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PATIENTS' PERCEPTIONS TO SLEEP IN A GENERAL PRACTICE SETTING

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A research report submitted to the Faculty of Medicine, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree

Of

Master of Family Medicine

Johannesburg, 2000

I. DECLARATION

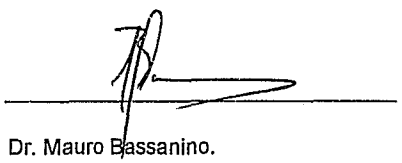
I, Dr. Mauro Bassanino, declare that this Research Report is my own work. It is being submitted for the Degree of Master in Family Medicine in the Discipline of Family Medicine, to the University of the Witwatersrand, Johannesburg.

It has not been submitted before for any degree or examination at this or any other University.

This study has received ethical approval from the University of The Witwatersrand's Ethical Committee for Research on Human Subjects.

1. Protocol No: M 94 09 02
2. Committee for Research on Human Subjects No: R 14 / 49 BASSANINO.
   (Ethics Committee)

Duly Signed at Johannesburg, this 25th day of July 2000.



Dr. Mauro Bassanino.

II. DEDICATION

In memory of my father

Remo Bassanino

(1920 – 1981)

iii. ABSTRACT.

A descriptive study of patients' perceptions to sleep in a general practice was undertaken. The aim of the study was to describe the perceptions about sleep in the adult patient in a general practice environment. This included descriptions of demographic data, patient's perceptions and expectations of sleep and their perceived seriousness and prevalence of sleep disorders. Differences in perceptions about sleep and sleep hygiene between patients with and without a sleep problem were also determined. A self-administered questionnaire with an accompanying subject information sheet was used for the research. The questionnaire was given to adult (over 18 years of age) patients, with prior informed consent, attending the author's practice in Port Elizabeth (Eastern Cape, South Africa), for completion in the waiting room.

A sample of 400 patients was used. Simple descriptive statistics were used to discuss three main areas of the study: 1) demographics, 2) perceived prevalence and seriousness of sleep disorders and 3) perceptions of sleep hygiene. Analysis of the results revealed a population that was predominantly White (78.9% White,11.2% Coloured, 8.1% Black)), young (67.7% were less than 40 years of age), with equal male and female ratios, well-educated (69.5% passed Matric) and with a current job (over 90% were employed).

Despite such a young population the incidence of self-reported sleep problems was markedly high and were of long duration (25.8% of patients had some sort of sleep disorder, while 23.5% admitted having a sleep problem) and compared favourably with overseas statistics.

Long-term sleep problems were more common in the population studied. Males had more long-term sleep-problems than females. Black patients slept for more longer periods, woke up more often without going back to sleep and perceived their sleep problem as more serious than White, Coloured and Indian patients. Patients with a higher level of education were less likely to; have a sleep problem, feel worried about their sleep, see someone professional about their sleep and suffer from any medical or psychological condition than those with a lower level of education.

Patients who perceived they had a sleep problem were; more worried about their sleep, suffering from more medical or psychological conditions, taking more medication to sleep, more sleepier during the day, not falling asleep easily, not waking up feeling refreshed, waking up too early, waking up and going back to sleep with more difficulty, consulting someone regarding their sleep more and were consulting someone professional regarding their sleep problem more than patients without a sleep problem. Underreporting of patients' sleep problems to health professionals was encountered.

Only 10 out of the 26 sleep hygiene questions were statistically significant. Perceptions of sleep hygiene did not correlate with having a sleep problem. People who had a sleep problem probably knew about correct sleeping hygiene, but were either not implementing it, or had some external factor accounting for their poor sleep.

Certain inferences were made from this study highlighting important patient perceptions regarding the concept of sleep in general. These may be used as recommendations for family physicians to assist in management of patients complaining of sleep problems.

IV. ACKNOWLEDGEMENTS

I wish to express my thanks to the following people for their assistance in performing this research project.

Prof. Bruce Sparks and Dr. Anne Wright from the department of Family Medicine for their overall assistance, advice, patience, eternal stamina, guidance and supervision, help and their ongoing encouragement they gave me throughout the research report.

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Angelo Bassanino, my brother, [Ph.D. (Wits University), Previously a Lecturer in the Department of Electrical Engineering], for the use of his computer knowledge and skills in interpreting, analysing and setting out the format of this thesis.

My newly wedded wife Taibe, for her loving assistance, encouragement, perseverance and soul-mate support she has given me throughout the preparation of this research report.

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1 INTRODUCTION

Although the definitions of Insomnia have changed over the last decade to include the perceptions of patients and the effects of disturbed sleep on daytime function, no clear measure exists for isolating the scope of the problem within the general population.[1]

Insomnia is one of the most common complaints encountered by the primary care physician, It is reported by an estimated one third of the adult population in any given year. [1, 2] It is further estimated that an overwhelming ninety five percent of all people will experience some kind of sleep disturban .e in their lifetimes. [2, 3, 4] A general practitioner / family physician will diagnose a form of insomnia in over 60% of patients attending his/her practice at any one time. [3] Of these over 40% will be classified as "Not Serious", when in actual fact they may be. Insomnia ranks as one of the three most common complaints presenting to the General Practitioner.[5] Despite this reported abundance of sleeping problems, there is a paucity of data in this field of study in the South African situation.[6] Overseas studies, however, describe high incidences and reveal interesting complexities (such as differences in population groups, differences in ages, sexes and levels of education) in sleep problems encountered in family practice. [7,8,9,10,11,12,13]

The study took place in the author's private practice in the central part of Port Elizabeth. Its main function was to assess the perceptions of patients to sleep in a general practice setting. The study was undertaken for numerous reasons; A study of this nature has never been done in the South African context before. This was a great challenge and it was also interesting to see the outcome of the results and how they would compare to overseas statistics. The relatively high incidence of sleep disturbances in the general population is extremely important. These sleep disturbances can have severe and extreme effects on an individual's daytime functioning. Surprisingly very few family

practitioners are aware of this, and this should be brought to their attention. Poor sleep can impair daytime functioning and directly affect quality of life. Insomnia often goes untreated, or incorrectly treated, resulting in perpetuation and, sometimes, exacerbation of the situation.[14] The family practitioner can accurately assess such symptoms in the office. Reversing this trend requires that family practitioners become attuned to complaints of insomnia and respond appropriately. The correction of environmental disruptions and transient psycho-physiologic problems, the critical evaluation of drug use and the treatment of underlying medical conditions are important steps in addressing the complaint of insomnia. [15]

This study aims to describe potential problems in a general practice environment of patients' perceptions and their sleep hygiene patterns. By understanding sleep hygiene patterns, and the patients' understanding thereof, one can master the correct treatment of insomnia.

The research report is a descriptive study that sets out to illustrate potential sleep problems and patient's perceptions of them, in a general practice environment. These perceptions could be used as recommendations for family physicians when confronted by a patient complaining of a sleeping problem. It is believed that an awareness of common perceived factors affecting sleep in patients would be helpful for fellow family practitioners . Therefore education about proper sleep hygiene and stress management, and the appropriate use of hypnotic agents could assist the Primary Care Physician to effective management. [14,1]

2 LITERATURE REVIEW.

2.1 INTRODUCTION AND OVERVIEW

An extensive literature review was conducted using the CD ROM and MED-LINE mediums from the Witwatersrand Medical School library. The literature was reviewed from January 1989 to December 1999. This analysis revealed a large volume of information about sleep problems in general, but a lesser amount on perceptions of sleep.

To date, no local studies in South Africa have been found on how patients perceive the quality of their sleep and how sleep hygiene factors affect these possible outcomes. In the overseas literature, sleep questionnaires are tediously long and are used mainly in sleep laboratory subjects. The purpose of this research was to introduce an awareness to sleep problems in the general practice context and was accomplished by the use of a simplified questionnaire. In the literature review, the reader is introduced to insomnia as a common medical problem and shown issues which are important in sleep problems.

The literature review consists of five main areas:

1. The Introduction: The frequency of sleep problems in the general population together with a paucity of sleep literature is stressed.
2. Incidence and Natural History of Insomnia:
3. Definitions of Insomnia: Difficulties in defining insomnia and poor sleep patterns.
4. Causes of Insomnia and
5. Management principles: Mainly non-pharmacological management as an aid to correct sleeping hygiene factors.

A summary briefly outlines the important literature findings in the research report.

Insomnia has remained one of the uncharted waters of sleep disorders medicine. Despite the publication of the Institute of Medicine Report in 1989 proclaiming the need for more research, the literature from which to gain an understanding of the many variables involved in the complaint of insomnia and its treatment, is still fairly scarce. [16,17]

Most people at some time of their lives have some sleep disturbance or are not satisfied, with the quality of their sleep.[18] It is estimated that an overwhelming 95% of all people will experience some kind of sleep disturbance in their lifetimes. [2,1,13] Literature figures estimates approximately 35% of the general population, having some sleep disturbance; with insomnia ranking as one of the three most common complaints presenting to the general practitioner.[5] A study by Addison et al,[19] based on the relationship between the psychosocial and physical environments and their effect on quality of sleep, showed that over 50% of the general population reported as being less than "very satisfied" with the quality of their sleep. Young people, in particularly, were less likely to be "very satisfied" with the quality of their sleep. A positive correlation was also found between increasing age and increasing dissatisfaction about sleep. [19]

2.2 INCIDENCE AND NATURAL HISTORY

Insomnia rates third place, after headaches and gastrointestinal tract problems, amongst common presenting complaints to family physicians. [20] The prevalence rate of insomnia in the United States is estimated to be high; statistics show that the population experiencing some type of sleeping difficulty to be between 25% and 35% and those experiencing chronic insomnia to be between 5% to 10%.[5 21] Australian statistics correlate very closely to this.[22] Coren, recently also showed that insomnia or sleep disturbances are surprisingly common in young adults.[8] Only 36% of his study population were

completely free of any sleep disturbances. In contradiction to this, Nino-Murcia et al, found that the incidence of insomnia is about 12% up to 45 years, thereafter it slowly rises.[5] Buxler LA, found that there is similarity between both sexes, with no change in incidence of insomnia with change in marital status.[20] In overall most of the literature showed that sleep disturbances occurred frequently and were underreported to the family practitioner.

A study by Orr and Altshuller on "sleep complaints" showed that difficulties with sleep were frequent and common in the general population.[23] They varied from; 1. Not falling asleep easily at night (18%); 2. Waking up at night spontaneously (20%); 3. Waking up too early (18%); 4. Feeling drowsy during the day from too little sleep (15%); 5. Not getting enough sleep overall as a whole (15%); 6. Having to consult a doctor about sleep difficulties (26%); and 7. Taking prescribed or over the counter medicines to help sleep (8-11%). [24, 23,25]

Generally sleep disorders appear to affect women more than men overall, with complaints increasing with age.[22] Studies showed that physiologically, sleep in the elderly differed from that in younger adults, both in terms of quantity and quality. In some studies younger people tended to have trouble falling asleep, while older people had difficulty maintaining sleep.[26, 13] Insomnia must be distinguished from the understandable but unrealistic expectations of many elderly people that they will sleep for as long and as soundly as when they were younger.[27] The many varieties of sleep disorders and the diverse aetiologies underlying them, thus make it crucial that the individual sleep problem be understood clearly.

Insomnias lead the list of sleep disorders in the elderly. The differential diagnosis includes poor sleep habits, medical and psychiatric disorders and drug interactions. Sleep disturbances in the elderly may be associated with many physical and psychological conditions, and less commonly can occur as a primary disturbance. Normal elderly persons have greater difficulty falling asleep and staying asleep compared with younger persons, and sleep is qualitatively shallower with more involuntary movements

and more abnormal breathing.[28] Sleep complaints become pathological when elders begin to experience a deterioration of function during their period of normal wakefulness, manifested as excessive sleepiness, concentration deficits, and mood changes.[28, 29] These sleep disorders are associated with excess physical and psychiatric morbidity and are treatable.[28, 30] Strategies directed at these conditions should therefore be a part of the treatment of insomnia.[31] The differences of sleep problems according to race was extremely difficult to obtain from the literature studies. There was a great paucity of this data and no comparisons were made between race groups.

2.3 DEFINITIONS

Insomnia, or preferably, hyposomnia has been defined by patients in many ways: an inability to induce sleep as desired; an inability to stay asleep; an abbreviated period of sleep with premature awakening; a night of sleep with premature awakening; a night of sleep interrupted by nightmares and involuntary arousals; or sleep that is not refreshing. Important to understand is that the definition does not include the number of hours slept, but rather it expresses the fact that sleep is inadequate for the patient's needs.[32]

That the definitions of insomnia continue to change and expand indicates that the current definitions are not completely accepted by patients or clinicians. Thus no objective standards for the disease entity exist. I will discuss some leading definitions that have evolved through the years with reference to their authors. These definitions reflect the changes in attitude towards sleep disorders as a whole. In 1978 Bootzin and Nicassio, proposed that insomnia was "the chronic inability to obtain adequate sleep".[33] In 1979 The Institute of Medicine, defined insomnia as "unsatisfactory sleep".[34] This was followed, later on that year, by the Association of Sleep Disorders Nosology, defining insomnia as "Conditions.... inducing disturbed sleep or diminished sleep".[35] In 1989 Zorick, redefines insomnia as "perceptions by patients that their sleep is inadequate or abnormal".[13] As sleep needs vary from

person to person, insomnia is defined, by Hauri and Esther, as "the chronic inability to obtain the amount of sleep needed for optional functioning and well being".[16]

Current definitions of insomnia have been expanded to include the daytime consequences of poor sleep such as poor concentration, irritability, fidgetiness and forgetfulness. Some reports, such as the recent Gallup poll, have attempted to establish a link to concrete life issues, such as the occurrence of car accidents; reported to be two and a half times greater in insomniacs.[6, 36, 1]

As can be seen, subjectivity is the hallmark of the definition. The number of hours slept does not define insomnia but rather the perception that the sleep is inadequate, thus not mistaking normally short sleepers and the elderly as insomniacs. For the purpose of this study, insomnia can be characterised as comprising two elements: (a) Nocturnal disturbance of normal sleep patterns, and (b) The adverse daytime consequences of the sleep disturbance. This definition thus takes into account the consequences of insomnia, as suggested by the 1991 Gallup poll.[9, 36]

2.4 CAUSES

Insomnia, which is a symptom rather than a disease, can be classified by Gillin JC and Byerley WF, into three main aetiological groups according to causal factors.

- Insomnia related to mental disorders including psychiatric, psychosocial disorders (depression and anxiety) and substance abuse syndromes. Virtually every psychiatric, neurologic or medical disease; when of sufficient severity, may influence negatively on the quality of sleep.[37]
- Insomnia related to organic factors such as many medical conditions including pain and the sleep disorders such as sleep apnoea and periodic limb movements (restless leg syndrome). Some disorders such as peptic ulcer disease, gastroesophageal reflux, or epilepsy tend also to be exacerbated during sleep.
- Primary insomnia with unknown aetiology.[38,17,39]

Insomnia is often the result of more than one of the above factors converging rather than one single cause. Insomnia types can also be distinguished by the nature of the inability to sleep. Sleep induction is a fragile phenomenon, which may be altered by environmental factors and various somatic and psychiatric disorders. These disorders also play an important role in insomnia. Their management and treatment should be based on specific treatment of aetiological factors.

