appear to be significantly affected based on several demographic factors (Backman and Adams, 2012) and therefore may not be replicated in the current study. Backman and Adams (2012) found that white females self-esteem was most effected by levels of attractiveness. The current study aims to highlight sleeps positive influence on self-perception. These variables are of high importance as low levels of both self-esteem and attractiveness have been linked to poor mental health. Those with mood-reactive self-esteem have been shown to exhibit more depressive symptoms (Classen et. al., 2015) while subjective negative perception of one's attractiveness was also associated with elevated rates of depression (Ehlinger and Blashill, 2016). It has been proven that poor self-perception negatively effects an individual's health, particularly their mental health. Therefore, the use of a simple intervention such as sleep in improving one's self-perception may be

highly beneficial. While sleep has already been shown to be positive in improving other aspects of mental and physical health, a direct correlation between better sleep and better attitudes to oneself can be strengthened through the current study and easily improve overall wellbeing and quality of life. Ultimately, it can be seen in previous literature that poor self-perception is not good for overall health and wellbeing. Therefore, research investigating sleep as a possible method of improving self-perception is necessary for the general population's wellbeing.

Research aims and hypotheses

The first aim of the current research is to investigate the link between self-reported attractiveness and sleep. Secondly, the current research aims to investigate the link between sleep quality and self-esteem levels. Finally, the current research aims to to investigate the link between self-reported attractiveness and self-esteem. The study hypothesizes that higher levels of sleep will be positively associated with higher levels of self-reported attractiveness, and self-esteem. These hypotheses, as well as the research aims, aims to investigate if sleep can improve self-esteem as a whole, measured by the variables self-esteem and self-reported attractiveness. The final hypothesis of the current study is that higher levels of self-reported attractiveness will also be positively correlated with higher levels of self-esteem.

Methodology

Participants

There were 85 total participants in the current study. They were spread at 55.3% female (47 participants), 43.5% male (37 participants), and 1.2% preferred not to disclose their gender (1 participant). Differing age ranges were also collected. 17.6% were under the age of 18 (15 participants), 41.2% were between the ages of 18 and 24 (35 participants), 10.6% were between the ages of 25 and 35 (9 participants), 17.6% were between the ages of 35 and 50 (15 participants), 10.6% of participants were between the ages of 50 and 65 (9 participants), and 1.2% were between the age of 65 and 80, and over the age of 80 (1

participant at each age group). Participants were spread almost evenly between male and female, however, there is an uneven skew in the data towards the younger age groups, with almost no representation at the age groups above 65. In order to achieve the desired effect, a sample size of at least 84 participants was required. This number was generated using G*Power for a two tailed, bivariate correlation. The alpha level was set to 0.05, with 80% power set.

Participants were gathered using convenience sampling with no criteria needing to be met to take part as a result of the limit resources available. Any individual who came across the current study, was willing to take part, were supplied with an information sheet (Appendix 4) and gave their informed consent (Appendix 5) could take part. Gaining consent from participants involved informing them of what the subject matter of the current study was, and ensuring they were aware of any possible feelings of distress. The option not to take part or to exit the questionnaire at any stage was made clear. The questionnaire used for the current study was shared by the researcher across social media platforms Instagram, WhatsApp, and Facebook. The questionnaire was also further shared by other individuals independent of the researcher himself.

Design

The design used in the current study was a quantitative cross-sectional design. This design for the current study is appropriate as values as scores collected in the study are expressed as numbers, and the data collected is measured one point in time of the target population (Singh-Seita, 2016), with the questionnaires used in the current study looking at the last month, or as of right now. Cross-Sectional analysis is also an appropriate means of analysing associations between exposure (e.g lack of sleep) and an outcome (eg self-esteem) (Kesmodel, 2018). In addition to this, quantitative analysis is an efficient was of producing objective numerical data (Allen, 2017) which is an efficient way to analyse the desired data. In addition to this, quantitative methods allow relationships between data to be shown and analysed (Coghlan & Miller, 2014). This is a necessity for the current study in order to run correlations between the examined

variables. Finally, quantitative methods were chosen for the current study for convenience reasons. Written questions expressed through questionnaires are less likely to be confused or misinterpreted and is easier to reach the desired population (Sheppard, 2020). The first variable examined was sleep quality, this was examined through the Pittsburgh Sleep Quality Index (PSQI). The PSQI examines sleep quality through several components: subjective sleep quality, sleep latency, duration, efficiency, disturbances, medication, and daytime dysfunction. This variable is an independent variable as it is not being influenced by other variables. Other variables examined in the current study were self-reported attractiveness through the body-esteem scale (BES), a 35-part Likert questionnaire examining different physical attributes, and the Rosenberg Self-Esteem Scale (RSES), a ten-part Likert scale self-reporting attitudes towards oneself. These two variables were examined dependent of sleep. The current study wished to see if these variables were influenced by sleep quality.

Materials

Pittsburgh Sleep Quality Index

The Pittsburgh Sleep Quality Index (PSQI) is a self-reported measure of sleep quality developed by Daniel J. Buysse and colleagues. It was created to assess the sleep quality of an individual over a one month period (Buysse, D.J., et al. 1989). The nineteen part self-completed questionnaire aims to gather data regarding overall sleep quality. Since its creation it has been shown through both test-retest reliability and generating a Cronbach's alpha score of 0.83, which highlights its internal consistency, to be a credible measure for sleep quality (Chiu & Hsu, 2016). The PSQI has also been shown to be valid in testing the sleeping habits of insomnia patients (Backhaus, 2002), as well as in older men (Spira et. al. 2012). The PSQI was also selected as an appropriate scale for the current study as it has been shown to be a more

effective sleep diary mention than other sleep scales such as the Epworth Sleepiness Scale (ESS) (Buysse et. al., 2008).

Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale (RSES) is a common self-assessment measure used to highlight poor self-esteem for research methods developed by Dr. Morris, Rosenberg. Scoring is done on a scale from 0-40. A score below 15 on the scale is used as an indicator of poor self-esteem. Questions are presented as a four option Likert scale; scores are then ranged from 0-4. The option to strongly agree equals a score of four, unless reverse scored, which is the case for questions 2, 5, 6, 8, and 9. It is not intended for psychological diagnosis of mental health disorders or for intervention purposes (Rosenberg, 1965). Participants will fill out responses for ten statements, rating to what extent they agree with each. In general, the scale reports high levels of reliability, and internal consistency, with a Cronbach's alpha score of between 0.77 and 0.88 (Fleming and Courtney, 1984; Blascovich and Tomaka, 1993). Hagborg (1993) found correlation between RSES scores and Global Self-Worth, with slight differences across male and females, with females scoring lower.

The RSES is a suitable measure for self-esteem for the current study due to its test-retest reliability and its strong Cronbach's Alpha score. In addition to this, it has been used across a large number of age groups, ethnicities and on both males and females (Robins et. al., 2001). Similar measurements for self-esteem have also been shown to have limitations not common in the RSES. The Self-Esteem Stability Scale (SESS) has been shown to exhibit memory bias in participants (Schacter, 1999). This is as a result of the participants needing to report individual occasions in which self-esteem fluctuated.

The Body Esteem Scale

The Body Esteem Scale is a 35 part questionnaire where participants offer their feelings ranging from 1-5 (strong negative-strong positive) on body parts, functions, and physical attributes. This scale is appropriate for the current study as it offers a wide range of options to self-perceive ones attractiveness. Franzoi (1984) found further evidence to support its high test retest reliability. Internal consistency was

also found, with a Cronbach's Alpha score ranging between .77-.87 for both males and females. Franzoi (1994) further found evidence to support the use of the BES, over a three month period, the use of the BES showed little susceptibility to unrealistically apply either positive or negative attributes. The BES has also been appropriately used previously in the research alongside the RSES and therefore was selected for the current study. Bale and Archer (2013) found higher scores for the BES to be associated with higher scores for the RSES.

Apparatus

To complete the current study access to a laptop or personal computer will be necessary. Along with this, internet access was required. A google account in order to use google forms or a similar method to present the questionnaire will also be needed. All three questionnaires (PSQI, RSES, and BES) will also be necessary in order to carry out the research. Finally, the use of SPSS and therefore access to SPSS will be needed in order to analyse the data collected.

Procedure

The questionnaire for the current study was created using Google Forms and needed five minutes to complete. Firstly, a consent form and information sheet were drafted to ensure participants could provide informed consent and were aware of the reason for the study. Next, the questionnaires required to accurately measure sleep, self-esteem, and self-reported attractiveness. The PSQI, the BES, and the RSES were selected and placed onto the questionnaire. It was essential to ensure the data collected was de-identified to protect participants, consequently, no personal data was collected.

Upon completion of the questionnaire, the link was shared across several social media platforms. Instagram stories, Facebook posts, and WhatsApp stories were all used to share the questionnaire in an attempt to increase the number of participants. The link was also shared privately to a small number of participants who became aware of the study through word of mouth and wished to participate. Participants

were asked to read both the information sheet, and the consent form before starting the questionnaire. It was also made clear that participants may change their mind and exit out of the questionnaire at any stage.

Ethical considerations considered before, during, and after the current study included providing an information sheet, and ensuring informed consent was obtained. Following on from this it was essential all data is de-identified. Exit at any stage of the study was also made clear. Finally, a debriefing sheet (Appendix 6) was supplied at the end of the questionnaire on the chance any participants felt uneasy as a result of the topics explored. Helplines were provided alongside the researcher's personal contact details.

