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Running head: PUBLIC KNOWLEDGE AND ATTITUDES

A Public Survey on Electroconvulsive Therapy

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USE OF THESIS

Summary

Health care professionals have debated the use and effects of electroconvulsive therapy (ECT) for more than 65 years. Yet, the attitudes towards, and knowledge about, ECT have not been thoroughly researched within the Australian community. There is also little empirical research documenting ECT recipient characteristics, the number of ECT administrations and the number of patients treated. This study aimed to develop an Australian perspective on: (1) the level of public knowledge about, and attitudes towards, ECT; and (2) the practice of ECT.

The objectives were achieved through the development of questionnaires; and the distribution of these questionnaires to the public to survey knowledge about, and attitudes towards ECT. The Mental Health Information System (MHIS), together with data of some State psychiatric hospitals, was examined in order to estimate the characteristics of ECT recipients, and the frequency of the practice.

Results from 379 questionnaires indicated that more than 60% of respondents have some knowledge about the main aspects of ECT. Furthermore, participants were generally opposed to the use of ECT on individuals with psychosocial issues; children; and on those who refuse to have ECT. This study showed that public perceptions of ECT were mainly negative. Furthermore, this thesis revealed that most WA ECT recipients were adult females who were diagnosed with affective disorders. ECT usage appeared to be a constant proportion of the psychiatric population in WA over a five-year period, although the number of ECT recipients rose dramatically each year.

The findings of this thesis suggested that clinicians should ensure that individuals recommended for ECT are at least knowledgeable about basic ECT processes and their implications. With this basic awareness, individuals would then be able to give informed consent. Another recommendation was that a more comprehensive State ECT register be created. This would allow more accurate estimations of the number of ECT administrations in future, and facilitate more effective and efficient monitoring of ECT practice. Overall, it was anticipated that the results of this thesis would contribute towards the prescribing practice of clinicians, and direct mental health education programmers, researchers and policy makers.

Approval

I certify that this thesis does not, to the best of my knowledge and belief:

(i) Incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education;

(ii) Contain any material previously published or written by another person except where due reference is made in the text; or

(iii) Contain any defamatory material.

Signed: ______________________ Date: 25.11.04

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Chapter 1

Introduction

This thesis aimed to present the public knowledge about, and attitudes towards, electroconvulsive therapy (ECT); the characteristics of ECT recipients and its usage within the community. These aims were facilitated by the construction and distribution of a self-administered questionnaire, and analyses of data obtained from the Health Department of Western Australia (WA) and registered psychiatric facilities in WA. The questionnaire focused predominantly on the application of ECT on depression, given that the treatment is mainly recommended to individuals diagnosed with affective disorders (Royal Australian and New Zealand College of Psychiatrists, 1999).

ECT involves passing electric current through the brain to induce a general convulsion in the patient (Abrams, 1997). ECT, developed in 1938, has been a treatment of choice for many types of mental disorders (Endler & Persad, 1988). This form of treatment has generated great controversy amongst clinicians and researchers due to the following: (1) its historical abuse within the mental institutions; (2) media portrayal of ECT in a negative light; (3) testimonies of former ECT recipients; and (4) uneven distribution in its prescription and administration (National Institutes of Health, 1985). An example of this professional disapproval is documented by Shorter (1997), who tells of a group of professionals who organised the anti-psychiatry movement in the early 1960s to eradicate ECT. Nevertheless, ECT continues to be in use today.

The controversy surrounding ECT has not abated and is still in contention. Proponents and opponents of the treatment remain in conflict over the benefits and risks of ECT (e.g., Breggin, 1997; Fink, 2001). For instance, individuals working towards the abolition of ECT declared that ECT did not provide any benefit but might permanently impair cognitive functioning (Service User Research Enterprise, 2002). Those who support its use claimed that the resulting cognitive deficits were usually mild and reversible (Beyer, Weiner, & Glenn, 1998).

Such debate has generated much ECT research over the past six decades. Amongst the extensive ECT literature on attitudes and efficacy, most studies have centred on the knowledge and attitudes of mental health care professionals (e.g., Janicak, Mask, Trimakas, & Gibbons, 1985), some, on the views of ECT patients (e.g., Freeman & Cheshire, 1986), and others, focused on the effects of ECT as a treatment for depression (e.g., Calev et al., 1991). However, little is known about the frequency of ECT administration. Indeed, searching the relevant databases, such as *PsychINFO, PsychARTICLES, Academic Research Library, Medline, Journals at Ovid Full Text (Health), Mental Health Collection* and *Social Sciences Plus*, using general search words, like "ECT", "rate of ECT use", "prevalence, ECT" and "frequency, ECT administration", yielded only three studies that addressed the rate of ECT use (Hermann, Dorwart, Hoover, & Brody, 1995; Jorm & Henderson, 1989; Wood & Burgess, 2003). Even less has been written about the Australian community perceptions of ECT.

Research focusing on the Australian context is minimal. Such a lack of research seems strange since in Australia, as in other democratic societies, public opinion is a central factor in the creation of public health policies (Durham, 1989). The public comprises mental health recipients (current and past), potential mental health consumers, and their family and friends. Gaining public consensus for any psychiatric treatment is vital as such consensus will have an influence on government legislation, especially in the creation of mental health legislation, education programs, and research. In fact, negative public opinion has led to the banning of ECT in Italy (Abrams & Pallanti, 2000; Simini, 1999), and restrictions on its practice in California, New South Wales (NSW), Canada and the Netherlands (Salford

Community Health Council, 1998). It had been suggested that public attitudes towards ECT could even affect patterns of medical prescription (Bucens, Davis, & Welborn, 1986). In this Western Australian survey of 67 consultant Psychiatrists, about 21% reported that the attitudes of the majority public “always” affected their prescription of ECT, while 37% reported being affected “sometimes”. Psychiatrists who believed that public opinions of ECT were negative were less likely to prescribe ECT because they recognised that their patients would have to live with the stigma associated with the treatment.

Public attitudes towards ECT are not unanimous. People’s opinions often differ according to differences in their life experiences (Kerr, McGrath, O'Kearney, & Price, 1982). It was possible that there may be differences between the views of older and younger members of society. For example, older adults might hold a more negative opinion of ECT because they were mainly familiar with “unmodified” ECT prior to the late 1980s, whilst in contrast, young adolescents might be more optimistic, given their experience of the world as a technologically advanced environment. The middle-aged, on the other hand, might be wary about reported complications associated with ECT in the past but make some attempt to adapt to the rapid changes in science and technology. As a consequence, they might be ambivalent towards the application of ECT. However, the effect of age on attitudinal difference needs to be explored empirically.

The importance of creating and maintaining an adequate level of public knowledge of ECT is particularly crucial in view of the contemporary legal requirement to obtain informed consent for major psychiatric treatments ("The Mental Health Act," Western Australia, 1996). Adequate knowledge of ECT or the appropriate sources of such knowledge helps individuals make informed decisions about the treatment, and/or assist friends in so doing. With a high lifetime risk of developing mental disorder (nearly 50%), it is not far-fetched to suggest that almost the entire population will have direct experience of a psychiatric disorder at some point in time (Kessler et al., 1994).

A few researchers have recognised the importance of public ECT knowledge, and have conducted some studies in this area (e.g., Jorm, Korten, & Jacomb, 1997). These studies surveyed public attitudes towards ECT but have reported inconsistent results with both positive (Kalayam & Steinhart, 1981) and negative (Jorm et al., 1997) attitudes elicited, and a fear of ECT (O'Shea & McGennis, 1983). In addition, of what little research there has been that investigated public knowledge and/or attitudes towards ECT, most did not reflect the views of the wider Australian community. This was due to three reasons. Firstly, many of the studies were conducted in the 1970s (e.g., Freeman & Kendell, 1986), at a time when ECT was frequently administered without anaesthesia, known as unmodified or “straight” ECT. The practice has changed vastly since. Secondly, the questions on some questionnaires used were designed to assess patients’ attitudes towards the treatment (e.g., Battersby, Ben-Tovim, & Eden, 1993). As a consequence, the presentation and content of certain items might not be appropriate for use with the general public. Thirdly, none of these early studies examined attitudes towards ECT in regards to the treatment of individuals with psychosocial problems, children/adolescents, older adults and/or non-consenting patients.

While the literature showed that health care professionals had discussed attitudes towards ECT being used to treat some special population groups (e.g., Baldwin & Jones, 1998), there has been no systematic survey conducted to examine these attitudes. For children and older adults, ECT is recommended to treat diagnoses of depression, which is increasing. It is also favoured as a resolution to the inefficacy of antidepressants for these two groups (Rey & Walter, 1997). For older adults, ECT is recommended as a treatment for those who have to battle polypharmacy (Flint, 1999). The controversy of treating these subgroups with ECT stems from concerns regarding (1) their physical vulnerability (Baldwin & Jones, 1998;

Benbow, 1991); (2) the implicit trust of the patients in the doctors to do no harm but advocate optimal treatments for their patients' conditions (Friedberg, 1976); and (3) freedom of choice (Ruger, 2003). Most of these issues highlight the importance of treatment knowledge in making judgements about the desirability of administrating ECT.

The link between knowledge about, and attitudes towards, ECT has also been the subject of prior research. A significant relationship between knowledge of, and attitudes towards ECT was found in studies with Veteran psychiatric patients, mental health nurses and other health care professionals (Battersby et al., 1993; Gass, 1998; Janicak, Mask et al., 1985), but was not reported in other studies with ECT patient samples (e.g., Wheeldon, Robertson, Eagles, & Reid, 1999). In their comparison of the attitudes of various groups of mental health care professionals towards ECT, and knowledge about ECT, Janicak and Mask et al. constructed an ECT Knowledge and Attitude Scale. They found that a favourable attitude towards ECT was related to increased ECT knowledge. In another study (Gass, 1998) that utilised the same questionnaire, responses from 167 nurses showed that those who obtained higher knowledge scores perceived ECT more positively. This result was consistent with findings obtained by Kerr et al. (1982). They surveyed both visitors and patients in a NSW general hospital, and found that personal experience with ECT led to positive beliefs about the effectiveness of the treatment. Battersby et al. (1993) provided further support when they assessed a group of patients from a Veterans hospital in Adelaide. They reported improvement in some attitudes towards ECT after the participants were shown an informative video on the subject. However, the positive relationship between ECT knowledge and attitudes was limited to only part of their sample because it was found that psychiatric patients in the sample were more likely to have negative attitudes towards ECT after viewing the videotape.

On the whole, it might be expected that a 65-year-old practice that has generated prolific research and controversial discussions, and continues to be commonly administered (Fink, 2001), would be well understood within the lay public. Yet, research suggests that it is still the case that few lay people understand what ECT encompasses, how it works, and/or the conditions for which it is recommended (Freeman, Weeks, & Kendell, 1980; Kerr et al., 1982; O'Shea & McGennis, 1983; Walter, Koster, & Rey, 1999). Likewise, ECT practice is not well understood (Duffett & Lelliott, 1998; Prudic, Olfson, & Sackeim, 2001). Empirical data on its use is scarce (Consensus conference, 1985), although such data about the characteristics of recipients and the frequency of administrations would allow a better understanding of the practice. For example, the condition(s) for which ECT is being prescribed is depicted by the diagnoses of the majority of ECT recipients. The frequency of administration shows in the prototype of prescriptions over time. As ECT has been used primarily to treat depression (Royal Australian and New Zealand College of Psychiatrists, 1999), and the rates of depression are increasing (Surgeon General, 1999), ECT prescription might be consequently on the rise. ECT research, especially studies with an Australian focus, has rarely examined these areas.

A thorough epidemiological analysis of ECT in Australia had been conducted in Victoria only recently (Wood & Burgess, 2003). However, due to differences in data relating to ECT recipients that were included in each State Register, these Victorian research findings might not be generalised to WA. Thus, it seemed that no study to date has examined the prevalence of ECT in WA.

Empirical research on the frequency of ECT administration enhances an understanding of the local practice to direct mental health education and policies. For instance, a high rate of ECT use might call for increased knowledge amongst individuals to facilitate informed decision-making. Understanding the prevalence of ECT practice would also allow comparisons of the practice with other Australian States and overseas.

Summary

Despite prolific research on ECT and its use to treat depression, public opinions about, and knowledge of, ECT have not been explored extensively, and the number of ECT administrations performed each year and recipient characteristics have rarely been documented. Previous research focused on unmodified ECT, and had examined attitudes of patients and health care professionals towards ECT generally, but did not specifically investigate attitudes towards ECT on depressed individuals with psychosocial issues, older adults, children and non-consenting individuals. These studies also found inconsistent results in the relationship between knowledge and attitudes. The public consists of mental health clients, potential recipients, their families and friends. The opinions of these people might vary according to age and life experiences. Public perspectives towards ECT could determine the enacting of legislation, mental health education, research and the prescription practices of clinicians. Further, an epidemiological perspective of ECT would provide insight into the prescription criteria and trends. While this information would allow interstate and international comparisons on the practice standards of ECT, it would also shape mental health policy, public education programs and research directions.

Therefore, an updated questionnaire was required to measure public knowledge about, and attitudes towards, ECT. The theoretical basis from which such a questionnaire was developed and a review of past literature forms the focus of Chapter 2.

Chapter 2

Literature Review

The overview presented above describes the areas in the ECT literature that had not been explored thoroughly. These areas called for a study to examine knowledge about, and attitudes towards, ECT within the Australian community.

Given the controversial nature of ECT, more needs to be said about the context for this research. This chapter was intended to provide a succinct description of the invention of ECT, the specific treatment procedures involved, and some of the possible consequences of this treatment. It also details the frequency of ECT administrations outside of WA. The section on the history of ECT explains the underlying theory of the treatment itself and its purpose.

History of ECT

Endler and Persad (1988) documented the beginnings of ECT in terms of a number of historical antecedents. Electricity has been used in medicine throughout the centuries. For instance, electric catfish were used to induce shock in psychiatric cases to expel evil spirits, relieve headaches, treat psychogenetic blindness, and manage depression. In the treatment of depression, such early techniques electrocuted the hands, neck, spinal column, kidneys, or buttocks to induce sleep. This phenomenon was observed to generate a response equivalent to epilepsy.

Abrams (1997) described the invention of ECT. He maintained that since the sixteenth century, camphor had been used to induce grand mal seizures in order to treat lunacy and mania. Later, it was replaced with pentylenetetrazol (Cardiazol, Metrazol) because the latter is more soluble and has a rapid onset of action.

At a later date, two physicians in Rome, Ugo Cerletti (1877-1963) and his assistant, Lucio Bini (1908-1964), became the key figures in combining the two approaches into a psychiatric treatment (Endler & Persad, 1988). Cerletti believed that electricity would be a convenient mode that could be easily controlled in its application to induce convulsions. Accordingly, his research team investigated the induction of convulsions in dogs with the use of electricity (Shorter, 1997). After three years, Bini finally fashioned a machine to control the delivery of electric current, and discovered a manner of delivering the currents via the temples, which was shown to reduce shock to the heart.

Then in 1938, a 39-year-old male, S.E, was found wandering about a train station with neither a ticket nor a rational mind (Abrams, 1997). He was diagnosed with schizophrenia, and with no obvious family, was considered a suitable candidate for ECT (Endler & Persad, 1988). In April that same year, Cerletti and his assistants administered the treatment in Rome, using electrodes to deliver the current simultaneously to both temples. In doing so, S.E became the first human being to undertake ECT. During the first session, S.E was administered ECT three times, with increasing voltages from 80 to 100 volts over 0.25 seconds (Shorter, 1997). The third administration produced a grand mal convulsion, after which the patient appeared calm and contented. S.E did not seem to have any recollection of his previous behaviour but thought that he might have been asleep (Fink, 1979). It was reported that after nine to 11 ECT sessions, he was discharged, returned to his wife and resumed his occupation as an engineer in Milan. The experimental application of ECT on S.E was considered a success because the patient survived about 11 ECT sessions, although his delusions and hallucinations were never cured. So, ECT became a recognised treatment.

Since this initial success, ECT has been intensively studied (Endler & Persad, 1988), and was generally hailed as bringing a great alleviation of the disabling symptoms of psychotic illness (Shorter, 1997). Cerletti named the treatment “electroshock therapy” (EST), or E.S. for short. “ECT” has been taken to be synonymous with “EST”, although amongst lay people, it has been more commonly and more simply known as “shock treatment”.

Subsequently, World War II prompted the spread of ECT from Italy to the United States (USA) with the migration of ECT proponents, particularly Lothar B. Kolinowsky, Victor E. Gonda and Renato J. Almansi, during the early 1940s (Endler & Persad, 1988). By 1959, ECT had become the choice treatment for almost all mental illnesses in the USA due to its swift effect (Ottosson, 1985). Research does not provide explicit historical description of how ECT was imported into Australia.

Since its inception, many modifications had been introduced to ECT procedures. Over time, professional standards and guidelines on ECT prescription and application were also established to deal with the misuse and abuse of ECT (Ottosson, 1985). Despite the move towards such guidelines, the practice still varies across each country and State (Duffett & Lelliott, 1998).