Because of the varied aetiologies of insomnia it becomes critical to effective therapy that an accurate diagnosis is made.[40,41,5] Therefore, a comprehensive treatment that uses a multifactorial approach is the ideal way to treat patients with insomnia.[5] Research that will enhance our knowledge of the biological substrate of insomnia will provide clinicians with additional tools to improve the treatment of their patients with insomnia.[5]

2.5 MANAGEMENT

Despite the fact that the prevalence rate of insomnia in the United States has been shown to be as common as 35,2%, the great majority of these patients do not present themselves at sleep clinics or even to their family physicians.[5]

The reasons for this "Failure to consult" have been hypothesised by Nino-Murcia G as:

Lack of training of family physicians in the areas of sleep disorders
Pessimism (which can also be due to lack of training) in relation to treatment and outcome shared by patients and physicians, and
Time constraints and other reasons on the part of the physicians.[5]

Most family physicians, however, acknowledge no formal training in this area. As Haponik concludes; "there is a critical need for improved education of clinicians about sleep problems and for development of skills essential to their diagnoses and management".[42] In many cases physicians treat the symptoms of insomnia rather than evaluating and treating the underlying causes of insomnia. The subjective complaint of insomnia does not always correlate with evidence of objective sleep disruption, and therefore a careful history and evaluation are required. A study by Buxler, showed that poor sleepers reported approximately 6 hours of sleeping at night.[20] Assessment of the duration of insomnia and quantification of the impact of nocturnal sleep disruption on daytime functioning provide the most reliable indices of severity. [43 44]

The management of the patient with psychophysiological insomnia should obviously address the underlying cause, when identifiable. When the cause cannot be identified treatment should be conservative; non-pharmacological therapies should be used whenever possible, as they may make drug therapy unnecessary. Because cognitive therapy plays a major role in insomnia management, patients perceptions to sleep, and how they view "normal sleep", plays a vital role in the management of sleep disorders. [20 45]

The literature tends to show that the perception to sleep of insomniac patients differs from the perceptions to sleep of non-insomniac patients. [46,47,48] Literature studies have shown that improving sleep hygiene plays an important role in correcting sleep abnormalities.[6,49,39] Two such examples are illustrated; Engle-Friedman, Bootzin et al, showed conclusively in their study that behavioural treatments, alone, were found to be most effective (over short and long term) in improving the perception of sleep among older adult insomniacs.[50] Gude T, Mellvang et al, also adopted a programme to treat chronic insomniacs without the use of hypnotics or benzodiazepines. Their main focus was on sleep hygiene and behavioural techniques. They showed that sleep modification behaviour was effective in improving and treating chronic insomnia.[51]

Cognitive therapy involves changing the insomniac patient's perceptions to sleep. This is important in treating psycho-physiological insomnia. Understanding the abnormalities in perceptions of sleep is important to the family physician as it alerts him to different modalities of treatment other than chronic long-term medication.[48] Steps or rules to improve sleep hygiene are often mentioned in the literature.[1,6,13,39,49,52,53] In a study by Addison et al, the most popular method used to promote sleep was watching television (37%); reading a book (33%); eating (14%) and sex (10%).[31] Factors influencing sleep hygiene such as; regular arousal time, regular daily exercise, caffeine intake in the evening, smoking and drinking alcohol before retiring to bed, sleeping in a quiet room etc. are considered important for sleep hygiene.[49,39,52]

Non pharmacological methods can be used to induce sleep, because they provide a better long-term efficiency.[54] These non-pharmacological methods may include counselling, sleep hygiene, withholding of an offending agent, behavioural therapy, cognitive psychiatry and light therapy, relaxation techniques, biofeedback techniques, and psychotherapeutic techniques.[37,55] Recently, some authors stress the use of restriction of time in bed and stimulus control treatment.[7] Emphasis on sleep hygiene practices as alternatives to drug therapy should be stressed.[55] The establishment of good patient-clinical rapport and the working-through of unfounded beliefs and unrealistic expectations of the sleep experience are also important components of the behavioural treatment of insomnia in the elderly. Use of such techniques, particularly when combined in a treatment package, has shown appreciable benefits in improving sleep.[57,5859]

Therefore treatment of insomnia should start out with several explanatory interviews with the patient, in which subjective evaluation of sleep and associated events are investigated carefully. During several weeks the patient assesses his sleep quality, sleep related behaviours and mood by means of questionnaires and sleep diaries. This information process thus helps to choose adequate therapeutic interventions about sleep, sleep hygiene rules, and psychotherapy.[60,61,62]

In summary, Insomnia and daytime sleepiness may be a normal consequence of ageing, the result of a primary sleep disorder, or an adverse effect of medication or medical illness. Therefore effective management requires a differential diagnoses. The physician needs to review the patient history, including stressful events, medications, medical illnesses and the possible presence of a psychiatric disorder.[24] A complete physical examination and a thorough medical history help in selecting appropriate treatment.[63]

2.6 SUMMARY OF LITERATURE REVIEW

Insomnia is widely underdiagnosed, and its medical significance historically has been underestimated. In the United States it's prevalence is estimated to be as high as 35,2%; rated between 3rd to 5th place, after headaches and gastrointestinal tract problems, as some of the most common presenting complaints to family physicians. The many varieties of sleep disorders and the diverse aetiologies underlying them make it crucial that the individual sleep problem be understood clearly.

The definitions of insomnia continue to change and expand thus showing that the condition is not thoroughly understood by patients or clinicians. To date no objective standards for the definition exist. The closest, best-fit definition has subjectivity as its hallmark; "The chronic inability to obtain the amount of sleep needed for optimal functioning and well being". Here the number of hours slept does not define insomnia but rather the perception that the sleep is inadequate.

Insomnia is often the result of multiple factors converging rather than one single cause. Emphasis is placed on the treatment of each of these causes, along with the treatment of the other negative, behavioural or psychological factors that are commonly found in patients with insomnia. A comprehensive treatment that includes a multifactorial approach is the ideal way to treat patients with insomnia.

Patients perceptions to sleep, and how they view "normal sleep", plays a vital role in the management of sleep disorders. The research evidence that the perceptions to sleep of insomniacs differs from that of non-insomniac patients, means that improving sleep hygiene will play an important role in correcting sleep abnormalities. The purpose of this research was firstly to describe perceptions and characteristics of sleep in a general practice setting and to compare this data to the current available literature. Secondly to set out and elicit perceptions of sleep hygiene in patients with sleep problems and to compare these perceptions to normal sleepers.

Insomnia is frequently seen in the primary care setting. Although poor sleep can impair daytime functioning and directly affect quality of life, insomnia often goes untreated, resulting in perpetuation and, sometimes, exacerbation of the problem. The family physician can accurately assess such symptoms in the office. It is important for the physician to recognise age-related changes in sleep and obtain an accurate history. Reversing this trend requires that family physicians become attuned to complaints of insomnia and respond appropriately. The correction of environmental disruptions and transient psycho-physiologic problems, the critical evaluation of drug use and the treatment of underlying medical conditions are important first steps in addressing the complaint of insomnia. Through education about proper sleep hygiene and stress management, and with appropriate use of hypnotic agents, most cases of insomnia can be managed effectively by the primary care physician without referral of the patient to a sleep specialist. Information from this study regarding this group of patients may assist in this education process.

3. METHODOLOGY.

3.1 STUDY DESIGN

A cross-sectional descriptive study of patients' perceptions to sleep in a general practice setting was undertaken. A Self-administered questionnaire with an accompanying subject information sheet was used in the research.

3.2 DEFINITION OF TERMS

Insomnia : For the purpose of this study, insomnia can be characterised as comprising two elements: Nocturnal disturbance of normal sleep patterns, and adverse daytime consequences of the sleep disturbance.

Adult: A person 18 years and older.

Perceptions: From perception; perceiving, ability to perceive.

The Practice: Consists of the author's medical practice in Port Elizabeth, Eastern Cape, South Africa.

Family Practitioner: A registered medical doctor working in generalist practice (Not Specialist practice) in South Africa.

3.3 OBJECTIVES FOR RESEARCH

The objectives of the study were to :

- describe the characteristics of sleep patterns of the adult patient in a general practice ;
- determine the demographic profile of the sample population;
- describe the symptoms of insomnia and perceptions and expectations of sleep in the sample population;
- determine the perceived seriousness (extent) and severity of sleep disorders in the sample population;
- describe co-existing medical conditions (such as medication used) and current management options adopted by the sample population;
- describe perceptions and expectations of sleep hygiene and behaviour among the sample population and to
- ascertain differences in perceptions about sleep and sleep hygiene between patients who have a sleep problem and those who do not.

3.4 POPULATION AND SAMPLING

A self-administered questionnaire (Appendix 2) was given, by the nursing assistant, to all adult patients or adults accompanying a patient, in the doctor's waiting room. They were told that the doctor was doing research on sleep. An introduction and discussion (Information Sheet (Appendix 2) describing the purpose of the study accompanied each questionnaire. The patients were asked to complete the questionnaire, thus giving verbal consent. Questionnaires could be returned by post (payable by the addressee) if they were not completed in time at the doctor's surgery. All completed and returned questionnaires were included in the study. The study took approximately 3 calendar months. Only two same consecutive days in the week were used to distribute the questionnaires over the allocated time. A sample size of 400 patients was obtained. The practice used was a private family practice in the centre of Port Elizabeth. If patients did not wish to answer the questionnaire they were counted as non-responders.

3.5 ETHICAL ISSUES.

Patients were recruited to the study only if they agreed to fill out the anonymous questionnaire, after reading the introduction. They were told that if they did not participate they would not be discriminated against in any way. Patients were informed that no identification marks would appear on the questionnaire and the information obtained would be strictly confidential. All questions asked were relevant to patients' perceptions of sleep. If a line of questioning elicited distress, it was not pursued. Due to the anonymity of the questionnaire, any patients who perceived that they had a serious sleep problem and needed consultation, was told that he/she may discuss the problem confidentially with the doctor immediately thereafter.

3.6 DATA COLLECTION

No definite measuring tool for sleep disorders in South Africa has been established. Overseas literature maintains the "Stanford" questionnaire [64], as the gold standard for sleep disorders. This questionnaire, however, is long and cumbersome (approximately 40 pages long) and is difficult to use in the general practice setting. A self-administered questionnaire was devised taking into account available information on sleep hygiene in a general practice setting. The questionnaire in the research report was devised by revising the sleep literature, by using a summary of the "Stanford" questionnaire and with the aid of Dr. A. Bentley ,a current sleep specialist in private practice in Johannesburg. All the relevant questions pertaining to the objectives of the research report also helped to prioritise questions in the questionnaire.

The Questionnaire concentrated on 7 main areas of sleep:

- Demographic data, such as age, sex, race, level of education and occupation.
- Symptoms of insomnia, such as nocturnal disturbance of normal sleep patterns, and adverse daytime consequences of the sleep disturbance.
- Extent and severity of the sleeping disorder.
- Co-existing problems that may affect sleep, such as co-existing medical conditions, current medication and others.
- Current management options, i.e. what was or has been done about the situation.
- Resources used, i.e. people consulted and their perceptions on the level of care received.
- Perceptions and expectations of sleep hygiene and behaviour.

The results and discussion of the research will analyse these seven main areas of sleep so as to meet all the necessary objectives.

3.7 PILOT STUDY .

A pilot study of 10 patients was done to resolve any ambiguities or irrelevancies in the questionnaire. No ambiguities or problems with any questions were found and thus no questions were altered. The pilot study sample was not incorporated in the data analysed. These patients were excluded from any other research subsequently.

3.8 METHOD OF DATA ANALYSIS

All available data was entered on the EPI INFO 6 (Statistical Software Programme (Centres for Disease Control and Prevention (CDC) Atlanta) (April 1996 Edition) computer spreadsheet program. All results entered by an independent party (Mrs. J. Strachan from the department of F amily Medicine at Wits University)) and were double-checked accordingly. The program was also used to analyse all the data.

Statistics in the form of frequencies, cross-table correlations, chi-squared test and certain graphs, were used. The results were compared according to statistical significance using the chi-squared test (p- values < 0.05). The text was written using word processors, Word Perfect 6 and Microsoft Word on an IBM compatible Personal Computer. Some of the graphs and histograms were drawn using the Harvard Graphics computer program and incorporated into the text.

3.9 LIMITATIONS OF RESEARCH.

This study was done in only one general practice setting and the results cannot be generalised for all other practices in the country. The study ran for only 4 months. This may not be indicative of all the year. Thirdly, even though the sample size was fairly large (400), this may not fully represent the whole population attending the practice.

If the questionnaire could have been checked at the time of completion, to ensure that respondents had answered all the questions, more might have been completed. The anonymous nature of the study precluded this. There were also limitations according to level of education and understanding of the questions and their meaning and recommendations for an easier method of answering the questions is called for.

A recommendation of selecting studies where the practice population (Predominantly white, young and well educated) should be more diverse. The results obtained may not be a complete reflection of the Eastern Cape, but nevertheless, were interesting and deserved considerable debate.

Further studies of this nature would possibly demonstrate better uniformity in larger and more diverse populations studied for a longer time.

Future analysis of this thesis could encompass; single verses multiple sleep problem discussion, in-depth analysis of individual perceptual questions, comparisons of previous verses current sleep problems and analysis of exogenous factors and sleep problems.

4. RESULTS.

4.1 RESPONSE RATE.

Four hundred and ten questionnaires were printed and handed out (Excluding the pilot study).Of the 410 questionnaires, 5 were eliminated due to the subjects being less than 18 years of age. Of these 405 patients, 10 were non responders thus yielding a response rate of (405-10) / 405 or 97,5%. Overall this represented a good response rate.

The receptionist at the doctor's consulting rooms was very willing and motivated to get as many respondents as possible to complete the questionnaires and was made in charge of the collection process. The receptionist reported that overall the patients were interested in the questionnaires and quite willing to fill them in. Most patients (346) managed to fill the questionnaire before seeing the doctor. The remaining questionnaires were either collected the following day or were sent back to the consultation rooms by post (payable by the addressee).

Many people after completing the questionnaire commented that they felt they wanted to know the results of this research. A brief summary of results will be displayed in the Author's private practice, in Port Elizabeth, once the research report has been finalised and approved.

As the results will show not all questions were completely answered by all the respondents. An example is where 5 patients did not fill in their age, 7 their sex and 12 their race and level of education. In reporting the results the number of respondents per question is indicated by $n = x$

4.2 DEMOGRAPHIC DATA.

4.2.1 AGE.

4.2.1.1 DISTRIBUTION OF AGE.

The age distribution of the respondents is shown in Table 1.

Table 1. Distribution of Age in the Population.

(n = 390)

Age Distribution (Years)	Freq.	% in age Distribution	Cumulative %
< 20	20	5.1	5.1
20 - 29	152	39	44.1
30 - 39	92	23.6	67.7
40 - 49	61	15.6	83.3
50 – 59	45	11.5	94.9
60 – 69	7	1.8	96.7
70 – 79	12	3.0	99.7
80 and Above	1	0.3	100

The age distribution ranged from 18 years to 84 years, with a mean age of 35.2 years. 67.7% of the respondents were under the age of forty with the largest group being between 30 and 39 years (23.6%). Only 3.3% of respondents were over 70 years of age. The population studied was mostly young.