The questionnaire was closed off when the appropriate number of participants (n = 85) was reached. This was also due to time constraints present. Upon closing the questionnaire, data was gathered and uploaded to SPSS for analysis. Spearman's non-parametric Rank-Order Correlation was run. Firstly, it was ensured that no assumptions were violated. Data analysed was ordinal, variables had paired observations and a monotonic relationship. A non-parametric correlation was also appropriate as the data does not follow a specific statistical distribution. The correlation was run across the three variables (sleep quality, self-esteem, and self-reported attractiveness), and observations were taken to observe the strength and direction of each correlation comparing sleep and self-esteem, sleep and self-reported attractiveness, and self-esteem and self-reported attractiveness.

Results

Descriptive Statistics

The data for the current study is taken from a total of 85 participants (n = 85). The participants were split relatively evenly between male and female. The sample consisted of 55.3% female (n = 47), 43.5% male (n = 37), and 1.2% were another gender (n = 1) (Table 1). The age of the current study's sample was slightly skewed, biasing the younger age groups (Table 2). 41.2% were in the age range of 18-24 (n = 35), 17.6% were below 18 or between the ages of 35-50 (n = 15), 10.6% of participants were between the ages of 25-35, and 50-65 (n = 9), and 1% of participants were between the ages of 65-80, and 80+ (n=1).

The variables being examined were sleep quality through the PSQI, self-esteem through the RSES, and self-reported attractiveness through the BES (Table 2).

Table 1

Descriptive statistics for gender.

Variable	Frequency	Valid %
Gender		
Female	47	55.3%
Male	37	43.5%
Other	1	1.2%

Table 2

Bar chart for age group

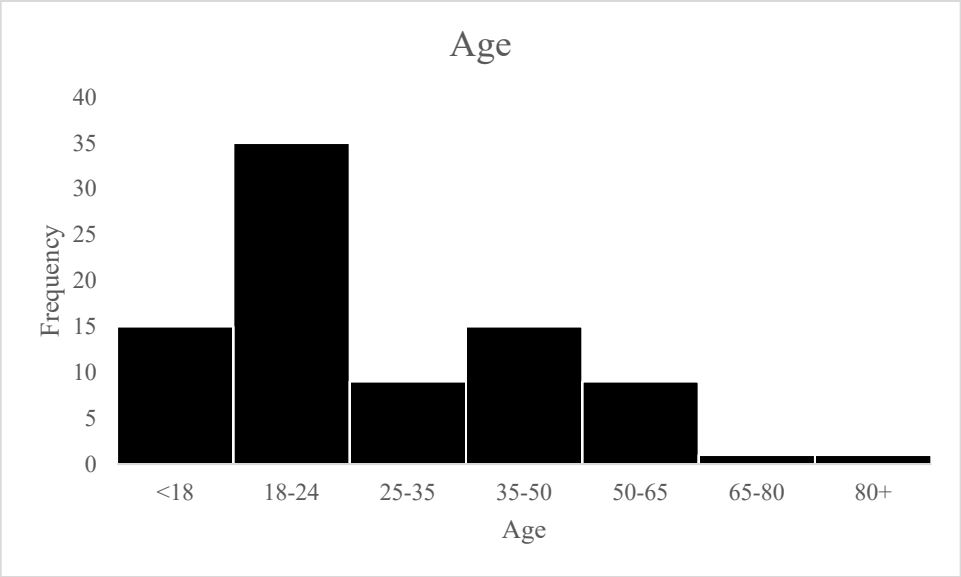


Table 3

Descriptive Statistics for PSQI, RSES, and BES scores.

PS

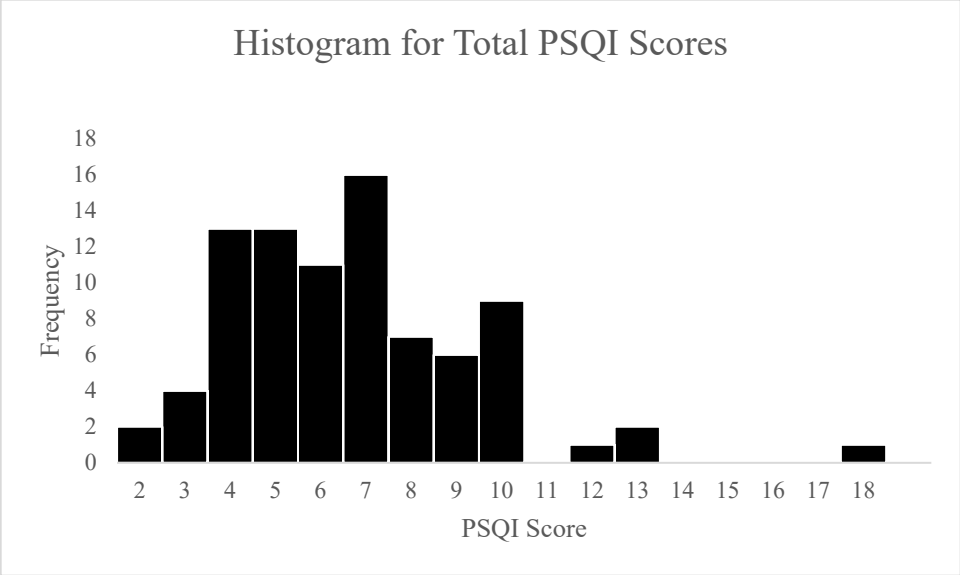
Variable	*M* [95% CI]	*SD*	Range
PSQI	6.09 – 7.25	2.71	2 – 18
RSES	17.7 - 20.2	5.82	7 - 30
BES	107.36 – 115.91	19.82	61 - 165

Inferential Statistics

Preliminary analyses were performed to ensure no assumptions were violated through tests for normality. As can be seen through the histogram (Table 4), PSQI was non-normally distributed. This was also evident through the Kolmogorov-Smirnoff test ($p = <0.001$) therefore, Spearman's rank order correlation was run as opposed to Pearson's parametric correlation as the assumptions of ordinal data, paired observations, and a monotonic relationship were met. Spearman's non-parametric correlation was used in order to assess the relationships between sleep (PSQI), self-esteem (RSES), and self-reported attractiveness (BES).

Table 4

Histogram for PSQI total scores

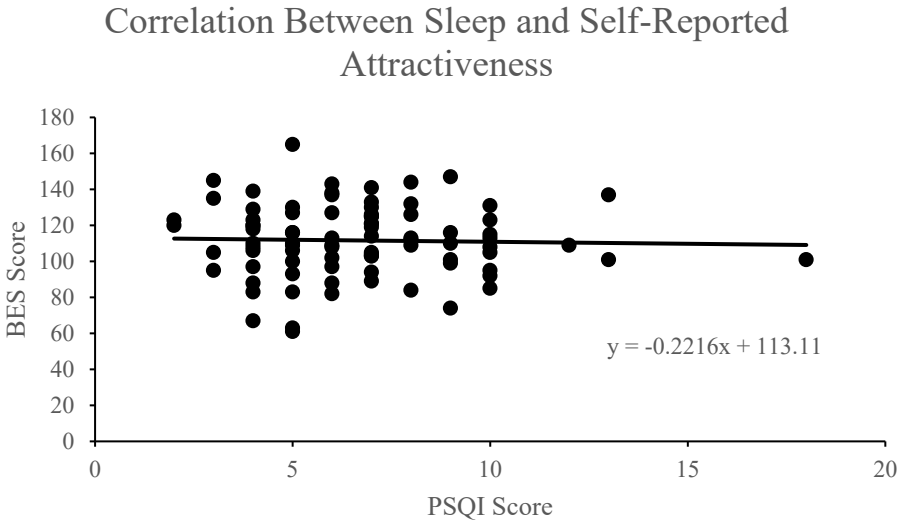


Relationship between sleep and self-reported attractiveness

Spearman's rank order correlation showed a moderate negative correlation between sleep and self-reported attractiveness, with no significance between the two variables ($p = 0.78$; $r = -0.031$; $df = 85$) (Table 5). Consequently, the hypothesis which stated that those who will score higher for sleep will score higher for self-reported attractiveness was rejected.

Table 5

Correlation between PSQI and BES

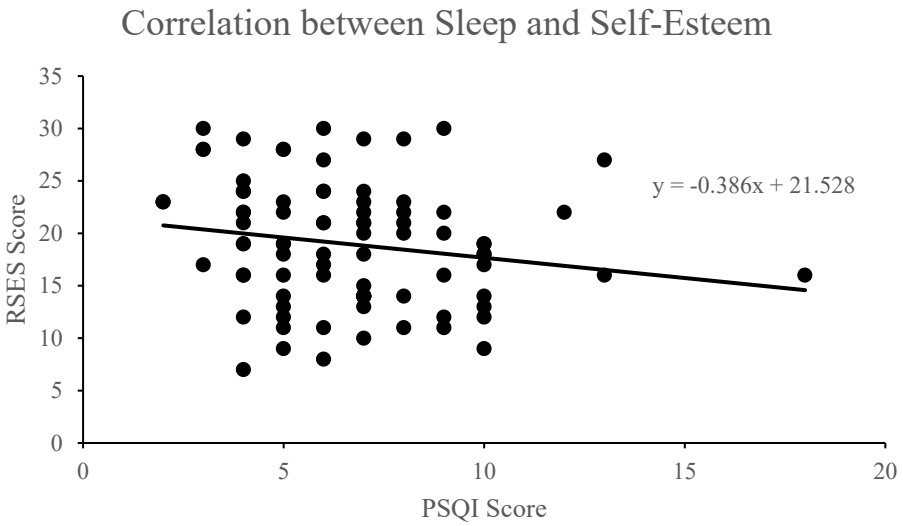


Relationship between sleep and self-esteem

Spearman's rank-order correlation showed a small, significant, positive correlation between sleep and self-esteem ($p = 0.04$; $r = 0.22$; $df = 85$) (Table 6). Consequently, the second hypothesis of the current study stating that those who score higher for sleep will score higher for self-esteem was accepted as a small positive correlation of significance was found.

