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Stories of sleep: A thematic analysis on how people talk about sleep difficulties

RUNNING HEAD: Stories of sleep

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Abstract

Sleep is essential for optimal functioning, and problems in sleep can result in cognitive, emotional and social dysfunction. A greater understanding of sleep and the reasons for poor sleep is thus important, in order to inform interventions for people who suffer from sleeping problems. This is a mixed method study that investigated the sleep experiences of people from different socioeconomic groups. Questionnaires were administered to 152 people across different socioeconomic groups, and then nine semi-structured interviews were conducted with people who reported poor sleep. Quantitative data indicated that there was no significant difference between sleep quality across different socioeconomic classes. The data collected from interviews, analysed using thematic analysis, showed a number of interesting findings, grouped under two themes: reasons for poor sleep and effects of poor sleep. Participants commonly attributed their poor sleep to anxiety and stress, as well as bed-sharing and elements of the sleep environment such as noise and light. Following a night of poor sleep, participants felt more at risk of angry outbursts and also experienced symptoms of depression and anxiety. Participants noticed a decrease in cognitive performance, particularly in memory, concentration and decision-making. Social interaction also became more difficult after prolonged sleep deprivation. This research contributed to current research on sleep, which is mostly quantitative, by adding more detail and depth to the description and explanation of sleep problems.

Keywords: sleep experience; socioeconomic class; sleep quality, sleep problems

Introduction

Sleep has been a topic of attention in psychology and neuroscience research for the past few decades, covering areas as diverse as dreaming to the interaction between sleep and cognition. One of the reasons interest in the field has sprouted is because of the importance of sleep to mood and cognitive performance in our everyday lives. Not only is mood affected by sleep, but changes in stress and anxiety are also associated with changes in sleep patterns. Although sleep has been investigated extensively in objective studies, little has been done to explore subjective sleep experience. A subjective description of sleep is useful because it can broaden our understanding of aspects of sleep that have often been ignored in objective sleep research. These subjective factors associated with sleep quality include the experience of socioeconomic class, the home sleep environment, and subjective sleep experience. People from differing socioeconomic groups have very different experiences and environments, which impacts the sleep experience (Muzet, 2007; Liu, Liu, & Wang, 2003; El-Sheikh, Kelly, Sadeh, and Buckhalt, 2014; Tembo & Parker, 2009). Research shows that the home sleep environment (as opposed to the laboratory, which ignores variables of the home sleep environment such as neighbourhood noise and bed-sharing) impacts greatly on sleep. Also, the results of subjective and objective sleep studies do not always correspond and further research could clarify the difference in findings. In response to current research in the field, this study will focus on subjective measures of sleep experience, by looking particularly at socioeconomic status (SES) and sleep quality, the home sleep environment, and the psychological effects of poor sleep.

Factors influencing sleep quality and duration

The experience of sleep may be influenced by many factors that differ from person to person. However, sleep literature highlights several common factors that can affect the quality and duration of sleep. These include environmental factors and bed-sharing habits.

Factors in the sleep environment that have been shown to affect sleep quality and duration are noise and light. Night time noise can disrupt sleep (Hale & Phuong, 2007; Muzet, 2007; Tembo & Parker, 2009). Research found that noise caused sympathetic nervous system arousal, which released adrenaline into the blood stream, hindering relaxation and disrupting sleep (Tembo & Parker, 2009). More light during sleeping hours was associated with poorer sleep outcomes (Hale & Phuong, 2007; Tembo & Parker, 2009). Studies performed in a sleep laboratory have different environmental factors to the home sleep environment; sleep laboratories are often located in clinics or universities, which are quiet at night, and the rooms

are appropriately fitted for sleep conditions with blinds or curtains. Some individuals could experience noise and light during the night at home, which negatively affects sleep (Hale & Phuong, 2007; Muzet, 2007; Tembo & Parker, 2009), which could confound objective sleep research done in laboratories.

Bed-sharing also impacts sleep quality. Troxel, Robles, Hall and Buysse (2007) studied couples' sleeping patterns using polysomnography, a brain imaging technique that measures brain wave activity during sleep. They found that when couples slept apart they got more stage four or deep sleep compared to when they slept together. Interestingly though, the couples reported that they slept better when they shared a bed than when they slept apart, despite objective sleep patterns suggesting otherwise (Troxel et al. 2007). This shows that subjective and objective sleep reports do not always correspond, indicating more investigation could be done in this area to better understand this discrepancy. There have also been studies with families where bed-sharing is common and parents and children share one bed (Liu, Liu, Owens, & Kaplan, 2005; Liu et al., 2003). Studies were inconclusive; two studies found that bed-sharing did increase sleeping problems, reducing sleep quality and length (Liu et al., 2005; Madansky & Edelbrock, 1990), while another found no association between bed-sharing and sleep patterns (Okami, Weisner, & Olmstead, 2002). However, no such studies have been conducted in the South African context, suggesting a gap in the literature.

The sleep environment (noise and light during sleeping hours) and bed-sharing habits, discussed above, are influenced by socioeconomic class. Lower socioeconomic groups are exposed to more neighbourhood noise (Muzet, 2007), possibly because the neighbourhoods are more active at night. Noise can disturb sleep (Muzet, 2007; Tembo & Parker, 2009), and this could indicate that lower income groups experience more difficulty in sleeping. Crowded housing is associated with low SES and bed-sharing is more common in homes that are crowded (Liu et al., 2003). It is more likely that bed-sharing, with entire families in one bed, will occur in low income families, leading to sleeping problems (Liu et al., 2003). This means that low income families are more likely to experience sleeping problems than higher income families, due to bed-sharing habits. Lower income families are also less likely to observe sleep hygiene because they, for instance, may not have the luxury of adjusting the temperature of their bedroom or they may go to bed hungry because they cannot afford enough food, and this may affect their sleep hygiene negatively and therefore decrease their sleep quality (Stepanski & Wyatt, 2003).

These factors culminate to a conclusion that people from lower socioeconomic backgrounds experience poorer sleep. Indeed, Ford and Cooper-Patrick (2001) found that

people from lower income brackets are more at risk of developing insomnia than people from more wealthy backgrounds. El-Sheikh et al. (2014) also found that children from low income areas also had shorter sleep duration than children from higher income areas. This is particularly relevant in the South African context, where poverty and inequality is high. According to the 2011 census, the income of black South African households (which make up 79% of the population) is on average R5 500 per month, while the income of white households (8.9% of the population) is on average R30 500 (Statistics South Africa, 2011). Findings indicating poorer sleep in low income families are pertinent to the South African population because a large majority of the population live in poverty.

In summary, sleep quality is influenced by a complex combination of factors, including sleep environment, sleep hygiene, and bed-sharing, which are all mediated by SES. Low SES is associated with poorer sleep conditions and habits, which could result in poorer sleep outcomes. The relationship between low SES, bed-sharing, and the home sleep environment has not been explicitly demonstrated, which this research aims to address. The result of prolonged poor sleep has several negative effects on mental and physical health, which the next section discusses. Furthermore, the subjective experience of sleep quality is underexplored in current literature, which this research aims to address.