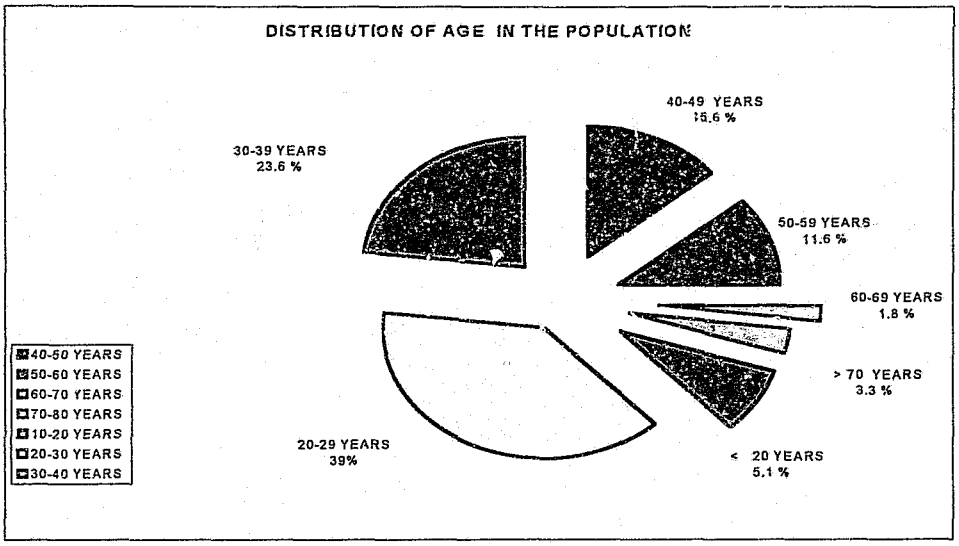


Figure 1. Distribution of age in the population.

4.2.2 SEX.

4.2.2.1 MALE TO FEMALE RATIO.

There was an equal male to female among the respondents.

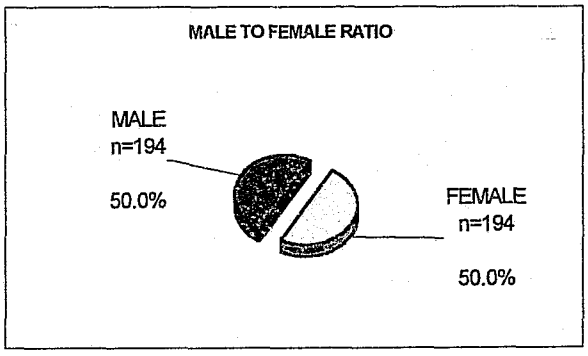


Figure 2: Male to Female Ratio.

4.2.3 RACE.

4.2.3.1 DISTRIBUTION OF RACE.

Table 2 depicts the frequencies of the respondents' distribution of race.

Table 2. Distribution of race of respondents.

(n=383)

Race	Freq.	Percent	Cumulative Percent
Asian	5	1.3	1.3
Black	31	8.1	9.4
Coloured	43	11.2	20.6
Indian	2	0.5	21.1
White	302	78.9	100.0

The majority of the respondents were White (78.9%), followed by Coloureds (11.2%), Blacks (8.1%) and Asians (1,3%). Indians (0.5%) accounted for the smallest race group

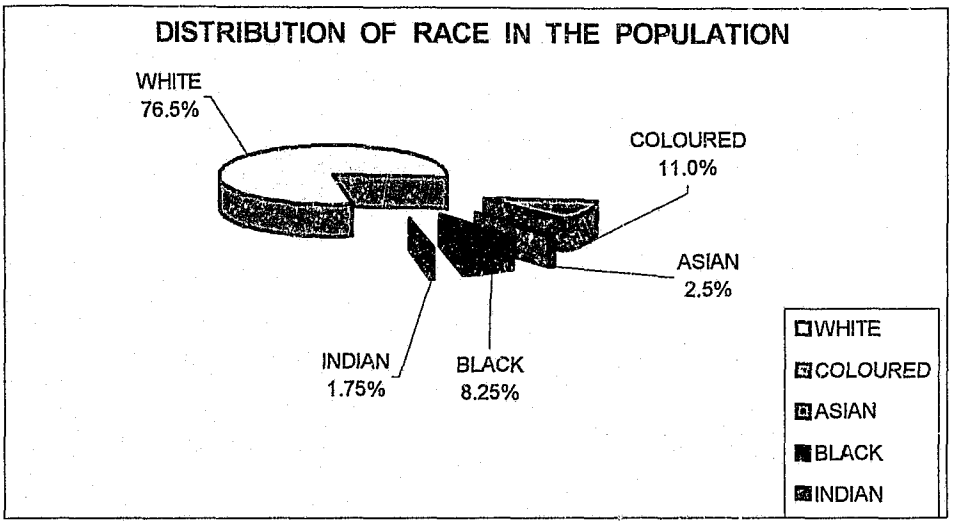


Figure 3. Distribution of Race in the Population.

4.2.4 HIGHEST LEVEL OF EDUCATION.

Respondents were asked to state their highest standard passed at school (Question 4.) and the highest level of education obtained (Question 5.).

Table 3 depicts the frequencies of respondents highest standard passed at school.

Table 3. Highest Standard passed at school by respondents.

(n=383)

Highest Standard Passed	Freq.	Percent	Cumulative Percent
Std. 5	2	0.5	0.5
Std. 6	13	3.4	3.9
Std. 7	16	4.2	8.1
Std. 8	72	18.8	26.9
Std. 9	14	3.7	30.5
Std. 10	266	69.5	100.0

The educational level varied from no education to standard 10 and above. . Of the respondents (n=383) who replied, 96% passed ST. 7, while 69.5 % had at least a Standard 10. Of this group 36.6% had a University degree, 27% a Technikon diploma and 23.8% an incomplete diploma or certificate.

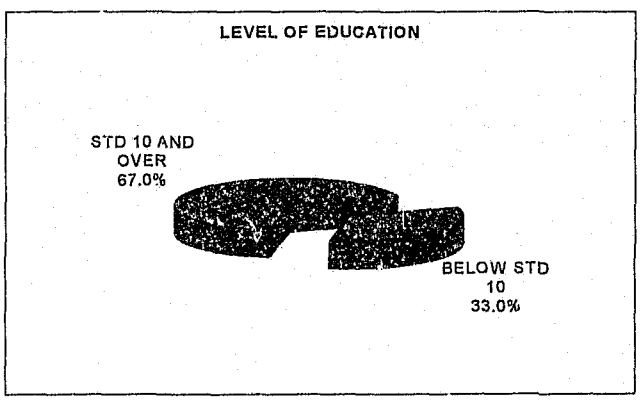


Figure 4. Level of education.

The educational level of patients in the sample was compared to their positive answered questions regarding their sleep patterns, sleep problems and sleep behaviour as asked in the questionnaire.

4.2.5 OCCUPATION.

Respondents were asked to state their present occupation, in an open-ended question. The open-ended responses were grouped as follows:

Professional	:	Medical and non-medical professionals, e.g., medical doctors, nurses, Pharmacists, attorney, psychologist, teacher etc.
Clerical	:	e.g., public servants, secretarial, general office workers etc.
Non-professional / Technical / Trade	:	e.g., managers, systems analyst, stock controller, account controller, credit controller etc.
Student	:	Full-time students.
Housewife	:	Also includes mother.
Unemployed	:	Currently not working.
Self-employed	:	Businessmen, retail owners etc.
Others	:	Others not mentioned in the above list.

The occupation distribution of the respondents is shown in Figure 5.

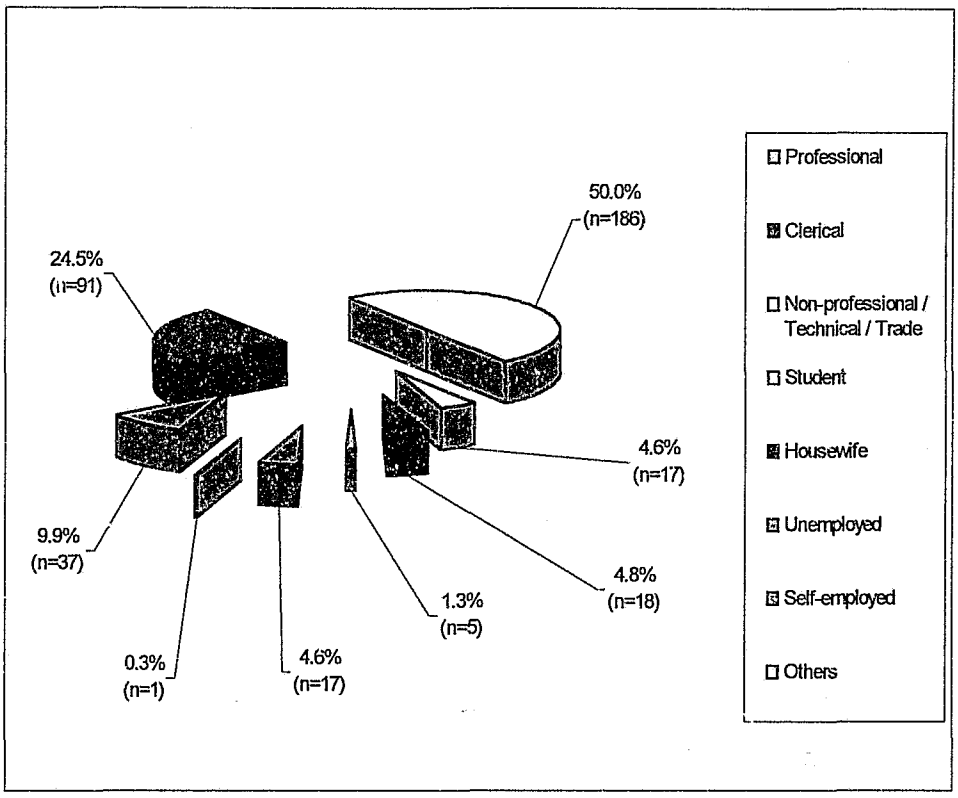


Figure 5. Occupation of respondents.

(n=372)

As can be seen the largest group of respondents (50%) were from the Non-professional / Technical trade group followed by the Clerical (24.5%) group.

4.2.6 NUMBER OF PEOPLE LIVING WITH AT HOME.

Figure 6 depicts the respondents' number of people they were living with at home.

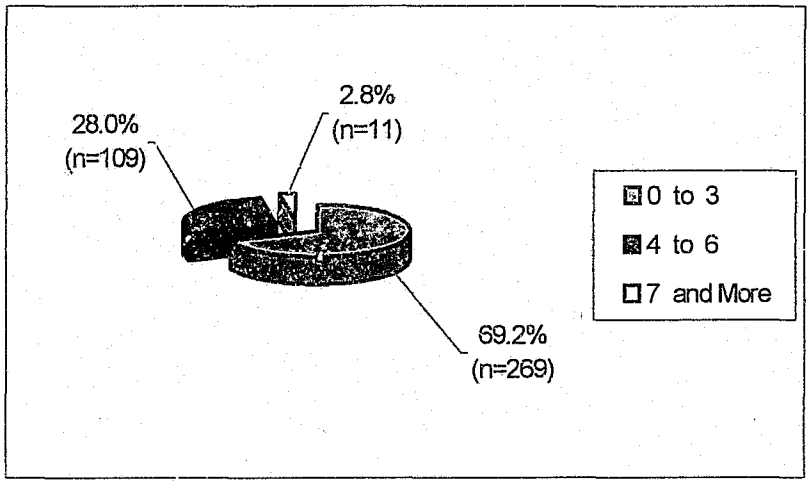


Figure 6. Number of People Living With at Home.

(n=389)

The number of people living at home varied from 0 to 9. As can be seen, most of the respondents (69.2%) lived with up to 3 people at home.

4.3 FREQUENCY OF SYMPTOMS OF INSOMNIA.

Question 9a, Question 10a, Question11a, and Question 12C (in the questionnaire); all gave a good general measure of symptoms of insomnia. The frequency distribution for these questions is described here. Cross tabulations with demographic variables will be discussed later. (Refer to table 4.)

Table 4. Respondents' frequency of symptoms of insomnia.

	TOTAL RESPONDENTS		
	n Value	Freq.	% of Population
Q.9a. Waking up not feeling refreshed.	373	173	46.4
Q.10a. Not falling asleep easily.	386	118	30.6
Q11a. Waking up too early.	384	122	31.8
Q.12a. Waking up and not going back to sleep easily.	373	102	43.4
Q.12c. Waking up and finding it difficult to go back to sleep again.	304	107	35.2
Q13a. Feeling sleepy during the day.	374	132	35.3

Waking up not feeling refreshed (46.4%) and waking up and not going back to sleep easily, were the most common symptoms of insomnia among the respondents.
Of the 30.6 % of respondents that complained of not being able to fall asleep easily, stress (11%) and increase mental activity (17%) were the two biggest single causes. Over 40% of the respondents not being able to fall asleep easily had this problem for months.

Of the 31.8 % (122/384) of respondents that said they woke up too early in the morning, 83% of them had this problem for months. Of the 35.2 % (107/304) of the respondents that woke up and found it difficult to go back to sleep again, 85% were awake for 1-2 hours and 71% of them had this problem for months.

4.4 FREQUENCY OF EXTENT AND SEVERITY OF THE SLEEPING DISORDER.

Respondents were asked numerous questions (as tabulated below) on the extent and severity of the sleeping disorder. These questions are firstly described under frequency and later on in the results will be compared to other demographic data. (Refer to table 5.)

Table 5: Respondents' frequency of symptoms of insomnia.

		TOTAL RESPONDENTS		
		n Value	Freq.	% of Population
Q.15a. Having a sleeping problem.		378	89	23.5
Q.15b. Type of sleeping problem.	Short - term	87	29	33.3
	Long - term	87	57	65.5
Q.9b. Duration of waking up not feeling refreshed.	Days	183	21	11.5
	Weeks	183	25	13.7
	Months	183	134	73.2
Q10b. Duration of not falling asleep easily.	Days	120	12	10.0
	Weeks	120	12	10.0
	Months	120	92	76.7
Q.11b. Duration of waking up too early.	Days	121	5	4.1
	Weeks	121	12	9.9
	Months	121	101	83.5
Q.12e. Duration of waking up and not going to sleep easily.	Days	121	13	10.7
	Weeks	121	21	17.4
	Months	121	87	71.9

		TOTAL RESPONDENTS		
		n Value	Freq.	% of Population
Q.13b. Duration of feeling sleepy during the day.	Days	130	7	5.4
	Weeks	130	25	19.2
	Months	130	96	73.8
Q.14a. Feeling worried about one's sleep.		385	70	18.2
Q.14c. How day time performance is affected by ones sleep.	Seriously affected	320	22	6.9
	Slightly affected	320	119	37.2
	Not at all affected	320	179	55.9
Q. 14e. How physical health is affected by ones sleep.	Seriously affected	308	16	5.2
	Slightly affected	308	83	26.9
	Not at all affected	308	207	67.2
Q.16a. Having a sleeping problem previously.		372	73	19.6
Q.16d. Severity of previous sleeping problem.	Mild	80	35	43.8
	Moderate	80	29	36.3
	Severe	80	15	18.8
Q.17a. Worried about previous sleeping problem.		247	37	15.0
Q.17c. How day time performance was affected by ones previous sleep problem.	Seriously affected	162	13	8
	Slightly affected	162	51	31.5
	Not at all affected	162	98	60.5
Q. 17e. How physical health was affected by ones previous sleep problem.	Seriously affected	150	11	7.3
	Slightly affected	150	31	20.7
	Not at all affected	150	108	72.0

As can be seen, 23.5 % of the respondents admitted to having a current sleep problem. Of this group, 65.5% had a long-term sleeping problem. The duration of the symptoms of insomnia (Questions; 9b, 10b, 11b, 12e and 13b) was generally more long-term in nature. Only 18.2 % of the respondents were presently worried about their sleep. Day time performance and physical health was perceived not to be affected (or only slightly to be affected) by a sleeping problem in the present or past.