Table 6

Correlation between PSQI and RSES

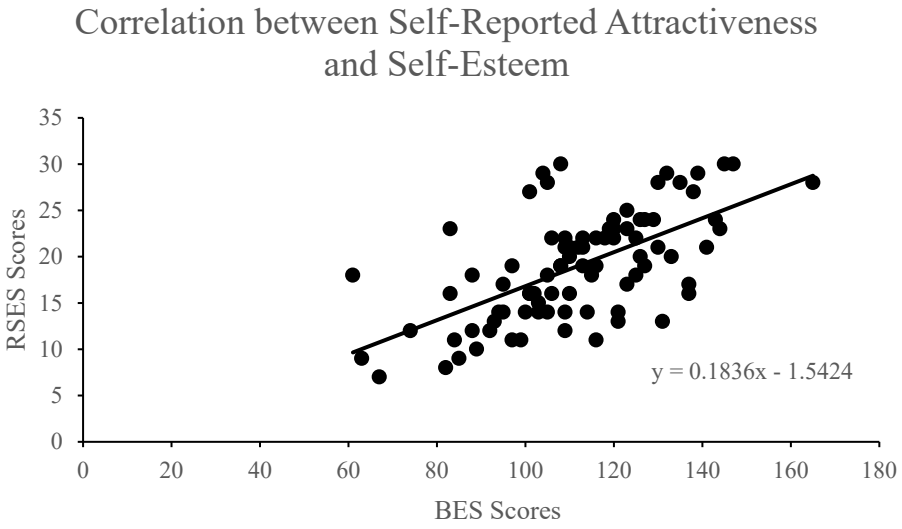


Relationship between self-reported attractiveness and self-esteem

Spearman's rank-order correlation found a large, significant, positive correlation between self-reported attractiveness and self-esteem ($p = <0.001$; $r = 0.61$; $df = 85$) (Table 6). Therefore, the final hypothesis stated in the current study that those with high self-reported attractiveness will also score higher for self-esteem was accepted.

Table 7

Correlation between Self-Reported Attractiveness and Self-Esteem



The results of the current study show that there is no significant correlation between sleep and self-reported attractiveness, therefore the first hypothesis stating that higher sleep quality would be associated with higher self-reported attractiveness was rejected. Secondly, results indicated that there is a positive small significant correlation between sleep and self-esteem. Therefore, the second hypothesis stating that higher sleep quality would be associated with higher self-esteem was accepted. Thirdly, there was evidence in the results to show that self-reported attractiveness and self-esteem have a positive strong significant correlation, therefore the third hypothesis that stated that high self-reported attractiveness would be associated with high self-esteem was accepted.

Discussion

Results of the current study found that there was no significant correlation between sleep quality and self-reported attractiveness. Therefore, the first hypothesis was rejected. The study found a small, significant, positive correlation between sleep quality and self-esteem, this supported the first hypothesis and was therefore accepted. Finally, the study found a large, significant, positive correlation between self-reported attractiveness and self-esteem, supporting the third hypothesis.

Sleep Quality and Self-Reported Attractiveness

The findings that showed no correlation between self-reported attractiveness is not supported by previous literature. Self-reported attractiveness has been shown previously to be negatively influenced by poor quality sleep, those with lower sleep scores were associated with higher levels of body and weight dissatisfaction (Matias et. al., 2020). In addition to the perception one develops of their own appearance with a lack of sleep, physical changes such as aging of the skin was associated with lower quality sleep (Oyetakin-White et. al., 2015). Oyetakin-White et. al., also found that participants perception of their own appearance was negatively affected by a lack of sleep. Furthermore, sleep has also been shown to play a role in attitudes of recovering cancer patients. Aquil et. al., (2021) found that cancer patients post-surgery with lower quality sleep suffered with a poorer body image and body satisfaction than those with greater sleep. Lower sleep was also associated with poorer perception of attractiveness in pregnant women (Kamysheva et. al., 2008). The link between poor sleep and greater body dissatisfaction was shown further, Akram (2017) found that those with higher insomnia symptoms illustrated higher levels of body dissatisfaction. One possible reason for the current study not remaining consistent with previous literature may be the distribution of the participants. Buysse et. al., (1988) described a score of greater than five on the PSQI to be considered poor quality sleep. In the current study only 19 participants (22%) would therefore be considered poor sleepers. This small sample size may undermine the results of the study. In addition to this, the effect of sleep and attractiveness extends beyond the self-reported measures that were examined in this study. Poorer sleep quality is associated with lower levels of attractiveness as perceived by others (Lekander, Sorjonen, & Axelsson, 2017). This has also been shown to negatively influence social appeals from others. Appearing sleepy or less attractive has been further shown to be noticeable by others and has also been shown to make the poor sleeper appear less healthy and carry more social consequences due to facial regions, essential for communication, being negatively affected (Axelsson, 2010; Sundelin et. al., 2013). These findings are important as other people's opinions matter and have an influence on mental wellbeing (Umberson and Montez, 2010). Ultimately, the current study has illustrated that the effect of sleep on self-reported attractiveness is not necessarily universal. However, previous research suggests it is

important, particularly for those who suffer from chronically poor sleep such as insomnia patients (Akram et. al., 2016). Therefore, it is worth noting that those with mild sleep disturbances, as well as those with significant sleep disturbances, may be more susceptible to decreased confidence in their appearance as a result of poor quality sleep. Consequently, despite the findings of the current study, clinical interventions may be necessary to maintain higher confidence while sleep is of poor quality. Further study may be prudent into the use of clinical interventions to promote higher confidence in self-reported attractiveness in those who suffer from poor sleep.

Sleep Quality and Self-Esteem

A small significant correlation was found between sleep quality and self-esteem. These findings are consistent with previous literature. Lower sleep has been linked to self-esteem issues and higher levels of psychological distress (Duraku, Kelmendi, & Jemini-Gashi, 2018). The findings of the current study do not account for differences in demographics such as gender, however, previous research has found girls' self-esteem to be significantly affected as lower sleep was associated with lower levels of self-esteem, particularly as they develop into puberty (Turlington, 2009). The results of the current study are highly significant as they further highlight the importance of sleep on one's self-perception. Higher levels of self-esteem are associated with a higher quality of life (Mikkelson et. al., 2020). However, the mentioned study was a cross-sectional design. As sleep quality and sleeping habits are influential over a long stretch of time, more longitudinal research may be appropriate. The current study also falls short in this aspect as each questionnaire referred to the current time or within the last month for participants, leaving it vulnerable to inaccuracies due to the lack of long term data. Nonetheless, the current study's results are significant in showing that sleep can be influential on self-esteem. This is important as the continuous development of technologies continues to pose a greater threat to a high quality sleep. One such example of this is through the use of social media. Social media use before bed has been shown to have a negative impact on sleep quality (Woods and Scott, 2016). Despite knowledge of the negative effects of social media, and blue light before bed on sleep and circadian rhythms (Wahl et. al., 2019), further education and interventions are

necessary in order to improve sleep quality due to the health benefits that come with improved sleep. It could be argued that this is of particular importance at the school level as lower levels of self-esteem at adolescence has been shown to increase the likelihood of continued self-esteem issues, mental illness, and substance abuse at older ages (Fredrickson et. al., 2004; Boden, Fergusson, & Horwood, 2008). Buysse et. al., (2008) further highlighted the significance of sleep and self-esteem in adolescence, with lower sleep having a negative impact on self-esteem and depression levels at adolescence. These findings are significant for the current study due to the skew in the sample towards the younger age groups (>58% below 24 years old). The current literature, including the current study, unanimously highlights that getting high quality sleep is an essential part of physical and mental wellbeing, therefore, an increase in education on why sleep is important and how to improve it, along with methods of implementation at adolescents could be an appropriate policy to create at the school level. The contribution of the current study's findings can also be seen as participants were members of the general population, and not those diagnosed with sleep disorders such as insomnia. Previous research has shown preference on the impact of a lack of sleep on insomnia or sleep disordered patients and found it to be associated with low self-esteem (Lemola et. al., 2013). The current study allows such results to be more generalisable as the effect of sleep can be seen on those without diagnosed sleep disorders, with only 7 of 85 participants mentioning using sleep medication in the last month. An increase in research on the effects of sleep on the general population may be useful to increase more universally applicable results.

Self-Esteem and Self-Reported Attractiveness

Finally, a large significant correlation was found between self-esteem and self-reported attractiveness. This is as expected given previous literature linking both variables (Mann et. al., 2004). The correlation between the two further supports the idea presented in the current study linking the two as an overall self-perception one believes about themselves. The link between the two has been previously studied and it has been shown that higher self-esteem is associated with higher self-reported attractiveness (Bale and Archer, 2013; Ata et. al., 2011). In addition to this, lower satisfaction in one's looks has been

shown to cause lower self-esteem (Barker and Bornstein, 2009). It was important that the link was further investigated in the current study as if sleep were to be found to influence one variable, it can be seen to indirectly effect the other. This was important as the two together, as mentioned, creates a more well-rounded insight at overall self-perception, and how sleep can help improve it. Self-esteem has also been shown as a protective factor for potential bodyweight issues which would also negatively impact self-reported attractiveness in many individuals (Avalos et. al., 2020). Variables such as gender and age have been shown to be influential on self-perception. The difference among genders is not clear as literature does not universally agree. Van de berg et. al., (2010) found no significant difference between genders. However, Vilhjalmsson, Kristjansdottir, & Ward, (2011) and Feingold and Mazella (1998) found girls to show lower levels of self-reported attractiveness. On the other hand, the literature shows that levels of self-perception are most significant at adolescents (Van de Berg et. al., 2008; Ata, Ludden, & Lally, 2006). It has been shown that self-esteem issues at a low age is likely to continue throughout one's lifespan. The current study did not differentiate between age and gender; however, future research may find it to be worthwhile in order to further investigate the differences of both self-perception, and the susceptibility of self-perception to change due to sleep, among different genders and age groups. In addition to this, the current study investigated the effect of sleep on self-perception, it may be worthwhile studying other factors that may have an influence. Future research on the topic is highly important to society, as higher self-esteem and self-reported attractiveness has been shown to improve overall wellbeing (Shang, Xie, & Yang, 2021).