Treatment Procedures

This section presents the recommendation criteria and the practice guidelines for ECT health professionals in WA. This thesis refers to “treatment”, “session” or “an ECT” as a single administration of electric current to induce a grand mal convulsion, and “course” as a consecutive series of treatments. A course of ECT usually consisted of 8 to 15 sessions at 48-hour intervals, or at a rate of approximately two to three sessions per week (J. Byrne, personal communication, July 16, 2003). ECT procedure refers to the process of prescribing and delivering the treatment.

Based on empirical studies, literature reviews and discussions with local prescribing practitioners, it was found that various guidelines were established by psychiatric organisations to standardise ECT procedures throughout Australia. The guidelines adopted in

WA include the Clinical Memorandum Number 12 (Royal Australian and New Zealand College of Psychiatrists, 1999) and the ECT Manual, created by the Victorian Government Department of Human Services in 2000 (S. Baily, personal communication, May 29, 2003). Notwithstanding, ECT practice continues to differ from one WA treatment centre to another, depending on many variables, such as, the attitudes of the ECT consultants towards ECT; and the types of ECT facility available.

It is recommended that the treating psychiatrist conducts a thorough medical evaluation to prepare for the first ECT session. Such an examination includes a complete medical and anaesthetic history, and a full physical examination (Royal Australian and New Zealand College of Psychiatrists, 1999).

According to the ECT practice guidelines (Department of Human Services, 2000), the treatment is usually prescribed by psychiatrists upon a comprehensive assessment of the following: the individual's psychiatric history and diagnosis; the adequacy of previous treatments (psychological and pharmacological); a complete medical history; review of current drug use; and baseline investigations and measures. Other considerations include consultation with a child and adolescent psychiatrist for individuals below 19 years old.

A medical doctor is usually in-charge of delivering the current stimulus (Royal Australian and New Zealand College of Psychiatrists, 1999). The recommendations stipulate that ECT be administered by doctors who have been appropriately trained and supervised by an experienced senior clinician, and who have undertaken recognised ECT training programs, including the use of electroencephalography monitoring. During the ECT procedure, the medical practitioner is assisted by a nurse, who has completed an approved ECT course and cardiopulmonary resuscitation course. It is also required that an anaesthetist is present.

In the beginning, ECT was administered with neither anaesthetic nor muscle relaxant (Rollin, 1981). Unmodified or straight ECT was originally delivered by large and complicated machines. While this form of ECT brought relief to some patients, many suffered negative effects, such as bone fractures. It was reported that many nurses were required to hold down the convulsing patient during each session.

To reduce the adverse effects of ECT on patients and increase the efficiency of treatment, modifications were made to the procedure. These included changes to the electrode placements (d'Elia, 1974) and the introduction of chemical agents, such as anaesthesia and muscle relaxant, and instruments, for example, electroencephalography and respiratory machine (Simpson, 1995). Moreover, electrode placements, through which the current was delivered to the patient, were experimented with to diminish negative effects while maintaining the antidepressant benefits of ECT. The efficacy of electrode placements will be discussed below, so it is sufficient to mention here that the variations were described generally as "bilateral ECT" or "unilateral ECT". In general, the term "bilateral ECT", refers to two stimulating electrodes placed on either side of the head to enable the electric current to be administered across both hemispheres of the brain (Abrams, 1997). The description "unilateral ECT", usually specifies that both electrodes be placed over one side of the head, usually the right hemisphere (non-dominant unilateral ECT). This is done in order that the speech areas are avoided.

Modified ECT involves the intravenous administration of anaesthesia and muscle relaxant prior to the commencement of the treatment (American Psychiatric Association, 1990). Pure oxygen is provided via a mask while respiration is manually assisted until the patient regains consciousness after ECT. Prior to the administration of the treatment, a bite block is inserted into the patient's mouth to prevent jaw fracture. Then when all is in order, an electric current, usually between 0.5 and 0.9 amps (Fischer, 2000), or approximately 160 to 500 volts (Oppenheimer, 1996), which lasts for a duration of 0.5 to 4 seconds (Breeding, 2000), is delivered through the anaesthetised brain. The main purpose of ECT is to induce a grand mal electroencephalogram seizure that lasts more than 25 seconds or a motor seizure that is greater than 20 seconds (Department of Human Services, 2000).

Notwithstanding the detailed standards of practice, many studies have found discrepancies between professional guidelines and the practice of ECT itself (e.g., Pippard & Ellam, 1981; Prudic et al., 2001). The disparities might have adverse effects on the efficacy of the treatment. Indeed, in addition to the benefits that encourage practitioners to treat individuals with ECT, the literature documented a wide range of non-therapeutic complications associated with ECT (Andre, 1991; Benbow, 1995; Breggin, 1997; Johnstone, 1999; Squire & Slater, 1983). These side effects have further engendered much controversy regarding the treatment.

Risks

Polarised opinions regarding the side effects of ECT have generated extensive research. The extent of the impact of non-therapeutic complications stemming from ECT on an individual's life ranges from mild to profound (Pedler, 2001). Researchers have found that it was difficult to determine conclusively the severity of these side effects since they depended on several factors, including recipients' individual reactions to treatment.

It is beyond the scope of this thesis to describe all of the possible complications that have been documented. Rather, this paper describes the spectrum of ECT complications that have been frequently reported by ECT survivors, which seemed to provoke much anxiety regarding ECT (Service User Research Enterprise, 2002) and generated extensive research (e.g., Squire, 1984). As such, these effects were included in the development of the questionnaire to measure public knowledge about ECT.

Common Complaints

The most common complaints made by ECT recipients were headache, nausea/vomiting, confusion, memory loss, brain damage and changes in personality (Service User Research Enterprise, 2002). To gain an insight into the possible side effects of ECT, it is relevant to include reports of direct observations of, and interviews with, ECT recipients. One of the most recent survey, conducted by the Mental Health Charity (MIND), distributed 6,656 questionnaires about ECT to various voluntary organisations within the UK at the beginning of 2001 (Pedler, 2001). Completed questionnaires were obtained from 418 individuals who had, or were still receiving, ECT. The results showed that some of the most frequently cited short-term side effects were headaches, drowsiness, confusion and loss of past memories. These were experienced by approximately one quarter to one third of the sample. The most common permanent side effects were reported as memory loss and difficulty concentrating. Of 86 patients who had ECT in the last two years, about 41% reported permanent loss of memories; 36% reported attention difficulty; 27% indicated an inability to recall new information; and about 18% stated that they had lost skills, like playing music, reading, driving or speaking in various languages. However, given the low response rate to this survey (6%), it was likely that these findings were skewed. They appeared to be contributed by a small group of disgruntled ECT recipients. Despite this, their responses serve to shed light on the possible range of negative consequences associated with this treatment.

According to another British review of research conducted with ECT recipients (Salford Community Health Council, 1998), the immediate common side effects of ECT were amnesia, drowsiness, confusion, disorientation, apathy, physical weakness, headaches, nausea and dizziness. Confusion usually refers to impaired knowledge, and disorientation to time, place and person (Abrams, 1997). Patients usually experienced headaches immediately after ECT, and continued to complain of this symptom occasionally for indefinite periods of time

(Breggin, 1997). Older adults ran the additional risks of heart problems, falls and strokes (Cobb, 1995). Some ECT patients also reported a profound negative impact on their lives and sense of self caused by the memory loss (Service User Research Enterprise, 2002).

The impact of ECT on memory functions has been documented widely, and researched extensively. Generally, the severity of memory impairment was proportionately related to the number of ECT sessions received (Squire, 1984). Some ECT patients reported memory loss after 15 sessions (Freeman & Cheshire, 1986), and others experienced permanent memory impairments (Freeman & Kendell, 1986). In their attempt to assess the accuracy of subjective memory complaints before and after ECT, Coleman et al. (1996) examined randomly assigned participants from another study (Sackeim et al., 1993), in particular, 70 depressed patients, diagnosed according to the Research Diagnostic Criteria (RDC) (Spitzer, Endicott, & Robins, 1978), and 18 normal controls, matched to the depressed sample. Participants were matched according to age, gender, education, socio-economic status (SES) and verbal intelligence quotient as indicated by the Wechsler Adult Intelligence Scale - Revised (WAIS-R) (Wechsler, 1981). Objective assessments were conducted with the Squire Subjective Memory Questionnaire (SSMQ) (Squire, Wetzel, & Slater, 1979), a 24-item Hamilton Rating Scale for Depression (HRSD) (Hamilton, 1967) and the Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). Squire, Wetzel and Slater (1979) claimed that nine of the items on SSMQ were sensitive to amnestic effects of ECT, and another nine were sensitive to the mood of the respondent. All participants were assessed before the commencement of the course of ECT; during the first week after randomisation of participants; and two months post treatment. Patients were further randomised to (1) right unilateral ECT (electrodes are placed on the frontal and temporal regions of the non-dominant side of the head) with low stimulus intensity; (2) bilateral ECT (electrodes are placed on both temporal regions of the head) with high stimulus dosage; (3) right unilateral ECT with high stimulus dosage; or (4) bilateral ECT with low stimulus intensity. Empirical titration procedure was conducted to identify the seizure threshold during the first and the last ECT sessions. For all the remaining treatments, stimulus intensity was maintained just above the initial seizure threshold in low-dose, and two-and-a-half times of the seizure threshold in high-dose conditions.

Results showed that depressed patients reported more deficits in self-rated memory functions at baseline (Coleman et al., 1996). Shortly after ECT, significant improvement in SSMQ scores was found in all the four treatment conditions. The average raw scores of the patient group continued to improve to become similar to the controls' two months after treatment. Subjective reports on memory improved distinctly within days of treatment completion, despite objective anterograde (after the treatment) and retrograde (before the treatment) memory deficits in this patient sample as documented in an earlier study (Sackeim et al., 1993). Subjective memory improvement was less evident in patient groups treated with high-dose stimulus intensity, and bilateral ECT. Patients who responded to ECT reported greater improvement in self-ratings and a greater decrease in complaints than those who did not respond to the treatment. Nonetheless, there were more cognitive deficits after bilateral ECT. When clinical improvement immediately following treatment was held constant, patients' perceptions of their memory were not associated with their objective cognitive performance. This study illustrated that memory problems might be related to the severity of depression, rather than a consequence of ECT.

Drawing from his knowledge of extensive studies that examined the impact of ECT on memory, Squire (1984) stated that ECT was typically associated with a temporally limited retrograde amnesia that affected recent memories to a lesser extent than more remote memories. This impairment might include memory for events that occurred as long ago as a few years, or in some circumstances, even longer prior to ECT. Further, the impact of ECT on memory depended on many "dynamic factors", including the age of memory at the time of treatment, the importance of the memory, and the number of times the information was rehearsed (Squire, p. 158). Squire, Slater and Miller (1981) claimed that memory of events close to the time of ECT could irreversibly vanish. Memories that were one or two weeks prior to ECT might be most vulnerable to fragmentation. They argued that permanent retrograde memory occurs as ECT interrupted the stabilisation process of building memories. Finally, as long as anterograde memory did not recover, retrograde amnesia would persist, even after anterograde amnesia had abated. Squire and Slater (1983) stated that the average duration of subjective anterograde amnesia reported by ECT patients seven months post bilateral ECT was about three months, and two months three years later. Longer periods of 27 months to 10 years have been reported (Breggin, 1997). Nevertheless, the brain was unlikely to make significant improvement in regaining lost memories if the lost memories were not regained in two to three months.

This begged the question of, "how would this memory loss impact on the personality and brain structure of ECT patients?" While anecdotal reports from ECT recipients and their family and/or friends indicated changes in personality (Breggin, 1997), research also showed changes in the brain structures of some patients (eg. Andreasen et al., 1990). Changes in the structure of the brain were associated with changes in personality, thinking patterns, emotional displays, judgement, mood, attention and/or interpersonal behaviour (Harrison & Owen, 2002). Such complications could irreversibly impair other aspects of the individual's life, including his/her ability to continue work or enjoy the quality of life.

Personality and Brain Structure

A number of explanations abound in elucidating the changes in the neurological structure of ECT recipients. Abrams (1997) asserted that neurological changes were associated with the therapeutic response to ECT, rather than impaired memory. He stated that it was the daily superficial changes of synaptic vesicles and terminals in the neurotransmitters of each brain cell that affected the learning and forgetting of new material, rather than permanent impairment of structural changes in the brain. It was the amalgamation of protein within brain cells that affected material consolidation, while the release of neurotransmitters at critical phases could enhance or impair memory acquisition and storage. This made claim that ECT alleviated depressive symptoms by causing irreversible neurological changes that did not affect memory and learning adversely. However, the researcher did not clarify the effect of ECT on the neurotransmitters, and consequently, the impact on memory and learning.

In contrast, Breggin (1997) likened the effects of ECT to a closed head injury that had been electrically induced. Like individuals who suffer from head injuries, ECT patients often manifested chronic mental disability and an organic personality syndrome. These might be in the form of apathy, interpersonal skills deficits, attention problems, difficulties in remembering new materials, shallow emotional displays, impaired judgement, irritability and impulsivity. These manifested to the extent that significant others perceived them to be different from the individual with whom they were familiar.

Further, studies using varying methodologies reported different points of view. Retrospective studies (Andreasen et al., 1990; Calloway, Dolan, Jacoby, & Levy, 1981) on modified ECT showed that abnormalities in the brain structures of ECT recipients were related to the treatment. Specifically, the frequency of ECT was associated with the size of patients' lateral ventricles. They also showed that older adult depressed ECT recipients were more likely to present with frontal lobe atrophy, as compared with those who were not treated with ECT. Prospective studies (e.g., Coffey et al., 1991), on the other hand, indicated that depressed patients tended to present with a variety of brain abnormalities prior to ECT. Thus, a review of relevant studies (e.g., Devanand, Dwark, Hutchinson, Bolwig, & Sackeim, 1994) might help to explicate this discrepancy.

To determine whether ECT caused structural brain damage, Coffey et al. (1991) conducted one of the largest series of assessment in the neurological structures of 35 depressed patients at three different periods (before ECT, two to three days after ECT and six months post treatment) with magnetic resonance imaging (MRI). Treatment involved brief pulse bilateral ECT. The lateral ventricles, third ventricle, frontal lobes, temporal lobes and amygdala-hippocampal complex were measured at all three assessment points. Twenty-three patients participated in the final follow-up of the study. The authors concluded that the MRI measurements did not reveal any significant changes in the ventricular and cortical volumes measured. They claimed that neurological abnormalities were not indicators for mental illness because most of the participants exhibited clinical improvements.

This conclusion was drawn despite an increase in subcortical hyper-density evident in five patients (22%), and little basis for comparison amongst the participants. About half the participants had previous course(s) of ECT more than 6 months prior to this study. Hence, the possibility that the structural abnormalities in most participants before treatment were caused by previous ECT treatments could not be ignored. The number of ECT sessions was reportedly not uniform for all participants, although the specific number of ECT sessions each participant received was not stated. Upon treatment cessation, participants were treated with different types of continuation therapy. Twenty-nine were prescribed with drugs, four received up to 11 ECT at post treatment, and two did not have any form of maintenance therapy. Without a common ground and/or a control group, only within-group comparisons could be made. Coupled with the fact that the sample size was small, these findings were restricted in their ability to generalise to other ECT recipients. Furthermore, the authors' comment, that abnormalities in the neuroanatomy was irrelevant since most participants improved clinically, trivialised the irreversibility of neurological impairments without specifying a clear definition of "improvement".

Further, Devanand et al. (1994) reviewed studies that investigated the impact of ECT on brain structure. They claimed that the MRI studies did not show compelling evidence that ECT caused persistent structural change in ECT patients' brains. This conclusion was drawn despite structural abnormalities found in three of the reviewed studies. In contrast, a large cross-sectional study (Dolan, Calloway, Thacker, & Mann, 1986) found correlation between sulcal widening in the parietal and occipital areas, and ECT. The study assessed 101 depressed patients and 52 normal controls from a few months to a few years post ECT. Most of the studies reviewed used unilateral ECT and measured brain structures of participants with computerised tomography (CT) scan. Their clinical relevance was doubtful because unilateral ECT is not commonly practiced at many ECT treatment centres (Duffett & Lelliott, 1998; Prudic et al., 2001), and CT scans are less precise than the more modern MRI technology in measuring the human anatomy (Coffey et al., 1991).

A meta-analysis of MRI results (Videbech, 1997) reported neurological structural changes in individuals diagnosed with affective disorders, using data of 296 patients and 516 controls. This review only included studies with healthy controls, matched for age, sex and education. Results showed that patients with major depression presented with atrophies in the frontal lobes, basal ganglia structures, brainstem, cerebellar vermis and medulla. Larger pituitary glands and third ventricles were found in patients with affective disorders. Bipolar patients were also shown to be more likely to manifest white matter lesions, while depressed individuals particularly, exhibited lesions in the frontal and basal ganglia regions. Poor cognitive functioning, as measured by neuropsychological tests of frontal functioning, was found to be associated with volumes of white matter lesions as well. It was further suggested that memory and concentration were associated with brain atrophy; given that the cerebrum is vital to cognitive, linguistic and motor functions. Only one study in this review documented poor responses from patients with white matter lesions towards ECT. Patients with more lesions were more likely to manifest side effects from ECT, such as confusion, although there was no evidence that directly linked ECT to increases in ventricle/brain ratio or the frequency of the lesions. The results of a rare longitudinal study included in this meta-analysis further suggested that white matter lesions were formed prior to the development of affective disorders. These findings are potentially very important in determining the therapeutic benefits of ECT on these lesions.