The effects of poor sleep

Current research shows that poor sleep can have serious consequences for mood and cognitive performance. There is a well-established link between mood and sleep; disrupted sleep, including trouble falling asleep, interrupted sleep and early waking, has been correlated with symptoms of depression (Baglioni, Spiegelhalder, Lombardo, & Riemann, 2010; Baker, Simpson, & Dawson, 1997; Carney, Harris, Moss, & Edinger, 2010; Ford & Cooper-Patrick, 2001; Skouteris, Germano, Wertheim, Paxton, & Milgrom, 2008). A study done with pregnant women showed that episodes of poor sleep during the third trimester were followed with symptoms of post-partum depression (Skouteris et al., 2008). Also, poor sleep in the first and second trimester was associated with a depressed mood in later stages of pregnancy (Skouteris et al., 2008). Research by Franzen and Buysse (2008) also shows that sleep disturbances often precede the onset of the depressive episodes, suggesting that insomnia is not only a symptom of depression (American Psychiatric Association, 2013), but may also be part of depression's pathogenesis. Prolonged sleeping problems were also associated with subsequent recurrent depressive episodes (Franzen & Buysse, 2008), suggesting that sleeping problems predicted depressive symptoms (Calcagni, Bei, Milgrom, & Trinder, 2012; Franzen

& Buysse, 2008; Skouteris et al., 2008). Furthermore, it is likely that once sleeping problems have begun, depression can develop, which in turn can trigger further sleeping problems, which perpetuate depression symptoms. This implies a cyclical nature to sleep problems and depressive symptoms. Sleep difficulties have also been associated with anxiety (Baglioni et al., 2010; Baker et al., 1997; Ford & Cooper-Patrick, 2001), worry and rumination (Baglioni, et al., 2010; Carney et al., 2010). Thus both increased mood disturbance and anxiety are associated with poor sleep.

Along with mood and anxiety difficulties are cognitive effects of sleep deprivation. Memory problems are common specifically related to learning, semantic memory and verbal memory (Bastien et al., 2003). Executive functions, such as concentration and attention, are also negatively affected in individuals with sleep problems (Bastien et al., 2003).

A way forward: understanding the subjective sleep experience

The findings of subjective and objective sleep research often do not correlate. Kobayashi, Huntley, Lavela, and Mellman (2012) highlighted three studies which indicated differences in perceived and actual sleep duration, onset latency and disturbance. This brings into question the validity of current sleep research since a number of studies have resulted in discrepancies between subjective and objective sleep outcomes. Factors explaining this discrepancy could be those factors that have not been directly linked to sleep quality in the past, such as SES, the home sleep environment and bed-sharing. Research into sleep has traditionally been quantitative, and has largely been done in sleep laboratories with polysomnography. While these are valuable research endeavours, the home sleep environment has not been fully investigated. Sleep habits may change when people are sleeping in a laboratory; noise and light conditions may be different in a sleep laboratory to their homes, or bed-sharing status may change, which could impact sleep quality. Therefore, subjective sleep measures should be investigated to a greater degree in the home environment. This study aims to contribute to current research by conducting a qualitative analysis alongside a quantitative analysis, exploring subjective and objective sleep experience in the home sleep environment.

Research Aims and Questions

This research aims to contribute to the current literature on sleep. Specifically this study is focused on sleep in the home environment, as subjectively experienced, as opposed to sleep in the laboratory environment where much of the current sleep research is conducted. The overarching research question is:

- How does socioeconomic status interact with the experience of sleep quality and duration?

Sub-questions are:

- How do people from different socioeconomic backgrounds with sleep difficulties understand their sleep experience?
- How do people from different socioeconomic backgrounds with sleep difficulties think their sleep experience impacts on their life?

Method

Research Design

This research used a mixed methods approach, utilising qualitative and quantitative methods to investigate the research question. Quantitative measures were used to assess statistical differences and correlations between socioeconomic groups, surveying a range of participants from good to poor sleepers. The statistical analysis converged previous research that studied sleep quality and the sleep environment, or sleep environment and SES, in isolation. This study explored those three factors (sleep quality, sleep environment, SES) as interlinking factors affecting sleep quality, in both the qualitative and quantitative aspects. The qualitative data collection and analysis included only poor sleepers, with the aim of using the information gathered from the statistical analysis alongside a qualitative exploration of poor sleep to better inform interventions aimed at poor sleepers. A combination of qualitative and quantitative measures was thus used in order to gather a deeper understanding of the experience of sleep quality.

Theoretical Framework

This study is located within a narrative paradigm, which emphasises the individual subjective experience (Parker, 2005). Narrative here encompasses everything that is a "story" (Riessman, 2008). Stories are important to human communication as our very lives are shaped by story exchanges of our world experiences (Murray, 2003). Narratives are constructed by the individual for a particular purpose in a moment in time for a particular audience (Murray, 2008; Riessman, 2008). Narratives have a performative function; they communicate and construct the identity of the storyteller (Fraser, 2004; Murray, 2008) and are thus personal and engage the audience in the storyteller's experience (Riessman, 2008). A narrative theoretical framework is particularly useful in this study, which focuses on the subjective sleep

experience, and which aims to answer questions about how people understand, explain and construct narratives around their sleep difficulties.

Procedure

For the purpose of this study, I administered a sleep questionnaire to samples of low and high socioeconomic groups. Thereafter, I selected the first nine willing individuals, five from a high socioeconomic group and four from a low socioeconomic group, who reported poor sleep in the final item on the survey, and interviewed them in face-to-face individual interviews. As such, the survey was used as a sampling method to select people with poor sleep. The interviews took place at the University of Cape Town campus, and at the participants' homes or work places. The interviews were audio recorded and transcribed. I then did a thematic analysis using the interview material.

Framing and defining low SES

For the purpose of this study, SES was defined using the Seekings and Nattrass (2006) taxonomy, which was designed for the South African population, adjusted for inflation. For this study, high SES constituted people earning above R9 500 a month. These were the upper class (managers and professionals), semiprofessional class (nurses and teachers) and the intermediate class (white-collar workers, skilled workers and supervisors). Low SES constituted people earning R9 500 or less a month and included core working class (semiskilled and unskilled workers), and marginal working class (farm and domestic workers).

Sampling

A total of 152 people participated in this study and completed a questionnaire about sleep quality. Purposive sampling was used to gather participants from different socioeconomic groups. Ninety-one people from a low SES and 61 people from a high SES participated. The low SES sample was gathered from non-governmental organisations (NGOs) in Cape Town. The NGOs I coordinated with were Learn to Earn in Khayelitsha, Loaves and Fishes in Observatory, Amoyo in Hout Bay, and Common Good in Wynberg. I also distributed surveys to cleaning and security staff at the University of Cape Town campus. The high socioeconomic participants were recruited using convenience sampling by sharing an online version of the survey created using Google Forms on Facebook. Students were

excluded from this study. Purposive sampling was used to target poor sleepers for the interviews, based on their scores for the sleep questionnaire.