Limitations and Strengths

Despite these findings, several limitations of the current study were found. Firstly, all data collected was self-reported by participants. Such data, when collected through self-reported measures is susceptible to bias from participants (Devaux and Sassi, 2016). Such bias in answering questionnaires can be as a result of hoping to 'look good' for the study and fit what is deemed to be socially acceptable answers (Rosenman, Tennekoon, & Hill, 2011). Interestingly, it has also been found that despite questionnaires such as the

current study being anonymous, this bias of participants to want to fit the socially acceptable answers remains. The current study refrained from using any methods of deception. The purpose of the study was stated clearly on the information sheet and each questionnaire was clear in what was being measured. It could be argued that as a result of this participants answered in a way that fit what was being looked for by the researcher. Deception in a similar study may be beneficial in order to create more autonomous decision making when (Bortolotti and Mameli, 2006). The scales used for the current study have been shown to be valid in measuring what was required, however, each have small limitations that should also be addressed and could be improved on. The BES has been revised and added to in a study that found such changes to increase the scale's accuracy (Frost et. al., 2017). Frost et. al., changed and renamed the updated scale BES-R with updates including the addition of more gender specific answers as male and female prioritise different aspects when self-reporting their level of attractiveness. As this study was conducted on a college population, it may be more appropriate to use in the current study due to the skew in age towards the younger end in its participants. The RSES has been used frequently in the literature to measure self-esteem. However, with only a ten part questionnaire, the scale may have limitations in its effects. One such limitation is a response bias has been found associated with the wording of items (Marsh, Scalas, & Nagengast, 2010). This was further reported in older adults (Mullen, Gothe, & McAuley, 2013). In spite of the issues that arise, the current study's use of both the BES and the RSES may counteract the limitations of the scales when used individually as it creates a more comprehensive investigation of self-perception. Limitations are also associated with the PSQI scale. Zhang et. al. (2020) found that internal consistency increased with the PSQI when components regarding daytime dysfunction and sleep medication were removed. However, the internal consistency of the PSQI of the current study is .77 and therefore the internal consistency can be considered high. Nevertheless, when administered on a non-clinical group of sleepers, the scores of the PSQI can be unreliable due to answers being on attitudes towards an individual's sleep rather than on the sleep itself (Grandner et. al., 2018). Consequently, the use of the PSQI in research settings may need further validation to address this limitation (Manzar et. al., 2018). Lastly, the participants

of the study may limit the generalisability of the findings of the current study. As over half of the participants were below the age of 24, and the sample being found through convenience sampling, a diverse sample was not found. However, one consequence of this is that it further investigates the influence of sleep on self-perception in young people. As mentioned, the literature suggests that the younger age groups are most susceptible to changes in their self-perception. Therefore, results of the current study are still credible in their addition to the current literature.

Conclusion

Overall, there is consistent evidence to suggest that higher quality sleep is correlated with higher levels of self-esteem. In addition to this, higher levels of self-esteem are also associated with higher self-reported attractiveness. As a result of this, the current study provides evidence that shows that improved sleep quality can be a positive intervention for those who perceive themselves poorly and consequently lack confidence. The results of the current study are significant as they further add to the growing evidence showing the importance of sleep. Higher quality sleep has been associated previously with a host of health benefits such as improved attention and cognition (Worley, 2018), and has also been shown to improve both physical and mental health (Wong et. al., 2013). While findings illustrating the importance of sleep are common in the research, little research has shown the benefits of sleep on self-perception as a whole as the current research does. Through investigating the correlation between sleep, self-esteem, and self-reported attractiveness, the current study has shown that further research may be worthwhile in order to obtain further evidence with similar results. Further research may provide sufficient evidence to argue the use sleep as a genuine intervention in a clinical setting should anyone lack confidence and have a poor perception of themselves. Consequences of such may improve the overall wellbeing of those who suffer from these issues as higher self-esteem has been linked to lower symptoms of mental disorders such as depression and higher psychological wellbeing (Orth et. al., 2014; Neff, 2011). Improving body confidence through sleep and scoring higher for self-reported attractiveness has also been linked with improved wellbeing and even increased participation in group sports (McLean, Jarman, & Rodgers, 2019;

Ouyang et. al., 2020). Self-perception is a complex and changing topic, therefore more research is necessary in terms of the influence of sleep. More longitudinal studies may be appropriate where sleep habits are looked at on a broader scale and should also be compared with self-perception over a longer period of time due to its changing nature. In spite of this, findings of the current study, in addition to the current literature on the topic of sleep and self-perception, justify calls for creating a well-rounded sleep education system for young children and adolescents. Not only for the host of physical health benefits, but also for the significant improvement it may have on self-perception, and therefore overall wellbeing and quality of life.

References

Adams, M. C. (2012). Self-perceived physical attractiveness, self-esteem, race, and gender. *Sociological Focus*, *24*(4), 283–290. https://doi.org/10.1080/00380237.1991.10570595

Akram, U. (2017). Sleep associated monitoring on awakening mediates the relationship between cutaneous body image dissatisfaction and insomnia symptoms. *Sleep Science*, *10*(2), 92–95. https://doi.org/10.5935/1984-0063.20170017

Akram, U., Ellis, J. G., Myachykov, A., & Barclay, N. L. (2016). Misperception of tiredness in young adults with insomnia. *Journal of Sleep Research*, *25*(4), 466–474. https://doi.org/10.1111/jsr.12395

Albuquerque, R. G., Okazaki, K. M., Hirotsu, C., Tomimori, J., Tufik, S., & Andersen, M. L. (2015). Sleep, Hansen's disease and the immune system – a not so harmonic triad. *Medical Hypotheses*, *84*(5), 456–459. https://doi.org/10.1016/j.mehy.2015.01.045

Alvaro, P. K., Roberts, R. M., & Harris, J. K. (2013). A systematic review assessing bidirectionality between sleep disturbances, anxiety, and depression. *Sleep*, *36*(7), 1059–1068. https://doi.org/10.5665/sleep.2810

Aquil, A., EL Kherchi, O., EL Azmaoui, N., Mouallif, M., Guerroumi, M., Chokri, A., Jayakumar, A. R., Benider, A., & Elgot, A. (2021). Body image dissatisfaction and lower self-esteem as major predictors of poor sleep quality in gynecological cancer patients after surgery: Cross-sectional study. *BMC Women's Health*, *21*(1). https://doi.org/10.1186/s12905-021-01375-5

Arévalo Avalos, M. R., Ayers, S. L., Patrick, D. L., Jager, J., Castro, F. G., Konopken, Y. P., Olson, M. L., Keller, C. S., Soltero, E. G., Williams, A. N., & Shaibi, G. Q. (2020). Familism, self-esteem, and weight-specific quality of life among latinx adolescents with obesity. *Journal of Pediatric Psychology*, *45*(8), 848–857. https://doi.org/10.1093/jpepsy/jsaa047

Ata, R. N., Ludden, A. B., & Lally, M. M. (2006). The effects of gender and family, friend, and media influences on eating behaviors and body image during adolescence. *Journal of Youth and Adolescence*, *36*(8), 1024–1037. https://doi.org/10.1007/s10964-006-9159-x

Ata, R. N., Rojas, A., Ludden, A. B., & Thompson, J. K. (2011). Factors influencing body image during adolescence. *Handbook of Behavior, Food and Nutrition*, 3221–3239. https://doi.org/10.1007/978-0-387-92271-3_201

Axelsson, J., Sundelin, T., Ingre, M., Van Someren, E. J., Olsson, A., & Lekander, M. (2010). Beauty sleep: Experimental study on the perceived health and attractiveness of sleep deprived people. *BMJ*, *341*(dec14 2), c6614–c6614. https://doi.org/10.1136/bmj.c6614

Azizi Kutenaee, M., Amirjani, S., Asemi, Z., Taghavi, S.-A., Allan, H., Kamalnadian, S.-N., Khashavi, Z., & Bazarganipour, F. (2019). The impact of depression, self-esteem, and body image on sleep quality in patients with PCOS: A cross-sectional study. *Sleep and Breathing*, *24*(3), 1027–1034. https://doi.org/10.1007/s11325-019-01946-9

Backhaus, J., Junghanns, K., Broocks, A., Riemann, D., & Hohagen, F. (2002). Test–retest reliability and validity of the Pittsburgh Sleep Quality Index in primary insomnia. *Journal of Psychosomatic Research*, *53*(3), 737–740. https://doi.org/10.1016/s0022-3999(02)00330-6

Bale, C., & Archer, J. (2013). Self-perceived attractiveness, romantic desirability and self-esteem: A mating sociometer perspective. *Evolutionary Psychology*, *11*(1), 147470491301100. https://doi.org/10.1177/147470491301100107

Bale, C., & Archer, J. (2013). Self-perceived attractiveness, romantic desirability and self-esteem: A mating sociometer perspective. *Evolutionary Psychology*, *11*(1), 147470491301100. https://doi.org/10.1177/147470491301100107