The drawbacks of generalising the results of such reviews are varied. Videbech (1997) acknowledged that methodological differences in the studies involved might include discrepancies in selection criteria, randomisation processes, participant characteristics and outcome measures. Given the small sample sizes in each study, combining them in a meta-analysis did not necessarily make the findings more robust because the clinical characteristics of the participants did not allow a common ground for comparison. Some conclusions were made based on the results of a single study. Other studies either omitted information on periventricular lesions, or did not clarify the differences between the various types of signal hyperintensities. This made it difficult to draw firm conclusions from the findings. In any case, Videbech illustrated that specific neurological abnormalities could occur in individuals suffering from affective disorders, although the causal implications could not be made conclusively. It further suggested that structural neurological changes were associated with psychiatric conditions, rather than ECT. Such distinctions should be clarified in ECT research, so that its impact might be determined more accurately.

In sum, it was possible that the detection of neurological changes that resulted from ECT was beyond the means of the current technology. The absence of brain damage in brain scans did not necessarily imply an absence of neurological and/or cognitive impairment in

ECT patients. Technological limitations were rarely taken into consideration in these anatomical studies, while the impact of ECT on the neurological abnormalities of depressed patients was seldom examined as well. Moreover, structural changes in the brain appeared to develop at different stages – before and after the onset of the condition, and as treatment progressed. Memory problems might be related to the severity of the psychiatric condition. ECT effects might be more accurately and systematically examined if these factors were taken into consideration, and follow-up studies conducted over a longer period of time. Yet, the success of ECT might be measured by laypersons as the level of relief from the symptom(s) after the treatment.

Types of Relief

The possibility of adverse effects due to ECT might be relatively less important if there were unambiguous evidence that ECT invariably resulted in substantial relief for patients. Yet, there was no consensus on whether the treatment was effective. The duration and nature of relief offered by ECT contribute towards its efficacy and impact on ECT recipients.

To ascertain the efficacy of ECT, over simulated ECT, placebo and antidepressants, and determine the comparative efficacy of delivering methods (bilateral and unilateral non-dominant), Janicak and Davis et al. (1985) combined the data of several controlled trials to conduct a meta-analysis. Their findings indicated that ECT was, on average, 32% more effective than simulated ECT, and 41% more effective than placebo. ECT was calculated to be 20% to 45% more superior to tricyclic antidepressants and monoamine oxidase inhibitors, respectively. On the whole, ECT was found to be efficacious at an approximated rate of 78%. Based on depression scale ratings used in the studies, there was no significant difference between bilateral and unilateral non-dominant ECT in terms of their therapeutic benefits, although results of the few randomised controlled trials suggested that unilateral non-dominant ECT had a lesser adverse effect on memory.

In addition, the UK ECT Review Group (Carney, Cowen, Dearness, Eastaugh, & et al., 2003) examined the efficacy and safety of ECT for depressed individuals. The authors conducted a search for randomised controlled studies that compared ECT with simulated ECT, medication and different forms of electrode placements. They reviewed data that showed immediate and long-term effects of ECT on cognitive functioning, mortality and neurological changes. From six experiments of 256 participants that compared ECT with simulated ECT using either bilateral or unilateral electrode placements twice or three times a week, ECT was found to be significantly more effective than simulated ECT in improving the Hamilton depression rating score (Hamilton, 1967). Only one of the six trials reported cognitive effects of ECT. Individuals who had received ECT demonstrated better remote memory retrieval but worse word recognition at post-treatment. At six-month follow-up, participants were undifferentiated on measures of subjective memory, new learning and remote memory. Participants from each group were unlikely to discontinue from the study, and no deaths were reported.

In comparing ECT with pharmacotherapy (Carney et al., 2003), 18 research papers were obtained. These studies varied across electrode placements, frequency of ECT applications, types of medication used, dosage of medication, duration of drug treatment, and randomisation criterion. This meta-analysis indicated that ECT was significantly superior to pharmacotherapy. Only one trial reported no significant difference in cognitive functioning between ECT and medication, while another reported more memory complaints from ECT participants. Participants in the pharmacotherapy group were more likely to discontinue the trial than those subjected to ECT. In one experiment, one death was reported in each group.

The efficacy of electrode placements was analysed with 22 studies (Carney et al., 2003). Electrode placements varied across bifrontal placement, bitemporal placement, bifrontotemporal placement, dominant or non-dominant unilateral placements, and non-dominant or right unilateral placement. Treatment frequencies and durations differed from two weeks at two doses per week, up to seven weeks at a maximum of ten treatments. Some tests used fixed ECT dose, while others adopted a titrated dosage. The rest did not provide such information. This review by Carney et al. found bilateral ECT to be more superior to unilateral ECT on alleviating depressive symptoms. Results from two trials showed that high dose unilateral ECT is comparable to bilateral ECT. Further, unilateral ECT had a lesser adverse impact on cognitive functioning, and the patient required a shorter time to regain orientation. Bilateral ECT resulted in greater retrograde and anterograde memory impairment within a week of post-treatment. Two small experiments reported no significant difference between both types of electrode placements in the long run.

Six tests of 210 patients were analysed for an efficacious frequency of ECT (Carney et al., 2003). These experiments either compared ECT once a week with three times a week; or twice a week with three times a week. All trials used bilateral ECT with both brief pulse and sine waveform at various doses. Three studies reported varying treatment durations ranging from two to four weeks. No difference was found across the frequency of treatments. Long-term outcomes were not examined. Discontinuations were reported to be similar in both groups of two experiments. Death by suicide was reported in one trial. ECT administered twice and three times a week did not differ in the time required for participants to reorientate. A higher frequency of ECT per week was associated with more cognitive impairment.

While these meta-analyses are subjected to similar methodological limitations as discussed above, they improve the statistical power in combining data of many experiments into a large study, especially since many of the trials have small sample sizes, and provide some understanding into the factors related to ECT. Overall, the results showed the superiority of ECT over simulated ECT, placebo and antidepressants (Carney et al., 2003; Janicak, Davis et al., 1985). ECT was also associated with more deficits in anterograde and retrograde memory. Research findings did not consistently show that unilateral ECT was as effective as bilateral with lesser negative effects. This was reflected by the relatively higher rate of bilateral administration compared with unilateral ECT despite its relatively greater negative impact on cognition (Prudic et al., 2001), possibly due to its current role to provide instantaneous relief for individuals who did not benefit from other forms of treatments (Kendell, 1981). While twice- and thrice-weekly ECT did not differ in the time required for recipients to regain orientation, more frequent administrations were associated with more cognitive impairment. Yet, the long-term effects of ECT remain elusive.

Any beneficial impact of ECT that was found did not seem to last beyond six months post-treatment (Carney et al., 2003). This is further complicated by the high relapse rates after a "successful" course of ECT (Glass, 2001). These rates were cited as high as 84% (Sackeim et al., 2001). With children below 19 years old, the general response to ECT approximated a chance level of 51% (Walter & Rey, 1997). This temporary effect is of great concern (Wijeratne, Halliday, & Lyndon, 1999), especially since some patients suffered worse symptoms and/or successfully committed suicide on relapse (Freeman et al., 1980; Rogers, Pilgrim, & Lacey, 1993). Empirical findings showed that ECT did not lower suicide risks (Black, Winokur, Mohandoss, Woolson, & Nasrallah, 1989). Instead, ECT might increase the suicide risk for many depressed patients (Breggin, 1997). Many ECT patients also claimed that their problems did not go away after the treatment but increased because they had to cope with the irreversible side effects from ECT and the unresolved primary problem (Service User Research Enterprise, 2002). The American Psychiatric Association (APA) (1990) task force acknowledges that the purported benefits of ECT are momentary, and recommends continuation or maintenance ECT to maintain an induced clinical remission. As such, pharmacotherapy is highly and frequently recommended at the end of a successful course of ECT, although many patients recommended for ECT were resistant or intolerant of pharmacology (Rabheru & Persad, 1997).

Despite the extensive research on ECT, critics claimed that many studies conducted unsophisticated trials with poor methodologies, and drew inconclusive results, while others were based on ad hoc variations of normal clinical practice (Baldwin & Jones, 1998). With more than half a century of research, the underlying mechanism of ECT still remains elusive, so that it is difficult to establish firm recommendations on the limits of its application. It can be difficult to disentangle rigorous scientific research from commercial advertising of the treatment as well since most of the authors have vested financial interests in the practice (Chrzanowski, 2001). Therefore, the results presented from ECT efficacy studies should be interpreted with caution.

Given the prevalence of individual differences, both in lifestyle and biological makeup, for example, experiences of ECT benefits may vary across people. For some, it proved helpful as a cure, yet, for others, it had no positive impact on others (Salford Community Health Council, 1998). The above review of past studies aimed to illustrate the extent of the possible side effects of ECT, rather than generate conclusive statements about the degree of ECT complications and benefits. In assisting individuals to weigh up the risks and benefits of ECT according to their personal value system, the extent of the impact of ECT needs to be considered.

Despite the possibility of side effects and controversy about its effectiveness, ECT continues to be recommended for many conditions (Abrams, 1997). It is surprising, therefore, that its application on various groups of individuals and the frequency of its administration are rarely documented, particularly in Australia.

Characteristics of ECT Recipients

This section describes the conditions, and types of individuals who have been prescribed with ECT. In the USA, more than two-thirds of American ECT patients were women (Thompson, Weiner, & Myers, 1994). Out of these people, white women were more likely to receive ECT than other demographic groups. Amongst patients with recurrent depression, ECT was most likely to be administered on white patients, above 64 years old, with private insurance, and living in more affluent residential areas. Olfson et al. (1998) also found that age, income and race were powerful predictors of ECT prescription in the USA.

In a NSW psychiatric hospital, the average ages of female and male ECT recipients were 60 and 57 years, respectively (Gassy & Rey, 1990). In the same hospital, about 91% of the ECT recipients were diagnosed with affective disorders, 3% with schizoaffective disorder, and 6% with schizophrenia. Epidemiological and efficacy studies of ECT described the demographics of patients but rarely indicated the psychosocial issues that impact on their psychiatric conditions (e.g., Black et al., 1989).

Individuals with Psychosocial Issues

Psychosocial issues, such as financial problems and difficulty with interpersonal relationships, often contribute to the development of psychiatric conditions, like depression and/or anxiety symptoms (Dunnagan, Peterson, & Haynes, 2001). The relevance of prescribing ECT to treat such symptoms, without addressing the underlying psychosocial problems, may elicit different attitudes towards the treatment (Durham, 1989). Yet, public attitudes towards ECT in regards to individuals with psychosocial problems have not been examined in past attitudinal studies. ECT is also administered on children, older adults and non-consenting individuals.

Children/adolescents.

Whilst the nature of ECT is generally controversial, the use of ECT with children is a particularly contentious issue. Research on the use of ECT in pre-pubertal children is scant. Yet, ECT is still being used as a treatment for minors (Walter, Rey, & Mitchell, 1999), and clinicians claim this practice to be based on empirical evidence (Thompson & Blaine, 1987). There are no specific criteria to guide the practice of ECT on children/adolescents (Royal Australian and New Zealand College of Psychiatrists, 1999). Prior to ECT, practitioners are advised to seek the opinion of a child and adolescent psychiatrist, and conduct pre- and post-treatment (six months) psychometric assessments to monitor the effects of ECT.

Recognising the limitations of ECT research findings in this area, it is recommended that individual titration of seizure threshold, starting at the lower range offered by the ECT machine, is used to determine the amount of current during each treatment on the young patient. It is further recommended that adolescents be treated in adolescent psychiatric units, or at an ECT facility, that include skilled child and adolescent mental health professionals to ensure that the administration of the treatment is responsive to the needs of the young patient and their family (Freeman, 1995).

Few studies have documented the number of underage ECT recipients. It was estimated that individuals aged 11 to 20 years old comprised approximately 2% of ECT patients in the USA in 1980 (Thompson & Blaine, 1987). About one child was treated with ECT in the UK every 20 months (Duffett, Hill, & Lelliott, 1999). In 1996, the rate of ECT administration to children aged 16 or 17 years of age was estimated at six times greater than for those aged between 12 and 15 years. Although no child below the age of 19 years was treated with ECT in NSW between 1982 and 1988 (Gassy & Rey, 1990), by 1990, 20 (30% private; 25% rural) out of 41 participating hospitals in NSW administered ECT to children below 19 years old (Walter & Rey, 1997). From 1990 to 1995, 42 NSW adolescents were treated with 450 ECT sessions. From a total of 48,373 ECT sessions conducted over the 5-year period, about 1% was administered on children below 19 years of age. Among NSW children diagnosed with an affective disorder in 1993, more than 1% was treated with ECT, about 0.17 per 100,000 total population per year. In Wales, the rate of ECT administration to the young was about 0.02 per 100,000 per year. The prevalence of ECT on adolescents appeared low (Rey & Walter, 1997). All these rates were considered to be underestimations because these surveys usually did not include teenagers who were treated in acute adult psychiatric wards (Baker, 1994).

Little is known of this treatment on children in WA. Anecdotal reports indicated a relatively low prevalence that remained unchanged over time but these estimates were subjective. Recent data would be needed to appreciate the extent of ECT administrations within this age group. This group of ECT patients is considered vulnerable because they depend on adults for some, if not all, of their needs, and may not fully comprehend the use, risks and benefits of this treatment to give appropriate assent as required ("The Mental Health Act," Western Australia, 1996). Another consideration is that it is difficult to determine conclusively how the developmental changes of this age group interact with the effects of ECT, or whether the diagnoses are symptomatic of developmental difficulties (Baldwin & Jones, 1998), and how the drugs used during the procedure affect the efficacy of ECT on this underage group (Royal Australian and New Zealand College of Psychiatrists, 1999). The vulnerability of children is apparent; for example, they have to cope with the complications of the side effects of treatment for a relatively longer period of time than do adults, and battle increasing medical expenses over the years.

While the issue of the use of ECT with children is important, on the other end of the spectrum, older adults may also be a group that deserves examination. Indeed, ECT on older adults may involve similar concerns to young children, such as physical vulnerability.

Older Adults

The recommendation criteria for ECT on older adults above 64 years old are identical to that of the adult population as above mentioned (Royal Australian and New Zealand College of Psychiatrists, 1999). The APA professional standards (1990) do not exclude ECT on older adults but in fact, recommend higher stimulus intensity for this population. Indeed, ECT appears to be predominantly administered on older adults. The greater usage of ECT on older adults is attributed to the prevalence of severe depression and cerebrovascular disease within this age group (Wijeratne et al., 1999), higher rates of psychomotor changes and psychotic features in elderly depression, and the complications associated with polypharmacy (Flint, 1999). In spite of this, and consequently, greater probability of ECT-induced cognitive impairment, and cardiovascular problems also occur almost exclusively within this patient group (Benbow, 1995; Zorumski, Rubin, & Burke, 1988).

The efficacy of ECT on older adults with late life depression is yet to be supported by empirical evidence. Recently, a group of reviewers (van der Wurff, Stek, Hoogendijk, & Beekman, 2004) conducted a thorough search through their colleagues' database, controlled trials registers, electronic databases, reference lists of handbooks and guidelines, and relevant journals. The review aimed to examine randomised controlled trials for the short- and long-term efficacy of ECT over simulated ECT, antidepressant and non-pharmacotherapy. The reviewers also aimed to determine whether there were differential responses amongst older adults with concomitant conditions, such as cerebrovascular disorders, Alzheimer's disease, vascular dementia and Parkinson's disease. Also reviewed was the efficacy of different electrode placements and current dosage as well as any immediate and long-term complications. Participants were aged 60 years and over, diagnosed with major depression by any criteria, including those with psychotic features and concomitant conditions as mentioned above. Only three randomised controlled trials were located that satisfied the stringent criteria. From these trials, the following conclusions were drawn about ECT on older adults with depression: ECT is superior to simulated ECT; unilateral ECT is more efficacious than bilateral ECT; three times weekly treatments result in more effective relief than twice weekly ECT; and the differences on cognitive measures between pre- and post-treatment and between groups were not statistically significant.

However, the reviewers were sceptical of these findings because of the scarcity of randomised controlled trials of ECT on older adults, the limitations of the methodologies involved in these limited studies, the small sample sizes used, and the inadequacies in data collection and reporting (van der Wurff et al., 2004). These limitations restricted the applicability of the results to clinical practice, and most importantly, did not provide firm conclusions about the efficacy of ECT on older adults with depression. Nevertheless, the results suggested that ECT might be therapeutic for older adults without any negative impact on their cognitive functioning. Administered three times per week, there was a possibility that ECT could provide expedient relief for this subpopulation, which might explain the high rate of use on this age group.