4.5 FREQUENCY OF CO-EXISTING PROBLEMS AFFECTING SLEEP, SUCH AS MEDICAL CONDITIONS AND CURRENT MEDICATION.

The respondents' frequency of co-existing problems affecting their sleep is shown in the following table:

Table 6: Frequency of respondents' co-existing problems affecting sleep.

	TOTAL RESPONDENTS		
	n Value	Freq.	% of Population
Q.21a. Respondents suffering from a medical or psychological condition presently.	309	76	24.6
Q.23a. Respondents taking medication presently or in the past to sleep.	314	42	13.4

As the table shows, 24.6% of respondents perceived that they were suffering from a medical or psychological condition and only 13.4% of them were, or had taken medication for their sleep.

4.6 FREQUENCY OF RESPONDENTS' MANAGEMENT OPTIONS AND RESOURCES USED FOR SLEEP PROBLEMS.

The following table depicts the management options and resources used by the respondents for their perceived sleep problems.

Table 7: Management options and resources used by respondents for sleep problems.

		TOTAL RESPONDENTS		
		n Value	Freq.	% of Population
Q.19a. Consulting someone regarding their sleep problem.		234	40	17.1
Q.19b. Person with whom consulted.	Doctor	37	34	92.0
	Pharmacist / Psychologist	37	1	2.7
	Traditional Healer /Other	37	2	5.4
Q.20a. Respondents wanting to see someone professional about their sleeping problem.		179	49	27.4

Only 17.1% of respondents with a present or previous sleep problem had consulted someone (mainly a doctor (92%)) about it, while 27.4 % would have liked to have seen someone professional.

4.7 FREQUENCY OF PERCEPTIONS AND EXPECTATIONS OF SLEEP HYGIENE AND BEHAVIOUR.

The respondents were asked questions on 26 sleep hygiene factors (Questions 28a. to 28z.). For each of the sleep hygiene factors the respondents were asked whether the factor was helpful, not helpful or no different to the maintenance of good sleeping habits.

Table 8 depicts the frequencies of the respondents' answers to these sleep hygiene factors with their corresponding correct answers as listed in Appendix 5.

Table 8: Frequency of Respondents' Perceptions of Sleep Hygiene Factors.

FACTOR AFFECTING SLEEP	WITH A SLEEP PROBLEM	WITHOUT A SLEEP PROBLEM	p Value	Correct Answer (Appendix 4.)
a.) Waking at a regular time.	73.6 % (281/382)	7.9% (30/382)	18.6% (71/382)	Helpful
b.) Watching television	38.7 % (144/372)	33.1% (123/372)	28.2% (105/372)	Not Helpful
c.) Reading in bed.	61.8% (231/374)	17.1% (64/374)	21.2% (79/374)	Not Helpful
d.) Resting in bed.	54.4% (205/377)	22.8% (86/377)	22.8% (86/377)	Not Helpful
e.) Lying in bed trying to sleep.	28.5% (105/368)	46.7% (172/368)	24.7% (91/368)	Not Helpful
f.) Relaxing before bed	72.8% (275/378)	10.6% (40/378)	16.7% (63/378)	Helpful

FACTOR AFFECTING SLEEP	WITH A SLEEP PROBLEM	WITHOUT A SLEEP PROBLEM	p Value	Correct Answer (Appendix 4.)
g) Napping during the day.	16.0% (60/374)	59.4 (222/374)	24.6% (92/374)	Not Helpful
h) Smoking before bed.	6.9% (22/321)	68.5% (220/321)	24.6% (79/321)	Not Helpful
i.) Drinking alcohol before bed.	21.9% (76/347)	60.5% (210/347)	17.6% (61/210)	Not Helpful
j.) Having a warm drink before bed.	50.1 % (185/369)	19.5% (72/369)	30.4% (112/369)	No Difference
k.) Having a warm bath before bed.	66.8% (253/379)	13.2% (50/379)	20.1% (76/379)	Helpful
l.) Sleep as long as required.	49.9% (183/367)	19.9% (73/367)	30.2% (111/367)	Helpful
m.) Sexual activity before bed.	57.6% (198/344)	10.5% (36/344)	32.0% (111/344)	Helpful
n.) Depression.	2.8% (10/355)	80.3% (285/355)	16.9% (60/355)	Not Helpful
o.) Stress or anxiety.	3.3% (12/363)	84.8% (308/363)	11.8% (43/363)	Not Helpful
p.) Coffee or tea before bed.	19.8% (72/364)	50.3% (183/364)	29.9% (109/364)	Not Helpful
q.) Regular exercise.	63.4% (227/358)	13.7% (49/358)	22.6% (81/358)	Helpful
r.) Increasing age.	21.5% (45/209)	35.4% (74/209)	43.1% (90/209)	Not Helpful
s.) Shift work.	7.1% (20/283)	70.7% (200/283)	22.3% (63/283)	Not Helpful

FACTOR AFFECTING SLEEP	WITH A SLEEP PROBLEM	WITHOUT A SLEEP PROBLEM	p Value	Correct Answer (Appendix 4.)
t.) Eating a large meal before bed.	9.7% (35/362)	74.9% (271/362)	15.5% (56/362)	Not Helpful
u.) Keeping a small light on at night.	8.2% (30/366)	64.5% (236/366)	27.3% (100/366)	No Difference
v.) Peaceful environment while sleep.	85.0% (318/374)	3.2% (12/374)	11.5% (43/374)	Helpful
w.) Dark, quiet and warm room.	66.1% (242/366)	12.8% (47/366)	21.0% (77/366)	Helpful
x.) Comfortable bed to sleep on.	91.2% (342/375)	1.9% (7/375)	6.9% (26/375)	Helpful
y.) Sleeping alone at night.	23.1% (83/360)	31.9% (115/360)	45.0% (162/360)	Not Helpful
z.) Being worried or frustrated.	2.7% (10/368)	86.1% (317/368)	11.1% (41/368)	Not Helpful

As can be seen the majority of the respondents answered most of the sleep hygiene factors correctly. Only in some of the Not Helpful answers (Questions 28b, 28d, 28r and 28y) did the majority of the respondents answer incorrectly. The majority of respondents perceived that watching television in bed before falling sleep (Q.28b) and resting in bed before sleeping (Q.28d) were helpful as sleep hygiene factors. In addition, increasing age (Q.28r) and sleeping alone at night (Q. 28y), made no difference (as sleep hygiene factors) to the majority of respondents

4.8 VARIABLES ASSOSCIATED WITH DEMOGRAPHIC DATA.

Variables were considered to be significant when cross-tabulated and yielded a p-value of < 0,05.

Only significant answers to questions about sleep relative to demographic data were presented.

4.8.1 AGE RELATED DIFFERENCES.

All age groups were cross-tabulated against positive answers to sleep questions. The variables found to be significant are indicated in table 9.

Table 9: Variables Positively Associated with Age of Respondents.

		AGE DISTRIBUTION (YEARS)								
		< 20	20 -29	30 - 39	40 - 49	50 – 59	60 –69	70 – 79	80 and Above	p Value
Q.8. Number of hours slept at night.	0-4 Hours	0% (0/20)	2% (3/148)	1.1% (1/88)	1.6% (1/61)	4.4% (2/45)	0% (0/7)	8.3% (1/12)	0% (0/1)	0.001
	5-8 Hours	80% (16/20)	86.5% (128/ 148)	88.6% 78/88	93.4% (42/45)	93.3% (42/45)	85.7% (6/7)	91.7% (11/12)	100% (1/1)	0.001
	More than 8 Hours	20% (4/20)	11.5% 17/148	10.3% (9/88)	2.3% (1/45)	2.3% (1/45)	14.3% (1/7)	0% (0/12)	0% (0/1)	0.001
Q.10a. Not falling asleep easily.		25% (5/20)	30% 45/150	21.8% (19/87)	26.7% (16/60)	46.7% (21/45)	71.4% (5/7)	36.4% (4/11)	100% (1/1)	0.015
Q.12c. Waking up and finding it difficult to go back to sleep again.		50% (8/16)	24.5% 27/110	30.4% (21/69)	44.4% (24/54)	47.1% (16/34)	80% (4/5)	40% (4/10)	100% (1/1)	0.011

		AGE DISTRIBUTION (YEARS)								
		< 20	20 -29	30 - 39	40 - 49	50 – 59	60 –69	70 – 79	80 and Above	p Value
Q13a. Feeling sleepy during the day.		47.4% (9/19)	35% 50/143	29.5% (26/88)	35.1% (20/57)	27.3% (12/44)	57.1% (4/7)	80% (8/10)	100% (1/1)	0.04
Q.14c. How day time performance is affected by Ones sleep.	SER.	5.6% (1/18)	12% 14/117	2.7% (2/74)	3.8% (2/53)	5.3% (2/38)	0% (0/5)	9.1% (1/11)	0% (0/1)	0.001
	SLI.	77.8% (14/18)	41.9% 49/117	36.5% (27/74)	26.4% (14/53)	18.4% (7/38)	40% (2/5)	27.3% (3/11)	100% (1/1)	0.001
	NOT	16.7% (3/18)	46.2% 54/117	60.8% (45/74)	69.8% (37/53)	76.3% (29/38)	60% (3/5)	63.6% (7/11)	100% (1/1)	0.001
Q.21a. Suffering from a medical or psychological condition presently.		6.7% (1/15)	17.4% 21/121	22.4% (15/67)	25.5% (12/47)	44.7% (17/38)	66.7% (4/6)	54.5% (6/11)	100% (1/1)	0.0001
Q.23a. Taking medication presently or in the past to sleep.		0% (0/16)	11.8% 15/127	11.9% (8/67)	14.6% (7/48)	21.6% (8/37)	40% (2/5)	90.9% (10/11)	100% (1/1)	0.04

Most of the respondents slept between 5 to 8 hours a night. This was generally fairly evenly distributed amongst all the different age groups. The percentage of older people not falling asleep easily (Q.10a) was generally higher than the percentage of younger people. As can be seen, the percentage of respondents in the older age groups (as compared to those in younger age groups) generally suffered more from:

- not falling asleep easily
- waking up and finding it difficult to go back to sleep again

- feeling sleepy during the day
- medical or psychological conditions presently and
- taking more medication for sleep presently or in the past.

Day time performance was generally not affected or only slightly affected, by the respondents' sleep ,in all the age groups.

4.8.2 SEX RELATED DIFFERENCES.

The sex of the respondents was cross-tabulated against all the other sleep question variables. No significant differences were found between the sex of the respondents and any of the sleep related questions except in the number of hours slept at night (Q.8) and in the duration of the sleep problem (Q.15b). Table 10 depicts the sex-related differences amongst the respondents.

Table 10: Sex Related Differences Amongst the Respondents.

		SEX OF RESPONDENTS		
		MALE	FEMALE	p - Value
Q.8. Number of hours slept at night.	0-4 Hours	3.1% (6/192)	0.5% (1/189)	0.04
	5-8 Hours	88.6% (170/192)	90% (170/189)	0.04
	More than 8 Hours	8.3% (16/192)	9.5% (18/189)	0.04
Q.15b. Type of sleeping problem.	Short - term	17.6% (6/34)	44.2% (23/52)	0.02
	Long - term	82.4% (28/34)	53.8% (28/52)	0.02

The majority of male (88.6%) and female (90%) respondents slept between 5 to 8 hours a night. More male respondents (3.1%) slept shorter periods of time (between 0 to 4 hours) at night than female respondents (0.5%). Long-term sleep problems were more common in the population studied ($p<0.05$).

Men had more long-term sleep problems (82.4%) and women more short-term sleep problems (44.2%) when compared to each other.

4.8.3 VARIABLES SIGNIFICANTLY RELATED TO RACE.

The various race groups were cross-tabulated with all the sleep question variables and are shown in table11.

Table 11: Variables Significantly Related to Race.

		RACE OF RESPONDENTS					
		Asian	Black	Coloured	Indian	White	P Value
Q.8. Number of hours slept at night.	0-4 Hours	0% (0/5)	3.3% (1/31)	0% (0/41)	0% (0/2)	2% (6/296)	0.001
	5-8 Hours	80% (4/5)	67.7% (21/31)	95.1% (39/41)	50% (1/2)	90.9% 269/296	0.001
	More than 8 Hours	20% (1/5)	29% (9/31)	4.9% (2/41)	50% (1/2)	7.1% 21/296	0.001
Q.12a. Waking up and not going back to sleep easily.		20% (1/5)	60% (18/30)	57.1% (24/42)	------	39.8% 113/284	0.03
Q.13b. Duration of feeling sleepy during the day.	Days	-------	0% (0/9)	8.3% (1/12)	------	4.9% (5/103)	0.02
	Weeks	-------	66.7% (6/9)	0% (0/12)	-------	16.5% (17/103)	0.02
	Months	-------	33.3% (3/9)	91.7% (11/12)	-------	78.6% (81/103)	0.02
Q. 14e. Physical health is affected by ones sleep.	Seriously	50% (1/2)	18.2% (4/22)	2.9% (1/35)	0% (0/1)	4.2% (10/239)	0.007
	Slightly	0% (0/2)	31.8% (7/22)	17.1% (6/35)	0% (0/1)	28.5% (68/239)	0.007
	Not at all	50% (1/2)	50% (11/22)	80% (28/35)	100% (1/1)	67.3% 161/239	0.007

As the table shows most race groups slept between 5 to 8 hours a night. Black respondents (29%), hov er, were sleeping for longer periods (more than 8 hours) than white respondents (7.1%). Black .d coloured respondents were also waking up more often and not going back to sleep easily as compared to whites. Most white respondents felt that their symptom of feeling sleepy during the day, went on for months, or was long term in nature. Black respondents however, perceived this symptom to be more medium term (in weeks) than whites. Most of the race groups perceived that their sleep problem was not (or was only slightly) affecting their physical health, however, Black respondents (18.2%) perceived their sleep problem affecting their physical health as more serious than did white (4.2%) respondents.

4.8.4 VARIABLES SIGNIFICANTLY RELATED TO THE HIGHEST LEVEL OF EDUCATION OF RESPONDENTS.

The respondents' highest level of education and was strongly related to the respondents' highest standard passed at school. Table 11 depicts the respondents' highest standard passed at school.

Table 12: Variables Related to Highest Standard Passed at School.