Barker, E. T., & Bornstein, M. H. (2009). Global self-esteem, appearance satisfaction, and self-reported dieting in early adolescence. *The Journal of Early Adolescence*, *30*(2), 205–224. https://doi.org/10.1177/0272431609332936

Baumeister, R. F., Campbell, J. D., Krueger, J. I., & Vohs, K. D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest*, *4*(1), 1–44. https://doi.org/10.1111/1529-1006.01431

Blascovich, J., & Tomaka, J. (1991). Measures of self-esteem. *Measures of Personality and Social Psychological Attitudes*, 115–160. https://doi.org/10.1016/b978-0-12-590241-0.50008-3

Boden, J. M., Fergusson, D. M., & Horwood, L. J. (2008). Does adolescent self-esteem predict later life outcomes? A test of the causal role of self-esteem. *Development and Psychopathology*, *20*(1), 319–339. https://doi.org/10.1017/s0954579408000151

BOLOGNINI, M. O. N. I. Q. U. E., PLANCHEREL, B. E. R. N. A. R. D., BETTSCHART, W. A. L. T. E. R., & HALFON, O. L. I. V. I. E. R. (1996). Self-esteem and mental health in early adolescence: Development and gender differences. *Journal of Adolescence*, *19*(3), 233–245. https://doi.org/10.1006/jado.1996.0022

Borráz-León, J. I., Rantala, M. J., Luoto, S., Krams, I. A., Contreras-Garduño, J., Krama, T., & Cerda-Molina, A. L. (2021). Self-perceived facial attractiveness, fluctuating asymmetry, and minor ailments predict mental health outcomes. *Adaptive Human Behavior and Physiology*, *7*(4), 363–381. https://doi.org/10.1007/s40750-021-00172-6

Borráz-León, J. I., Rantala, M. J., Luoto, S., Krams, I. A., Contreras-Garduño, J., Krama, T., & Cerda-Molina, A. L. (2021). Self-perceived facial attractiveness, fluctuating asymmetry, and minor ailments predict mental health outcomes. *Adaptive Human Behavior and Physiology*, *7*(4), 363–381. https://doi.org/10.1007/s40750-021-00172-6

BORTOLOTTI, L. I. S. A., & MAMELI, M. A. T. T. E. O. (2006). Deception in psychology: Moral costs and benefits of unsought self-knowledge. *Accountability in Research*, *13*(3), 259–275. https://doi.org/10.1080/08989620600848561

Brausch, A. M., & Muehlenkamp, J. J. (2007). Body image and suicidal ideation in adolescents. *Body Image*, *4*(2), 207–212. https://doi.org/10.1016/j.bodyim.2007.02.001

Brindle, R. C., Yu, L., Buysse, D. J., & Hall, M. H. (2019). Empirical derivation of cutoff values for the sleep health metric and its relationship to cardiometabolic morbidity: Results from the midlife in the United States (MIDUS) study. *Sleep*, *42*(9). https://doi.org/10.1093/sleep/zsz116

Buysse, D. J., Angst, J., Gamma, A., Ajdacic, V., Eich, D., & Rössler, W. (2008). Prevalence, course, and comorbidity of insomnia and depression in Young Adults. *Sleep*, *31*(4), 473–480. https://doi.org/10.1093/sleep/31.4.473

Buysse, D. J., Reynolds, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality index: A new instrument for psychiatric practice and Research. *Psychiatry Research*, *28*(2), 193–213. https://doi.org/10.1016/0165-1781(89)90047-4

Chen, M.-Y., Wang, E. K., & Jeng, Y.-J. (2006). Adequate sleep among adolescents is positively associated with health status and health-related behaviors. *BMC Public Health*, *6*(1). https://doi.org/10.1186/1471-2458-6-59

Chervin, R. D., Ruzicka, D. L., Vahabzadeh, A., Burns, M. C., Burns, J. W., & Buchman, S. R. (2013). The face of sleepiness: Improvement in appearance after treatment of sleep apnea. *Journal of Clinical Sleep Medicine*, *09*(09), 845–852. https://doi.org/10.5664/jcsm.2976

Chiu, N.-Y., & Hsu, W.-Y. (2016). Sleep disturbances in methadone maintenance treatment (MMT) patients. *Neuropathology of Drug Addictions and Substance Misuse*, 608–615. https://doi.org/10.1016/b978-0-12-800634-4.00062-7

Clasen, P. C., Fisher, A. J., & Beevers, C. G. (2015). Mood-reactive self-esteem and depression vulnerability: Person-specific symptom dynamics via Smart Phone Assessment. *PLOS ONE*, *10*(7). https://doi.org/10.1371/journal.pone.0129774

Concepcion, T., Barbosa, C., Vélez, J. C., Pepper, M., Andrade, A., Gelaye, B., Yanez, D., & Williams, M. A. (2014). Daytime sleepiness, poor sleep quality, eveningness chronotype, and common mental disorders among Chilean College students. *Journal of American College Health*, *62*(7), 441–448. https://doi.org/10.1080/07448481.2014.917652

Conti, J. R., Adams, S. K., & Kisler, T. S. (2014). A pilot examination of self-esteem, depression, and sleep in college women. *NASPA Journal About Women in Higher Education*, *7*(1). https://doi.org/10.1515/njawhe-2014-0004

Devaux, M., & Sassi, F. (2015). Social disparities in hazardous alcohol use: Self-report bias may lead to incorrect estimates. *The European Journal of Public Health*, *26*(1), 129–134. https://doi.org/10.1093/eurpub/ckv190

DINGES, D. A. V. I. D. F. (1995). An overview of sleepiness and accidents. *Journal of Sleep Research*, *4*, 4–14. https://doi.org/10.1111/j.1365-2869.1995.tb00220.x

Ehlinger, P. P., & Blashill, A. J. (2016). Self-perceived vs. actual physical attractiveness: Associations with depression as a function of sexual orientation. *Journal of Affective Disorders*, *189*, 70–76. https://doi.org/10.1016/j.jad.2015.08.071

Feingold, A., & Mazzella, R. (1998). Gender differences in body image are increasing. *Psychological Science*, *9*(3), 190–195. https://doi.org/10.1111/1467-9280.00036

Franzoi, S. L. (1994). Further evidence of the reliability and validity of the Body Esteem Scale. *Journal of Clinical Psychology*, *50*(2), 237–239. https://doi.org/10.1002/1097-4679(199403)50:2<237::aid-jclp2270500214>3.0.co;2-p

Franzoi, S. L., & Shields, S. A. (1984). Body esteem scale. *PsycTESTS Dataset*. https://doi.org/10.1037/t58570-000

Franzoi, S. L., & Shields, S. A. (1984). The Body Esteem Scale: Multidimensional Structure and sex differences in a college population. *Journal of Personality Assessment*, *48*(2), 173–178. https://doi.org/10.1207/s15327752jpa4802_12

Fredriksen, K., Rhodes, J., Reddy, R., & Way, N. (2004). Sleepless in Chicago: Tracking the effects of adolescent sleep loss during the middle school years. *Child Development*, *75*(1), 84–95. https://doi.org/10.1111/j.1467-8624.2004.00655.x

Fredriksen, K., Rhodes, J., Reddy, R., & Way, N. (2004). Sleepless in Chicago: Tracking the effects of adolescent sleep loss during the middle school years. *Child Development*, *75*(1), 84–95. https://doi.org/10.1111/j.1467-8624.2004.00655.x

Frost, K. A., Franzoi, S. L., Oswald, D. L., & Shields, S. A. (2017). Revising the body esteem scale with a U.S. college student sample: Evaluation, validation, and uses for the BES-R. *Sex Roles*, *78*(1-2), 1–17. https://doi.org/10.1007/s11199-017-0776-5

Geoffroy, P. A., Boudebesse, C., Bellivier, F., Lajnef, M., Henry, C., Leboyer, M., Scott, J., & Etain, B. (2014). Sleep in remitted bipolar disorder: A naturalistic case-control study using actigraphy. *Journal of Affective Disorders*, *158*, 1–7. https://doi.org/10.1016/j.jad.2014.01.012

Grandner, M. A., Alfonso-Miller, P., Fernandez-Mendoza, J., Shetty, S., Shenoy, S., & Combs, D. (2016). Sleep. *Current Opinion in Cardiology*, *31*(5), 551–565. https://doi.org/10.1097/hco.0000000000000324

GRANDNER, M. A., KRIPKE, D. F., YOON, I.-Y., & YOUNGSTEDT, S. D. (2006). Criterion validity of the Pittsburgh Sleep Quality index: Investigation in a non-clinical sample. *Sleep and Biological Rhythms*, *4*(2), 129–136. https://doi.org/10.1111/j.1479-8425.2006.00207.x

Grandner, M., Mullington, J. M., Hashmi, S. D., Redeker, N. S., Watson, N. F., & Morgenthaler, T. I. (2018). Sleep duration and hypertension: Analysis of > 700,000 adults by age and sex. *Journal of Clinical Sleep Medicine*, *14*(06), 1031–1039. https://doi.org/10.5664/jcsm.7176

Hagborg, W. J. (1993). The Rosenberg self-esteem scale and Harter's self-perception profile for adolescents: A concurrent validity study. *Psychology in the Schools*, *30*(2), 132–136. https://doi.org/10.1002/1520-6807(199304)30:2<132::aid-pits2310300205>3.0.co;2-z

Holding, B. C., Sundelin, T., Cairns, P., Perrett, D. I., & Axelsson, J. (2019). The effect of sleep deprivation on objective and subjective measures of facial appearance. *Journal of Sleep Research*, *28*(6). https://doi.org/10.1111/jsr.12860

Hyseni Duraku, Z., Kelmendi, K., & Jemini-Gashi, L. (2018). Associations of psychological distress, sleep, and self-esteem among Kosovar adolescents. *International Journal of Adolescence and Youth*, 1–9. https://doi.org/10.1080/02673843.2018.1450272

Irwin, M. R. (2015). Why sleep is important for Health: A Psychoneuroimmunology Perspective. *Annual Review of Psychology*, *66*(1), 143–172. https://doi.org/10.1146/annurev-psych-010213-115205

Jhangiani, R. (2018). Chapter 3. The Self. In H. Terry (Ed.), *Principles of Social Psychology - 1st International H5P Edition*. essay.