Thompson, Weiner and Myers (1994) noted a disproportionate use of ECT on this age group in the USA in 1986. About one-third (exceeded 34%) of ECT recipients was aged above 64 years old, although they constituted a mere 8% of hospitalised psychiatric patients, and 16% of those with affective diagnoses. Also in the USA, patients, aged above 64 years old, were estimated to be about seven times more likely to receive ECT than those aged between 18 to 34 years (Olfson et al., 1998). Between April 1982 and December 1987, about half of ECT recipients in a NSW hospital were aged between 60 and 85 years old (Gassy & Rey, 1990). Another NSW study (Jorm & Henderson, 1989) stated that the number of ECT recipients rose as the age of patient increased, so that older adults received ECT about twice as often as did younger adults in private psychiatric services in the financial year 1985/86. In comparison to the USA, ECT administrations in the Eastern States of Australia were relatively scarce amongst elderly patients but the treatment constituted a large percentage of private psychiatric services received by the same age group.

In view of the ageing population in Australia, and the dearth of data on the use of ECT on older adults in WA, research was needed to obtain a statistical estimate of the prevalence and rate of incidence of ECT use in this group, and also to determine the public attitudes towards ECT use on older adults. These data would be useful in advocating government policies on various issues, such as obtaining power of attorney, guardianship, and/or acquiring informed consent for major medical procedures. These issues are gaining increasing importance as the baby boomers age and suffer medical conditions that require major medical treatments like ECT. Regardless of the age of the patient prescribed with ECT, informed consent must be obtained from the patient and/or his or her family (in the case of an underage patient) prior to being treated ("The Mental Health Act," Western Australia, 1996).

Non-Consenting Individuals

According to the Act ("The Mental Health Act," Western Australia, 1996), informed consent is considered to be given only if an explanation of the recommended treatment is provided and the patient has the capacity to give consent. Sufficient time must be allocated for the patient to consider the matter, obtain advice and assistance, as may be necessary. The consent must also be given freely and voluntarily. All professionals are warned that “failure to offer resistance to treatment does not in itself constitute consent to treatment” ("The Mental Health Act," s 95(2)).

In addition to the risks and benefits of ECT, the controversial nature of the treatment is also attributed to the issue of the paucity of informed consent (Edwards & Flaherty, 1978). This issue is generally concerned with the amount and type of information imparted to the patient (Durham, 1988). According to the results of the study by Bucens et al. (1986), about

9% to 32% of Western Australian Psychiatrists never discuss the actual ECT procedure with their patients, especially in State hospitals; about 12% to 38% did not offer treatment options; approximately 12% to 35% did not discuss side effects of ECT with their patients; and about 79% of psychiatrists would try to persuade patients with their knowledge and experience when patients refused to consent to ECT.

In another Australian study (Walter, Koster et al., 1999) that investigated the patients' perception of the effectiveness of the treatment, adolescent participants reported that the information provided during the process of obtaining informed consent was inadequate. These young patients were unaware that they could have refused the treatment. A recent review of nine studies found that 45% to 55% of ECT consumers were not given an adequate explanation prior to the treatment (Service User Research Enterprise, 2002). In another survey of 418 ECT recipients, who were treated in England in the first three months of 1999, 48% reportedly received no information about how the treatment works; 45% reportedly received no information about possible side effects; 35% reportedly received no information about either what the treatment involves, or their right to withhold their consent; and 15% reportedly received no information about why they were given ECT (Pedler, 2001). Of course it needs to be noted that some of these patients could have possibly forgotten the details that they were told prior to treatment since they are likely to suffer memory loss for the time around ECT.

In obtaining informed consent for ECT, it is recommended that practitioners provide clear information to facilitate a balanced judgement of the treatment ("The Mental Health Act," Western Australia, 1996). This includes specifying and clarifying that the treatment does not have adequate empirical support to justify its recommendation, or allow reliable outcome prediction, and warnings about any possible risks involved. Some practitioners recommended that patients be given detailed information about their psychiatric conditions;

the procedures involved in ECT; the list of drugs administered during the treatment; research data on the efficacy of ECT (including the high relapse rates); negative emotional effects; and all the costs involved in the treatment (e.g., Breeding, 2000).

While informed consent of the patient is stipulated to preserve the individual's rights, clinicians are concerned that promoting this right may sometimes compromise the individual's wellbeing, and this concern has been accepted as being legitimate by the WA legislation ("The Mental Health Act," Western Australia, 1996). Hence, provision has been made such that patients who do not consent to ECT, and are deemed incompetent to decide, may be detained and treated as involuntary patients in State psychiatric hospitals as long as two psychiatrists recommend the procedure, or ECT is administered as an emergency psychiatric treatment. Such an emergency would be in the situation when ECT is recommended to save an individual's life, or prevent a patient from behaving in a way that can be expected to result in serious physical harm both to him/herself and/or others. The capacity to consent to ECT is measured by an individual's ability to comprehend the relevant information; manipulate the information logically; understand the situation and its consequences; and express his/her decision (Appelbaum & Grisso, 1995). Some psychiatrists manage patients' refusal in other ways (Bucens et al., 1986). Two thirds of the surveyed psychiatrists in WA reported that they would seek the assistance of relatives to help change their patients' minds; about 74% would seek consent from the relatives of the patients; and up to 72% would over-ride the patients' refusal and so be free to give treatment. This issue of consent has yet to be examined in ECT attitudinal studies amongst the public.

Summary

Since its inception in 1938, ECT has been used to treat various disorders and diseases. Over time, many modifications were made to accommodate non-therapeutic complications.

Gradually, professional guidelines have been introduced to optimise its use, and prevent abuse. These standards determine the prescription process, administrative guidelines and certification criteria of the health care professionals involved in the treatment. Despite the rigorous procedures involved in prescribing, administering and monitoring ECT, discrepancies remain between the recommended practice and the common practice. Individuals may not be aware of such discrepancies but make decisions based on the expected professional standards. Such decision-making may not be valid since considerations regarding the efficacy of the treatment are usually not included.

Moreover, reports about the possible negative aspects of ECT indicate that ECT recipients may experience amnesia, drowsiness, confusion, disorientation, apathy, physical weakness, headaches, nausea and dizziness. ECT sometimes exerts permanent adverse effects on memory as well. ECT particularly causes memory loss of details of events that occur close to the period when the treatment is administered. This memory loss has an impact ranging from mild to profound on the recipient's life and sense of self. ECT patients and those around them continue to report dramatic changes in personality after treatment, although research rarely examines the impact of ECT on the neurological abnormalities that precede the development of affective disorders. In some studies, the lack of evidence for the side effects of ECT suggested methodological flaws inherent in experimental research, and/or the limitations of modern technology and mortal understanding of the intricacies of the human physiology. Thus, the patient needs to weigh the benefits of ECT with the risk of irreversible cognitive impairments, particularly since the relief provided by the treatment may be partial and transient. It is a fact that relapse rates reach up to 84% after treatment, and so, maintenance therapy (less frequent ECT and/or pharmacotherapy) is highly recommended post treatment to reduce the rate of relapse.

Knowledge of research limitations enables patients to understand the mitigating factors involved in ECT studies, and encourages rational management of relevant ECT information. This is necessary in order to build a grounded awareness of the topic. Otherwise, it is doubtful that the individual's consent is informed and genuine for this major medical procedure, in accordance with legislation.

Given the importance of the issues presented above, a review of the appropriate literature relating to ECT attitudes and practice is necessary to reveal the specific issues in need of further systematic empirical scrutiny. This will be discussed in Chapter 3.

Chapter 3

Empirical Research on ECT Attitudes and Practice

The focus on public knowledge is pertinent because the public comprises the clients, potential clients, and relatives of clients of mental health services. Moreover, the attitudes of the general public are invaluable as a large proportion of the surveyed psychiatrists in WA take consideration of public attitudes to exert some influence on their prescription practices. They were aware that perception of attitudes towards having ECT figure largely in a patient's decision to give consent to having ECT (Bucens et al., 1986). Attitudinal studies conducted in the past have focused on one hospital (e.g., Gass, 1998), health care professionals (e.g., Janicak, Mask et al., 1985), unmodified ECT (Freeman & Kendell, 1986), or ECT conducted overseas (e.g., Kalayam & Steinhart, 1981). To date, despite prolific professional discussions (e.g., Miller, 1995) and research on the efficacy of ECT on minors and older adults (e.g., Moise & Petrides, 1996), there has been no known survey conducted to document public attitudes towards ECT, specifically with children, older adults and those who refuse to have ECT.

Public knowledge and attitudes have influential effects on research trends, and political and educational policies regarding ECT practice (Abrams & Pallanti, 2000; Bucens et al., 1986; Durham, 1989; Service User Research Enterprise, 2002; Simini, 1999). Public surveys help in identifying the necessary information required, target groups of individuals, and/or the media through which public mental health education may be conducted to promote "mental health literacy" (Jorm et al., 1997, p. 182).

Mental health literacy amongst lay individuals was defined by Jorm et al. (1997) to consist of: (a) the ability to recognise specific disorders or different types of psychological stress; (b) knowledge and beliefs about risk factors and causes; (c) knowledge and beliefs about self-help interventions; (d) knowledge and beliefs about professional help available; (e) attitudes that facilitate recognition and appropriate help-seeking; and (f) knowledge of how to seek mental health information. This public mental health literacy was essential in assisting an individual to make informed decisions about ECT when the need arises (Rey & Walter, 1997). Taken in this context, mental health literacy regarding ECT, or "ECT literacy", refers to information about ECT as stipulated in the Mental Health Act ("The Mental Health Act," Western Australia, 1996, s 97 (1)):

> (a) containing sufficient information to enable the patient to make a balanced judgement about the treatment;
>
> (b) identifying and explaining any medication or technique about which there is insufficient knowledge to justify its recommendation or to enable its effect to be reliably predicted; and
>
> (c) warning the patient of any risks inherent in the treatment.

Thus, the Act appears to define the basic materials required to make informed decisions about ECT as information about the treatment procedure; the uses of the treatment (for example, the conditions for which ECT is usually recommended as a treatment); the risks involved; and the reliability of the prognosis given of the treatment.

"Knowledge", as defined by *The Australian Modern Oxford Dictionary* (1998), is a "body of information" (p. 452). Hence, public knowledge of ECT refers to the body of ECT information held by the general public. To obtain an estimate of the level of understanding of ECT amongst members of the public, past studies (Jorm et al., 1997; Kalayam & Steinhart, 1981; Kerr et al., 1982; O'Shea & McGennis, 1983) quantified and analysed responses to specific questions pertaining to various aspects of ECT to assess the scope and accuracy of public ECT knowledge.

"Attitude", on the other hand, encompasses an emotional component, which is influenced by the type and amount of information held. For instance, a positive perception breeds an optimistic attitude towards the issue. Most attitudinal studies in the past (Freeman & Kendell, 1986; Gass, 1998; O'Shea & McGennis, 1983; Walter, Koster et al., 1999; Wheeldon et al., 1999) measured this construct by having respondents indicate their agreement with a list of attitudinal statements, and/or state if they approved or disapproved of the administration of ECT in general. The frequencies of positive and negative responses were then tabulated to ascertain the attitudes of the sample population. However, these past researches have measured attitudes towards ECT in general, without a specific focus on special populations.

There has been much discussion surrounding the use of ECT with children, older adults and those who are unwilling to receive ECT (eg. Wheeldon et al., 1999). This is due to many factors, including the controversial nature of ECT, the psychological and physiological vulnerability of children and older adults, and the freedom of choice for individuals. Yet, attitudinal surveys in the past have neglected to focus on these aspects specifically.

Public attitudes towards ECT on underage children, older adults and non-consenting patients are important, given the controversy amongst health care professionals. This is due to three reasons. Firstly, disproportionately more older adults are treated with ECT (Wood & Burgess, 2003). Secondly, specific issues related to the use of ECT on these subgroups have generated much discussion (e.g., Baker, 1994) and many efficacy studies (e.g., Coffey, Figiel, Djang, & Weiner, 1990). These issues provoke much emotion in many individuals, both lay people and health care professionals. Thirdly, attitudes towards ECT on these groups influence legislation on the administration of this procedure as a treatment (Durham, 1989). However, to date, no known attitudinal survey has focused on the attitudes of the public towards ECT on each group mentioned. Relevant attitudinal studies are discussed.

Previous Attitudinal Studies

Kalayam and Steinhart (1981) Study

In the city of New York, USA, Kalayam and Steinhart (1981) surveyed 76 psychiatrists, 85 psychiatric nurses, 67 psychologists, 72 social workers, 63 ECT recipients and 224 lay people to examine their attitudes towards ECT. The survey used a self-administered questionnaire with seven short multiple-choice items. The items aimed at evaluating attitudes towards the suitability of ECT as a treatment of last resort; responses to the receipt of ECT; responses to observing the administration of ECT; reactions to the use of electricity; knowledge of the impact of ECT on memory; and the extent of differences with minor surgical procedures.

Overall, the participants agreed on the suitability of ECT; its clinical effectiveness; and that its impact on memory was innocuous (Kalayam & Steinhart, 1981). Psychiatrists were unanimously favourable towards ECT. The responses of psychologists and some social workers were similar to that of the public, which illustrated some ambivalence towards, and fear of, ECT. ECT recipients expressed the least fear of ECT.

These findings depicted a few interesting points. One of these was that public attitudes towards ECT were not predominantly influenced by the media. While the media portrayed ECT negatively through movies, like *One Flew Over the Cuckoo's Nest* (Goldman & Hauben, 1975), lay individuals continued to perceive ECT positively. In addition, the extent to which the responses of psychologists and psychiatrists differ might reflect differences in professional training. Psychology programs tend to focus on biopsychosocial factors in aetiology and therapy (Myers, 1995). Consequently, most psychologists work with clients using a holistic approach that incorporate multiple factors that are pertinent to individuals' lives. On the other hand, psychiatry is usually influenced by its medical origin, which centres on the biological model (Valentine, 2003). As shown above, the biological model forms the basis and the predominant involvement of psychiatrists in the historical development of ECT.

However, this report (Kalayam & Steinhart, 1981) did not describe the development of the items in the questionnaire, nor present the specific items used. Moreover, it was conducted in 1979 during which many modifications were being introduced to the treatment (Abrams, 1997). It was unclear if the statements in the survey differentiated between modified and unmodified ECT. Attitudes towards ECT may change significantly as the treatment becomes more sophisticated (Endler, 1982). Conducted more than two decades ago in a small part of the USA, these findings might not be directly applicable to the local community. On the other hand, Kerr et al. (1982) examined the attitudes and perceptions of individuals from a general hospital in Australia.

Kerr, McGrath, O'Kearney and Price (1982) Study

In examining ECT attitudes and misconceptions, Kerr et al. (1982) developed a self-administered questionnaire to survey 56 visitors to non-ECT treated patients (Group 1), 62 visitors to ECT treated patients (Group 2) and 60 ECT recipients (Group 3) within the psychiatry department of a general hospital in NSW. The questionnaire consisted of 32 belief statements to which respondents were expected to indicate 'agree', 'disagree', or 'don't know'. These statements generally evaluated beliefs about ECT procedure, the side effects, and general beliefs about the purpose of ECT. The questionnaire also included demographic questions, and items that enquired about respondents' sources of ECT knowledge and attitudes to being treated with ECT. "Don't know" responses were excluded in the data analyses.

Results indicated that Group 2 had fewer misconceptions than Group 1 (Kerr et al., 1982). Scores obtained by Group 2 were similar to Group 3, other than differences in their beliefs about the nature of ECT. Not surprisingly, Group 3 indicated a better understanding of the nature of the treatment, given their personal experiences. ECT recipients also expressed more favourable attitudes towards ECT than Groups 1 and 2. Group 2 indicated more positive attitudes towards ECT than Group 1. Group 2 and Group 3 did not differ in their responses regarding the effectiveness of ECT. Group 1 was more likely to have obtained ECT information from friends, films and television than Groups 2 and 3. Group 2 was more likely to cite friends as a source of information than Group 3. In Group 2, participants who cited doctors as sources had significantly higher scores on the belief variables, and less fear of the treatment. Respondents in Groups 1 and 2, who indicated friends, or films and television as sources, scored significantly lower on all belief variables, and were more fearful of ECT. Male respondents were generally less fearful of ECT than females, a difference that was only significant for Groups 1 and 2. Older participants were also more likely to have "correct" beliefs of ECT and had no fear for the treatment. Participants without tertiary or vocational education were more likely to cite friends as sources of ECT information. Those with higher education indicated correct responses on side effects and general belief variables. Higher education was not found to be associated with fear of ECT or attitudes towards the effectiveness of the treatment.

