

An Investigation of the
Subjective Sleep of
Elderly Women:
What Is Good Sleep
and How Is It Achieved?

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**An Investigation of the Subjective Sleep
of Elderly Women: What Is Good Sleep
and How Is It Achieved?**



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Declaration of Candidature

I, Brooke Davis, declare that the PhD thesis entitled 'An Investigation of the Subjective Sleep of Elderly Women: What is Good Sleep and How Is It Achieved?' is no more than 100,000 words in length, exclusive of tables, figures, appendices, and references. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

.....

Signature of Candidate

.....

Date

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Glossary of abbreviations

ADL	Activities of daily living
BAI	Beck Anxiety Inventory
BZ	Benzodiazepine
CBT	Cognitive behavioural therapy
CBT-I	Cognitive behavioural therapy for the treatment of insomnia
DLMO	Dim light melatonin onset
EEG	Electroencephalograph
EDS	Excessive daytime sleepiness
EMA	Early morning awakening
FSH	Follicle stimulating hormone
FMP	Final menstrual period
GDS	Geriatric Depression Scale
HBM	Health Belief Model
HRT	Hormone replacement therapy
MMSE	Mini Mental Status Exam
MPB	Model of Planned Behaviour
NREM	Non rapid eye movement
PSG	Polysomnography
PSQI	Pittsburg Sleep Quality Index
QoL	Quality of life
REM	Rapid eye movement
SE	Sleep efficiency
SBQ	Sleep Beliefs Questionnaire
SOL	Sleep onset latency
SQRSC	Sleep quality-related self-categorisation
SWA	Slow wave activity
SWS	Slow wave sleep
TST	Total sleep time

WASO	Wakefulness after sleep onset
WHOQOL	World Health Organisation quality of life measure

Abstract

Age-related change in the sleep quality of women in aged-care is a key area in gender and ageing research. Not only does the structure of sleep change with age, but so too do the perceptions and beliefs around sleep, and the sleep management strategies available to women. Surprisingly however, the essence of the sleep beliefs and self-management strategies of women in aged-care remains largely unexplored. What is clear, is that this essence is not sufficiently captured by current clinical measures, reflecting the notion that sleep researchers and elderly women hold discordant beliefs regarding sleep quality. In order to address that disjuncture, this mixed methods study aimed to investigate a) the meanings of good and poor sleep quality for elderly women in aged-care, and b) women's self-management of sleep quality.

Participants were 46 healthy women with a mean age of 85.5 (SD = 7.9) years, from low-care aged-care facilities. Three groups were established as follows:

- 1a (n=9): self-categorised poor sleepers who were long-term benzodiazepine (BZ) users;
- 1b (n=14): self-categorised poor sleepers who were non BZ users;
- 2 (n=23): self-categorised good sleepers who were non BZ users.

All 46 participants took part in the quantitative stage of the study, which involved completion of psychosocial and sleep self-report questionnaires. A subgroup (n=18) then completed sleep diaries for one week, and engaged in semi-structured interviews on their beliefs around good and poor sleep quality,

their own sleep experiences, and their use of hypnotic medication and other sleep management strategies.

Analysis of questionnaire data showed sleep quality categorisations (good or poor) derived quantitatively using a self-report inventory, the Pittsburgh Sleep Quality Index, were incongruent with self-categorisations of sleep quality. Phenomenological analysis of interview data showed that, rather than being based on sleep phenomena per se, sleep quality-related self-categorisations were based on the comparison of one's own sleep quality with normal sleep, which was constructed through social comparisons that were directionally different for self-categorised good and poor sleepers. Further, the women's personally developed strategies formed the core of their sleep management resources regardless of their self-categorisation as good or poor sleepers. Those who were motivated to seek further help when their personal strategies were deemed inefficacious, sought external support from the medical or healthist spheres, trialing the strategies on offer there, and incorporating those they found efficacious into their core of personal strategies.

Improved understanding of the meanings around sleep quality for women in aged-care, and the strategies they engage to improve and maintain their own sleep quality, may potentially lead to reductions in prescription sleeping medication intake, less adverse effects of hypnotics, and a heavier focus on healthier sleep management strategies in this cohort.

A number of publications have arisen from this research project. They are
presented in Appendix F

Introduction

Background, rationale and thesis structure

BACKGROUND

In June 2007, 13% of the Australian population was aged over 65 years, with this proportion estimated to increase to 23%-25% by the year 2056 (Australian Bureau of Statistics, 2008). As the Australian population ages, there is an increasing need for understanding and improving the health care of the elderly. One key area of ageing research is age-related change in sleep quality. Not only does the structure of sleep change with age (Carskadon & Dement, 1989), but so too do the perceptions and beliefs around sleep and its role in one's life. Surprisingly however, the essence of the sleep beliefs of the elderly remains largely unexplored. What is clear is that this essence is not sufficiently captured by current clinical measures of subjective sleep quality, raising the possibility that sleep researchers and elderly adults possess discordant beliefs regarding sleep quality. Sleep quality is clearly a major problem for the one of every three older adults who suffer from sleep disorders such as insomnia (Buysse, 2004), which is most often treated with hypnotic medications. Although pharmacological treatments may provide short-term relief from the symptoms of insomnia (Endeshaw, 2001; Nowell, Buysse, & Morin, 2002), they are not effective over long periods (Woodward, 1999), and are associated with a range of negative effects. Despite these negative impacts, many older

adults become long-term users of hypnotic drugs (Curran et al., 2003). Insomnia and hypnotic use are problematic for both men and women, however, women report poorer sleep quality, are more often diagnosed with insomnia, and are prescribed more hypnotics than their male counterparts (Busto & Sellers, 1991). Older women who are long-term users of hypnotic medications therefore contribute disproportionately to the cost of insomnia and its treatment, which drained an estimated \$10.3 billion from the Australian economy in 2004 (Access Economics, 2004). The additional personal cost of insomnia and its treatment with prescription medication to women themselves is still greater, with increased risk of falls, accidents, and even mortality (Dale, Burns, Panter, & Morris, 2001). It is for this reason that older women who utilise hypnotics for the treatment of insomnia have an increased risk of hospitalisation or institutionalisation, placing further strain on families, communities and health care providers.

RATIONALE

The economic, personal, and social costs of insomnia and its treatment paint a clear picture of the need for a better understanding of the beliefs and experiences of women in aged-care regarding the meanings of sleep quality, and how they manage their own sleep quality. This understanding is integral to the process of reducing hypnotic use in the elderly female population.

This project will contribute two key areas of knowledge to current understandings of the sleep of elderly women in residential aged-care. First, it will make available information regarding the subjective beliefs and experiences of these women concerning the meanings of good and poor sleep and an indication of the association between qualitatively and quantitatively derived descriptors of sleep and related constructs. Second, it will contribute insights into the sleep management efforts of women living in aged-care and the subjective efficacy of the range of strategies utilised by the group.

A greater understanding of the experiences that elderly women draw upon when describing the meanings of sleep quality, and of their utilisation of sleep management strategies, will potentially lead to the development and/or refinement of methods of sleep enhancement that more closely reflect the concerns of the individuals they treat.

THESIS STRUCTURE

Chapters one to five present a review of the literature on the lifespan perspective of normal sleep, sleep disturbance and ageing, transitions of later life and their impact on women's sleep, sleep quality-related self-categorisation, and the medicalisation, healthicisation, and personalisation of sleep management. An interlude then presents the research questions, and introduces the reader to the methodological perspective and epistemological stance. Chapter six presents the methodology of the study, which is outlined in

Figure 6.1 (p158). Chapters seven and eight report and discuss findings related to the first four research questions, which enquire about the meanings around sleep quality and their implications for clinical practice. Chapters nine and 10 report and discuss the findings related to the remaining three research questions on how the women manage their sleep quality to achieve good sleep. A general discussion of conceptual implications and methodological issues is presented in Chapter 11, which concludes the thesis.

Chapter 1

The structure and regulation of normal sleep across the lifespan

*Except for the 'Last Great Sleep', for each onset of sleep there is an
awakening.*

- W.B.Webb (1978)

The structure and regulation of normal sleep have intrigued researchers for many years. The structure of normal sleep can be divided into discernable stages that make a cyclical contribution not only to each sleep episode, but also to the pattern of sleep and wakefulness across the 24-hour period. The rate at which the distribution of sleep stages changes across the nocturnal sleep episode is dependent on several factors. Perhaps the most prominent of these, and certainly the one of most interest to this work, is age. Significant architectural changes to sleep patterns occur at each developmental stage, beginning in infancy (Coons & Guilleminault, 1982; Jenni, Borbely, & Achermann, 2004; Mirmiran, Maas, & Ariagno, 2003), and continuing across the lifespan to late adulthood (Bliwise, 1989; Carskadon & Dement, 1989; P. Murphy, Rogers, & Campbell, 2000). The mechanism through which these structural changes take place appears to be a pattern of alterations to the

mechanisms that regulate sleep. Early researchers believed that the sleep-wake cycle was regulated by the build-up and subsequent removal of toxins from the blood (Moruzzi, 1964). Since then the understanding of sleep regulation and its relation to age-related changes in sleep structure has undergone several theoretical shifts. Age-related modifications to the structure of normal sleep are now hypothesised to be the consequence of functional alterations to the circadian pacemaker, which regulates the timing of sleep episodes, and its interaction with the sleep homeostat, which regulates the drive for sleep (Borbely, 1982; Lavie, 2001).

This chapter is concerned with the structure and regulation of normal sleep across the lifespan. It first describes the structure of normal sleep, and then outlines the age-related changes in the structure of normal sleep across the lifespan, from infancy, through childhood, and adulthood, to late adulthood. Although the current study is concerned primarily with the sleep of elderly women, it is nonetheless important to describe and discuss the age-related changes to the structure of sleep in earlier stages of life, given that this research is significantly guided by a lifespan approach to sleep and aging. Next, the chapter discusses the evolution of theory regarding the regulation of sleep, with particular focus on current understandings of sleep regulation. Finally, discussion turns to the age-related changes in the sleep regulatory mechanisms, and how these are reflected by the age-related changes that are seen in the structure of the normal sleep of elderly adults.

THE STRUCTURE OF NORMAL SLEEP

Sleep undergoes continual structural changes across the lifespan. The normal sleep of an infant is very different to the sleep of a child, which is in turn different to the sleep of a young adult, to a middle-aged adult, and to an older adult. Normal sleep, however, at any stage of the lifespan, after early infancy (Carskadon & Rechtschaffen, 1989; Fukuda & Ishihara, 1997), is characterised by a series of common components and recognisable stages. For example, any normal sleep episode can be separated into Rapid Eye Movement (REM) sleep, and Non Rapid Eye Movement (NREM) sleep, first described by Aserinsky and Kleitman (1955). REM sleep, as the name suggests, is marked by bursts of rapid movements of the eyeball under the eyelid (Aserinsky & Kleitman, 1955). REM sleep also involves muscle paralysis, and is the sleep state in which dreaming predominantly takes place (Carskadon & Rechtschaffen, 1989). Across a normal night's sleep, the duration of REM episodes increases with the progression of the sleep episode, such that it is at its highest proportion relative to other sleep states in the latter portion of the sleep episode (Aserinsky & Kleitman, 1955).

In normal sleep, REM sleep occurs with ultradian rhythmicity, following each period of NREM sleep (Aserinsky & Kleitman, 1955). NREM sleep can be understood as a series of four progressively deeper stages of sleep. Stage 1 NREM sleep is the first stage of a normal sleep episode. This stage is marked

by low-amplitude mixed frequency oscillations as recorded by an electroencephalogram (EEG). During this stage, the individual has a low arousal threshold (Carskadon & Dement, 1989), meaning they will be easily woken by stimuli such as low-level sound, light touch, or changes in light.

Stage 2 NREM sleep represents the movement into a slightly deeper sleep state, where the arousal threshold is slightly higher (Bonnet & Moore, 1982). The background EEG is much the same as that of stage 1, however two features discern the first stage from the second. Stage 2 sleep is associated with an EEG pattern that includes k-complexes and sleep spindles (Carskadon & Rechtschaffen, 1989). K-complexes are short bursts of higher amplitude activity. They occur regularly throughout stage 2 sleep, and last for half to one and a half seconds each. In contrast to the k-complex, the second notable feature of stage 2 sleep, sleep spindles, are bursts of dense, high frequency activity. Spindle duration is at least half of one second, with a frequency of one to three per minute of stage 2 sleep in a normal young adult (Carskadon & Rechtschaffen, 1989). Stage 2 sleep is viewed as the onset of 'real' sleep by some. One study of sleep state perception (Bonnet & Moore, 1982) showed that subjective sleep onset occurs two to four minutes after the first sleep spindle, and is associated with a significant increase in auditory arousal threshold, which is an indicator of depth of sleep.

Stages 3 and 4 of NREM sleep may also include k-complexes and sleep spindles, however they are much less frequent than in stage 2 sleep (Carskadon & Rechtschaffen, 1989). Stages 3 and 4 are known as slow wave sleep (SWS). These stages are characterised by low frequency, high amplitude waves, and are accompanied by a high arousal threshold (Carskadon & Dement, 1989), meaning that relatively strong stimulation is required to move the individual into a state of wakefulness, or into an lighter stage of sleep. Stage 3 sleep is differentiated from stage 4 sleep by the proportion of high amplitude waves, such that a greater proportion of high amplitude activity represents a deeper stage of sleep (Carskadon & Rechtschaffen, 1989).

NREM sleep is followed in a normal sleep episode by a period of REM sleep, after which the cycle continues throughout the sleep episode (Aserinsky & Kleitman, 1955; Carskadon & Dement, 1989). Sleep architecture has a circadian rhythm, where SWS, which accounts for the largest proportion of sleep early in the sleep episode, is awarded less time than REM sleep in the later part of the sleep episode.

Sleep structure across the lifespan

Sleep stages and cycles

The sleep patterns of newborn infants greatly deviate from that of other developmental stages and an alternative sleep classification system is thus used (Carskadon & Rechtschaffen, 1989). In the first months of life the

distinguishable sleep stages may be classified as active sleep (AS), which equates with REM sleep (Oskar, Jenni, Borbely, & Achermann, 2003), quiet sleep (QS), equated with NREM sleep (Oskar et al., 2003), and indeterminable sleep (Anders, Emde, & Parmelee, 1971). Newborn infants spend the highest proportion of the sleep episode in AS (Jenni et al., 2004; Louis, Cannard, Bastuji, & Challamel, 1997; Navelet, Benolt, & Bouard, 1982; Oskar et al., 2003). This rapidly changes however, with the percentage of QS increasing and the percentage of AS decreasing with the age of the infant (Fagioli & Salzarulo, 1982; Louis et al., 1997; Navelet et al., 1982; Oskar et al., 2003; Peirano, Fagioli, Bes, & Salzarulo, 1993). An investigation of the role of SWS in the increasing duration of the QS phase of the sleep of normal infants aged 1 week to 12 months (Peirano et al., 1993) found infants who had not developed SWS showed significantly shorter QS episodes than infants who had developed SWS, and that the duration of the QS phase was dependant on the latency and duration of the SWS. Further progression towards mature sleep structure is marked by the emergence of sleep spindles in infants aged two to six months (Mirmiran et al., 2003; Navelet et al., 1982), while all EEG characteristics of NREM sleep are developed by six months (Carskadon & Dement, 1989). SWS continues to account for the largest portion of the sleep episode in early childhood (Carskadon & Dement, 1989).

By adolescence, the average duration of the REM/NREM cycle is 90 minutes (Carskadon & Dement, 1989). SWS continues to decrease throughout

adolescence and adulthood, as stages 1 and 2 sleep continue to increase (Carskadon & Dement, 1989). By late adulthood, the distribution of NREM sleep is such that SWS forms the smallest proportion of the nocturnal sleep episode (Carskadon & Dement, 1989). In fact, there is some evidence to suggest that by the age of 90 years, SWS may not occur at all (Bliwise, 1989). Stage 1 sleep on the other hand, increases to up to 15 percent of total sleep time (Bliwise, 1989).

Sleep timing

The timing of sleep in the 24-hour period also changes across the lifespan. Sleep episodes of newborn infants are interrupted by very short episodes of wakefulness (Coons & Guilleminault, 1982; Louis et al., 1997; Navelet et al., 1982) and do not reflect the circadian rhythm visible in sleep patterns of older children. This changes gradually however, with most infants showing evidence of a cyclical sleep pattern at seven weeks old (Fukuda & Ishihara, 1997). Coons and Guilleminault (1982) studied the sleep-wake patterns of infants aged six to 26 weeks, and found sustained periods of wakefulness were present by six weeks, and consistently occurred in the late afternoon and early evening by 12 weeks. It has also been shown that average total daytime sleep decreases from 4.6 hours at three months of age, to 2.8 hours at nine months (Oskar et al., 2003), and that in the first six months of life, the longest sleep episode is increasingly situated within the darkest part of the 24-hour period (Coons & Guilleminault, 1984). These findings paint a picture of rapid

development from an infantile sleep pattern that does not differentiate between diurnal and nocturnal phases of the 24-hour period, to a clear cycle of adult-like sleep-wake patterns.

In adulthood, the majority of sleep over the 24-hour period is located within the nocturnal phase, though age-related changes in the timing of sleep continue (Bliwise, 1989). One study used actigraphy and sleep logs to compare the timing of sleep between healthy young adults aged 18-32 years, and older adult aged 65-75 years (In-Young, Kripke, Youngstedt, & Elliott, 2003). Similar nap durations were reported between groups, though young adults napped in the afternoon, whereas older adults napped in the evening in the two hours before bed. It was shown that the nap timing of the older group was related to earlier wake times, and shorter duration of the nocturnal sleep episode (In-Young et al., 2003).

Sleep consolidation

Sleep consolidation also changes with age (Bliwise, 1989). One study with interesting implications for understandings of sleep fragmentation in older adults (P. Murphy et al., 2000), investigated the sleep stage placement of spontaneous sleep termination in old (60-80 years) adults, compared to young (19-28 years) adults and examined the influence of circadian phase and objective quality of the preceding sleep episode, as well as the impact of aging on characteristics of sleep termination. Older adults' sleep was significantly

less likely to terminate during REM sleep than that of their younger counterparts, despite showing no significant age difference in the percentages of REM and NREM. Closer examination of the older group revealed that sleep termination was more likely to occur during REM sleep in those with higher sleep efficiency than those with lower sleep efficiency (P. Murphy et al., 2000), suggesting that age-related differences in spontaneous termination of sleep may be due in part to the objective quality (or at least efficiency) of the preceding sleep period. This is a highly significant finding. Not only is sleep fragmentation a major problem for the elderly (Bonnet, 1989; Morin & Gramling, 1989), but many also have low objective sleep efficiency (Morin & Gramling, 1989). Murphy et al.'s (2000) finding that lower objective sleep efficiency sleep is associated with termination during NREM sleep perhaps suggests that successful efforts to increase sleep efficiency may increase the likelihood of sleep terminations being located within REM sleep, which, as discussed earlier, provides a more satisfactory gate to wakefulness.

Auditory arousal threshold

By late infancy, the characteristics of REM and NREM sleep are developed, although SWS continues to account for the largest portion of the sleep episode in early childhood (Carskadon & Dement, 1989). This gradually reduces over time, as stages 1 and 2 NREM sleep increase. A child older than ten years therefore becomes more prone to waking during the night as their average arousal threshold decreases. Early research that used an auditory evoked

response protocol (Buchsbaum, Gillin, & Pfeffermbaum, 1975) found that young adults have a lower auditory arousal threshold during stages 2, 3, and 4 sleep than during REM sleep, indicating that NREM sleep is more vulnerable to waking from auditory stimuli than REM sleep. With increasing age, a greater amount of time spent in stage 1 sleep equates to a greater amount of time with a low arousal threshold, and therefore a greater propensity to wake (Bliwise, 1989).

Core and optional sleep

The sleep architecture of older adults has also been investigated with respect to core and optional sleep (Horne, 1991). Horne (1991) theorised that core sleep is the essential part of the sleep cycle and encompasses the first three sleep cycles of the sleep episode. As such, it is comprised mostly of SWS. The remainder of the sleep episode was termed 'optional' sleep. Changes to core sleep have a greater impact on the individual than changes to optional sleep, given that core sleep is the most important part of the sleep episode. One study (Wauquier & Van Swede, 1992) found that age was associated with reductions in NREM and REM sleep alike in both core and optional sleep.

Gender differences in the sleep structure of older adults

In late adulthood women have been shown in polysomnographic and actigraphic studies to consistently spend less time in stage 1 and more time in

stages 3 and 4 sleep than their male counterparts (Fukuda et al., 1999; Hume, Van, & Watson, 1998; Kobayashi et al., 1998). They also have greater total sleep time, and longer REM sleep latency (Wauquier & Van Swede, 1992). Gender differences in the objective and subjective sleep parameters of older adults will be presented in further detail in chapter two.

SLEEP REGULATION

Homeostatic regulation of sleep

Homeostatic principles guided research into the regulation of normal sleep until the 1960's (Lavie, 2001). It was postulated that energy and essential brain and bodily constituents depleted over sustained periods of wakefulness, and were restored during sleep. This idea went hand in hand with the further notion that toxins accumulated in the brain with the activity of wakefulness, and that high enough levels of toxins inhibited brain activity, resulting in sleep (Moruzzi, 1964). The sleep period was therefore believed to terminate when the removal of the toxins from the blood stream was completed. Hence, the sleep-wake cycle, in the opinion of early researchers, reflected the build up and removal of toxins from the blood.

Today, the notion of homeostatic regulation of sleep is evident in the idea that sleep is partially regulated by homeostatic pressure to sleep during sustained periods of wakefulness, and reduction of that pressure during sustained periods

of sleep (Borbely, 1982; Daan, Beersman, & Borbely, 1984). The homeostatic process balances the increasing need for sleep during the day, with the diminishing need for sleep during the nocturnal sleep phase (Dijk, Duffy, Riel, Shanahan, & Czeisler, 1999). The homeostatic sleep process is therefore sleep-dependent. The need for sleep is directly related to the previous period of sleep or wakefulness.

Circadian regulation of sleep

In the 1960's, there was a theoretical shift from intrinsic to extrinsic mechanisms in the regulation of the sleep-wake cycle. It was the contention of Kleitman (1963) that the rhythmical alternation between sleep and wakefulness was necessarily dependant on external zeitgebers such as light and temperature. He explained the continuation of the sleep-wake cycle in the absence of time cues as an indication that the rhythm was a conditioned response, and would therefore persist once fully established.

The idea of endogenous rhythms as regulators of many facets of human biological existence came to the forefront in the 1970's. Endogenous rhythms were understood as those that were not dictated by environment, but rather were created and maintained internally (Lavie, 2001). Lavie (2001) notes that endogenous rhythms share five common characteristics. First, they persist in the absence of time cues. Second, they retain an approximate 24-h cycle when a different environmental cycle is imposed. Third, their phase changes slowly

following an abrupt environmental phase shift. Fourth, they do not revert immediately following entrainment to a new phase rhythm, and finally, they drift away from the 24-h cycle following the complete removal of all known zeitgebers. Clearly, the sleep-wake cycle satisfies each of the criteria for an endogenous circadian rhythm and can therefore be thought of as such. Circadian rhythms are controlled by the circadian pacemaker, so called because it maintains the timing and synchrony of circadian rhythms. The circadian pacemaker originates in the suprachiasmatic nucleus (SCN) of the hypothalamus (J. Duffy et al., 2002; Touitou & Haus, 2000), and communicates the circadian periodicity to the pineal gland, which in turn drives the timed secretion of hormones (Touitou & Haus, 2000).

Borbely and Achermann (1999) write that the circadian sleep rhythm is independent of sleep itself. Rather than depending on preceding episodes of sleep or wakefulness, it is driven by the external influence of zeitgebers and the internal phase relationship that exists between the sleep rhythm and other circadian rhythms, particularly the core body temperature and the melatonin secretion rhythm. The internal phase relationship between the temperature and melatonin rhythms is such that the onset of melatonin secretion corresponds with the decline in temperature, which is followed a few hours later by habitual bed time (Wyatt, Ritz-De Cecco, Czeisler, & Dijk, 1999). Conversely, melatonin secretion reaches maximum just before the temperature minimum, or nadir, which is followed by habitual wake time. Thus, sleep

quality is highest when habitual sleep and wake times fall on either side of the temperature nadir and melatonin maximum.

In forced desynchrony studies, a sleep-wake cycle that is either longer or shorter than 24 hours is imposed. This results in a desynchronisation between the sleep-wake cycle and other circadian rhythms. Forced desynchrony allows documentation of sleep phenomena at many different circadian phases and also of the wake phenomena that occur following sleep at different circadian phases (Wyatt et al., 1999).

Two-process model of sleep regulation

The two-process model of sleep regulation was first proposed by Borbely (1980) to explain sleep regulation in rats, but it was soon generalised to the sleep of humans (Borbely, 1982). The model claims that the sleep-dependent homeostatic sleep *process S* affects the rise of sleep propensity during a period of wakefulness and its decline during a period of sleep. Process S interacts with the self-sustaining circadian sleep *process C*, which provides a timeframe for sleep and wake, and together, the two processes regulate the timing and structure of sleep (Borbely, 1982; Borbely & Achermann, 1999). The sleep-dependent process S is marked by EEG slow wave activity (SWA) indicative of SWS, where the presence of SWA reflects a dissipation of sleep propensity (Borbely, 1982).

The two process model of sleep regulation assumes the independence of the homeostatic and circadian sleep processes. Nonetheless, Borbely and Achermann (1999) acknowledge a potential feedback mechanism of process S on process C, reflected in the logical argument that process C may be shifted by alterations to sleep-wake-related light exposure, due to self-scheduling of sleep, which is driven in part by process S.

An integrated psychobiological model of sleep

Espie's (2002) psychobiological model of normal sleep builds upon the two process model of sleep regulation. It proposes that the core sleep regulation system; the sleep homeostat and the circadian timer, is protected by the implicit plasticity and automaticity of that system. Plasticity refers to the robustness of sleep regulation to night-to-night variability resulting from situational stressors, whilst automaticity is reflected in the involuntary nature of sleep regulatory processes. These properties are maintained by four subsystems: sleep stimulus control, physiological de-arousal, cognitive de-arousal, and daytime facilitation of sleep (Espie, 2002). The subsystems interact such that physiological and cognitive de-arousal signal sleep readiness and are further reinforced by conditioned stimuli in the sleep environment. Daytime facilitation of nighttime sleep occurs through the accurate attribution of fatigue, mood, and other fluctuations in internal state, to daytime events rather than sleep disturbance, and effective skills for coping with stress and anxiety (Espie, 2002).

Sleep regulation across the lifespan

Study of the circadian pacemaker in relation to sleep has suggested that age-related changes in the sleep-wake cycle may result from changes to circadian rhythmicity, including a flattening of rhythm amplitudes, and desynchronisation of their internal phase relationship (Carrier, Paquet, Morettini, & Touchette, 2002; J. Duffy et al., 2002; Haimov & Lavie, 1997; Sahni, Schulze, Stefanski, Myers, & Fifer, 1995). Van Cauter et al. (2000) point out that it is very difficult to investigate the point in the lifespan at which the changes appear, as most sleep studies are cross sectional, and compare groups rather than track the aging process. It is clear however, that some circadian sleep changes do emerge reasonably early in adult life.

Earlier sleep and wake times, and reduced sleep consolidation are all present by middle adulthood (J. Duffy & Czeisler, 2002; Landolt & Borbely, 2001). As the circadian pacemaker regulates these aspects of sleep, it is likely that modifications in circadian rhythmicity may be responsible for age-related objective sleep changes (Sahni et al., 1995). Furthermore, the earlier clock times for sleep and wake in middle aged adults compared to young adults are reportedly accompanied by an earlier temperature phase (Carrier et al., 2002). As no amplitude changes were apparent in Carrier et al.'s (2001) study, it can be assumed that the phase shift occurs in middle age, before changes to the amplitude of the oscillations (Carrier et al., 2002).

Ageing and internal circadian phase relationships: Core body temperature and melatonin secretion

A closer examination of the internal phase relationships between sleep and other circadian rhythms provides interesting information about age-related changes to the sleep-wake cycle. When the nadir of the body temperature rhythm is used as a marker of the status of the circadian pacemaker of older adults, not only can an advance in wake time and the circadian phase of body temperature be noted (J. Duffy et al., 2002; Touitou & Haus, 2000), but the phase relationship between the temperature rhythm and habitual wake time is also significantly shorter (J. Duffy et al., 2002). A similar pattern is seen for habitual bedtime. The sleep episodes of older subjects are habitually commenced an average 6.3 circadian hours before the temperature nadir, compared to 5.2 circadian hours in younger subjects (Dijk et al., 1999).

Melatonin secretion is regarded as a more reliable indicator of the status of circadian timing than core body temperature, because it is less sensitive to factors such as body posture and sleep stage (J. Duffy et al., 2002). Duffy et al.'s. (2002) study aimed to investigate the relationship between the timing of the plasma melatonin rhythm and the timing of the sleep and wake times of habitual sleep episodes in healthy young and older adults. It was found that the middle phase of the melatonin rhythm occurred at a significantly earlier circadian hour in older adults than younger adults (J. Duffy et al., 2002). That

is to say that the phase relationship between habitual sleep and wake times, and melatonin secretion in older adults equated to an earlier bed time with respect to melatonin onset, and earlier wake time with respect to melatonin offset. As a result of the altered phase relationship between the timing of the sleep episode and melatonin secretion, older adults wake with higher levels of melatonin in their blood than younger adults

CHAPTER SUMMARY

A lifespan approach to sleep shows that discernable changes to the structure and regulation of sleep continue from infancy to old age. Age-related changes to the circadian rhythmicity of the sleep-wake cycle and the internal phase relationships between that rhythm and others including those of core body temperature and melatonin secretion, are thought to manifest as the structural changes seen in the sleep of elderly adults. These changes are viewed as developmentally normal rather than pathological. The content of this chapter relates to the larger thesis in that the study participants are aged over 65 years, and it is therefore important to understand the age related change that they are likely to have experienced as a part of the normal developmental course. The measurement of sleep phenomena and their changes, and issues around sleep disturbance and disorders in the elderly will be discussed in chapter two.

Chapter 2

Disturbance of sleep quality in later life: Issues of classification, measurement, and impact

*I reached for sleep and drew it round me like a blanket muffling pain
and thought together in the merciful dark
– English novelist Mary Stewart (1916-)*

Chapter one explored the normal structure and regulation of sleep quality across the lifespan. This chapter shifts the focus from normal sleep to sleep quality in the context of disturbed sleep. Sleep quality is the culmination of a range of ideas about what it is to sleep well or indeed to sleep poorly. It may refer to a single sleep episode or to the average of an individual's sleep history over a given period. Implicit in the concept of sleep quality is the assumption that to have a high level of sleep quality is to sleep well, and that to have a low level of sleep quality is to sleep poorly. It follows therefore, that some set of criteria must underlie the measurement of the quality of an individual's sleep, so as to place them at an appropriate point on a continuum of sleep quality. Such criteria may be objective or subjective in nature, and this distinction

impacts greatly on the categorisation of a set of sleep phenomena as representations of good or poor sleep quality.

This chapter will outline methods and research on the objective and subjective measurement of sleep quality, before presenting evidence of a discrepancy between the two in the identification of sleep disturbance in elderly women and a discussion of related issues. It will then review the literature on insomnia and other sleep disorders. Finally, the impact of disturbed sleep on aspects of quality of life will be explored.

OBJECTIVE MEASUREMENT OF SLEEP QUALITY

Polysomnography

Objective measurement of sleep quality generally utilises polysomnographic recordings to assess the distribution of sleep stages, and to record phenomena such as sleep onset, fragmentation, and termination (J. Duffy et al., 2002; Van Cauter, Leproult, & Plat, 2000). Sleep onset is defined as the point at which the individual moves from a state of wakefulness to stage 1 sleep. Conversely, sleep termination is the point at which the individual moves from any stage of sleep, to a state of wakefulness lasting for a period of at least 20 minutes (P. Murphy et al., 2000). Shorter periods of wakefulness throughout the sleep episode reflect sleep fragmentation. These objectively recorded phenomena, along with information about the distribution of sleep stages, are organised in

a manner such that high sleep quality ideally indicates sufficient time in bed, low sleep latency, low proportions of stage 1 and 2 sleep relative to SWS, and low sleep fragmentation.

Actigraphy

Many studies also utilise actigraphy as a measure of activity levels, and therefore sleep and wakefulness (In-Young et al., 2003; McCrae et al., 2005; Rowe et al., 2008; Tworoger, Davis, Vitiello, Lentz, & McTiernan, 2005). This involves the wearing of a wrist watch-like device, which records data on activity levels throughout the required period. Reviews of the utility of actigraphy in the study of sleep (Ancoli-Israel et al., 2003; Sadeh & Acebo, 2002), suggest that while it is a less reliable measure of some aspects of objective sleep quality, it can be used for evaluation of sleep patterns and treatments in sleep disordered patients, diagnosis of circadian sleep disorders, and in the place of PSG when the invasiveness of that measure is not tolerated.

Melatonin measurement

Another common technique for the objective evaluation of sleep involves the measurement of melatonin levels in the serum or saliva (I. M. McIntyre, Norman, Burrows, & Armstrong, 1987; Nowak, McMillen, Redman, & Short, 1987). This is often used to evaluate the dim light melatonin onset (DLMO), and sleep-behavioural correlates of the sleep-inducing hormone in circadian studies. One study investigated whether DLMO could be estimated using

fixed or free sleep time (Burgess & Eastman, 2005). While this was a valid alternative to the more invasive measurement of melatonin levels in young adults, the temporal distance between DLMO and sleep time was highly variable in older adults, and therefore the estimation of DLMO from sleep time was not useful in this population (Burgess & Eastman, 2005). Another study of adults aged 65 or older found that saliva melatonin levels were an inaccurate assessment of DLMO in the elderly, compared to serum melatonin (Gooneratne et al., 2003). This effect was due to hyposalivation in this population, and was strongest for female participants.

SUBJECTIVE AND SELF-REPORT MEASUREMENT OF SLEEP QUALITY

The utility of objective measurement of sleep quality is generally confined to research settings. Although such measures provide accurate data about the structure of an individual's sleep, subjective appraisal of one's own sleep quality is arguably more important in the clinical setting. It is also central to this thesis. Subjective sleep quality, where the individual self-categorises their sleep quality, and/or self-reported sleep indices have traditionally provided a benchmark for clinical decisions regarding diagnosis of sleep disorders and treatment when necessary. High subjective sleep quality indicates that the individual is satisfied that their sleep is in line with their expectations, and therefore does not make any sleep related complaints. Conversely, low subjective sleep quality indicates, regardless of the objective data, that the

individual appraises their sleep to be unsatisfactory. The experience of these problems and their subsequent impact is no less real for the individual than that yielded by objectively (through PSG and actigraphy) identified sleep problems. The impact of poor subjective sleep quality will be discussed in later sections of this chapter, when conceptualisations of quality of life in aging will be presented.

Self-report sleep questionnaires such as the Pittsburgh Sleep Quality Index (PSQI) utilise criteria around total time in bed, sleep latency, time spent asleep, time spent awake, and sleep efficiency to gauge sleep quality (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989), and will be termed “self-reported sleep indices” in this thesis. It is important to note that an individual can self-report sleep parameters that indicate disturbed sleep, but may not complain of poor sleep quality.

Age-related change in subjective sleep quality

Around half of the elderly population report poor sleep quality (Vitiello, Larsen, & Moe, 2004). Older adults also experience an increased rate of sleep disorders (McAndrews, Weiss, Sandor, Taylor, & Carlen, 2003), with insomnia reported by 25-35% of that cohort (Buysse, 2004; Endeshaw, 2001). Among the sleep changes reported are increased sleep latency, sleep fragmentation, daytime sleepiness and napping (Buysse, 2004; Manabe et al., 2000). The fact that at least half of all elderly individuals do not report poor

sleep quality (Buysse, 1991; Ouellet, 1996; Vitiello et al., 2004) is also interesting because it suggests that subjectively evaluated poor sleep is not necessarily an inevitable function of the aging process. It is consistently found, however, that healthy adults who do not report poor sleep, are nonetheless evaluated objectively as having poorer sleep quality than their younger counterparts (P. Murphy et al., 2000; Vitiello et al., 2004).

The discrepancy between objective and subjective sleep quality

The debate around the appropriateness of objective versus subjective assessment of sleep quality is central to this thesis. The discrepancy between the subjective and objective sleep quality of older adults is perhaps an indication, as pointed out by Murphy et al. (2000), that the elderly may adjust their expectations of sleep. That is to say that their lack of complaint about the quality of their sleep, may reflect a change in what they perceive to be good and poor sleep, rather than actual good sleep quality. Murphy et al. (2000) examined the relationship between subjective and objective measures in sleep quality of older men and women. It was found that while there was a significant correlation between the subjective and objective sleep quality of older men, there was only a weak relationship between the two types of measures for the older women.

Gender and ageing

Women tended to report lower sleep quality on a self-report index of sleep quality than that found via polysomnographic recording (P. Murphy et al., 2000). Furthermore, women who were administered estrogen replacement therapy (ERT) were found to report sleep quality that had no correlation with their objective sleep quality. Murphy (2000) interpreted these findings with regard to older women as an indication that elderly women evaluate sleep quality by criteria that are incongruent with those of the self-report measure. That was not the case for the elderly men however. The non-complaining men who scored high on the measure, indicating poor subjective sleep quality also displayed reduced sleep quality as measured objectively. Equally, the men who scored low on the self-report index, indicating good self-reported sleep quality, displayed intact sleep quality on the objective measures (P. Murphy et al., 2000).

The significant differences in the relationship between subjective/self-reported and objective measures of sleep quality for older men and women suggests that there are gender differences in the perceptions of what it means to sleep well among the elderly. Furthermore, the sleep of elderly women is objectively assessed as being better than that of elderly men, yet they rate their sleep as poorer than men do (P. Murphy et al., 2000), suggesting that the direction of the gender difference in subjective/self-reported sleep quality opposes the direction of the gender difference in objective sleep quality. This

interaction between gender and type of measure for the sleep quality of older adults has also been found by other research (Sakakibara, 1998), in which it was reported that while the subjective sleep quality of the older women was not significantly different to that of the older men, their sleep was objectively measured as actually being significantly better than that of the men.

The meaning of sleep quality to older women

In order to understand the findings around gender differences in the measurement of sleep quality of the elderly, it is perhaps necessary to reexamine exactly what is assessed by subjective sleep measures, and how it is different to what is assessed by objective sleep measures. Where objective sleep data imply that sleep quality can be determined by evaluation of the duration and architecture of a sleep episode (Kaufman, 2001), subjective measures rely to an extent on the individual's own understanding of what it is to have slept well. In a study that investigated the aspects of sleep that were most indicative of sleep satisfaction among older adults (Ouellet, 1996), it was found that sleep satisfaction was highly related to the total amount of sleep, the perceived number of awakenings, depth of sleep, and the 'overall quality of sleep'. It has been clearly demonstrated by Murphy et al. (2000) and others however, that quality of sleep does not have the same meaning for all individuals, or at least for all older individuals. This highlights the important distinction between the quantitative and qualitative types of subjective sleep data.

A long history of academic debate surrounds the roles of quantitative and qualitative data in health and human sciences (Arts & Halman, 1999; Corner, 1991; Wilson, 2003). Quantitative data on self-reported sleep quality, obtained through self-report questionnaires and rating scales are useful for measuring carefully defined constructs. However, the essential meaning of the respondent's experience may not be elicited due to the limited opportunity for description and elaboration (Giorgi, 1985). Qualitative data on subjective sleep, gathered through semi-structured or unstructured interviews, allows a richer level of description and discovery of the constructs underlying respondents' appraisals of their sleep (Giorgi, 2002; Morse & Field, 1995). Thus, it is generally recognised that quantitative and qualitative types of data both have an important role in the field of health and human sciences research (Corner, 1991) to which sleep research belongs.

One phenomenological study (Kaufman, 2001) investigated the underlying constructs used by individuals to determine how well they slept. It was reported that 'good' and 'bad' sleep were dependent on a series of 61 environmental, cognitive, time passage, and physical factors (Kaufman, 2001). The same author noted that while some common factors were represented in most individuals' understandings of the quality of their sleep, a high degree of individual variation indicated that people are more particular about what defines good and poor sleep than current clinical measures allow for.

SLEEP DISTURBANCE IN THE ELDERLY

The types of sleep disturbance that are most commonly reported by the elderly include sleep fragmentation, early waking, excessive daytime sleepiness, and sleep onset-delay (Barbar et al., 2000; Boey, 1997; Manabe et al., 2000). Other authors also identify having a low arousal threshold (Manabe et al., 2000) and tiredness upon waking (Bellia et al., 2003) as other types of sleep disturbance that effect older adults. It was reported in one study, which involved the comparison of an elderly cohort in 1983 with one in 1996, that sleep fragmentation has long been the most disruptive sleep disturbance for older people, and that it continues to be the most common sleep complaint today (Yamaguchi et al., 1999).

Collectively, sleep disturbance affects around half of elderly adults (Vitiello et al., 2004). A Chinese study of elderly patients attending a psychiatric clinic for the first time, found that 44.9% complained of sleep disturbance, and that sleep-related symptoms were the most common noted by the treating physician (Boey, 1997). Similarly, an Austrian study found that 37% of women and 26.5% of men reported disturbed sleep (Zeitlhofer et al., 2000). That study included data for adults of all ages, however, and it can therefore be assumed that the percentages of older adults reporting sleep disturbance would have been higher than the overall percentages, given that sleep disturbance is known to increase with age. More locally, a cross sectional survey of nearly 13,000

Australian women aged 70-75 years (Hasan, Byles, Mishra, & Harris, 2001), found that 33% of respondents reported experiencing sleeping difficulty 'sometimes', and 17% reported sleeping difficulty 'often'.