Measures

The latest version of the Pittsburgh Sleep Quality Index (PQSI; Smyth, 1999) assessed sleep quality, with an added item specifying monthly income. It measures seven domains of sleep, namely: perception of sleep quality, sleep medication utilisation, daytime dysfunction, and sleep habits, latency, duration and disturbance (Smyth, 1999). The PQSI is a very popular index for sleep quality because it has a good divergent and convergent validity and a good internal consistency (Skouteris et al., 2008), with a high Cronbach's alpha of 0.83 (Smyth, 1999), meaning that the separate items of the test all eventually measure the same construct: sleep quality. The index is good at distinguishing poor sleepers from good sleepers (Smyth, 1999), and this is the main reason it was selected for this study.

The PSQI was translated into Xhosa and presented in both English and Xhosa as hardcopy surveys for the low socioeconomic sample (appendix B), and only in English for the online survey. Although this measure is not standardised for the South African population, no South African sleep quality measure is available. Furthermore, although the translation was necessary in order to sample a low socioeconomic group, translation could affect the validity of the results. As such, I used this measure with an awareness that results must be interpreted with caution.

Interviews

I conducted semi-structured individual interviews with nine participants. I felt that individual interviews would gather valuable private information as people would be more comfortable to share with just one other person, especially information that may be sensitive or personal (Marshall & Rossman, 1999). Semi-structured interviews are a style of interview that take a semi-structured schedule of questions but mirror a natural talking style that allows for follow-up questions to gather further information from people as you would with normal conversation (Marshall & Rossman, 1999; Morris, 2015). I used open-ended questions (see appendix C) because they are best for qualitative research (Morris, 2015). The strength of the interview data collection method is that a great deal of in-depth information can be gathered in a short period (Marshall & Rossman, 1999). As this study is concerned with subjective experiences of sleep, semi-structured interviews were useful to facilitate the exploration of personal experiences of sleep quality and duration.

Data analysis

For the quantitative analysis, two independent t-tests assessed between-group difference in sleep quality in low and high socioeconomic groups. One t-test compared the global PQSI score and the other compared the final item, which asked participants to rate their overall sleep. A correlation analysis measured whether the global PQSI score correlated with the self-reported sleep quality item and these correlations were compared across socioeconomic groups. A two-tailed Spearman's *r* was used because the normality tests indicated that the data were not normally distributed.

The qualitative data analysis used for this project was thematic analysis (TA). A theme is a pattern or something important that stands out in the data (Braun & Clarke, 2006; Joffe & Yardley, 2004) by occurring across several different interview participants (Gibson & Brown, 2009; Riessman, 2005). TA is a way of organising qualitative information into overarching themes that have arisen from the data (Aronson, 1995; Braun & Clarke, 2012; Gibson & Brown, 2009; Joffe & Yardley, 2004). It aims to highlight or pick out themes that occur frequently and analyses these themes in context (Joffe & Yardley, 2004). TA emphasizes the complexity of human behaviour by exploring contrasting themes (Braun & Clarke, 2006). I used both deductive and inductive TA, meaning that I found codes using my knowledge of the literature in conjunction with extracting themes straight from the data gathered during interviews (Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2006; Joffe & Yardley, 2004). As this is a topic that has not received a great deal of research attention in the past, TA was suitable for this research because it gave a richer understanding of sleep experience while acknowledging the complexity of sleep experience (Braun & Clarke, 2006).

Braun and Clarke's (2012) guide to thematic analysis was followed for the analysis. After transcription, I read the transcripts several times, taking notes and highlighting emerging themes. After initial themes were gathered I refined the list of themes, organising themes until I could group sub-themes under broader headings. I then analysed the themes to find deeper meaning and produced my analysis, making sure to constantly refer back to the transcripts to ensure that themes and quotations used in the analysis were not removed from their original contexts.

Ethical considerations

Research should always consider whether participants will be in danger of being harmed (King, 2010; Wilson & MacLean, 2011). There was no physical and minimal psychological harm anticipated for participants in this study. The subject matter is not of a

sensitive nature and thus was not expected to be troubling to participants. However, sleeping problems are often experienced comorbidly with other disorders such as depression, anxiety and distress. When distress did occur in interviews it was handled with care and sensitivity. The consent form (appendix A) also had contact numbers for free counselling centres, however it was not necessary to refer anyone during the course of this research.

Informed consent. Informed consent is an integral part of research in psychology (King, 2010; Wassenaar, 1999; Wilson & MacLean, 2011) and must be given by all participants. Written informed consent was taken prior to the face-to-face interviews. It is also important that participants be given the opportunity to leave the study at any time (King, 2010) and not feel forced into the research. I made it clear that participants could leave the study without penalty at any time and that their involvement was voluntary. Participants signed two copies of the consent form, one for my records and one for their own records so that they could contact me if they had any questions regarding the research. The consent form stated that the interview would be audio recorded. Verbal consent was taken from participants who completed the PQSI prior to their participation.

Confidentiality. Confidentiality of the participants must be observed at all times in order to create a respectful research relationship (King, 2010; Morris, 2015; Wassenaar, 1999; Wilson & MacLean, 2011). Participants were informed that all content of the interviews was confidential, that the transcripts would be kept safe and that the results of the study were for educational and research purposes. I transcribed the interviews myself so the content of the interviews was not shared with anyone else. Pseudonyms were given to the participants who were interviewed to ensure their identities and responses remained confidential.

Transportation costs. As I was working with a low economic group, participants were given R60 when they needed to travel to meet me for an interview. This could have incentivised participation in the study, and also could have resulted in participants being more reluctant to withdraw from the study. For this reason, a low amount of R60 was chosen, which was only enough to pay for a bus and connecting train to and from informal settlements around Cape Town to the South Suburbs, although an informal taxi service would have been cheaper.

Reflexivity

There exists a power dynamic between the researcher and the research participant in any research endeavour. I am a middle-class white female studying towards my post-graduate degree in psychology. In this research, half of the research participants were from a low

socioeconomic group, and because of my privilege and as a representative from an elite university, these participants may have felt intimidated by me. This may have impacted the research as the participants could have felt that they could not identify with me, and could not share their experiences with me because we have too little in common. This may have acted as a barrier for sharing in the interviews and prevented the participants from trusting me and building a successful interview relationship with me. In order to address this possibility, I purposefully used relatable English, avoided technical terms to describe my research, and began my interviews by having a conversation about their day, their journey to see me, and giving a description of myself and my research. It was my hope that this would put participants at ease, making them feel more comfortable and willing to share their experience.

As the sole researcher, the analysis was affected by my subjective interpretation of the data. As such, the qualitative results presented in this study are subject to my own understanding of the overall themes that emerged, and thus other understandings and explanations are also possible. I interpreted the data using my knowledge of the literature, but this interpretation was informed by my own background and worldview.

Results and Discussion

Between-group differences in sleep quality for high and low socioeconomic individuals

Of the 152 PQSIs completed, 30 surveys (29 from the low socioeconomic group and one from the high socioeconomic group) were excluded from quantitative analysis because they were completed incorrectly. A total of 122 surveys were used, comprising of 62 low SES and 61 high SES surveys.

The t-test showed that there was no significant difference in self-reported sleep quality, according to item 9 on the PQSI, between high and low socioeconomic groups (t = .88, p = .38), and there was also no significant difference in the total PQSI score (t = .99, p = .33). The Spearman's correlation between the total PQSI score and the self-reported sleep quality item was moderate for both groups, with r = .45 for the low socioeconomic group, and r = .64 for the high socioeconomic group, meaning that perceived sleep quality was moderately positively associated with actual sleep quality.