This survey of 178 participants (Kerr et al., 1982) showed a systematic evaluation of ECT attitudes across several relevant variables, such as sources of information, age, education and gender. Yet, in the calculation of the results, the authors did not state the underlying reason(s) for excluding "don't know" responses. Within the context of evaluating knowledge, "don't know" responses are informative in showing the extent of knowledge that is lacking within the sample. While it is useful to categorise survey items to clarify the various types of knowledge and attitudes demonstrated by participants, the categorisation appeared vague. Indeed, it was difficult to differentiate items that assessed beliefs about the treatment itself from those beliefs regarding the side effects. For instance, beliefs about tissue damage during ECT might be perceived as a side effect of ECT. Furthermore, the relatively small sample size limited the statistical power and as a consequence, the analysis of the effects of variables (e.g., age, sex and education levels). These findings encouraged replication with a larger sample to obtain firmer conclusions. The relationships between education levels and scores on the side effect belief variable and the general belief variable suggested a possible relationship between ECT knowledge and attitudes. In addition, the applicability of these findings of one general hospital, obtained more than 20 years ago, to the larger Australian context today was questionable. It might be more useful to widen the scope of the survey to investigate knowledge of various aspects of ECT, instead of focusing on misconceptions, a small subset of ECT knowledge. These aspects were examined in a study conducted in Dublin (O'Shea & McGennis, 1983), whereby lay individuals reported their perceptions of ECT as a form of treatment.

O'Shea and McGennis (1983) Study

A pilot study was conducted in Dublin, where 100 workers from an industrial facility were surveyed with a self-administered questionnaire (O'Shea & McGennis, 1983). The questionnaire obtained information about the respondents' demographics; their personal experiences of ECT; their knowledge about ECT procedures and side effects; their attitudes towards being recommended for treatment with ECT; and their attitudes towards certain ethical issues. The ethical issues included consultant psychiatrists delegating the delivery of the treatment to junior doctors; compulsory ECT; and the distinction between ECT as a treatment and as a torture device. The sample was predominantly male (73%), married (72%) and aged between 31 to 40 years old (43%).

The study found that very few lay individuals were aware of the treatment procedures (O'Shea & McGennis, 1983). About 71% agreed with the list of ECT side effects. No one indicated that they would accept the recommended ECT immediately. Three quarters indicated that they would consider the recommendation after discussions with their family and/or medical doctors. Approximately 68% stated that they would require an explanation of ECT while they considered the recommendation. Indeed, more than half specified that they would require detailed ECT information. A large proportion of the sample stated that they would not force their relatives to have ECT. Nearly half responded negatively to the possibility that their relatives would force them to have ECT. Only 14% did not perceive any difference between ECT as a treatment and as a torture device. Many respondents reported complications as temporary, and attributed the enduring side effects to failure of the treatment to improve the illness. Respondents tended to associate memory deficits with ECT. Differential responses across gender and age groups were also found. Females were less likely to advise others to have ECT, while males and older adults were more likely to agree to give permission to administer ECT on their relatives. While an estimated 62% indicated objection towards the delegation of the treatment to junior doctors, men and older adults were less likely to object than females and younger respondents. Many respondents were not convinced about how the treatment works and its purported benefits.

This study (O'Shea & McGennis, 1983) was designed as a pilot conducted with a small sample in one organisation. As such, generalisation of its results is restricted to industrial workers, who are predominantly from a lower socio-economic status. It was likely that individuals from higher socio-economic status with better educational opportunities did not share such views about ECT. Hence, while the respondents were randomly selected within the organisation, the sample might not be representative of the wider community. Further, differential responses across demographics, such as age and gender, could not be accurately determined due to the small sample size, and the disparities between groups. Moreover, similar to the study discussed above, this pilot was conducted more than twenty years ago in Dublin. Attitudes towards ECT might have changed over time. Australian perspectives might vary from those in Dublin as well. Ethical issues surrounding ECT were rarely examined in attitudinal studies. It would be interesting to observe if attitudes towards such factors within the Australian context were similar to those found in Dublin.

A more recent study used a larger sample in Australia for their investigation of public attitudes towards ECT (Jorm et al., 1997). However, the study adopted a general focus.

Jorm, Korten and Jacomb (1997) Study

In collaboration with the Australian Bureau of Statistics, Jorm et al. (1997) interviewed 2,164 individuals across Australia to assess the ability of the public to recognise specific mental disorders; to seek mental health information; their knowledge of the risk factors and causes of self-treatments and professional help available; and the attitudes that promote recognition and appropriate help-seeking. Half the sample was presented with a vignette describing a person who met *The ICD-10 Classification of Mental and Behavioural Disorders. Diagnostic Criteria for Research (ICD-10)* (World Health Organisation, 1993) and the *Diagnostic and Statistical Manual of Mental Disorders (4th Ed.) (DSM-IV)* (American Psychiatric Association, 1994) criteria for major depression, and the others were shown a vignette of a person who met *ICD-10* and *DSM-IV* criteria for schizophrenia. The gender of the person described was manipulated to be male (John) or female (Mary). After the participants had read the vignette, they were asked two open-ended questions: (1) "What would you say if anything, is wrong with John/Mary?" and (2) "How do you think John/Mary could best be helped?" The interviewers further enquired about the respondents' knowledge of, and views about, various people who could help; a range of possible treatments; knowledge of likely recovery; knowledge of risk factors; and beliefs associated with stigma and discrimination.

Only results obtained from responses to the depression vignette were reviewed since schizophrenia was not the focus of this study. According to Jorm et al. (1997), in response to perspectives might vary from those in Dublin as well. Ethical issues surrounding ECT were rarely examined in attitudinal studies. It would be interesting to observe if attitudes towards such factors within the Australian context were similar to those found in Dublin.

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Only results obtained from responses to the depression vignette were reviewed since schizophrenia was not the focus of this study. According to Jorm et al. (1997), in response to the depression vignette, 39% correctly identified depression and 72% mentioned a category that could be considered a mental health issue. To best help the person with depression, 44% of respondents recommended that seeing a doctor; 23% suggested a counsellor; 20% "talk over with family or friends"; 8% mentioned a psychiatrist; and 5% did not know (Jorm et al., p. 185). When provided with various categories of people who could help, and instructed to state whether each category was likely to be helpful, harmful or neither, for the person in the vignette, most of the respondents regarded general practitioners (83%), counsellors (74%), close friends (73%) and close family (70%) as helpful. ECT was perceived as harmful by 72%, while 10% were unsure. It was deduced that only about 18% perceived ECT as helpful. The study showed that most lay people were capable of recognising the symptoms of mental disorders presented in the form of vignettes. Apart from the content, the study revealed that vignettes were an accepted technique adopted in public surveys in this domain.

However, some limitations were inherent. The study (Jorm et al., 1997) excluded individuals above 75 years of age and those below 18 years old. The age range of the sample was 18 to 74 years old. This was not representative of the ageing population prevalent in most countries, and the population of ECT consumers. Studies (Gassy & Rey, 1990; Jorm & Henderson, 1989; Olfson et al., 1998; Thompson et al., 1994) have shown that a significant proportion of ECT recipients were older adults. More than 34% of ECT recipients were older adults in the USA, while about half of the ECT recipients in an Australian hospital during 1982 to 1987 were aged 60 to 85 years. It might be argued that individuals above 75 years old formed a small proportion but the increase in older adult ECT consumers would also be expected to continue. Given that this group was seven times more likely to be treated with ECT than adults, and as the proportion of older adults (above 64 years old) rose each year (Codde, Roberts, & Gill, 1997), there would be a greater number of older adults who are more likely to be prescribed ECT.

More importantly, attitudinal variation across individuals might be due to differences in personal and social experiences. For instance, older adults might have a negative perception of ECT since they were more familiar with unmodified ECT application. ECT information might also have been relatively less accessible and comprehensive in the past, so that this age group might be less informed of the treatment. An alternative viewpoint was that older adults generally did not question medical treatments but relied on health care professionals to act in their best interests. This would reflect changes in the medical system whereby in the past, the management of patients and treatments were determined solely by health care professionals. On the other hand, young adolescents might be comparatively more hopeful about the advancement in science and technology, and hence, more positive about ECT. Adolescents might also expect fewer directives on their health management but anticipate the provision of relevant information, and the opportunities to decide their own personal health care treatment.

In most developed countries, patient autonomy has been promoted widely (Appelbaum & Grisso, 1995) in recent years. WA legislation now requires patients to give informed consent to treatment procedures, which requires the understanding of the treatment options and consequences ("The Mental Health Act," Western Australia, 1996), and consequently, underlines the need for an adequate level of mental health literacy to be held by patients and their families.

Moreover, the study by Jorm et al. (1997) was a general investigation into the knowledge of depression and schizophrenia. Only one item in the interview enquired about public attitudes towards ECT. Hence, an updated study was required to investigate the attitudes of individuals within various age groups to be representative of the local community. A survey of attitudes towards ECT particularly was also needed to systematically examine attitudes towards the use of ECT with children, older adults and non-consenting individuals. A summary of these attitudinal studies is presented in Table 1.

Table 1

Summary of Previous Public Attitudinal Studies on ECT

Study	**Date**	**Country**	**Sample**	**Main Findings**
Kalayam and Steinhart	1981	New York, USA	63 ECT patients 224 public members 76 Psychiatrists 85 Nurses 67 Psychologists 72 Social Workers	▪ An overall positive attitude towards ECT ▪ Patients least frightened of ECT ▪ Psychologists and Social Workers most fearful of ECT
Kerr et al.	1982	Queensland, Australia	56 non-ECT patient visitors 62 ECT patient visitors 60 ECT patients	▪ Patients most optimistic about ECT ▪ 73% patients felt ECT was helpful ▪ Media generated misconceptions of ECT ▪ Patients' gender not associated with fear for ECT
O'Shea and McGennis	1983	Dublin, Eire	100 public members	▪ 24% would refuse to consent to ECT ▪ 14% viewed ECT as an electric torture ▪ 47% would advise ill family members to have ECT
Jorm, Korten and Jacomb	1997	Australia	2164 public members	▪ 39% accurately identified depression symptoms ▪ 8% would recommend a psychiatrist to help with depression ▪ 83% regarded General

	Practitioners as most helpful ▪ 62% viewed psychiatric admission as harmful ▪ 72% viewed ECT as harmful

Despite their limitations, these studies were noteworthy in several ways. Most of them illustrated a general negative disposition and fear towards ECT amongst the public. Further, lay individuals recognised mental illness adequately (Jorm et al., 1997) but had little knowledge about ECT (Kerr et al., 1982; O'Shea & McGennis, 1983). These findings contributed significant advances in ECT attitudinal research but some gaps remained. An updated survey was not only needed to examine public attitudes within an Australian context, but extend the scope to include public ECT knowledge, as well as to examine the relationship between ECT knowledge and attitudes, and the effects of variables (e.g., sex, age and education level) that previous findings had implied. These past surveys were useful in guiding the development of a questionnaire specifically for these purposes. In contrast, little is known about ECT usage.

Prevalence of ECT Practice

Following the "successful" administration of ECT on the first human being in 1938, ECT soon became the treatment of choice for many conditions (Abrams, 1997), and is applied to many types of mental and medical conditions (Department of Human Services, 2000). Within WA, there is no specific standard that governs the practice but practitioners subscribe to the Clinical Memorandum Number 12 (Royal Australian and New Zealand College of Psychiatrists, 1999) (S. Baily, personal communication, May 29, 2003).

Accordingly, ECT is recommended predominantly for major depression; "especially with melancholia, psychotic features and/or suicidal risk" (Royal Australian and New Zealand College of Psychiatrists, 1999, section 2.2.). Other indications include mania, acute schizophrenia, neuroleptic malignant syndrome and Parkinson's disease. Indeed, there are "no "absolute" contraindications to ECT", except increased intracranial pressure (Royal Australian and New Zealand College of Psychiatrists, s 3.1.).

To determine the suitability of ECT, prescribing practitioners are also encouraged to consider the severity of the illness, the degree of suffering of the patient, the expected therapeutic effects, and the prognosis of the condition if ECT were withheld (American Psychiatric Association, 1990). "Severe psychiatric illness with food and fluid refusal" also support the prescription of ECT (Banazak, 1996, p. 274).

Studies that documented the usage of ECT were mostly conducted in the USA (e.g., Thompson et al., 1994), while a British (British Medical Association, 1999) and a few Australian studies (e.g., Wood & Burgess, 2003) offered a partial picture of the administration of ECT within each country. According to data from the UK, USA and other Australian States, ECT practice varied between countries. Its rate of use in one area also changed over time. In England, 900 males and 1,900 females were treated with ECT in a three-month period. About 16,500 ECT sessions were administered to 2,800 patients between January and March 1999. The number of ECT administrations in the USA was documented as 58,667, 31,514, and 36,558 patients in 1975, 1980 and 1986, respectively. Assuming a course of ECT comprised eight treatments at that time, it was estimated that 300,000 sessions of ECT were conducted in the USA in 1986, and about 100,000 American patients were treated with ECT between 1988 and 1989 (Hermann et al., 1995). In the psychiatric unit of a NSW general hospital, about 6% of the admissions were treated with 1,168 treatments of ECT within a six-year period, which approximated a yearly rate of 1.24 treatments per 1,000 population (Gassy & Rey, 1990). About 18% of the ECT recipients received 44% of the total number of courses administered in the hospital. Unfortunately, no study has documented the rate of ECT administration in WA, so it is difficult to determine the standard of practice in relation to other regions.

Within one country, the frequency of ECT administrations may vary across different States. While no ECT was reportedly administered in 36% of the metropolitan statistical areas in the USA, its use in the remaining areas varied from 0.4 per 10,000 population in the lowest-use metropolitan statistical area to 81.2 per 10,000 population in the highest-use area (Hermann et al., 1995). Hermann et al. also noted a higher frequency of ECT administrations in the Western American States than the Eastern States. They attributed this difference to the numbers of psychiatrists, general practitioners, and private hospital beds per capita.

A more recent survey (Olfson et al., 1998) found the contrary; that is, Eastern and mid-Western American patients were about twice as likely to receive ECT as their counterparts in the Western States. It was also more likely for depressed patients in the West North central States to be treated with ECT than those in mountainous regions. Differential rates of ECT administration across the USA were attributed to differences in State regulation of ECT practice. It was possible that Olfson et al. found contrary results from Herman et al. (1995) because the studies differed in their division of the American States, and the Southern States were excluded in each study because of few ECT administrations. ECT was utilised more frequently in private and academic American medical facilities than in State hospitals (Thompson et al., 1994). The likelihood of receiving ECT was significantly reduced in a rural hospital as compared to an urban hospital. These findings suggested that the prescription of ECT was dependent on the availability of funds to finance the treatment and facilities. Hence, rural/private hospitals with relatively less funding than urban/State hospitals did not administer ECT as frequently, or at all, because there were no suitable facilities to conduct

ECT. They also suggested that the clients of rural/State hospitals could not afford to pay for expensive treatments like ECT, so they were less likely to have it.

An Australian study (Wood & Burgess, 2003), conducted recently in Victoria, estimated 40 and 44 persons for every 100,000 resident population per year being treated with ECT in the public and private sectors, respectively, over 1998/99. In addition, about 330 and 363 ECT administrations per 100,000 resident population every year, respectively, were documented in that State in the same time period. Without comparable statistical data, it was difficult to determine if the pattern was the same in WA. The practice of ECT appeared to have many restrictions within the Eastern Australian States (Durham, 1988; Edwards & Flaherty, 1978). If the variability in ECT practice across the American States was of any indication, it was difficult to estimate the prevalence of ECT practice in WA from these Victorian statistics. Rather, this indicated a need to document the rate of use of ECT locally.

While these studies documented the general application of ECT, specific data regarding the characteristics of patients and the frequency of administration on subpopulations would allow a richer understanding of the practice. Specifically, ECT usage on underage children, older adults and involuntary patients is important because of conflicting opinions amongst health care professionals in relation to these groups (Baldwin & Jones, 1998; Breeding, 2000; Cobb, 1995).

Summary

From a broad perspective, the importance of ECT knowledge amongst the general public is growing considering the rise in depression rates, the high rate of lifetime prevalence for mental disorders, and ECT clinicians' perceptions that ECT would be useful for many conditions. Public opinion regarding ECT on various subpopulations, such as non-consenting individuals, influences government legislation and prescription practices of some health care professionals. Consequently, it would appear that future research should aim at determining the opinions of lay people towards ethical issues like, the application of ECT on non-consenting individuals.

Data regarding ECT usage and patient characteristics in Australia are scarce because studies have been limited to the private sector, one hospital and parts of the Eastern States. There was neither datum on WA ECT application nor information on the characteristics of WA ECT recipients to allow a good understanding of the local practice. Hence, a local study was needed to determine the characteristics of ECT recipients, and the frequencies of ECT administrations and patients.