Insomnia

Insomnia can be conceptualised as a sleep disorder where sleep is quantitatively or qualitatively unsatisfactory for a period of one month, to the extent that it causes distress for the individual, and impacts negatively on their everyday function (American Psychiatric Association, 2000). Confusion in the literature around the definition and classification of insomnia (Lichstein, Durrence, Taylor, Bush, & Riedel, 2003; Soldatos, 2002) no doubt relates to the numerous classification and diagnostic systems for the sleep disorder. One review (Krystal, 2005) found that insomnia is generally classified by symptoms - sleep onset insomnia, sleep maintenance insomnia or insomnia with early morning awakening; duration – transient, short-term, or long-term, or; cause. The International Classification of Sleep Disorders (ICSD) (American Sleep Disorders Association, 2001) classifies insomnia according to its cause, and distinguishes between primary (intrinsic or extrinsic) and secondary (associated with another disorder) insomnia. Table 2.1 shows these classifications with the specific disorders included in each insomnia subtype.

Table 2.1

ICSD classification system for insomnia with specific disorders in each insomnia subtype.

Insomnia classification	Includes
Intrinsic	Psychophysiologic insomnia, sleep state misperception, idiopathic insomnia.
Extrinsic	Inadequate sleep hygiene, environmental sleep disorder, altitude insomnia, adjustment sleep disorder, insufficient sleep syndrome, sleep-onset association disorder, food allergy insomnia, nocturnal eating syndrome, hypnotic-dependent sleep disorder, stimulant-dependant sleep disorder, alcohol-dependant sleep disorder, toxin-induced sleep disorder.
Associated with mental disorder	Psychoses, mood disorders, anxiety disorders, panic disorders, alcoholism.
Associated with neurological	Cerebral degenerative disorders,

disorder	dementia, parkinsonism, fatal familial insomnia, sleep-related epilepsy, electrical status-epilepticus of sleep, sleep-related headaches.
Associated with medical disorder	Cardiac insomnia, nocturnal asthma, fibromyalgia, gastro-esophageal reflux, chronic obstructive pulmonary disease, peptic ulcer disease, sleeping sickness.

By classifying insomnia on the basis of etiology, the ICSD system implies that primary and secondary insomnia should be treated differently, such that in the case of secondary insomnia, the treatment of the primary condition should ameliorate the insomnia (American Sleep Disorders Association, 2001).

Psychological correlates of insomnia

Research has shown that insomniacs score higher on measures of anxiety, depression, neuroticism, stress perception, and emotion-oriented coping (de Saint Hilaire, Straub, & Pelissolo, 2005; Dorsey & Bootzin, 1997; Jansson-Frojmark & Linton, 2007; LeBlanc et al., 2007), suggesting that these factors are psychological correlates of insomnia. An investigation of the relationship between perceived sleep disturbance and psychological factors (depression,

anxiety and dysfunctional sleep beliefs) in 64 middle-aged and elderly adults (Edinger et al., 2000), distinguished four types of sleepers: complainers with objectively poor sleep; complainers with objectively normal sleep; non-complainers with objectively normal sleep, and; non-complainers with objectively poor sleep. The authors were interested in why some objectively normal sleepers complained about their sleep (normal complainers), while some objectively poor sleepers reported good sleep (non-complaining insomniacs). It was found that the normal complainers had higher anxiety, lower mood, and more dysfunctional beliefs about sleep, which may have predisposed them to focusing on sleep disturbance, and maximized their sleep complaint (Edinger et al., 2000). Non-complaining insomniacs, on the other hand, had lower anxiety, positive mood, and no dysfunctional sleep beliefs, which may have protected them from any negative effects of their objective sleep disturbance, and minimized their sleep complaint (Edinger et al., 2000). These findings suggest that subjective sleep appraisal may be mediated by psychological variables. This idea will be further explored in the section below, in the context of a cognitive model of insomnia.

Models of insomnia

Predisposing, precipitating, and perpetuating factors

Spielman (1986) proposed a model for the development and continuance of insomnia. He postulated that the onset of sleep disturbance is preceded by the

presence of *predisposing* conditions that reduce the threshold for insomnia. *Precipitating* factors such as disturbed routine, illness, loss or other life stressors then elicit the onset of insomnia, which may be *perpetuated* by factors including excessive time in bed, irregular sleep scheduling, napping, sedative substances and conditioning (Spielman, 1986).

A cognitive model of insomnia

The evidence for psychological correlates of insomnia lends support to cognitive models of the disorder. Espie's (2002) psychobiological model for normal sleep (see chapter 1) provides a sound framework for explaining the development of insomnia. According to the model, the good sleeper is a passive agent in their effortless sleep regulation, which occupies little of their attention. The insomniac though, is preoccupied with sleeplessness, and diverts a great deal of effort and energy to its management. Insomnia may be precipitated in predisposed individuals, by the inhibition of at least one of the subsystems (sleep stimulus control, physiological de-arousal, cognitive de-arousal, and daytime facilitation of sleep) involved in the psychobiological maintenance of the automaticity and plasticity of sleep regulation. In the absence of predisposition to insomnia, precipitating factors need to reach a higher threshold of impact in order to elicit insomnia. Perpetuation of the insomnia occurs when the acute inhibition continues, becoming chronic (Espie, 2002).

The perpetual inhibition of cognitive de-arousal is highlighted by Harvey's (2000) comparison of 30 insomniacs and 30 normal sleepers. Insomniacs were more likely to attend to worries, try to solve problems, and listen to environmental noise at night than normal sleepers. They were also more likely to report that such cognitive activity kept them awake (Harvey, 2000). Espie's (2002) model postulates that this cognitive activity inhibits the cognitive de-arousal of insomniacs, thus inhibiting the onset of sleep. Worrying thoughts related to sleeplessness, which were reported as occurring 'often' by 56% of insomniacs and only 3% of normal sleepers (Harvey, 2000), contribute to the development of an attentional bias for sleep and insomnia related thoughts, the awareness of which further reinforces the inhibition of sleep regulatory processes (Espie, 2002).

The attention-intention-effort (A-I-E) pathway to the development of psychophysiologic insomnia (Espie, Broomfield, MacMahon, MacPhee, & Taylor, 2006) builds upon the psychobiological model (Espie, 2002). As described earlier, the psychobiological model of insomnia is underpinned by the assumption that sleep/wake regulation is automatic, and therefore vulnerable to factors that inhibit that automaticity. The A-I-E pathway extends previous work by hypothesising that sleep wake automaticity is inhibited in insomniacs, by three stepwise cognitive processes: selectively attending to sleep cues, explicitly intending to sleep, and engaging in effortful attempts to sleep (Espie et al., 2006). According to the theory, the insomniac develops an

unconscious *attentional bias* for sleep cues, which becomes conscious. At this stage the individual is in scanning mode, and monitors their sleep with vigilance. Their sleep/wake automaticity begins to decline. The next stage is *intention to sleep*. The individual develops a responsive mental state, and is in planning mode. Sleep/wake automaticity is further reduced. The third stage of the pathway is sleep effort. This is a proactive behavioural state. The individual is in performance mode, and is emotionally driven. By this stage, sleep/wake automaticity is severely inhibited (Espie et al., 2006).

Treatment of insomnia

Insomnia in the elderly is most often treated with benzodiazepines (BZ), because these hypnotics have a rapid effect and are well tolerated (Sand et al., 2000). There is some suggestion in the literature however, that hypnotic medication should not be considered for the initial treatment of chronic insomnia (Stepanski, 2005), which should rather be treated with cognitive behavioural therapy (CBT) (Cervena et al., 2004; Jacobs, Pace-Schott, Stickgold, & Otto, 2004; Valliares, Morin, Guay, Bastien, & LeBlanc, 2004). This section will review the use of BZs and CBT as stand-alone and combined therapies for the treatment of insomnia in the elderly.

Benzodiazapines

BZs have a sedative effect on the individual and the relief they provide from the symptoms of insomnia has been well documented (Endeshaw, 2001;

Nowell et al., 2002). BZ use however, has also been associated by many authors (Curran et al., 2003; Dealberto, Mcavay, Seeman, & Berkman, 1997; Vignola, Lamoureux, & Bastien, 2000; Woodward, 1999) with a decline in cognitive function. Indeed, one meta-analysis found that long-term (more than 12 months) BZ use was associated with significant impairment of cognition compared to controls (Barker, Greenwood, Jackson, & Crowe, 2004). Although cognitive function improved in the six months following withdrawal, it remained below the normal range. Nonetheless, many people become dependent on BZs, and continue to use them well beyond their expected period of efficacy, which is usually only a few weeks (Woodward, 1999).

A study of nearly 1,300 Australian women aged 70-75 years, found that 18% reported taking sleeping medications in the previous four weeks (Hasan et al., 2001), and it is reported elsewhere that nearly 90% of individuals taking BZs for the treatment of insomnia were first prescribed the drugs by their general practitioner (Siriwardena, Qureshi, Dyas, Middleton, & Orner, 2008). Thus, the role of the general practitioner in the extent of rates of BZ use and misuse is considerable. One study of 192 long-term BZ users over the age of 65 living in London, found that 60 percent the participants had taken BZs for more than 10 years, and half had made unsuccessful attempts to stop using them (Iliffe et al., 2004). Despite these high rates of chronic use, the majority of participants reported that they had not been counselled by their physician on the risks of taking BZs. A qualitative study of the attitudes of 33 physicians

towards the prescription of BZs for anxiety reported a common attitude of skepticism regarding the risks of taking BZs and pessimism toward the discontinuation of BZs among elderly patients (Cook, Marshall, Masci, & Coyne, 2007). Although the study focussed on prescriptions for treatment of anxiety, it is perhaps likely that the physicians would have held similar beliefs regarding the prescription of BZs for the treatment of insomnia in the elderly.

Models of hypnotic use and withdrawal

Theoretical models from health psychology can explain and predict health-related behaviours, including BZ use and withdrawal. The Model of Planned Behaviour (MPB) (Ajzen, 1985), and the Health Belief Model (HBM) (Becker, 1974) are arguably the most respected of these. The MPB states that attitudes toward the behaviour, subjective norms, and perceived behavioural control, each influence each other and predict intention, which in turn predicts the behaviour (Ajzen, 1985). In contrast, the HBM contends that health-related behaviour depends upon beliefs regarding the susceptibility to, and seriousness of the threat, the perceived benefits of, and barriers to acting, cues to action, and confidence in one's ability to carry out the required behaviour successfully (Beisecker, 1991; Sage, Southcott, & Brown, 2001).

Research reviewing the application of the HBM to the prevention of drug abuse among the elderly (Beisecker, 1991) noted that elderly drug users feel susceptible to drug addiction but do not perceive the threat to be serious. The

same author also claimed that cues to action are also important for withdrawal from prescription drugs and most effective when they involve interpersonal communication, such as counseling or regular contact with nursing staff (Beisecker, 1991). Other authors have reported that long-term BZ users are more likely to withdraw from those drugs when they perceive that they are in control of their drug use (Van Hulton, 2001; Van Hulton et al., 2003), reflecting the importance of self-efficacy to withdrawal.

Variables from the MPB have also featured in research on BZ withdrawal. Van Hulton et al. (2003) found for example, that intention to use BZs was a predictor of actual use, and that it was particularly strong for older long-term BZ users. The perceived norm of the prescriber was also positively correlated with both the attitudes toward BZs and the intention to use BZs (Van Hulton, 2001; Van Hulton et al., 2003). These examples of research findings demonstrate that variables of both models may be useful in understanding why elderly women become long-term users of BZs.

Cognitive behavioural therapy (CBT)

CBT is also often used in the treatment of insomnia. Components of CBT for the treatment of insomnia (CBT-I) were found in one meta-analysis (Wang, Wang, & Tsai, 2005) to include stimulus control, sleep restriction, sleep hygiene, and cognitive restructuring. Outcomes of CBT-I include improved sleep efficiency, sleep onset latency, and wakefulness after sleep onset

(WASO), and reduced BZ use, with long-term improvements in total sleep time and WASO (Wang et al., 2005). The treatment delivery mode appears unimportant, with significant improvements in sleep parameters of primary sleep onset and sleep maintenance insomniacs at six month follow-up for CBT-I delivered in individual and group settings and via telephone (Bastien, Morin, Ouellet, Blais, & Bouchard, 2004).

Studies of CBT-I in older adults show promising results. One meta-analysis (Montgomery & Dennis, 2002, 2004) found a mild effect of CBT-I in late adulthood with the largest effect for sleep maintenance insomnia. A small study of seven chronic insomniacs aged 55-68 who received relaxation therapy followed by CBT-I showed no significant change in sleep parameters as measured by sleep diaries and PSG following relaxation therapy (Edinger, Hoelscher, Marsh, Lipper, & Ionescu-Pioggia, 1992). However, CBT-I had a significant effect on WASO, time in bed, and sleep efficiency (Edinger et al., 1992). More recently, a study of 92 adults aged over 55 years with insomnia secondary to chronic disease, randomly assigned participants to group CBT-I or a placebo condition (Rybarczyk et al., 2005). Subjective sleep quality was significantly improved by CBT-I suggesting that psychological factors are also prominent in secondary insomnia (Rybarczyk et al., 2005). The type of chronic disease was not related to sleep outcome.

Combined therapy

Studies of insomnia treatment regimes combining pharmacological and non-pharmacological treatments also show interesting results. A 10 week pilot study of six primary insomniacs compared concurrent medication/CBT, with two sequential-treatment regimes; i) medication for weeks one to five and CBT for weeks four to 10, and ii) medication for weeks one to five and CBT for weeks six to ten (Valliares et al., 2004). In each group, improvements in sleep parameters occurred in the weeks that included treatment with CBT. These results should be interpreted cautiously due to the small sample size, though they do align with the findings of larger studies. In one such study of young and middle-aged sleep onset insomniacs, participants were assigned to BZ, CBT, or combined therapy, or a placebo condition. The CBT group showed greater improvement in sleep parameters than the BZ group, with no additional effect for combined therapy group (Jacobs et al., 2004).

Other sleep disorders

Sleep apnea, periodic leg movement syndrome (PLMS), and nocturia will be described and discussed in this section. It is useful to understand these disorders, as they are often comorbid with insomnia in the elderly (Ancoli-Israel, Kripke, Klauber, Mason, Fell et al., 1991; Kallas, Chintanadilok, Maruenda, Donahue, & Lowenthal, 1999; O'Keefe, Noel, & Lavan, 1993; Quinnell & Smith, 2004).

Sleep apnea

Sleep apnea is a breathing disorder, manifesting as pauses or decreases in breathing during sleep (Quinnell & Smith, 2004; Shochat & Pillar, 2003). Apneas or hypopneas last for at least ten seconds per event and result in oxygen desaturation, or hypoxia, and a micro-arousal (Shochat & Pillar, 2003). Common symptoms of sleep apnea include loud snoring, excessive daytime sleepiness (Valencia-Flores et al., 1993) and cognitive decline (Shochat & Pillar, 2003). Disorder severity is indicated by the apnea-hypopnea index (AHI) (Sandberg, Franklin, Bucht, & Gustafson, 2001; Shochat & Pillar, 2003), which gives the minimal number of apneas or hypopneas in each hour across the night (Shochat & Pillar, 2003). Although no definitive cutoff has been agreed upon for the diagnosis of sleep apnea, some authors suggest $AHI \geq 5$ (American Academy of Sleep Medicine Task Force, 1999; Quinnell & Smith, 2004). At that level, one study places the prevalence of sleep apnea at 6% of 50-60 year old women, and 31% of their male counterparts (Young et al., 1993). This is supported by another study reporting 24% of community-dwelling elderly have $AHI \geq 5$ (Ancoli-Israel, Kripke, Klauber, Mason, & Kaplan, 1991)

Two types of sleep apnea: central sleep apnea, and the far more common obstructive sleep apnea (OSA) affect the elderly. OSA results from obstruction of the upper airway, despite continued respiratory effort (Shochat & Pillar, 2003). Obstructions may occur at any point along the pharynx

(Shochat & Pillar, 2003), with anatomical abnormality of the pharynx (Isono et al., 1997; Shochat & Pillar, 2003) or neuromuscular abnormalities (Remmers, de Groot, Sauerland, & Anch, 1978; Shochat & Pillar, 2003) the most likely cause.

The trend of OSA in aging is an interesting one, because unlike many other conditions, OSA peaks in the late 50s, plateauing thereafter (Ancoli-Israel, Kripke, Klauber, Mason, R et al., 1991; Quinnett & Smith, 2004). Ancoli-Israel et (1991) theorised that the lack of increase in OAS after the age of 65 may indicate that the highest rate of increase occurs in middle age, or alternatively, that the worst cases may result in death before the individual reaches late adulthood.

Nocturia

Nocturia is defined as waking at least twice a night to urinate (Bodo et al., 1998; Oliven, Carmi, Coleman, Odeh, & Silbermann, 2001). It may involve excessive nocturnal urine output, or an increased frequency of urination at night (Kallas et al., 1999), and is believed to result from overproduction of urine or a reduced capacity for urine storage, and an enlarged prostate in men (Moller-Ernst, Lose, & Walker, 2002).

Age-graded prevalence rates show nocturia becomes increasingly common with age, affecting over half of men in the last decades of their life (Blanker et

al., 2000; Wein, Lose, & Fonda, 2002) and an equal (Wein et al., 2002), if not higher (Rembratt, Norgaard, & Andersson, 2003), proportion of women. Additionally, the risk of incontinence is increased by 50% in women who have a comorbid sleep disturbance (Maggi et al., 2001), further compounding the problem of nocturia for the one out of at least every two women who experience incontinence with nocturia. Not surprisingly, it has been reported that 65% of elderly people with nocturia perceive it as problematic in their lives (Wein et al., 2002) and among the most bothersome of all urinary symptoms (Jolleys, Donovan, Nanchahal, Peters, & Abrahams, 1994). Another study found that 25% of incontinent nursing home residents had NPS (Ouslander, Schnelle, Simmons, Bates-Jensen, & Zeitlin, 1993).

The primary cause of nocturia in the elderly is nocturnal polyuria syndrome (NPS), where the proportion of urine produced at night is greater than 35% of total urine production over the 24-hour period (Kallas et al., 1999), possibly resulting from loss of the normal circadian rhythm that governs the secretion of the hormones that stimulate urine production (Kallas et al., 1999). One study found that while young adults excreted half as much urine during the day as they did at night, elderly individuals aged 60-80 actually excreted a higher volume of urine during their sleeping hours than during the day (Kirkland, Lye, Levy, & Banerjee, 1983).

The second most common cause of nocturia is unstable bladder, characterised by small micturition volume despite high urgency (Kallas et al., 1999). Kallas (1999) theorised that women's pelvic muscles weaken with aging, therefore providing reduced support for the lower urinary tract, and increasing urgency. Urgency is further increased by the atrophic changes to the urethra that occur with menopause (Kallas et al., 1999), increasing the vulnerability of elderly women to nocturia.

Periodic leg movement syndrome

Periodic leg movement syndrome (PLMS), or nocturnal myoclonus as it is also known, characteristically involves periodic leg jerks and motor restlessness that continues throughout the night (Ancoli-Israel, Kripke, Klauber, Mason, Fell et al., 1991). The leg jerk is described by the authors of one case study as a repetitive extension of the big toe and partial flexion of the ankle, knee, and hip, in events that last 3-5 seconds at intervals of 20-40 seconds (Wanabe, Ono, & Naito, 1990). PLMS is associated with EEG changes signaling microarousal at the time of the leg movements (Gosselin et al., 2003) and excessive daytime sleepiness (Mosko, Dickel, Paul et al., 1988) resulting from repeated disturbance sleep.

Prevalence estimates for PMLS range from 5% in an acute-care geriatric facility (O'Keefe et al., 1993) to 45% of community-dwelling elderly (Ancoli-Israel, Kripke, Klauber, Mason, Fell et al., 1991). The direction of this

discrepancy is surprising given that sleep disorders are generally found to be more prevalent in clinical populations than in normal populations. It is also interesting that PLMS varies significantly from night to night, particularly in less severe cases (Bliwise, Carskadon, & Dement, 1988). Difference in prevalence rated between these studies is a likely reflection of methodological differences. Another study found the fluctuation so significant that decisions regarding treatment would have differed had they been made on the basis of one night only (Mosko, Dickel, & Ashurst, 1988).

THE IMPACT OF INSOMNIA AND OTHER SLEEP DISORDERS ON QUALITY OF LIFE

One of the drivers of research on sleep disorders is the notion that they negatively impact 'Quality of Life' (QOL). This is a relatively ill-defined concept, and is better understood as a collective term for a range of indicators about the individual's well-being and level of function within their environment, and their satisfaction with their level of functioning (Zeitlhofer et al., 2000), rather than a single, distinct construct. One way of conceptualizing QoL is through its division into subjective well-being and satisfaction with different aspects of life, objective functioning in social roles, and environmental living conditions (Zeitlhofer et al., 2000). Subjective well-being can be further broken down into physical well-being, psychological/emotional well-being, personal and spiritual fulfillment, perceived social support, and occupational functioning (Zeitlhofer et al.,

2000). Objective functioning in social roles includes domains such as interpersonal functioning, while the environmental living conditions aspect involves domains such as community and services support, and self-care/independent functioning (Gill & Feinstein 1994).

While some predictors of QoL, such as age, health status, and social status have been identified, QoL remains a subjective construct, and can therefore only be accurately estimated by the individual (Sarkisian, Hays, Berry, & Mangione, 2001; Zeithofer et al., 2000). Although specific QoL instruments have been devised, QoL of elderly adults may also be inferred by gathering information on the indicators of QoL. For example, evaluation of the subjective well-being and satisfaction with aspects of life may be carried out by separately examining the smaller domains that fall within that aspect of QoL, such as physical, psychological, and social function. It is important to ensure however, that information about as many of the domains of QoL as possible is included, and that the domains covered do in fact reflect the themes that the individual or population uses to evaluate their own QoL.

The other aspects of QoL, being objective functioning in social roles, and environmental living conditions are more easily objectively evaluated, and are often estimated using indicators such as activity of daily living (ADL) (Manabe et al., 2000; Meguro, Ueda, & Kobayashi, 1995). ADL is a score that indicates the amount of daily activity that the individual is able to carry

out independently (Manabe et al., 2000). At its most basic level, ADL refers to the individuals mobility, and ability to feed themselves (Manabe et al., 2000; Meguro et al., 1995)

The subjective well-being aspect of QoL is particularly important, given the subjective nature of the 'QoL' construct. In a study that qualitatively compared older adults' expectations regarding aging to those of their physicians (Sarkisian et al., 2001), it was found that the domains of age-related change that were most often identified by both the physicians and the older adults were physical function, cognitive function, social function, pain, and sexual function. The older adults however, also identified additional domains that were not acknowledged by the physicians. These were anxiety, emotional well-being, happiness, length of life/impending death, and sleep (Sarkisian et al., 2001). Aside from further illustrating the importance of subjective evaluation of QoL, these findings demonstrate that sleep, and the other aspects identified, are aspects of growing older that elderly individuals consider when evaluating their QoL.

The relationship between sleeping difficulties and QoL was investigated by the Australian Longitudinal Study on Women's Health, which was a four-year longitudinal study of nearly 13,000 randomly sampled women aged 70-75 (Byles, Mishra, & Harris, 2005). Sleeping difficulties were negatively associated with QoL, and remained so after controlling for other factors

including depression and medication use. Another study found that good sleepers most often reported their QoL as excellent, while poor sleepers most often reported their QoL as poor or very poor, indicating that sleep quality and QoL are positively correlated (Zeitlhofer et al., 2000).

The finding that subjective sleep quality, sleep disturbance, and daytime dysfunction are the three aspects of sleep quality that most strongly correlated with QoL (Zeitlhofer et al., 2000) is particularly important given that these three aspects of sleep are affected not only by insomnia, but also by the other sleep disorders that are discussed in this chapter. For example, Wein et al. (2002) note that nocturia, which clearly causes sleep disturbance (Wein et al., 2002) and reduced subjective sleep quality (Moller-Ernst et al., 2002), is also associated with an increase in daytime sleepiness (Guilleminault, Lin, Goncalves, & Ramos, 2004). This was supported by a study that found that individuals with nocturia had reduced sleep quality as well as reduced general health status (Rembratt et al., 2003). That finding is perhaps related to the notion that urinary-related problems cause emotional distress, and therefore lead to reduced QoL (Bradway, 2003). Furthermore, another study that also found decreased QoL among elderly sufferers of nocturia attributed it in part to a second finding that many of the subjects had co-morbid insomnia and OSA (Guilleminault et al., 2004).

Sleep apnea has also been associated with reduced quality of life by other authors (Quinnell & Smith, 2004; Sandberg et al., 2001; Shochat & Pillar, 2003; Stepnowsky, Johnson, Dimsdale, & Ancoli-Israel, 2000). Stepnowsky et al. (2000) found that mild OSA was a significant predictor of physical and mental function, controlling for medical condition. They also reported however, that the relationship was not significant when the OSA was moderate to severe (Stepnowsky et al., 2000), which is quite perplexing. Another interesting reported relationship is that older apneics report a smaller decrease in QoL than their younger counterparts despite the finding that the severity of their OSA was equal (Browne, Adams, Simonds, & Morrell, 2003). This is perhaps an indication that the QoL of older individuals may be reduced by a variety of conditions and circumstances at any one time, and that the reduction in their QoL may be dispersed across a greater number of factors, leading them to attribute less of the reduction of QoL to their sleep apnea.

PLMS also impacts upon the QoL of the elderly. It has been reported that PLMS reduces sleep quality and increases sleep disturbance (Ancoli-Israel, Kripke, Klauber, Mason, Fell et al., 1991) and also affects daytime function (Mosko, Dickel, Paul et al., 1988), which are the three aspects of sleep quality that were found to predict QoL (Zeitlhofer et al., 2000).

In order to develop a more detailed understanding of the impact of sleep disturbance on QoL, it is necessary to consider sleep in relation to the smaller

domains of QoL. In particular, sleep disturbance in the elderly has been associated with the physical well-being (Dale et al., 2001; Manabe et al., 2000; Quinnell & Smith, 2004; Shochat & Pillar, 2003), psychological well-being (Livingston, Blizard, & Mann, 1993; Shochat & Pillar, 2003; Steeves, 2002; Sukegawa et al., 2003), and self-care/independent functioning (Manabe et al., 2000; Meguro et al., 1995) domains of QoL.

Perhaps one of the clearest indicators of physical well-being is risk of mortality. A UK study (Dale et al., 2001) investigated nursing home deaths to determine whether mortality could be predicted. It was found that sleep disturbance was one of a number of significant predictors of mortality. A similar study of Japanese nursing home residents (Manabe et al., 2000), assessed sleep patterns using visual monitoring of sleep every hour for 14 days. At a 2-year follow-up, 44.6% of nighttime insomniacs, 45% of daytime sleepers, 31.9% of early wakers, and 51% of those with sleep-onset delay at baseline had died. When age, gender, and ADL had been controlled for, nighttime insomnia and sleep-onset delay were significant predictors of mortality.

A second indicator of physical well-being is physical health status. One type of medical condition that is often associated with sleep disturbance, and with sleep apnea in particular, is cardiovascular disease (CVD) (Quinnell & Smith, 2004; Shochat & Pillar, 2003). Research has shown that OSA increases the

risk of hypertension independent of age, gender, and body mass index (BMI) (Shochat & Pillar, 2003). Furthermore, the same authors note that even a low AHI is associated with a moderate increase in CVD (Shochat & Pillar, 2003). Having sleep apnea therefore places the individual at increased risk of mortality, given that CVD is often associated with a poor prognosis. Quinnell & Smith (2004) explain that there is a burst of sympathetic activation upon termination of each apnea, and that this is one of the vehicles for the increase in CVD associated with OSA. Other authors further explain that the increase of sympathetic activation sees an increase in the blood pressure of the sleeping individual, which carries over into the daytime and results in hypertension (Narkiewicz & Somers, 1997).

One study found however, that sleep apnea was only associated with an increased risk of death from CVD in individuals over the age of 60 years (Nieto, Young, & et al, 2000). This was supported by another study, which found that elderly individuals with sleep-disordered breathing had a significantly reduced rate of survival when they had an $AHI \geq 30$, but that AHI did not independently predict mortality (Fisher, Pillar, Malhotra, & et al, 2002). Interestingly, the mortality rates for sleep apnea sufferers are reportedly highest among older adults aged between 30 and 50 years (Shochat & Pillar, 2003). In fact, the mortality rate for over 70's is significantly reduced compared to middle-aged adults. This, along with the finding that the severity of sleep apnea as indicated by subjective reports, snoring, AHI, and

daytime sleepiness, was not related to CVD in older adults (Enright et al., 1996) suggests that sleep apnea may actually be more serious a condition when it emerges in younger adults compared to older adults. In other words, a higher AHI is needed to cause CVD in the elderly than in younger adults.

To explain the notion that sleep apnea is less severe in older adults, one author (Bliwise, 1993) theorised that sleep apnea may be age-related (more likely to occur in middle-adulthood) or age-dependent (more likely to occur with increasing age). If that is the case, then sleep apnea in older adults may be secondary to normal age-related occurrences such as weight gain, increased pharyngeal fat deposit, and decreased pharyngeal response to negative pressure (Bliwise, 1993).

Nocturia also affects physical well-being. Wein et al. (2002) claim that nocturia increases the risk of falls and fractures among the elderly, and are supported in this by other authors (Moller-Ernst et al., 2002). Furthermore, a study of the relationship between nocturia and a range of medical conditions and the medications used to treat them found that nocturia was associated with an increase in disease and medication (Rembratt et al., 2003). When age and gender were controlled for however, the correlation between nocturia and different presentations of CVD was non-significant.

Cognition

The psychological well-being aspect of QoL is also associated with sleep quality. One domain of psychological well-being is cognitive function. Sleep apnea has been associated with cognitive decline, and Shochat (2003) outlines two lines of thought that have emerged regarding why the cognitive impairments may emerge. The first of these is that the decline is a direct result of the restricted oxygen supply to the brain. The second possibility is that the cognitive decline results from the sleep disturbance and subsequent daytime sleepiness associated with sleep apnea. Given that both of these contentions are plausible, Shochat (2003) suggests that the differences in findings may be due to the different types of neuropsychological tests administered. As such, it may be that the decline in psychomotor and executive functions is due to the hypoxaemia in sleep apnea, and that the decline in memory and attention functions may be the result of daytime sleepiness.

Excessive daytime sleepiness also affects cognitive function, and is related to daytime dysfunction, which is one of the three aspects of sleep quality most related to QoL (Zeitlhofer et al., 2000). One study reported that 8.9% of their Japanese-American male participants who had sleep disturbances reported daytime sleepiness (Barbar et al., 2000). That study acknowledged that the proportion of participants with daytime sleepiness was well below what is generally found in caucasian populations, but nonetheless found that daytime sleepiness was associated with a reduced QoL (Barbar et al., 2000). Another

study found that the degree of sleepiness in elderly women with OSA was partially dependant on the severity of the sleep disturbance (Valencia-Flores et al., 1993). This is in contrast however, with other research (Mosko, Dickel, Paul et al., 1988), which found that while participants with sleep apnea or PLMs clearly had objective sleep disturbance, only one quarter complained of sleep-related symptoms including daytime sleepiness. Nonetheless, excessive daytime sleepiness is one of the most common symptoms of OSA (Quinnell & Smith, 2004), nocturia (Guilleminault et al., 2004) and PMLS (Ancoli-Israel, Kripke, Klauber, Mason, Fell et al., 1991). Quinnell et al. (2004) note that it impacts upon QoL by decreasing memory and attention functions, and increasing emotional shifts, both of which act to reduce the capacity to function effectively during the day.

One of the problems with the excessive daytime sleepiness associated with sleep disturbance is that it means an increased risk of being involved in a motor vehicle accident (Quinnell & Smith, 2004). When individuals with OSA are compared to non-OSA controls on driving history and number of accidents, those with OSA are at least twice as likely (Wu & Yan-Go, 1996), and up to five times more likely (Findley, Unverzagt, & Suratt, 1988) to have an accident than controls. Upon treatment of the OSA, and subsequent reduction of the sleep disturbance however, the driving performance of individuals with OSA is not significantly different to that of controls (Findley, Levinson, & Bonnie, 1992).

Depression

Another aspect of psychological well-being is mood. Depression is a major health problem for the elderly, with current estimates indicating that it affects between one third (Sukegawa et al., 2003) and two thirds (Minicuci, Maggi, Pavan, Enzi, & Crepaldi, 2002) of older adults. It is reported that 30% of older adults with depression also have sleep disturbances (Katona, Manela, & Livingston, 1997). Other research into the relationship between depression and sleep disturbance has found that sleep disturbance and poor subjective sleep quality are characteristic of depressed elderly individuals (Sukegawa et al., 2003). Furthermore, a longitudinal study of the same relationship found that sleep disturbance was in fact the strongest predictor of future depression (Livingston et al., 1993). Other authors have reported similarly, that while sleep disturbance predicts depression in both men and women, it is a stronger predictor in men (Schechtmen, Kutner, Wallace, Buchner, & Ory, 1997).

A meta-analysis that evaluated the risk factors for depression among the elderly, found not only sleep disturbance, but also bereavement to be a major risk factor for depression (Cole & Dendukuri, 2003). This is interesting, because bereavement is not only an important and common experience among the elderly, but it also affects sleep quality (Byrne & Raphael, 1997; Steeves, 2002). A study that monitored the sleep of elderly individuals for two years after they had lost their spouse found that longer phases of REM sleep early in

the night, and a decline in SWS over the two years, over and above that associated with normal aging, were common (Reynolds et al., 1993). Furthermore, research into the subjective sleep of bereaved elderly has shown that they experience higher rates of sleep disturbance (Byrne & Raphael, 1997), and are more likely to have sleep-onset delay and sleep fragmentation (Steeves, 2002).

Activities of daily living (ADL)

Aside from its association with the physical well-being and psychological well-being aspects of QoL, sleep disturbance also impacts upon the individual's ability to care for themselves and maintain their independence. Manabe et al.'s (2002) nursing home study divided participants according to their ADL status, such that ADL-A could move around by themselves, and did not require assistance to eat, ADL-B did not satisfy criteria for ADL-A or ADL-C. ADL-C had been in bed for at least 3 months prior to the study and were assisted to eat. It was found that the average sleep time did not differ between groups, but that the sleep patterns were significantly different. The ADL-C group slept significantly less at night, and more during the day, than the other groups. Furthermore, sleep patterns predicted mortality independent of age, gender, and ADL (Manabe et al., 2000). Another study reported that increases in daytime sleep and decreases in nighttime sleep were partially dependent on ADL status (Meguro et al., 1995)

Given the knowledge around the impact of sleep disturbance and sleep disorder on QoL, and therefore an understanding of why it is important for older adults to sleep well, it seems valid to explore sleep-related promotion of QoL in the elderly. Manabe et al (2000) suggest that having a rhythmic sleep/wake cycle may promote overall well-being in the elderly, and base their contention on the finding that even when they were getting enough sleep over the 24 hour period, sleep disorders made elderly people feel unhealthy. This was supported by another study (Frisoni, De Leo, Rozzini, & Trabucchi, 1996), which found that daytime napping was correlated with feeling unrested the next morning.

However, other research supports napping. One study found that a 30 minute nap between one o'clock and three o'clock in the afternoon, as well as moderate walking in the evening improved the maintenance and quality of sleep (Tanaka & Shirakawa, 2004). This is not really in conflict with nursing home research however, as the ADL status of the nursing home residents was presumably much lower than the participants in Tanaka and Shiakawa's (2004) study. Other authors also encourage exercise for sleep-related promotion of QoL in the elderly, with one study finding that exercise improved not only sleep quality, but also correlated with 'successful aging' in general (Li, Zhang, He, & Zhang, 2001).

CHAPTER SUMMARY

Sleep disturbance experienced in late adulthood and its impact on quality of life is relevant to this thesis because the current study explores experiences of sleep disturbance, and the meanings that the participants make of these experiences. Insomnia and other sleep disorders have a clear impact on the QoL of older adults. Individuals with insomnia, sleep apnea, nocturia, and PLMS experience a negative impact on their subjective sleep quality, level of sleep disturbance, and daytime function. These factors in turn, lead to a reduction in the physical well-being, psychological well-being, and self care/independence aspects of the QoL of elderly people both in the community, and in aged-care. Sleep-related promotion of quality of life focuses primarily on maintaining a rhythmic sleep/wake cycle, which may be assisted by getting a small amount of moderate exercise in the evening. This picture of sleep disturbance is often perpetuated by particular events in later life. These will be presented in Chapter three.

Chapter 3

Transitions of late adulthood and their impact on the sleep quality of elderly women

It is sad to grow old but nice to ripen.

–Brigitte Bardot (1934-)

Ageing is associated with a range of physiological and psychosocial transitions that affect women's biological functioning, and their identity within their personal, family, and community spheres. The physiological transition associated with menopause (Granville, 2000; Guthrie, Dennerstein, Taffe, Lehert, & Burger, 2004; Polo, 2003) and psychosocial transitions from worker to retiree, from good health to declining health, from wife to widow, and from living independently to living in aged care (Chambers, 2000; Hislop & Arber, 2003; Machin, 2000; Middlekoop et al, 1994) are some of the transitions that commonly affect women in later life.

Given that late adulthood is a time of both physiological disruption to sleep and potentially stressful biopsychosocial transitions, it is also a time of likely reduced sleep quality for elderly women (Hislop & Arber, 2003a), as discussed in chapters one and two. The sleep changes that take place during that time, need therefore, to be explored not in isolation but rather in the

context of the women's changing world. Hislop and Arber (2003) embrace this complexity suggesting that the sleep quality of elderly women must be understood as a product of the interplay between the physiological transitions that are associated with ageing, and the psychological context in which they take place. This chapter will examine some of the physiological and psychosocial transitions that many women experience late in life, and discuss the impact of each transition on sleep quality.

PHYSIOLOGICAL TRANSITIONS AND WOMEN'S SLEEP

Women's lives are marked by physiological changes that impact on sleep, including the menstrual cycle (Baker & Driver, 2004; Hicks & Cavanaugh, 1982), hormonal contraception (Baker et al., 2001; Hicks & Cavanaugh, 1982) and pregnancy in young to middle adulthood, and menopause (Granville, 2000; Guthrie et al., 2004; Polo, 2003), and HRT in middle to late adulthood. This section will explore both objective and subjective sleep changes that occur as a consequence of these life changes.

Early adulthood

One study, which investigated the relationship between subjective and objective sleep quality and menstrual phase in young women found that subjective sleep quality was lower over three premenstrual days and four menstrual days, compared to days in other phases in the menstrual cycle (Baker & Driver, 2004). Other research has found an interaction between

menstrual phase and contraceptive use in the subjective need for sleep (Hicks & Cavanaugh, 1982). That study revealed that young women who were taking the contraceptive pill had a significantly greater subjective need for sleep in the second half of their menstrual cycle than those who were not taking the contraceptive pill (Hicks & Cavanaugh, 1982). Objective sleep changes are also affected by the contraceptive pill, with one study showing that taking the contraceptive pill reduces the amount of SWS across the sleep episode (Baker et al., 2001). Further objective sleep changes are seen in pregnancy, including increased total sleep time during the first trimester (Hedman, Pohjasvaara, Tolonen, Suhonen-Malm, & Myllyla, 2002), followed by an increase in frequency of waking after sleep onset (Brunner et al., 1994), and decreases in REM sleep (Brunner et al., 1994), and total sleep time (Hedman et al., 2002) throughout the remainder of the pregnancy. The same authors also reported reduced subjective sleep quality during the same period.

Middle to late adulthood: Menopause

Slightly different physiological issues influence the sleep quality of middle-aged and elderly women. A significant body of literature surrounds the impact of menopause on sleep, and reflects two polarised perspectives: the radical feminist perspective and the biomedical perspective. The radical feminist perspective purports that menopause should be understood as a natural experience in a woman's development (Granville, 2000), rather than as a hormone deficiency, as contended by exponents of the biomedical perspective

(Guthrie et al., 2004). Descriptions of these perspectives of the menopausal transition and their implications for sleep will be presented in the following subsections.

The feminist view

Granville's (2000) study, which was entrenched in a feminist framework, involved semi-structured interviews with 20 women aged 45-50 years. The author of that study argued that menopause may be viewed as a time of private transformation, and was supported in her suggestion by the finding that many participants viewed menopause as a stage during which they could reflect upon their life and upon their newly emerging maturity (Granville, 2000). Perhaps it would be reasonable therefore, to draw a link between this emotional labour, and the sleep disturbance associated with menopausal transition. If women in this transitional phase are engaging in increased pre-sleep cognitive activity related to such reflections, then it could be argued that this process is likely to impact directly on their sleep quality, and particularly their sleep latency.

The biomedical view

Advocates of the biomedical perspective on the other hand, have been criticised for treating menopause as a hormone deficiency disease, which can be described in medical terminology, and which has medical symptoms that can be medically treated with hormone replacement therapy (HRT) (Granville,

2000). The commencement of the menopausal transition is marked by variation in the length of the menstrual cycle, produced by increased levels of circulating monotropic follicle stimulating hormone (FSH) (Guthrie et al., 2004). Menopause then culminates with the retrospective identification of the final menstrual period (FMP) twelve months after the fact (Guthrie et al., 2004). Throughout the menopausal transition, many women experience physical symptoms such as altered menstrual flow, vasomotor symptoms, headache, dizziness, vaginal dryness, breast tenderness, palpitations, itchy skin, joint pain, and incontinence, as well as psychosocial symptoms such as anxiety, depression, decline in libido, difficulties with concentration and memory, and insomnia (Granville, 2000; Guthrie et al., 2004; Polo, 2003). The latter most commonly manifests as early morning waking and sleep fragmentation (Polo, 2003).