Discussion of statistical results

The t-tests showed no significant difference between socioeconomic groups on sleep quality scores. This contradicted previous research predicting that lower socioeconomic groups would sleep worse than high socioeconomic groups. This indicated that although there were

situational differences between the groups, this did not have a significant effect on sleep quality. However, the PQSI is not standardised for the South African population, and thus validity and reliability measures are unavailable for this sample.

The correlation for the high socioeconomic group was stronger than the low socioeconomic group, indicating that the questions in the PQSI reasonably represented sleep quality for the high socioeconomic group. The correlation was weaker for the low socioeconomic group which could indicate several things, including that factors not represented in the PQSI played a role in sleep quality for the low socioeconomic group or that factors included in the PQSI were not as important in predicting sleep quality in low socioeconomic groups. Many people in the low socioeconomic group scored highly on the PQSI, meaning they sleep badly but reported "fairly good" or "very good" sleep quality. The difference between the groups' correlations can be possibly explained by the items included in the PQSI as noted above, or because of language difficulties and low literacy levels in the low socioeconomic group. Another possible explanation was that the translation of the PQSI did not capture the meaning of the questions and results were thus confounded. If participants did not understand the survey, their scores may well be incongruent.

It is also possible that people from a lower socioeconomic group have different expectations of what good sleep means, and while they sleep poorly according to their PQSI score, they perceive their sleep as satisfactory. This is consistent with research finding that people who suffer hardship often psychologically normalise to their situation and become desensitised to distress (Edge & Rogers, 2005). It is also possible that there was no significant difference between groups, and differences in correlations across SES were because of validity or reliability concerns. The use of this measure could be investigated further using a South African sample.

Thematic analysis

While the results of the questionnaire indicated no significant differences in sleep quality based on SES, the interviews served to illicit participant's subjective sleep experiences. The high socioeconomic participants consisted only of white women and were given the pseudonyms Hermione, Colleen, Patricia, Rae, and Ann. The low socioeconomic participants consisted of black women, given the pseudonyms Khanya and Pretty, and black men, given the pseudonyms Nhlanhla and Isaac. Two themes were identified: 1) factors contributing to poor sleep, and 2) the effects of poor sleep. Subthemes were included within these themes.

Factors contributing to poor sleep

***"My mind is just constantly a hamster wheel"*: Stress and sleep.** All of the participants reported stress and "thinking" at night as one of the main reasons for their poor sleep. One participant reflected the following:

> *Sometimes I just can't sleep. I just keep on thinking.* (Khaya)

While they waited to fall asleep, or if they woke up in the middle of the night, their minds would be active instead of calm. Both Rae and Ann attributed this to stress, overthinking and anxiety:

> *Probably because of stress and anxiety… My mind is just constantly a hamster wheel.* (Rae)

> *If I'm thinking about things or stressing…that will generally be the reason why I can't sleep.* (Ann)

Stress, anxiety, worry and rumination have been associated with poor sleep in previous studies (Baglioni et al., 2010; Baker et al., 1997; Carney et al., 2010; Ford & Cooper-Patrick, 2001), so it can be expected that this "thinking" that participants experience contributes to poor sleep. Research has shown that symptoms of depression were associated with poor sleep (Baglioni et al., 2010; Baker et al., 1997; Calcagni et al., 2012; Carney et al., 2010; Ford & Cooper-Patrick, 2001; Skouteris, et al., 2008). Although all nine participants indicated that they had symptoms of depression, based on their interview or PQSI responses, only one participant thought their depression was linked to their poor sleep. Thus, in this sample perception of stress and anxiety was more important in predicting poor sleep than experience of depression.

The content of the stress differed across socioeconomic groups. An American study found that lower socioeconomic groups experienced more stress around finances, than those from a high socioeconomic group (Williams, Yu, Jackson, & Anderson, 1997). Although there are no South African statistics on the content of stress across socioeconomic groups, in this study both low and high socioeconomic participants experienced high stress around finances. However, high socioeconomic participants experienced future-orientated financial stress, about work, future financial stability, future education plans, and safety, whereas low

socioeconomic participants experience present-orientated financial stress, about current unemployment, job security, and lacking financial resources. Issac said:

> *I don't have a job and my wife is sickly…and what she's earning and our expenses…they are kilometres away from each other…The job place is just flooded with job seekers.*

The future- versus present-orientation divide may be because the lower socioeconomic group has more to contend with in their present situation that they would like to change before they can consider their future prospects.

***"I do sleep better when I'm alone in bed"*: The effects of bed-sharing.** Eight out of the nine interview participants shared a bed with someone else. The participants in the high socioeconomic group all slept with their partners, while the participants in the low socioeconomic group had diverse sleeping arrangements. Isaac sleeps in a bed with his wife, in the same room as his children, Khaya shares a bed with her infant and friend, with her sister in the same room, Pretty sleeps with her toddler, and Nhlanhla sleeps alone. Across SES, participants felt that bed-sharing impacted negatively on their sleep. Participants revealed that bed partners disrupted their sleep due to various reasons, such as their bed partners' movements in the night, breathing, and blanket stealing.

> *He snores at night and that'll wake me up... He steals my blanket and so I wake up and I'm cold in the middle of the night…He also used to like to move a lot and starfish, which is where he like spreads himself out in the middle of the bed.* (Ann)

Hermione in particular was very strongly affected by her bed partner, and said her sleeping problems started *"as soon as I had to sleep next to someone"*. She attributed her poor sleep completely to her partner's presence in the bed, calling it *"terrible, bloody awful"* to share a bed and said she would sleep *"much better"* without her partner.

The participants revealed chronic disruptions to sleep, because their bed partners were fairly permanent. The participants could do very little to prevent or reduce these sleep disturbances as they had no control over their bed partner's behaviour. Problems like kicking, snoring, and blanket-stealing were difficult to resolve without simply not sharing a bed. This could be an option for people in the higher socioeconomic group, if they were willing to sleep without their partners, however in the lower socioeconomic group, bed-sharing was

necessary; lack of resources made bed-sharing essential, thus little could be done to resolve this issue.

It seemed that high socioeconomic participants were unwilling to sleep apart from their partners, despite the disruption to sleep that result from bed-sharing. Only Hermione said that she would prefer to sleep apart from her partner. The reason participants tended to want to sleep with their partners, despite sleep disturbance, was because they found their partners *"comforting"* (Rae and Patricia) at night. Participants described that sleeping with their partners made them feel *"safe and secure"* (Ann), *"relaxed and calm"* (Ann) and were willing deal with the disruptions to their sleep as *"it is nice to have someone next to you"* (Patricia). Thus, high socioeconomic participants associated their emotional need for comfort and familiarity (resulting from sleeping with their partners) with better sleep outcomes, even though they described their partners disrupting their sleep. Interestingly, this emotionally-motivated decision could be causing a number of emotional difficulties, which will be seen later in this analysis. It is also worthy noting that only the female participants described feelings of comfort from their partners, however there was only one male participant who shared a bed, so this could be an interesting area for further research.