Information about ECT practice is as essential as research on the efficacy of ECT. A record of the number of ECT administrations on certain populations, such as children (aged under 16 years old), older adults (65 years and above) and involuntary patients, was crucial in the examination of the use of ECT on a heterogeneous population. These statistics would be useful in shaping research directions, budget funding, political legislation and mental health education. For instance, increasing numbers in child and/or older adult ECT recipients might necessitate increases in research on the efficacy and effects of ECT on these special populations. It was anticipated that such findings have considerable implications for mental health education through the identification of groups that were most susceptible to being prescribed with ECT. Mental health educational programs and policies could then be more specifically targeted. Furthermore, statistics on ECT applications in WA, including the characteristics of ECT recipients, and the number of ECT administrations and ECT recipients per year, would allow comparisons with the practice elsewhere. It was anticipated that these comparisons would depict differences between practice and professional standards, and/or cultural differences in ECT utilisation or mental health needs.

Therefore, given that ECT is primarily recommended for individuals with depression, and that patients with affective disorders were twice as likely to receive ECT than other diagnosis, a study should focus on ECT practice on individuals with depression, as diagnosed by the *Diagnostic and Statistical Manual of Mental Disorders, 4th Ed. (DSM-IV)*.

The limitations of past studies, the partial focus on the practice in Australia, and the scarcity of general public involvement called for an up-to-date report on ECT practice to be conducted within the local community. Moreover, conflicting results in the association between ECT knowledge and attitudes obtained by past studies, and the dearth of research that investigated public knowledge about, and attitudes towards, ECT raised the need to examine these areas. While it was recognised that knowledge might be difficult to assess, research was needed to determine the following questions:

1. What was the level of public knowledge of ECT?
2. What were public attitudes towards ECT on specific groups?
3. What was the relationship between public ECT knowledge and attitudes?
4. What were the characteristics of ECT patients treated in WA?
5. Were the numbers of ECT recipients and administrations increasing in WA?

In this thesis, the research questions above were investigated by means of three separate studies. Study 1 involved the development of a questionnaire based on literature review and feedback obtained from discussion groups. The questionnaire was designed to examine the first three research questions, namely, to understand public knowledge about, and attitudes towards, ECT in the local community, including attitudes towards subgroups.

In order to investigate public knowledge and attitudes, the development of a questionnaire was necessary. Considering the importance of the contextual issues of ECT, and to facilitate comparison with prior research, this questionnaire examined the sources of ECT information; the depth of ECT knowledge (objective and subjective self-report); the likelihood of the respondents seeking information about ECT; the main factors that were associated with ECT attitudes; and the types of resources that might facilitate an informed decision. Basic ECT knowledge that is adequate for a rational judgement of the treatment to give informed consent was defined by information about the process and procedures involved in ECT; the conditions for which ECT is usually recommended as a treatment; its risks; and the factors that affect prediction of treatment prognosis.

In addition to surveying individuals' attitudes towards having ECT themselves, the questionnaire assessed public opinions of ECT on individuals who were depressed because of their negative life experiences; young children; older adults; and those who were treated with ECT against their wishes.

In the second study, copies of the questionnaire were distributed amongst members of the public to ascertain their level of knowledge about, and attitudes towards, ECT. It was also expected that results from the questionnaire would enlighten on issues, such as the association(s) between public knowledge and attitude, and the influence of other factors on public knowledge and/or attitude. These factors included the demographics of respondents, self-rated levels of ECT knowledge, and the willingness of respondents to obtain more information on ECT.

Finally, the third study presented the characteristics of ECT recipients and the prevalence of ECT practice within WA using databases from the Mental Health Information System (MHIS), collated by the WA Health Department, and a psychiatric facility. MHIS was a state-level patient register in which demographic, administrative and diagnostic information were collected for patients with mental health conditions in WA. The data included the number of ECT administrations conducted between the periods of 1997 to 2001; the number of ECT recipients per year over the same time; and the characteristics of ECT recipients treated between 1988 and 2001.

Together, Studies 2 and 3 aimed to provide support for improvements in mental health education and research on ECT, and then attempted to augment ECT literature since it was lacking in current information regarding the frequency of ECT practice in WA. In understanding public attitudes towards the treatment, this study, while acknowledging the controversy surrounding ECT, would not promote any particular attitude. It was also not the purpose of this study to present a detailed evaluation of the risks and benefits of ECT, or to determine the morality of prescribing ECT.

In view of the above research questions, the following chapters describe the manner with which this research was conducted; the results obtained and the implications of the findings. Each study would be presented separately. In conclusion, Chapter 7 discusses the findings in light of prior research, and highlights the manner in which some of the results from Studies 2 and 3 illustrated some broader perspectives.

Chapter 4

Development of Questionnaire

Due to the dearth of appropriate assessment tools available to survey a wider community, it seemed that development of a specific questionnaire was imperative in order to examine public knowledge about, and attitudes towards, ECT. Previous attitudinal surveys could only be used as guides in the development of a self-administered questionnaire for this thesis. This chapter describes the manner in which the survey items were developed and piloted.

Participants

Fifteen individuals were recruited to form discussion groups. They consisted of undergraduates from the University of WA and Murdoch University, engineers, teachers, psychiatrists, a clinical psychologist and a statistical analyst. The ages of these participants ranged from 21 to 60 years.

Three psychiatrists were recruited for their professional involvement with ECT patients. They provided relevant background information about ECT, including their experiences with ECT patients; the recommended criteria for prescribing ECT; the manner of treatment administration; the confounding factors involved in the research of ECT; and some common complaints from ECT patients. Most importantly, these psychiatrists represented a group whose practice might be influenced by the responses obtained from these questionnaires.

Feedback from the statistical analyst, who was familiar with the development of attitudinal surveys, focused on the presentation of each item in the questionnaires. His feedback was constructive in standardising and simplifying the questions for use with the public.

Most other participants in this pilot were chosen because they were members of the public. Their feedback on the comprehension and interpretation of the items was vital as they provided a glimpse of the public perspective, which ensured that the materials were easy to follow, and the vignettes were realistic. Two groups of six and four participants, respectively, were organised because they were familiar with one another. The remaining five participants were interviewed individually due to time constraints and difficulty in reconciling various busy schedules.

An additional five participants were recruited to pilot the final versions of the questionnaire. This group comprised clerks and health instructors from various organisations.

Materials

Initially, information leaflets were collected from various ECT treatment centres and analysed with a view to using the printed information as a basis for the questionnaire. However, on examination, these pamphlets contained insufficient information, in accordance with the Act ("The Mental Health Act," Western Australia, 1996), that was in-depth enough to help individuals make their informed decisions. Therefore, to establish construct and face validity, the questionnaire items were developed from literature review and feedback from discussion groups.

The literature reviewed showed the main aspects of ECT on which knowledge questions should focus (Kerr et al., 1982; O'Shea & McGennis, 1983); and the possible myths that might be used as distractions (Cameron, 1994). Feedback from discussion groups determined the construction of each item and the suitability of each item and their options.

The controversy surrounding ECT created challenges in the development of the items in the questionnaire, particularly those that aimed at assessing ECT knowledge.

The development of this questionnaire was guided by past survey instruments. As indicated by Kerr et al. (1982), ECT Survey I (see Appendix B) tapped the demographic details of respondents (e.g., gender, age and main occupation), and the source(s) of ECT information from which they previously heard of the treatment. The list of ECT sources was an extended version of that adopted in the previous survey. In line with the inclusion of ECT recipients in the sample of Kerr et al. and the questionnaire used by O'Shea and McGennis (1983), 'personal experience' was included as a source of ECT information in this questionnaire. Other additional sources were the Internet and health care professionals.

In testing respondents' knowledge about the recommendation criteria of ECT, and following from the results obtained by Kerr et al. (1982), two options were intentionally included to identify the effects of media stereotypes on ECT as a punitive measure, and/or indiscriminate use on psychiatric inpatients (Goldman & Hauben, 1975). These options were, as follows: "when the patient causes problems" and "when the patient is hospitalised". In some circumstances, the reasons for prescribing ECT might be interpreted as controlling patients, particularly inpatients, but causing problems and being hospitalised are not the main indicators of ECT according to the official ECT guidelines used in WA (Department of Human Services, 2000; Royal Australian and New Zealand College of Psychiatrists, 1999).

To find out if participants were aware of the conditions for which ECT is indicated, a list of psychiatric conditions was offered. The list of conditions was presented as descriptions of the main symptoms in each condition. This was done to refrain from confusing participants with jargon, and benefit those who were unfamiliar with diagnostic labels.

In ECT Survey I, feedback from these discussion groups was categorised as follows:

- Minor amendments to the instructions, so that respondents had a clearer understanding of what was expected of them
- Specific instructions in the sequence of questions for participants who had never heard of ECT
- Alterations to certain response options from the multiple-choice items: some options were constructed deliberately to be similar to one another in order that the correct answer was less obvious, and to avoid the respondents using guesswork; provision of an "others" option in Question 6, so that respondents were able to elaborate on options that were not included
- More positive options were included, so that respondents were not given a negatively skewed perspective of ECT that would subsequently affect their attitudes towards ECT in ECT Survey II

Two questions were combined since they both referred to the side effects of ECT in general. In light of research that indicated that headaches, nausea/vomiting, confusion, poor memory (Pedler, 2001), neurological impairment (Andreasen et al., 1990; Calloway et al., 1981) and changes in personality (Service User Research Enterprise, 2002) were possible ECT complications, these were included as options in the item that assessed the side effects of ECT. A question was added to examine the respondents' understanding of the level of relief offered by ECT to its recipients. Discussion groups determined that complete or partial relief might be temporary or permanent.

Similar to the survey items used by Kerr et al. (1982) and O'Shea and McGennis (1983), and in accordance with the recommendations made by the focus groups, each ECT knowledge item focused on different aspects of the treatment to assess the different levels of ECT knowledge amongst respondents. Individuals with high levels of ECT knowledge might be assumed to know what ECT involved; the main purpose of ECT; the conditions for which

ECT was usually recommended as a treatment; the level of consciousness of the patient during the treatment; the possible side effects of ECT; and the extent of relief provided by ECT. In view of the requirements for informed consent for ECT ("The Mental Health Act," Western Australia, 1996), these items constituted essential ECT literacy that enabled individuals to make informed decisions about ECT. These were compared with the rest of the ECT knowledge items that were not essential in deciding whether to have ECT. The less central items assessed whether respondents knew to what part of the human body ECT should be administered; the criterion a psychiatrist would use in deciding the suitability of prescribing ECT; the age groups of ECT recipients; the health care professionals who delivered the treatment; and the venue where ECT was usually conducted.

One question explicitly assessed whether respondents were interested in finding out more about ECT. This was included to ascertain how successful a program that is designed to raise public knowledge of ECT is. Respondents were also asked to expand on the reasons behind their decisions.

The overall utility of ECT Survey II for individuals with no knowledge of ECT was questioned. As people are unlikely to have an opinion on a topic they know nothing about, it was deemed necessary to provide a short introduction containing a few pertinent facts. It was also important that this introduction did not bias the respondents' opinions. Moreover, as it was one of the goals of this study to compare the attitudes with the level of knowledge (objective and self-rated) of each participant to determine the relationship between knowledge and attitudes, it was useful for each participant to know a little about the treatment so that an opinion could be given.

Attitudinal responses were also changed from absolute "yes" or "no" responses to a continuum that included "strongly oppose", "oppose", "support" and "strongly support". This was done to provide similarity with the scale used by Kerr et al. (1982). The continuum enabled a wider range of responses to be presented for the respondents and therefore, facilitated greater differentiation in the responses obtained. These attitudes were coded with nominal measurements of 1, 2, 3 and 4, respectively.

This study was interested in ascertaining public attitudes towards the use of ECT. Therefore, ECT Survey II was constructed mainly to assess the respondents' willingness to have treatment with ECT, if it were prescribed to them; their attitudes towards ECT on individuals with depression emanating from contextual problems; and their opinions of ECT practice with children/adolescents, older adults, adults and non-consenting patients within hypothetical situations. To this end, four vignettes, or short hypothetical descriptions of situations, were developed since Jorm et al. (1997) illustrated the usefulness of vignettes in attitudinal studies. Table 2 shows the vignettes used to determine the attitudes towards ECT on each subgroup.

Table 2

Vignettes Used to Examine ECT Attitudes and the Objectives of Each Vignette

Objective	**Vignette Used**
Attitudes towards ECT on self	In the last 18 months, you have been feeling tired easily, have lost interest in the activities that you usually enjoy, and have had difficulty sleeping. You do not feel like eating and have lost a lost of weight. Your work has also been affected badly. You have been diagnosed with Depression and did not appear to respond well to medications. How would you feel about having ECT? Why?
Individuals who may influence an individual to have ECT	Who would be able to persuade you to have ECT if you initially refuse to have ECT? Why?
Attitudes towards ECT on depression due to psychosocial problems	Bill is 35 years old. He has lost his job and has had difficulty getting another one. He worries about the finances of his family of 6. He has become very depressed, and has not been eating or sleeping well. He does not enjoy activities he usually enjoys and finds no pleasure in life. He has suffered like this for more than 2 years. His psychiatrist diagnosed him with Depression but anti-depressants failed to make him better. How would you feel about Bill being treated with ECT? Why?
Attitudes towards ECT on different age groups	Harry is 7 or 40 or 78 years old. He is almost always tired and does not seem interested in his usual activities. He has poor concentration and does not look forward to the future. He is diagnosed with Depression. How would you feel about Harry being treated with ECT? Why?
Attitudes towards ECT on a non-consenting patient	Mary is 28 years old. She is diagnosed with Depression and has admitted to thoughts of killing herself. She has been recommended ECT. She understands what is involved and refuses to give consent. She is treated with ECT after a second psychiatrist supports the recommendation, and because her

	condition was deemed to have affected her ability to decide. How would you feel about Mary being treated with ECT without her consent? Why?

The first vignette aimed to measure general attitudes towards having ECT themselves. This replicated past studies which surveyed a small sample (Kerr et al., 1982). Following the first vignette, respondents were asked whether they would change their minds if they did not want to have ECT themselves. It was designed to elucidate the reasons that would lead them to be persuaded to have the treatment, and the factors that affected their attitudes towards ECT use. Some practitioners have indicated the relevance of such information to illustrate the alternatives available to them when their patients were unwilling to have ECT (Bucens et al., 1986). For instance, if individuals prescribed with ECT indicated that they might be persuaded to undertake the treatment by their family members, practitioners could encourage clients to discuss their decisions with their family members, rather than treat the patient without obtaining any informed consent.

Interest in public attitudes towards ECT on individuals with psychosocial problems stemmed from anecdotal reports of such cases. Research studies often focused on individuals diagnosed with depression without describing their histories. However, anecdotal reports indicated that many individuals, who were depressed because of personal problems, were prescribed ECT without recommendations for other therapy, such as counselling. Such practice may be perceived by some as misusing or abusing the treatment, which contributes to the controversial nature of ECT (National Institutes of Health, 1985). Hence, the vignette about Bill (Table 3) was aimed at investigating public attitudes towards ECT on such individuals.

Further, to investigate attitudinal differences towards various age groups of patients, three versions of the third vignette were developed with the experimental condition being the age of Harry, which was described as either 7, 40 or 78 years old in Appendix C, D and E, respectively. While the ages of adult and older adult were arbitrarily chosen to represent these age groups, the age of the young patient was chosen to be seven years old because of the negative perceptions of teenagers within the community (van der Graaf, 2001). For instance, curfews have been established to restrict teenagers from socialising in the city (Clark, 2003; Pennells, 2003). Such negative attitudes towards this age group in general might confound the attitudes towards ECT on teenagers in this study. A seven-year-old child might be an extreme example, but it was vital for respondents to perceive this individual as a young, underage child, in contrast to the other age groups.

Respondents were also instructed to indicate whether any of the four factors influenced their attitudes towards ECT, and how important each factor was. These factors included religious belief, cultural practice, human/civil rights and freedom of choice. These general factors were incorporated into the questionnaire to provide in-depth understanding of the factors that motivated attitudes towards ECT, especially if the majority of the participants did not expand on the reasons behind their attitudes in each vignette. These factors were selected based on the following reasons. Religious belief has been previously found to influence the clinical judgements of individuals and their families (Brett & Jersild, 2003). Besides, differences in cultural practices across ethnic groups shape mental health care programs (Edmonds & Brady, 2003). While preserving human rights is a recent major social concern (Ahmad, 2003), freedom of choice is important within health care to ensure that the decision of an individual is an informed one (Ruger, 2003). Respondents were encouraged to state whether each factor was "not at all important", "important", "quite important", or "very important" in influencing their attitudes. These labels were accompanied by five numerals. The numeral three signifies "don't know". The last question enabled respondents to include whatever information they considered to be absent but of such importance that they needed it to enable them to make an informed opinion about ECT. This question was similar to the "remarks section" in the questionnaire used by O'Shea and McGennis (1983).

Finally, ECT Survey I and II were combined because it was impractical to administer them separately at one sitting. It was found that most participants were reluctant to complete the questionnaires on the spot. Therefore, a covering letter (see Appendix F) that detailed the aims and objectives of the study was developed to provide a formal introduction to this study, and faciliate the recruitment of participants. Another cover letter (see Appendix G) was drafted, stipulating the specific instructions for administering the questionnaires. This was specifically aimed at the teachers-in-charge of participating high schools. Information and consent forms (see Appendix H) were also created to inform the parents/guardians or teachers about this survey, and to obtain their consent for the participation of their child/ward in this project.