Menopause and sleep

Investigation into the relationship between menopause and sleep quality has revealed that four out of ten middle-aged women report sleeping difficulty (Kravitz et al., 2003; J. F. Owens & Matthews, 1998). In Kravitz et al.'s (2003) study, six participant groups were established according to menopausal status: premenopausal; early perimenopausal; late perimenopausal; naturally postmenopausal; surgically postmenopausal; postmenopausal receiving HRT. Age-adjusted analyses revealed that the highest rates of subjective sleep

disturbance were reported by late perimenopausal (45.4%), and surgically postmenopausal (47.6%) women.

It was reported by Kravitz et al. (2003), that menopausal status was significantly associated with subjective sleeping difficulty independent of other factors including sociodemographics, vasomotor symptoms, and physical and psychological health (Kravitz et al., 2003). This contradicts other authors however, who have argued that insomnia during menopause is the result of the stress caused by psychosocial pressures that are associated with mid-life, such as those around family, work, development of chronic illness and ageing, combined with being woken by hormone induced vasomotor symptoms (Guthrie et al., 2004; Polo, 2003). If this is the case, then given that vasomotor symptoms continue for an average of eight years after the FMP (Guthrie et al., 2004), and that the average age of normal Australian women at the time of their FMP is 53 years (Guthrie et al., 2004), it is reasonable to suggest that some women may continue to experience sleep disturbance associated with menopausal symptoms into their 60's. Either way, it is evident that women's physical transitions impact on objective and subjective sleep quality. It is the exact nature of the interplay between these biopsychosocial dimensions that remains unclear.

PSYCHOSOCIAL TRANSITIONS AND WOMEN'S SLEEP

The physically-related disruption to women's sleep takes place against a backdrop of psychosocial transition. These will be presented in this section.

The transition from wife to widow

One potential transition for older women is that from the role of wife to the role of widow. Forty percent of Australian women aged 65-94 are widowed (Australian Bureau of Statistics, 2007). In 2002, the mean age of widowhood for Australian women was 75 years, and the expected duration of widowhood for women widowed in that year is six years (Australian Bureau of Statistics, 2007). The transition from wife to widow involves a variable series of phases, including becoming a spousal caregiver, placing the husband in residential care, and the death and bereavement of the husband (Chambers, 2000; Hislop & Arber, 2003a).

Becoming a spousal carer

In the early phase of the transition from the role of wife to the role of widow, many elderly women take on the responsibilities associated with caring for a husband with declining physical health or dementia. Spouses account for more than half of primary dementia caregivers (Gilley, McCann, Bienias, & Evans, 2005; Schulz & Williamson, 1991) and most spousal caregivers are women (Allen, 1994; Gilley et al., 2005; Rebollo et al., 2005; Schulz & Williamson,

1991; Stevens, Owen, Roth, Clay, & Bartolucci, 2004). For the woman, becoming a spousal caregiver transforms her identity both externally, through an increase in her physical and emotional caregiving responsibilities (Hislop & Arber 2003), and internally through the role reversal that may take place within the marital relationship, when her responsibilities as protector and provider increase, while at the same time, her husband's responsibilities diminish (Hislop & Arber, 2003a).

The identity changes that elderly women experience as they become spousal caregivers are often paralleled by changes in their sleep quality. Wright (2000) reported that sleep deprivation was among the most common stressors for caregivers, while the authors of a review of literature on dementia caregivers found that sleep disruption represents the most significant negative impact on the physical health of that cohort (Schulz, O'Brien, Bookwala, & Fleissner, 1995).

Mechanisms of sleep disturbance in spousal caregiving

Sleep disturbance in women who are caring for their elderly husband is affected through multiple means. First, physical caring responsibilities are often carried out during the time in the 24-hour period that the woman would previously have slept (Hislop & Arber, 2003a), rendering her sleep highly disturbed. Second, many of the women in Hislop and Arber's (2003) qualitative study of the impact of; i) partner behaviour, ii) reported increased

caring for the partner, and iii) relationship loss, on women's sleep and management of sleep disruption. It was found that the women were being kept awake by the emotional labor of worrying about the declining health of their partner. The authors of that study therefore concluded that women's sleep was not only disrupted by the intrusive nature of the care recipient's nocturnal symptoms, but that they remained restless when their partner was resting comfortably, because of their concerns over their partner's ill-health (Hislop & Arber, 2003a). In this sense, the marital relationships of the couples in that study often became focused upon physical and emotional caring responsibilities. Women were taking on those responsibilities knowing that the disruption to their sleep would be chronic, and effectively deprioritised their own sleep in favor of caring for their partner (Hislop & Arber, 2003a).

A third mechanism through which spousal caregiving may disrupt the sleep of elderly women is the interaction of the care recipient's ill-health with the caregiver's own health issues (Gallant & Connell, 1998; Hislop & Arber, 2003a; Pruchno, Kleban, Michaels, & Dempsey, 1990). One study that examined the relationship between the demands of caring for a spouse with dementia and caregiver health behaviours, including maintenance of sleep patterns (Gallant & Connell, 1998), found that caregiving negatively influences health behaviours. In another study (Pruchno et al., 1990), it was found that failure to self-care, including failure to sleep properly, was

associated with reduced physical health and depression in the caregiver, regardless of the amount of care the caregiver provided.

Changing beds

One solution to the sleep disruption experienced by elderly women who are spousal caregivers, is to relocate their sleep from the double bed that they shared with their husband, to a separate bed or a different room (Hislop & Arber, 2003a). Hislop and Arber (2003) contend that the woman's decision to sleep in a separate space from her husband is dependent on several factors, including the anticipated reaction of the spouse and family and friends. Those authors postulate that concern over the reactions of loved ones relates to the gendered expectations around the marital relationship in our society (Hislop & Arber, 2003a). Cultural norms prescribe that marital behaviour includes sleeping in the same bed, and to deviate from that norm is to refute the responsibilities that are associated with the marital relationship (Hislop & Arber, 2003a).

A second factor involved in the decision to relocate to another sleep environment is the subjective assessment of the strain that doing so would put on the marital relationship (Hislop and Arber (2003). Some women in Hislop and Arber's (2003) study expressed having to measure the expectation of improved sleep quality against the expected costs for their marital relationship. Relocation to another sleep space costs the physical and emotional

‘togetherness’ of the relationship. Where the double bed reflects a partnership, relocation from the double bed reflects the disintegration of that partnership (Hislop & Arber, 2003a).

For some women in the study, the consequences for their relationship with the husband prevented them from relocating to another sleep space even though they perceived that doing so would enhance their sleep quality (Hislop & Arber, 2003a). For others, the decision not to move was based on their perception that they would not be able to fulfill their physical or emotional caring responsibilities from another space (Hislop & Arber, 2003a). That contrasts with the experience of one participant, who felt that she had no choice but to relocate to another sleep space when her husband’s dementia affected his sex drive so severely that she did not consider him to be the same person that she had married (Hislop & Arber, 2003a). Hislop and Arber (2003) suggested that cases such as this demonstrate that it is only when her marital relationship with her husband has been lost through severe illness or dementia, and she no longer identifies with the role of wife, that the woman spousal caregiver is able to relocate to another sleep space, thereby preserving her own sleep quality.

Placing the spouse in residential care

The loss of the spousal relationship in the context of the transition from the role of wife to that of widow may occur through severe illness or dementia as

discussed, or it may occur through other mechanisms including the placement of the spouse in aged care or death of the spouse. Research suggesting that declining health of the caregiver is a common catalyst for placing the care recipient in aged care (Bookwala et al., 2004; Stevens et al., 2004; F. Wright, 2000), highlights the importance for caregivers of maintaining their own health, which includes preserving sleep quality.

Nonetheless, research has shown that dementia patients who remain in the primary care of their spouse are placed in residential care later than those cared for by a non-spouse family member (Stevens et al., 2004). Similarly, Wright (2000), who conducted semi-structured interviews with relatives of elderly residents of care facilities, found that spousal caregivers waited longer to institutionalise their care recipient than non-spouse caregivers, and therefore endured a higher degree of dependency from the care recipient than non-spouse caregivers. Furthermore, when the spouse decided to place the care recipient in residential care, it was often because of their own ill health. Interestingly, Bookwala et al. (2004) found that while the same decision was associated with higher caregiver depressive symptomology, it was not related to caregiver physical health. The authors of that study qualify that finding however, by adding that most caregivers in the sample rated their health as good, which may not have been a true representation of the caregiver population.

Death of the spouse: Bereavement, and widowhood

The final stage in the transition from the role of wife to that of widow is marked by the death of the spouse. Chambers (2000) draws attention to the literature that portrays widowhood as a psychosocial transition and disruption to the individual's established lifestyle. That author suggest that such a view confuses the long-term experience of widowhood with the transient stage of bereavement (Chambers, 2000). As such, Chambers (2000) distinguishes between the experiences of bereavement and widowhood later in life, where bereavement creates disruption to the woman's way of life, but that the majority of women widowed later in life adapt to a new life without their husband.

Sleep during the bereavement phase

A study examining the characteristics of the grief experienced by middle-aged and elderly women who seek bereavement counseling following the death of their spouse or other loved one (Machin, 2000), found that there was a range of coping styles and degrees of adaptation among the half of the sample who were mourning their spouse or partner. It has also been found that the recent death of a care recipient is associated with a significant negative impact on the emotional health of the primary care giver (Rebollo et al., 2005). Similarly, another study found that spousal caregivers experienced increased loneliness, depression, and sorrow (Eloniemi-Sulkava et al., 2002), and that the negative impact of the cessation of their caregiving, which included when the care

recipient died, was unsurprisingly more significant than that experienced by non-spousal caregivers.

The bereavement phase in the transition from the role of wife to that of widow is associated with reduced sleep quality (Byrne & Raphael, 1997; Rebollo et al., 2005; Reynolds et al., 1993; Steeves, 2002), with 30% of newly widowed Australian women taking medication for their sleep or 'nerves' (Feldman, Byles, Mishra, & Powers, 2002). A study that monitored the sleep of elderly individuals for two years after they had lost their spouse found that longer phases of REM sleep early in the night, and a decline in SWS, over and above that associated with normal ageing, were common (Reynolds et al., 1993). Furthermore, research into the subjective sleep of bereaved elderly has shown that they experience higher rates of sleep disturbance (Byrne & Raphael, 1997) and are more likely to have sleep-onset delay and sleep fragmentation (Steeves, 2002).

In the initial stage of widowhood, the woman continues to engage in the emotional labor of worrying about her deceased husband, and also about how she will adapt to being alone through her waking and sleeping hours (Hislop & Arber, 2003a). The empty bed, and indeed the empty house, may act to constantly remind the woman of her lost relationship and of her new role as a widow. The physical absence of the husband may also create a sense of fear

and vulnerability (Hislop & Arber, 2003a), which may result in hypervigilance at night, and therefore a continuance of the experience of sleep disturbance.

Sleep and widowhood

It is clear that factors such as loss of the marital relationship, reduced emotional health, intrusive thoughts about the deceased husband, and hypervigilance at night, create a likelihood of highly disturbed sleep early in the woman's experience of widowhood. As time passes however, and the woman begins to detach her thoughts and feelings from her husband, and completes the identity transition from the role of wife to that of widow, she may experience a new freedom to develop a sleep environment and sleep pattern that is structured around her own needs rather than those of her husband (Hislop & Arber, 2003a).

The transition from independent living to residential care

A second major psychosocial transition experienced by many elderly women is the transition from living independently to being institutionalised in residential aged care. The Australian Institute of Health and Welfare (2000) reported that in Australia in 1998-99, women accounted for 72% of admissions to residential aged-care, and 97% of women admitted were 65 years or older. These statistics, which are the most recent of their kind, indicate that the transition from independent living to residential aged care is common in the experience of elderly women. Furthermore, 65% of women were widowed at

the time of admission, and 68% had lived independently immediately prior to their admission (Australian Institute of Health and Welfare (AIHW), 2000). While it is likely that some women also enter care because their husband who was caring for them is no longer able to cope, or has died, no statistics regarding these women were found.

The complex relationship between institutionalisation and sleep

The relationship between institutionalisation and sleep quality in elderly women is multifaceted. First, research has shown that sleep disturbance is a key factor in the decision to institutionalise elderly care recipients (Pollack & Perlick, 1991). Second, institutionalisation has been found to negatively impact upon the sleep quality of elderly adults (Middlekoop, Kerkhof, Smilde-Van Den Doel, Ligthart, & Kamphuisen, 1994). It is accurate to suggest therefore, that there may be a bi-directional relationship between institutionalisation and poor sleep quality.

The impact of poor sleep quality on the decision to institutionalise elderly family members has been discussed previously in this chapter, in the context of elderly women deciding to place their spouse in residential aged care. Equally, when the health of elderly women themselves declines, they are more likely to be placed in aged care if they display nocturnal symptoms such as nocturia, pain, and sleeplessness, as these disturb the sleep of family members who are caring for them (Pollack & Perlick, 1991).

It is clear that the transition from independent living to residential aged care may be partially driven by problems related to sleep. Conversely, it has also been found that institutionalisation impacts upon subjective sleep quality (Middlekoop et al., 1994). Middlekoop et al's (1994) study demonstrated that institutionalisation predicts greater dissatisfaction with sleep quality. In that study, 83% of service home (low-level care) residents self-categorised as poor sleepers, compared to 75% of those in nursing homes (high-level care), and 60% of participants who were living independently. These findings suggest that subjective sleep disturbance is a greater problem for elderly adults in residential care than those living independently, although, among institutionalised participants, sleep was subjectively more disturbed for low-dependency residential care recipients than for those in high-dependency care. It is possible that perhaps those in high-care do not have the memory function to be able to provide an accurate assessment of their sleep.

The finding that subjective sleep disturbance is common among institutionalised elderly was supported by other research (Fetveit & Bjorvatn, 2002), which demonstrated that nursing home residents reported prolonged sleep onset, frequent awakening, and reduced sleep efficiency. Those authors contended that the diminished ability of nursing home residents to maintain sleep may have been due in part, to the mean of 13 hours spent in bed. The study's generalisability was limited however, as the sample was selected from

a single nursing home (Fetveit & Bjorvatn, 2002). Nonetheless, the sleep complaints of the participants, including the complaints of prolonged sleep onset and frequent awakening, were similar to those found in Middlekoop et al's (1994) study, in which it was further reported that the factors most commonly associated with slow subjective sleep onset were worry, nervousness, and pain, while frequent awakening was associated with nocturia.

Another study that not only examined the frequency of subjective sleep-related complaints, but also the relationship between poor subjective sleep quality and the use of hypno-sedative medication in institutionalised elderly (Monane, Glynn, & Avorn, 1996), found that 65% of participants expressed one or more complaints regarding sleep quality, but that there was no significant correlation between the use of hypno-sedative medication and subjective sleep quality. In other words, using sleep medication was not associated with increased subjective sleep quality, and not using sleep medication was not associated with decreased subjective sleep quality. This is an interesting finding given that other research has shown that 69% of women in low-dependency residential aged care are regularly prescribed hypno-sedative medication (Middlekoop et al., 1994)

CHAPTER SUMMARY

The relationship between late-life transitions and women's sleep quality is a significant issue for elderly women. It is thus also of central importance to

this thesis, which reports on the subjective sleep quality of women who have experienced these transitions by virtue of their developmental stage. Sleep disruption associated with the menopausal transition takes place on a backdrop of significant psychosocial changes including the potential transitions from the role of wife to the role of widow, and from living independently to residential care. Each of these transitions and their various stages, are associated with significant perceptions of disruption to sleep, which can further impact on the quality of life of women who experience them.

Chapter 4

Sleep quality-related self-categorisation

'I think I'm a good sleeper, you know. When you hear all the others, they all say the same things.' – Research participant, aged 88

It is clear from the preceding chapters, that sleep disturbance is a common experience amongst elderly women. What though, may this commonality mean for their interpretations of their sleep experiences, and their appraisals of their sleep quality?

For humans, self-monitoring and evaluation of internal states and the external environment are important activities in reaching one's developmental potential. Self-categorisation was the focus of Festinger's seminal work (1954). According to Festinger, self-categorisation, through the use of cognitive comparison strategies including social and temporal comparison, allows the placement of the self on the developmental scale, and provides opportunities for self-evaluation, self-enhancement, and self-improvement (Festinger, 1954). Each of these functions is associated with greater functionality at different stages of the lifespan. Older adulthood, a time of likely loss and decline (Pinquart, 2002), sees the increased utility of self-

enhancing comparisons, and self-categorisations that therefore accommodate age-related changes (Frieswijk, Buunk, Steerink, & Slaets, 2004).

This chapter will provide an overview of self-categorisation theory including that around cognitive comparison strategies, before focusing on the utilisation of such strategies for self-categorisation by older women. It will finally comment on the dearth of literature on self-categorisation in the dimension of sleep-quality, and the potential usefulness of the application of such a framework to understandings of the subjective appraisal of sleep quality.

SELF-CATEGORISATION THEORY

Developmental normative conceptions

Common sense knowledge may be an important source from which development-related expectations can be derived and then used as a checking system for the self-evaluation of one's own development (Heckhausen & Krueger, 1993). For example, common sense knowledge associates ageing with increased falls. Therefore, as adults age, they may perceive an increased risk of falling and may engage in fall-prevention measures. Equally, this development-related expectation may mean that falls experienced by an elderly adult may be attributed to the ageing process rather than to other possible causes (Heckhausen & Krueger, 1993).

Developmental normative conceptions are dual natured, in that they represent both social cognitions, and self-cognitions (Heckhausen & Krueger, 1993). The individual must consider their in-group of same aged peers as well as their out-group of different aged people. They are all the time aware that the out-group has, or may at some time in the future, be their in-group. Thus the individual makes normative conceptions relating to the out-group with a degree of self-reference (Heckhausen & Krueger, 1993; Kohn & Smith, 2003). With this knowledge, the individual can assess and evaluate their own development in terms of their past progress, their current position and what they should expect in the future (Heckhausen & Krueger, 1993).

Ageist developmental normative conceptions

Developmental normative conceptions can in some instances reflect ageist stereotypes. Ageism is a complex concept, which was defined reasonably by Cohen (2001) as a systematic stereotyping of, and discrimination against people because they are old. Cohen (2001) wrote that the process of ageism is one that allows younger people to identify themselves as being different from older people. Such a statement reflects a tendency in the current literature, to assume that ageist sentiments are communicated by younger people against older people (Cohen, 2001; Levy, 2001; Palmore, 2001). Ageism however, may also be a tool used by older adults as a self-enhancement strategy, that allows them to differentiate between the self, and the really old (Giles & Reid, 2005). It is important to acknowledge therefore, that while self-categorisations

that reflect ageism may have a degrading effect, engaging in age-stereotyping may also be an effective way for some older adults to achieve self-enhancement. Kohn and Smith (2003) wrote that the self-enhancement function of age-stereotyping raises the possibility of a positive utilisation of ageist stereotypes, at least for old old adults, who are likely to have experienced more age-related decline than young-old adults.

COGNITIVE COMPARISON STRATEGIES AS MECHANISMS OF SELF-CATEGORISATION

Cognitive comparison strategies such as social and temporal comparisons are mechanisms through which the individual arrives at a self-categorisation. Cognitive comparisons may be self/self, self/other, or other/other.

Temporal comparison

Temporal comparison (Suls & Mullen, 1983-4) is a cognitive comparison strategy where the individual compares the self at two or more points in time, thus it is a self/self comparison. Temporal comparisons may vary across dimension and direction. The dimensional element of temporal comparison refers to the attribute or aspect of the self upon which the comparison is focused. Sleep quality for example, would be one dimension for temporal comparison, along with more frequently researched dimensions such as physical health, psychological well-being, or adjustment to ageing (Rickabaugh & Tomlinson-Keasey, 1997; Suls, Marco, & Tobin, 1991).

The directional element of temporal comparison refers to the distinction between upward, downward, and stable comparisons (Suls et al., 1991; Suls & Mullen, 1983-4). Upward temporal comparison is the comparison of the current self with a past self perceived as being superior to the current self on the comparative dimension. Downward temporal comparison on the other hand, refers to the comparison of the current self with a past self, viewed as inferior for the particular dimension. The third temporal direction is reflected in stable comparison, whereby the individual compares the self across two points in time when there is no discernable difference in the level of the dimension (Suls et al., 1991; Suls & Mullen, 1983-4).

Social comparison

Social comparison was first discussed by Festinger (1954), and has since grown from a social psychological phenomenon with clear conceptual bounds, to a substantive theoretical area that has been widely reviewed, evaluated, and applied (Buunk & Mussweiler, 2001; Klein & Goethals, 2002; Schulz & Heckhausen, 1996; Suls & Wheeler, 2000). Social comparison is theorised as a cognitive self/other comparison strategy whereby the individual compares the self to a comparison target in order to appraise their own standing on a particular dimension (Festinger, 1954). The social comparison target may be a specific other, who is a person or group known to the individual, or a

generalised other, who may represent a stereotypical or other normative standard (Festinger, 1954).

Social comparison theory

Festinger (1954) proposed three directions for social comparison. Upward social comparison refers to the process whereby the individual compares the self to a target perceived as having a superior standing in the comparative dimension. Downward social comparison refers to the converse process, whereby the self is compared to a target with perceived inferior standing (Festinger, 1954). This can be differentiated from social downgrading, where the individual compares the self to a negatively biased view of a reference group not generally identified as being inferior for that dimension (Heckhausen & Brim, 1997). Heckhausen and Brim (1997) write that social downgrading is particularly common when comparing the self to 'most other people' or 'the general public', and that by exaggerating the view of the generalised other, the process of social downgrading allows the individual to enhance their own relative standing for that dimension, and therefore enhance their self-esteem. Festinger's (1954) third direction of social comparison, lateral social comparison, involves comparison of the self with a target who is perceived to share equal standing. Giles and Reid (2005) use the term 'temporal social comparison' to refer to comparison of the other across time. Thus, that type of social comparison can be understood as other/other rather than self/other. This appears to be a unique useage of that concept.

Social comparison as a coping strategy

Festinger (1954) further theorised that the three directional types of social comparison each serve a particular coping function. Table 4.1 on page 109 shows that upward social comparisons are believed to serve a self-improvement function, downward social comparisons are self-enhancing, and lateral social comparisons serve a self-assessment function.

Heckhausen and Krueger (1993) contended that it would not be functional for the individual to engage in one directional type of social comparison across the entire lifespan. It would be more reasonable to expect that the drives for self-improvement, self-enhancement, and self-assessment would each dominate at different times throughout the lifespan, and that the associated social comparison process would therefore be the most likely choice at that time. It would make sense for example, that adults in the young and middle years of their adult life would have the strongest drives for self-assessment and self-improvement. Lateral and upward social comparisons would therefore appear to have the greatest function for those age groups. In late adulthood however, there is likely to be a shift from seeking self-assessment and self-improvement, to seeking self-enhancement. Downward social comparison would therefore be the dominant type during late adulthood.

These theorisations are consistent with the findings of Heckhausen and Krueger's (1993) study of 180 adults (equal numbers of young/middle-aged/old and men/women), who were asked to rate 100 attributes on a) desirability b) expected change in adulthood, c) perceived controllability d) self-description, e) status as a developmental goal, and f) normative age of developmental goal. It was reported that all three directional types of social comparison were used by each of the age groups, but that there was a shift in the patterns of useage (Heckhausen & Krueger, 1993).

Though elderly adults used relatively fewer upward social comparisons, the self-improvement function was evident in their selective targeting of middle-aged 'others', indicating that that age group was perceived as a higher status group in the dimensions for comparison (Heckhausen & Krueger, 1993).

The self-enhancement function of social comparison is indicated by more expected gains and less expected losses for the self than others. This effect was strongest in the old age group, when the individual is most likely to be exposed to threats to their psychological well-being from age-related decline (Heckhausen & Krueger, 1993). That group expected to experience fewer losses later than most other people. The self-assessment function of social comparison was evidenced by high convergence of self/other comparisons across all age groups (Heckhausen & Krueger, 1993). Therefore older adults did not simply expect that their rate of gain would be higher, and rates of loss

would be lower than most other people, they rather accepted that they would experience increased loss and reduced gain as they continued to age.

Downward cognitive comparisons as coping strategies in late adulthood

Heckhausen and Krueger's (1993) study indicated that all three of the functions of social comparison are important throughout the adult lifespan. The three age groups involved in the study all expected similar patterns of loss and gain for the self as compared to others, indicating the importance of self-assessment. In older adults however, there was an increased rate of downward social comparisons, reflecting a greater need for self-enhancement in the face of increased expectations of age-related decline. Self-improvement was also important in older adults, who identified with late middle-age, in contrast to the young adult group, who identified with early middle-age. Although all three age groups demonstrate the drive for the three directions of social comparison, there are significant age-related shifts in the predominance of the need for each function. The dominant need for self-assessment and self-improvement in early to middle adulthood is overtaken by the need for self-enhancement in late adulthood (Heckhausen & Krueger, 1993).

Research also suggests that there is an association between the use of downward social comparisons and increased self-esteem in older adults (Rickabaugh & Tomlinson-Keasey, 1997). In fact, downward social comparison has been shown to be a more reliable predictor of self-esteem than

downward temporal comparison, upward social comparison, or physical health (Rickabaugh & Tomlinson-Keasey, 1997).

Table 4.1

A summary of social comparison directions by comparison target, coping function, dominant lifespan stage, and outcome.

Comparison direction	Comparison target	Coping function	Dominant lifespan stage	Outcome
Downward	Perceived worse sleeping	Self-enhancement	Late adulthood	Appraise self as better than normal on that domain
Upward	Perceived better sleeping	Self-improvement	Early and middle adulthood	Appraise self as worse than normal on that domain
Lateral	Perceived same sleeping	Self-assessment	Early and middle adulthood	Appraise self as normal on that domain

Coping with age-related decline

Old age is a time that is often associated with loss and decline (Pinquart, 2002). It appears logical that in the face of such threats, elderly adults would experience an increased drive for self-enhancement and would therefore engage in downward comparisons at an increased rate.

Heckhausen and Brim (1997), who investigated the frequency of social downgrading in adulthood, and the relationship between the use of social downgrading and subjective problem ratings, found that adults from all age groups reported experiencing less serious problems than most other people their age across a range of dimensions. Health was the only dimension where a significant age difference indicated that older adults perceived more problems for the self than did other age groups (Heckhausen & Brim, 1997). This appears to defy logic that older adults would not also perceive more problems for the self on other dimensions. It appears unlikely that the finding of no age differences in subjective problem ratings in most dimensions reflects a lack of change in the number or severity of problems. A more realistic explanation may be that the experience of moderate problems in a dimension that the individual perceives as a more problematic one for their age group, may be perceived as normal, and may therefore pose less of a threat to psychological well-being.

Frail elderly

The notion of a dimension being normally problematic for one's age group reflects a development-related normative conceptualisation (Heckhausen & Krueger, 1993). If developmental normative conceptions accommodate moderate problems and counter their potential threat to psychological well-being, what then of severe problems? To understand the circumstances under which elderly adults perceive that they are experiencing problems, and therefore seek self-enhancement through the use of downward cognitive comparison, it is perhaps helpful to examine those elderly adults who are more frail.

In an investigation of the effects of upward and downward social comparisons on the life-satisfaction of community-dwelling elderly (Frieswijk et al., 2004), it was found that downward social comparisons was associated with higher life-satisfaction than upward social comparisons. This effect was particularly strong in more frail participants. It was only significant however, when there was a low level of identification with the target, suggesting that downward social comparison may only be useful as a self-enhancement mechanism for the dimension of life-satisfaction among frail elderly when the target is perceived as being different from the self (Frieswijk et al., 2004). That finding is supported by other research (Beaumont & Kenealy, 2004) which reported that downward social comparisons reflecting contrast rather than identification

with the target, were found to be the only type of social comparison used by 78% of the elderly sample, and also accords with early social comparison theory (Festinger, 1954), which stated that downward social comparison was negatively correlated with the level of perceived similarity to the target.

COGNITIVE COMPARISONS AND ADJUSTMENT TO AGEING

Another study (Rickabaugh & Tomlinson-Keasey, 1997) aimed, in part, to describe the role of cognitive comparison strategies in the subjective assessment of adjustment to ageing in older adults. It was expected, as has been theorised elsewhere (Frieswijk et al., 2004; Schulz & Heckhausen, 1996; Suls & Mullen, 1983-4), that older adults who were exposed to psychological threat from age-related decline would engage in higher rates of downward social and temporal comparisons, reflecting the salience of the self-enhancing function of downward cognitive comparison. The study findings did not support that notion however. In fact, participants who were more frail, reported more frequent upward social comparisons than their less frail counterparts (Rickabaugh & Tomlinson-Keasey, 1997), indicating that participants who were more frail were seeking self-improvement rather than self-enhancement. The authors of the study suggested several factors that may underlie such a finding (Rickabaugh & Tomlinson-Keasey, 1997). First, it may be the case that significant age-related decline is difficult to deny, rendering downward comparison less effective as a self-enhancement strategy. Second, when confronted with significant age-related decline, it may be difficult to

avoid upward temporal comparison. Third, upward targets may actually provide positive models for coping and adjustment. The authors of that study went on to draw comparison between their study sample, and other research samples who are affected by breast cancer or disability, who the authors claim seek other better-coping cancer survivors for inspiration and support (Rickabaugh & Tomlinson-Keasey, 1997).

This third point of explanation is a contentious one. Though Rickabaugh and Tomlinson-Keasey (1997) list numerous authors who have found a preference for upward social comparison in breast cancer patients, a search of the literature revealed that it is actually more often reported that breast cancer patients engaged in downward comparisons far more frequently than upward comparisons (Bogart & Helgeson, 2000; Heidrich, 1996; Stanton, Danoff-Burg, Cameron, Snider, & Kirk, 1999; Wood, Taylor, & Lichtman, 1985). For example, one study (Wood et al., 1985) clearly demonstrated that breast cancer patients prefer downward social comparisons in the dimension of psychological adjustment, when they reported that 80% of respondents felt that their own prognosis and adjustment was better than others, while only one participant of the sample of 73 felt that most others had adjusted better than her. Similar patterns were found in other dimensions including physical and situational adjustment. Similarly, another study (Stanton et al., 1999) found that breast cancer patients were likely to evaluate themselves as better adjusted, even against a high functioning target, because they were highly

selective of the aspect of the psychological adjustment dimension that they compared. That study also reported however, that patients did seek to affiliate themselves with upward targets for emotional support and information.

It is therefore likely that Rickabaugh and Tomilson-Keasey (1997) are correct in suggesting that the more frail participants in their study would seek upward targets, but they can hardly draw comparison to breast cancer patients given that the preference for upward social comparison is not shared by that population (Bogart & Helgeson, 2000; Heidrich, 1996; Stanton et al., 1999; Wood et al., 1985). That cancer patients seek to affiliate themselves with upward targets therefore adds very little to the explanation of why more frail elderly would engage in upward social comparisons more frequently than downward comparisons.

The point that the sample had greater access to upward than downward comparison targets, which was also suggested by the authors (Rickabaugh & Tomlinson-Keasey, 1997), is perhaps a better explanation. It is important to note that the sample, which was largely female (71%), was a particularly active and healthy community dwelling sample. To generalise such findings to institutionalised elderly would therefore be misleading, as it is likely that the latter would be exposed to greater psychological threat from physical decline, as indicated at face value by their admission to care, and that they

would have less access to upward comparison targets, therefore potentially reducing the frequency with which they are made.

This is not to say that older women are passively engaged in age-related decline. Rather, it appears likely that they are highly selective of the direction and dimension of their cognitive comparisons, thus, they are able to construct a positive self-view (Frieswijk et al., 2004; Heidrich, 1996; Rickabaugh & Tomlinson-Keasey, 1997).

COGNITIVE COMPARISON MODELS OF PSYCHOLOGICAL WELL-BEING

Although numerous authors have hypothesised about the effects of cognitive comparisons on the coping of elderly adults (Frieswijk et al., 2004; Heckhausen & Brim, 1997; Heidrich, 1996; Rickabaugh & Tomlinson-Keasey, 1997), few studies have specifically examined the causal relationships between the psychological threat of age-related decline, downward social comparison and psychological well-being.

The work of Kohn and Smith (2003) is a notable exception. Their study tested a model of the causal relationship between diminished physical function, frequency of downward social comparison, self-enhancement, and depressive symptomology with elderly community-dwelling males and females (Kohn & Smith, 2003). It was found that as well as having a direct impact on

depressive symptoms, diminished physical function also had a causal pathway to frequency of downward social comparison, which had an impact on depressive symptoms that was mediated by self-enhancement (Kohn & Smith, 2003). That is to say that it is not the act of downwardly comparing with the target, but rather the self-enhancing function of that process that reduces the depressive symptoms. There was also a negative causal pathway from depressive symptoms to self-enhancement (Kohn & Smith, 2003). A potential implication of that relationship is that older adults with severe depression may be less able to benefit from downward social comparisons because their negatively biased self-image may leave them unable to select appropriate targets, or simply unable to do so. The findings do lend support however, to the commonly conveyed notion that responding to the psychological threat of age-related physical decline by engaging in downward social comparison counters the negative effect of that decline on psychological well-being (Kohn & Smith, 2003). Interestingly, another study (Thwaites & Dagnan, 2004) found that the relationship between social comparison and depression was such that the effect of social comparison on a particular dimension was moderated by the perceived importance of that dimension in attracting other people.

Gender differences in coping functions of cognitive comparisons

The stronger causal pathway from diminished physical function to frequency of downward social comparison for men than for women (see figure 4.1)

indicates that the women in Kohn and Smith's (2003) study were less likely than their male counterparts to engage in downward social comparison as a response to the threat from declining physical function. The authors oriented this finding within a social roles framework suggesting that females may be socialised early in life to enhance self-esteem by affiliating with other women, whereas males are socialised to enhance the self by developing greater independence and higher status than other males (Kohn & Smith, 2003). It may therefore be less socially acceptable for women to engage in downward social comparison than men.

Cognitive comparison strategies as secondary control mechanisms

Lifespan theory of control states that individuals strive to develop and maintain primary control over their environment throughout the lifespan (Schulz & Heckhausen, 1996). As such there is an important distinction to be made between primary and secondary control. Primary control refers to that which the individual exerts over their external environment, while secondary control refers to the ability to effect internal change. Primary control is of greatest value to the individual as it allows them to engage in, and manipulate the external world in order to reach their developmental potential (Schulz & Heckhausen, 1996). As such, Schulz and Heckhausen (1996) contend that the development and maintenance of primary control throughout the lifespan by engaging in control-related processes that maximise the gains from selection and failure compensation, epitomises successful ageing.

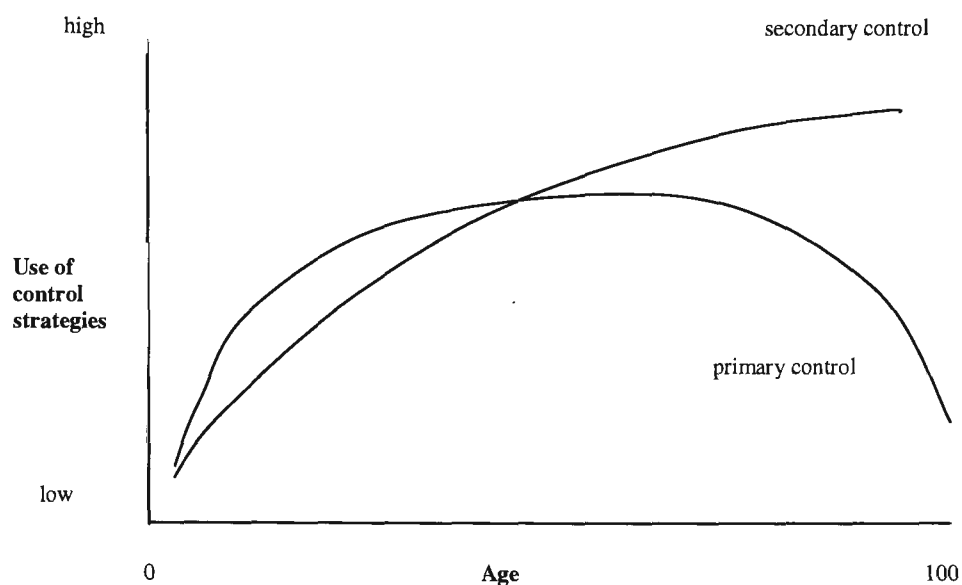


Figure 4.1 Use of primary and secondary control mechanisms across the lifespan. Adapted from Schulz and Heckhausen (1996)

Figure 4.1 shows that late adulthood is characterised by a significant decline in the use of primary control strategies, and a dominance of the use of secondary control strategies (Schulz & Heckhausen, 1996). As age-related changes in competencies begin to produce a pattern of more losses and fewer gains, the individual experiences a decrease in the ability to exert primary control, and therefore a greater drive to maintain secondary control. In accordance with that explanation, an individual who continues to use primary control strategies for longer, is deemed to be ageing more successfully.

Other research (Bailis, Chipperfield, & Perry, 2005; McConatha & Huba, 1999), which also evidenced the predominance of the use of secondary control strategies in late adulthood, provided an alternative explanation for that phenomenon. McConatha and Huba (1999) contended that as adults age they

become increasingly capable of controlling their emotions and controlling their rehearsal of upsetting failure-related events. Furthermore, they argued that it is this increased competency that drives the tendency toward choosing compensatory secondary control strategies late in life.

Control processes may be further categorised as selection, or compensation processes, where selection processes relate to the selection of goals for action, and compensation processes compensate the individual for failure and loss. As such, compensatory secondary control strategies, are those that buffer the negative consequences of failure and loss on the motivation to seek primary control.

Cognitive comparison, both social and temporal in nature, has been identified as a compensatory secondary control strategy (Bailis et al., 2005; McConatha & Huba, 1999; Schulz & Heckhausen, 1996). It is well documented (Kohn & Smith, 2003; Rickabaugh & Tomlinson-Keasey, 1997; Schulz & Heckhausen, 1996), and discussed in earlier sections of this chapter, that elderly women become increasingly reliant on downward social comparisons, because of the self-enhancement function that they serve. It has also been shown that compensatory secondary control, which is provided by social comparison processes, is the dominant form of control sought by the elderly (Schulz & Heckhausen, 1996). There appears to be a theoretical conflict around the appropriateness of downward social comparisons however, as the idea that

individuals age more successfully while they maintain primary control (Schulz & Heckhausen, 1996) suggests the possibility that over time, over-reliance on downward social comparisons may reduce motivation for seeking primary control (Kohn & Smith, 2003), which would theoretically reduce the successfulness of the adjustment to ageing.

THE APPROPRIATENESS OF DOWNWARD SOCIAL COMPARISON AS A SELF-ENHANCEMENT STRATEGY FOR ELDERLY WOMEN

Kohn and Smith (2003) write that the appropriateness of using downward social comparisons in late adulthood is dependent on the ability of the individual to identify and select appropriate targets, from specific people who are known to them, or a generalised other from a developmental normative conception derived from ageist stereotypes, or from expert advice. Perhaps this is key to evaluating the appropriateness of elderly women making downward social comparisons. If they are experiencing more losses than gains, and this is threatening their psychological well-being, and their ability to maintain primary control, then there is a clear need for self-enhancement, which can be achieved through the increased use of secondary control mechanisms such as downward social comparison (McConatha & Huba, 1999; Schulz & Heckhausen, 1996). As such, reliance on downward social comparisons can be highly appropriate, and indeed necessary for the psychological well-being of elderly women.

SLEEP QUALITY-RELATED SELF-CATEGORISATIONS

Despite an extensive search, no literature was located that examined how people make self-categorisations in the domain of sleep. Nor was there any literature that discussed cognitive comparison strategies in relation to sleep, or to age-related change in sleep. It is therefore difficult to provide evidence-based discussion of this area without turning to frameworks applied elsewhere. For example, the cognitive comparison framework that has been used to explain the self-categorisations of elderly women in other domains of age-related adjustment (Heckhausen & Brim, 1997; Kohn & Smith, 2003; Rickabaugh & Tomlinson-Keasey, 1997) may provide some insight into the processes of self-categorisation that elderly women make in the domain of sleep quality.

If it can be assumed that self-appraisal of one's sleep, and subsequent self-categorisation as a good or poor sleeper, involves a similar cognitive process to the appraisal of other dimensions of the self, then, like other dimensions, it is likely that sleep quality-related self-categorisation (SQRSC) involves social and/or temporal comparisons. It is the strong likelihood that SQRSC utilise social and/or temporal comparisons that underlie the importance of the literature on cognitive comparison strategies to this thesis. In particular, it relates to research question 1c, which asks - *What are the drivers of SQRSC?*

CHAPTER SUMMARY

Understanding the processes by which older women establish their perceptions of 'normal sleep' is perhaps the key to this thesis, which will contribute to the understanding of why some older women in aged-care may make different self-categorisations despite reporting similar experiences of sleep phenomena. One framework for understanding this process of categorisation is social comparison theory (Festinger, 1954). In developing this theory Festinger argued, that, in the absence of objective criteria, individuals are able to make sense of their world by comparing their experience to others. The process of downward social comparison, where individuals seek comparison with others perceived worse off than themselves, is proposed to increase personal satisfaction, whereas upward social comparison may leave the individual feeling more dissatisfied with their experiences. For older people downward social comparison is seen to offer some protection against the loss of control that accompanies ageing (Frieswijk et al., 2004; Heckhausen & Brim, 1997).

Chapter 5

The agency of elderly women in managing sleep quality: From the medicalisation, to the personalisation of sleep

'I don't take (hypnotic medication), oh no, I refuse to. I can't give you a reason other than to say that I prefer to sleep naturally. I don't want to sleep unnaturally.' – Research participant, aged 81

INTRODUCTION

Previous chapters have demonstrated that subjective sleep quality, sleep disturbance and sleep disorders represent significant problems within the population of elderly women. There has been no discussion however, of the roles that elderly women themselves may play in their own sleep management. A number of seminal works have highlighted two important processes that have influenced our understanding of the phenomena of sleep and its management. The medicalisation and healthicisation of sleep have not only influenced the ways in which the phenomena involved in sleep are defined, but also the types of solutions that are sought in response to a perceived sleep problem. In addition, the recent introduction of the idea of the personalisation

of sleep has added yet another dimension to the literary debate around the medicalisation and healthicisation of sleep.