There seemed to be a relationship between parenting and sleep, in that concern over a child negatively affected sleep. Khaya and Pretty both expressed how difficult it was to sleep in a bed with their child, because their child's needs would wake them during the night. Pretty says that her baby *"gets sick and cry whole night and don't want to sleep".* Colleen also mentioned that she wakes up in the night if she hears her children get up in the night, even though they sleep in their own bedrooms. Research shows that sleep is especially difficult for mothers in the first few months after pregnancy because the baby is so needy and the mother is still adjusting to the caregiver role (Kennedy, Gardiner, Gay, & Lee, 2007). As Colleen's comment suggested though, this effect of motherhood on sleep could last beyond the child's infancy, as her children were in middle childhood. More research could be done to investigate a relationship between fatherhood and sleep quality, as the results from this study suggest that it could be a gendered issue, since no male participant was disturbed by their child at night.

***"No light and no sound"*: The sleep environment.** Other elements of the sleep environment, such as noise, light, and temperature also disrupted sleep for the participants interviewed. Noise was experienced across socioeconomic groups as a disturbance to sleep. Most of the high socioeconomic participants interviewed lived in complexes and apartment

blocks, and the adjoining neighbours were a common source of noise at night or in the early morning:

> *Our neighbours have two dogs that…start barking at six…We live right by a complex so people coming home at like three in the morning and shouting and screaming, or even doors closing and slamming, alarms going off.* (Ann)

> *We do have noisy neighbours who decide to do things like drill in the middle of the night…They fight a lot. They have a dog that decides to bark.* (Hermione)

Colleen, the only participant who lived in a free-standing house, also experienced disrupted sleep due to noise. She noted that her animals moving around in the house or in the garden keep her awake, as well as the sounds of cars passing her house.

In the lower socioeconomic group, the two participants who live in shacks also struggled with neighbourhood noise, from taverns and intoxicated community members. Rae, although from the high socioeconomic group, lives on the boarder of a lower socioeconomic area comprised of government housing. She experienced noises of violence in her area, saying she hears *"brawls and fights"* outside her flat which makes her feel unsafe. This showed that sleep quality could be linked to feelings of environmental safety and security. Colleen also mentioned that the noises of her animals at night generally disturbed her because she was unsure whether it was the animals moving around or if there were intruders in the house or garden. Thus, a hyper-vigilance around safety and security could be contributing to poor sleep for this sample. It is not just the noise that was disrupting sleep, but what the noise meant for each participant from their own subjective viewpoint. A further illustration of the need for safety and security when trying to sleep, can be taken from an extreme situation experienced by Isaac:

> *I was living in the street…so it was difficult to fall asleep. You fall asleep then you lose everything that you've got. You might lose your life…you really have to juggle it – work and sleeping with your eyes open.*

Participants were equally affected across socioeconomic groups by noise despite environmental differences. This challenges previous research finding that low socioeconomic areas experience more night time noise. Alternatively, low socioeconomic neighbourhoods

might actually have more night time noise than high socioeconomic groups in South Africa, but the noise may be perceived or experienced very differently, depending on subjectivity unique to each individual and expectations of night time noise levels, both of which could be influenced by SES.

Low socioeconomic participants commonly felt cold at night. Pretty and Khaya both said that they did not have enough blankets to keep them warm and that their shacks were very cold at night, because they did not have heaters. This was disturbing their sleep. Some participants from the high socioeconomic group did say they were also cold at night, but this was mainly due to keeping a fan on at night for a "white noise" effect, or due to the electric blanket turning off and the temperature adjustment waking them. This distinction between the high and low socioeconomic groups revealed a difference in living standards between the two groups, that the high socioeconomic groups seemed to be more in control of their environment because they have more financial facility to change unsatisfactory elements of their sleep environment. Ann, for example, bought a king-sized duvet so that it was harder for her husband to steal the blanket, which was waking her due to the cold. Colleen and Rae both bought electric blankets to keep warm. Hermione bought block-out blinds so that the light would not disturb her sleep. Thus, those from a high socioeconomic group may have more resources to address sleep disturbances related to their environment.

While the low socioeconomic participants had conditions that were less conducive to good sleep than high socioeconomic participants, such as being too cold or damp at night, there was no significant difference between the high and low socioeconomic groups' overall sleep quality, according to PQSI scores. This could be explained by research that indicates that people who suffer adversity can often normalise to distress (Edge & Rogers, 2005).

Effects of poor sleep

***"Miserable as fuck"*: Emotional changes after poor sleep.** All of the participants, across SES conditions, experienced emotional difficulties after sleeping badly. The most common feeling was of tiredness, which affected their lives in different ways. Hermione said the tiredness made her not able to enjoy life's pleasures as fully:

> *There's like an enthusiasm lacking…Which can end up looking like I'm just being incredibly pragmatic and focused but it's not…it's just tiredness.*

Participants explained how tiredness affected their health. Hermione's tiredness contributed to stress and she does not *"eat properly"*, which contributes to further *"health issues"*. Patricia attributed her unfitness to her tiredness as she does not *"have the energy to exercise"*.

Further emotional reactions to poor sleep included anger, grumpiness and sadness. Pretty described how she gets angry easily after poor sleep, while Hermione and Rae both described how they tend to become more emotionally reactive when they were sleep deprived:

> *I lost it. Like screaming, throwing things around, crying: I lost it. And I only had four hours sleep…I'm more inclined to lose it over silly things.* (Rae)

> *Does it ever affect your mood. Like make you more…*(Interviewer)
> *Miserable as fuck. Ya…and I end up fighting with Henry* [her partner] *as well because of it.* (Hermione)

> *I get angry. I fly off the handle a lot quicker if I haven't had enough sleep.* (Hermione)

Feelings of anger were found to be common in people with sleep deprivation (Minkel et al., 2012). This creates an unpleasant situation and can cause inter-personal difficulties as well, due to lashing out at friends and partners following sleep deprivation. This is especially difficult when the sleep difficulties are chronic, because mood dysregulation also becomes chronic (Franzen & Buysse, 2008), potentially contributing to more long-term problems in interpersonal relationships.

Patricia, Rae, Ann and Hermione, all women, expressed that they were more likely to cry and be weepy when they had not slept well. Research shows that women cry more often than men, and that women feel more emotional release after crying than men (Fischer, 2000; Lombardo, Cretser, & Roesch, 2001). This may be because of gender socialisation, that encourages female emotional expression, but discourages male emotional expression with a "big boys don't cry" mentality (Branney & White, 2008, pp. 260-261), in favour of physical expression (Brody, 1997). Khaya said she felt *"sad because I really want to relax"* and *"unhappy because I just want to sleep"* and Isaac said he feels *"down"* sometimes due to a lack of sleep. Nhlanhla expressed that less sleep made him *"moody"*. Colleen mentioned that "*when you're tired you don't have enthusiasm to do much*". These are symptoms commonly

associated with depression (American Psychiatric Association, 2013), and are well documented in people who are sleep deprived (Baglioni et al., 2010; Baker et al., 1997; Carney et al., 2010; Ford & Cooper-Patrick, 2001; Skouteris et al., 2008). Research indicated that sleep difficulties predict depressive symptoms (Calcagni et al., 2012; Skouteris et al., 2008), and the current results corroborate the finding that sleep difficulties contribute to depression symptoms. It seemed that sleep difficulties and depression have a cyclic relationship, in that once you have started sleeping poorly, and you experience symptoms of depression, you are then likely to experience further sleep problems.