Design and Procedure

All participants were briefed on the aims and objectives of the pilot study. This was done verbally and with the use of the information and consent forms (see Appendix A). Discussion proceeded once completed consent forms were collected. Extensive discussions were conducted regarding the relevance and presentation of the items. A tape-recorder was used to record the sessions to facilitate thorough note-taking and refinement of the items at a later time. After every discussion session, items were amended according to the feedback obtained. This was considered more efficient as it allowed further refinement with each discussion group without repeated discussions of similar issues.

The developed questionnaires were piloted with another group of five participants because there were no questions from prior studies that could be adapted directly for use, and all the past questionnaires could only serve as guides. This pilot ensured that the items were phrased accurately and simply: that they were easily comprehended. Positive feedback from these participants encouraged the distribution of the questionnaires to the public.

Results

ECT Survey I (see Appendix B) and three versions of ECT Survey II, IIA (see Appendix C), IIB (see Appendix D) and IIC (see Appendix E), were developed. ECT Survey I consisted of multiple-choice questions that examined the level of knowledge about ECT. ECT Survey II investigated attitudes towards ECT on different groups of depressed patients. Copies of these versions were randomly distributed to members of the public. Details of the survey are described in the following chapter.

Chapter 5

The Public Survey

Past attitudinal studies that have examined public ECT knowledge and/or attitudes have been general in nature (e.g., Jorm et al., 1997; O'Shea & McGennis, 1983). To date, no study has focused on public attitudes towards ECT use on special groups, for example, individuals with psychosocial problems, children, older adults and non-consenting patients. In addition, consistent results have yet to be obtained for relationships between variables, such as public knowledge and attitudes, and general inferences have only been made regarding associations of other variables, like educational levels and ECT attitudes (Kerr et al., 1982). Consequently, Study 2 was aimed at examining ECT knowledge and attitudes within the local community. In particular, the study was intended to evaluate the relationships between public knowledge about, and attitudes towards, ECT, and the impact of variables, such as age, gender and educational level, on these factors. This chapter illustrates the use of the questionnaire and the results obtained.

Participants

In 2002, 379 participants were recruited from three age groups: (a) below 19 years old; (b) 19 to 64 years old; and (c) above 64 years old. These age groups were selected to include individuals from a wide age range to enable between-group comparisons of public knowledge about, and attitudes towards, ECT as suggested by previous survey results (Kerr et al., 1982). A greater number of older participants were found to hold accurate views about ECT, and have no fear of the treatment. It showed that young respondents were likely to possess more misconceptions about ECT.

The three groups of participants were recruited in different ways. Group (a) was recruited from co-educational private and public senior high schools from various geographical areas across the metropolitan community. Participants from Group (b) were recruited from health and sports clubs, and professional organisations. Older adults (Group (c)) were recruited from community centres, retirement villages and Rotary Clubs that granted access to the researcher. These organisations were selected according to their geographical locations to be representative of residents across the metropolitan community.

It was acknowledged that the manner in which participants were recruited was not random. Hence, the sample could not be considered to be representative of WA population. As age was one of the foci of the study, attempts were made to recruit participants with a range of ages and with roughly equal numbers of younger, middle-aged and older participants to facilitate comparisons between these age groups.

Some individuals were reluctant to participate because they reported that they were unfamiliar with ECT. These individuals were encouraged to participate, as they constitute part of the community with little or no knowledge of ECT. Their participation allows an estimation of the proportion of the local community that is unaware of this medical procedure. In spite of this, it was recognised that this sample might over-estimate the level of public knowledge.

Materials

This public survey was conducted using all three versions of the questionnaire that is described in Chapter 4. Six hundred copies of the questionnaire were distributed to the public. To facilitate data-analysis, responses from returned questionnaires were coded to establish a database using the SPSS version 11.0 for Windows.

Coding responses.

Different types of data are coded differently. Missing data are coded as 99 (quantitative data) or 999 (qualitative data). Dichotomous responses are coded with numbers. For example, 1 = Yes or male, and 2 = No or female. A variable was constructed for each option offered, so that an endorsed option is coded as 1, and an empty box is coded as 2. To maintain coding stringency, respondents who indicated that they had never heard of ECT, but endorsed options in the knowledge items, were taken as having heard of ECT, even if the responses were guesses. This was based on the assumption that respondents were only able to respond to the knowledge item(s) because they had some knowledge of the treatment. This was notwithstanding how vague that knowledge might be. The self-rated knowledge about ECT was measured in millimetres from the right of the line, on which participants were instructed to mark, to the mark itself. If participants indicated that they had never heard of ECT, they were coded as 0mm in the area of self-rated knowledge of ECT.

As one of the aims of this study was to investigate the association between demographic variables and ECT knowledge and attitudes, responses were analysed in terms of age, gender and occupational groups. Participants were divided into three different age groups, as mentioned above, and various occupational groups, using the major categories from the Australian Standard Classification of Occupations (ASCO), 2nd Ed. (Australian Bureau of Statistics, 1997) that were modified to accommodate this sample population. According to this classification system, participants were divided into students, pensioners, executives and service workers. Two respondents did not state their occupations. These categories allowed between-group comparisons to determine if demographic variables, like age, gender and occupation, affected participants' levels of knowledge about, and/or attitudes towards ECT.

Coding schemas were developed to code the qualitative data. This was done via analyses of the qualitative responses to extract the relevant themes for various categories, as indicated by Kerr et al. (1982). In view of the vague categories used by Kerr et al., it was decided that the current categories should be non-overlapping. This was ensured by taking the qualitative responses at face value as much as possible without making in-depth inferences from the statements. The categories that explained respondents' reasons for interest or lack of interest in finding out more about ECT are presented in Table 3. Similarly, codes were established to categorise the reasons underlying the attitudinal responses of participants towards each vignette (Table 4). Finally, categories were developed to classify the additional information that respondents considered crucial to determine an attitudinal stand regarding the vignettes. These coding classifications are described in Table 5. Some codes were similar to those used to classify responses from the vignettes in Table 4 but they are stated in a manner more appropriate to the context of the question. For example, "lack of evidence" was frequently cited as the underlying reason for a lack of support for the use of ECT. Consequently, "empirical evidence" of ECT was considered vital information by many respondents that affected their attitudinal responses in this survey.

Table 3

Categories of Responses to Question 19

Coding Category	Summary of Coding Description
No interest	Expressions of a lack of interest in knowing more about ECT without any explanation. For example, "not interested", "don't care", and "sounds too technical".
Not relevant	Indications that there was no use for the knowledge, hope they would not require it, and/or be affected by ECT, for example, "don't ever plan to take ECT", "what I don't know won't hurt me", and "doesn't bother me".
Ascertain facts about ECT	Intentions to broaden knowledge out of curiosity, to make an attitudinal judgement, or for reference in future. This referred to all or some aspects of ECT, such as "what it is used for", "its side effects" or "benefits and risks". Other responses coded here were "to widen/improve/further my knowledge", "any knowledge is good" and "give me more insight into a client who may have had ECT".
Negative perception of ECT	Indications of a negative view of ECT, and/or outright opposition of ECT, so that there was no interest in knowing about it. These included responses like "it is a totally inappropriate form of treatment", "don't agree with it", and "I've heard it's cruel".

Table 4

Descriptions of Coding Categories for Qualitative Responses Underlying Attitudes towards ECT

Coding Category	**Summary of Coding Description**	**Relevance to Vignette**
Lack of evidence	Indications of a need for empirical research, guarantee of a positive outcome and/or a lack of knowledge, like "I would want a whole lot more information than that", "don't know enough about the treatment" and "require proof that ECT would work".	This coding was used for responses from all vignettes.
Negative concept of ECT	Descriptions of fear, pessimistic perception and/or general opposition towards the use of this treatment, such as "too invasive", "it might make me worse", and "definitely against it".	This coding was used for responses from all vignettes.
ECT may help	References to the symptoms of depression, the problems the individual experienced or the length of time the individual has suffered; indications of the failure of medication that implied that ECT was more useful; beliefs that the risks of ECT outweighed the symptoms of depression; and/or optimism about ECT. These responses included "do anything to get out of this", "might try it since I'm in such a bad state", and "might be good for me".	This coding was used for responses from all vignettes.
Only as a last resort	Explicit description of ECT as the last alternative. This code also assumed that other alternative treatments were preferred. Such responses included, "what else is there for him to try?", "if all else fails", and "other treatments should be attempted	This coding was used for responses from all vignettes.

	before ECT".	
Other alternatives preferred	Indications that other forms of treatments were preferred over ECT. Some examples of the responses in this category were "medication might work", "change certain parts of his lifestyle?", and "just get on with his life".	This coding was used for responses from all vignettes.
Trust expert knowledge	Inclinations to seek or accept the opinions of health care professionals, and/or former ECT patients, or references to faith in family members because of their expertise in medical issues. Such responses included "not in the position to decide, so needs someone to tell her to do so", "trust" (endorsed either GP, health care professional and/or psychiatrist as individuals who could persuade one to have ECT), and "has 2nd opinion from a professional".	This coding was used for responses from all vignettes.
Miscellaneous	This grouped responses that did not address the question, could not be deciphered, were conditional, speculating the causal factors, suspicious of the diagnostic process, or did not fit into the other categories but were too few to establish a new group. For instance, "tired, lost interest", "if it helps", "Psychiatrists don't diagnose the problems correctly" and "not necessary since lived all these years without it". However, if part of the responses could not be coded in other categories, this code was not used to code the rest of the responses that fitted these descriptions. This code also included	This coding was used for responses from all vignettes.

	responses regarding Mary's vignette that indicated that it was not their problem, so they were reluctant to pass judgement.	
Missing	Where no response was given.	This coding was used for responses from all vignettes.
Trust self to decide	Illustrations of a lack of trust in others, and/or independence in respondents. Examples of these responses were "don't trust anyone else", "I think this would be a very personal experience", and "once I've decided, no one can change my mind".	This was relevant for responses to how easily one changed one's mind in regards to undertaking ECT personally.
Trust family and friends to do best for them	Indications of trust in the nominated family and/or friends to be able to change their minds about ECT. For instance, "I value their opinions", "they know me more and would do the best for me", and "spouse has to live with the effects, and a 2nd opinion is always good".	This was invoked for the question that enquired about how easily one changed one's mind about undertaking ECT personally.
It is Bill's/Harry's decision	Valuing freedom of choice, or belief that the decisions of patients should be respected. Such responses were "it would depend on Bill's feelings", "only if he were happy with it and knows the possible risks", and "it is her life, and thus her decision".	This was relevant to the responses in the vignettes about Bill and Harry.
Practical assistance more useful	Focus on the practical help for the patient, or indications that ECT would not solve the patient's problems, like "may not have anything to do with mental condition; rather contextual", "ECT can't help his family of 6", and "not treating the cause of the	This code was relevant only to the vignette about Bill.

	problem".	
Age factor	Reasons that emphasised the age of the patient, or anticipation of negative impact of ECT due to the age of the patient, such as "too young/old", "most probably kill most older people", and "too young to understand and undertake ECT".	This classification code was invoked for the Harry vignette to examine the effects of the experimental condition in the age of the patient.
Freedom of choice	Responses that stressed the importance of the right of an individual to choose, or indicated that it was professionally unethical to treat a patient without consent from them or their family. For example, "infringes choice", "no consent" and "don't think it's right to perform any form of medical treatment without patient's consent".	This code was invoked for the Mary vignette.
Seek family's opinion/consent	Responses that portrayed an importance in the involvement of or consent from the family of the patient, especially since the patient was too young to comprehend his/her situation or in no condition to decide. Examples were, "parents should do something about it", "she should decide with the help of a family member" and "family working together may be a better alternative".	This code was used for responses to the vignettes about Harry and Mary.
Decision impaired by condition	Illustrations of the inability to give informed consent due to the psychiatric condition, like "a person in depression is not always in the best position to decide",	This was relevant only to the vignette about Mary.

	and "if condition so severe, probably not capable of making decisions for herself".	
She is suicidal	Specification of the risk of the patient causing self-harm. These included "she was going to kill herself", and "she has suicidal thoughts".	This code classified responses related to the vignette about Mary.

Table 5

Descriptions of Coding Categories for Additional Information Required for Attitudinal Judgments

Coding Category	**Summary of Coding Description**
Against ECT	Indications of a general opposition towards ECT, such as "ECT does not help anyway", "none because no place for ECT in any circumstances" and "don't agree with this at all".
In-depth knowledge	References to empirical evidence, various aspects of ECT, including the exact procedures and costs of treatment, odds of certain effects. Such examples were "all the facts about ECT", "being told that it would make me better, no side effects and a lot of support" and "medical evidence".
ECT survivors' views	References to the opinions or feedback from patients who had ECT, such as "feedback from ECT patients", and "those who have treated with ECT and cured".
Alternative treatments	References to options, other than ECT, available for the patient, for instance "medication", and "behavioural treatment".
Full case history	Interest in any aspect of the patients' history, such as medical, familial, psychiatric and/or social history, the levels and types of support for the patient, and previous intervention(s). This code also included data from past ECT patients. These were in the form of

	"case notes on family history", "symptoms, past experiences, types of disorders", "suicide risk of patient and length of depression" and "patient's state of mind".
Expert opinions	References to opinions/recommendations of health care professionals, including those from Allied Health case. Such responses were "faith in doctor", "input from GP and other medical professionals", and "2nd opinion on the recommended treatment".
Patients'/family's attitudes towards ECT	Focus on the views of the patients and/or their families. For instance, "how the client felt about the treatment", and "opinion of family"

The reliability of these categories was established using inter-rater agreement (Bakeman & Gottman, 1986). The descriptions of all categories were explained to the second rater, with as much detail as presented in the tables above. The second rater was also instructed to refrain from making inferences from the qualitative responses. Subsequently, the second rater coded the subjective responses of 20 randomly chosen questionnaires according to the categories described above. Inter-rater agreement was calculated as a percentage of the number of codes that both raters agreed on over the total number of codes in all 20 copies of the questionnaire. This was achieved at 93%.

Defining accuracy of ECT knowledge.

In anticipation of some disagreement over some of the correct answers, given the contentious nature of this subject, a conscientious effort was made to define conservatively what was to be accepted as “correct” answers, based on publications and empirical evidence. It was recognised that the accuracy of this method might not be accepted by everyone (e.g., Endler & Persad, 1988 believes ECT is completely safe without adverse effects), although the aim was to incorporate opinions from both sides of the debate regarding this controversial treatment.

With the exception of Questions 10, 15 and 16, correct answers to the knowledge items (Questions 7 to 14, and 17) were determined using the ECT manuals and professional guidelines (Department of Human Services, 2000; Royal Australian and New Zealand College of Psychiatrists, 1999). Whilst, these manuals and standards do not exclude any conditions for which ECT is usually recommended as a treatment, MHIS data and psychiatrists who participated in the discussion groups specified the conditions for which ECT was usually recommended as a treatment within WA. MHIS and practising psychiatrists gave clearer indications of the conditions for which ECT was usually prescribed. The possible risks and perceived benefits provided by ECT, assessed by Questions 15 and 16, were based on several research reports (eg. Salford Community Health Council, 1998).

Reports from ECT recipients and their families/friends showed the common complaints and possible complications from having ECT. These reports might constitute a small proportion of ECT recipients, but they indicated the possible range of side effects that could occur from the treatment. A recent report (Koopowitz, Chur-Hansen, Reid, & Blashki, 2003) stated that only one, out of eight ECT patients in the study, reported no experience of any complications from the treatment.

As a means to ascertain the level of ECT knowledge quantitatively for each respondent, a stringent marking system was used to allocate points to correct responses in ECT knowledge items in the questionnaire (Question 7 to Question 17). These are indicated by the ticks in Table 6. One point was awarded for each correct response to the ECT knowledge items in the questionnaire, unless the respondents endorsed two options when they were instructed to tick only one. In the latter case, no point was allocated for that item, even if one of the options were correct. Multiple endorsements for items that allowed only one response were taken to indicate uncertainty or a lack of awareness. The total number of points for each participant was used as an estimate of the respondent's level of ECT knowledge (objective ECT knowledge). This point system allowed quantification of different levels of ECT knowledge displayed by respondents, and between-group comparisons. It was recognised that it might underestimate the level of ECT knowledge.

Based on the requirements in the Mental Health Act ("The Mental Health Act," Western Australia, 1996) for informed consent, some aspects of ECT are considered more essential than others in making an informed judgment. Essential ECT information, as set out in the Act, included facts about the treatment procedures, risks involved, and the reliability of the prediction of treatment outcome. The reliability of treatment prognosis depends on numerous factors that are too diverse to be measured in the current survey. Hence, the other types of information set out by the Act as basic in ECT literacy were included in this questionnaire, and have been marked with $^+$ in Table 6. It was considered that respondents who knew the correct response(s) to these items would have been able to give informed consent as set out by the Act. For each respondent, scores were counted separately for these essential items and the rest of the knowledge items (peripheral items). Thus, two sets of analyses were performed: one for the essential items, and one for the rest.