Jiang, Z., Xu, J., Gorlin, M., & Dhar, R. (2021). Beautiful and confident: How boosting self-perceived attractiveness reduces preference uncertainty in context-dependent choices. *Journal of Marketing Research*, *58*(5), 908–924. https://doi.org/10.1177/00222437211033179

Kamysheva, E., Skouteris, H., Wertheim, E. H., Paxton, S. J., & Milgrom, J. (2008). Examination of a multi-factorial model of body-related experiences during pregnancy: The relationships among physical symptoms, sleep quality, depression, self-esteem, and negative body attitudes. *Body Image*, *5*(2), 152–163. https://doi.org/10.1016/j.bodyim.2007.12.005

Kubala, A. G., Buysse, D. J., Brindle, R. C., Krafty, R. T., Thayer, J. F., Hall, M. H., & Kline, C. E. (2020). The association between physical activity and a composite measure of sleep health. *Sleep and Breathing*, *24*(3), 1207–1214. https://doi.org/10.1007/s11325-019-02007-x

Lee, E., & Jang, M. H. (2021). The influence of body image, insight, and mental health confidence on medication adherence in young adult women with mental disorders. *International Journal of Environmental Research and Public Health*, *18*(8), 3866. https://doi.org/10.3390/ijerph18083866

Lee, S., & Lawson, K. M. (2021). Beyond single sleep measures: A composite measure of sleep health and its associations with psychological and physical well-being in adulthood. *Social Science & Medicine*, *274*, 113800. https://doi.org/10.1016/j.socscimed.2021.113800

Lemola, S., Räikkönen, K., Gomez, V., & Allemand, M. (2012). Optimism and self-esteem are related to sleep. results from a large community-based sample. *International Journal of Behavioral Medicine*, *20*(4), 567–571. https://doi.org/10.1007/s12529-012-9272-z

Lemola, S., Räikkönen, K., Gomez, V., & Allemand, M. (2012). Optimism and self-esteem are related to sleep. results from a large community-based sample. *International Journal of Behavioral Medicine*, *20*(4), 567–571. https://doi.org/10.1007/s12529-012-9272-z

Lyall, L. M., Wyse, C. A., Graham, N., Ferguson, A., Lyall, D. M., Cullen, B., Celis Morales, C. A., Biello, S. M., Mackay, D., Ward, J., Strawbridge, R. J., Gill, J. M., Bailey, M. E., Pell, J. P., & Smith, D. J. (2018). Association of disrupted circadian rhythmicity with mood disorders, subjective wellbeing, and cognitive function: A cross-sectional study of 91 105 participants from the UK Biobank. *The Lancet Psychiatry*, *5*(6), 507–514. https://doi.org/10.1016/s2215-0366(18)30139-1

Machado, S., Sanchez-Lopez, A., & Mulasso, A. (2021). The relationship between physical exercise and subjective well-being in college students: The mediating effect of body image and self-esteem. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.658935

Mann, M., Schaalma, H. P., & deVries, N. K. (2004). Self-esteem in a broad-spectrum approach for mental health promotion. *Health Education Research*, *19*(4), 357–372. https://doi.org/10.1093/her/cyg041

Manzar, M. D., BaHammam, A. S., Hameed, U. A., Spence, D. W., Pandi-Perumal, S. R., Moscovitch, A., & Streiner, D. L. (2018). Dimensionality of the Pittsburgh Sleep Quality index: A systematic review. *Health and Quality of Life Outcomes*, *16*(1). https://doi.org/10.1186/s12955-018-0915-x

Mares, S. H., de Leeuw, R. N., Scholte, R. H., & Engels, R. C. (2010). Facial attractiveness and self-esteem in adolescence. *Journal of Clinical Child & Adolescent Psychology*, *39*(5), 627–637. https://doi.org/10.1080/15374416.2010.501292

Marsh, H. W., Scalas, L. F., & Nagengast, B. (2010). Longitudinal tests of competing factor structures for the Rosenberg self-esteem scale: Traits, ephemeral artifacts, and stable response styles. *Psychological Assessment*, *22*(2), 366–381. https://doi.org/10.1037/a0019225

Matias, T. de, Silva, K. S., Duca, G. F., Bertuol, C., Lopes, M. V., & Nahas, M. V. (2020). Attitudes towards body weight dissatisfaction associated with adolescents' perceived health and sleep (pense 2015). *Ciência & Saúde Coletiva*, *25*(4), 1483–1490. https://doi.org/10.1590/1413-81232020254.19222018

McLean, S. A., Jarman, H. K., & Rodgers, R. F. (2019). how do "Selfies" impact adolescents' well-being and body confidence? A narrative review. *Psychology Research and Behavior Management*, *Volume 12*, 513–521. https://doi.org/10.2147/prbm.s177834

Mikkelsen, H. T., Haraldstad, K., Helseth, S., Skarstein, S., Småstuen, M. C., & Rohde, G. (2020). Health-related quality of life is strongly associated with self-efficacy, self-esteem, loneliness, and stress in 14–15-year-old adolescents: A cross-sectional study. *Health and Quality of Life Outcomes*, *18*(1). https://doi.org/10.1186/s12955-020-01585-9

Milojevich, H. M., & Lukowski, A. F. (2016). Sleep and mental health in undergraduate students with generally healthy sleep habits. *PLOS ONE*, *11*(6). https://doi.org/10.1371/journal.pone.0156372

Mullen, S. P., Gothe, N. P., & McAuley, E. (2013). Evaluation of the factor structure of the Rosenberg self-esteem scale in older adults. *Personality and Individual Differences*, *54*(2), 153–157. https://doi.org/10.1016/j.paid.2012.08.009

Nagai, M., Hoshide, S., & Kario, K. (2010). Sleep duration as a risk factor for cardiovascular disease- A review of the recent literature. *Current Cardiology Reviews*, *6*(1), 54–61. https://doi.org/10.2174/157340310790231635

Neff, K. D. (2011). Self-compassion, self-esteem, and well-being. *Social and Personality Psychology Compass*, *5*(1), 1–12. https://doi.org/10.1111/j.1751-9004.2010.00330.x

Nguyen, D. T., Wright, E. P., Dedding, C., Pham, T. T., & Bunders, J. (2019). Low self-esteem and its association with anxiety, depression, and suicidal ideation in Vietnamese secondary school students: A cross-sectional study. *Frontiers in Psychiatry*, *10*. https://doi.org/10.3389/fpsyt.2019.00698

Nota, J. A., & Coles, M. E. (2014). Duration and timing of sleep are associated with repetitive negative thinking. *Cognitive Therapy and Research*, *39*(2), 253–261. https://doi.org/10.1007/s10608-014-9651-7

Nutt, D., Wilson, S., & Paterson, L. (2008). Sleep disorders as core symptoms of depression. *Dialogues in Clinical Neuroscience*, *10*(3), 329–336. https://doi.org/10.31887/dcns.2008.10.3/dnutt

Orth, U., Robins, R. W., Widaman, K. F., & Conger, R. D. (2014). Is low self-esteem a risk factor for depression? findings from a longitudinal study of Mexican-origin youth. *Developmental Psychology*, *50*(2), 622–633. https://doi.org/10.1037/a0033817

Ouyang, Y., Wang, K., Zhang, T., Peng, L., Song, G., & Luo, J. (2020). The influence of sports participation on body image, self-efficacy, and self-esteem in college students. *Frontiers in Psychology*, *10*. https://doi.org/10.3389/fpsyg.2019.03039

Oyetakin-White, P., Suggs, A., Koo, B., Matsui, M. S., Yarosh, D., Cooper, K. D., & Baron, E. D. (2014). Does poor sleep quality affect skin ageing? *Clinical and Experimental Dermatology*, *40*(1), 17–22. https://doi.org/10.1111/ced.12455

Oyetakin-White, P., Suggs, A., Koo, B., Matsui, M. S., Yarosh, D., Cooper, K. D., & Baron, E. D. (2014). Does poor sleep quality affect skin ageing? *Clinical and Experimental Dermatology*, *40*(1), 17–22. https://doi.org/10.1111/ced.12455

Pérez-Fuentes, M., Molero Jurado, M., Barragán Martín, A., Martos Martínez, Á., & Gázquez Linares, J. (2019). Association with the quality of sleep and the mediating role of eating on self-esteem in healthcare personnel. *Nutrients*, *11*(2), 321. https://doi.org/10.3390/nu11020321

Ramar, K., Malhotra, R. K., Carden, K. A., Martin, J. L., Abbasi-Feinberg, F., Aurora, R. N., Kapur, V. K., Olson, E. J., Rosen, C. L., Rowley, J. A., Shelgikar, A. V., & Trotti, L. M. (2021). Sleep is essential to health: An American Academy of Sleep Medicine Position statement. *Journal of Clinical Sleep Medicine*, *17*(10), 2115–2119. https://doi.org/10.5664/jcsm.9476

Reutrakul, S., & Van Cauter, E. (2018). Sleep influences on obesity, insulin resistance, and risk of type 2 diabetes. *Metabolism*, *84*, 56–66. https://doi.org/10.1016/j.metabol.2018.02.010

Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg self-esteem scale. *Personality and Social Psychology Bulletin*, *27*(2), 151–161. https://doi.org/10.1177/0146167201272002

Rosenberg, M. (1965). Rosenberg self-Esteem Scale. *PsycTESTS Dataset*. https://doi.org/10.1037/t01038-000

Rosenman, R., Tennekoon, V., & Hill, L. G. (2011). Measuring bias in self-reported data. *International Journal of Behavioural and Healthcare Research*, *2*(4), 320. https://doi.org/10.1504/ijbhr.2011.043414

Self confidence statistics UK 2021: How self confident are we? Gee Hair. (2021). Retrieved November 23, 2021, from https://geehair.com/confidence-statistics-uk-2021-how-self-confident-are-we.