Ann and Hermione both described how sleeping badly affected their ability to cope. Ann says: *"It becomes like more of an emotional thing. Like everything is just like, worst day ever, I can't deal with this."* This could indicate that she is thinking in negative absolutes and her coping skills have been compromised. Hermione also mentioned that she struggled to cope after poor sleep:

> *Everyone's going like I don't know how you're coping so well. And I'm like this is not coping. This is psychotic, like about to have a nervous breakdown from lack of sleep.*

It seemed that a lack of sleep affected participant's abilities to regulate emotions, and cope with the challenges of normal life, contributing to feelings of depression, which then in turn contributed to further sleeping problems.

The effects of sleep deprivation on cognitive processing. Cognitive processing was negatively affected after poor sleep across socioeconomic groups. Eight of the nine participants identified difficulties in cognitive processing, including forgetfulness and difficulty with concentration. Patricia described how this affected her at work:

> *It definitely affects my concentration…I'm very forgetful. I have to ask things more than once because I forget what people have said. I forget to do things in my job sometimes and I think that's probably because of a lack of sleep.*

Hermione, Patricia, Colleen and Khaya described how lack of sleep impacted on their productivity. Patricia explained how tiredness affected her abilities at work because she feels *"exhausted and drained".* Khaya, who is unemployed, expressed that while she was motivated to find a job, she did not have the energy to get up in the morning to look for work.

Some participants, such as Khaya and Patricia, struggled with decision-making. Khaya expressed that:

> *Sometimes it does affect me like in terms of making decisions…I'll just decide what I'll do now and then I'll do it, without even thinking of the consequences.*

Ann also described how feeling tired after lack of sleep affected her mental abilities:

> *If I go through a bad sleeping patch I'm like a zombie. If I'm trying to reply to emails or look at things or trying to like have a conversation with Greg* [her husband] *properly, my brain just switches off. Basic arithmetic, out the window. I'm like cool I can't do anything right now 'cause I'm so tired.*

Ann's experience revealed how the sleep deprivation eclipsed all other tasks that she had to do. The difficulties with concentration, forgetfulness, decision-making and general cognitive tasks, confirmed research that has shown that performance in cognitive tasks was worse after sleep deprivation (Harrison & Horne, 2000; Pilcher & Walters, 1997). Furthermore, cognitive tasks take more mental effort and concentration to perform at the same level as if you had slept well (Pilcher & Walters, 1997). The decrease in cognitive performance could contribute to feelings of stress and anxiety, due to poor productivity at work which increases work load, or due to not being able to perform life tasks, such as the monthly budget or scheduling. This increase in stress and anxiety could lead to further sleep problems (as seen previously in this analysis), which could again create a cycle of bad sleep, where stress maintains poor sleep, which in turn causes poor cognitive functioning, leading to further stress.

Another common consequence of sleep deprivation was its effect on participants' social lives. Rae says she finds it difficult to *"follow conversations"*, and that *"I just kind of struggle to socialize for long periods of time."* Ann said she does not *"have the energy really to engage with people"*. Pretty, Nhlanhla and Hermione also said they struggle socially. In particular, they avoid people and dislike talking. Hermione said:

> *I'm giving up actually seeing friends…in favour of getting some sleep… And I don't always want to be making that decision.*

***"I'll get myself into a bit of a state"*: Feelings while experiencing sleep disturbance.** When participants were struggling to fall asleep, or if they had woken up in the middle of the night there were frequently negative feelings experienced, such as frustration and irritation.

> *And how does it make you feel when you can't sleep?* (Interviewer)
> *I get very frustrated. I get a bit desperate…especially if it's work the next day, because I know the alarm clock is going to go off any minute and I think…I have to get some sleep… I'm going to be so tired at work the next day.* (Patricia)

Her desperation to get sleep indicated how much of an impact the sleep deprivation has on her in the moment it was happening. Like Patricia, Khaya and Pretty also worry about the next day. Pretty said she feels *"bad"* because she knows she has to wake up in the morning. Colleen expressed she gets herself *"into a bit of a state because I can't get back to sleep"*, which mirrored Patricia's desperation. Rae revealed she also felt frustrated, but that *"it doesn't affect me as much when like I don't have anything to get up for in the morning"*, which again emphasised the fact that the negative feelings during sleep difficulties was exacerbated by the demands of the following day.

Nhlanhla and Isaac both expressed they feel lonely at night when everyone else slept but they were awake:

> *You just feel alone. And you feel bad. It's the worst thing about it 'cause everyone else is sleeping…and everyone's relaxed and you're just the only person wondering around, don't even know what you're looking for.* (Nhlanhla)

> *It's kind of lonely you know like everyone's asleep and… you can't send a message or call somebody to wake that person up. It makes life so lonely.* (Isaac)

This indicated that sleeping problems were experienced alone, and can perhaps contribute to feelings of alienation from other people who may not understand the sleep deprivation experience. This may contribute to difficulties with other people understanding that people who suffer from sleep problems need support.

***"It's who I am"*: Normalisation of sleep difficulties.** Although the participants identified multiple areas in their lives that sleep was having a negative effect, such as emotional problems or poor cognitive performance, they were also accepting of their sleep problems:

> *It doesn't bother me anymore…because I feel like it's just part of who I am now…maybe that's how…I was programmed.* (Nhlanhla)

> *I used to be frustrated. I just accepting it now. Now I'm awake, I'm not sleeping anymore.* (Isaac)

> *I think I've just sort of accepted that it's who I am and its part of the way I function or don't function or why I don't function.* (Ann)

Participants seemed to experience sleep disorders as unpleasant, but *"just one of those things"* (Ann), indicating that perhaps sleep problems are experience ego-syntonically, or as a part of the self, like personality disorders, instead of ego-dystonically, or as separate from the self, like most mood and anxiety disorders (Nevid, Rathus, & Greene, 2011). Despite the distress and numerous effects of poor sleep, this experience seemed to be normalised by the participants in this study who experienced sleep problems, again indicating that people who frequently suffer may normalize to distress.

Limitations and Recommendations

This study had a number of limitations which could have impacted on the quality of the findings. The first limitation was using monthly income as a proxy for SES. Income may not always be an accurate indicator of standard of living, because people's situations could change in terms of income but their overall standard of living does not change because they have savings or resources from friends and family that allow for the maintenance of a higher standard of living. This limitation was hard to avoid however, without assessing each person individually for living standards, which was not feasible in the context of this study. Perhaps a more accurate representation of standard of living could have been household income, although this is also not always indicative of living standards. A household could have two adults earning a moderate income, but that income has to support several children, resulting in a household income that seems high, but has to stretch quite thinly. Perhaps a better way to

measure SES would be to assess housing status (freestanding residential housing, apartment block, informal housing) which may more closely resemble living standards (Galobardes, Shaw, Lawlor, Lynch, & Smith, 2006).