This chapter will focus upon some of the theoretical constructs and debates surrounding the medicalisation, healthicisation, and personalisation of sleep, and what these processes mean for women's agency in the management of their own sleep quality.

MEDICALISATION

The medicalisation of human life is the theme of a much-debated body of academic work (for example: Conrad, 1992; Hislop & Arber, 2003b; Strong, 1979; Williams & Calnan, 1996; Zola, 1972). One of the most commonly cited definitions of medicalisation, and the one to which this chapter will refer, is that put forward by Conrad (1992). According to Conrad (1992), medicalisation can be understood as the process whereby previously social problems or natural life events are redefined in medical terms, and treated using medical interventions. That is to say medicalisation occurs when a non-medical condition is redefined and treated as a disorder, disease, or illness. The term 'medicalisation' is a neutral one, literally meaning 'to make medical' (Conrad, 1992) and therefore encompasses by definition, all conditions that have come to be understood within a medical framework. As Conrad (1992) points out however, it is most often used as a negative descriptor in the criticism of inappropriate medicalisation of social problems such as mental

illness (N. Wright & Owen, 2001), addiction (Conrad, 1992), poverty and homelessness (Schultz Blackwell, 1999), and domestic violence (Conrad, 1992), as well as natural life processes including sexuality (Offman & Kleinplatz, 2004; Purdy, 2001; N. Wright & Owen, 2001), childbirth (Cahil, 2001; Purdy, 2001), child development (Armstrong, 1995; Williams, 2003b), pre-menstrual syndrome (Offman & Kleinplatz, 2004; Olinas, 1998), fertility and pregnancy (Purdy, 2001), menopause (Meyer, 2003; Purdy, 2001) ageing (Conrad, 1992; Williams, 2003b), and death (Armstrong, 1995; Williams, 2003a; Williams & Bendelow, 1998). Sleep arguably falls into this second category. That is, it is a natural life process that has come to be defined and treated using medical language and methodologies (Hislop & Arber, 2003b, 2004; Williams, 2002, 2003a, 2004; Williams & Bendelow, 1998). The ideas central to this argument will be presented and discussed at length in later sections of this thesis.

Levels of medicalisation

Medicalisation may occur on three levels (Conrad, 1992). Medicalisation at the *conceptual* level involves the definition of an issue in medical terms. Medicalisation at the *institutional* level involves the organisation adopting a medical approach to the treatment of an issue or problem in which they specialise. Finally, medicalisation at the *interactional* level involves the physician defining and treating a social issue as a medical one in their interaction with the patient (Conrad, 1992). The author of an early work

(Strong, 1979) has been criticised (Williams, 2001, 2003b) for restricting his critique of medicalisation to that which occurs at the interactional level, and therefore failing to acknowledge that medicalisation also occurs at the conceptual and institutional levels. Furthermore, the same author (Williams, 2001, 2003b) also criticises Strong (1979) for equating the process of medicalisation, which in its truest sense, is a neutral term, with the ideology of medical imperialism, which implies the intent to dominate.

Medicalisation as a means of social control

The idea that the medicalisation process allows the medical profession to assert an unjustified degree of social control is one of the major criticisms of medicalisation (Conrad, 1992; N. Wright & Owen, 2001; Zola, 1972). The work of Zola (1979) is a highly respected thesis in the debate around medicalisation and social control, and contends that social control is achieved through the attachment of labels such as 'sick' and 'healthy' to more and more aspects of daily life, rather than via any political influence that medical professionals may wield. Zola's (1972) position in the medicalisation debate is that medicine is the primary institution of social control, and that there are four concrete ways that medicalisation could potentially exert social control. First, through the expansion of what in life is deemed relevant to the good practice of medicine, second, through the retention of absolute control over certain technological procedures, third, through the retention of near absolute control

over certain 'taboo' areas, and finally through the expansion of what in medicine is deemed relevant to the good practice of life (Zola, 1972).

Strong's (1979) influential work on medical social control contended that while the medical imperialism argument does make some valid contributions, its proponents overstate the significance of medical imperialism, and misrepresent medicalisation. He argued that removing an issue from the jurisdiction of religious or legal thought, and positioning it within that of the medical profession potentially removes the associated moral or punitive consequences, and replaces them with objectified treatments. Zola (1972) contends however that such arguments are founded on two implicit flaws. The first lies in the assumption that punishment must take a physical form. This assumption fails to acknowledge that restrictions placed on an individual, as a result of medical knowledge of their condition, may indeed be viewed by the individual as a form of punishment. The second flaw, according to Zola (1972), lies in the assumption that medicalisation removes the responsibility for the condition from the individual (Zola, 1972). Such an assumption is based on the premise that a criminal is responsible for his actions, whereas the sick person is not. It is assumed therefore, that medicalisation allows the individual access to the 'sick' label, which in turn implies diminished responsibility. This could potentially be true, if medicalisation were a guarantee of the removal of a condition from the moral sphere. This however, is simply not the case. The rise of psychiatry and the medicalisation of social

issues in fact re-establishes the role of the individual in their own 'demise, disability, and even recovery' (Zola, 1972).

Demedicalisation

Demedicalisation is the converse process to medicalisation. It reflects the notion that an issue, such as masturbation, or homosexuality, that was previously defined and treated within a biomedical framework, is no longer treated as an illness or medical condition (Conrad, 1992). Demedicalisation is usually achieved through organised efforts by interest groups, who challenge medical definitions and medical control of an issue that they believe should not be under medical jurisdiction (Conrad, 1992). Demedicalisation is much less prevalent than medicalisation, but the relationship between the two processes must nonetheless be understood as a bi-directional one (Williams, 2001).

Healthicisation

(De)medicalisation should not be confused with 'healthicisation'. Though this term does not enjoy wide useage, it is used in research spanning the divide between social psychology and sociology, particularly with regard to sleep managment, gender and aging. As this thesis can certainly be located within the context of sleep managment, gender and aging; it appears most appropriate to use the term 'healthicisation'. Healthicisation can be understood as the process whereby behavioural and social conceptualisations are further

expanded for conditions that have been previously well-established within a medical framework (Williams, 2001). In effect, when a major risk factor for a well-known medical condition is identified, it is inaccurate to say that the risk factor had been medicalised, but accurate to say that it has been healthicised, as it is clear that an individual should avoid the risk factor in order to increase their chance of avoiding the condition, and thus remain 'healthy'. A well-known example from current society is the issue of smoking. Smoking has been identified as a major risk factor for lung cancer, which is a well-known medical condition. The identification of smoking as a risk factor for lung cancer effectively expands the behavioural conceptualisation of the condition, and therefore indicates that smoking has been healthicised. This means that a risk factor such as smoking, for a well established medical problem such as lung cancer, does not, as suggested by some authors (Purdy, 2001), become medicalised when it comes to the attention of the medical profession, but rather that it becomes healthicised (Williams, 2001).

While healthicisation and medicalisation both integrate social and medical issues, they also differ on several points (Conrad, 1992). First, medicalisation occurs when medical definitions and treatments are developed for previously socially defined problems or natural life events, whereas healthicisation occurs when behavioural and social definitions are offered in the expansion of the conceptualisation of previously established biomedically defined problems or events. Second, medicalisation proposes biomedical causes and interventions,

whereas healthicisation proposes lifestyle and behavioural causes and interventions. Third, medicalisation re-establishes moral issues as medical issues, whereas healthicisation is controversially suggested to re-establish health-related issues as moral issues (Conrad, 1992). As such, healthicisation recognises the multiplicity of causal agents within the social context, that are potential precursors to poor health (Conrad, 1992).

Medicalisation and gender

Women are more vulnerable to medicalisation than their male counterparts because they are more likely to problematise their experiences, and to seek medical definitions and treatments than men (Hislop & Arber, 2003b). Feminist literature has focused on the medicalisation of women's bodies (Cahil, 2001; Meyer, 2003; Offman & Kleinplatz, 2004; Olinas, 1998; Purdy, 2001; Schultz Blackwell, 1999; N. Wright & Owen, 2001), and encompasses the issues of domestic violence, gender deviance, eating and weight problems, fertility, pregnancy, childbirth, menopause, and hormone replacement therapy (Cahil, 2001; Conrad, 1992; Meyer, 2003; Offman & Kleinplatz, 2004; Olinas, 1998; Purdy, 2001; Schultz Blackwell, 1999; Williams, 2003b; N. Wright & Owen, 2001).

While there is an argument within the literature that women are more disadvantaged by the process of medicalisation because it interacts with other forms of social control to effectively increase the impact on marginalised

individuals and communities (Garry, 2001), there is an opposing argument that the medicalisation of some aspects of women's lives, such as pregnancy, abortion, and childbirth actually gives women a more equitable position in society by enhancing their health and reducing the likelihood of maternal mortality (Purdy, 2001). Purdy (2001) poignantly points out that it may be very appropriate to use medical treatments to prevent suffering or increase quality of life, even though the particular issue may not be traditionally defined as a disease. She further writes that medicine is necessary in women's lives, and that it is not medicalisation, but rather the current culture within the medical profession that needs to be reassessed (Purdy, 2001), in order to acknowledge the impact of women's gendered roles and responsibilities on their health and wellbeing.

Medicalisation in ageing

Medicalisation in ageing can be seen in the domain of aged care. A medical framework dominates ageing research and funding (Conrad, 1992). Aged care is constructed within a nursing environment, and many naturally occurring life process that are associated with ageing, including menopause, incontinence, cognitive decline, and disability have been medicalised in their own right (Conrad, 1992). Given that the majority of residents in aged care in Australia are women (Australian Institute of Health and Welfare (AIHW), 2000), the medicalisation of ageing and associated phenomena is particularly relevant to the study of the experiences of elderly women.

SLEEP FROM A MEDICALISATION/HEALTHICISATION FRAMEWORK

Medicalisation of sleep

Having discussed some of the issues around the medicalisation/healthicisation debate, and ascertained that these are relevant to the study of the experiences of elderly women, it is appropriate to explore how these processes have affected our understanding of women's sleep and its management. Few authors have specifically focused their discussion of medicalisation on the phenomena of sleep. Hislop and Arber (2003, 2004), Williams (2002, 2003a, 2003b, 2004), and Williams and Bendelow (1998) are notable exceptions. The medicalisation of sleep may occur in part, as a result of the association between sleep and other medicalised conditions such as menopause, depression, anxiety, and bereavement (Hislop & Arber, 2003b), and certainly as a bi-product of the medicalisation of ageing (Conrad, 1992). The medicalisation of sleep is visible at each of Conrad's (1992) three levels of medicalisation. At the conceptual level, it is visible in the popular useage of terms such as 'sleep disorder'(Williams, 2003b). At the institutional level, it is reflected by the rise of specialised sleep clinics, and in the context of generalised medical institutions, such as hospitals and other care facilities

(Williams & Bendelow, 1998). Not only are medical institutions physically structured around sleep, where funding and service provision are determined by number of beds, but time is also structured around patient sleep and rest periods. At the interactional level, the medicalisation of sleep is visible in the legitimacy of sleep complaints as a reason to visit the GP, and in the availability of prescription medications for improving sleep (Williams, 2003b).

Healthicisation of sleep

Sleep has also been discussed within the healthicisation framework (Hislop & Arber, 2003b; Williams, 2003a, 2003b). In fact, Williams (2003a) writes that sleep may be more the focus of healthicisation than medicalisation, given current information trends such as the 'sleep hygiene' message. It is Williams' (2002) wider belief however, that sleep is 'caught up in a web of health and illness'. It is that assertion (Williams, 2002) that Hislop and Arber (2003) explore in relation to empirical data regarding the experiences of women within the lay population.

Hislop and Arber's (2003) study involved the qualitative analysis of data from 82 women aged over 40 years, each of whom participated in one of ten focus groups, where attitudes to sleep, patterns of sleeping as a shared experience, ageing and sleep, effects of poor sleep, and strategies for overcoming sleep problems were discussed. It was reported that while the majority of women in the study had experienced the symptoms of insomnia at some time in their

lives, only one participant used the medical term 'insomnia' to describe her experience. This finding was interpreted as an indication that women may consider sleep problems disruptive, but a part of normal experience nonetheless (Hislop & Arber, 2003b).

PERSONALISATION: A NEW FRAMEWORK FOR UNDERSTANDING WOMEN'S SLEEP AND SLEEP MANAGEMENT

Hislop and Arber (2003) have introduced the notion of personalisation to the literature on the medicalisation and healthicisation of women's sleep and its management. The personalisation of women's sleep refers to the finding that women accumulate a set of personal strategies over time, which they employ within their private space to manage their own sleep without referring to medical professionals or seeking external advice regarding healthist sleep management practices (Hislop & Arber, 2003b). Personalised strategies ranged from pre-bed routine activities (eg. having a warm bath, consuming a snack or a warm drink, drinking a glass of alcohol, or reading), to responsive activities (eg. reading or listening to the radio, staying in bed and trying to return to sleep, or leaving bed to do housework or make a warm drink). A number of women also used relocation from the bed they share with their partner as an occasional or permanent responsive strategy in the management of their sleep (Hislop & Arber, 2003b). In contrast, medicalised strategies for the management of sleep include seeking medical advice regarding sleep complaints, and taking hypnotic medication, whereas healthist strategies

include drinking herbal teas, using eye pillows, increasing physical activity, and decreasing caffeine intake.

Hislop and Arber (2003) found that the choices women make when seeking strategies for their sleep management are constrained not only by the physical resources in their environment, but also by other people in their sleeping environment. Women who live alone do not feel obliged to protect the sleep of their partner or other members of the household, and have access to a wider range of personalised strategies than women sleeping with a partner, who are restricted in their choice of strategy by the risk to the partner's sleep or risk to the relationship.

It is in fact Hislop and Arber's (2003) contention that personalised strategies form the 'core' of women's sleep management resources. Women consider the efficiency of their strategies in improving their sleep, along side the constraints on their access to such strategies, and may then seek solutions to their sleep disturbance that are outside of their core of personalised strategies. This is the point at which they may seek medical treatments, or employ healthist practices. Hislop and Arber (2003) found that for the majority of women, seeking prescription medication for a sleep problem is the last resort, which may be trialed if all other strategies have failed to bring about the desired improvement. One of the study's conclusions was therefore that it is not sufficient to understand women's sleep management from a

medicalisation/healthicisation framework, but that it is more accurate to instead view sleep management as having a core of personalised strategies, which form the primary response to a sleep problem. From that point, wider medical or healthist options may or may not be sought, depending on the success of the primary strategy (Hislop & Arber, 2003b).

Criticism and debate

Williams (2004) responds to Hislop and Arber (2003) by suggesting that the study's generalisability is limited by the relatively small sample size, although Hislop and Arber (2004) claim that such a criticism is unjustified, and that the study provides a sound platform for further research. Williams (2004) also criticises the study for not qualifying the range of medicalisation it explored, meaning that it is unclear whether it references insomnia, or the entire process of sleep (Williams, 2004). Furthermore, Williams (2004) expresses doubt over the legitimacy of the personalisation of sleep as a concept, writing that the boundaries between medicalised, healthicised, and potential personalised understandings of sleep management have been blurred by strategies that fall under the 'holistic health' and 'natural therapy' umbrellas, many of the specific products of which may be produced by pharmaceutical companies, therefore belonging in part to the medicalisation process and in part to the healthicisation process. Williams (2004) contends that women's 'core of personalised strategies' could therefore actually be more appropriately understood as a range of medicalised and healthicised strategies. If that were

the case, then it could be argued that the concept of the personalisation of sleep is redundant. Hislop and Arber (2004) respond to Williams (2004) on this point, by explaining that the term 'personalised strategies' reflects the multitude of individual responses to poor sleep that women develop using the resources that are available within their individual sleeping environment (Hislop & Arber, 2004).

THE AGENCY OF WOMEN IN THE MANAGEMENT OF SLEEP QUALITY

Medicalisation of sleep as an interactive process

Whilst the main literary themes around the medicalisation, healthicisation, and personalisation of sleep are interesting, the debate around the implications of these processes for the agency of women in the management of their own sleep (Hislop & Arber, 2003b, 2004; Williams, 2002, 2004) is also central to this thesis. One sub-theme of that debate is the interactive nature of the medicalisation process. The medical profession represents a diverse range of competing beliefs and interests, as does the lay population (Williams, 2001). It is not therefore possible, nor desirable, to generalise the beliefs and interests of medical professionals or members of the lay population. This means that it is also not possible to accurately model the absolute positions of the different parties involved in the medicalisation and healthicisation processes (Williams, 2001). It is clear however, that the interactive nature of the processes is such

that the respective roles played by the medical profession, and of course by the individual, may be such that either or both of the parties may actively encourage the medicalisation or healthicisation of an issue, or they may be minimally involved, or even actively resist the process (Conrad, 1992). There are nonetheless, several competing arguments in the literature, around the role of the individual in the medicalisation and healthicisation processes (Conrad, 1992; Hislop & Arber, 2003b, 2004; Williams, 2001, 2002, 2004).

To subscribe to the argument of medical imperialism theorists, who write that medicalisation is a rationale for social control, is to imply that the individual is a passive recipient of the medicalisation process, while the medical professional is the active agent. It is certainly the case in some instances, that the physician is involved in the medicalisation of an issue as the claims-maker (Conrad, 1992). They may actively seek to medicalise an issue, such as has occurred with premenstrual syndrome, and menopause, by writing about it in professional journals and developing specialised services to address the issue (Conrad, 1992). There have also been instances where medicalisation has been actively resisted by medical professionals, because it would pose a threat to their professional beliefs, such as is the case of the development of a lethal injection for the death penalty, or when the medical profession does not possess the necessary resources to deal with the issue, such as is the case for domestic violence (Conrad, 1992). Hislop and Arber (2003) write on the issue of the interaction between the physician and the individual, that the

cooperative interaction between these two parties actually encourages the demedicalisation of sleep and emphasises individual responsibility, at least as a primary strategy.

Active agents or passive consumers?

A second sub-theme within the debate around the agency of the individual woman in the management of her own sleep is the idea that the lay population has become dependent on the medical profession. Zola (1972) claimed that medicalisation occurred as a result of increasingly complex technologies and processes leading individuals to rely on medical experts. This notion is directly opposed by Strong (1979), who writes, as mentioned earlier, that the dependency of the lay population on medical experts is overstated. Williams and Calnan (1996) further write, in support of Strong (1979), that growth in social reflexivity, which is the idea that most social activity and material relations with nature, are susceptible to continual re-assessment and revision in accordance with newly emerging information and knowledge (Williams & Calnan, 1996). In addition, lay 're-skilling' via the media and other sources of information, have meant that individuals in the lay populace are not passive consumers of medical information and technologies, but rather that they are increasingly critical, and highly reflexive consumers, who actively engage with the medical profession. That statement has been interpreted by Hislop and Arber (2003) as meaning that women play an active role in their own sleep

management, rather than being passive consumers of the medicalisation of sleep.

Shifting control from the Other to the Self

A third sub-theme within the debate about women's agency in their sleep management is the control over sleep management choices (Hislop & Arber, 2003b). The belief among women that sleep should be within their own personal control may be reflected in the stigmatisation of medical strategies as a primary response to sleep problems (Hislop & Arber, 2003b). The healthist approach on the other hand, is about individual agency, where sleep is managed independently of the intervention of medical professionals. Healthist practices therefore appear to offer a means through which to control a sleep problem without resorting to medicalised strategies. In actuality however, it may be that healthist strategies shift the control over sleep management from the medical profession to other commercial entities (Hislop & Arber, 2003b), where the individual remains the consumer. Personal strategies that are independent of medical or healthist strategies may then represent the only platform from which the woman can maintain absolute control over her own sleep management, though while these may bring about the intended outcome for some women, others may need to choose strategies beyond their core of personalised strategies. In this manner, the healthicisation of sleep has perhaps closed the gap between personal and medical strategies (Hislop & Arber, 2003b).

CHAPTER SUMMARY

A complex and lively literary debate over the medicalisation and healthicisation of women's lives has been documented in the literature (Armstrong, 1995; Cahil, 2001; Hislop & Arber, 2003b, 2004; Meyer, 2003; Offman & Kleinplatz, 2004; Olinas, 1998; Schultz Blackwell, 1999; Williams, 2004; N. Wright & Owen, 2001). More recently, this debate has encompassed the discussion of women's sleep (Hislop & Arber, 2003b, 2004; Williams, 2002, 2003a, 2003b, 2004; Williams & Bendelow, 1998), and has seen the introduction of the concept of the personalisation of sleep and its management (Hislop & Arber, 2003b, 2004; Williams, 2004). The processes of the medicalisation, healthicisation and personalisation of women's sleep are not only important to current understandings of the experience of sleep and its management, but also to the understanding of women's agency in the management of their own sleep. While there is no doubt that women's sleep has been both medicalised and healthicised (Hislop & Arber, 2003b, 2004; Williams, 2002, 2004), it is also clear that women play an active role in the management of their own sleep (Hislop & Arber, 2003b, 2004). They actively interact with physicians regarding their sleep (Conrad, 1992; Williams, 2001), and they are not dependent on the medical profession for solutions to sleep problems (Hislop & Arber, 2003b; Williams & Calnan, 1996). Furthermore, women believe that they should maintain control over their own sleep and its

management (Hislop & Arber, 2003b). From a core of personalised strategies that are available within their sleeping environment, women construct a primary response to sleep problems (Hislop & Arber, 2003b, 2004). If this is unsuccessful, they may then choose to engage medical, or healthist resources (Hislop & Arber, 2004). It is clear therefore, that the expansion of the range of sleep management strategies to include those from medicalised, healthicised, and personalised domains, has done nothing if not increase the options for women who want to maintain control over their own sleep management. The range of sleep management strategies available to and accessed by women in aged care is explored in the current study, and is the basis for the inclusion of the content of this chapter in the thesis.

Interlude

An introduction to the current study

This thesis has so far presented a review of some of the research available across many different areas of sleep and its management in the elderly. It is known that psychosocial factors such as depression, anxiety, and quality of life are associated with sleep disturbance (Buysse, 2004; LeBlanc et al., 2007; Schechtmen et al., 1997; Spira et al., 2008; Sukegawa et al., 2003), and it is likely that these factors are important in considerations of sleep complaints. These factors are therefore explored in brief in the current research. There appears however, to be no previous research exploring, in depth, the subjective experience of sleep phenomena with regard to the meanings of sleep quality. Past research has concluded that the factors considered by elderly women in evaluating their sleep quality are different to the factors reflected in standardised subjective sleep measures (Kaufman, 2001). No research however, identifies in a tangible manner, how women in aged-care describe good and poor quality sleep and what it is that makes the key features of these important. Additionally, no research has compared quantifications of sleep quality with qualitatively derived sleep descriptors in order to evaluate the utility of quantitative measurement of subjective sleep quality in the elderly female population. Finally, no previous research has investigated sleep management strategies, including hypnotic medication use, from an emic

perspective, and explored how beliefs around sleep management fit within the wider sleep beliefs of women in aged-care.

RESEARCH QUESTIONS

The current study extends existing literature by exploring the subjective sleep beliefs and experiences of women in aged-care. Specifically, it seeks to address seven research questions. Questions one to four enquire about the emic meanings of good and poor sleep quality, and how they align with quantitative indices of sleep quality. Questions five to seven relate to how the women manage their sleep quality to achieve good sleep. The seven research questions are listed below:

1. Are differences in sleep quality-related self-categorisations (SQRSC ie. whether they describe themselves as 'good' or 'poor' sleepers) explained by differences in age and subjective ratings of depressive symptomology (Geriatric Depression Scale), anxiety (Beck Anxiety Inventory), and quality of life (WHOQOL-Bref)?
2. Do quantifications of the subjective sleep quality (from Pittsburgh Sleep Quality Index and sleep diary data) of elderly women in aged-care reflect their SQRSCs?
3. What are the experiences of sleep phenomena for self-categorised good and poor sleepers?

4. What are the drivers of sleep quality-related self-categorisations (SQRSCs)?
5. What is the range of sleep management strategies utilised by the group?
6. Are sleep management strategies only employed by self-categorised poor sleepers?
7. What factors underpin the choice of sleep management strategies?

METHODOLOGICAL PERSPECTIVE

This study utilises a largely qualitative approach to address the research questions outlined in the previous section. It involves initial statistical analysis of quantitative data pertaining to research questions one and two and an empirical phenomenological approach to the analysis of qualitative data relating to research questions three to seven. Full details of this methodology will be presented in chapter seven.

Empirical phenomenological research, despite being intrinsically underpinned by phenomenological theory, must also be anchored within a theoretical framework that is specific to the phenomena under investigation. Therefore, the current research, which is positioned within the phenomenological framework, has also been significantly guided by theoretical models associated

more specifically with the study of sleep, gender, and ageing. These have been discussed at length in previous chapters.

Chapter 6

Methodology

This chapter presents information about the study participants, the instruments used for data collection, and the study procedure, including data collection and analysis.

PARTICIPANTS

Forty-six women (aged 68-95 years) from four metropolitan low-care residential aged-care communities (facilities). Although marital status and experiences prior to aged-care were not considered in sample selection, having been a care-giver prior to entering care was a common experience among the participants, and all were widowed. Thus, whilst a focus on women who were caregivers who were widowed then entered aged care was not foreseen in the development of this study, the participants' common experience of these transitions eventually necessitated such a focus.

The four aged-care communities were selected from the seven operated in the state of Victoria by BaptCare (project partner) on the basis that those four accommodated 'low-care' residents. In Australia, this collective-setting accommodation is structured as private bed-sitting rooms in public or private facilities that provide 24-hour nursing and other support. The level of care provided varies according to the needs of the individual, but residents

classified as 'low-care' are typically independently mobile and able to manage basic personal care. Meals are supplied, though some residents have access to basic kitchen facilities.

Initial sample selection involved approaching residents of the facilities individually. However, the researchers had ethical concerns when that recruitment process was observed to elicit participation reflective of both an eagerness to comply with researchers' requests, and a desire for social engagement. As the aged-care population to which the study group belonged was considered vulnerable, this practice ceased and all subsequent recruitment was through residents' meetings, where residents approached staff after the meeting to register their interest.

Volunteers were required to be 'healthy' for selection to participate in the study. They were excluded from participation if staff could identify them as suffering dementia or other cognitive impairment, serious psychiatric illness, or uncontrolled, acute physical illness. The researcher did not have access to participant medical records, but participants were considered by facility staff, to be consistent with models of 'healthy ageing' within the residential care context. Staff ratings of residents' health status have been reported to be a reliable in previous research (E. McIntyre, 1982; D. Owens, Webber, & Lindeman, 1996). While exclusion of participants who have sleep disorders such as sleep apnea, experience pain disorders, take medications, and use

alcohol or other drugs would certainly ensure a ‘healthy aged’ sample, the representativeness of such a sample would be questionable. Given that such disorders and behaviours are commonly present in elderly women (Ancoli-Israel, Kripke, Klauber, Mason, Fell et al., 1991; Rembratt et al., 2003; Young et al., 1993), and the nature of the current research is highly descriptive, the researcher felt the potential inclusion of participants with such disorders and behaviours more justifiable than excluding them for the sake of homogeneity of groups. Therefore, volunteers were not excluded by their sleep or pain disorders, nor by medication or other substance use. They were eligible to participate provided they were aged over 65 years, female, classified as ‘low care’, and identified by staff as ‘healthy’ as defined previously.

Three groups were established, such that

- Group 1a (Sleep Quality Related Self Categorisation-Poor, BZ) consisted of nine women who self-categorised as poor sleepers and had been using benzodiazepines (BZ) for at least six months,
- Group 1b (SQRSC-P, NBZ) was 14 self-categorised poor sleepers who had not used BZs in the six months prior to the study,
- Group 2 (SQRSC-G) consisted of 23 self-categorised good sleepers who did not use BZs.

A subgroup of 10 self-categorised good sleepers and eight self-categorised poor sleepers drawn from groups 1a, 1b and 2 (including four BZ users), participated in data collection stages 1 and 2 of the study (see Figure 6.1 on

p163). In phenomenological research, a sample size of 8 (in each group) is deemed to be sufficient to provide valid results (Giorgi, 1985).

INSTRUMENTS

When selecting instruments for measurement of key variables of the study (eg self-reported sleep, depression, anxiety, subjective quality of life), the researcher considered suitability for use with an elderly sample, ease and speed of administration, psychometric properties, and most importantly the access to the instruments for other researchers and clinicians working with this population. As such, all the instruments outlined in this section of the methodology are simple to administer, suitable for use with elderly people, psychometrically sound, and widely available.

Questionnaire package

The *Geriatric Depression Scale* five/fifteen item version (GDS5/15) (Weeks, McGann, Michaels, & Penninx, 2003) is a short form of the 30-item Geriatric Depression Scale (GDS30) (Developed by Yesavage et al., 1983). The GDS30 is a self-report questionnaire specifically designed to screen for depression in older adults (Yesavage et al., 1983). It is brief and simple to use, and is suitable for use with healthy, medically ill, and mildly to moderately cognitively impaired elderly in community, acute care, or long-term care settings.

The GDS30 is highly reliable, with reports of internal consistency ranging from .69 - .94, and test-retest reliability ranging .85 - .92 (Spreeen & Strauss, 1991). It was also reported to have convergent validity exceeding .73 and satisfactorily discriminated between depression and dementia (Spreeen & Strauss, 1991). On a scale of 0-30, the cutoff scores are 9/10 for mild depression, and 19/20 for severe depression, with sensitivity and specificity of 84% and 95% respectively for the 9/10 cutoff (Yesavage et al., 1983).

Several shorter versions of the GDS have been validated, including versions with 4 items (D'Ath, Katona, Mullan, Evans, & Katona, 1994) 5 items (Hoyl et al., 1999). One study compared various short-forms of the GDS in a sample that was largely elderly, female, and living independently prior to a short stay in acute care (Weeks et al., 2003). It was found that the GDS5 was the most valid form, with sensitivity and specificity of 97.9% and 72.7% respectively at a cutoff of 2/3 for not depressed/depressed, and a test effectiveness score of .95, compared to .86 for the GDS4.

A false positive rate of 22.3% for the GDS5 however, encouraged Weeks et al. (2003) to develop a two-tier approach (GDS5/15) to depression diagnosis. First the GDS5 is administered. If a score of 0 or 1 is obtained, the individual is classified as 'not depressed', and the assessment is complete. A score of 2 or more however, suggests depression, and signals the administration of the GDS15 to provide a more reliable assessment of the suggested depression.

The recommended cutoff scores for mild depression and severe depression are >4 and >9 respectively.

The *Beck Anxiety Inventory* (BAI) (Beck, Epstein, Brown, & Steer, 1988) was initially developed to address the close relation of anxiety to depression in clinical populations. The original pool of 86 items was derived from 3 established scales: the Anxiety Checklist, the Physician's Desk Reference Checklist, and the Situational Anxiety Checklist.

The resultant BAI is a 21-item self-report questionnaire designed to assess the severity of anxiety symptoms in a clinical population. Responses to each item are scored on a 4-point likert scale from 0 (not at all) to 3 (severely, I could hardly stand it). The test's authors report that it has high internal consistency ($\alpha = .92$) and test-retest reliability after one week ($r = .75$), and successfully discriminates between anxious and non anxious diagnostic groups (Beck et al., 1988). Elsewhere, it has been reported that the BAI has an internal consistency of 0.9, and adequate convergent validity (range $r = .35 - .69$) and discriminant validity (range $r = .24 - .56$) (Osman, Kopper, Barrios, Osman, & Wade, 1997). The BAI has also been validated for use with community dwelling and institutionalised young-old and old-old adults (Morin et al., 1999).

The Australian *WHOQOL-Bréf* (B. Murphy, Herrman, Hawthorne, Pinzone, & Evert, 2000) is an abbreviated version of the 100-item WHOQOL (B. Murphy et al., 2000), which was designed by the World Health Organisation (WHO) as a multi-dimensional instrument for the comprehensive and subjective assessment of quality of life (QoL). Although the original instrument is considered highly reliable and valid, the shorter instrument was put forward as an alternative form, suitable for use with individuals for whom a faster administration is preferable, such as the elderly.

The Australian *WHOQOL-Bréf* (B. Murphy et al., 2000) is a 26-item self-report questionnaire, which assess four domains of QoL; Physical health; Psychological health; Social relationships; Environment, as well as two individual items to assess overall QoL and general health. Each item is scored on a 5-point scale, and domain scores have a range of 0-100, where a higher score represents a higher QoL.

In a validation study (Hawthorne, Richardson, & et al, 2000) that utilised a representative sample of well and ill community-dwelling and hospitalised adults, it was found that the four domains had high internal consistency ($\alpha = .87$; $\alpha = .81$; $\alpha = .68$; $\alpha = .81$ respectively). Similarly high values were reported for the construct validity of each domain ($r = .58-.80$; $r = .20-.70$; $r = .10-.48$; $r = .17-.45$ respectively) when correlated with widely used measures of health-related QoL. It is noteworthy that the non-significant correlation of .10

represents the correlation between the social WHOQOL-Bréf and the physical function scale of the SF-36. That scale only measures the physical function aspect of health-related QoL, and would therefore not be expected to correlate highly with the social domain of the WHOQOL-Bréf.

The *Pittsburgh Sleep Quality Index* (PSQI) (Buysse et al., 1989) was originally developed to provide a reliable, valid, and standardised measure of sleep quality, to discriminate between EEG-identified good and poor sleepers, to provide an index that is easy for subjects to use, and clinicians to interpret, and finally, to provide a brief, clinically useful assessment of a variety of sleep disturbances that might affect sleep quality (Buysse et al., 1989). Test items were derived from clinical experience, review of previous sleep quality instruments, and field testing (Buysse et al., 1989). The initial validation sample (n=148) consisted of 'good' sleepers, depressed 'poor' sleepers, and sleep disordered 'poor' sleepers aged up to 83 years (Buysse et al., 1989). Although the sample size is rather small for the validation of an instrument, particularly given the three groups, this instrument is widely used, and is validated for use with elderly samples (Buysse, 1991; Buysse et al., 1989)

The PSQI is a 19-item self-report questionnaire that assesses sleep quality and sleep disturbance over the previous month. The items generate a global PSQI score (range 0-21), which is the sum of the seven component scores (range 0-3), as follows: subjective sleep quality, sleep latency, sleep duration, habitual

sleep efficiency, sleep disturbance, use of sleeping medication, and daytime dysfunction.

The PSQI is a highly reliable instrument, with a reported test-retest reliability of 0.85 for the global PSQI score, and internal consistency of 0.83 for both component and individual item scores (Buysse et al., 1989). These high values for internal consistency indicate that each component measures a particular aspect of sleep quality, while each item measures a particular aspect of the component. Furthermore, the PSQI is also a highly valid instrument. It was reported that a global PSQI > 5 yielded a diagnostic sensitivity of .90 and a specificity of .87 in distinguishing good and poor sleepers (Buysse et al., 1989). The PSQI also satisfies the requirements of convergent validity, with reported correlations between the PSQI and related constructs all exceeding $r = 0.69$, and discriminant validity, with none of the reported correlations between the PSQI and unrelated constructs exceeding $r = 0.37$ (Carpenter & Andrykowski, 1998).

Subjective sleep recording

The women completed *sleep diaries* (Appendix D) at morning waking for one week. The sleep diaries asked the women to record their sleep phenomena upon waking. For example, they were asked to record the time they went to bed, the number of awakenings during the night, the time of morning awakening, and others. The following indices were derived from the sleep

diary data: (i) Sleep Onset Latency (SOL), that is the time from initial lights out to sleep onset (ii) Early morning awakening (EMA), measured as the minutes of wakefulness from termination of sleep episode to 7am (iii) Sleep Efficiency (SE), or the ratio of total time asleep to total time in bed x 100.

Use of sleep diaries as instruments for measurement of subjective sleep parameters has been reported widely in recent literature (Dautovich, McCrae, & Rowe, 2008; King et al., 2008; Krystal & Edinger, 2008; Spira et al., 2008; Usui, Ishizuka, Hachuda, Noda, & Kanba, 2003). One study comparing actigraphically measured total sleep time with estimates made in sleep diaries by nearly 1000 community-dwelling elderly participants found that 34% of participants' estimates deviated from actigraphic measurements by more than one hour (Van Den Berg et al., 2008). This highlights the point that sleep diary data should be used not as absolute measurements of sleep parameters, but rather as measurements of the individual's perception of their sleep parameters.

Semi-structured interview

A *semi-structured interview* (Appendix E), aligned with procedural requirements of the empirical phenomenological approach to qualitative research (Giorgi, 1993, 1997, 1985), was administered in order to obtain a description of the role of sleep, and experiences of hypnotic use. The participants in the BZ group were asked to give detailed descriptions across

three topics. The first topic was 'A good night's sleep, a bad night's sleep'. Participants were asked to describe times that they slept well, and times that they slept poorly, including as much information as possible about what they did and how they felt physically, mentally, and emotionally during the preceding day, the sleep phenomena and how they felt that night, and what they did and how they felt the next day. The second topic was 'Improving sleep'. Participants were asked to give examples of times that they had taken steps to improve their sleep, including a description of the problem, what they did to improve their sleep, and the outcome. The third topic was 'Benzodiazepines'. Participants were asked to describe their experience of BZs, including the process of initial prescription, their history of usage, withdrawal attempts and associated difficulties, examples of how BZs impact on their general health status, differences they experience in their sleep due to BZs, and examples of positive and negative aspects of being on BZs. Interviews with the non-BZ groups covered the topics 'A good night's sleep, a bad night's sleep', and 'Improving sleep' (as outlined above for the BZ group), as well as a third topic; 'Sleeping pills' which asked participants to discuss any times that they had considered using sleep medications in the past, including the surrounding circumstances, why they decided that they would/would not use the medication, and the outcome.

PROCEDURE

Ethical approval was obtained from the Victoria University Human Research Ethics Committee (Appendix A). Figure 6.1 outlines the study design. In data collection stage 1, all 46 participants completed self-report questionnaires. Then, during data collection stage 2, a sub-group (n= 18) completed sleep diaries before participating in semi-structured interviews.

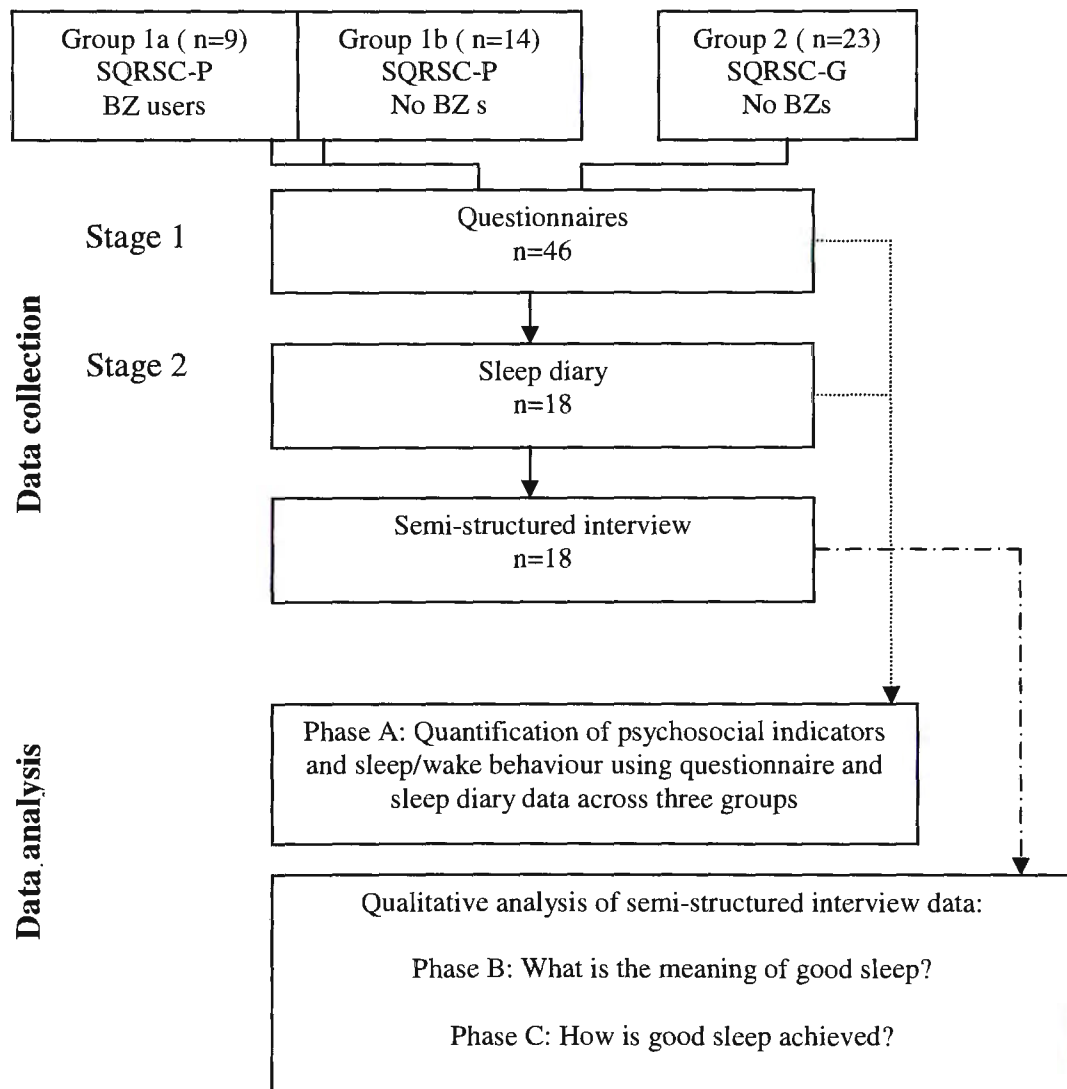


Figure 6.1 Methodological outline

Data collection

Stage 1

Participants read plain language statements (Appendix B) and signed consent forms (Appendix C) then engaged in an individual testing session for approximately 30-45 minutes. Participants were asked to make sleep quality-related self-categorisations (SQRSC) as good or poor sleepers, and equivalent group sizes (n=23) were sampled to enable comparison between groups. No specific rating criteria were provided for participants and the self-categorisations were therefore seen to represent intuitive evaluations by participants. Participants then completed the questionnaire package which included the GDS 5/15 (Weeks et al., 2003), the BAI (Beck et al., 1988), the WHOQOL-Bréf (B. Murphy et al., 2000), and the PSQI (Buysse et al., 1989). These were administered verbally by the researcher who read each question aloud and recorded the participants' responses.