		HIGHEST STANDARD PASSED AT SCHOOL.						
		STD.5.	STD.6.	STD.7.	STD.8.	STD.9.	STD.10.	P Value
Q.8. Number of hours slept at night.	0-4 Hours	0% (0/1)	7.7% (1/13)	0% (0/15)	1.4% (1/69)	14.3% (2/14)	0.8% (2/263)	0.001
	5-8 Hours	100% (1/1)	92.3% (12/13)	93.3% (14/15)	88.4% (61.69)	85.7% (12/14)	89.4% 235/263	0.001
	More than 8 Hours	0% (0/1)	0% (0/13)	6.7% (1/15)	10.2% (7/69)	0% (0/14)	9.8% (26/263)	0.001
Q.12c. Waking up and finding it difficult to go back to sleep again.		100% (2/2)	30% (3/10)	63.6% (7/11)	47.5% (28/59)	42.9% (3/7)	29.6% (61/206)	0.012
		52.2% (12/23)			33.8% (92/272)			
Q.14a. Feeling worried about one's sleep.		50% (1/2)	16.7% (2/12)	46.7% (7/15)	19.4% (14/72)	30.8% (4/13)	16.1% 42/261	0.04
		34.5% (10/29)			17.3% (60/346)			
Q.15a. Having a sleeping problem.		100% (1/1)	8.3% (1/12)	50% (7/14)	25.4% (18/71)	28.6% (4/14)	22.3% (57/256)	0.04
		33.3% (9/27)			23.1% (79/341)			

	HIGHEST STANDARD PASSED AT SCHOOL.						
	STD.5.	STD.6.	STD.7.	STD.8.	STD.9.	STD.10.	P Value
Q.19a. Consulting someone regarding their sleep problem.	0% (0/1)	33.3% (2/6)	50% (5/10)	16% (8/50)	0% (0/11)	15.8% (24/152)	0.04
	41% (7/17)			15% (32/213)			
Q.20a. Respondents wanting to see someone professional about their sleeping problem.	54.5% (6/19)	0% (0/3)	71.4% (5/7)	28.6% (10/35)	10% (1/10)	26.9% (32/119)	0.035
	54.5% (6/11)			26.2% (43/164)			
Q.21a. Suffering from a medical or psychological condition presently.	100% (1/1)	33.3% (3/9)	60% (6/10)	29.8% (17/57)	25% (3/12)	21.1% (45/213)	0.03
	50% (10/20)			23% (65/282)			

Most of the respondents ,no matter what their highest standard passed at school was, slept between 5 to 8 hours a night. As can be seen from the table, respondents with higher levels of education (with a Standard 8 and above) generally were less likely to:

- wake up and find it difficult to go back to sleep again.
- feel worried about their sleep.
- have a sleep problem
- consult someone regarding their sleep problem
- see someone professional about their sleeping problem and
- suffer from a medical or psychological condition presently, than respondents with lower levels (below Standard 8) of education.

4.8.5 VARIABLES SIGNIFICANTLY RELATED TO THE NUMBER OF PEOPLE LIVING WITH AT HOME.

The number of people living with at home was cross-tabulated with all the sleep question variables and is depicted in table13.

Table 13: Variables Significantly Related to the Number of People Living with at Home.

		NUMBER OF PEOPLE LIVING WITH AT HOME.			
		0-3	4-6	More than 6	p Value
Q.8. Number of hours slept at night.	0-4 Hours	1.1% (3/264)	3.8% (4/106)	9.1% (1/11)	0.001
	5-8 Hours	90.1% (238/264)	85.8% (91/106)	90.9% (10/11)	0.001
	More than 8 Hours	8.7% (23/264)	10.4% (11/106)	0% (0/11)	0.001
Q.9a. Waking up not feeling refreshed.		48.6% (126/259)	39.6% (40/101)	45.5% (5/11)	0.02
Q10b. Duration of not falling asleep easily.	Days	7.1% (6/85)	16.7% (5/30)	25% (1/4)	0.01
	Weeks	8.2% (7/85)	10% (3/30)	25% (1/4)	0.01
	Months	84.7% (72/85)	73.3% (22/30)	50% (2/4)	0.01
Q.11b. Duration of waking up too early.	Days	4.8% (4/84)	3% (1/33)	0% (0/1)	0.001
	Weeks	7.1% (6/84)	18.2% (6/33)	0% (0/1)	0.001
	Months	88% (74/84)	78.8% (26/33)	100% (1/1)	0.001

		NUMBER OF PEOPLE LIVING WITH AT HOME.			
		0-3	4-6	More than 6	p Value
Q.13b. Duration of feeling sleepy during the day.	Days	3.4% (3/88)	5.7% (2/35)	0% (0/3)	0.001
	Weeks	20.5% (18/88)	11.4% (4/35)	13./3% (1/3)	0.001
	Months	76.1% (67/88)	82.9% (29/35)	66.7% (2/3)	0.001

There was no significant difference between the number of people living with at home and any of the sleep question variables other than the fact that most of the respondents in these categories had an equal distribution of:

- sleeping between 5 to 8 hours a night
- waking up not feeling refreshed and of
- long term (months) duration of not falling asleep easily and of feeling sleepy during the day.

4.9 VARIABLES RELATED TO THE NUMBER OF HOURS SLEPT AT NIGHT AND THE TYPE OF SLEEPDISTURBANCE.

4.9.1 FREQUENCY OF THE NUMBER OF HOURS SLEPT AT NIGHT.

Respondents were asked (in question 8 of the Questionnaire) how many hours they slept at night. The frequency of the respondents' answers is shown in table.

Table 14: Frequency of Respondents' Number of hours slept at night.

(n = 382)

Number of Hours Slept	Freq.	Percent	Cumulative Percent
1	2	0.5	0.5
3	2	0.5	1.0
4	4	1.0	2.1
5	16	4.2	6.3
6	84	22.0	28.3
7	114	29.8	58.1
8	126	33.0	91.1
9	28	7.3	98.4
10	4	1.0	99.5
11	1	0.3	99.7
12	1	0.3	100

From this table the number of hours slept at night were divided into three groups (0-4 hours; 5-8 hours and 9-12 hours) for correlation purposes. Eighty nine percent of the respondents slept between 5 to 8 hours a night, while 8.9% slept between 9 to 12 hours a night. Only 2.1% of respondents had less than 5 hours of sleep a night. The mean number of hours slept in the population was 7.14 hours.

4.9.2 VARIABLES RELATED TO THE NUMBER OF HOURS SLEPT AT NIGHT

All the variable sleep questions were cross-tabulated with the number of hours slept at night. The variables that were statistically significant (p,0.05) are shown in table 15.

Table 15. Variables associated with the number of hours slept at night.

		NUMBER OF HOURS SLEPT AT NIGHT.			
		0-4	5-8	More than 8 Hours	p Value
Q.9a. Waking up not feeling refreshed.		75% (6/8)	48% (156/325)	25% (8/32)	0.001
Q.10a. Not falling asleep easily.		57% (4/7)	31.4% (105/334)	9.4% (3/32)	0.001
Q11a. Waking up too early.		75% (6/8)	31.4% (104/331)	18.8% (6/31)	0.009
Q.11b. Duration of waking up too early.	Days	0% (0/6)	2% (2/102)	42.8% (3/7)	0.001
	Weeks	16.7% (1/6)	9.8% (10/102)	0% (0/7)	0.001
	Months	83.3% (5/6)	85% (87/102)	57% (4/7)	0.001

Q. 14e. How physical health is affected by ones sleep.	Seriously	0% (0/5)	6% (16/268)	0% (0/28)	0.001
	Slightly	40% (2/5)	25% (67/268)	35% (10/28)	0.001
	Not at all	60% (3/5)	68.7% (184/268)	60% (17/28)	0.001
Q.15a. Having a sleeping problem.		42.9% (3/7)	23.6% (77/326)	17.6% (6/34)	0.001
Q.17a. Worried about previous sleeping problem.		75% (3/4)	13.4% (28/209)	11.5% (3/26)	0.005
Q.21a. Suffering from a medical or psychological condition presently.		33.3% (2/6)	25.8% (68/264)	15.6% (5/32)	0.003

As the above table illustrates, respondents that slept less than 5 hours a night were more likely to:

- not wake up feeling refreshed
- not fall asleep easily
- wake up too early
- have a sleep problem
- be worried about their previous sleep problem and to suffer from a medical or psychological condition presently.

The majority of respondents who slept between 5 to 8 hours a night (68.7%) did not perceive that their sleep problem affected their physical health in any way. Of importance was the fact that the majority of people with a sleep problem did not sleep 5 to 8 hours a night and even less of them slept for more than 8 hours a night.

4.9.3 VARIABLES RELATED TO THE TYPE OF SLEEPDISTURBANCE.

The type of insomnia was assessed using three sleep question variables in the questionnaire, namely; not falling asleep easily. (Q.10a), waking up too early. (Q.11a) and waking up and going back to sleep with difficulty (Q.12c). These three single symptoms of the type of sleep disturbance are combined and depicted as "intersections of sleep disturbances" in figure 7.

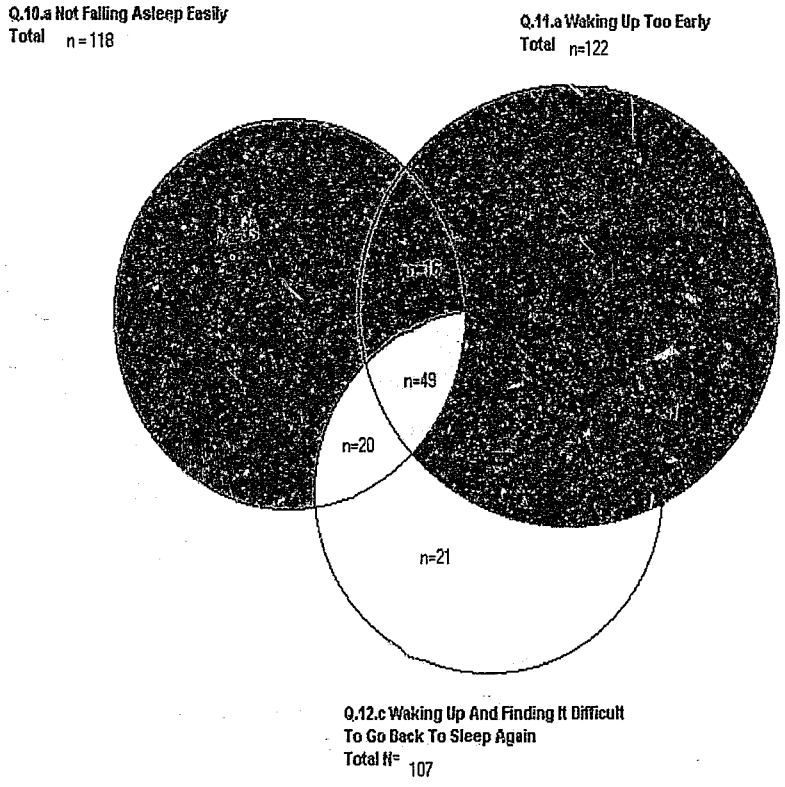


Figure 7: Intersection of Sleep Disturbances.

As can be seen from the diagram, three groups of results were extrapolated from the above data:

1. (33+40+21/395).... **23.7 %** of the respondents complained of only one symptom
2. (36+40-+21/395).... **13.4 %** of the respondents complained of two of the symptoms and
3. (49/395)..... **12.4%** of the respondents complained of all three symptoms.

Thus a total of 49.5 % of the respondents complained of at least 1 symptom.

4.10 VARIABLES RELATED TO RESPONDENTS HAVING A SLEEP PROBLEM.

The respondents having a sleep problem were cross-tabulated against all sleep question variables and is depicted in table 16.

Table 16. Variables Related to the Respondents Having a Sleep Problem.

		RESPONDENTS WITH		
		A SLEEP PROBLEM	NO SLEEP PROBLEM	p - Value
Q.8. Number of hours slept at night.	0-4 Hours	3.5% (3/86)	1.44% (4/281)	0.001
	5-8 Hours	89.5% (77/86)	88.6% (249/281)	0.001
	More than 8 Hours	7% (6/86)	9.96% (28/281)	0.001
Q.9a. Waking up not feeling refreshed.		86.2% (75/87)	32.7% (88/269)	0.0001
Q.10a. Not falling asleep easily.		73% (65/89)	15.7% (44/281)	0.0001
Q11a. Waking up too early.		58.4% (52/89)	22.1% (62/80)	0.001
Q.12a. Waking up and not going back to sleep easily.		62.4% (53/85)	36.6% (100/273)	0.001
Q.12c. Waking up and finding it difficult to go back to sleep again.		69.2% (54/78)	21.1% (45/213)	0.001
Q.12e. Duration of waking up and not going to sleep easily.	Days	3.3% (2/60)	15.4% (8/52)	0.02
	Weeks	13.3% (8/60)	23.1% (12/52)	0.02
	Months	83.3% (50/60)	61.5% (32/52)	0.02
Q13a. Feeling sleepy during the day.		54.5% (48/88)	29.3% (81/276)	0.0001
Q.14a. Feeling worried about one's sleep.		60.7% (50/89)	4.6% (13/285)	0.001
Q.14c. How day time performance is affected by ones sleep.	Seriously	10.8% (9/83)	5.6% (13/231)	0.001
	Slightly	51.8% (43/83)	30.7% (71/231)	0.001
	Not at all	37.3% (31/83)	63.6% (147/231)	0.001

		RESPONDENTS WITH		
		A SLEEP PROBLEM	NO SLEEP PROBLEM	p - Value
Q. 14e. How physical health is affected by ones sleep.	Seriously	13% (10/77)	2.2% (5/226)	0.001
	Slightly	45.5% (35/77)	75.2% (170/220)	0.001
	Not at all	41.6% (32/77)	22.6% (51/226)	0.001
Q.16a. Having a sleeping problem previously.		42.4% (36/85)	12% (33/275)	0.0001
Q.17a. Worried about previous sleeping problem.		31.7% (19/60)	8.9% (16/179)	0.001
Q. 17e. How physical health was affected by ones previous sleep problem.	Seriously	11.1% (5/45)	5.8% (6/103)	0.047
	Slightly	31.1% (14/45)	16.5% (17/103)	0.047
	Not at all	57.8% (26/45)	77.7% (80/103)	0.047
Q.19a. Consulting someone regarding their sleep problem.		27.7% (23/83)	9.9% (14/141)	0.001
Q.20a. Wanting to see someone professional about their sleeping problem.		62.1% (41/66)	5.6% (6/107)	0.001
Q.21a. Suffering from a medical or psychological condition presently.		38.2% (29/76)	19.4% (43/222)	0.001
Q.23a. Taking medication presently or in the past to sleep.		24.4% (21/82)	9.3% (21/225)	0.001

There were significant differences between respondents with sleep problems and those without sleep problems in the sleep questions asked. Overall respondents who perceived they had a sleep problem were significantly:

- waking up more often not feeling refreshed
- not falling asleep easily

- waking up too early
- waking up and not going back to sleep easily
- waking up more often and finding it difficult to go back to sleep again
- feeling more sleepy during the day
- more worried about their sleep
- having more (and being more worried about) past sleeping problems
- consulting more (and seeing more professionals) regarding their sleep problem
- suffering from more medical or psychological conditions and taking more medication to sleep than respondents without a sleep problem.