A high number of low SES surveys were excluded from analysis because they were incorrectly completed, making scoring impossible. This could have been because of language or literacy issues in the low socioeconomic group, which could only have been avoided if the PQSI was done verbally with each individual participant, which would not have been possible in the context of this study because of the number of participants.

I struggled to find low socioeconomic participants to complete the surveys because many NGOs that I approached said that participants who met the criteria for inclusion in this study were not literate, and thus would be unable to complete the survey. There were also a number of issues with the PQSI, besides the completion errors. Some people misunderstood the form or did not read the instructions properly. The PQSI also only asks about sleep patterns over the last month, which may not be a full representation of people's sleep in general. Furthermore, translation could have impacted on the validity and reliability of the PQSI.

I also struggled to find low socioeconomic interview participants as many of them could not travel for the interview, despite a transport subsidy. It was difficult to organise interviews at the low socioeconomic participant's homes because they could not guarantee privacy or quiet during the interview and the NGOs I coordinated with could not host the interviews on their premises. Many participants from a low SES did not have a phone, thus making it impossible for me to contact them to set up an interview. These problems highlight the difficulty in finding a sample that represents the South African population. Due to small sample size and lack of representation of all South Africans in this study, the results cannot be generalised.

The qualitative aspect of this research only studied people with poor sleep. This focused the research but also limited the findings. More research could be done with participants who sleep normally to explore their sleep conditions and to gather information about good sleep outcomes. It would be interesting to see if good sleep is related to physical and mental health status, and environmental factors, such as noise, light and bed-sharing, as previous research suggests, or whether good sleep is dependent on other factors, such as individual personality differences.

There was interesting data gathered from the interviews which was not discussed in this study due to space restrictions. These topics include shift work and sleep quality, whether

poor sleep could be hereditary, coping strategies associated with poor sleep, student life and sleep quality, the use of electronics with screens before bed, sleep hygiene, and illness, pain and injury and its effects on sleep. These areas could be interesting for future research.

Conclusion

For this study, a mixed method approach was used. Surveys were collected and analysed for sleep quality across different socioeconomic groups, with results showing that there was no significant difference between socioeconomic groups in self-reported and PQSI-assessed sleep quality. Therefore, SES was not associated with sleep quality. This challenges previous research suggesting that lower SES is associated with poorer sleep quality and indicates that although the environmental factors are different across socioeconomic groups, this does not have an impact on sleep quality.

Correlations between self-reported sleep and total PQSI sleep-scores were moderately correlated, with a stronger correlation for the high socioeconomic participants. This indicates that the PQSI was fairly good at predicting sleep difficulties in high socioeconomic participants, but less effective with the low socioeconomic participants. This could be for multiple reasons. It may be to do with the PQSI measure: factors included on the PQSI could more accurately represent sleep quality for high socioeconomic participants, factors included on the PQSI are not as relevant to sleep quality in low socioeconomic participants, or there are factors not included in the PQSI that are more relevant to sleep quality for low socioeconomic groups. Based on this research it is difficult to know what these factors are, since no significant difference in sleep quality was found, however further research could elucidate this. The difference in correlation between self-reported sleep and total PQSI score in the high and low socioeconomic groups is alternatively explained by differences in expectations of sleep across socioeconomic groups. Lower socioeconomic participants seemed to expect or be satisfied with poorer sleep outcomes, perhaps because they have become normalised to struggle (Edge & Rogers, 2005).

Nine semi-structured interviews were conducted with people from different socioeconomic backgrounds who had self-reported sleep problems. Two themes emerged from the data, namely reasons for poor sleep, and the effects of poor sleep. Participants listed several reasons for poor sleep, including stress and anxiety at night. Interestingly only one of the participants listed depressive feelings as a reason for poor sleep, despite the fact that all the participants had depressive symptoms. This indicates that perhaps anxiety is more important in predicting sleep problems than is depression. Although all participants

experience stress, the content of the stress differed across socioeconomic groups. Low socioeconomic participants experience present-orientated anxiety, while high socioeconomic participants experienced future-orientated anxiety. This perhaps is an indication of the standard of living across socioeconomic groups, in that lower socioeconomic groups are more concerned about their present situation, whereas satisfaction with present experience could allow for more concern about future experience. It was also found that the anxiety that participants experience could cause a cycle of bad sleep in which the person has anxiety which causes them to sleep badly and then the poor sleep causes anxiety which in turn causes poor sleep again. This is similar to findings that indicated a cyclical nature to depressive symptoms and sleep difficulties.

Bed-sharing was found to greatly impact on sleep. Many participants from the low socioeconomic group shared beds out of necessity. Participants from the high socioeconomic group shared a bed with their partners and despite the negative impact of bed-sharing on their sleep quality, they were reluctant to sleep separately. This was due to emotional reasons, such as finding their partner a source of comfort in bed. This indicates that participants from this group chose to more readily meet their emotional desires around sleep behaviour than meet the physiological need for sleep. Alternatively it could indicate that people from a high SES define their security differently to people from a low SES, with romantic partners being more associated with security in high socioeconomic groups, and security stemming from elsewhere in low socioeconomic groups. Or perhaps a sense of security is not as important to sleep quality in low socioeconomic groups. In high socioeconomic groups it is also likely that the absence of a partner means sleeping alone, as children were found to less frequently sleep with their parents in high socioeconomic groups, whereas low socioeconomic groups may tend to lead less individualistic lives (perhaps due to cultural factors or the necessity of pooling resources), which results in more sharing. The sleep environment was also important to sleep quality, with participants especially signaling noise as interrupting sleep. Data showed that people from a high socioeconomic group had more power to change environmental factors.

It is interesting then that there was no significant difference in sleep quality between socioeconomic groups. While there were situational differences between high and low socioeconomic groups, such as differences in the source of stress and anxiety, differences in basic needs being met (such as being damp, cold or hungry at night in low socioeconomic participants), and more control over the sleep environment for high socioeconomic participants, it seems that factors that were shared between groups, such as the presence of

high levels of anxiety (no matter what the source of anxiety), sharing a bed, and high levels of noise were what more strongly predicted poorer sleep outcomes, than factors particular to each socioeconomic group, which may account for the lack of between-group differences in PQSI scores. Thus, sleep disturbances may cut across SES divides. However, whether SES would impact on the treatment and prognosis of sleep problems was not explored in this study and could provide an avenue for further exploration.

Sleep problems had a number of effects on participants, including tiredness and symptoms associated with depression. This confirms previous research that sleep problems contribute to symptoms of depression. Poor sleep also contributed to feelings of anger the next day, as well as social problems and lack of motivation to socialise. Poor sleep also affected cognitive processing, contributing to forgetfulness, concentration and decision-making problems, which particularly affected people who work full-time. This decrease in cognitive performance caused feelings of anxiety which then contributed to further sleeping problems, again highlighting how sleep problems are maintained by their effects. The consequences of poor sleep affected people across different socioeconomic groups equally. Despite the effects of poor sleep, participants seemed to have normalised their experiences of poor sleep, indicating that perhaps sleep problems are experience ego-syntonically.