Seow, L. S., Tan, X. W., Chong, S. A., Vaingankar, J. A., Abdin, E., Shafie, S., Chua, B. Y., Heng, D., & Subramaniam, M. (2020). Independent and combined associations of sleep duration and sleep quality with common physical and mental disorders: Results from a multi-ethnic population-based study. *PLOS ONE*, *15*(7). https://doi.org/10.1371/journal.pone.0235816

Slyepchenko, A., Allega, O., Leng, X., Minuzzi, L., Eltayebani, M. M., Skelly, M., Sassi, R., Soares, C., Kennedy, S., & Frey, B. N. (2019). T97. predicting functioning and quality of life using objective and

subjective measures of sleep and biological rhythms in major depressive and bipolar disorder. *Biological Psychiatry*, *85*(10). https://doi.org/10.1016/j.biopsych.2019.03.420

Sohrabi, H. R., & Weinborn, M. (2019). Cognitive impairments in alzheimer's disease and other neurodegenerative diseases. *Neurodegeneration and Alzheimer's Disease*, 267–290. https://doi.org/10.1002/9781119356752.ch9

Sommer, K. L., & Baumeister, R. F. (2002). Self-evaluation, persistence, and performance following implicit rejection: The role of trait self-esteem. *Personality and Social Psychology Bulletin*, *28*(7), 926–938. https://doi.org/10.1177/01467202028007006

Steiger, A. E., Allemand, M., Robins, R. W., & Fend, H. A. (2014). Low and decreasing self-esteem during adolescence predict adult depression two decades later. *Journal of Personality and Social Psychology*, *106*(2), 325–338. https://doi.org/10.1037/a0035133

Sundelin, T., Lekander, M., Kecklund, G., Van Someren, E. J., Olsson, A., & Axelsson, J. (2013). Cues of fatigue: Effects of sleep deprivation on facial appearance. *Sleep*, *36*(9), 1355–1360. https://doi.org/10.5665/sleep.2964

Sundelin, T., Lekander, M., Kecklund, G., Van Someren, E. J., Olsson, A., & Axelsson, J. (2013). Cues of fatigue: Effects of sleep deprivation on facial appearance. *Sleep*, *36*(9), 1355–1360. https://doi.org/10.5665/sleep.2964

Sundelin, T., Lekander, M., Sorjonen, K., & Axelsson, J. (2017). Negative effects of restricted sleep on facial appearance and Social Appeal. *Royal Society Open Science*, *4*(5), 160918. https://doi.org/10.1098/rsos.160918

Sundelin, T., Lekander, M., Sorjonen, K., & Axelsson, J. (2017). Negative effects of restricted sleep on facial appearance and Social Appeal. *Royal Society Open Science*, *4*(5), 160918. https://doi.org/10.1098/rsos.160918

The Natural Sleep Company. Sleep survey results | Natural Sleep. (2021). Retrieved November 23, 2021, from http://naturalsleep.ie/sleep-survey-results.php.

Umberson, D., & Karas Montez, J. (2010). Social Relationships and Health: A flashpoint for health policy. *Journal of Health and Social Behavior*, *51*(1_suppl). https://doi.org/10.1177/0022146510383501

van den Berg, P. A., Mond, J., Eisenberg, M., Ackard, D., & Neumark-Sztainer, D. (2010). The link between body dissatisfaction and self-esteem in adolescents: Similarities across gender, age, weight status, race/ethnicity, and socioeconomic status. *Journal of Adolescent Health*, *47*(3), 290–296. https://doi.org/10.1016/j.jadohealth.2010.02.004

Vilhjalmsson, R., Kristjansdottir, G., & Ward, D. S. (2011). Bodily deviations and body image in adolescence. *Youth & Society*, *44*(3), 366–384. https://doi.org/10.1177/0044118x11402850

Wahl, S., Engelhardt, M., Schaupp, P., Lappe, C., & Ivanov, I. V. (2019). The inner clock—blue light sets the human rhythm. *Journal of Biophotonics*, *12*(12). https://doi.org/10.1002/jbio.201900102

Watson, A. (2017). Sleep loss, effects on athletic performance. *Encyclopedia of Sports Medicine*. https://doi.org/10.4135/9781412961165.n472

Winsky-Sommerer, R., de Oliveira, P., Loomis, S., Wafford, K., Dijk, D.-J., & Gilmour, G. (2019). Disturbances of sleep quality, timing and structure and their relationship with other neuropsychiatric symptoms in alzheimer's disease and schizophrenia: Insights from studies in patient populations and animal models. *Neuroscience & Biobehavioral Reviews*, *97*, 112–137. https://doi.org/10.1016/j.neubiorev.2018.09.027

Wong, M. L., Lau, E. Y., Wan, J. H., Cheung, S. F., Hui, C. H., & MOK, D. S. (2013). The interplay between sleep and mood in predicting academic functioning, physical health and psychological health: A longitudinal study. *Journal of Psychosomatic Research*, *74*(4), 271–277. https://doi.org/10.1016/j.jpsychores.2012.08.014

Woods, H. C., & Scott, H. (2016). #Sleepyteens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem. *Journal of Adolescence*, *51*, 41–49. https://doi.org/10.1016/j.adolescence.2016.05.008

Woods, H. C., & Scott, H. (2016). #Sleepyteens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem. *Journal of Adolescence*, *51*, 41–49. https://doi.org/10.1016/j.adolescence.2016.05.008

Worley, S. L. (2018). Pharmacy and Therapeutics . *The Extraordinary Importance of Sleep*.

Yezandi, N., Hosseini, S., Amini, M., Sobhani, Z., Sharif, F., & Khazrei, H. (2018). Relationship between Body Image and Psychological Well-being in Patients with Morbid Obesity. *International Journal of Community Based Nursing and Midwifery*, *6*.

Zhang, C., Zhang, H., Zhao, M., Li, Z., Cook, C. E., Buysse, D. J., Zhao, Y., & Yao, Y. (2020). Reliability, validity, and Factor Structure of Pittsburgh Sleep Quality Index in community-based centenarians. *Frontiers in Psychiatry*, *11*. https://doi.org/10.3389/fpsyt.2020.573530

Appendices

Appendix 1

Pittsburgh Sleep Quality Index

INSTRUCTIONS: The following questions relate to your usual sleep habits during the past month only.

Your answers should indicate the most accurate reply for the majority of days andnights in the past month. Please answer all questions.

1. During the past month, when have you usually gone to bed at night?

   USUAL BED TIME_____

2. During the past month, how long (in minutes) has it usually take you to fall asleep each night? NUMBER OF MINUTES_____

3. During the past month, when have you usually gotten up in the morning?

   USUAL GETTING UP TIME_____

4. During the past month, how many hours of actual sleep did you get at night? {This may be different than thenumber of hours you spend in bed.)

   HOURS OF SLEEP PER NIGHT_____

INSTRUCTIONS: For each of the remaining questions, check the one best response.

Please answer all questions.

5. During the past month, how often have you had trouble sleeping because you...

	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
(a) ...cannot get to sleep within 30 minutes	☐	☐	☐	☐
(b) ...wake up in the middle of the night or early morning	☐	☐	☐	☐
(c) ...have to get up to use the bathroom	☐	☐	☐	☐
(d ...cannot breathe comfortably	☐	☐	☐	☐
(e) ...cough or snore loudly	☐	☐	☐	☐
(f) ...feel too cold	☐	☐	☐	☐
(g) ...feel too hot	☐	☐	☐	☐
(h) ...had bad dreams	☐	☐	☐	☐
(i) ...have pain	☐	☐	☐	☐
(j) Other reason(s), please describe				

_____

_____

How often during the past month have you had trouble sleeping because of this?	☐	☐	☐	☐

	Very good	Fairly good	Fairly bad	very bad
6. During the past month, how would you rate your sleep quality overall?	☐	☐	☐	☐

	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
7. During the past month, how often have you taken medicine (prescribed or "over the counter") to help you sleep?	☐	☐	☐	☐
8. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?	☐	☐	☐	☐

	No problem at all	Only a very slight problem	Somewhat of a problem	Avery big problem
9. During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?	☐	☐	☐	☐

	No bed partner or roommate	Partner/ roommate in other room	Partner in same room, but not same bed	Partner in same bed
10. During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?	☐	☐	D	☐

If you have a roommate or bed partner, ask him/her how often in the past month you have had...