Of interest was the fact that 9.3 % of the respondents without a sleep problem were taking medication to sleep and that 9.9 % of the respondents without a sleep problem were consulting someone professional regarding their sleep problem.

Respondents with a sleep problem were also significantly more affected by that sleep problem in both their physical and daytime performance as compared to respondents without a sleep problem. Respondents with a sleep problem, however, only perceived their problem to slightly affect their daytime performance and physical health.

4.11 PERCEPTIONS OF SLEEP HYGIENE.

The questionnaire used 26 sleep hygiene factors. For each of the 26 factors patients were asked whether the factor was helpful or not helpful to the maintenance of good sleeping habits. Refer to Appendix 4 for a list of correct sleep hygiene rules.

The answer to question 15 was used as the critical question of the questionnaire. "Do you have a sleep problem" was, in our opinion, a highly subjective answer and thus useful for perceptions about sleep. Respondents with a sleep problem were compared to those who did not have a sleep problem regarding their perceptions of the above sleep hygiene factors and is depicted in table 17.

Table 17: Correlation of Respondents' Perceptions Towards Factors Affecting Sleep.

FACTOR AFFECTING SLEEP	WITH A SLEEP PROBLEM	WITHOUT A SLEEP PROBLEM	p Value	CORRECT ANSWER (Appendix 4.)
a.) Waking at a regular time.	73.6 % (64/87)	72.9% 207/284)	0.78	Helpful
b.) Watching television	39.8 % (35/88)	30.3% (83/274)	0.188	Not Helpful
c.) Reading in bed.	24.1% (21/87)	14.9% (41/276)	0.13	Not Helpful
d.) Resting in bed.	35.6% (31/87)	18.6% (52/279)	0.004	Not Helpful
e.) Lying in bed trying to sleep.	58.8% (50/85)	42.6 (116/272)	0.033	Not Helpful
f.) Relaxing before bed	60.9% (53/87)	76.5% (215/281)	0.001	Helpful

FACTOR AFFECTING SLEEP	WITH A SLEEP PROBLEM	WITHOUT A SLEEP PROBLEM	p Value	CORRECT ANSWER (Appendix 4.)
g) Napping during the day.	64% (55/86)	57.9% (161/278)	0.46	Not Helpful
h) Smoking before bed.	73.1% (57/78)	67.8 (160/236)	0.26	Not Helpful
i.) Drinking alcohol before bed.	55.7% (44/79)	61.9 (161/260)	0.37	Not Helpful
j.) H..ing a warm drink before bed.	33.3 % (28/84)	30.2% (83/275)	0.22	No Difference
k.) Having a warm bath before bed.	57.5% (50/87)	69.4% (195/281)	0.06	Helpful
l.) Sleep as long as required.	42.2% (35/83)	52% (143/275)	0.23	Helpful
m.) Sexual activity before bed.	64.1% (50/78)	55.3% (142/275)	0.05	Helpful
n.) Depression.	87.1% (74/85)	77.7% (202/260)	0.16	Not Helpful
o.) Stress or anxiety.	83.3% (70/84)	85.9% (231/269)	0,82	Not Helpful
p.) Coffee or tea before bed.	57.1% (48/84)	48.1% (130/270)	0.05	Not Helpful
q.) Regular exercise.	54.2% (45/83)	66.7% (178/276)	0.05	Helpful
r.) Increasing age.	41.9% (18/43)	33.8% (54/160)	0.03	Not Helpful
s.) Shift work.	74.6% (47/63)	69.5% (148/213)	0.72	Not Helpful

FACTOR AFFECTING SLEEP	WITH A SLEEP PROBLEM	WITHOUT A SLEEP PROBLEM	p Value	CORRECT ANSWER (Appendix 4.)
t.) Eating a large meal before bed.	71.1% (59/83)	75.5% (203/269)	0.58	Not Helpful
u.) Keeping a small light on at night.	22.6 (19/84)	29.4% (80/272)	0.186	No Difference
v.) Peaceful environment while sleep.	77.6% (66/85)	86.7% (241/278)	0.027	Helpful
w.) Dark, quiet and warm room.	60.2% (50/83)	67.6% (184/272)	0.43	Helpful
x.) Comfortable bed to sleep on.	88.1% (74/84)	92.1% (258/280)	0.37	Helpful
y.) Sleeping alone at night.	51.9% (42/81)	26.4% (71/269)	0.001	Not Helpful
z.) Being worried or frustrated.	87.1% (74/85)	86.1% (235/273)	0.66	Not Helpful

For 16 of the 26 questions, the answers were the same as those respondents without a sleep problem. Only tent of the twenty-six questions on sleep hygiene showed significant differences.

In these ten questions, the respondents with a sleep problem were more likely to answer the "Not Helpful" questions correctly, and the "Helpful" questions incorrectly.

5. DISCUSSION OF RESULTS.

5.1 INTRODUCTION

This chapter draws conclusions in line with the study's objectives and also makes comparisons between the study's findings and that of international literature.

5.2 DEMOGRAPHIC DATA

5.2.1 AGE

The population studied was mostly young with 67.7% of the respondents being less than 40 years of age and only 3.3% over 70 years of age. The mean age of the population was 35.2 years. This was rather unique and may not have been entirely representative of all patients with sleep problems in the Port Elizabeth area. The study represented new data in the South African setting in terms of studying relatively younger patients with sleep problems.

Older people did not fall asleep easily (Q.10a) as compared to younger people. Older people in the study generally suffered more from ;

- waking up and finding it difficult to go back to sleep again
- feeling sleepy during the day
- medical or psychological conditions presently and
- taking more medication for sleep presently or in the past.

This could account that people older than 40 years of age were exposed to, perhaps, more interfering variables regarding their sleep and were thus less able to cope with poor sleep than those younger

than 40 years of age. These values compare well to literature studies.[26,13] There was no age-related difference in the other parameters of questions asked.
Day time performance was also generally not affected or only slightly affected, by the respondents' sleep ,in all the age groups.

In this young population sample, 23.5% of the patients admitted to having a sleeping problem on direct questioning. This figure is alarmingly high when considering that over 70% of the population were less than 40 years of age. There is a paucity of overseas literature regarding younger population groups. Coren [8] and Mcghie et al [61] show relatively high statistics (20%) of young adults with primary insomnia. This study showed similar statistics as Coren's [8] study regarding young adults.

Over 17% of patients were worried about their sleep; over 10% of patients were taking medication to fall asleep; over 18% of patients had had a sleep problem before and over 17% had consulted someone professional about their sleep problem before. Overseas statistics also show increased related sleep problems with patients suffering from insomnia when compared to overall incidence rates of sleep disorders in general population groups studied.[22,5]

5.2.2 SEX

There were equal number of males and females in the study. This created a very good data base where numerous correlations could be derived. Using sleep variables selected questions from the questionnaire, there was no significant statistical difference between males and females. In most other studies in the literature, females generally show an increase number and frequency of sleep problems.[5] Perhaps due to the young nature of the population, gender differences in sleep problems were not yet evident. These data correlates well with Buxler's [20] research where only older female patients show an increase frequency of sleep problems as compared to male patients.

In this young population most of the sleep problems were long-term in nature. Females were more likely to have short-term sleep problems than males (44.2% verses 82.4%), although females did not have more sleeping problems than males as a whole. Males were more likely to have a long- term sleeping problem than a short-term sleeping problem amongst themselves.

The literature shows the opposite correlation to this; where men usually have a different nature or cause of sleep problem (such as more financial, economic concerns) than women (depression, emotional, mood changes). Men thus appeared to resolve their sleep problems more quickly resulting in more short-term problems overall. The problems that affected females (such as depression, emotional, mood changes) may take longer to resolve and generally manifested in more longer-term sleep problems. In this study perhaps perceptions of assessing the severity of duration of a sleep problem were different than expected between men and women. This could have accounted for such differences. In summary major differences between the sexes was only found for the duration of problem.

5.2.3 RACE

The majority of the population was White (78.9%). Followed by Coloureds(11.2%), Blacks (8.1%) and Asians (1.3%). Indians (0.5%) accounted for the smallest race group.

This distribution reflected the social and cultural geographic area and position of the medical practice that was studied. Future studies should concentrate on other dominant ethnic groups of the population. These results should only be extrapolated to the white community.

Black patients slept for more longer periods, woke up more often without going back to sleep and perceived their sleep problem as more serious than White, Coloured and Indian patients.
Black patients woke up more early than white, coloured or Indian patients. This could imply that they either had to wake up early in order for transportation to get to work on time, or that they perceived that they had a genuine problem about sleep and woke up too early after a night of poor sleep. Differences in understanding and interpreting the question asked could have played a role in the statistics that were achieved in this question.

Despite the small sample, black patients perceived their sleep problem affecting their physical health as more serious than did White patients. This could imply that black patients could have perceived sleep problems as more worrying with more potential to cause illness than white patients. These differences may also reflect ethnic differences in perceived seriousness of sleeping problems, differences in sleep perceptions and differences in understanding of the questionnaire and of what sleep problems encompass.

In summary, despite the paucity of race statistics regarding sleep problems in the literature, blacks in this sample were; sleeping for longer periods, waking up more often and not going back to sleep easily and perceiving their sleep problem to affect their health more than white, coloured and Indian patients. These perceptions could reflect differences in understanding, interpreting and acknowledging the seriousness of sleep problems amongst different ethnic people.

5.2.4 LEVEL OF EDUCATION.

The population studied was predominantly white (78.9%) , young (67.7% were below 40 years of age), well educated (69.5% passed STD 10, while 96% of the total population passed ST. 7 and 50% of these had studied for at least 1-year post Std.10) and with a current job (94% had jobs). This was an interesting correlation as few population samples of this nature have been described in the South African literature before.

The less the level of education was, the more likely not to answer the question. The higher educated patients generally admitted to having had more sleep problems previously and experienced more sleep problems at the present moment. The lower educated patients were more likely to consult someone regarding their sleep than those with a higher level of education.

The higher incidence of people worried about their sleep and the increased consultations with a health professional could show lack of understanding of their perceived sleep problem and thus an urge for greater consultation due to fear of illness. The more educated group, who admitted to having had more sleeping problems in the past and present, could have been more aware of sleep disorders in general, and may have been self -medicating or knew other methods of helping themselves.

No other significant statistical correlation was found regarding level of education and other positive answers to questions asked about sleep.

5.2.5 NUMBER OF PEOPLE LIVING WITH AT HOME.

There was no statistical correlation between the number of people living in a household and those with a sleeping problem. (Refer to table 11.) One would have expected there to be an increase of sleep problems with a greater number of people living with at home as Rakel [32] describes in his literature survey. Perhaps there were other factors, in today's modern society, perceived as interfering with having a sleep problem, other than the number of people that one lives with.

5.3 NUMBER OF HOURS SLEPT AT NIGHT

The number of hours the respondents slept at night were divided into three groups (0-4 hours; 5-8 hours and 9-12 hours) for correlation purposes. Eighty nine percent of the respondents slept between 5 to 8 hours a night, while 8.9% slept between 9 to 12 hours a night. Only 2.1% of respondents had less than 5 hours of sleep a night. The mean number of hours slept in the population was 7.14 hours per night.

Respondents that slept less than 5 hours a night were more likely to: not wake up feeling refreshed, not fall asleep easily, wake up too early, have a sleep problem, be worried about their previous sleep problem and to suffer from a medical or psychological condition presently.
The majority of respondents who slept between 5 to 8 hours a night (68.7%) did not perceive that their sleep problem affected their physical health in any way. Of importance was the fact that the majority of

people with a sleep problem did not sleep 5 to 8 hours a night and even less of them slept for more than 8 hours a night.

These results correlate well with overseas statistics such as the (1991) Gallup National Organisation study.

5.4 PERCEPTIONS AND EXPECTATIONS OF SLEEP.

5.4.1 TYPE OF SLEEP DISTURBANCE.

The type of sleep disturbance was characterised by patients not falling asleep easily (30.6%), waking up too early (31.8%), and waking up and finding it difficult to go back to sleep again (35.2%).

These three types of sleep disturbances are commonly reported in the literature as "key" factors in assessing the nature of sleep problems, and correlate well with patients' perception to having a sleep problem.[65,20,66,14,26]

5.4.2 INTERSECTION OF SLEEP DISTURBANCES.

Three groups of results were extrapolated from the type of sleep disturbance. (Refer to figure 7)
A total of 49.5 % of the respondents complained of at least 1 symptom. Combining groups 2 and 3, (13.4% + 12.4%) **25,8%** . This figure may correlate with 23,5% of the population saying that they have a sleeping problem.

Interestingly enough a total of 49.5% of the population (group 1+ 2+ 3) complained of at least one symptom. This 49.5% of the population did not correlate with the total number of patients having a sleep problem (23.5%). Only having one of the problems, with their sleep, in questions 10,11 or 12, may not have been enough to produce the perception of a sleep problem. Thus a combination (more than one) of abnormal factors regarding the patients sleep may be needed to produce the perception

of a sleeping problem. Nevertheless 23.7% of the population elicited only one of the types of sleep disturbance, and regarding the type of young population studied these statistics correlated well with overseas literature.[8,60,61]

5.5 PERCEIVED SERIOUSNESS OF SLEEP DISORDERS IN PATIENTS WITH A SLEEP PROBLEM.

The patients complaining of a sleep problem on direct questioning were examined in detail. (Refer to table 16)

Question 15a; "Do you think you have a sleeping problem at the present moment ? --------(Yes/No) ", represented the most important subjective answer of the questionnaire, as it was a measure of a perceived sleeping problem on direct questioning;

23.5% of the population admitted to having a sleep problem on direct questioning. 34% perceived it to be a long-term problem.18.3% of the people with a sleep problem had this problem before and 25.8% of the people who had a sleep problem consulted someone for this before.

All the positive answered questions regarding sleep patterns, sleep problems and sleep behaviour as asked in the questionnaire when compared to the perception of the sleep problem of the subject [Refer to table 16], showed significant statistical correlations. These findings are all very characteristic of people with a sleep problem and correlated well with the literature studies.[19,22,5]

The fact that only 31.7% of the people with a sleep problem were actually worried about their sleep problem was interesting. Therefore 68.3% of the total population with a sleep problem were not worried about it. This could imply that perhaps "Having a sleep problem" was not perceived or understood as having a "serious" sleep problem in the questionnaire. Similarly we can deduce, from table 16 in the same manner as above, that most of the people with a sleep problem; did not suffer from any medical or psychological problems (61.8%); were not taking medication to sleep (75.6%); were not consulting anyone regarding their sleep problems (72.3%) and were not consulting someone professional about their sleep problem (37.9%). This could demonstrate how "trivial" and unimportant sleep problems were perceived amongst this population and how sleep problems were, and perhaps are continuing to be, underreported to health professionals in general.

It is important that 38.2% of insomniacs had a medical/psychological condition. Brunton [65], Espie and Rakel[14] all show that patients with insomnia frequently experience other associated medical/psychological conditions in addition to their primary insomnia. 29.3% of people without a sleeping problem were feeling sleepy during the day. Similarly 9.3% of people with no sleep problem were taking something to help them sleep. This could have been misinterpretation of the question asked or could relate to patients on chronic sleep medication regimens.