Stage 2

A sub-sample of 18 women was selected for stage two of the data collection on the basis of their SQRSC and willingness to engage in a 90-minute interview. These 18 women [10 good and eight poor sleepers (four BZ users)] completed sleep diaries for one week prior to a second testing session during which they participated in individual in-depth interviews (45-90 minutes) in their own rooms. All interviews were tape recorded and later transcribed.

Data analysis

Phase A - Quantification of psychosocial indicators and sleep/wake behaviour using questionnaire and sleep diary data: Evaluating subjective sleep quality

Phase A of the data analysis first involved statistical analysis of the quantitative psychosocial and sleep data. Mann-Whitney U tests (selected because data were not normally distributed) were conducted, with alpha set at 0.05, to screen for differences in age, depressive symptomatology, anxiety and quality of life between the two SQRSC groups, in response to research question 1 - *Are differences in sleep quality-related self-categorisations (SQRSC ie. whether they describe themselves as 'good' or 'poor' sleepers) explained by differences in age and subjective ratings of depression, anxiety, and quality of life?* An independent samples t-test (selected when data was found to satisfy the relevant assumptions) was then used between SQRSC good and poor sleepers with PSQI global score as the dependent variable. Further, SQRSC status (good or poor) was plotted against sleep diary indices to allow interpretation of possible relationships and differences. Both data analyses were designed to address research question two - *Do quantifications of the subjective sleep quality of elderly women in aged-care reflect their sleep quality-related self-categorisations (SQRSC)?*

Phase B - Qualitative analysis of semi-structured interview data: The meanings of sleep quality

Phase B of the data analysis involved the qualitative analysis of semi-structured interview data on the meanings of sleep quality. It addresses research questions 3 - *What are the experiences of sleep phenomena for self-categorised good and poor sleepers?* and 4 - *What are the drivers of sleep quality-related self-categorisations (SQRSCs)?*

Phase C - Qualitative analysis of semi-structured interview data: Achieving good sleep quality

Data analysis Phase C involved the qualitative analysis of semi-structured interview data on how the women self-managed their sleep quality in order to achieve good sleep. It addresses research questions 5 - *What is the range of sleep management strategies utilised by the group?*, 6 - *Are sleep management strategies only employed by self-categorised poor sleepers?* and 7 - *What factors underpin the choice of sleep management strategy?*

The recorded semi-structured interviews were analysed, as follows, in accordance with the empirical phenomenological approach (Giorgi, 1993, 1997, 1985; Morse & Field, 1995; Moustakas, 1994). Interviews were first transcribed verbatim. A 'global reading' was carried out, where the researcher read through the transcript several times, to gain a global sense of the content. Next, the participant's naïve description (interview) was broken into meaning

units, which involved the researcher reading through the description and indicating each place where there was a transition in meaning. The phenomenological attitude of 'reduction' was maintained throughout this process, meaning that the researcher made an effort to put aside all prior knowledge of the phenomena described by the participant, including that gained from previous participants. Once the meaning units were discerned, the researcher described the psychological meaning of each unit. At this point, 'free imaginative variation', where the content is modified in order to retain the essential meaning and ignore the irrelevant, was employed. The psychological meaning units were then labeled according to their content, and synthesised according to their labels, such that the network of relationships among the parts reflected the essential meaning of the whole psychological description. Initially, psychological descriptions were returned to participants for their reflection, which is an acceptable validation technique in phenomenological research (Giorgi, 2002; Moustakas, 1994). This was found to be unsatisfactory, however, when participants were unable to critically review the document and demonstrated an overriding desire to be supportive of the researcher's analysis. To ensure credibility of the derived meanings and overcome potential biases in the data analysis a second researcher with considerable experience in qualitative analysis independently analysed samples of the data, with a very high degree of congruence. This process of 'triangulating analysts' is described by Patton (1990) as an appropriate method of data validation. Psychological descriptions were then compared with others

from the same SQRSC group in order to derive a sense of commonalities. Common psychological meaning units were woven together to form situated descriptions to address each of the research questions presented in the results chapters. A situated description is a translation of the naïve description that retains the essential meaning, but utilises the language of the theoretical area (Giorgi, 1997).

In the field of sleep research, the use of phenomenological analysis is limited. It is useful and justified in this study though. Not only is this approach able to accommodate the high degree of individual difference in beliefs and experience around sleep among the aged population, but it can also provide valuable insight into the emic meanings of sleep and sleep-related events as they are experienced by elderly women. Table 6.1 presents the components of empirical phenomenological analysis and describes the related action in the context of the current methodology.

Table 6.1

Components of the empirical phenomenological analysis process (Giorgi, 1985) explained in the context of the current investigation of sleep

Analysis component	Description
Transcription	Recorded interview is transcribed, forming a 'naïve' description of the participants' (sleep) experience.
Global reading of naïve description	The naïve description is read for essential meaning prior to further analysis.
Identification of naïve meaning units	Naïve description is broken down into a series of meaning units.
Description of psychological meaning units	Each meaning unit is interpreted using the (sleep) theoretical terms and concepts, forming a (sleep) psychological description.
Validation of psychological description	The psychological description is checked against the interview transcript for retention of essential meaning.
Identification of common meaning	The meaning units common between participants are identified and taken to represent the (sleep-related) experience of the group.
Formation of situated descriptions	Common meaning units are drawn together into situated descriptions that address the research questions.

Chapter 7

Results Part 1: The meaning of ‘good sleep’

‘As long as you get some sleep, that’s the main thing. I’m not worried about sleep.’ – Research participant, aged 79

This chapter presents findings related to the evaluation of sleep quality (data analysis Phase A), and the meanings of sleep quality (data analysis Phase B). Thus, it addresses research questions 1 - *Are differences in sleep quality-related self-categorisations explained by differences in age and subjective ratings of depressive symptomology, anxiety, and quality of life?*, 2 - *Do quantifications of the subjective sleep quality (from Pittsburgh Sleep Quality Index and sleep diary data) of elderly women in aged-care reflect their SQRSCs?*, 3 - *What are the experiences of sleep phenomena for self-categorised good and poor sleepers?*, and 4 - *What are the drivers of sleep quality-related self-categorisations (SQRSCs)?* Because of the highly descriptive, qualitative nature of the study, some interpretation has been included along with the presentation of findings. However, further interpretation is presented in Discussion Part 1, found in Chapter Eight.

The current chapter first shows that sleep quality-related self-categorisation (SQRSC) is not explained by differences in age, or in subjective ratings of

depressive symptomology, anxiety, or quality of life. Second, it shows that the quantification of the women's sleep/wake behaviours and subsequent evaluation of their subjective sleep quality using PSQI global scores and sleep diary data, are incongruent with the women's forced SQRSC. Third, it details the investigation of this incongruence, with particular focus on the nature of sleep disturbance experienced by the women, and the meanings that they attribute to their sleep-related experiences. In doing so, it shows strong similarities between SQRSC groups in i) the genesis of sleep disturbance, which is often during the transitions from wife to widow, and from independent living to residential aged-care, and ii) the descriptions of the specific categories of sleep parameters reported. Finally, it presents evidence that the basis of SQRSC lies not in the actual experience of those sleep parameters, but in the appraisal of one's sleep as better than normal, normal, or worse than normal, through a process of social or temporal comparison that is differentially applied by self-categorised good and poor sleepers.

PHASE A – EVALUATING SUBJECTIVE SLEEP QUALITY

Psychosocial indicators do not explain differences in SQRSC

Mann-Whitney U tests were used to check for differences in age or psychosocial indicators between SQRSC groups. Table 7.1 shows that age was not significantly different between groups. Furthermore, the groups did not significantly differ on BAI or WHOQOL-Bréf domain scores. Poor sleepers

did score 2.1 points higher than good sleepers on the GDS5/15 however, and this difference was significant at the $p < 0.001$ level. This indicated greater endorsement of depressive symptomatology by self-categorised poor-sleepers. However, the difference is not clinically significant, as both group means fell within the 'minimally depressed' (or not depressed) range, denoted by scores in the range of 0-4.

Table 7.1

Mann-Whitney U tests of differences in age and psychosocial measures between self-categorised good and poor sleepers.

	<i>M(SD)</i>		<i>U</i>	Sig. (<i>p</i>)
	SQRSC-G (n=23)	SQRSC-P (n=23)		
Age	86.2 yrs (7.2)	85.3 yrs (8.6)	255.5	0.84
GDS5/15	0.6 (2.1)	2.6 (3.1)	139.0	0.00
BAI	4.5 (4.1)	6.9 (6.6)	227.5	0.56
WHOQOL				
<i>Physical</i>	65.5 (18.8)	62.8 (16.4)	227.5	0.41
<i>Psychological</i>	77.0 (10.4)	68.6 (16.6)	200.0	0.15
<i>Social</i>	73.8 (9.0)	68.0 (14.9)	215.5	0.27
<i>Environmental</i>	87.0 (10.0)	85.9 (9.7)	248.0	0.72

Quantifications of subjective sleep quality do not reflect SQRSC

To investigate their sleep parameters, the women were forced to make a SQRSC, and this was compared with PSQI categorisation, and the following indices derived from sleep diary data: sleep onset latency in minutes (SOL); early morning awakening in minutes awake before 7am (EMA); sleep efficiency (SE).

The relationship between PSQI global score and SQRSC

PSQI global scores were plotted by SQRSC for all individuals. Visually, Figure 7.1 suggests several trends. A substantial range of PSQI global scores is evident. Using the PSQI, the conventional cut-off point for clinically defined sleep disturbance is a score of >5. That cut-off places 80 percent of the participants in the poor sleep category, when only 50 percent self-categorised as poor sleepers. Thus, there is considerable overlap between SQRSC groups on PSQI global score, particularly between scores five and 12. A participant with a PSQI global score in this range was equally as likely to self-categorise their sleep as good, as they are to self-categorise their sleep as poor.

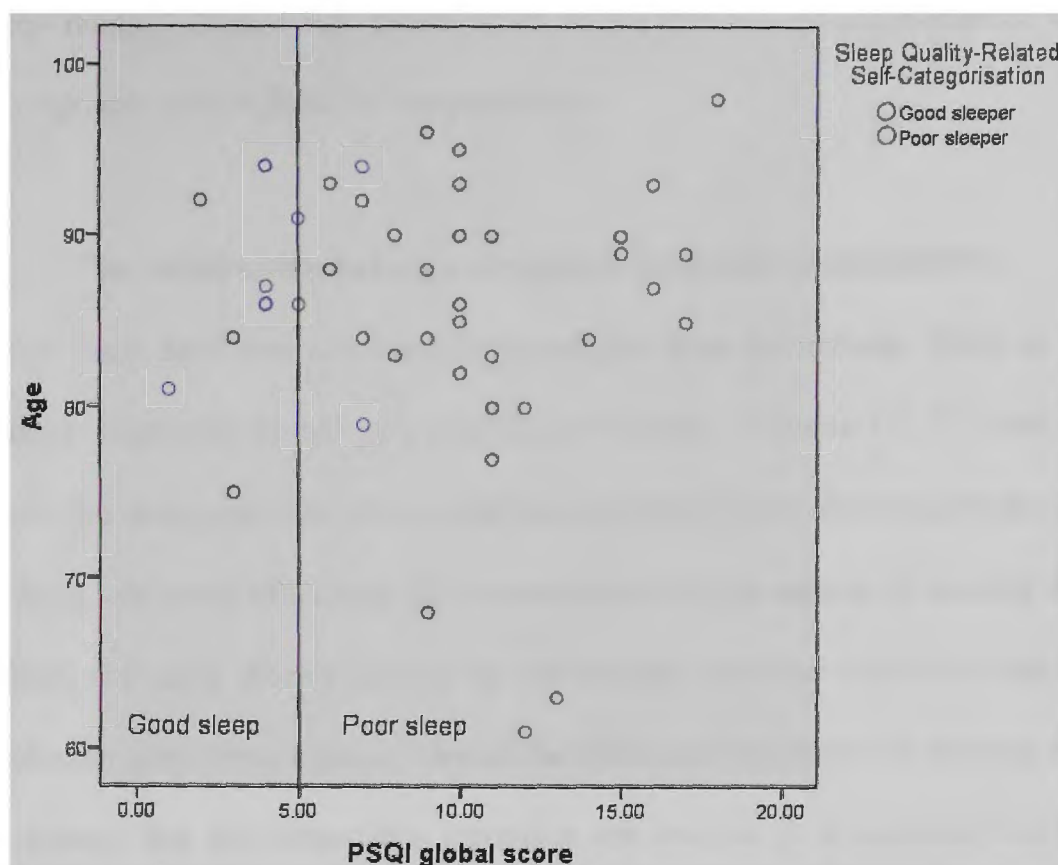


Figure 7.1 PSQI global score of self-categorised good and poor sleepers by age of woman (n=46).

To understand the data more clearly the possible difference between SQRSC good and poor sleepers on mean PSQI global scores was investigated using an independent samples t-test. The mean PSQI score for SQRSC poor sleepers ($M=11.9$, $SD= 3.6$) was significantly greater ($t(df=44) = -5.5$, $p = 0.00$) than that of good sleepers ($M=6.4$, $SD=3.2$). However, the sample as a whole ($M=9.4$, $SD=4.4$) was rated as poor sleeping using the benchmark PSQI global score of 5 as the discriminator of good and poor sleep. Even SQRSC good sleepers demonstrated a mean score that placed them within the PSQI poor

sleep range. Thus, PSQI global score as an indicator of sleep quality was incongruent with SQRSC in this population.

The relationship between sleep diary data and forced SQRSC

Sleep diary data were also used to investigate sleep parameters. Each of the three indices was plotted as a function of SQRSC. Figures 7.2, 7.3, and 7.4 show the data points for sleep onset latency (SOL), early morning awakening (EMA), and sleep efficiency (SE) respectively. Due to aspects of missing data within the sleep diaries not all 18 participants provided sufficient data for inclusion in all three figures. One of the difficulties presented by missing data is always that the biases they introduce are unclear. It is assumed that the missing data relates to aspects of the women's sleep that was either not important to them (ie. not problematic) or related to aspects of their sleep that they could not estimate for some reason.

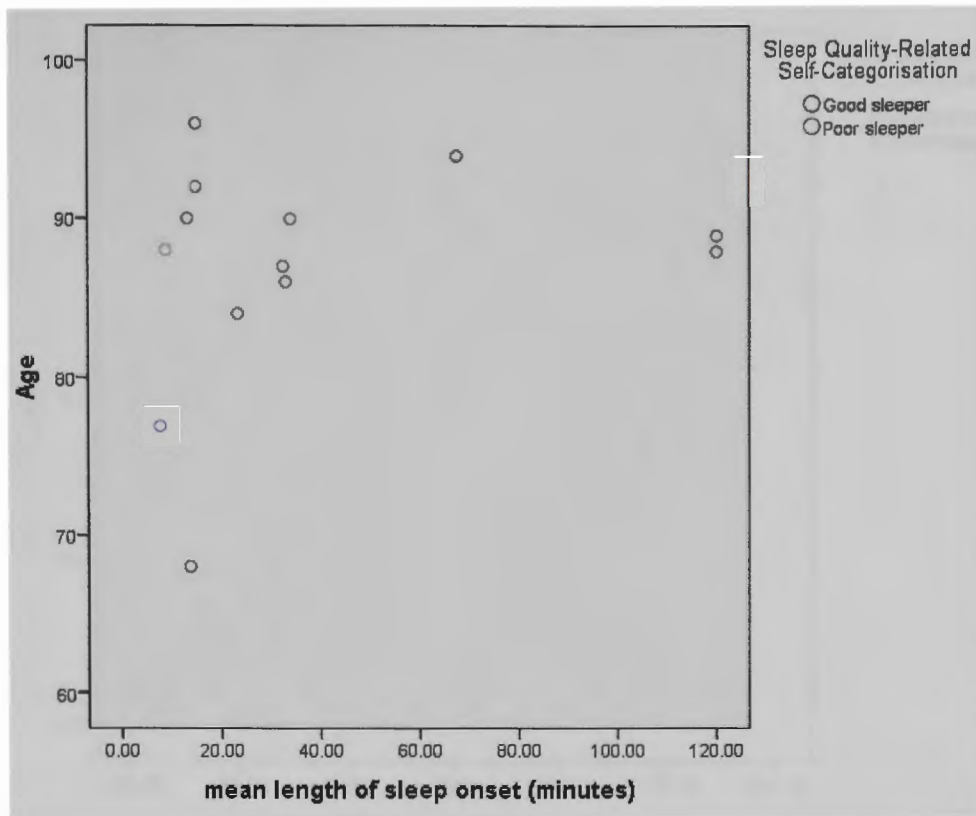


Figure 7.2 Mean length of SOL (minutes) of self-categorised good and poor sleepers by age of woman (n=13).

Figure 7.2 shows the scatter of sleep onset latency for self-categorised good and poor sleepers by age. When evaluated using the criterion of at least 31 minutes of unwanted wakefulness prior to falling asleep, proposed by McCrae et al. (2003) as a criterion of poor sleep, three self-categorised good sleepers and three self-categorised poor sleepers, met the benchmark for poor sleep. Ten of the 13 participants reported an average sleep onset latency of less than 40 minutes.

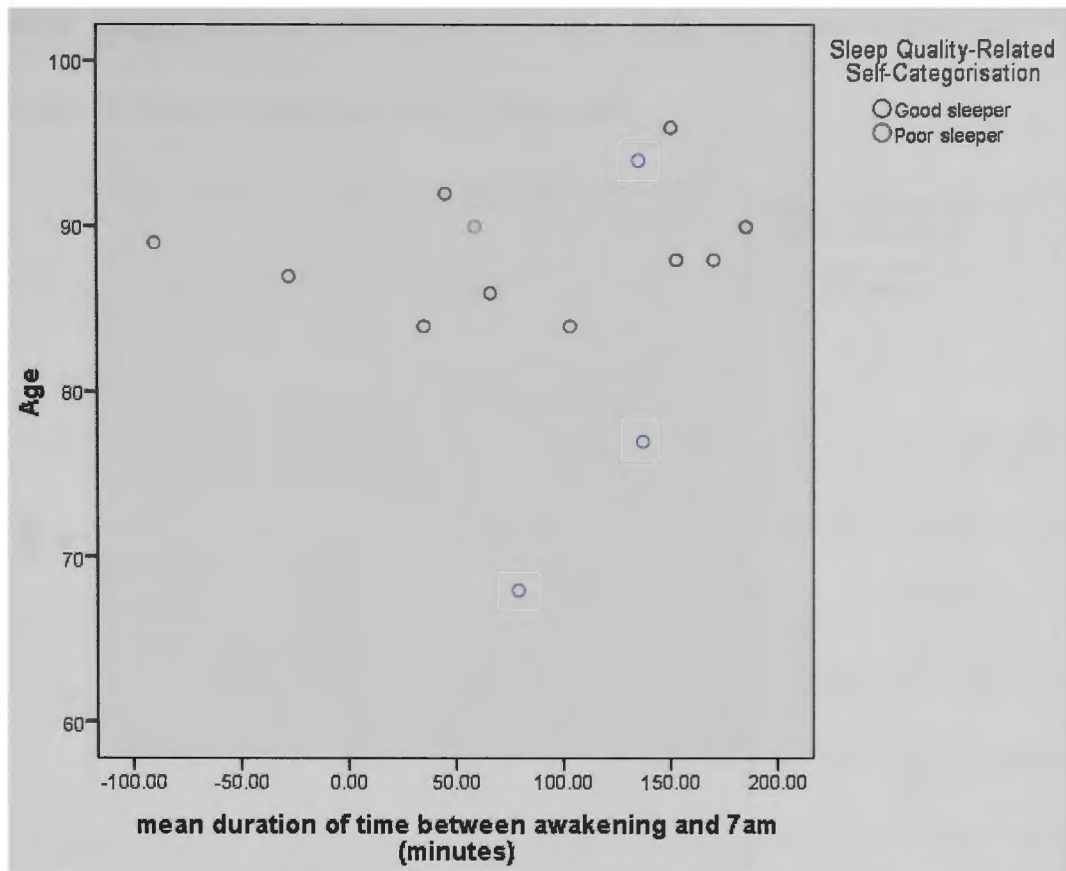


Figure 7.3 Mean duration of time between awakening and 7am (minutes) of self-categorised good and poor sleepers by age of woman (n=14).

Figure 7.3 shows the data relating to early morning awakening. Data points represent the participants' mean waking time relative to 7am. On the horizontal axis, 0.00 represents 7am. Placement to the left of that point represents an average waking time of some minutes before 7am. Location to the right of 0.00 represents a waking time after 7am. The scatter of the data points shows a wide range of mean morning awakening times. Self-categorised poor sleepers reported waking on average, between 100 minutes before 7am (ie. approx. 5:30am), and 180 minutes after 7am (ie. approx. 10am). Average waking times of self-categorised good sleepers showed a

smaller range; between 8am and 9:30am. Only two participants reported average morning awakening times before 7am.

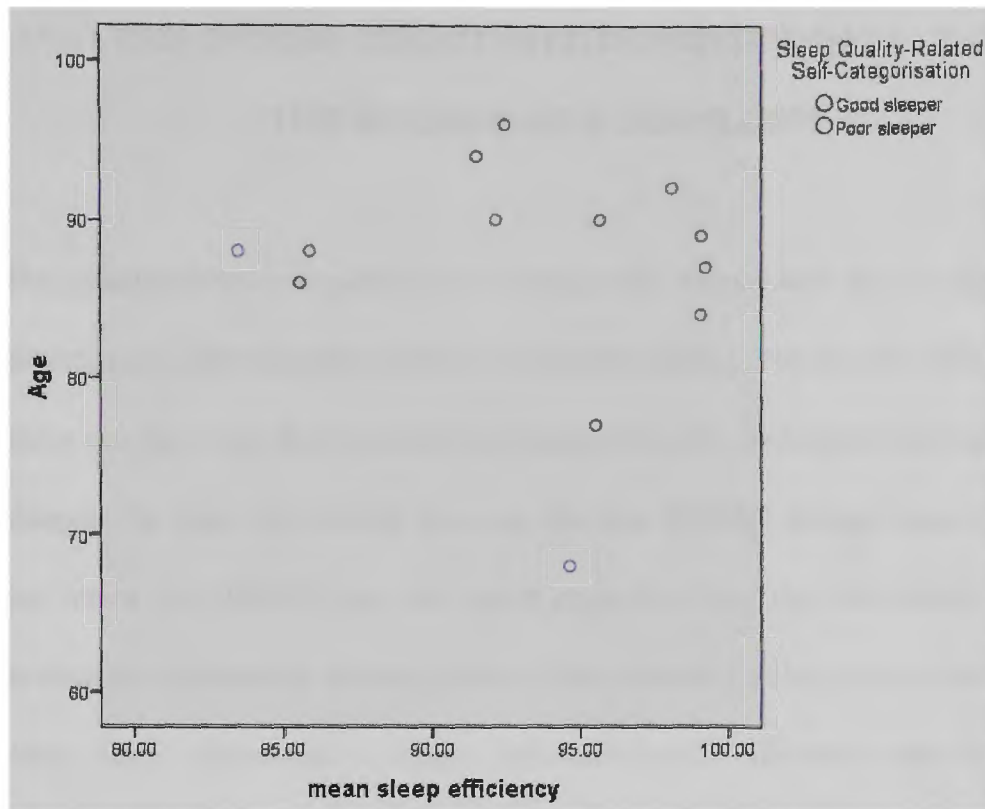


Figure 7.4 Mean sleep efficiency (%) of good and poor sleepers by age of woman (n=13).

Figure 7.4 further shows the overlap in sleep/wake behaviours between SQRSC groups. The range of sleep efficiency scores (100(Total time in bed/total sleep time)) was 16 percentage points. The lowest score is more than 80 percent, meaning all participants spent, on average, more than 80 percent of their total time in bed asleep. The participants with the five highest sleep efficiency scores all self-categorised as poor sleepers.

**FINDINGS OF DATA ANALYSIS PHASE B - QUALITATIVE
ANALYSIS OF SEMI-STRUCTURED INTERVIEW DATA: WHAT IS
THE MEANING OF GOOD SLEEP?**

The quantifications of participants' sleep/wake behaviours do not align with participants' self-categorisations of their sleep quality. Neither the PSQI global score nor the sleep diary indices distinguished self-categorised good and poor sleepers. In fact, the overlap between the two SQRSC groups suggested that the bases of SQRSC may be more complex than the few sleep indices evaluated. Qualitative investigation of the women's subjective evaluation of their sleep parameters through semi-structured interview was therefore warranted.

Data analysis Phase B addresses research questions 3 - *What are the experiences of sleep phenomena for self-categorised good and poor sleepers?* and 4 - *What are the drivers of sleep quality-related self-categorisations (SQRSCs)?* Results of qualitative analysis will be presented as situated descriptions on each of these research questions. When more than one situated description was necessary to represent the beliefs and experiences of sub groups of participants, each situated description is presented. These reflect the emic meanings of the women's experience of sleep phenomena. Naïve meaning units (excerpts from interview transcripts) are used throughout the results chapters to provide support for the interpretation and translation of

naïve descriptions into situated descriptions. It becomes clear upon reading these excerpts, and the situational descriptions they underpin, that the actual experience of sleep phenomena as they are reported by the women, is strikingly similar regardless of SQRSC, and data saturation was achieved. Interestingly, the data provided by women who self-categorised as good sleepers appeared at least on face value, to be richer than those provided by poor sleepers. The good sleepers provided qualitatively longer interviews and longer, richer responses to questions. Whilst one must be careful to consider whether this anecdotal difference introduces bias into the findings, it is equally important to acknowledge that the data provided by the poor sleepers do not lose any of their validity or interests through this difference. Further, what perhaps distinguishes between the groups, is not their sleep phenomena per se, but rather their interpretation of the events they experience. After each quote, the respondent is identified as a self-categorised good sleeper (GS) or poor sleeper (PS), and her age in years is indicated in brackets.

Experiences of sleep phenomena

The experiences of sleep phenomena of the women have been categorised as those relating to the genesis of subjective sleep disturbance, and those relating to their current sleep phenomena. The first situated description is thus focused on historical aspects of their subjective sleep experience, while the second pertains to their sleep in the present.

*Personal sleep histories: Late-life transitions and the genesis of subjective
sleep disturbance*

In the situated descriptions (see Table 7.2) of the experiences of sleep phenomena, it is evident that both good and poor sleeping women reported that they had experienced significant sleep disturbance at particular transitional times in their lives, indicating that sleep disturbance is a normal experience for this cohort. Specifically, many women reported that they began sleeping poorly at the time when they became the carer of their spouse, or upon entering aged-care. A number of trends were apparent. At both of these transitional times, cognitive de-arousal which is crucial for the onset of sleep (see chapter 2) (Espie, 2006), was impaired and associated with sleep disturbance. While good sleepers generally reported that the sleep disturbance they experienced at these two times had been adjustment-related in nature, and had recovered, poor sleepers reported either that their sleep problem had continued beyond the transition phase (becoming a spousal carer), or that they remained in the transition phase (ie. because they were new to aged care). Thus, like the self-categorised good sleepers, some of the poor sleepers (those who are new to care), may also eventually have found that they recovered their sleep quality as they adjusted to their new environment. There were others though, who were not new to care, and were thus no longer engaged in that transition, who reported a chronic perpetuation of the sleep disturbance that began when they were caring for their ill spouse.

Table 7.2

Situated descriptions of the experiences of sleep phenomena for self-categorised good and poor sleepers

Situated description topic	Good sleepers	Poor sleepers
The genesis and history of sleep disturbance	<p>Sleep disturbance began with the declining health of the spouse, and the transition from the role of wife to the role of spousal carer. During that time, sleep was significantly disturbed by the physical and emotional caring work carried out in the role of spousal carer for a dying husband. Sleep quality recovered following the transition from the role of carer. Upon entering aged-care, feelings of anxiety, and increased pre-sleep cognitive activity impaired cognitive de-rousal. This reduced sleep quality until there was an adjustment to living in aged-care thus reducing the level of anxiety.</p>	<p>Sleep disturbance, for which one may take BZs, began some years ago during the very stressful time around the husband's declining health, prior to his subsequent death. Sleep quality did not recover after the transition from the role of wife, and sleep disturbance has continued since that time.</p> <p>OR</p> <p>Sleep disturbance began with the transition from independent living to residential aged-care. The transition from independent living is ongoing, since the relatively recent move into residential aged care. Increased pre-sleep cognitive activity around the difficulties of adjusting to aged-care, inhibits sleep onset.</p>

Sleep phenomena in the here and now

Pre-sleep cognitive activity impairs cognitive de-arousal and increases sleep onset latency, but this is not distressing. Wakefulness after sleep onset results most often from nocturnal voiding, which takes place three times each night. Sleep is also fragmented by physical pain in the context of minor medical conditions. This is expected though, and not of great concern. Environmental disruption during the night is a normal part of the residential care environment, and has a minimal impact on sleep maintenance. Worrying about family, health, and finances extends wakefulness after sleep onset. The day often begins earlier than required by the day's planned activities. Feelings of excessive daytime sleepiness are frequent, but only occasionally responded to by napping.

Disturbed sleep onset is distressing, and is one marker of poor sleep quality. Sleep fragmentation is another marker of poor sleep, and a particular problem. Wakefulness after sleep onset is also distressing and has several causes: Environmental factors including fire alarms and other noise, and new beds cause frustration through wakefulness after sleep onset; Activity necessitated by the need to manage one's physical pain, discomfort, and nocturnal voiding, which is needed about three times each night; Worrisome thoughts about family, health, and sleep prevent return to sleep upon waking during the nocturnal sleep episode. Early morning awakening is not countered by intention to return to sleep, and dictates an earlier than desired start to the day's activities. The need to nap arises from excessive daytime sleepiness. Good sleep would be indicated by fast sleep onset and by a lack of sleep fragmentation.

Sleep disturbance and the transition from 'wife' to 'spousal carer'

The time that many of the self-categorised good sleepers associated with the experience of disturbed sleep was around the declining health of their spouse, and their own subsequent transition from the role of 'wife' to the role of 'spousal carer':

'I did take sleeping tablets at one time. My husband was very ill. He was up at Society for the Aged because we couldn't get him in here. And he was a terrible patient. Shocking. He nearly drove the whole family mad, because as soon as we'd go he'd say "Got the car? Righto I'm ready". He didn't want to stay. And Doctor D. said to me "All you can do is get up and walk out when he's not looking". And I used to take sleeping tablets then.' – Good sleeper (GS) (94 years)

'I had a lot of anxiety with my husband being so ill. He couldn't even roll over in bed. I had to get out of bed and go round, and roll him over. And he'd say "My knees are hurting". He was so thin and his knees were so bony, so I had a little cushion for his knees. But, oh dear me. It ruins your sleep, that's what it does. Because you've got to get up all the time.' - GS (86)

These experiences demonstrate the impact on sleep of the emotional and physical care work that the women carried out when their husbands were ill. The first woman described the time when her husband entered age-care. The burden of his illness disturbed her sleep to the extent that she required 'sleeping tablets'. The second woman described the physical care work that she carried out during the night when she stated that her sleep had been 'ruined' because she had to 'get up all the time' to care for her husband. For both women however, the sleep disturbance was resolved over time, and their sleep quality recovered such that, several years later, they self-categorised as good sleepers. In contrast, the poor sleeping woman below who also began to have 'trouble sleeping' when she was caring for her husband had experienced a continuation of her disturbed sleep:

'I started taking sleeping tablets when my husband was ill...that's when I started taking them, eleven years ago. It was a very stressful time. Trying to keep his morale up. I started having trouble sleeping I think when, when I had to support him.' – Poor sleeper (PS) (90)

This woman had been living in her aged-care community for six years (and was not transitioning into aged-care), and experienced disturbed sleep, for which she took hypnotic medication, for eleven years. The genesis of her sleep problem had occurred when she 'had to support' her husband in her role of spousal carer. Rather than recover, her sleep problem became chronic, and

was ongoing. This differentiated her, and other self-categorised poor sleepers, from the self-categorised good sleepers quoted above, who recalled an adjustment-related sleep disturbance that resolved over time.

Sleep disturbance and the transition from independent living to residential aged-care

The transition from independent living to residential aged-care is another highly significant one for this cohort, if for no other reason than that it had, by the nature of the sample, been experienced by each and every one of the respondents. It was apparent that this transition was also associated with disturbed sleep for both groups. However, self-categorised good sleepers, again described an adjustment-related sleep disturbance that occupied a relatively discreet period of time, and which has since recovered. Poor sleepers did not indicate having moved beyond the transition phase. In fact, a trend in the data from poor sleepers showed that many of them were relatively new to residential care, and were therefore still engaged in that transition.

The good sleeper below, who had been in care for longer than a year, recalled that she experienced some sleep disruption when she first moved into care:

'I haven't slept poorly for a while. When I first came in here (aged care) I was a bit restless. Unsettled in the mind and body. But I went back to the same.' – GS (77)

She noticed that her sleep quality, which she felt had worsened upon entering aged-care, had returned 'back to the same' once she had settled into her new residence. It was more common for the poor sleepers however, to indicate that they were still experiencing the transitional phase from independent living to residential care:

'I have been (in care) for about three months. I don't like it here at all. It's just I don't feel as though I am old you know? And when I see my old face I think "Who is that old face? That's not me."' – PS (87)

Such women tended to associate the transition itself with their sleep problem:

'My sleep has been like it since I came in here. I think it's just the fact that I know I'm in here, and it's so totally different. And it does take so long to get used to everything. The life that you led has gone, and another thing, I can't do what I used to do. All these things go through your mind at night you know? And that affects my sleep because I think about all the things I have lost by coming into care.' - PS (80)

'This type of life is totally different for me. I have nothing against the place but I don't like it. I'm not used to being in one room, I'm used to being in an office, I'm used to owning an office...I miss my home, I miss my work, I miss my husband and my family, I miss the general run of the community. Before moving to (aged-care) I always slept alright. But then I always had interests in life...I don't belong here at all.' – PS (81)

Both women quoted above had moved from their own home to their aged-care facility within the previous four months. They said that their new residence was 'totally different' for them, and that the transition into care was having a continuing, negative impact upon the quality of their sleep.

Summary of the genesis of sleep disturbance

Many of the experiences of sleep disturbance described by the women began with one or both of two significant transitions. The first transition, that from the role of 'wife' to the role of 'spousal care', was associated with sleep disturbance resulting from the physical and emotional care work carried out by the women. This sleep disturbance appeared to be part of an adjustment process among good sleepers, but had continued for some poor sleepers. The second important transition, one common to all respondents, was the transition from independent living to residential care. This time was identified by both groups as one of disturbed sleep, and in fact, it was common for self-categorised poor sleepers to be still engaged in the transition phase because

they were new to care. It is unclear whether the sleep disturbance of self-categorised poor sleepers who were new to care would recover with their adjustment to their environment, or whether it would become chronic.

Sleep stories in the here and now: Describing specific sleep phenomena

Both self-categorised good and poor sleepers related experiences of sleep phenomena that could be conceptualised as representing descriptors of the four categories of sleep onset, sleep maintenance, morning awakening, and daytime sleepiness. The similarity of the stories relayed by the good and poor sleepers was clear. The difference between the groups was not in the sleep phenomena they reported, but rather in the meaning they made around these phenomena. Across each of the four categories of sleep phenomena, both self-categorised good and poor sleeping women described experiences that were common among the entire group, rather than being distinctly unique to themselves as individuals or as a member of their good sleeping (GS) or poor sleeping (PS) group. It is in the realisation that the same events were *interpreted* differently between groups, that one begins to understand meanings around sleep quality for these women.

Sleep Onset

It was common for good and poor sleepers to report some difficulty with initial sleep onset:

'I think the whole trouble is when I first go to bed, the mind goes over what you've got to do the next day, or what you've done that day. And it might be better if I don't do that, but how am I going to stop that?' – GS (88)

'It doesn't worry me if I don't get to sleep before midnight, it doesn't worry me at all because I don't have to be up until seven, seven thirty.' – GS (86).

'A bad night sleep is when I just can't go to sleep... I like to go to bed about half past nine. And I like watching (television). Even though I can't get to sleep, I drift off eventually.' - PS (90)

Both the good sleepers and the poor sleeper quoted above reported slow sleep onset even though their SQRSC was different. The first good sleeper stated that 'the whole trouble' is when she 'first goes to bed', and the second was not worried if she 'didn't get to sleep before midnight', whereas the poor sleeper expressed the belief that slow sleep onset defined 'a bad night sleep'.

Sleep Maintenance

The category of sleep maintenance received the greatest focus of discussions, with both good and poor sleepers identifying a range of factors that disturbed their sleep. Predominately they described their nocturnal sleep episode being fragmented by periods of wakefulness due to changes to their sleep environment, the need to manage their bodies in response to nocturnal voiding,

physical pain or discomfort and/or worry. It was apparent that nighttime activity related to self-management of these factors regularly punctuated sleep for most participants, again regardless of SQRSC group membership.

The sleep environment

Both good and poor sleepers reported that they were sometimes woken by environmental noise. The nature of the noise varied. At one end of the spectrum was noise made by possums and other minor noise:

'I must be a light sleeper because any little noise wakes me... Noise will disturb me. A lot of people are deaf at this age, and I'm not. I've got very, very good hearing. I can hear a pin drop.' – GS (79)

'We have the possums too, and you've got to contend with that too sometimes. You'll be trying to sleep and they'll be fighting and carrying on, and it's a bit of a problem. Especially down the walls.' – PS (88)

The good sleeper here did not mind being woken by environmental noise, as it indicated that she had 'very, very good hearing'. The poor sleeper on the other hand, described having to 'contend' with noise at night.

At the other end of the noise spectrum, was that made by the fire alarm:

'We had a fire alarm the other night. Quite a nasty one... It went on for ten minutes, quarter of an hour. The fire brigade was here. No sign of a fire. Oh, you do get an awful fright. And the rest of us were wondering what was going to happen next because it was on very loud for ten minutes, quarter of an hour.' – PS (90)

'The other night the fire alarm went off at twenty past four in the morning, and I'm out there seeing if I could see where the smoke was... And there's nobody around. Just the fire alarm going off.' – PS (80)

Both the poor sleepers here described being woken by a fire alarm during the night. The first stated that she got 'an awful fright' and wondered 'what was going to happen next'. The second respondent left her bedroom to 'see where the smoke was'. When further prompted, both women went on to describe a feeling of loneliness associated with their experiences of waking to the fire alarm. Both had felt concerned for their safety, and had been uncertain about how to escape the potential danger of a fire. This perhaps highlights a propensity among the self-categorised poor sleepers to interpret events more negatively than the self-categorised good sleepers.

The shift from independent living to residential care inevitably involves substantial disruption to the sleep environment. Both good and poor sleepers identified the bed itself as a major source of nighttime disruption:

'If, like changing beds, you know, this is not my bed. My bed was perfect for me you know. And they asked me if I wanted to bring my bed, and I said 'No' because my eldest son has to do all those things for me ... And, I said 'No', you know, and so I haven't got my bed. This is alright, but it's a noisy bed. When I turn over I know about it. I wake myself up because it rattles. But mine didn't.' – GS (79)

'And they are not the most comfortable of beds. They are dreadful beds. Well see I was used to, my bed was an ensemble, and the mattress was that innerspring. It was that wide, but if you turn over here, you'll fall out that side. And there's a plastic on it that wrinkles and sticks into you. It creaks a bit. As I said, they're not conducive to a good sleep. You can bring your own bed in, but that's if you can make it yourself I believe, I don't know. But I'm used to having the mattress that deep.' – PS (86)

Both women had understood that they were allowed to bring their own bed from home if they wished, but both had chosen not to do so. For these women letting go of their home based beds and shifting to institutional beds, which they characterised as too narrow and persistently noisy, led to substantial nocturnal disruption.

Physical pain and discomfort

Both good and poor sleepers reported that their nocturnal sleep episode was often fragmented by two body-related sleep complaints; physical pain or discomfort, and frequent nocturnal voiding. Three examples relating to being woken by physical pain or discomfort follow:

'My leg was cramping last night, and that was worrying me. If something wakes me up, that sort of breaks your sleep. And sometimes it's easy to go back to sleep and other times it's not so easy.' – GS (90)

'Sometimes I do get some aches and pains, and they'll often wake me up. And I'll have a little walk around to ease the aches in the back and the leg, as you know it's damaged so you'd expect that.' - GS (79).

'I don't know why it (nocturnal wakefulness) comes. Mainly pains and chest trouble. They're the thing that mainly keeps me awake. After I've woken up the first time, I don't sleep very well for the rest of the night... I get mad about waking up during the night.' – PS (88).

The experience of pain-related sleep phenomena reported by the three women was characteristic of the reports by other self-categorised good and poor sleepers, of being woken by physical pain or discomfort. The good sleeper had a 'little walk around' and 'expected' the disruption. The poor sleeper's

interpretation of her experience was more catastrophic, describing feeling 'mad' about not being able to return to sleep due to pain. Clearly, despite similar experiences, these women had quite different interpretations of these events.

Managing bodies: nocturnal voiding

Such disparate interpretations between the good and poor sleepers are again evident in the reports of periods of wakefulness due to nocturnal voiding, which was reported by nearly all respondents:

'I have to get up to go to the toilet about three times during the night. Which is a strange thing, it doesn't worry me during the day.' - GS (96)

'I hate it when you get to sleep then you've got to wake up and get to the toilet. That irritates me. That's at night two or three times.' - PS (86).