	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
(a) ...loud snoring	☐	☐	☐	☐
(b) ...long pauses between breaths while asleep	☐	☐	☐	☐
(c) ...legs twitching or jerking while you sleep	[J	☐	☐	☐
(d) ...episodes of disorientation or confusion during sleep	☐	☐	☐	☐
(e) Other restlessness while you sleep;				

please ☐ ☐ ☐ ☐

describe

_____

_____

PS

SCORING INSTRUCTIONS FOR THE PITTSBURGH SLEEP QUALITY INDEX:

The Pittsburgh Sleep Quality Index (PSQI) contains 19 self-rated questions and 5 questions rated by the bed partner or roommate (if one is available). Only self-rated questions are included in the scoring.The 19 self-rated items are combined to form seven "component" scores, each of which has a range of 0-3 points. In all cases, a score of "O" indicates no difficulty, while a score of "3" indicates severe difficulty. The seven component scores are then added to yield one "global" score, with a range of

0-21 points, "O" indicating no difficulty and "21 " indicating severe difficulties in all areas.Scoring proceeds as follows:

Component 1: Subjective sleep quality

Examine question #6, and assign scores as follows:

Response	Component 1 score
"Very good"	0
"Fairly good"	1
"Fairly bad"	2
"Very bad"	3

Component 1 score: ____ _

Component 2: Sleep latency

1. Examine question #2, and assign scores as follows:

Respo\nse	
:::15 minutes	31-60 minutes
16-30 minutes	> 60 minutes

S	**1**
c	2
o	3
r	
e	

0

Question #2 score: _____

2. Examine question #5a, and assign scores as follows:

Response	**Score**
Not during the past month	0
Less than once a week	1
Once or twice a week	2
Three or more times a week	3

Question #Sa score: _____

3. Add #2 score and #5a score

Sum of #2 and #Sa: _____

4. Assign component 2 score as follows:

Sum of #2 and #5a	**Component 2 score**
0	0
1-2	
3-4	
5-6	

PSO 1

I Page 3

2

3

Component 2 score:___

Component 3: Sleep duration

Examine question #4, and assign scores as follows:

Response	Component 3 score
> 7 hours	0
6-7 hours	1
5-6 hours	2
< 5 hours	3

Component 3 score: ____ _

Component 4: Habitual sleep efficiency

1. Write the number of hours slept (question #4) here:_____ _
2. Calculate the number of hours spent in bed:

Getting up time (question #3):____ _

Bedtime (question #1):_ _

_____

*Number of hours spent in bed:*____ _

3. Calculate habitual sleep efficiency as follows:

(Number of hours slept/Number of hours spent in bed) X 100 = Habitual sleep efficiency (%)

___/_____) X 100= %

4. Assign component 4 score as follows:

Habitual sleep efficiency %	**Component 4score**
>85%	0
75-84%	1
65-74%	2
< 65%	3

Component 4 score: ____ _

Component 5: Step disturbances

1. Examine questions #5b-5j, and assign scores for each question as follows:

Response	Score
Not during the past month	O
Less than once a week	**1**
Once or twice a week	2
Three or more times a week	3

5b score: _____

5c score: _____

5d score: _____

5e score: _____

5f score: _____

5g score: _____

5h score: _____

5i score: _____

5j score: _____

2. Add the scores for questions #5b-5j:

Sum of #5b-5j: _____

3. Assign component 5 score as follows:

Sum of #5b-5j	Component 5 score
0	0
1-9	10-18-4

PS

19-27	1
	2
	3

Component 5 score: ____ _

Component 6: Use of sleeping medication

Examine question #7 and assign scores as follows:

Response	Component 6 score
Not during the past month	0
Less than once a week	1
Once or twice a week	2
Three or more times a week	3

Component 6 score: ____ _

Component 7: Daytime dysfunction

1. Examine question #8, and assign scores as follows:

Response	Score
Never	0
Once or twice	1
Once or twice each week	2
Three or more times each week	3

Question#B score: _____

2. Examine question #9, and assign scores as follows:

Response	Score
No problem at all	0
Only a *very* slight problem	1
Somewhat of a problem	2
A *very* big problem	3

Question #9 score: _____

3. Add the scores for question #8 and #9:

Sum of #8 and #9: _____

4. Assign component 7 score as follows:

Sum of #8 and #9	Component 7 score

0	0
1-2	1
3-4	2
5-6	3

*Component 7 score:*___

_

Global PSQI Score

Add the *seven* component scores together:

*Global PSOI Score:*___

_

Appendix 2

Rosenberg Self-Esteem Scale

I feel that I am a person of worth, at I am equal with others.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I feel that I have several good qualities.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

All in all, I am prone to feel that I am a failure.

PS

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I can do things as well as most other people.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I feel I do not have much to be proud of.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I take a positive attitude toward myself.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

On the whole, I am satisfied with me.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I wish I could have more respect for myself.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

I often feel useless.

- Strongly Agree
- Agree

- Disagree
- Strongly Disagree

Sometimes I think I am no good at all.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

Appendix 3

The Body-Esteem Scaele

The Body-Esteem Scale (Franzoi & Shields, 1984) Instructions: On this page are listed a number of body parts and functions. Please read each item and indicate how you feel about this part or function of your own body using the following scale:

1 = Have strong negative feelings 2 = Have moderate negative feelings 3 = Have no feeling one way or the other 4 = Have moderate positive feelings 5 = Have strong positive feelings ----------

Factor Loading (see below) Male Female

1. body scent _____
2. appetite _____
3. nose _____
4. physical stamina _____
5. reflexes _____
6. lips _____
7. muscular strength _____
8. waist _____
9. energy level _____
10. thighs ____
11. ears _____
12. biceps _____
13. chin _____
14. body build _____
15. physical coordination _____
16. buttocks _____
17. agility _____
18. width of shoulders _____
19. arms _____
20. chest or breasts _____
21. appearance of eyes _____
22. cheeks/cheekbones _____

23. hips _____
24. legs _____
25. figure or physique _____
26. sex drive _____
27. feet _____
28. sex organs _____
29. appearance of stomach _____
30. health _____
31. sex activities _____
32. body hair _____
33. physical condition _____
34. face _____
35. weight _____

Appendix 4

Information Sheet

Purpose of the Study:

The purpose of the current study is to investigate if sleep has an impact on self-reported attractiveness and self-esteem. The study is to be conducted as a part of my final year undergraduate degree in Psychology in the National College of Ireland.

Please read below to find out more information about the current study, what to expect, and eligibility criteria for participation.

The Current Study:

Should you agree to participate in the current study, you will need a computer or a mobile phone that is connected to the internet.

The study consists of demographic questions, followed by three questionnaires. The three should take no longer than twenty minutes to complete. Firstly, the Pittsburgh Sleep Quality Index (PSQI) is to be completed. This is in order to measure subjective sleep quality, sleep latency, sleeping habits, sleep disturbances, and day time dysfunction.

Secondly, the Rosenberg Self-Esteem Scale is to be completed in order to measure subjective, self reported Self-Esteem on a Likert (Agree-Disagree) scale.

Finally, the Body-Esteem Scale will be completed in order to measure self-reported attractiveness, with body parts, and functions, to be scored on a scale from 1-4.

Participation:

Participation for this study is completely voluntary. You can also decide to cease your participation at any time and exit out of the questionnaire.

Participation should take between 15 and 20 minutes to complete.

Participation is open to all age groups and genders.

Ethical Considerations:

As the study involves participants to reflect and judge themselves on personal traits such as attractiveness and self-esteem, those who suffer from low-confidence or diagnosed mental disorders may become distressed while participating. If this is a concern you may have, participation is not necessary, you may also contact me at the email above should you have any questions.

In addition to this, sleeping habits are being investigated, those with poor sleep or diagnosed sleep disorders may also become distressed when taking account of them. Do not feel the need to participate, and do not hesitate to leave the study incomplete should you feel uncomfortable.

As mentioned, those with either mental or sleep disorders do not need to feel the need to participate, and are asked not to continue if they are worried they may become distressed as they go reflect on sleep, attractiveness, and self-esteem.

Data Protection:

No personal details will be collected that can be traced back to the participant. Demographics will be collected such as age and gender. However, since no personal data will be collected, your personal submission to the study will be de-identifiable and therefore it will not be possible to withdraw your application.

Appendix 5

Consent Form

Thank you for your interest in taking part in the current research. In order to continue, informed consent is required. Please read the details below.

- The current research is being undertaken by an undergraduate Psychology student for their final year project.

- Please ensure you have read the information sheet above and are aware of the studies contents, and any psychological risks associated.

- As no personal data is being collected, once you have submitted your questionnaires, withdrawal will not be possible.

- Participation is completely voluntary, and should you change your mind while participating, you may withdraw at any time.

By clicking that you consent below, you are agreeing to participate in the current research project.

Researcher: David Pollard

Email: x19517119@student.ncirl.ie

Appendix 6

Debrief Form

Thank you for participating in my research.

The purpose of this study was to investigate if there is any link between sleep quality and ones levels of self-esteem and their self-reported attractiveness. Sleep quality was measured through the PSQI, and scores will be compared with scores for self-esteem and self-reported attractiveness in order to find a possible association between them.

As mentioned in the information sheet, should any of the content covered in the study have caused any distress, see below some resources available for help should you reach out to them.

5808

50808 is a free, anonymous, 24/7 messaging service providing everything from a calming chat to immediate support. 50808 provides a safe space where you're listened to by a trained Volunteer. You'll message back and forth, only sharing what you feel comfortable with. By asking questions, listening to you, and responding with support, they will help you sort through your feelings until you both feel you are now in a calm, safe place.

Text 'HELLO' to 5808 to use this service.

Pieta House

Pieta provides a free, therapeutic approach to people who are in suicidal distress and those who engage in self-harm. Free 24 Hour Support.

Call: 1800 247 247

Text: HELP 51444

Bodywhys

Bodywhys is the National Eating Disorders Association of Ireland, offering information and support to people with eating disorders.

Email: alex@bodywhys.ie

Call: 1890 200 444

Samaritans

Samaritans is a registered charity aimed at providing emotional support to anyone in emotional distress, struggling to cope, or at risk of suicide.

Call: 116 123

Email: jo@samaritans.ie

If you need to get into contact with me, or if any issues have arisen as a result of the study, feel free to email me at the address below:

x19517119@student.ncirl.ie