Of interest was the fact that 9.3% of the patients without a sleep problem were taking medication to sleep and that 9.9%% of patients without a sleep problem were consulting someone professional regarding their sleep problem. These patients obviously could have misunderstood the question, perhaps did not perceive that they had a sleep problem at all or once treated and (where treatment had helped) did not consider themselves any longer to have a problem. These figures correlate with 23.7% of group 1 results in section 6.2.2. (only complaining of one type of sleep disturbance).

In table 16, patients with a sleep problem were significantly affected by that sleep problem in both their physical and daytime performance. Once again this correlates well with literature studies where performance as a whole is affected by sleep disturbances.[5]

5.6 PERCEPTIONS OF SLEEP HYGIENE.

Most of the literature discusses sleep hygiene patterns (Refer to appendix 4.) Sleep hygiene patterns can be regarded as important tools, which should alert the Family Physician about the patient's sleeping habits. If the patients' perceptions to these sleep hygiene patterns are "disturbed", one should start cognitive therapy and behaviour modification techniques in order to correct the sleep disturbance before commencing drug therapy.

The literature tends to show that the perceptions to sleep of insomniac patients differ from the perceptions to sleep of non-insomniac patients.[48] Cognitive therapy involves changing the insomniac patient's perceptions to sleep. This is commonly used to treat particularly psycho-physiological insomnia.[48,46,47]

Of the 26 questions on sleep hygiene asked (Refer to table 13), 11 of them had "helpful" and 15 of them had "not helpful" as their correct answers. Only 10 of the 26 sleep hygiene questions asked were statistically significant, when comparing patients with a sleep problem and patients without a sleep problem. Thus for 16 of the 26 questions, the answers were the same as those patients without a sleep problem. The perceptions of sleep hygiene did not generally correlate with having a sleep problem or not.

Of the ten sleep hygiene questions that were statistically significant the following correlation was found: The people with a sleep problem were more likely to answer the "Not Helpful" questions correctly, and the "Helpful" questions incorrectly when compared to the people without a sleep problem. Of these eight questions, four sleep hygiene habits (whose answer was "Not Helpful") namely; resting in bed, lying in bed trying to sleep, coffee or tea before bedtime and sleeping alone at night, were answered correctly by the patients having a sleep problem. These questions could indicate that they were regarded as not important by the insomniacs as they knew the incorrect sleeping hygiene habits, but were either not implementing them, or had some external factor accounting for their poor sleep.

The remaining four sleep hygiene habits, that were statistically significant (whose answer was "Helpful") namely; relaxing before bedtime, sexual activity before bedtime, regular exercise and a peaceful environment while sleeping, were answered incorrectly by the patients having a sleep problem. These questions asked could have been regarded with great importance by the insomniacs, as they were perceived wrong, thus showing "distorted" perceptions of sleep hygiene by insomniac patients.

One can conclude that these ten sleep hygiene questions should be highlighted and could be used by family physicians, in the future, as a guide to frequently asked sleep hygiene rules in a general practice setting. This in turn could alert family physicians to the possibility of a sleep disturbance when encountering a patient with similar circumstances.

6. CONCLUSIONS.

Essentially all the objectives of the study were met. Simple descriptive statistics were used to discuss three main areas of the study: 1) demographics, 2) perceived prevalence and seriousness of sleep disorders and 3) perceptions of sleep hygiene.

The sample size was fairly large [400] and the response rate to the study was good [95%], compared with other studies. Respondents were generally enthusiastic about completing the questionnaire and were eager to receive the results once the study was completed.

Despite results revealing a population predominantly white, young, with equal male and female ratios, well educated and with a current job, the incidence of sleep problems was high (23.5%) and persisted over a long period of time. Short-term sleep problems were more common in general overall. Females had more long- term sleep problems when compared to males, but males had significantly more short-term sleep problems amongst themselves. Black patients had more sleep problems, were more worried about their sleep, woke up too early and woke up and went back to sleep with more difficulty than Asian, coloured and Indian patients.

Patients with a higher level of education experienced more sleep problems presently and in the past and consulted someone professionally about their sleep less often than those with a lower level of education. Not falling asleep easily, waking up too early and waking up and finding it difficult to go back to sleep again, described the type of sleep disturbances. A combination (more than one) of the type of sleep disturbances was needed to produce the overall perception of a sleeping problem.

Patients who perceived they had a sleep problem were; more worried about their sleep, suffering from more medical or psychological conditions, taking more medication to sleep, more sleepier during the day, not falling asleep easier, not waking up feeling refreshed, waking up too early, waking up and going back to sleep with more difficulty, consulting someone regarding their sleep more and were consulting someone professional regarding their sleep problem more than patients without a sleep problem.

In some instances "Having a sleep problem" was not always perceived or understood as being a "serious" sleep problem in the questionnaire. This could account for underreporting of sleep problems to health professionals. There was no correlation with people who had a sleeping problem and the number of people living with at home or the number of hours that they slept at night.

Perceptions of sleep hygiene did not correlate with having a sleep problem. People who had a sleep problem appeared to know the correct sleeping hygiene habits, but were either not implementing them, or had some external factor accounting for their poor sleep.

Certain inferences were made from this study highlighting important patient perceptions regarding the concept of sleep in general. These inferences have been listed under major points of importance from this study. These inferences can be used as recommendations for future family physicians when confronted by a patient complaining of a sleeping problem. Research that will enhance our knowledge of the biological substrate of insomnia will provide clinicians with additional tools to improve their outcome of their treatment of patients with insomnia. It is envisaged that awareness to common perceived factors affecting sleep in patients was achieved, and this, in due course would be, communicated with fellow family practitioners.

7. RECOMMENDATIONS AND IMPORTANCE OF THE STUDY.

7.1 MAJOR POINTS OF IMPORTANCE FROM THIS STUDY.

The percentage of people with sleep problems [23.5%], correlated well with other overseas data and statistics. The population description was predominantly White, young (Less than 40 years of age) and well educated with a current job. There were an equal number of male and female respondents in the population studied. Of the 23.5% of respondents who admitted to having a sleep problem, 39.3% were not worried about it and only 25.8% of these consulted somebody about it.

The majority of respondents with a sleep problem perceived their sleep problem to be long-term in nature and had not consulted any health professional about it. Female respondents had more long-term sleep-problems than males. Respondents with a higher level of education experienced less sleep problems presently and in the past and consulted someone professionally about their sleep less often than respondents with a lower level of education.

Perceptions of sleep hygiene correlated with having a sleep problem in only 8 of the 26 questions asked in the questionnaire. Sleep problems were extremely common. The incidence compared favourably with overseas literature.

These figures illustrate the abundance of sleep problems in a general practice environment and should motivate physicians to ask sleep-related questions during a general consultation even in young populations. Sleep problems detected in younger patients could have more serious and sinister implications, which could alert family physicians for the need to interact early in order to prevent longer-term medication abuse amongst poor sleepers.

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9. APPENDICES

APPENDIX 1. SUBJECT INFORMATION SHEET

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SUBJECT INFORMATION SHEET.

I am doing a research thesis about sleep in a general practice setting.
This research is in the form of a Questionnaire and will be given to all adult patients attending this practice. I will be asking you a list of Questions about your sleeping habits.

This research will be conducted in my waiting rooms, while you wait to see me. If you do not complete the questionnaire in time you may take the questionnaire home with you, complete it at your leisure, and post it back to me in the stamped envelope provided.

Participation in this study is completely voluntary. Refusal on your behalf will not result in any penalty or loss or any discrimination against you.

This research study is anonymous, no names or numbers are attached to the questionnaire, and nobody will know what you have answered. The information obtained will be kept strictly confidential.

While I hope that you will complete all the questions as fully as possible, you may leave out some or all of them, if you have any major objections.

Through this research I hope to get a better understanding of sleep and sleep problems, which may benefit the care of my patients.

If you have any questions or queries about this questionnaire, feel free to ask me personally, or you can contact me at the following telephone numbers:

Work: (041) 54-4729 or Home (041) 53-2244
(041) 54-5650

A brief report on the completed research will be available at these rooms, at a later date.

I appreciate your co-operation and interest in this matter.

APPENDIX 2. QUESTIONNAIRE

APPENDIX 2.

QUESTIONNAIRE

Demographic data:

1. Age: _____ (Years)
2. Sex: _____ (M/F)
3. Race: _____ (White/Black/Coloured/Indian/Asian)

4. What was the highest standard passed at school? Std. _____

5. What was the highest level of education obtained? (Please Tick)

Non-Cert. Courses	Incomplete Dip/Cert.	College Tech. Diploma	University Degree	Other

6. What is your present occupation? _____
7. How many people live with you at home? _____
8. How many hours do you normally sleep at night? _____

9a) Do you wake up feeling refreshed? _____ (Yes/No)

If No:

9b) For how long has this been going on?

Days	Weeks	Months

9c) How often does this occur? (e.g. every night, many times a week etc.)

_____

9d) What do you think are the reasons for this?

_____

10a) Do you fall asleep easily?_____ (Yes/No)

If Yes:

10b) For how long has this been going on?

Days	Weeks	Months

10c) How often does this occur? (eg every night, many times a week etc.)

_____

10d) What do you think are the reasons for this?

_____

_____

11a) Do you wake up too early? _____ (Yes/No)

If Yes:

11b) For how long has this been going on?

Days	Weeks	Months

11c) How often does this occur? (eg every night, many times a week etc.)

_____

11d) What do you think are the reasons for this?

_____

_____

12a) Do you wake up and go back to sleep easily ? _____ (Yes/No)

If Yes:

12b) Why do you wake up? _____

12c) Do you wake up and find it difficult to go back to sleep again? _____ (Yes/No)

If Yes:

12d) How long do you stay awake for? _____

12e) For how long has this (waking up and going back to sleep) been going on?

Days	Weeks	Months

12f) How often does this occur? (eg every night, many times a week etc) _____

_____

13a) Are you sleepy during the day? _____ (Yes/No)

If Yes:

13b) For how long has this been going on?

Days	Weeks	Months

13c) How often does this occur? (eg every night, many times a week etc.)

_____

13d) What do you think are the reasons for this?

_____

_____

14a) Are you worried about your sleep? _____ (Yes/No)

If Yes:

14b) Why are you worried? _____

14c) How is your day time performance affected by your sleep?

Seriously affected	Slightly affected	Not at all affected

14d) Explain why it affects you?

_____

14e) How is your physical health affected by your sleep?

Seriously affected	Slightly affected	Not at all affected

14f) Explain how it affects you?

_____

_____

_____

In view of the questions you have just answered;

15a) Do you think you have a sleeping problem at the present moment? _____ (Yes/No)

If Yes:

15b) Would you say this is a short-term problem or a long term problem?

_____

16a) Did you ever have a sleeping problem before? _____ (Yes/No)

If Yes:

16b) How often did this occur? (e.g. every night, many times a week etc.)

_____

16c) What do you think were the reasons for this?

_____

_____

16d) How severe was this for you?

Mild	Moderate	Severe

17a) Were you worried about your sleep before ? _____ (Yes/No)

If Yes:

17b) Why were you worried ?

_____

17c) How was your day time performance affected by your sleep ?

Seriously affected	Slightly affected	Not at all affected

17d) Explain Why it affected you ?

_____

17e) How was your physical health affected by your sleep ?

Seriously affected	Slightly affected	Not at all affected

17f) Explain How it affected you ?

_____

18) If you have or have had a sleep problem what do you, or did you do for it ?

List the measures used by you, and indicate if they helped you, below;

Measures Used:		**Did They Help?**	
18a)	_____	18b)	_____ (Yes/No)
18c)	_____	18d)	_____ (Yes/No)
18e)	_____	18f)	_____ (Yes/No)
18g)	_____	18h)	_____ (Yes/No)

19a) If you have or have had a sleeping problem, have you seen / did you consult any person with regard to this problem of yours ? _____ (Yes/No)

19b) **If so** with whom ?

_____

[eg Doctor / Pharmacist / Psychologist / Traditional Healer / Other (Specify)]

20a) **If not,** would you like or have liked to see someone professional about this sleeping problem ?

_____ (Yes/No)

21a) Do you suffer from any medical or psychological condition presently? _____ (Yes/No)

If **Yes**, name this/these conditions.

21b) _____

21c) _____

21d) _____

21e) _____

21f) _____

22. List, below, all the current medication (Prescription and Over the counter medicines) you are presently taking and what you are taking them for.

	Medicines:	**Reason:**
22a)	_____	_____
22b)	_____	_____
22c)	_____	_____
22d)	_____	_____

23a) Are you on any medication to sleep or did you take any medication previously to help you sleep? _____ (Yes/No)

24. **If Yes,** list these medicines and indicate who prescribed them, how long you used them for, and whether they helped or not.

Medication:	**Given by whom?**	**How long used:**	**Did it help? (Yes/No)**
24a) _____	24b) _____	24c) _____	24d) _____
25a) _____	25b) _____	25c) _____	25d) _____
26a) _____	26b) _____	26c) _____	26d) _____
27a) _____	27b) _____	27c) _____	27d) _____

28. **Which of the following factors, do you think, are helpful and which are destructive in maintaining good sleeping habits ? (Tick the most appropriate answer)**

a) Getting up at a regular time every morning:

Helpful	Not Helpful	No Different

b) Watching Television in bed, before falling asleep:

Helpful	Not Helpful	No Different

c) Reading until sleep occurs: Resting in bed:

Helpful	Not Helpful	No Different

d) Resting in bed:

Helpful	Not Helpful	No Different

e) Lying in bed, trying to go to sleep:

Helpful	Not Helpful	No Different

f) Relaxing before going to bed:

Helpful	Not Helpful	No Different

g) Napping during the day:

Helpful	Not Helpful	No Different

h) Smoking in the late evening:

Helpful	Not Helpful	No Different

i) Drinking alcohol in the late evening:

Helpful	Not Helpful	No Different

j) Having a warm drink before going to bed:

Helpful	Not Helpful	No Different

k) Having a warm bath before going to bed:

Helpful	Not Helpful	No Different

l) Only spending as much time as required for sleep:

Helpful	Not Helpful	No Different

m) Sexual activity before sleep:

Helpful	Not Helpful	No Different

n) Depression:

Helpful	Not Helpful	No Different

o) Stress or anxiety:
[Work stress/ Financial worries]

Helpful	Not Helpful	No Different

p) Coffee/Tea in the late evening:

Helpful	Not Helpful	No Different

q) Regular exercise in the evening:

Helpful	Not Helpful	No Different

r) Increasing age [Over 60 Years]:

Helpful	Not Helpful	No Different

s) Shift work:

Helpful	Not Helpful	No Different

t) Eating a large meal close to bedtime:

Helpful	Not Helpful	No Different

u) Having a small light switched on while sleeping during the night:

Helpful	Not Helpful	No Different

v) Sleeping in a peaceful environment:

Helpful	Not Helpful	No Different

w) Sleeping in a dark, quiet and warm room at night:

Helpful	Not Helpful	No Different

x) A comfortable bed to sleep on:

Helpful	Not Helpful	No Different

y) Sleeping alone at night:

Helpful	Not Helpful	No Different

z) Going to bed worried or frustrated:

Helpful	Not Helpful	No Different

If you have any other questions regarding this questionnaire, please feel free to contact me to discuss the matter.