Both the good and poor sleeper cited above reported identical frequency of nocturnal voiding yet the good sleeper reflected on this disruption as a 'strange' thing while the poor sleeper 'hated' this 'irritating' disruption.

Worry

Both good and poor sleepers identified the experience of 'worry' as a major cause of disruption to their nocturnal sleep:

'The worry. I worried and worried and worried. I just, I worried about things in general... And if there's something nagging you it will nag you through the night because you're not doing anything. You can keep yourself busy when you're up and doing things, but you can't at night because there's nothing you can do. You're just trying to get to sleep. It doesn't always work, because your mind's working all the time. And I think its thoughts that disturb sleep more than anything.' – GS (79)

'Sometimes when you're worried and you've got things on your mind it keeps coming back and keeps you awake...That would be the difference between a good night's sleep and a bad night's sleep.' – GS (90)

'A bad night sleep is when I just can't go to sleep...some nights when I've been very worried, I get up and have a brandy and hot water. And that does help. On bad night, I don't know what it is but I just can't rest.' –PS (90)

The most common content themes of the nocturnal worry of participants were family, and health, though there was also a range of other concerns such as those related to finances, and sleep itself. Family-related concerns were focused particularly on adult children or grandchildren:

'Perhaps sometimes if you've got things on your mind, your children, you've got worries, I might get a bit restless, but other than that I've never had much trouble with sleep. Things go over in your mind.' – GS (77)

'Well when you've got grandkids you worry about them, and now I've got great-grandkids so I worry about them too. And I worry about my son because he keeps having panic attacks.' – PS (80)

The good sleeper reported that she gets 'a bit restless' when she has 'things on her mind', and gives the example of worrying about her children. The poor sleeper worries about her son, her 'grandkids', and also her 'great-grandkids'.

Worrying about health concerns also reportedly disturbed the sleep of many of the women:

'When you're worried about something, it keeps you awake. I'm under quite a bit of stress with my legs at the moment. A great deal of stress. So there are nights that the pain is so bad that you think, "What's the matter, what's the matter, what's the matter".' – GS (84)

'I've had (cancer), but I got over it...I found that got on my mind a little bit the other night too. I think worry is the thing that bothers your sleep.' – GS (86)

The first woman was kept awake not only by pain in her legs, but also by worry associated with the pain. She recalled thinking 'what's the matter, what's the matter, what's the matter' during the night, and reported that her health caused her a 'great deal of stress'. The second woman, having recovered from cancer some years ago, also reported that her illness had been worrying her 'a little bit the other night'.

Although family and health were the most commonly reported sources of nocturnal worry, a range of other concerns were also expressed. Two examples were worrying about finances during the night, and worrying about sleep. The following good sleeper was so concerned about her financial situation one night that she 'got out of bed...and went through it':

'Worry is definitely the main thing that stops me from sleeping well. Like the other night when I was worried about paying for this place... I got out of bed and got all the papers out and went through it...I was going to call on (son), but I solved for myself.' – GS (86)

Interestingly, worrying about sleep also prevented some respondents from sleeping:

'I was worried that I'd sleep in. So occasionally it'll take me a while to get back to sleep. Because I've got to watch out for the time cos I've got to get up

at six. If I wake up at four o'clock, then I'm afraid I'll sleep for too long. I could sleep in, I could have.' – GS (87)

'You think "I've got to go to sleep." I want to go to sleep. And I'm tired enough. And you try to sort of talk yourself into going to sleep. And the more you do that, the wider awake you are... It gets to be annoying, I know that much. When you want to sleep and you can't. But the more you try to go to sleep, there's something in here seems to say "No we're not going to sleep, we're going to stay awake". And ah, that gets very frustrating. I don't know what the answer is. I do worry. I wonder why. Why can't I go to sleep? Which is ridiculous I suppose.' – PS (80)

The good sleeper reported that it occasionally took her 'a while to get back to sleep' because she worried that she would 'sleep for too long'. The poor sleeper also worried during the night about sleep. Rather than worrying about sleeping too long however, she worried about why she was unable to get to sleep. She reported that the more she tried to 'talk herself' into sleeping, the 'wider awake' she felt.

Morning Awakening

Although the phenomena associated with sleep maintenance; sleep environment, physical pain/discomfort, nocturnal voiding and worry, received the strongest focus, many women also described their experiences of waking

in the morning. When they described the termination of their nocturnal sleep episode, they frequently spoke of waking early, and of the types of activities of daily living that they carried out upon waking:

'I was wide awake, and I knew I'd only be tossing around in the bed. And I got up soon after six. I felt pretty alert, I just had my shower, and sat around ... I usually wake up around six. Sometimes it's just after five. But then I just lie there.' – GS (96)

'In the morning when I haven't slept well I feel tired, irritable. You think "Jeez, now you've got to battle to get a shower, and then to breakfast". A couple of times I've had breakfast in here. I've asked for it here and sat up and had it.' -PS (86)

While both women, describing what happened when they woke early, reported rising to shower and prepare for the day, the good sleeper recalled feeling 'alert', whereas the poor sleeper felt 'tired, irritable'. The good sleeper was clearly less concerned about her early waking time, and 'just had' her shower. The poor sleeper however, expressed frustration with her early waking, reporting having a shower was a 'battle'. This was not a reference to having to share washing facilities with other residents, as she had a private bathroom in her room. It was rather a reflection that it was a great mental effort for her.

Daytime Sleepiness

Given that early morning awakening was frequent, it is not surprising that many women reported feeling excessively tired during the day. Some participants described needing to nap during the day:

'Nights that I've had a sleep during the day, I still sleep well that night. It doesn't affect me at all. It makes me feel better. It takes that feeling of real tiredness from you. That excessive tiredness. But I don't do that until it's nearly three o'clock, because I have no intention of sleeping the afternoon away.' - GS (84)

'I don't know whether it would be likely to affect my sleep at night. I do need it, and it's been a habit long before I came in here. And we habitually had a dinner in the middle of the day rather than at night, and it was more natural to go and have a nap after that than after a light lunch.' - PS (93)

Some good sleeping women reported that while they did experience excessive daytime sleepiness, they preferred not to nap:

'I don't like sleeping during the day. But sometimes I find myself, I've nodded off. I don't like it. I get mad with myself then.' – GS (96)

'I don't like sleeping during the day. I think it's a sign of old age.' – GS (79)

Both women here clearly stated that they 'don't like sleeping during the day'. The first 'gets mad' with herself on occasions that she has fallen asleep accidentally, while the other felt that napping was a 'sign of old age'.

Summary of the sleep phenomena of self-categorised good and poor sleepers

Together, the excerpts presented throughout this section provide an interesting insight into the nighttime sleep, and related daytime experiences of the women whose stories from which they were taken. The first theme that is evident from these stories is that irrespective of their self-categorisation as a good or poor sleeper, the women reported their sleep was characterised by difficulties falling asleep and disruptions to sleep continuity as a consequence of factors such as the discomfort of their sleep environment, nocturnal voiding, physical pain and discomfort and worry. Both groups of women also reported experiences of early morning awakening, and of excessive daytime sleepiness. It is however in the women's interpretations of these events that possible differences between the self-categorisations emerge. Such divergent responses to similar events prompt one to ask - What is the thinking, or the meaning that women attach to these objectively similar sleep phenomena, that leads to the subjective interpretation of their sleep experience as good or bad?

The drivers of sleep quality-related self-categorisation

The situated descriptions of the drivers, or bases for SQRSC by good and poor sleepers are presented in Table 7.3 The descriptions reflect the emic meaning of the women's collective experience. Thus, language such as 'normal', 'better', or 'more disturbed', and other comparative words and phrases is used as a reflection of the women's perceptions only.

Table 7.3

Situated description of the drivers of SQRSC for good and poor sleepers

Good sleepers	Poor sleepers
<p>The quantity and quality of recent sleep is the same or better than that of the other women living in the aged-care facility. Comparison of one's own sleep with the reports of other women, suggests that one's own sleep onset, sleep maintenance, and total sleep time compare favorably with the sleep parameters of the peer group.</p>	<p>Recent sleep was more disturbed than that of other residents. Compared to other residents, one's sleep onset is slower, sleep is more fragmented, morning awakening is earlier, and it is more difficult to nap during the day when affected by excessive daytime sleepiness.</p> <p style="text-align: center;">OR</p> <p>It is unclear how one's recent sleep experience compares to that of other residents. However, it has been more disturbed than one's sleep as a younger woman. Sleep patterns of mid-life have changed with late-life development, and previously good sleep quality has given way to sleep disturbance</p>

In exploring the meanings that older women attribute to the sleep phenomena they experience, it was evident that most self-categorised poor sleepers had similarly high, and perhaps unrealistic, expectations around their sleep. When asked how they imagined a good night's sleep would unfold, they responded consistently that good sleep would be to sleep through the night without waking, reflecting again the importance of sleep maintenance to the group:

'Well for me a good night's sleep is, if I put the TV on at half past ten and if can go to sleep by eleven o'clock and sleep through, till six in the morning.' – PS (80)

'A good night would be to go to bed at ten or thereabouts, and just sleep until the morning. That's it.' – PS (92)

'A good night would be if I could sleep all night. That would be a miracle. Also, you need to feel well all the time, to have a good sleep.' - PS (88)

'A good night would be to sleep through. The waking up is the only thing that worries me. There's nothing else.' – PS (94)

*'I think the time I go to bed is reasonable, for my age, and tiredness. Um, perhaps get up once would be **normal**, and perhaps sleep until seven in the morning. That would be an ideal pattern.'* - PS (90)

The expression of beliefs about 'normal sleep' is perhaps the key to understanding why some women in aged-care make different SQRSC despite reporting similar experiences of sleep phenomena. SQRSC made by the women in this study appeared to be based upon the individual's construction of 'normal sleep', which was generally derived through patterns of upward and downward **social** comparison, and to a lesser degree, **temporal** comparison. Downward social comparison is a self-enhancing cognitive comparison, which serves to protect the self against the psychological threat posed by age-related decline. It was indicated when self-categorised good sleepers compared their own sleep quality to that of a perceived worse-sleeping reference group (Festinger, 1954), along with lateral social comparison, where they compared their sleep quality to that of a perceived same-sleeping reference group (Festinger, 1954). As such, self-categorised good sleepers subsequently appraised their sleep to be normal or better than normal:

'I do have a lot of sleep. Much more than a lot of the other girls around there.' - GS (94)

'I think I'm a good sleeper, you know. When you hear all the others, they all say the same things. They don't get to sleep very early.' - GS (88).

'I have to get up to go to the toilet about three times during the night...like a lot of them (other residents) say, that wakes you up you see, and then it sometimes takes a while to get on.' - GS (96)

Self-categorised poor sleepers did not tend to indicate that they engaged in downward social comparison in the domain of sleep quality. Conversely, some appraised their sleep as worse than normal on the basis of upward social comparisons, which may serve a self-improvement-seeking function (Festinger, 1954). Accordingly, such participants compared their own sleep quality to that of a perceived better-sleeping reference group:

'I don't think there are many that are disturbed as often as I am. I don't speak to a lot of people about it, but they seem surprised by how often I am up.' - PS (90)

'I've got a friend who can go off like that for ten minutes. But I can't. I'm supposed to lie down every day for an hour, but I never go to sleep.' - PS (90)

'You see the others, they say they have a sleep in front of the telly, but I can't. Sometimes it would help the afternoon to pass, but I just don't go to sleep.' - PS (87)

But others indicated, when asked how their sleep compared to other people they knew, that they had limited access to social comparison targets due to limited social interaction, and therefore were unable to make social comparisons in the domain of sleep quality:

'I tend to keep to myself you know? I mean if they come up and get me to go down there to something then I go but, I like being up here with my knitting.' - PS (94)

'I go to breakfast and have a conversation with some of the ladies at the table, but then they all choof off, and no one is interested...I don't even know where their rooms are. I only see them at the dinner table and that's it.' - PS (81)

Perhaps as a further compensatory mechanism for their limited access to social comparison targets, poor-sleepers also engaged in **temporal** comparisons, which were usually upward in direction, meaning, in temporal comparison theory (Albert, 1977), that they compared their current sleep quality to the better-quality sleep they recalled from an earlier time in their lives:

'One time I used to put my head down and sleep right through. A few years ago, my mother used to tell me I could sleep on a barbed wire fence. Oh, I was a good sleeper love. But as you get older I think it changes, your sleep

pattern changes a bit. But since I've been here it has changed an awful lot'. –

PS (86)

'My sleep pattern has changed terribly since I was younger. I never had problems like this. I slept pretty well...Now this strange unusual pattern has developed I suppose over the last five or six years, perhaps even less... no it's quite different to what it was when I was younger. I never had sleep problems.' – PS (90)

Summary of the drivers of SQRSC

The drivers of SQRSC presented in this section are summarised visually in Figure 7.5. It shows that the SQRSC was driven by a process of social comparison, where one's own sleep is compared with that of the comparison target, who represents 'normal' sleep for one's age. Depending on the target, the direction of the social comparison may be upward or downward, and one's own sleep is appraised as 'better' or 'worse' than normal. For example, downward social comparison would involve comparison with a worse sleeping target, and would result in the appraisal that one's own sleep is better than normal for one's age, and therefore the self-categorisation of oneself as a good sleeper. When no social comparison target was available, there was a tendency to engage in temporal comparison, where current sleep is compared with sleep at another point from one's lifetime. Although there is no evidence in the data, of self-categorised good sleepers engaging in temporal

comparisons rather than social comparisons, it seems theoretically possible, and therefore a temporal comparison pathway to self-categorised good sleep is included.

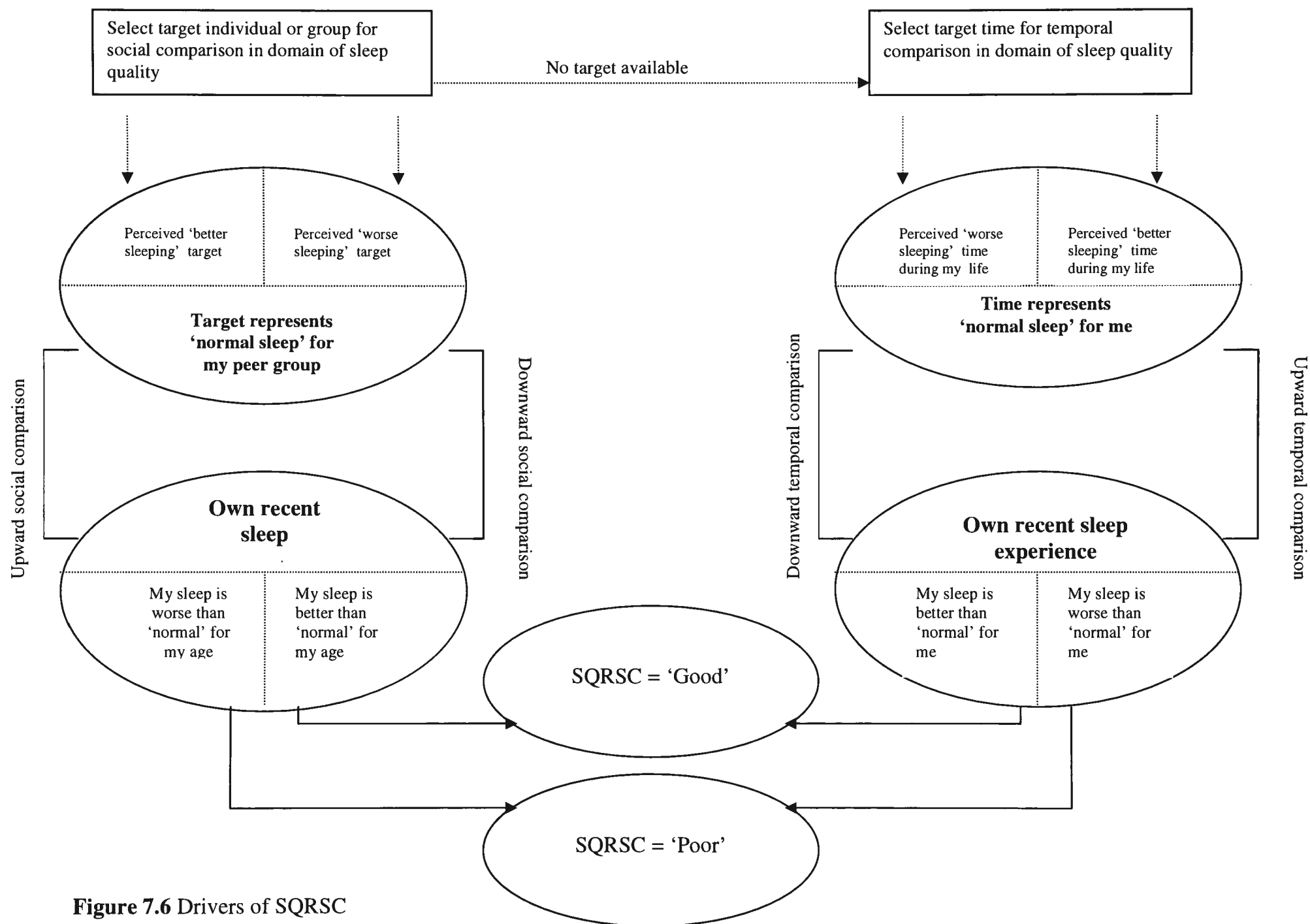


Figure 7.6 Drivers of SQRSC

CHAPTER SUMMARY

This chapter presented the results of data analysis Phase A – *Evaluating subjective sleep quality* and data analysis Phase B – *The meaning of good sleep*. Findings of Phase A showed that subjective ratings of depressive symptomology, anxiety, and quality of life did not account for differences in SQRSC. Although self-categorised poor sleepers scored significantly higher on the GDS than self-categorised good sleepers, both group means were within the ‘minimally depressed’ range on the GDS. Furthermore, PSQI categorisations of sleep/wake behaviour did not reflect the women’s SQRSCs. Though the direction of the quantified self-rated sleep scores is consistent with SCRSC (ie self-categorised poor sleepers scored significantly worse), PSQI global scores correctly classified fewer than half of the women who self-categorised as good sleepers. The remaining self-categorised good sleepers were classified as poor sleepers on the basis of PSQI global scores. This suggests that the PSQI global score cut-off of 5 does not validly differentiate self-categorised good and poor sleepers in this cohort.

Findings of Phase A further showed that the genesis of sleep disturbance and experiences of sleep phenomena were quite similar across the sleep diary data on sleep onset, sleep maintenance, morning awakening, and daytime sleepiness aspects of sleep, regardless of SQRSC group membership. Thus, investigation of the incongruence between the quantitative sleep diary indices and SQRSC showed that the key difference between self-categorised good and

poor sleepers was not in the actual experience of sleep phenomena. At this point, the emic meanings of good and poor sleep remained unclear. Further investigation of the women's descriptions of their sleep showed the basis of their SQRSC, and the difference between those who self-categorised as good and poor sleepers, appeared to be in the way the women thought about their own sleep quality, in the wider context of their construction of normal sleep. This was based on their engagement with cognitive comparison strategies. Downward social comparison was most commonly employed by self-categorised good sleepers. In contrast, self-categorised poor sleepers preferred upward social comparisons, but where they had limited access to social comparison groups, they tended to engage in upward temporal comparisons. In addition, many self-categorised poor sleepers had unrealistic expectations about the parameters of a good night's sleep.

Chapter 8

Discussion part 1: The meaning of good sleep

*'I think the time I go to bed is reasonable, for my age, and tiredness. Um, perhaps get up once would be **normal**, and perhaps sleep until seven in the morning. That would be an ideal pattern.'* - Research participant, aged 90

As presented in chapter seven, the incongruence between SQRSC and subjective sleep parameters as measured both through quantification of sleep/wake behaviour using PSQI global score classifications and sleep diary data, and qualitatively with semi-structured interviews, indicates that elderly women in aged-care conceptualise sleep quality as relating to something other than their sleep parameters alone. Of the multiple methods used to investigate sleep parameters, only the semi-structured interview determined the meanings the women made of the term *good sleep*. The appraisal of one's sleep quality, and the categorisation of oneself as a good or poor sleeper appeared to be achieved through a process aligned with social comparison theory (Festinger, 1954). Many of the women with self-reported poor sleep, in fact self-categorised as good sleepers due to the self-enhancing function of their downward social comparisons to other residents. This chapter will discuss the

findings related to the meanings of good sleep quality in the context of the literature, and identify several implications for the clinical context.

**THE INCONGRUENCE OF SQRSC AND SELF-REPORT
QUANTIFIED SLEEP PARAMETERS SUGGESTS AGE-RELATED
CHANGES IN THE MEANINGS OF SLEEP QUALITY**

**Quantitative evidence of similar subjective sleep parameters in good and
poor sleepers**

Although the SQRSC-G group mean PSQI global score was significantly better than that of the SQRSC-P group, many of the PSQI-categorised poor sleepers actually self-categorised as good sleepers. This indicates that PSQI determinants of good sleep do not reflect those considered indicative of sleep quality by the women themselves. This perhaps suggests that the women's self-categorisations took into account the fact that sleep declines with age in later life. Further, mean perceived sleep onset latency, sleep maintenance, and early morning awakening as recorded in sleep diaries were not significantly different between the groups.

These findings resonate with those previously reported in the literature. Self-categorised poor sleepers appear to demonstrate poorer sleep quality than self-categorised good sleepers (McCrae et al., 2003; Vitiello, et al., 2004).

However, significant proportions of older, self-categorised good sleepers are still demonstrated to have PSQI scores, and in previous research, PSG tracings, indicative of sleep disturbance (Vitiello et al., 2002; Vitiello et al., 2004). Such findings have been interpreted as evidence that measurable, age-related reductions in sleep quality do not necessarily lead to perceptions of diminished sleep quality, as older individuals may alter their benchmark criteria for self-categorisation of sleep quality (Buysse, et al., 1991; Vitiello et al., 2004). The cut-off score of 5 on the PSQI is used for the whole adult population regardless of age and thus, it does not accommodate the changed benchmark criteria of older adults. These criterion changes reflect changes to the meanings of sleep quality, and are not captured by clinical sleep measures (Kaufman, 2001; Murphy et al., 2000). Perhaps a PSQI global score cut-off of 11/12 for good/poor sleep would more aptly capture these meanings for this cohort.

Qualitative descriptors of sleep: Further evidence of similar sleep experiences in good and poor sleepers

The women's dialogues offer further insight into their nighttime sleep experiences, and demonstrate the emergent similarities between the sleep stories of good and poor sleepers. The first theme is one of the centrality of late-life transitions to the genesis of sleep disturbance in both self-categorised good and poor sleepers.

Late life transitions precipitate sleep disturbance

All participants who engaged in semi-structured interviews were widowed prior to their transition into residential aged-care. This pattern is highly significant, as most of the women, regardless of their SQRSC, reported having experienced sleep disturbance when caring for their ill husbands, and also upon entering residential care. In accordance with Hislop and Arber (2003), the women typically reported that the physical care work they carried out while their husbands were ill was highly disruptive to their sleep, which was further impacted by the emotional labour associated with their role as spousal carer. For some women, this role ended when their husbands entered aged-care, while for others, it continued until the death of their husband. All had since moved from living in the community to residential aged-care.

The association between the bereavement that follows the death of a spouse and sleep disruption is well-documented (Byrne & Raphael, 1997; Steeves, 2002). So too, is the impact of institutionalisation on sleep (Middlekoop et al., 1994). It was evident from the women's descriptions of their sleep experiences around these transitional times, that for some, their transitory sleep disturbance subsequently recovered. For others however, their sleep disturbance was perpetuated and became chronic.

The mechanism underlying the difference in recovery of sleep quality remains unclear, though likely reflects, in part, differential patterns of coping and adaptation to widowhood (Chambers, 2000; Eloniemi-Sulkava et al., 2005) and the different transitional phases of women at the time of their study participation. The importance of the transitional phase was suggested by the finding that self-categorised good sleepers generally described having ‘settled into’ their new life in care, while the dialogue of self-categorised poor sleepers more often reflected their continuing immersion in the emotional aspect of the transition.

The perpetuation of sleep disruption generated during transitional periods is consistent with Spielman’s (1986) model of insomnia, which purports that the natural course of insomnia is marked by predisposing, precipitating and perpetuating factors. For the good and poor sleepers in the study, sleep disruption, precipitated by major transition such as the two discussed here, may be perpetuated by poor coping skills, or other changes resulting from the initial transition.

Sleep disturbance is not isolated to self-categorised poor sleepers

A second theme emerging from the women’s dialogues is that sleep complaints pertaining to sleep onset latency, sleep maintenance, and early morning awakening were made by women of both SQRSC groups, not only poor sleepers. Delayed sleep onset and sleep fragmentation were related by

the women, to factors such as the discomfort of their sleeping environment, frequent nocturnal voiding and pre-sleep cognitive activity.

These findings are congruent with previous work (Vitiello et al., 2004) showing that even non-complaining elderly sleepers will experience significant sleep disruption. The PSQI has categorised most women in this study as experiencing sleep disturbance (ie. Score >5), and their stories ratify this quantitative assessment. A reading of the interview transcripts also highlights that both SQRSC groups experience similar types of sleep phenomena, including similar types of sleep disturbance.

The quantitative and qualitative evidence of a lack of congruence between the women's SQRSC and their measurable self-reported sleep parameters, paired with the similarity of their sleep stories, supports previous findings (Vitiello et al., 2004) that the age-related changes known to reduce their objective sleep quality do not necessarily translate to reduced subjective sleep quality. Rather, the criteria and process for sleep appraisal may be altered to accommodate these changes (Kaufman, 2001).

SQRSC IS DRIVEN BY COGNITIVE COMPARISON STRATEGIES

Social comparison theory (Festinger, 1954) is one framework for understanding the process of self-categorisation in the domain of sleep quality. In developing the theory, Festinger (1954) argued that, in the absence of

objective criteria, individuals are able to make sense of their world by comparing their own experience to that of others. The stories of women in the current study often incorporated reference to social comparison of their sleep phenomena.

Self-categorised good sleepers are able to benefit from the self-enhancing function of downward social comparison.

As would be expected on the basis of theoretical grounds (Festinger, 1954), self-categorised good sleepers tended to engage in either (i) downward social comparison, where they compared their own sleep quality to that of a perceived worse-sleeping reference group, or (ii) lateral social comparison where women made a comparison between their own sleep and that of a perceived same-sleeping comparison target. As such, self-categorised good sleepers subsequently appraised their sleep to be normal or better than normal. Drawing upon the work of Heckhausen and Kruger (1993), this finding may be interpreted as a reflection that increased rates of downward social comparison in late adulthood are driven by the dominant need for self-enhancement in order to cope with age-related declines in health and well-being. It is therefore no surprise that some women of this study, in a stage of their lives when they are likely to experience more losses than gains, rely on downward social comparisons as a mechanism of compensatory secondary control (Schulz & Heckhausen, 1996).

Self-categorised poor sleepers may be unable to select downward social comparison targets.

In contrast, poor sleepers did not tend to engage in downward or lateral social comparison when discussing their sleep quality. Rather, some appraised their sleep as worse than normal on the basis of upward social comparison, or comparison with a perceived better-sleeping reference group. Interpretations of similar findings (Kohn & Smith, 2003), though not specifically related to sleep, suggest that these women may hold a more negative world view meaning they hold faulty beliefs that they suffer more than others. They may be unable to benefit from downward social comparison due to their inability or unwillingness to select appropriate targets. For some women, a lack of social interaction, or just a lack of exposure to others' stories of sleep, may have resulted in them being unable to access social comparisons target via which to establish their own self-categorisations. This small subgroup of self-categorised poor sleepers, who may have lacked access to social comparison groups, appeared to revert to temporal comparison strategies to make meaning of their sleep experiences. These temporal comparisons were generally upward in direction (Albert, 1977). That is, they compared their current sleep quality to the *better* quality sleep they recalled from an earlier time in their lives.

An alternative explanation of the drivers of SQRSC may be offered by the observation that self-categorised good sleepers spoke of their sleep disturbance at transitory periods as a temporary disruption. This would appear to suggest that they draw distinction between their *state* sleep, which was disturbed, and their *trait* sleep, which was good. In contrast, self-categorised poor sleepers perhaps viewed their transition-related sleep changes as alterations in their trait sleep. If this were the case though, it would be expected that temporal comparisons would feature more heavily in the women's descriptions of their sleep. In fact, temporal comparisons were only used as an alternative cognitive comparison strategy to social comparisons in those women who had limited access to appropriate social comparison targets.

Another alternative explanation for the difference in self-categorisation between groups may be that the good sleepers were over-estimating the quality of their sleep and discounting the amount of sleep they needed. This is unlikely though given that their estimates of their sleep parameters (sleep diary data) were for the most part equivalent with those of poor-sleepers. They have not over-estimated the quality of their sleep. Rather, in further discussions with this group, it became clear that through comparison of their own sleep with others who were 'worse sleeping', they appraised their own sleep to be 'good'.

CLINICAL IMPLICATIONS

Sleep fragmentation is a common problem

By far the greatest sleep complaint, regardless of SQRSC, was related to disturbance of sleep maintenance. Most women experienced regular (several times per nocturnal sleep episode) periods of wakefulness throughout each nocturnal sleep episode, due to their sleeping environment, physical pain/discomfort, worry or pre-sleep cognitive activity, or most frequently, needing to void. As such, sleep fragmentation was the most common sleep-related complaint, and accounted for the richest aspect (on face value) of the interview data. This is consistent with the research of Yamaguchi et al. (1999) who found sleep fragmentation to be the most disruptive type of sleep disturbance for two cohorts of older people. Sleep fragmentation in this group is likely to reflect age-related physiological changes in the relative proportions of slow wave and non-slow wave sleep (Bliwise, 1989), arousal thresholds (Manabe et al., 2000), circadian desynchronisation (Touitou & Haus, 2000), and increased incidence of nocturia (Wein et al., 2002).

Nocturia, as outlined in chapter 2, is defined by waking to urinate at least twice per night (American Sleep Disorders Association, 2001). This criterion was reportedly met by nearly all respondents, indicating not only the high incidence of the disorder among this cohort, but importantly, the magnitude of

the activity generated by the need to manage this type of sleep disturbance during the night. It is this activity that has been associated in the literature with increased risk of falls and fractures (Moller-Ernst et al., 2002; Wein et al., 2002), which are certainly events to be avoided in the residential care context.

Self-categorised poor sleepers should be treated as a heterogeneous group

A second implication of the findings for the clinical context is that individuals who self-categorise as poor sleepers should not be treated as a homogenous group, any more than individuals who are objectively assessed as having sleep within the normal range for their age. Knowing that a woman believes herself a 'poor sleeper' reveals little of the sleep phenomena she experiences. She may in fact experience sleep phenomena that are normal for her age, or her sleep may be disordered. Similarly, an objective assessment that a woman is within the normal range of sleep quality for her age does not say anything about how she appraises her own sleep quality. She may self-categorise as a good or a poor sleeper.

Maximising treatment efficacy

Understanding SQRSC also has implications for maximising the efficacy of sleep treatments, which will be discussed further in the following chapters. By effectively identifying the SQRSC poor sleepers who describe sleep phenomena that are age expected, these women can be assisted to better manage their sleep. Subjective perceptions of poor sleep may prompt

treatment seeking (McCrae et al., 2005), which is key in the aged-care context given reports that 65% of elderly adults in care complain about their sleep quality (Monane et al., 1996), and 69% of women in low-care settings are regularly prescribed hypnotics (Middlekoop et al., 1994). Furthermore, both the subjective experience of poor sleep and its subsequent management by hypnotic medications have been shown to be associated with substantial risk for the older person. It is therefore critical to understand the processes that shape these self-categorisations.

It has been proposed elsewhere that cognitive factors underly sleep complaints or lack thereof (Espie, 2002; Espie et al., 2006; Harvey, 2000). The findings of the current research, that cognitive de-arousal appears to underly sleep onset and maintenance difficulties in self-categorised good and poor sleepers, and that cognitive comparison underlies SQRSC, not only align with that contention, but lend implicit support to the already strong body of literature that indicates for the use of CBT in the treatment of sleep complaints (Bastien et al., 2004; Edinger et al., 1992; Montgomery & Dennis, 2004; Wang et al., 2005). Cognitive-behavioural strategies aimed at passively limiting pre-sleep cognitive activity in order to allow cognitive de-arousal would potentially reduce the impact of this phenomenon on the sleep of elderly women. Additionally, at least theoretically, it would seem that the use of CBT strategies to provide a normative standard of sleep as a target for social comparison, would assist older people to adjust their construction of 'normal'

sleep, and possibly shift their self-categorisations from poor to good sleepers. Given the importance of sleep in people's evaluations of their own wellbeing (Zeitlhofer et al., 2000); such a shift may be associated with a more positive self-reported quality of life among older people.

CHAPTER SUMMARY

The similar subjective sleep phenomena reported by self-categorised good and poor sleepers through multiple investigation methods supports the notion that subjective sleep parameters in and of themselves do not determine SQRSC, and that the PSQI benchmark for good sleep is incongruent with the meaning of good sleep for older women in aged-care. It is this process of establishing a benchmark for SQRSC that was the major area of investigation of Phase A of this study. That investigation revealed that the process of SQRSC was one of social and temporal comparisons that were differentially enacted by SQRSC groups. This finding has several implications for the management of sleep complaints in elderly women, and indicates that a sub-group of women with sleep complaints could be reassured that their sleep is in fact normal for their age, potentially shifting their appraisal of their sleep.

Chapter 9

Results part 2: Achieving ‘good sleep’

If I wake up during the night and I can't get back to sleep, occasionally I'll put the transistor on. Sometimes I'll hear interesting news and I think 'Ooh'. You know about (Princess) Mary and the baby? I heard that in the night. – Research participant, aged 87

Chapters seven and eight reported and discussed the findings related to the meanings of sleep quality, illustrating that the bases of SQRSC are not in the experienced sleep phenomena themselves, but in the construction of ‘normal’ sleep through a process of cognitive comparisons. The current chapter presents the findings from the qualitative analysis of semi-structured interview data on how the women reported that they manage their sleep quality (data analysis Phase C). It addresses research questions 5 – *What is the range of sleep management strategies utilised by the group?*; 6 – *Are sleep management strategies only employed by self-categorised poor sleepers?*; and 7 – *What factors underpin the choice of sleep management strategy?*

Given that women who self-categorised as good and poor sleepers experienced a wide range of sleep disturbance, it is not a surprise that both groups also reported employing a range of sleep management strategies. Taking action to

improve or maintain one's sleep quality was not just the domain of poor sleeping women, but also of those who were satisfied with their sleep quality. This chapter is aligned with personalisation theory of women's sleep management (Hislop & Arber, 2003b). It will present the specific strategies utilised by the women before detailing the processes of i) strategy selection, and ii) incorporation of efficacious medical or healthist strategies into the core of personalised strategies.

The *personalisation* framework (Hislop & Arber, 2003b) as applied to sleep and sleep management and detailed in chapter five, resonates with the stories of sleep management told by the women of this study. Most described an array of carefully considered strategies, which formed a core of personal strategies for the enhancement of specific aspects of their sleep quality. Across the group, these strategies reflected the personalisation of sleep and its management. It was when these personal strategies were inefficacious that some women sought external advice, venturing into the medical or healthist spheres, and incorporating efficacious strategies they found there into their core of personal strategies.

THE RANGE OF SLEEP MANAGEMENT STRATEGIES UTILISED BY SELF-CATEGORISED GOOD AND POOR SLEEPERS

The situated descriptions for the range of sleep management strategies used by the group are shown in Table 9.1. The descriptions are categorised by type of strategy (personalised, medical, or healthist) and by whether the description represents the ideas of both groups, or of just one of the SQRSC groups.

A core of personal strategies

The women described a core set of personal strategies, which they had developed for the management of sleep disturbance across the four categories of sleep onset, sleep fragmentation, early morning awakening, and excessive daytime sleepiness. Williams (2004) criticised the use of the term ‘personal strategies’, contending that it was not clearly defined. In the current work, personalised strategies are defined as those that are carried out in the private space, utilise private resources and are administered without monitoring from individuals or organisations in the medical or health spheres. Table 9.2 presents the range of personal sleep management strategies developed by the group.

Table 9.1*Situated descriptions of the range of sleep management strategies used by the women*

Topic	Group	Situated Description
Personalised strategies	Whole group	Sleep onset is managed first by ensuring comfortable night clothes and linen. Physiological and cognitive arousal is reduced by taking a warm drink and engaging in quiet activity prior to bed time. Wakefulness after sleep onset is managed according to the cause of the period of wakefulness: Quiet activity or a warm drink assists with difficulties returning to sleep upon waking; Rising from bed to move around the room assists with wakefulness resulting from physical pain or discomfort; Self-talk or alcohol is utilised in reduction of anxiety; Reduction of evening fluid intake is aimed at reducing frequency of nocturnal voiding. Morning awakening times are delayed by first delaying habitual bed times, thus shifting the whole sleep episode, including its eventual termination. Excessive daytime sleepiness is sometimes managed by napping. More often however, it is managed by increasing afternoon activity, and avoiding others people who are nodding.
Medical strategies	Good sleepers	Over the counter pain killers are taken to combat sleep-disrupting pain. They are also used occasionally as an alternative to hypnotic medication for the treatment of delayed sleep onset, and of wakefulness after sleep onset.
	Poor sleepers	Benzodiazepines may be used to manage chronic sleep onset and sleep maintenance difficulties. The medication is used as a compensatory secondary control mechanism, and provides security through its routine. Rebound insomnia reinforces BZ use, and prevents withdrawal after years of use.
Healthist strategies	Whole group	Chamomile and other herbal teas, and aromatherapy are available, but have no clear effect on sleep quality. Physical exercise is helpful for expending energy and increasing tiredness. Exercising is sometimes difficult though due to limited mobility and limited opportunities for activity.

Table 9.2

The core of personal sleep management strategies across the group by category of sleep disturbance.

Role	Strategy	Example
Managing sleep onset	Warm drink	'I always have a cuppa before I go to bed. I think it settles me down.' – GS (90)
	Quiet activity	'I read until I get tired and then I nod off... I never go to bed with the light off because I wouldn't be able to go to sleep. I think you need relaxation. Watch the telly or read a book.' – GS (77)
	Comfortable bed clothes	'I wear warm pyjamas and the bed is nice and warm. I have this nice big blanket on it'. – PS (84)
Managing sleep fragmentation	Quiet activity	'I mainly listen to 3AW at night when I wake up and I can't get to sleep. I usually put that on and listen to it for an hour.' –PS (88)
	Get out of bed	'I do get some aches and pains, and they'll often wake me up. And I'll have a little walk around to ease the aches in the back and the leg,' – GS (79)
	Self-talk	'I'll worry about it for a while and then I'll think 'Well, there's nothing you can do about it', and I'll go to sleep.' - GS (79).
	Avoid fluid intake	'To sleep better, I've tried not drinking anything in the evening.' – PS (88)
	Warm drink	'Sometimes during the night I get up and have a cuppa ... That's only if I can't get back to sleep, it's not a pattern'. – PS (93)
	Alcoholic drink	'Some nights when I've been very worried, I get up and have a brandy and hot water, and that does help. When I take brandy and hot water I'm desperate. I just feel I've got to do something.' – PS (90)

Managing EMA*	Delay bed time	‘I can’t go to bed too early. If I went too bed too early, I’d wake up again.’ – GS (86)
		‘I like to stay up until half past ten or eleven at least. And then go to sleep, and have about five or six hours. (I’m) not an early bird for bed... Because you get to your five or six hours and you’ve had enough.’ – GS (77)
Managing EDS*	Avoid residents who are nodding	‘Sometimes in the mornings I can feel my eyes, like I could close them...I don’t go down there (lounge area) unless I’m going to do something, because the others are all dozing off and you want to do the same.’ – GS (88)
	Activity	‘If I feel dopey, I’ll get up and do something.’ - GS (79)
	Take a nap	‘(Napping) takes that feeling of real tiredness from you. That excessive tiredness.’ – GS (84)

**Note: EMA= Early morning awakening; EDS= Excessive daytime sleepiness*

No two respondents described an identical set of personal sleep management strategies; however, many shared a number of common strategies. Personally developed strategies for managing sleep onset included taking a warm drink, engaging in quiet activity such as reading, watching television, or listening to music, and maintaining a comfortable sleeping environment. The centrality of feeling relaxed and comfortable in preparedness for sleep was reflected in the objective of ‘settling down’ with a warm drink, the need for ‘relaxation’ satisfied by quiet activity, and the comment that the bed being ‘nice and warm’

is important. Sleep fragmentation was managed proactively through avoidance of fluid intake in the evening, and reactively by engaging in quiet activity, getting out of bed for a short time, using self-talk, taking a warm drink, and drinking alcohol. Management of early morning awakening was through delaying bedtime.

Medical strategies

The medical strategies reported by the group included the use of BZ medications and over the counter (OTC) paracetamol. Sampling procedures meant that BZ use was limited to poor sleepers, however OTC paracetamol was utilised for sleep-management by many of the good sleepers.

Over-the-counter (OTC) medications

Many of the women who self-categorised their sleep quality as good reported having used OTC paracetamol for the management of their sleep quality. Such drugs were taken both before going to bed, and upon waking during the night:

'I keep panamax in the cupboard, and they help me to have a sleep sometimes. I'm not in the habit of taking it when I go to bed, it's if I wake up and I can't get back to sleep. But I don't make a habit of taking them all the time. Although they're not a sleeping pill. But they do sort of help you relax a bit.' –

GS (90)

'I take panamax to sleep with my leg. I'll stay asleep about four hours you know? I find them very helpful' – GS (68)

Women who reported using OTC paracetamol for sleep management generally appeared to make a clear distinction between this strategy and the use of prescription hypnotic medication. They saw OTC drugs as a last resort strategy for occasional use, whereas use of prescribed medication was described more as a commitment to viewing oneself as having a sleep problem, and being a poor sleeper.