Intervention for patients with sleeping problems should thus reflect these findings. Svrakic and Cloninger (2005) suggest treatments that can enhance insight on disordered behaviour, which would change an ego-syntonic understanding of the behaviour ("I am programmed to be a bad sleeper") into an ego-dystonic understanding ("I dislike living like that and there are things I can do to change my sleep problems"). This would enhance further treatment plans because the patient would be more open to change. Because of the comorbidity of sleeping problems with mood and anxiety problems, which this study found, treatment should also address these underlying problems to contribute to better sleep outcomes.

This study contributed to current research on sleep in a number of ways and aimed to fill a gap in sleep literature, which is dominated by studies using objective sleep measures, such as polysomnography. These measures ignore experiences of the home sleep environment, which is mediated by SES. This study looked at how individual sleep experience can be understood and also highlighted the ways that sleep experience is similar and different across socioeconomic groups. Due to lack of qualitative research on sleep, this study provided a deeper and broader exploration of sleep problems and sleep experience. The

findings from this study can be used to stimulate further research, as well as provide insight into the subjective experiences of people who experience sleep difficulties.

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Appendix A: Consent form

Dear Participant,

You are invited to participate in this research project. I am an Honours student at the University of Cape Town and for the purpose of my degree, I am doing research to do with people's feelings and experience of sleep.

If you choose to participate I will be asking you to answer some questions in an interview. It will just be us in the interview. The interview will last about an hour, however you can feel free to talk to me for longer or shorter. I will be asking for your opinion on certain matters and I would really value your honesty. Any information you give me is valuable and deeply appreciated.

With your consent I will be audio recording our interview and then later taking the recorded interview and making a written version of it. The information you give me will be used in order to learn more about sleep and how certain settings may affect sleep. In the written version of our interview I will use a different name than your own so that other people can't identify you. All other information that can be used to identify you will be left out of the written version of the interview. The audio recording will not be heard by anyone besides me, and it, along with the written version, will be kept in a safe place. Your responses are confidential (secret) and will not be traced back to you.

Your involvement in the study is voluntary and you are free to leave the study at any time.

This study poses no harm to you physically and the interview should not trouble you psychologically. However, if during the interview or afterwards, you do feel troubled by what happened in the interview and you feel you need to debrief or need additional counselling, please feel free to contact a counselling centre. You can contact Cape Mental Health at 021 447 9040. Life Line is also a good option for free counselling services (021 461 1111).

If you require additional information on my study, please contact me via email (chuckles.me@gmail.com). My supervisors for this research are Gosia Lipinksa (you can contact her via phone on 021 650 3415) and Shose Kessi (you can contact her via phone on 021 650 4606). If you need to contact someone regarding the ethics of this study, please get in touch with Rosalind Adams at Rosalind.Adams@uct.ac.za or via phone on 021 650 3417.

I understand what is written in the above form. I understand that my participation is voluntary and that I may leave at any time. I know that all information will be treated with confidentiality and that no one will be able to identify me from the study. I understand that this interview will be recorded. I understand that information I provide will be used in a learning setting.

I consent to be interviewed:	**I consent to be audio recorded:**	
_____	_____	_____
Signature of Participant	Signature of Participant	Signature of Researcher
_____	_____	_____
Date	Date	Date

Appendix B: PQSI

Name/Igama	
Age/Iminyaka	
Phone number	
Occupation	
Average monthly income Wamkela kangakanani emsebenzini	☐ Below R2 500 ☐ R2 500 – R5 000 ☐ R5 001 – R9 500 ☐ R9 501 – 13 500 ☐ R13 501 – 25 000 ☐ More than R25 000

Instructions: The following questions relate to your usual sleep habits during the past month only. The answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions. During the past month:

Imithetho: Imibuzo elandelayo imalunga ngendlela ubulala ngayo kulenyanga edlulileyo qha. Iimpendulo mazibonise eyona mpendulo ekufutshane. Phendula yonke imibuzo. Kulenyanga edlulileyo:

1. When have you usually gone to bed? Ubulala ngabani ixesha?	
2. How long (in minutes) has it taken you to fall asleep each night? Uthathe ixesha elingakanani ukulala?	
3. When have you usually gotten up in the morning? Ubuvuka ngabani ixesha ekuseni?	
4. How many hours of actual sleep do you get at night? (This may be different than the number of hour you spend in bed) Ufumana iiyune ezingakanani zokulala ngenyaniso ebusuku? (ixesha alinyanzelekanga lifane nexesha oligcina ebhedini)	

5. During the past month, how often have you had trouble sleeping because you… Kulenyanga edlulileyo, kukangaphi uzusokole ukulala kuba…	**Not during the past month (0)** Hayi kulenyanga edlulileyo	**Less than once a week (1)** Ngaphantsi kweveki	**Once or twice a week (2)** Kanye okanye kabini ngeveki	**Three or more times a week (3)** Ngaphezulu konakathatu ngeveki
a. Cannot get to sleep within 30 minutes Aw'kwazi ukulala phakathi kwemizuzu e-30 (30 minutes)				
b. Wake up in the middle of the night or early in the morning Uvuke ebusuku ukanye ekuseni kakhulu				
c. Have to get up to use the bathroom Uvuke kuba ufana ukusebenzisa indlu encinci (itoilet)				

d. Cannot breathe comfortably Ubusokola ukuphefumla				
e. Cough or snore loudly Ukhohlela okanye urhona kakhulu				
f. Feel too cold Uyagodola				
g. Feel too hot Ushushu				
h. Have bad dreams Ubunamaphupha amabi				
i. Have pain Unentlungu/ubuhlungu				
j. Other reason(s), please describe, including how often you have had trouble sleeping because of this reason(s): Ezinge izizathu, ikusokolise kangakanani lengxaki:				
6. During the past month, how often have you taken medicine (prescribed or "over the counter") to help you sleep? Kulenyanga edlulileyo, uwathathe kangakanani amayeza okulala?				
7. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity? Kulenyanga edlulileyo, ubukhe wabiwe bubuthongo uqhuba, usitya okanye uphume nabanye abantu?				
8. During the past month, how much of a problem has it been for you to keep up enthusiasm to get things done? Kulenyanga edlulileyo, ubukhe wanengxaki yokungabi nomdla wokwenza izinto okufanele uzenzile?				
	Very good (0) Kakuhle kakhulu	**Fairly good (1)** Kakuhle	**Fairly bad (2)** Kakubi	**Very bad (3)** Kakubi kakhulu
9. During the past month, how would you rate you sleep quality overall? Kulenyanga edlulileyo, ungathi ulele njani kukonke?				

Appendix C: Interview Schedule

1. Tell me about yourself
    a. Where did you grow up, where are you from, job/study
2. Tell me about your sleeping problems
3. Why do you think your sleeping problems started?
4. Why do you think you're sleeping badly now?
5. Describe how you prepare for bed in the evening
6. Is there anything that helps you sleep better?
7. Describe your sleep environment.
    a. How does it affect your sleep?
8. Do you sleep with a partner
    a. If so, how does this affect your sleep?
9. What do you do when you're having a bad night of sleep?
10. Questions particular to each participant's PQSI now.
11. How do you feel the next day after you've slept badly?
    a. Mood
12. Do you notice any changes in your mental abilities after you've slept badly?
    a. Concentration, attention, memory, decision making
13. How does not sleeping affect your quality of life?
14. What's the worst thing about getting bad sleep?