Thank you very much for participating in this study.

APPENDIX 3. SUMMARY OF RESEARCH PROTOCOL

APPENDIX 3.

SUMMARY OF RESEARCH PROTOCOL.

SUMMARY SHEET

PATIENTS' PERCEPTIONS TO SLEEP IN A GENERAL PRACTICE SETTING

DATE:	September 1994.
DEPARTMENT OF FAMILY MEDICINE	
AUTHOR:	DR. MAURO BASSANINO
DEPARTMEMT HEAD:	PROF. BLW SPARKS
SUPERVISOR:	DR. A. BENTLEY

OBJECTIVES:

1. **To describe the characteristics of sleep patterns of the adult patient in a general practice setting, including:**

    a. **-The relation of demographic data (such as age, sex, race and level of education) to the incidence of sleep abnormalities.**

    b. **-Patients' perceptions and expectations of sleep.**

    c. **-Perceived seriousness and prevalence of sleep disorders.**

2. **To ascertain the differences in perceptions about sleep and sleep hygiene between patients who have sleep problems and those who do not.**

REVIEW:

A descriptive study of patients' perceptions to sleep in a general practice setting will be undertaken.

A Self-administered Questionnaire with an accompanying subject information sheet will be used in the research.

It will be given to all adult patients attending the practice for completion in the waiting room.

A pilot study of 10 patients will be done.

A sample size of approximately 200 patients is expected.

The study will last approximately 3 calendar months.

The study will take place in the Author's private practice in Port Elizabeth.

The results will be analysed and simple descriptive statistics will be used throughout the research.

A brief summary of results will be displayed in the Author's private practice, in Port Elizabeth, once the thesis has been finalised and approved.

APPENDIX 4. SLEEP HYGIENE RULES

APPENDIX

SLEEP HYGIENE RULES.

Important Sleep Hygiene Rules include:

1. Only spend as much time in bed as necessary.

2. No caffeine (eg. Coffee, tea, soft drinks etc.) after lunch.

3. Regular exercise away from bedtime. (Latest 7pm)

4. Don't lie in bed resting [for long periods of time trying to fall asleep] rather get up and do something else.

5. Have time for relaxation before going to sleep.

6. Introduction of new things like a warm bath, warm drinks usually do not help much.

7. Harmful hygiene rules include:

   - Watching TV. or reading in bed.
   - Smoking, drinking alcohol or eating a large meal before retiring to bed.
   - Stress, anxiety and depression before sleep.
   - Shift work, being worried or frustrated, sleeping alone and napping during the day.

8. Other beneficial Hygiene rules include:

- Waking up at a regular time.
- Relaxing before bed.
- Sleeping as long as required and sleeping in a peaceful environment (Dark, quiet room) on a comfortable bed.

9. The correct approach of treatment of a patient with insomnia would be:

- Assess if there is any organic / Psychological problem first.
- Correct Sleep habits and Sleep hygiene.
- Sleep Modification Behaviour.
- Cutting down on sleep time up to a minimum of 4 hours a day.
- Use of a Sleep Diary.
- Relaxation Techniques / Biofeedback.
- Medication [Last Resort] [Treat underlying medical disorder first]
- Short to medium acting Benzodiazepines for short duration only.

  Example: Immovane (Zopiclone) or Dormonoct every 2nd or 3rd day for 2-3 weeks to initiate therapy.

  Consider addition of sedating antidepressant, if necessary.

  Slowly wean off Benzodiazepines after maximum of 4 weeks.

- Positive Feedback and Reassessment.

LIST OF CORRECTIONS AS PER EXAMINERS' REPORT

RESEARCH REPORT OF:

M Fam Med CANDIDATE - M BASSANINO

"Patient's perceptions of sleep in a general practice setting"

A detailed list of corrections as requested by the examiners is set out below.

Please find Attached:

1. Original Examiners Report.
2. Detailed corrections List.

RESEARCH REPORT OF:
M Fam Med CANDIDATE – M BASSANINO

"Patient's perceptions of sleep in a general practice setting"

1. Format
The layout of the report is helpful. There are few typographical errors.
References are not properly formatted – they are quoted in the text alphabetically, not numerically in sequence from first mentioned as per Vancouver.
It is not clear what the purpose is of having included Appendix 4. This also alludes to a sleep perception score, not used elsewhere in the manuscript.

2. Abstract
This is a representative summary of the contents of the research report.

3. Introduction
No comment.

4. Literature review
There is no appraisal of the literature that has been used.
What is the reason for including literature on the treatment of insomnia when this aspect does not fall into the study aims?
I have difficulty in accepting that the ranking of insomnia as the 3rd commonest complaint presenting to family physicians is accurate.
The terms incidence and prevalence appear to be used interchangeably in this text.
The most recent references used were published in 1995.

5. Methods
Population and sampling:
It appears that on average only 5 patients per working day were selected, but no mention is made of how this selection occurred.
Method of data analysis:
This does not state the manner in which sets of data will be compared. It only states the software programmes that will be used.
Limitations of research:
Usually explored under the discussion.

6. Ethics
There is no mention of the ethical issues around eliciting this kind of history from patients and then not having a mechanism for picking up those with problems that need to be addressed. This despite the researcher's observation on the level of interest in the results displayed by his patients.

Population and data collection:
On what grounds was the questionnaire devised in the way that it was?
The format of the questions is not standardised e.g. question 12 has two sections of yes/no answers, whereas the other similar questions have only one.
Question 19(b) does not include options of "Western" complimentary healers.

8. Results

The quoted response rate is actually 97.5%. However, it is not clear which patients were excluded and on what basis.
Although the researcher comments on the fact that not all questions were completely answered, the extent of this is never stated. This makes the interpretation of the results difficult to understand – what is the denominator in the calculation of these percentages?
Figure 5: y axis scale is unacceptable; it appears to suggest significant difference.
The term "correlation" is used to mean "relationship between".

9. Statistics

Unable to evaluate without knowing the denominators. Entire report is written as percentages.

10. Discussion

This does not include any critique of methodological problems or unexpected results. It does not relate back to the literature review.

11. Conclusions

No comment.

12. Recommendations

The first four paragraphs relate to recommendations in terms of the research methodology. This would more appropriately be covered under discussion.
The last paragraph has no specific recommendations for use by Family Physicians.

13. Quality of thinking

There seems to be a lack of focus on the research question, which was patients' perceptions of sleep, not the physician's diagnosis of sleep disorders or their management.
There is insufficient demonstration of an understanding of research methodology, including the ability to critically evaluate own or other's research.

14. Quality of end result

The method of analysis of the results and the reporting thereof, preclude an assessment of the usefulness of this research.

Dear Mrs. Mainwaring

I have attached the assessment sheet for the above candidate.

I believe that he should do considerable revision on the research report. I have not made a detailed type-written report, since to do so would constitute more than his report. I have however made comments within the text of his report, which I am prepared to make available to Dr Bassanino.

In summary he has done some good research on a topic which is of great importance to the community, but :

1. He has been careless in his reporting of the data and discussion – his syntax is often inaccurate.
2. In places the report is disorganised.
3. He uses some terms and headings inappropriately
4. He needs to include numbers in his figures and not only percentages
5. Some of the data obtained from the questionnaire has been omitted and not presented nor discussed.
6. Language is often colloquial
7. Corrections required in many figures and tables
8. The report need considerable re-organisation

LIST OF CORRECTIONS AS PER EXAMINERS' REPORT

RESEARCH REPORT OF:

M Fam Med CANDIDATE - M BASSANINO

"Patient's perceptions of sleep in a general practice setting"

1. Format

The layout of the report is helpful. There are few typographical errors.

The layout of the report has been thoroughly revised and checked. The research report has been checked six times in total and has been presented to outside (Non Examiners) in the department of family medicine for thorough scrutiny. All typographical errors including last minute reviews by Dr. Anne Wright (whom I am greatly indebted to) have been included.

References are not properly formatted – they are quoted in text alphabetically, not numerically in sequence from first mentioned as per Vancouver.

All the references have been reformatted as per Vancouver style.
In addition 6 extra references have been added with reference to the text. (See References text)

It is not clear what the purpose of having included Appendix 4. This alludes to a sleep perception score, not used elsewhere in the manuscript.

For completeness and clarity Appendix 4 has been removed, as it showed no relevance to the study.

2. Abstract

This is a representative summary of the contents of the research report.

The abstract has been slightly shortened and all necessary alterations of data have been included. More emphasis has been placed on the results of the study.

3. Introduction

No comment.

4. Literature review.

There is no appraisal of the literature that has been used.

Appraisal of the literature has been added under the introduction of the literature review.

What is the reason for including literature on the treatment of insomnia when this aspect does not fall into the study aims ?

Most of the specific literature on treatment of insomnia has been removed, as it does not fall into the study aims. A small section on non-pharmacological management of insomnia has however still been discussed, as this study aims to show an awareness to sleep problems and how eliciting (and perhaps correcting) sleep hygiene factors (non-pharmacological) results in better and more long lasting treatment results.

I have difficulty in accepting that the ranking of insomnia as the 3rd commonest complaint presenting to family physicians is accurate.

Insomnia ranks between 3rd to 5th commonest complaint presenting to family physicians (See literature references)

The terms incidence and prevalence appear to be used interchangeably in this text

These terms have been corrected appropriately.

The most recent references were published in 1995.

All the relevant references have been thoroughly reviewed in the research report.
Seven extra references have been added and have been updated in the text. The new most recent reference was published in October 1999. (See appendix and Literature Review)

5. Methods

Population and sampling:
It appears that on average only 5 per working day were selected, but no mention is made of how this selection occurred.

The study took approximately 3 calendar months to complete. Only 2 same consecutive random days during the week were used to distribute the questionnaires. This has been included in the text.

Method of data analysis:
This does not state the manner in which sets of data will be compared. It only states the software programs that will be used.

Statistics in the form of frequencies, cross-table correlations, chi-squared test and certain graphs, were used. The results were compared according to statistical significance using the chi-squared test (p- values , 0.05) .

Limitations of research:
Usually explored under the discussion.

This section has been removed and elaborated under discussion of results. (See pages 70 - 80)

6. Ethics.

There is no mention of the ethical issues around eliciting this kind of history from patients and then not having a mechanism for picking up those problems that need to be addressed.
This despite the researcher's observation on the level of interest in the results displayed by his patients.

Due to the anonymity of the questionnaire, any patients who perceived that they had a serious sleep problem and needed consultation, was told that he/she may discuss the problem confidentially with the doctor immediately thereafter.

7. *Data collection*

Population and data collection.
On what grounds was the questionnaire devised in the way it was?

The questionnaire in the research report was devised by revising the sleep literature, by using a summary of the "Stanford" questionnaire and with the aid of Dr. A. Bentley, a current sleep specialist in private practice. All the relevant questions pertaining to the objectives of the research report also helped to prioritize questions in the questionnaire.

The format of the questions is not standardised e.g. question 12 has two sections of yes/no answers, whereas the other similar questions have only one.

Unfortunately this error went unnoticed. A further recommendation for future studies, of the importance of checking the questionnaire format.

Question 19(b) does not include options of "Western" complimentary healers.

Perhaps in the South African setting, this could have been a relevant inclusion.

8. Results

The quoted response rate is actually 97,5%. However, it is not clear which patients were excluded and on what basis.

Four hundred and ten questionnaires were printed and handed out excluding the pilot study). Of the 410 questionnaires, 5 were eliminated due to the subjects being less than 18 years of age. Of these 405 patients, 10 were non-responders thus yielding a response rate of (405-10) / 405 or 97,5%.
This has all been entered into the text.

Although the researcher comments on the fact that not all questions were completely answered, the extent of this is never stated. This makes the interpretation of the result difficult to understand – what is the denominator in the calculation of these percentages?

Questions that have not been answered have been commented on. All n-values have been entered and all percentages have been re-calculated according to the response rate.

A considerable amount of new tables and figures have been entered so as to discuss all the objectives in the text. Frequencies have all been re-tabulated and cross-correlations with sleep question variables have been entered. All these results have been discussed in the results and conclusions of the research report.

Figure 5: y-axis scale is unacceptable; it appears to suggest significant difference.

Figure 5 has been removed and replaced appropriately.

The term "correlation" is used to mean "relationship between".

All these terms, when used, have been substituted appropriately.

9. Statistics

Unable to evaluate without knowing the denominators. Entire report is written in percentages.

All numerators and denominators have been included as according to Epi Info (V6).
All frequency and n values have been included and all calculations have been shown in text, tables and diagrams.

10. Discussion

This does not include any critique of methodological problems or unexpected results. It does not relate back to the literature review.

The results are discussed in sequence as presented. Methodological problems and unexpected results encountered have been discussed and related back to the literature review.

11. Conclusions

No comment.

12. Recommendations

The firs four paragraphs relate to recommendations in terms of the research methodology. This would more appropriately be covered under the discussion.

These paragraphs have been moved to the discussion.

The last paragraph has no specific recommendations for use by Family Physicians.

This has been removed.

13. *Quality of thinking*

There seems to be a lack of focus on the research question, which was patients' perceptions of sleep, not the physician's diagnosis of sleep disorders or their management.

Patients' perceptions to sleep problems have been thoroughly discussed in the results and discussion chapters. The research managed to cover all the objectives stipulated from the beginning.

14. Quality of end result

The method of analysis of the results and the reporting thereof, preclude an assessment of the usefulness of this research.

Hopefully with corrections, the research report has use in the role of family medicine and sleep medicine.

15. Summary

In summary Dr. Bassanino has done some good research on a topic which is of great importance to the community, but:

1. He has been careless in his reporting of the data and discussion - his syntax is often inaccurate.

Great care has been taken to report all the data accurately. Syntax has been kept the same throughout the research report.

2. In places the report is disorganised.

A considerable amount of re-organisation has taken place, especially in the results section. The results and discussion of results follows the format of the main objectives throughout the research report.

3. He uses some terms and headings inappropriately.

All terms and headings have been checked and used only when necessary.

4. He needs to include numbers in his figures and not only percentages.

All tables and figures include n-values and percentages throughout the research report.

5. Some of the data obtained from the questionnaire has been omitted and not presented nor discussed.

All statistically significant questions have been analyzed. Additional frequency tables and diagrams have been inserted in the results section. These have also been discussed in the discussion and conclusions section.

6. Language is often colloquial.

Language has been formalized as far as possible.

7. Corrections required in many figures and tables.

All figures and tables have been corrected and re-entered accordingly.

8. The report needs considerable re-organisation.

A considerable amount of re-organisation has taken place, especially in the results section. The results and discussion of results follows the format of the main objectives throughout the research report. All the information asked in the questionnaire has been utilized, analyzed and discussed. The objectives have been expanded to include all questions asked in the questionnaire and have been placed under the methodology section of the research report.

In addition the research report has been checked six times in total and has been presented to outside (Non Examiners) in the department of family medicine for thorough scrutiny. All typographical errors including last minute reviews by Dr. Anne Wright (whom I am greatly indebted to) have been included.

Author Bassasino M Dr
Name of thesis Patients'Perceptions To Sleep In A General Practice Setting Bassasino M Dr 2000

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