Prescribed BZ medication

Four women who completed semi-structured interviews and self-categorised their sleep as poor, were long-term users of BZ medications. The drugs they were prescribed included Serapax and Temazepan. Their duration of BZ use varied greatly, though all reported regular and continuing use of BZs for at least five years. The longest duration of use was reported by a 87-year old woman who spoke of taking hypnotic medication every night for the previous 60 years, which she acknowledged was 'most of' her life:

'I've been on them most of my life. For forty years or so, since before my son was born. Oh, actually he is nearly sixty, so it has been a very long time.' – PS (87)

An 84-year old woman, who reported having taken her prescribed BZ for the past five years, described the perceived effect of her medication on her sleep latency:

'The sleep tablets help me to settle down. Or perhaps not settle down, but just sort of get ready to go to sleep.' – PS (84)

Reduced sleep latency was the main drug effect reported by the women. All four expressed the belief that they 'need' hypnotic medication in order to sleep, and that it was essential to their management of their sleep quality:

'The good thing about being on sleeping pills is that I seem to need them to sleep.' – PS (90)

'If it wasn't for these, I'd never sleep. So as long as I have them I don't worry so much. I think well, at least I've got my tablets...I know that when I don't take one I just don't sleep.' – PS (87)

This woman's description of her dependence on hypnotic medication is striking. She expressed the belief that she would 'never sleep' without it. It appears from her description, that her medication provided some sense of security for her. Similarly, another woman altered her dosage depending on her mood on a given day:

'I take a whole tablet when I've got things on my mind... See my daughter's gone away...and I miss her... she left on Thursday, and I took a whole tablet that night. Just depends really. If I think I won't sleep well I'll take a whole one.' - PS (90).

Thus she described an occasion when she had taken a higher dose because she believed that her emotional state would negatively impact her sleep. Another woman had possibly experienced rebound insomnia on occasions when she 'missed' a dose. This experience led her to conclude that the effect of the medication is 'quite marked', and like the other women, she believed it played a crucial role in the management of her sleep quality:

'Just on occasion, for some reason I've missed it, or it's left in the bottom of the container, and it's noticeable straight away. I'll think 'Why aren't I sleeping?' and I get up and have a look, and there it is a tiny little quarter of a tablet in the bottom of the thing. That's happened once or twice, and it is quite marked that that little pill has a decided effect.' – PS (90)

Healthist strategies

Surprisingly, relatively few of the women reported having utilised strategies sourced from the health industry (as distinct from the medical industry) for the

management of their sleep quality. The range of healthist strategies included drinking herbal tea, using aromatherapy products, and physical exercise.

Herbal Tea and Aromatherapy

Women who reported drinking herbal teas or using aromatherapeutic products for sleep management expressed ambivalence toward these strategies. One woman who drank chamomile tea did not 'notice any difference' in her sleep quality. Another, who had begun trialing aromatherapy products reported that she 'didn't wake as much as usual', but was unclear whether this was an effect of her strategy.

'I can't really recall now, other than the chamomile tea, I've taken a bit of that recently, but I don't notice any difference.' – PS (88)

'I decided to try this aromatherapy thing at night, and I thought I'll just try it and put it by the bed to see if it would help. Well last night I didn't wake as much as usual, only once or twice with the use of that, so whether it was helping, I don't know.' – PS (90)

Physical exercise

The impact of physical exercise was reported more positively than other healthist strategies:

'I find I sleep better when I've had a walk in the fresh air.' – GS (96)

'Sometimes you'll go out and buy something and go on little drives. I think that helps a lot. Making you tired and want to go to bed earlier.' – GS (88)

Remaining physically and active through the course of the day was important to many women, who described that they 'sleep better' after engaging in such activity.

CHOOSING SLEEP MANAGEMENT STRATEGIES

Situated descriptions of the factors that underpin the motivation to seek external advice, and the choice of sleep management strategy are presented in Table 9.3.

Table 9.3

Situated descriptions of factors underpinning motivation to seek external advice, and the choice of sleep management strategy.

Topic	Group	Situated description
Motivation to seek external advice	Whole group	Some of the personally preferred sleep management strategies are not accessible within the constraints of the residential-care environment. At times the personal strategies that are available are inefficacious in improving sleep quality. In that case, and when there is a desire to control one's sleep quality, motivation to seek external advice is strong. Upon selection of an efficacious strategy, it may be incorporated, through modification and personalisation, into one's own collection

		of personal sleep management strategies.
Selecting medical or healthist strategies	Whole group	Sleeping without medical intervention is important, and hypnotic medication is thus not an option for the management of sleep disturbance. Use of over the counter medication does not contravene this rule and is used for sleep management occasionally.
	Sub-group of poor sleepers	The advice of the general practitioner is to continue to use hypnotics. On the basis of this advice, hypnotics are used daily as a long-term strategy for sleep management.

Motivation to seek external advice/support

Personal strategies are constrained by the environmental context

As outlined in the previous section, personal strategies formed the core of the women's sleep management. Many of their personal strategies required the women to leave their beds, but all were enacted in their private space, utilised the women's private resources, and importantly, were carried out within the constraints of the environmental context. The 88-year old quoted below describes the 'totally different' environmental context of her sleep and its management since her transition to aged-care:

'I've forgotten the other things that I tried now, because life's totally different now.' – PS (88)

'In Sydney if that (waking) happened I could walk from the bedroom to the bathroom to the lounge room to the kitchen... I mean there's nowhere here of a night where (you can go) if you can't sleep.' – PS (86)

This woman described how her preferred strategy for managing sleep fragmentation was constrained by having 'nowhere to go' when she was unable to return to sleep upon waking during the night. She, and others, reported adapting their core set of personalised sleep management strategies in response to changing environmental constraints.

Strategy efficacy

It was when the personal strategies available to the women were deemed by them to be inefficacious, that some looked outside of their private space and resources for further support for their sleep management.

'I've done everything I can think of... I've tried reading, but that's no good. Years ago I went to a specialist. He said to put a wireless on, and everywhere I go I take a wireless and listen to it.' – PS (90)

'To sleep better, I've tried not drinking anything in the evening. But as far as I'm concerned it doesn't make any difference...I don't know what you could do. They say to take sleeping tablets, but they only last four hours. So what's the benefit of that?' – PS (88)

Both the women had previously described a number of strategies they had tried within their personal space. The first had been motivated to seek the advice of a 'specialist' after she had 'done everything' she 'could think of', and found her personal strategies inefficacious. The other, who had also tried a number of strategies to manage her sleep fragmentation, had considered trying hypnotic medication, but expected that too would be inefficacious.

The highly subjective nature of the assessment of strategy efficacy is clearly illustrated through the comparison of the following excerpts:

'I slept well last night. I woke up and tried to watch the tennis for a while, Hewitt was on and, I thought well he's going to win, I'll turn that off and, I sort of just dozed.' - GS (94)

'I've put the radio on to listen to the cricket. It doesn't really help. You just sort of lie there and lie there, and if you're lucky you just doze off. And when you wake up you think oh I have slept. You don't know for how long. It's very frustrating.' - PS (86)

These two respondents described an almost identical strategy for managing a period of wakefulness during the nocturnal sleep episode. Both used a form of passive entertainment, watching or listening to sport commentary, as a way of

inducing 'dozing'. Although both employed the same strategy and reported the same outcome, the good sleeper used the example to illustrate that her strategy was efficacious, whereas the poor sleeper had found the strategy inefficacious. In part, it is this appraisal of strategy efficacy that determines whether external support should be sought.

Control over sleep

Some of the women who perceived their core of personal strategies to be inefficacious were motivated to seek help, while others were not. It was evident that some women expressed a degree of helplessness in the face of inefficacious sleep management. Some of these women, who were mostly poor sleepers, claimed that they did nothing at all to manage their sleep. They generally went on however, to describe their use of at least one strategy. Only one woman maintained that she employed no sleep management strategies despite her disturbed sleep:

'I've never tried anything to help myself sleep better, I've never thought about it. I just go to bed, and if I go to sleep then I go to sleep.' – PS (81)

For other women, who made similar claims, their statement was more of an expression that their sleep quality was outside of their control, rather than one of effortless sleep management. The respondents quoted below, after expressing the attitude that there is 'nothing you can do' to improve sleep

quality, then went on to say, that in fact, they did ‘do’ something. The first avoided ‘watching things on telly’ that might ‘linger on’ in her mind and prevent her sleep onset. The second ‘just read a book’ and the third wore ‘warm pyjamas’ and ensured that her bed was ‘nice and warm’ by using a ‘nice big blanket’:

‘I don’t think there’s anything much that I’ve done really. Apart from perhaps not watching things on telly that I think might linger on in my mind and make me restless.’ – PS (88)

‘I don’t do anything to help myself to sleep better, no, I just read a book. But that doesn’t help me to sleep it keeps me awake.’ – PS (81)

‘I don’t think you can do anything. I mean I wear warm pyjamas, and the bed is nice and warm, I have this nice big blanket on it...I don’t think there’s anything you can do. Just get used to it.’ – PS (84)

Although each expressed an attitude of helplessness towards sleep management, they nonetheless engaged the use of their personal sleep management strategies. The commonality here appears to be that each had found her strategy of choice to be inefficacious, but had not been motivated to seek external advice from either the medical or healthist spheres to improve their sleep.

Medical or Healthist?: The importance of ‘natural’ sleep

Among the women who were motivated to seek help, meaning they evaluated their personal sleep management strategies as insufficiently efficacious, the key factor in whether the women sought help from the medical or health promotion spheres, was the value attributed to sleeping without medical intervention. Some good and poor sleepers indicated that they would not take hypnotic medication because it was important to ‘sleep naturally’. This term was used by some of the women:

‘Sleeping naturally is very important to me. I’ve never been a pill popper, never.’ -GS (79)

‘I don’t take (hypnotic medication), oh no, I refuse to. I can’t give you a reason other than to say that I prefer to sleep naturally. I don’t want to sleep unnaturally.’ – PS (81)

These women tended to rely on their core set of personal strategies for the management of their sleep quality, and failing that, opted either to seek strategies from the healthist sphere, or used OTC paracetamol, which they did not perceive to breach the criteria of sleeping ‘naturally’. For women for whom sleeping without medical intervention held little value, expert advice played a key role in determining hypnotic use. These women indicated the

perceived attitude of their GP to hypnotics was central to their decisions to use, and to continue to use, BZs:

'The doctor says I'm better to keep taking them and sleep than to go off them.'

– PS (87)

'The doctor gives me those tablets and I take them every night.' – PS (84)

These women seemed to be using the power of the external agent (GP) to justify a behaviour (taking hypnotics) that may otherwise be socially unacceptable.

Incorporating efficacious medical/healthist strategies into the core of personal strategies

Upon evaluating trialed medical or healthist strategies as efficacious, the women incorporated them into their own core of personalised strategies. Many of the women described a process of strategy modification and incorporation, as exemplified by the following excerpt:

'I asked the doctor if I could (alter my own dosage) and he said he would leave it to me. Because he knew I'd be reasonable about it.' – PS (90)

This woman sought permission from her GP to take control of her medication by modifying her dosage as she saw fit. Through this process the medical strategy is modified to the specifications of the environmental context, where it can be carried out in the private space, with the private resources available to the woman. It is incorporated into the core of personal strategies, to be employed alongside the woman's other personal strategies for the management of her sleep quality.

CHAPTER SUMMARY

The findings outlined in this chapter relate to Phase C of the data analysis, which pertained to how the women manage their sleep quality to achieve good sleep. The women of this study generally relied upon their personalised core set of sleep management strategies for the maintenance and enhancement of their sleep quality. These strategies were constrained by the environmental context however, and were at times evaluated by the women as inefficacious. Women who a) deemed the strategies available to them to be inefficacious, and b) expressed a desire to control their sleep quality, were likely to be motivated to venture into the medical or healthist spheres for further advice or support for their sleep management.

Active sleep management was carried out by most women, regardless of SQRSC group membership. Self-categorised good and poor sleepers utilised a

range of strategies aimed at improving or maintaining their sleep quality both at night and during the day.

The factors underpinning the choice of sleep management strategy are shown in Figure 9.1. Whether the women chose to seek medical strategies or healthist strategies depended on the perceived value of 'natural sleep'. Those women for whom natural sleep was not important were more likely to seek medical advice, which determined initial and continued BZ use. Interestingly, many of the women who would perhaps have been more likely to seek healthist advice, actually engaged in occasional OTC paracetamol use, believing that this was not in breach of the criteria of 'natural' sleep.

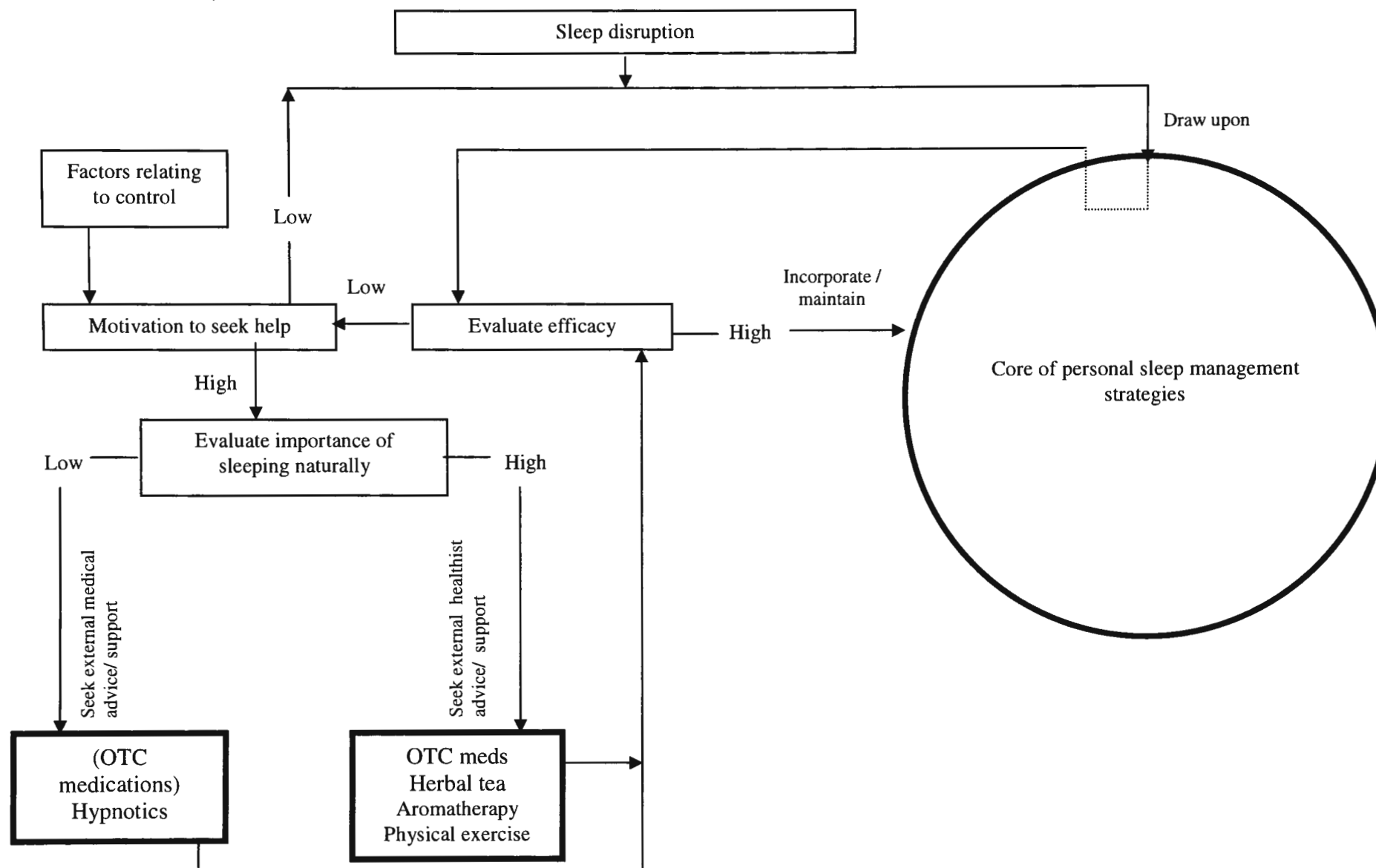


Figure 9.1 Factors underpinning the choice of sleep management strategy

Chapter 10

Discussion part 2: Achieving ‘good sleep’

‘I read until I get tired and then I nod off... I never go to bed with the light off because I wouldn’t be able to go to sleep. I think you need relaxation. Watch the telly or read a book.’ – Research participant,

Aged 77

From the findings presented in chapter nine, it is clear that for most of the women in the study, good sleep was not an effortless state, but rather one achieved by continual engagement in activity directed at sleep management via management of their bodies, their thoughts, and their sleep environment. Some women achieved good sleep through the use of their personalised core of sleep strategies, while some others ventured further, into the medical and/or healthist spheres. The relationship of the findings on how women achieve good sleep quality to the literature, and the clinical implications of the personalisation of sleep management will be outlined and discussed in this chapter.

THE PERSONALISATION OF WOMEN’S SLEEP AND ITS MANAGEMENT

The actions and activities utilised by the women within the private space and outlined in chapter nine, collectively represent the core set of personal

strategies upon which the group drew for the maintenance and enhancement of their sleep quality. Hislop and Arber (2003) suggest that such strategies reflect the 'personalisation' of women's sleep.

Staying away from medical language

Interestingly, but in keeping with previous findings (Hislop & Arber, 2003b), many women experienced symptoms of sleep disorders well known to the lay populace, but did not use medical terms to describe these experiences. This finding has been interpreted as a reflection that sleep disturbance, though disruptive, was considered normal (Hislop & Arber, 2003b). Although the medicalisation of sleep in aged-care is certainly evident at the organisational level (Conrad, 1992), there is a clear absence of 'sick' and 'healthy' sleep labels from the vocabulary of respondents. This perhaps indicates that the social control that earlier researchers (Zola, 1972) argued the medical profession to assert through medicalisation, has not filtered through to the sleep-related psyche of this cohort.

Women as active agents of sleep management

It seems that the sleep of the women of this study was not 'caught up in a web of health and illness' as suggested by Williams (2002). This claim implies that women lack agency in the management of their own sleep quality, and that the control over that aspect of their everyday lives lies with medical professionals and the healthist industry. The finding however, that most of the women developed a core set of personal strategies, and carried them out in their own private space, without seeking

external advice suggests that women are not only agents in the management of their own sleep, but that they prefer to exercise their agency outside of the reach of the medical or healthist spheres as a first line response.

Environmental constraints on sleep management

In their discussions of the personal strategies developed by women for the management of their sleep quality, Hislop and Aber (2003) argue that the strategies of women who live alone are not subject to the same environmental constraints as those who share their sleep environment with others. It appears for the women of the current study, who were the sole occupants of their immediate sleeping environment, that other environmental constraints, such as a lack of physical resources, and limited mobility/fitness were more prominent. This is not to say that the women perceived themselves to be living alone. The aged-care environment as the place that the women slept can not be ignored. The environmental constraints peculiar to the aged-care context were such that the buildings in which the women slept were places of 24-hour activity. It was a nighttime environment punctuated by multisensory stimuli and one in which the women were constantly aware that other people were also trying to sleep. In their development of personalisation of their sleep management strategies, the women necessarily considered these environmental constraints.

EXTERNAL ADVICE: TO SEEK OR NOT TO SEEK

In keeping with the personalisation model of sleep management outlined by Hislop and Arber (2003), women who sought external advice around their sleep management did so upon deeming their personal strategies inefficacious. The generalisability of Hislop and Arber's (2003) study was questioned due to the relatively small sample size (Williams, 2004), but its findings are supported by those of the current study. Close examination of the process by which the women sought external advice or support for the management of their sleep extends the findings of Hislop and Arber's (2003) work. In particular, it was apparent that motivation to seek external advice was not only related to strategy efficacy, but factors relating to control. When the women were motivated to seek external advice, the source from which they sought that advice was dependent on their perceived importance of sleeping without medical intervention. The finding that these factors were involved in help seeking around sleep related problems suggests some relevance of applying both the health belief model (Becker, 1974) and the model of planned behaviour (Ajzen, 1985) to this area.

Factor relating to personal control over one's sleep

The idea of 'control' is an interesting one in this context. Hislop and Arber (2003) wrote that the stigmatisation of medical strategies may reflect the belief among women that they should maintain control over their sleep management, and that the desire for this control is only satisfied by a personalised approach, where individual agency is emphasised. However,

the current findings suggest an alternative view. It appears that it is not through the active seeking of external strategies that women remit their individual agency in their sleep management. Rather, it seemed that women who were motivated to seek external strategies did so in an attempt to regain control over their sleep and its management. Other women who described feeling that the management of their sleep was outside of their control, were in fact those who, despite perceiving an inefficaciously managed sleep problem, were *not* motivated to seek external advice or support in that domain. The relationship between control and external advice seeking aligns with literature on help seeking behaviour, which suggests that people with a desire to increase their control in a particular domain are more motivated to seek help for problems in that domain (Fischer & Turner, 1970; Lim & Ang, 2006; Simoni & Adelman, 1991).

Centrality of perceived importance of sleeping naturally

For women who were motivated to seek external advice regarding the management of their sleep, the decision around where to seek that support appeared to be mediated by the perceived importance of sleeping without medical intervention. Some self-categorised poor sleepers attributed low value to natural sleep, and sought medical strategies, while others attributed high value to natural sleep, opting for strategies that did not conflict with this value. Though previous research has not focused on the perceived importance of natural sleep, there has been some report in the past that many sleep disordered patients of general practice resist hypnotic medication use because they perceive the medication to be harmful

(Nishida, Nakazawa, Kotorii, & Sakamoto, 1989). Whether or not this finding remains valid today is unclear.

Drivers of external strategy use

Medical strategies

Medical advice appeared to be the key driver of hypnotic medication use, though the small sample size, and particularly the small number of participants using BZs warrants caution. In contrast with Conrad (1992), Hislop and Arber (2003) postulated that the interaction between the physician and the individual encourages the *demedicalisation* of sleep and increases individual responsibility for sleep management. This was partially evident in the descriptions provided by the women of the current study. Many had not consulted physicians regarding their sleep, but those who had, though they went on to use BZs, had in certain cases modified the strategy (eg. by controlling their own dose), thereby incorporating it into their core of personal strategies.

Healthist strategies

Use of healthist practices was less common than expected on the basis of previous research (Hislop & Arber, 2003b, 2004; Williams, 2002, 2003b, 2004; Williams & Calnan, 1996). This may reflect the comparative ease with which this cohort can access the medical sphere through constant contact with nursing staff, and regular medical appointments. The most

commonly reported healthiest strategy was physical exercise, but many of the women also reported barriers to increasing their physical activity levels despite formal and informal opportunities to do so. The barriers to healthiest strategies could be conceptualised as reflecting perceived inadequate mobility, and social isolation. These barriers perhaps meant that a sub-group of self-categorised good sleepers who would otherwise have sought healthiest strategies at times when their personal strategies were inefficacious, instead utilised OTC paracetamol for sleep management. In any case, it appeared that the use of OTC medication was not viewed by the group as a medical strategy. Some women rejected the possibility of seeking medical advice, or hypnotic medication, and opted to seek healthiest strategies or use OTC medications, indicating that OTC medications did not breach their criteria for natural sleep.

IMPLICATIONS FOR CLINICAL PRACTICE

Reduce hypnotic use by promoting the sleep hygiene message

The findings of Phase C of the study, as discussed in this chapter, have several implications for clinical practice. First, the importance to many of sleeping without medical intervention could be drawn upon in promotion of i) the sleep hygiene message and ii) increased physical exercise, for the management of sleep quality. The further finding that expert advice drives hypnotic use among those for whom sleeping naturally has little value, implies that physicians are well placed to promote the sleep hygiene

message when assisting women to explore non-pharmacological treatments for their sleep problem, including healthist strategies.

The importance of the physician's advice in intention to take BZs, which is consistent with Van Hulton et al's (2003) findings, highlights the real need for responsible prescription of BZs. Further, other findings suggest an attitude of scepticism toward the risks of long-term BZ use and skepticism towards tapering among general practitioners (Cook et al., 2007), and limited provision of information about negative effects (Iliffe et al., 2004). This is concerning in light of the significant evidence of the negative consequences of BZ use in elderly populations (Barker et al., 2004; Barker, Jackson, Greenwood, & Crowe, 2003; McAndrews et al., 2003; Vignola et al., 2000; Woodward, 1999). Greater promotion of the sleep hygiene message by general practitioners, perhaps including provision of tangible resources such as relaxation tapes, and sleep hygiene fact sheets, would have the potential effect of significantly reducing the prescription of BZ hypnotics that are received regularly by 69% of women in some aged-care settings (Middlekoop et al., 1994).

CHAPTER SUMMARY

For women in aged-care, good sleep is certainly an achievement. The improvement and/or maintenance of sleep that is subjectively good is an effortful and continual process. It involves the primary reliance on a core set of personalised strategies, and the variable extension to medicalised and healthicised strategies. The implications of the process of strategy

selection and utilisation for the clinical context could potentially see a reduction in BZ use for the management of sleep disturbance. There are a number of conceptual implications stemming from the study's findings and methodological considerations. These will be discussed in chapter 11.

Chapter 11

Conceptual implications, methodological issues, and conclusions

'Six hours for a man, seven for a woman, and eight for a fool'

– Irish proverb about sleep

Chapters eight and 10 discussed the findings related to the specific research questions in the context of previous research, and clinical issues and implications of those findings. The current chapter broadens the discussion to consider the conceptual implications of the findings, and the arising methodological issues, before drawing the thesis to its conclusion.

CONCEPTUAL IMPLICATIONS

Two levels of subjective measurement

There is a clear debate in the literature (Krystal & Edinger, 2008; McCrae et al., 2005; Riedel & Lichstein, 1998; Van Den Berg et al., 2008; Vitiello et al., 2004) around respective roles and utility of objective versus subjective measurement of sleep quality, and the validity of subjective measurement in the context of the identification and treatment of sleep disorders, particularly insomnia, in elderly women. The findings of the current study suggest however, that the argument around objective versus

subjective measurement may in fact be no more salient than a further argument around two levels of subjective measurement. That is, the respective roles and utility of quantitative (eg PSQI and sleep diary) and qualitative appraisal of subjective sleep quality. It is evident from the findings around the incongruence between quantitative categorisations and measures of subjective sleep quality and SQRSC, that while quantitative measures of subjective sleep quality may identify an individual as sleeping better than normal, normal, or worse than normal in accordance with predetermined criteria (Buysse, 1991), they do not consider the individual's subjective appraisal and the mechanisms underlying them. Further, while the individual's SQRSC indicates whether they are happy or unhappy with their sleep quality, it does not (at least when taken in isolation) describe the sleep parameters. It is the basis for the individual's SQRSC and the meanings attributed to good and poor sleep quality that are important in the evaluation of a subjective sleep complaint. This can only be evaluated through descriptive investigation of these factors. This argument is reflected in the findings of Kaufman's (2001) phenomenological study which identified no less than 61 factors used by people to determine how well they slept. The high degree of individual variability in these factors is not captured by quantitative measures used in clinical practice. It is argued that rather, this essential meaning is only accessible through the qualitative investigation of the individual's experience of their sleep and the meanings they attach to these experiences.

Conceptualising types of sleepers: Is good and poor the best way?

Sleep quality is often understood as being divided into good and poor sleep as though they were two distinct entities (Buysse, 1991). Perhaps this crude division is not the most appropriate way to categorise the quality of our sleep. In fact, the findings presented in chapter seven suggest a far more complex picture. From the PSQI data and the semi-structured interview data it can be said that a small portion of the SQRSC-G group reported sleep phenomena that were much better than the majority of respondents. Conversely, a portion of the SQRSC-P group reported sleep phenomena that were much worse than most other respondents. The largest portion of both SQRSC groups however, share the conceptual space in the middle of the continuum of reported sleep phenomena. Perhaps this space could be conceptualised as pertaining to 'normal subjective sleep' for elderly women in aged-care. This would not be the same space occupied by those with objectively 'normal' sleep for those of a different age (and perhaps gender) (Bliwise, 1989), nor does it necessarily reflect what the group themselves perceive to be normal sleep among their peers.

Despite reporting similar experiences, some women self-categorised as good sleepers, while others self-categorised as poor sleepers. This reflects the idea that the process of making SQRSC is not fully attributable to actual sleep phenomena, as discussed previously, but again, reflects a complex array of constructs underlying individual's understandings of what it is to sleep well (Kaufman, 2001).

METHODOLOGICAL ISSUES

The findings presented in this thesis are limited in their generalisability by a number of methodological issues. These will be set out in the following section and their impact on the generalisability of the study's findings discussed. Suggestions for future research directions will follow.

Limitations and generalisability of findings

A number of limitations introduce potential biases into the findings of the study, and impact on their generalisability. First, the sample was selected from multiple care facilities within the one organisation (Baptcare). The obvious implication of this is that organisational policy on sleep and medication management may impact the sleep-related experience of individual respondents, and therefore the common experience of the group. The very fact that the management of the organisation was interested in researching the sleep of their residents in an attempt to reduce BZ use suggests an attitude of awareness of BZ use and related issues, and a tendency toward medication reduction where possible. Such an attitude perhaps sets the organisation and its residents apart from other organisations not actively reducing hypnotic use.

Second, the identification of a 'healthy aged' sample was difficult. Ideally the researcher would have had access to participants' medical records to verify satisfaction of inclusion criteria. However, this was not possible due to ethical requirements. Instead, the researcher relied on the report of staff at each aged-care facility regarding the cognitive, psychological, and

physical health of volunteers when assessing suitability for participation. Although this was not the preferred method and potentially biased the representativeness of the sample, staff ratings of aged-care residents physical, mental health, and cognitive status have been shown to be correlated with the self report of residents with mild to moderate health decline (E. McIntyre, 1982; D. Owens et al., 1996). Thus, this method of assessing suitability for participation was deemed acceptable.

Third, the self-report psychosocial and sleep questionnaires were administered verbally by the researcher, which is not the standard administration. This has potential implications for rates of socially desirable responding, in that participants' responses may have been biased by their desire to manage their impression on the researcher. It was deemed necessary to administer the questionnaires this way however, in response to the need to minimise task demands. Although some research suggests altered response patterns with verbal administration of psychosocial questionnaires in some populations (Muhlem, 1975), other findings indicate good concordance between verbal and written administration in elderly populations (M. Duffy, Duffy, Kilbourne, & Giarchi, 2005; O'Neill, 2002; Wong et al., 2002)

Fourth, the subgroup of self-categorised poor sleepers who were using hypnotic agents may have confounded the data from the SQRSC-P group. What remains interesting however, is that despite the use of hypnotics, and the potential for increased sleep duration as a consequence of their use,

women who use these agents continued to self-categorise their sleep as poor. Such interpretations are aligned with the findings of Monane et al. (1996) who, in their study of institutionalised elderly people, found that 65% of participants expressed one or more complaints regarding their sleep quality, but that there was no significant correlation between these categorisations and the use of hypno-sedative medication.

Fifth, the study's relatively small sample size means the results need to be treated with some caution. It is for this reason, that quantitative data were treated as descriptive, and simply intended to provide context for further analyses. It could be argued that the generalisability of semi-structured interview data is not limited by the sample size per se. Rather, it is implicitly limited by the design being descriptive rather than experimental. Giorgi (2002) makes it clear however, that the phenomenological findings are supposed to represent not the population, but simply the sample and this view is consistent with the claims within this thesis.

Despite these limitations, the study sample provided a rich description of their sleep issues. As such, the findings contribute an insight into the sleep of widowed women in the context of healthy ageing within the aged-care setting. Different sleep experiences and sleep management strategies may be described by elderly women living in the community, or those with higher care needs. Further, some aspects of the women's experience including aspects of their journeys to aged-care remain unexplored. The findings of the study are however interpreted as a valid representation of

the experience of the participants, who were women living in low-care facilities in the context of the Australian model of aged-care.

Future directions

Further research is required to evaluate the efficacy of 'normalisation' psychoeducational or cognitive restructuring programs in shifting the SQRSC of women who view their sleep as worse than normal, to the normal range. In addition, further use of longitudinal data on the impact of moving from independent living into residential care would assist in the clarification of i) whether sleep disturbance in previously good sleepers is short-term ii) potential individual and institutional risk factors for chronic sleep disturbance, and iii) the utility of sleep-specific supports during this transition period as a means of minimizing the perpetuation of insomnia symptoms.

Further research on the management of sleep disturbance could extend understandings of the apparently complex relationships between different help-seeking behaviours and the psychological correlates of insomnia (eg factors related to control). It would be interesting to evaluate the degree to which sleep help-seeking aligns with other health-related help-seeking behaviour, and where management of other health-related issues sits in the context of the personalisation model of sleep management.

CONCLUSION

This study has identified the lack of congruence between quantifications of sleep parameters (eg. Sleep diary data) and the qualitative descriptions assigned to those parameters by the individual. Numerical determinants of sleep quality derived through structured clinical measures such as the PSQI and sleep diary indices are inconsistent with the qualitative descriptions of equivalent sleep phenomena, obtained through semi-structured interview. Interestingly, the ‘hard data’ of sleep medicine, phenomena such as sleep onset latency and nocturnal awakenings are both *derived by* quantitative methods and *described by* qualitative methods. Yet these measures which define sleep quality within the domain of sleep medicine, are seen within this study as insufficient descriptors of the experience of sleep quality among older women. Though the descriptions given by the women were founded on these phenomena, it was only in the context of their interpretations, that their lived experience of sleep quality was evident.

The descriptions given in this study may not resonate with those of men or even of women of different ages, living in different social contexts (eg. married), of different health status, or cultural backgrounds, but they do highlight the importance of balancing the increased drive for the medicalisation of sleep with an understanding of the personal and social context within which this sleep occurs.

The bounds of the descriptions presented here are shaped not only by the women who shared them, but as in all qualitative research, by the interests and knowledge of the researcher, and by constraints of the organisations

involved. As such, whilst this study identified the use of social and temporal comparison as a means by which the women interpreted their experiences, there are potentially alternate layers of meaning that may be located outside of the current work and found within their personal biographies of sleep. It remains for future research to record and understand these biographies and their relationship to the attribution of meaning around sleep quality.

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Appendices

**APPENDIX A: VICTORIA UNIVERISTY HUMAN RESEARCH ETHICS
COMMITTEE ADVICE OF ETHICS APPROVAL**

Subject: Ethics applic: 0030/03
Date: Wed, 07 Jul 2004 16:20:59 +1000
From: Jane Trewin <jane.trewin@vu.edu.au>
To: Bernadette Hood <bernadette.hood@vu.edu.au>,
 Dorothy Bruck <dorothy.bruck@vu.edu.au>

HRETH FOA



The Chair of the Faculty of Arts Human Ethics Committee has approved an amendment to the original application HRETH.FOA.0030/03 for the inclusion of two student investigators and also inclusion of two additional measures, the Geriatric Depression Inventory (GDS) and the Beck Anxiety Inventory (BAI).

Jane Trewin
 On Behalf of A/Professor Ross Williams
 Chair, AHREC

Subject: yr ethics applic:0030/03
Date: Mon, 15 Sep 2003 12:53:52 +1000
From: Jane Trewin <jane.trewin@vu.edu.au>
To: Bernadette Hood <bernadette.hood@vu.edu.au>,
 Dorothy Bruck <dorothy.bruck@vu.edu.au>
CC: Jane Trewin <jane.trewin@vu.edu.au>

COPY

030/03

(F)

Below is an extract of minutes from the Faculty of Arts Human Research Ethics Committee Meeting held on Friday, 12 September 2003 for your information or action as appropriate.

57.5.3 HRETH.FOA.0030/03: Hypnotic Use in Aged Persons: Relationship to Sleep Beliefs, Sleep Quality and Quality of Life Measures

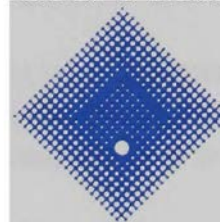
It was resolved to approve application HRETH.FOA.0030/03 from 1 October 2003 to 1 October 2005.



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The sleep patterns and use of sleeping medications amongst aged persons

Thank you for expressing interest in this study being conducted by Victoria University. It is designed to look at the sleep patterns of older people and the decisions people make around using sleeping tablets to help with sleeping at night.

- If you agree to participate, you will be interviewed in a session that will take between 30 and 45 minutes. During this time you will be asked about your
 - Personal details such as your age, health status, medications etc.
 - Your sleep patterns (when you go to bed/wake up)
 - Your use of sleeping tablets

- You will also be asked to complete 5 questionnaires about
 - Your sleep habits
 - Your attitudes to sleep
 - Your general life satisfaction and emotional well-being

- You will be asked to complete a sleep diary for the next week, which involves recording sleep details (such as the time you went to bed) from the night before.

- You will engage in a second interview next week for 60-90 minutes. During this time you will be asked to give detailed information about your
 - experiences and thoughts on good and poor sleep
 - what you do to improve your own sleep
 - sleep medications

Please tell the researcher if you feel tired during the interview and would like to take a break. Also note, that participation in this study is voluntary. This means that if you begin the interview but then change your mind, you are free to withdraw at any time.

All the information you provide will be collected along with information from other participants, and you will not put your name on any of the questionnaires. This means that you will not be identifiable from your responses, and the data will only be reported as group data.

Following the interview, if you wish to talk about the experience, feel uncomfortable about the interview, or would like further information, you can contact Dr Bernadette Hood on 9365 2334. This phone has an answering machine for you to leave your name and phone number, after which your call will be returned.

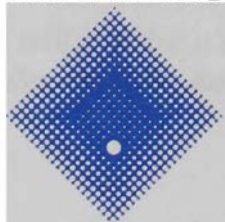
APPENDIX C: CONSENT FORM



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*Consent Form for Participants Involved in Research
INFORMATION TO PARTICIPANTS*

You are invited to take part in a study into “The sleep patterns and use of sleeping medications amongst aged persons”

CERTIFICATION BY PARTICIPANT

I,.....

of.....

certify that I am voluntarily giving my consent to participate in the experiment entitled:

The sleep patterns and use of sleeping medications amongst aged persons

As conducted at Victoria University of Technology by:

Associate Professor Bernadette Hood

Professor Dorothy Bruck

I certify that the objectives of the study, together with any risks to me associated with the procedures listed here under to be carried out in the study have been fully explained to me by:

Associate Professor Hood, Professor Bruck, or their research officer

And that I freely consent to participation as outlined below:

- I understand that I will be interviewed for between 30 and 45 minutes today, and I will answer a range of questions about my personal details, my sleep habits and my use of hypnotic medications.*
- I will also fill out 5 questionnaires, which will involve a series of questions relating to my sleep behaviours, my attitudes to sleep, and my satisfaction with my current life experiences.*
- I will keep a sleep diary for 1 week.*
- I will be interviewed for between 60 and 90 minutes next week, about the quality of my sleep, ways I try to improve my sleep, and hypnotic medications.*
- I understand that my interview will be recorded on audio tape.*

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardize me in any way.

I have been informed that the information I provide will be kept confidential.

Signed:

Date:

Any queries about your participation in this project may be directed to the researcher (Associate Professor Bernadette Hood ph. 9365 2334). If you have any queries or complaints about the way you have been treated, you may contact the Secretary, University Human Research Ethics Committee, Victoria University of Technology, PO Box 14428 MCMC, Melbourne, 8001 (ph. 03 9688 4710)

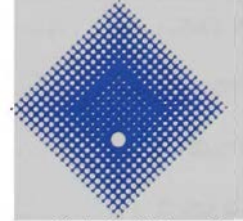
APPENDIX D: SLEEP DIARY



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Sleep diary instructions

- **Please fill in the sleep diary each morning when you get out of bed. Please write the day of the week at the top of the entry, then complete each of the sentences provided.**
- **Feel free to write any additional information in the space provided.**
- Remember to fill in one entry each morning.
- **The diary will be collected at your interview.**

Sleep Diary

Day of the week:.....

I went to bed atam/pm

I tried to fall asleep at.....am/pm

I fell asleep within about.....minutes

I remember waking during the night.....times

My total time awake during the night was about.....minutes

I finally awoke from my night's sleep at.....am/pm

I finally got out of bed at.....am/pm

Isleptwell/poorly

Other.....
.....
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.....
.....

Day of the week.....

I went to bed atam/pm

I tried to fall asleep at.....am/pm

I fell asleep within about.....minutes

I remember waking during the night.....times

My total time awake during the night was about.....minutes

I finally awoke from my night's sleep at.....am/pm

I finally got out of bed at.....am/pm

I slept.....well/poorly

Other.....
.....
.....
.....

Day of the week:.....

I went to bed atam/pm

I tried to fall asleep at.....am/pm

I fell asleep within about.....minutes

I remember waking during the night.....times

My total time awake during the night was about.....minutes

I finally awoke from my night's sleep at.....am/pm

I finally got out of bed at.....am/pm

I slept.....well/poorly

Other.....

.....

Day of the week.....

I went to bed atam/pm

I tried to fall asleep at.....am/pm

I fell asleep within about.....minutes

I remember waking during the night.....times

My total time awake during the night was about.....minutes

I finally awoke from my night's sleep at.....am/pm

I finally got out of bed at.....am/pm

I slept.....well/poorly

Other.....

.....

Day of the week:.....

I went to bed atam/pm

I tried to fall asleep at.....am/pm

I fell asleep within about.....minutes

I remember waking during the night.....times

My total time awake during the night was about.....minutes

I finally awoke from my night's sleep at.....am/pm

I finally got out of bed at.....am/pm

I slept.....well/poorly

Other.....

.....
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.....
.....

Day of the week.....

I went to bed atam/pm

I tried to fall asleep at.....am/pm

I fell asleep within about.....minutes

I remember waking during the night.....times

My total time awake during the night was about.....minutes

I finally awoke from my night's sleep at.....am/pm

I finally got out of bed at.....am/pm

I slept.....well/poorly

Other.....

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Day of the week:.....

I went to bed atam/pm

I tried to fall asleep at.....am/pm

I fell asleep within about.....minutes

I remember waking during the night.....times

My total time awake during the night was about.....minutes

I finally awoke from my night's sleep at.....am/pm

I finally got out of bed at.....am/pm

I slept.....well/poorly

Other.....

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Day of the week.....

I went to be atam/pm

I tried to fall asleep at.....am/pm

I fell asleep within about.....minutes

I remember waking during the night.....times

My total time awake during the night was about.....minutes

I finally awoke from my night's sleep at.....am/pm

I finally got out of bed at.....am/pm

I slept.....well/poorly

Other.....

.....
.....
.....
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APPENDIX E: SEMI-STRUCTURED INTERVIEW INFORMATION FOR
PARTICIPANTS



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Interview

**Your interview is scheduled for
at**

It is expected to take approximately 60-90 minutes.

The interview is designed to increase understanding about sleep, and some of the things that are related to sleep. You will be asked to talk about good sleep and bad sleep, and about some of the ways that you try to improve your own sleep, and also about your experiences of sleeping tablets. Please be as specific as you can, and provide any examples and stories that you can think of from your own experience. There are no wrong answers. Just talk about your experiences, and what you think about them.

The following page outlines the topics for the interview. Please have a think about them before your interview.

Interview Topics

Topic 1: 'A good night's sleep, a bad night's sleep'

Describe times that you slept well, and times that you slept poorly. Include as much information as possible about:

- **what you did and how you felt physically, mentally, and emotionally during that day**
- **your sleep that night**
- **what you did and how you felt the next day.**

Topic 2: 'Improving sleep'

Give examples of times that you have taken steps to improve your own sleep. Include the following:

- **a description of the problem**
- **what you did to improve your sleep**
- **the outcome (What happened?)**

Topic 3: 'Sleeping Tablets'

Describe your experience of sleeping tablets. Include as much information as you can about the following:

- **how you started taking them**
- **how you have used sleeping tablets, from when you started taking them until now**
- **any withdrawal attempts and associated difficulties**
- **examples of how sleeping tablets impact on your general health**
- **the differences you may experience in your sleep due to sleeping tablets**
- **positive and negative aspects of being on sleeping tablets.**

OR

Topic 3: 'Sleeping pills'

Discuss any times that you have considered using sleep medications in the past. Include as much information as you can about the following:

- **the surrounding circumstances**

- **why you decided that you would/would not use the medication**
- **the outcome (What happened?)**

APPENDIX F: PUBLICATIONS ARISING

F.1 POSTER PRESENTED AT *EUROPEAN SLEEP RESEARCH
SYMPOSIUM (2006)*

Sleep quality-related self-categorisation in elderly women: A social comparison phenomenon.

A Baptist Community Care and Victoria University collaboration.
 Brooke Davis, Bernadette Hood and Dorothy Bruck - Victoria University, Melbourne, Australia
 Brooke.Davis@research.vu.edu.au

Self-categorisation of one's sleep as 'good' or 'poor' is often crucial in clinical decision making around sleep and sleep management in aged-care. Thus it is important to understand these self-categorisations, and the basis on which they are made. Surprisingly however, the essence of the sleep quality-related self-categorisations of elderly women and the sleep beliefs they reflect, remain largely unexplored. What is clear, is that this essence is not sufficiently captured by current clinical measures of subjective sleep quality, reflecting the notion that sleep researchers and elderly women possess discordant beliefs regarding sleep quality.

Method

Participants

- 46 non-demented females living in low-care residential aged-care with a mean age of 85.8 years ($SD=7.9$) participated.
- A sub-set of 10 self-categorised good sleepers, and 8 self-categorised poor-sleepers, of whom 4 were long-term benzodiazepine users, engaged in semi-structured interviews.

Materials and Procedure

- Session 1: Pittsburgh Sleep Quality Index (PSQI)
- Structured sleep diary daily for 1 week
- Session 2: Semi-structured interview

Implications for Clinicians

- ➔ When considering the prescription of hypnotic medication, it is important to be aware that elderly women in aged-care self-categorise their sleep quality on the basis of their own construction of normal sleep, and that this may have little to do with the actual sleep phenomena they experience.
- ➔ Sleep diaries may be useful for assessing the accuracy of self-reported sleep complaints among elderly women in aged-care, and may be helpful in reassuring some individuals that their sleep experience is 'normal'.

Aims and findings

Aim 1: Investigate the bases of sleep quality-related self-categorisations in elderly women.

Self-categorised good and poor sleepers reported similar sleep phenomena, but described them very differently:

"I slept well last night. I woke up and tried to watch the tennis for a while, Hewitt was on, and I thought well he's going to win, I'll turn that off, and I sort of just dozed." - Good sleeper, aged 94 years

"I've put the radio on to listen to the cricket. It doesn't really help. You just sort of lie there and lie there, and if you're lucky you just dose off. And when you wake up you think oh I have slept. You don't know for how long. It's very frustrating." - Poor sleeper, aged 86 years

• **Self-categorised good sleepers** appraised their sleep as 'normal' or 'better than normal' on the basis of downward and/or lateral social comparisons:

"I think I'm a good sleeper, you know. When you hear all the others, they all say the same things. They don't get to sleep very early." - Aged 88 years

• **Self-categorised poor sleepers** appraised their sleep as 'worse than normal' on the basis of upward social comparisons:

"I don't think there are many that are disturbed as often as I am. I don't speak to a lot of people about it, but they seem surprised by how often I am up." - Aged 90 years

Conclusion: Rather than being based entirely on the actual experience of sleep phenomena, sleep quality-related self-categorisations appeared to be based on comparison of one's own sleep with 'normal sleep', which was constructed through social comparisons. These were directionally different for good and poor sleepers.

Aim 2: Evaluate the use of sleep diaries as a clinical tool for investigating sleep complaints in elderly women.

• Independent t-tests revealed significant differences between self-categorised good and poor sleepers on the PSQI global score ($t(44)=-5.47, p<.001$), and on PSQI component scores for sleep latency ($t(44)=-3.38, p<.05$), and habitual sleep efficiency ($t(44)=-3.57, p<.01$).

• No significant difference between the groups on scores for sleep diary: sleep latency ($t(11)=-.33, p>.05$), or sleep diary: sleep efficiency ($t(11)=1.96, p>.05$).

• When asked to estimate aspects of their sleep using the PSQI, self-categorised good and poor sleepers indicated good and poor sleep respectively. When asked to record the same aspects of their sleep using a diary however, self-categorised good and poor sleepers actually reported similar experience of sleep phenomena.

Conclusion: Sleep diaries may be a useful clinical tool for exploring sleep complaints in elderly women, and for separating their estimated experience from their actual experience.

F.2 ABSTRACT FROM *EMERGING RESEARCHERS IN AGEING (2006)*
CONFERENCE PROCEEDINGS

Although self-categorisation of sleep as 'good' or 'poor' is crucial in decision making around sleep management in aged-care, the essence of sleep quality-related self-categorisations (SQRSC) remains largely unexplored. This study, as part of a larger project, qualitatively explores SQRSC of elderly women in aged-care. Twenty female age-care residents aged 65+ participated, keeping diaries of their sleep phenomena for one week. Semi-structured interviews then explored how participants described their sleep, and the basis for their SQRSC. Self-categorised good sleepers described similar sleep patterns to poor sleepers. It appeared therefore that the difference between good and poor sleepers was not in their experience of sleep phenomena, but rather in their beliefs about good and poor sleep. Good sleepers generally conveyed the belief that their sleep was 'normal' or 'better than normal', while poor sleepers believed that their sleep was 'worse than normal'. Constructions of normal sleep were typically derived through social comparison. Downward social comparison, where participants compared their own sleep quality to that of worse-sleeping comparison targets, was most commonly employed by good sleepers. Poor sleepers tended towards upward social comparisons, comparing their sleep to that of better-sleeping targets. Factors including sleep phenomena, and daytime function, which are commonly considered indicators of subjective sleep quality, appeared to be far less important than social comparison in the process of SQRSC, implying that in the process of hypnotic prescription, one should be aware that women in aged-care make SQRSC based on constructions of normal sleep, rather than on their actual sleep phenomena.

F.3 POSTER PRESENTED AT WORLD *SLEEP CONFERENCE* (2007)

Attitudes to hypnotics in aged-care: The importance of 'sleeping naturally' and the role of expert advice.

A Victoria University and BapCare collaboration

Brooke Davis, Assoc. Prof. Bernadette Moore and Prof. Dorothy Bruck

The numerous sleep management strategies available to residents of low-care aged-care communities, span the medicalisation/healthicisation divide. Nonetheless, elderly women who complain of poor sleep are at risk of chronic benzodiazepine (BZ) use, which is associated with only short term efficacy (Ashton, 1994), and a range of negative impacts (Vignola, Lamoureux, & Bastien, 2000). Although the decision making process around sleep management results in BZ use for some elderly women, others, both complaining and non-complaining sleepers, decide to manage their own sleep quality away from the medical sphere. The current study explored experiences and beliefs relating to use of hypnotics by self-categorised 'good' and 'poor' sleepers. It aimed to explore the factors that drive the decision around whether or not to use BZs, among elderly women in aged-care.

Method

18 low-care female aged-care residents with a mean age of 86 years (SD=4.71)

10 'good' sleepers

8 'poor' sleepers

Engaged in semi-structured interviews on their experiences and beliefs around hypnotic medication.

Key Findings

- Both 'good' and 'poor' sleeping women reported they would not use hypnotics, as they believed it was important to 'sleep naturally'.
 - 'Sleeping naturally is very important to me. I've never been a pill popper, never.' - Good sleeper, age 79
 - 'I don't take (hypnotics), oh no, I refuse to. I can't give you a reason other than to say that I prefer to sleep naturally. I don't want to sleep unnaturally.' - Poor sleeper, age 81
- 'Poor' sleepers who did not identify natural sleep as important indicated the perceived attitude of their GP to hypnotics was central to their decisions to use, and to continue to use, BZs:
 - 'I've been on them most of my life. For forty years or so, since before my son was born. Oh, actually he is nearly sixty, so it has been a very long time. But the doctor says I'm better to keep taking them and sleep than to go off them.' - Poor sleeper, age 87
 - 'If I think I won't sleep well I'll take a whole one. I asked the doctor if I could and he said he would leave it to me. Because he knew I'd be reasonable about it.' - Poor sleeper, age 90

Conclusions

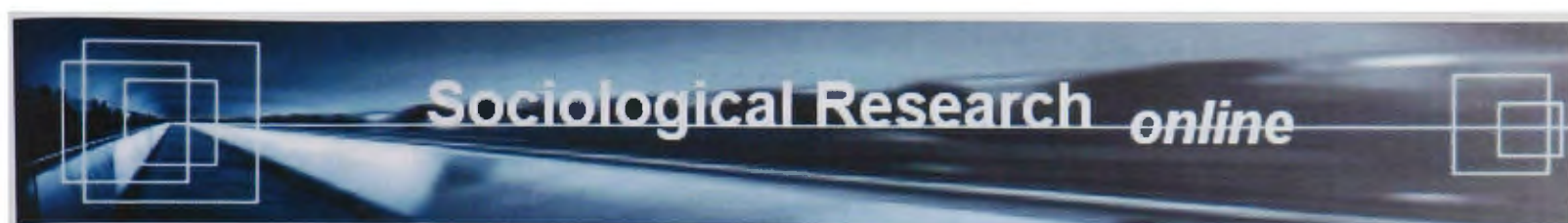
- The key factor driving hypnotic use among women in aged-care regardless of self-categorisation as a 'good' or 'poor' sleeper, is the value attributed to sleeping without medical intervention.
- In women for whom sleeping without medical intervention holds little value, expert advice plays a key role in determining hypnotic use.

Implication for practice: An understanding of the key role of 'natural' sleep and the secondary role of expert advice, could be utilised to promote healthy management of sleep, and reduce long-term prescribing of BZ medication among this cohort.

Ashton, H. (1994). Guidelines for the rational use of benzodiazepines: When and what to use. *Drugs*, 48(1), 35-40

Vignola, A., Lamoureux, C., & Bastien, C. (2000). Effects of chronic insomnia and use of benzodiazepines on daytime performance in older adults. *Journals of Gerontology: Series B: Psychological Sciences & Social Sciences*, 55B(1), 54-62.

F.4 JOURNAL ARTICLE PUBLISHED IN SOCIOLOGICAL RESEARCH
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The Meanings of Sleep: Stories from Older Women in Care

by [Brooke Davis](#), [Bernadette Moore](#) and [Dorothy Bruck](#)
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Abstract

This paper analyses data from a two phase project which utilizes a mixed methods design to investigate the construct of 'good' and 'poor' sleep quality amongst older women in Australian residential care. Phase one of the study demonstrates the lack of congruence between quantitative measures of sleep behaviour and self categorizations by the participants as 'good' or 'poor' sleepers. This lack of congruence is explored in the second phase of the project where semi structured interviews investigate the process by which self categorizations emerge. Interview data ratifies the findings of phase one identifying that the process of self-categorization is not necessarily linked to sleep behaviours, as many of these phenomena such as nocturnal disruption, or early morning awakenings were similarly described by self-categorized 'good' and 'poor' sleepers. Rather, it appears that these women, through the process of upward and downward social comparison, construct ideas about 'normal' sleep, and it is this normative definition, rather than the sleep phenomena experienced, that the individual uses to provide a benchmark for their self-categorization of sleep quality.

Keywords: [Women](#), [Aged-Care](#), [Subjective Sleep Quality](#), [Self-Categorization](#), [Social Comparison](#), [Temporal Comparison](#)

Introduction

1.1 Almost half of all older people will experience sleep disruption ([Vitiello, Larsen, & Moe, 2004](#)) and many will attempt to manage this with the use of hypnotic medications ([Endeshaw, 2001](#)). Despite the subjective experience of poor sleep quality often acting as the driver for help

seeking and subsequent hypnotic use, there is limited understanding of (i) the relationship between these subjective experiences and objective determinants of sleep quality and (ii) the processes by which an individual attributes meaning to their personal sleep experiences and subsequently understands themselves to be a 'good' or 'poor' sleeper. This paper reports on a two part mixed methods study that addresses this process of self-categorization amongst a group of older women who were all residents in an aged care home in Australia. In Phase One of the study quantitative data from 46 participants documented the women's sleep behaviours and this data was compared to inductive self-categorizations of 'good' or 'poor' sleep quality provided by the participants. Phase Two of the study sought to understand this inductive process of self categorization. A subset of 18 women participated in semi-structured interviews where they were able to describe their sleep phenomena, the meanings they attributed to these phenomena, and their subsequent processes of self-categorization.

1.2 In 1957, Dement and Kleitman changed our understanding of sleep from being a mystical, death-like state to a complex system of predictable and cyclical electrical discharges that could be displayed and recorded. This capacity for a real time display of sleep, meant that ownership of this once private space was relocated to a public, scientific domain. Scientific communities evolved around the electrophysiological definition and measurement of sleep (Chervin, 2005). Sleep was now quantitatively observable, measurable and hence subject to evaluation against socially constructed normative data. The search to then define the boundaries of 'normal' sleep resulted in the development of a range of indices to measure nocturnal sleep and daytime sleepiness.

1.3 There are at least three methodological approaches to evaluating sleep quality. One methodological group consists of the *objective, quantitative methods* such as the electrophysiological data, commonly used to generate indices such as sleep latency (time to fall asleep), sleep efficiency (total time asleep relative to total time spent in bed) and sleep fragmentation (total time of wakefulness during the night following initial sleep onset) (Dement, Miles & Carskadon, 1982) which, when compared to normative values, allow for the classification of sleep as 'normal' or 'abnormal', 'non pathological' or 'pathological', 'good' or 'poor'. Outside of the sleep clinic, actigraphy, which infers sleep episodes from recordings of wrist movement (passivity, implying sleep, and or activity, implying being awake), has also established credibility as an objective means of establishing sleep parameters and therefore sleep quality. A second group of sleep measures are the *subjective, quantitative evaluations* which are based on self report questionnaire data, for example the Pittsburg Sleep Quality Index (PSQI) (Buysse et al. 1989), Epworth Sleepiness Scale (Johns, 1991) or the Karolinska Sleep Diary (Åkerstedt et al., 1994), which all provide self ratings of sleep behaviours and / or subjective sleepiness. A third method, about which there is comparatively little published data, is the *subjective, qualitative approach* which asks people to report their experiences of sleep and the meanings and interpretations they make about their own sleep quality.

1.4 An overview of the literature pertaining to the measurement of sleep quality identifies two key themes. Firstly, the more objective and quantitative the measuring tool the greater the assumed 'truth' about sleep quality: Electrophysiological measures of sleep are often described as the *gold standard* of measurement (Chervin, 2005). From this gold standard, sleep scientists propose a hierarchy with decreasing credibility as measurement moves from objective data to subjective self-reporting. Secondly, significant discrepancies have been found between objective and subjective measuring instruments (Vanable et al., 2000; Vitiello et al., 2004; McCrae et al., 2005) and this lack of concordance is, in part, attributed to the assumption that subjective (self-report) measures are of limited credibility and that individuals are poor judges of their own sleep experiences. Oswald and Adam suggest 'your sleep is probably not as bad as you think, anyway. We really are all very inaccurate in our judgements ...' (1983, p.72). These dual themes within the scientific literature clearly argue that accurate knowledge about sleep quality is predominately located outside the experience of the individual and this perhaps explains the

current neglect within the professional sleep literature to explore the experience of sleep from a qualitative perspective.

1.5 One study which utilised a qualitative phenomenological approach to investigate the process by which individuals determine how well they slept found that self-perceptions of 'good' and 'bad' sleep were influenced by a series of 61 environmental, cognitive, time passage, and physical factors (**Kaufman, 2001**). The same author also noted that while some common factors were represented in most individual's understanding of sleep quality, the high degree of individual variation indicated that people define good and poor sleep in ways that are more individualized than current measures allow for (**Kaufman, 2001**). Similarly Hislop and Arber (**2003**) in their descriptions of women's sleep experiences argue that the research literature often fails to acknowledge the social context within which a woman's sleep occurs and that understandings of sleep are enhanced by attention to the stories women tell and the meanings they attribute to their experiences. For example, Hislop and Arber (**2003**) note, that although the majority of women in their study, had, at some point in their lives, experienced either chronic or acute sleep problems, only one woman named her experience of sleep disruption using the term 'insomnia'. Hislop and Arber suggest this occurs because the 'women perceive sleep disruption as a normal 'fact of life' outside the scope of medicalization' (**Hislop and Arber, 2003**, p.822).

1.6 From the perspective of the individual, 'poor' sleep is clearly a significant concern with research suggesting that this concern increases with increasing age (**Buysse et al., 1991**). A diverse range of physiological, medical and psychosocial factors have been linked to the potential for a high prevalence of reported insomnia in older populations (**Ancoli-Israel, 1997**). Psychophysiological studies have demonstrated the clear impact of this range of risk factors on objective sleep quality for older persons whose sleep is characterised by increased time falling asleep (sleep latency), decreased total sleep time and lower sleep efficiency (**Dement et al., 1982**). Such findings of increased objective sleep impairment with ageing are certainly supported by the subjective experience of poor sleep quality reported by up to 50% of persons aged over 65 (**Ancoli-Israel, 1997**) but, interestingly, even healthy adults who do not complain about their sleep are evaluated objectively as having poorer sleep quality than their younger counterparts (**Vitiello et al., 2004**).

1.7 The relationship between measures of objective sleep quality and subjective sleep quality in ageing is complex. McCrae et al. (**2005**) suggest that the congruence between these measures of sleep quality identifies four categories of sleepers – i.e. good sleepers, complaining poor sleepers, non-complaining poor sleepers and complaining good sleepers. Several studies have attempted to understand the factors that discriminate between these groups. For example in a study involving 150 non-complaining older sleepers, Vitiello et al. (**2004**) found that despite their lack of perception of poor sleep quality, significant proportions of the sample demonstrated objective sleep disruption. Older men had objectively poorer sleep quality than women, although women were more likely to report subjective experiences of poor sleep. Congruence between subjective and objective measures of sleep quality was found to be stronger in males than females. Vitiello et al. (**2004**) suggest that these findings of disjunction between objective and subjective sleep measures may indicate that older persons adjust their expectations of sleep by establishing new, as yet undefined, evaluative criteria against which they self categorise as 'good' or 'poor' sleepers. Vitiello et al. (**2004**) further suggest that differential criteria may be established for men and women and '...what we consider objective measures of good sleep may be appropriate for older men but that older women may be evaluating their sleep quality using other criteria' (p. 504).

Aims

2.1 This paper describes a component of a larger research study that seeks to further understand this complex concept of 'good' and 'poor' sleep quality in ageing. Aligned with the

position of Denzin (1978) who argues that 'each method reveals different aspects of empirical reality' (p28) a mixed methods approach is employed. Phase one of the study replicates the dominant hypothetico-deductive model of sleep research where validated instruments provide quantitative data for the categorization of sleep quality. This quantitative data is triangulated with a phenomenological-inductive approach of self categorizations that are generated by the participants. A second phase of the study then seeks to explore this inductive self categorization by the participants as 'good' or 'poor' sleepers to understand the process by which these older women locate themselves within these categorizations.

2.2 The study chose to focus on the experiences of older women and more specifically older women living in low dependency care facilities in Australia. The rationale for focusing on older women emerged from several lines of research, which highlight the potential for the categorization of sleep quality to significantly impact on the lives of older women, particularly those in residential care. For example (i) elderly women are more likely to complain of poor sleep than their male counterparts, despite the objectively poorer sleep of men (Vitiello et al., 2004); (ii) perceptions of decreasing sleep quality are both a risk factor for women to require institutionalisation and an outcome subsequent to admission (Pollack and Perlick, 1991); and (iii) research demonstrates that 69% of women in low-dependency residential aged care are regularly prescribed hypno-sedative medication and this occurs despite the apparent lack of correlation between the use of this medication and subjective sleep quality (Monane et al., 1996). These findings, along with Vitiello et al.'s (2004) assertion that older women may evaluate their sleep by unknown criteria, provide a sound rationale for investigating perceptions of sleep quality among this study group.

Methods

3.1 Forty six Australian older women living in low-care residential facilities participated in the study. In Australia this collective-setting accommodation is typically structured as a private bed-sitting room in a private or public facility that provides 24-hour nursing and other support. The level of care provided varies considerably between facilities, but residents are typically female, independently mobile and able to manage basic personal care. Meals are usually supplied, though some residents may have basic kitchen facilities available.

3.2 Initial recruitment of study participants involved approaching residents individually. However, ethical concerns were raised when that recruitment process was observed to elicit participation that reflected both an eagerness to comply with researchers' requests, and a desire for social engagement. As the aged-care population to which the study group belonged was considered vulnerable, this practice ceased and all subsequent recruitment was through residents' meetings, where residents approached staff after the meeting to register their interest. Volunteers were considered suitable for participation provided that staff could identify them as not suffering dementia or other cognitive impairment, serious psychiatric illness, or uncontrolled, acute physical illness. The women who participated were typically widowed, were currently satisfied with their overall health, and walked either unaided or with a walking frame. They were considered by facility staff, to be models of 'healthy aging' within a residential care context. The ages of the group ranged between 61 years and 98 years with a mean of 85.8 years (SD= 7.9). Participants were asked to make Sleep Quality Related Self Categorisations (SQRSC) as 'good' or 'poor' sleepers (n= 22 and 24 respectively), and equivalent group sizes were sampled to enable comparison between groups. No specific rating criteria were provided for participants and the self-categorisations were therefore seen to represent intuitive evaluations by participants. Self-categorised 'good' sleepers were excluded from the study if they were taking benzodiazepines.

3.3 All women completed the Pittsburg Sleep Quality Index (PSQI: Buysse et al., 1989), and a range of psychosocial measures, including measures of depression, anxiety, quality of life, and

sleep beliefs. (Only the PSQI data will be reported in this study). The PSQI is a 19-item self-report questionnaire that assesses sleep quality and sleep disturbance over the previous month. The items generate a global PSQI score (range 0-21), which is the sum of the seven component scores (range 0-3), as follows: subjective sleep quality, sleep latency (time to fall asleep), sleep duration, habitual sleep efficiency, sleep disturbance, use of sleeping medication, and daytime dysfunction.

3.4 For the second phase of the study, a sub-sample of 18 women was selected on the basis of their SQRSC and willingness to engage in a 90 minute interview. These 18 women participated in individual in-depth interviews (45-90 minutes) in their own rooms. All interviews were tape recorded and later transcribed. This second phase comprised ten 'good' and eight 'poor' sleepers, of the 'poor' sleepers four reported long-term benzodiazepine usage for at least six months prior to the study.

3.5 Using a semi-structured interview format women were asked to describe their experiences across three broad areas: (i) Their experiences of good and poor sleep; (ii) Their non medicalised strategies for improving sleep, and,, (iii) Their use of sleeping medications. The first theme encouraged women to describe times they slept well and times they slept poorly, including the sleep phenomena they experienced and the context in which they occurred. Under the domain of improving sleep, women were asked to give examples of sleep problems they had experienced and the steps they had taken to improve their sleep. Finally, women utilizing benzodiazepines were asked about the process of initial prescription, their history of usage, withdrawal attempts and their perceptions of the impact of the medications on their sleep quality. All aspects of this study were approved by the Victoria University Ethics Committee.

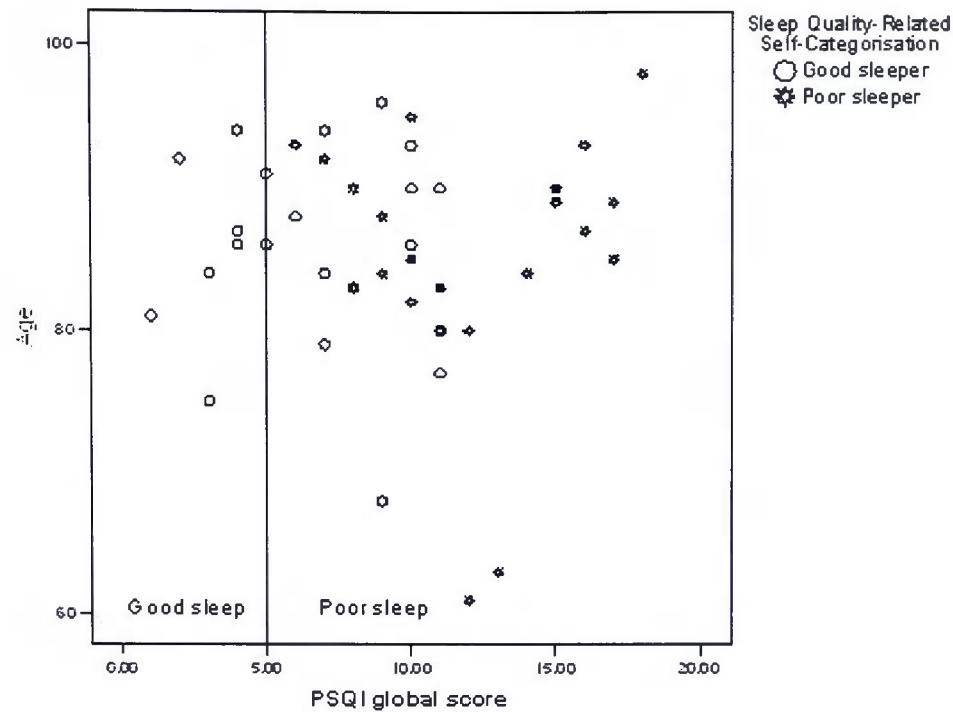
3.6 The recorded interviews were analysed in accordance with the empirical phenomenological approach (**Giorgi, 1997**). Participant stories were broken into meaning units that were labeled according to the themes they reflected. The meaning units were then synthesised according to their labels, such that the essential meaning of the woman's story was conveyed. To validate the data analysis descriptions were initially returned to participants. This was found to be unsatisfactory, however, when participants were unable to critically review the document and demonstrated an overriding desire to be supportive of the researcher's analysis. To ensure credibility therefore of the derived meanings and overcome potential biases in the data analysis a second researcher independently analysed samples of the data. This process of 'triangulating analysts' being described by Patton (**1990**) as an appropriate method of data validation.

Results Phase 1: Comparison of Quantitative Data with Self Categorizations of Sleep Quality.

Relationship between PSQI data and Self-Categorisations of Sleep Quality.

4.1 All study participants completed the PSQI, which is a widely used scientific measure of sleep quality. This data was then plotted against the Sleep Quality Related Self-Categorisation (SQRSC), see Figure 1.

Figure 1. PSQI global score of self-categorised 'good' and 'poor' sleepers by age of woman (n=46).



4.2 Visually, Figure 1 suggests several trends. A substantial range of global PSQI scores is evident. Using the PSQI, the conventional cut-off point for clinically defined sleep disturbance is a score of 5. However, only a fifth of these older women (9/46) did not have sleep problems according to the PSQI criterion. Whilst all SQRSC 'poor' sleepers fell within the PSQI poor sleep range, over half of the SQRSC 'good' sleepers scored higher than the cut-off score, classifying them as having poor sleep quality on the basis of the PSQI global score. To understand these trends more clearly, mean PSQI global scores were calculated and differences examined between SQRSC good and poor sleepers. Table 1 below provides these summary statistics.

Table 1. Comparative means, standard deviations (SD) and t-test analysis (t) of PSQI global scores between SQRSC good (G) and poor (P) sleepers. (n=46)

	Group Mean (SD)			t	df	Sig. (2-tailed)
	Total (n=46)	SQRSC-G (n=22)	SQRSC-P (n=24)			
Global PSQI	9.4(4.4)	6.4(3.2)	11.9(3.6)	-5.5	44	P<.001

4.3 Table 1 demonstrates that these older women as a whole were rated as poor sleepers using the benchmark PSQI global score of 5 as the discriminator of good and poor sleep. Even SQRSC 'good' sleepers demonstrated a mean score of 6.4 placing them within the PSQI poor sleep range. The mean PSQI score for SQRSC 'poor' sleepers of 11.9 was significantly greater than that of good sleepers ($p<.001$). Our findings therefore replicate those already reported in the literature. Self categorized poor sleepers appear to demonstrate poorer sleep quality than self categorized good sleepers (McRae et al., 2003; Vitiello, et al., 2004). However significant proportions of older, self categorized, good sleepers, are still demonstrated to have PSQI scores indicative of sleep disturbance (Vitiello et al., 2002; Vitiello et al., 2004). Such findings have been interpreted as evidence that decreased sleep quality associated with ageing does not necessarily lead to perceptions of diminished sleep quality, as older individuals may alter their benchmark criteria for self categorization of sleep quality (Buysse, et al., 1991; Vitiello et al., 2004). It is this process of establishing a benchmark for categorization that is the major area of investigation in the second phase of this study.

Phase 2 Understanding the Process of Self Categorization of Sleep Quality

Describing sleep phenomena

5.1 Analysis of the interview transcripts from the 18 women involved in stage two of the study showed that both 'good' and 'poor' sleepers related experiences of their sleep in terms of the four categories of sleep onset, waking during the night, early morning awakening, and daytime sleepiness. Within the category of 'waking during the night', both 'good' and 'poor' sleepers identified a range of factors that disturbed their sleep. Predominately they spoke of the impact of aspects of their sleep environment, needing to go to the toilet at night and worry. Participants also described strategies for managing periods of wakefulness during the night. Quotes representative of participants' experiences of some of these phenomena are given in Table 2 – for each phenomenon described, a representative quotation from both a self categorized 'good' (GS) and 'poor' sleeper (PS) is provided. Ages of respondents are included in brackets after each quotation.

Table 2. Representative descriptions of sleep phenomena by self categorized good and poor sleeping women

Sleep Phenomenon	Self-Categorized Good Sleeper	Self-Categorized Poor Sleeper
Time to get to sleep	<i>But it doesn't worry me if I don't get to sleep before midnight, it doesn't worry me at all because I don't have to be up until seven, seven thirty. (86).</i>	<i>A bad night sleep is when I just can't go to sleep... I like to go to bed about half past nine. And I like watching things on television that make you think. Even though I can't get to sleep, I drift off eventually. (90)</i>
The sleeping environment	<i>If, like changing beds, you know, this is not my bed. My bed was perfect for me you know. And they asked me if I wanted to bring my bed, and I said 'No' because my eldest son has to do all those things for me ... And, I said 'No', you know, and so I haven't got my bed. This is alright, but it's a noisy bed. When I turn over I know about it. I wake myself up because it rattles. But mine didn't. (79)</i>	<i>And they are not the most comfortable of beds. They are dreadful beds. Well see I was used to, my bed was an ensemble, and the mattress was that innerspring. It was that wide, but if you turn over here, you'll fall out that side. And there's a plastic on it that wrinkles and sticks into you. It creaks a bit. As I said, they're not conducive to a good sleep. You can bring your own bed in, but that's if you can make it yourself I believe, I don't know. But I'm used to having the mattress that deep. (86)</i>
Managing bodies: Going to the toilet at night	<i>I have to get up to go to the toilet about three times during the night. Which is a strange thing, it doesn't worry me during the day. (96).</i>	<i>Then of course, I hate it when you get to sleep then you've got to wake up and get to the toilet. That irritates me. That's at night two or three times... (86).</i>
Waking during the night	<i>I slept well last night. I woke up and tried to watch the tennis for a while, Hewitt was on and, I thought well he's going to win, I'll turn that off and, I sort of just dozed. (94)</i>	<i>As I said, I've put the radio on to listen to the cricket. It doesn't really help. You just sort of lie there and lie there, and if you're lucky you just dose off. And when you wake up you think 'Oh, I have slept'. You don't know for how long. It's very frustrating. (86)</i>

5.2 The excerpts of women in their dialogues about sleep shown in Table 2, provide an interesting insight into their nighttime sleep experiences. The first theme that is evident from these dialogues is that irrespective of their self-categorization as a 'good' or 'poor' sleeper the women were reporting significant disruptions in both getting to sleep and staying asleep during the night. For both good and poor sleepers their sleep was characterized by difficulties falling asleep and disruptions to sleep continuity as a consequence of factors such as the discomfort of their sleeping environment and needing to go to the toilet several times each night. Both categories of women also reported experiences of early morning awakening.

5.3 These findings are congruent with previous work that identifies that even non-complaining elderly sleepers will experience significant sleep disruption (Vitiello et al., 2004). The PSQI has categorized most women in this study as experiencing sleep disturbance and their stories ratify this quantitative assessment. A reading of the interview transcripts also highlights that not only do both categories of women experience similar types of sleep disturbance but that many of the

phenomena experienced are similar for both 'good' and 'poor' self categorized sleepers. For example for many women the nighttime was a time when they continually engaged in activity directed at managing their bodies. One of the most commonly reported body-related sleep complaints was frequently needing to go to the toilet. Both the examples provided from good and poor sleepers report an identical frequency of going to the toilet during the night and on this criterion the self-categorizations could not be distinguished.

5.4 It is however in the women's interpretations of these events that possible differences between the self categorizations emerge. The 'good' sleeper reflects on this disruption as a 'strange' thing, whereas the 'poor' sleeper 'hates' this 'irritating' disruption. Such divergent responses to similar events require further study. They may partly be explained by the tenants of cognitive psychotherapy (Ellis, 1962). First described by Epictetus (cited in Corey, 2001) this philosophy argues that 'People are disturbed not by things, but by the views they take of them' (p.298) or as explained fifteen centuries later by Hamlet '... there is nothing either good or bad, but thinking makes it so'. What then is the thinking, the meaning women attach to these objectively similar sleep phenomena, that leads to the subjective interpretation of their sleep experience as good or bad?

The meanings of sleep phenomena.

5.5 In exploring the meanings that older women attach to the sleep phenomena they experience it was evident that most self-categorized 'poor' sleepers (PS) had similarly high, and perhaps unrealistic, expectations about their sleep. When asked how they imagined a good night's sleep would unfold, they responded consistently that good sleep would be to sleep through the night without waking:

"Well for me a good night's sleep is, if I put the TV on at half past ten and if can go to sleep by eleven o'clock and sleep through, till six in the morning". (PS, 80)

"A good night would be to go to bed at ten or thereabouts, and just sleep until the morning. That's it". (PS, 92)

"A good night would be if I could sleep all night. That would be a miracle. Also, you need to feel well all the time, to have a good sleep". (PS, 88)

"A good night would be to sleep through. The waking up is the only thing that worries me. There's nothing else". (PS, 94)

*"I think the time I go to bed is reasonable, for my age, and tiredness. Um, perhaps get up once would be **normal**, and perhaps sleep until seven in the morning. That would be an ideal pattern". (PS, 90)*

5.6 Understanding the processes by which these older women established their perceptions of 'normal sleep' is perhaps the key to understanding why some older women in aged-care make different self-categorizations despite reporting similar experiences of sleep phenomena. One framework for understanding this process of categorization is social comparison theory (Festinger, 1954). In developing this theory Festinger argued, that, in the absence of objective criteria, individuals are able to make sense of their world by comparing their experience to others. The process of downward social comparison, where individuals seek comparison with others worse off than themselves, is proposed to increase personal satisfaction, whereas upward social comparison may leave the individual feeling more dissatisfied with their experiences. For older people downward social comparison is seen to offer some protection against the loss of control that accompanies ageing (Heckhausen and Brim, 1997; Frieswijk et al., 2004).

5.7 The stories of women in the current study often incorporated reference to social comparison of their sleep phenomena. As would be predicted 'good' sleepers (GS) tended to engage in either (i) downward social comparison, where they compared their own sleep quality to that of a perceived worse-sleeping reference group, or (ii) lateral social comparison where women made a comparison between their own sleep and that of a reference group with perceived similar sleeping patterns. As such, self-categorised 'good'sleepers subsequently appraised their sleep to be normal or better than normal:

"I do have a lot of sleep. Much more than a lot of the other girls around there." (GS, 94)

"I think I'm a good sleeper, you know. When you hear all the others, they all say the same things. They don't get to sleep very early." (GS, 88).

"I have to get up to go to the toilet about three times during the night...like a lot of them (other residents) say, that wakes you up you see, and then it sometimes takes a while to get on." (GS, 96)

5.8 In contrast, 'poor' sleepers did not tend to engage in downward or lateral social comparison when discussing their sleep quality. Conversely, some appraised their sleep as worse than normal on the basis of upward social comparisons, or comparison with a better-sleeping reference group:

"I don't sleep during the day either, because I just can't sleep. I've got a friend who can go off like that for ten minutes. But I can't. I'm supposed to lie down every day for an hour, but I never go to sleep." (PS, 90)

"I can't (nap during the day). Just can't do it. You see the others, they say they have a sleep in front of the telly, but I can't. Sometimes it would help the afternoon to pass, but I just don't go to sleep." (PS, 87)

5.9 For some women, a lack of social interaction, or just the lack of exposure to others' stories of sleep, may result in them being unable to access social comparisons by which to establish their own self categorizations.

"I go to breakfast and have a conversation with some of the ladies at the table, but then they all choof off, and no one is interested...I don't even know where their rooms are. I only see them at the dinner table and that's it". (PS, 81)

5.10 These women, who seem to lack access to social comparison groups, often reverted to temporal comparison strategies to make meaning of their sleep experiences. These temporal comparisons were usually upward in direction i.e. they compared their current sleep quality to the better-quality sleep they recalled from an earlier time in their lives (Albert, 1977):

"But one time I used to put my head down and sleep right through. A few years ago, my mother used to tell me 'I could sleep on a barbed wire fence'. Oh, I was a good sleeper, love. But as you get older, I think it changes, your sleep pattern changes a bit. But since I've been here, it has changed an awful lot". (PS, 86)

"My sleep pattern has changed terribly since I was younger. I never had problems like this. I slept pretty well...No this strange unusual pattern has developed, I suppose, over the last five or six years, perhaps even less... No, it's quite different to what it was when I was younger. I never had sleep problems". (PS, 90)

5.11 It appeared therefore, that a key difference between self-categorised 'good' and 'poor' sleepers was not in their actual experience of sleep phenomena, but rather in the way that they thought about their own sleep quality, in the wider context of their construction of normal sleep, which was often based on their engagement with comparison strategies. Downward social comparison was most commonly employed by self-categorised 'good' sleepers. Self-categorized 'poor' sleepers on the other hand, tended towards upward social comparisons, but where they had limited access to social comparison groups, they tended to engage in temporal comparison to an earlier period of their lives.

Conclusions

6.1 This paper has[H1] identified the lack of congruence between quantitative and qualitative measures of sleep quality. Numerical determinants of sleep quality derived through structured measures such as the PSQI fail to align with the qualitative descriptions of equivalent sleep phenomena, obtained through semi structured exploration. Interestingly, the 'hard data' of sleep medicine, phenomena such as sleep onset latency and nocturnal awakenings are both *derived* by quantitative methods and *described by* qualitative methods. Yet these measures, which, within the domain of sleep medicine are definitive of sleep quality, are seen within this study, to not be sufficient to describe the experience of sleep quality among older women. The stories the women told were founded on these behaviours yet it was only in their interpretations that their experience of sleep quality was derived. The bounds of the stories presented here are shaped not only by the women who shared them, but as in all qualitative research, by the interests and knowledge of the researchers, and by constraints of the organisations involved. As such, whilst this study identified the use of social and temporal comparison as a means by which the women interpreted their experiences there are potentially many alternate layers of meaning that may be located outside of the current work and found within their personal biographies of sleep. It remains for future research to record and understand these biographies and their relationship to the attribution of meaning.

6.2 The stories told in this study may not resonate with those of older men or even of women of different ages, living in different social contexts, of different health status, or cultural backgrounds, but they do tell their own stories, and, in doing so, highlight the importance of balancing the increased drive for the medicalization of sleep with an understanding of the personal and social context within which this sleep occurs.

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[H1]Either explain this more fully or omit this clause Okay we have altered this section – removed the term triangulation and added an explanatory clause