Table 6

Options that were Considered Accurate, and Essential Knowledge Items

Item	**Options**	**Accurate Options**
+ What does ECT involve?	Talking to the patient	
	Passing electric current	✓
	Injecting substance/medication	
	Don't know	
On which part on the human body is ECT administered?	Head	✓
	Back	
	Feet	
	Don't know	
+ What is the main purpose of ECT?	Electrify the patient	
	Make the patient unconscious	
	Cause a fit	✓
	Don't know	
+ What are the condition(s) for which ECT is usually recommended as a treatment?	Addictions to substances	
	Eating disorder	
	High anxiety levels	✓
	Low/depressed mood	✓
	Experiences of agitation/hyperactivity	
	Nervous breakdown and/or not in touch with reality	✓
	Sudden dizziness, hot flushes and feelings of losing control/dying	
	Weird eccentric personalities	✓
	Others	
	Don't know	
What factor(s) helps a psychiatrist decide if ECT is a suitable	When the patient causes problems	
	When medications are not helpful	✓
	When the patient is hospitalised	

treatment?	When the patient stops eating and/or drinking	✓
	When the patient often thinks of committing suicide	✓
	Don't know	
On what age group(s) is ECT administered?	Children/adolescents (< 18 years old)	✓
	Adults (18 – 64 years old)	✓
	Older adults (65 years and older)	✓
	Don't know	
+ How is the patient during ECT?	Awake and aware	
	Awake but unaware	
	Asleep and unaware	✓
	Don't know	
Who administers ECT?	Psychiatrist	
	Social Worker	
	General Practitioner (GP)/Family doctor	
	Psychologist	
	Muscle Relaxant Administrator	✓
	Medical doctor	✓
	Anaesthetist	✓
	Don't know	
+ What are the possible side effects of ECT?	Loss of memory for recent events	✓
	Brain damage	✓
	Nausea / vomiting	✓
	Headache	✓
	Confusion	✓
	Changes in the structure of the brain	✓
	Changes in personality	✓
	Don't know	
+ What type of relief does ECT provide?	Temporary relief	✓
	Permanent relief	

	Partial relief	✓
	Complete relief	
	None at all	
	Don't know	
Where ECT is usually conducted?	Patient's residential home	
	Respite care centre	
	Hospital / Day clinic	✓
	Nursing home	
	Don't know	

Note. $^{+}$ = Essential items that comprise the basic level of ECT literacy.

Design and Procedure

Using the yellow pages and social links, participants were recruited from a mixture of private, public, girls', boys' and co-ed teaching facilities, retirement villages, community centres, Rotary Clubs, sports clubs and organisations. Of those that agreed to participate in this survey, some were selected based on their geographical locations to represent the suburbs across the metropolitan community. Individuals from these organisations were asked if they were willing to participate in the survey themselves, or allow access to their members.

Copies of an information sheet (see Appendix F) were sent to the principals of schools or the person-in-charge, where an interest in the survey was indicated. Thereafter, copies of an instructional letter (see Appendix G), information and consent forms for the parents of the high school students (see Appendix H), and the questionnaires, were sent to the persons designated to be in-charge within each school, retirement village and Rotary Club. Teachers were reminded to distribute the questionnaires only upon receipt of the completed consent forms. Participants were randomly presented with the three versions of the questionnaire. Completed questionnaires and consent forms were either returned via mail with reply paid envelopes provided, or retrieved personally.

In addition, copies of the information sheet (see Appendix F) and questionnaires were also distributed to members of various organisations, to their relations via distant friends and also acquaintances of friends. Most individuals did not return completed questionnaires on the same day. The aim was to target individuals with varied interests or occupations, located within various metropolitan suburbs.

Instructions in the questionnaires encouraged respondents to read each item carefully and to refrain from altering their responses. It was emphasised that there were no right or wrong answers; rather, it was the opinions of respondents that were crucial.

Results

The overall aims of Study 2 were to examine the levels of public knowledge about, and attitudes towards, ECT. Responses from completed questionnaires were coded, and collated as a database in SPSS version 11.0 for Windows, as described in the Method section. Statistical analyses were conducted using the same software and Microsoft Excel 2002. Given the large number of analyses to be performed, a conservative statistical approach was adopted at $p < .01$. In all cases, only significant analyses were reported, and only when there were no violations of the assumptions on which they were based. Gender, age groups and occupational categories of participants were tabulated across all items and sub-items in the questionnaires. In order to address the research questions, chi-square tests were also conducted between the levels of self-rated ECT knowledge and attitudes in each vignette; and levels of objective ECT knowledge (as determined by the responses to ECT knowledge items) and attitudes in each vignette. Given that this study was descriptive rather than a test for a developmental model, such statistical analyses were deemed to be sufficient to describe general trends without the need for further post hoc analysis. The general patterns of significant relationships were interpreted based on the frequency counts of chi-square tests, rather than the standardised adjusted residuals. The highest frequencies were used to interpret the relationships between the variables. For instance, the large frequencies of the dependent variable would be used to describe the independent variable.

Of the 600 copies of questionnaire that were distributed, 381 were returned, which resulted in a response rate that approximated 64%. However, two questionnaires were invalid since these participants did not respond to items other than stating their demographic data. Only 379 questionnaires were used in the data analyses. Each school returned approximately 15 to 20 completed questionnaires with the use of reply paid envelopes provided. About 120 older adults from retirement villages and Rotary Clubs completed the questionnaires on their own, or participated in semi-structured individual interviews based on the questionnaires. About 57% were females and an even higher proportion of women (69%) in the older group. This reflected differential longevity between men and women in the community. Other than three participants who did not specify their ages, the sample consisted of 31% adolescents below 19 years old; 35% adults (19 to 64 years old); and 34% older adults (above 64 years of age). The age of participants ranged from 13 to 99 years with a mean age of 45 ($SD = 27$) and a median of 39. The proportions of each category and the demographic characteristics of the participants are presented in Appendix I.

What was the Level of Public Knowledge of ECT?

One of the main objectives of this survey was to investigate the level of ECT knowledge members of the public possess. ECT knowledge, based on prior research, encompasses: what ECT involves; on what part of the human body is ECT administered; the main purpose of ECT; the conditions that are usually recommended for ECT; the recommendation criteria of ECT; the ages of ECT recipients; the level of consciousness of the patient during the treatment; the health care professionals involved in the administration of the treatment; the possible complications; types of relief it brings; and the venue where it is usually conducted. This study further examined variables, such as gender, age and occupation, which might be associated with the levels of ECT knowledge in this sample.

Points obtained by participants ranged from zero to 24, out of 27. Mean and median were estimated at eight points (*SD* = 6). About 18% did not score any points. About 67% of the respondents had at least some knowledge of ECT.

For the essential items, the minimum and maximum scores obtained by respondents were zero and 14, respectively, out of a possible score of 15. The mean score was 4.47, and the median was four (*SD* = 3.61), while the mode was zero. Scores for the peripheral items (out of 11) showed similar statistics. The mean was 3.26, the median was four and the mode was zero (*SD* = 2.44). For the peripheral items, the scores of participants ranged from zero to 11.

Frequency of responses to each option.

The frequency of responses to each option was calculated. The frequencies indicated the proportion of certain sources of ECT information, and the proportion of the public sample that was knowledgeable about various aspects of ECT. More than 85% of this sample indicated that they had heard of ECT or “shock treatment”. Table 7 shows the proportion of respondents who had heard of ECT through each source. Amongst these, television was cited by nearly half. Movie/film, books and newspapers were also frequently reported as sources of ECT information. The percentages do not add to 100 because each respondent could endorse more than one source of ECT information. For the rest of the sample who indicated that they had never heard of ECT, Table 8 shows what some of them thought ECT is about.

Table 7

Sources of Knowledge about ECT Reported by Participants

Source	**No. of Responses (%)**
Television	173 (45.6)
Movie/Film	159 (42.0)
Books	93 (24.5)
Newspapers	93 (24.5)
Magazines	69 (18.2)
Experience of a Friend	57 (15.0)
Radio	53 (14.0)
Health Care Professionals	42 (11.1)
Experience of a Family Member	31 (8.2)
Internet	17 (4.5)
Personal Experience	11 (2.9)

Table 8

What Those Who Had Never Heard of ECT Thought the Treatment is About

Thought What ECT is About	**No. of Responses (%)**
Lie detector	3 (0.79)
Current Medical Procedure	29 (7.65)
Ancient Medical Practice	4 (1.06)
Associated with Age	1 (0.26)
An Assessment of Individuals Who are not Right	1 (0.26)
An Electric Shock	1 (0.26)
An Injection	1 (0.26)
Type of Medication	1 (0.26)
Something to do with the Nervous System	1 (0.26)
Defibrillator	3 (0.79)
Don't know	1 (0.26)

Table 9 presents the details of responses to each option relating to the knowledge items (Questions 7 to 17). Percentages for each question do not add to 100 because some participants endorsed more than one option. A large proportion of the sample accurately identified that ECT involves passing electric current; is administered on the head; is usually recommended as a treatment for "low/depressed mood" and "nervous breakdown/not in touch with reality"; and that ECT is a suitable treatment "when medications are unhelpful". Less than a third correctly stated that the main purpose of ECT is to cause a fit. Of the small number of respondents who indicated that ECT is usually recommended to treat "Other" conditions, 28% stated "schizophrenia"; 12% stated "insanity"; 9% stated "epileptic fits"; 15% stated "depression"; another 6% stated "to control a person's behaviour and thoughts";

9% stated “bipolar”; 6% stated “physical problems”; and 3% stated “mania”, “schizoid autism”, “everything”, “OCD” and “homosexuality”, respectively. As shown in Table 9, about 24% to 54% of respondents did not know the correct answers to these knowledge items.

Table 9

Responses to Each Option in Items that Assessed ECT Knowledge

Item	Options	No. of Responses (%)
What does ECT involve?	Talking to the patient	7 (1.8)
	Passing electric current	282 (74.4)
	Injecting substance/medication	5 (1.3)
	Don't know	90 (23.7)
On which part on the human body is ECT administered?	Head	216 (57.0)
	Back	10 (2.6)
	Feet	3 (0.8)
	Don't know	154 (40.6)
What is the main purpose of ECT?	Electrify the patient	82 (21.6)
	Make the patient unconscious	25 (6.6)
	Cause a fit	78 (20.6)
	Don't know	203 (53.6)
What are the condition(s) for which ECT is usually recommended as a treatment?	Addictions to substances	26 (6.9)
	Eating disorder	20 (5.3)
	High anxiety levels	105 (27.7)
	Low/depressed mood	176 (46.4)
	Experiences of agitation/hyperactivity	64 (16.9)
	Nervous breakdown and/or not in touch with reality	174 (45.9)
	Sudden dizziness, hot flushes and feelings of losing control/dying	20 (5.3)
	Weird eccentric personalities	82 (21.6)
	Others	30 (7.9)
	Don't know	122 (32.2)
What factor(s) helps a psychiatrist decide if ECT is a suitable treatment?	When the patient causes problems	64 (16.9)
	When medications are not helpful	184 (48.5)
	When the patient is hospitalised	50 (13.2)
	When the patient stops eating and/or drinking	40 (10.6)

	When the patient often thinks of committing suicide	108 (28.5)
	Don't know	157 (41.4)
On what age group(s) is ECT administered?	Children/adolescents (0 – 18 years old)	34 (9.0)
	Adults (19 – 64 years old)	224 (59.1)
	Older adults (65 years and older)	48 (12.7)
	Don't know	149 (39.3)
How is the patient during ECT?	Awake and aware	96 (25.3)
	Awake but unaware	56 (14.8)
	Asleep and unaware	39 (10.3)
	Don't know	188 (49.6)
Who administers ECT?	Psychiatrist	152 (40.1)
	Social Worker	2 (0.5)
	General Practitioner/Family doctor	21 (5.5)
	Psychologist	50 (13.2)
	Muscle Relaxant Administrator	28 (7.4)
	Medical doctor	97 (25.6)
	Anaesthetist	33 (8.7)
	Don't know	152 (40.1)
What are the possible side effects of ECT?	Loss of memory for recent events	116 (30.6)
	Brain damage	82 (21.6)
	Nausea / vomiting	63 (16.6)
	Headache	92 (24.3)
	Confusion	121 (31.9)
	Changes in the structure of the brain	75 (19.8)
	Changes in personality	125 (33.0)
	Don't know	177 (46.7)
What type of relief does ECT provide?	Temporary relief	94 (24.8)
	Permanent relief	51 (13.5)
	Partial relief	106 (28.0)
	Complete relief	30 (7.9)
	None at all	28 (7.4)

	Don't know	192 (50.7)
Where ECT is usually conducted?	Patient's residential home	5 (1.3)
	Respite care centre	45 (11.9)
	Hospital / Day clinic	226 (59.6)
	Nursing home	22 (5.8)
	Don't know	130 (34.3)

Self-rating of ECT knowledge.

To understand how respondents perceived their levels of knowledge about ECT, they were instructed to denote a point on a continuum, marked with "nothing", "a little", "some" and "a lot" at intervals. Regardless of whether respondents had indicated along the line or circled the descriptions, their responses were measured, in millimetres (mm), from the right end of the line to the marked point, or the middle of the descriptions (if they were circled).

Excluding three respondents who omitted this item, the average self-rated level of ECT knowledge was estimated at 42mm, close to "a little". Most (22%) indicated that they knew "nothing" about ECT, or had marked 0mm. This self-rated knowledge (subjective knowledge) varied between 0mm and 156mm.

Categorisation of participants.

As a previous study (Kerr et al., 1982) attempted to examine age effects by comparing young and older participants, respondents in the current survey were arbitrarily divided into three groups to represent major developmental milestones groups (children, adult and older adult) for between-group comparisons. Three groups were deemed to be an appropriate number for between-group comparisons because they allowed differentiation between the groups, while maintaining an adequate number of respondents in each cell for statistical robustness.

To facilitate data analyses later, participants were divided into three groups, according to their self-rated levels of ECT knowledge, along with the score obtained from their responses to ECT knowledge items in this questionnaire (objective ECT knowledge). In the current study, respondents who rated themselves from 0mm to 12mm (33%) were categorised as "low"; those who self-rated between 13mm and 55mm (35%) were grouped as "medium"; and those rated themselves above 55mm (31%) were categorised as "high". Respondents who scored zero to four points in their responses to all knowledge items were coded as the group with a "low" level of knowledge (33%); five to ten points were classified as "medium" (31%); and the rest were grouped as "high" (36%).

Respondents were also grouped according to their levels of knowledge on essential and peripheral knowledge items. Those who scored between zero and two on peripheral knowledge items were grouped as "low"; scores between three and four were grouped as "medium"; and scores greater than four were categorised as "high". Participants who obtained zero to three points on essential knowledge items were grouped as "low"; those with four to six points were grouped as "medium"; and the rest were considered to have a "high" level of knowledge on the essential items. These scores would allow between-group comparisons.

Subjective versus objective ECT knowledge.

In order to determine the accuracy of respondents' judgements of their own ECT knowledge, their self-rated levels of ECT knowledge were compared with their objective levels of knowledge using chi-square correlation. Cohen's kappa was not appropriate because these variables were coded in different measurement units. A significant association was found, $\chi^2(4, N = 379) = 190.24, p < .01$. Specifically, a greater proportion of respondents who self-rated their ECT knowledge as "low" obtained "low" scores for objective ECT knowledge. Those who rated themselves as "medium" were more likely to obtain a "medium" score. "High" self-ratings were likely to attain "high" levels of objective ECT knowledge (see frequency table in Appendix J).

The relationships between objective and subjective ECT knowledge across gender and age groups were also investigated. Only age was significantly associated with levels of subjective ECT knowledge. Specifically, adolescents were more likely to rate their ECT knowledge as "low" or "medium", χ^2 (4, $N = 376$) = 15.84, $p < 0.01$. Adults were quite evenly distributed between self-ratings of "medium" and "high" levels of ECT knowledge. A larger proportion of older adults rated their knowledge as "low" (see frequency table in Appendix K).

Differences in ECT knowledge across gender.

As gender was of interest, analyses were performed to ascertain any significant relationship between gender and responses to items that examined participants' ECT knowledge. Table 10 presents the differential ECT knowledge responses across the genders. Some gender differences were found in participants' responses to the knowledge items. More males reported television and newspapers as sources of ECT information, while a greater number of females cited experiences of friends as their source. Significantly more males stated that ECT is administered on children/adolescents, and that patients are awake and aware during ECT.

Table 10

Frequencies and Chi-Square Values of Significant Knowledge Differences Across Gender

	Male	**Female**	**χ^2 (1, N = 379)**
Heard from television	89	84	10.47
Read in newspapers	51	42	7.70
Heard from experience of a friend	14	43	8.82
ECT is being administered on children/adolescents	22	12	7.56
Patients are awake and aware during ECT	56	40	13.22

Differences in ECT knowledge across age groups.

As shown in Table 11, significant differences in the responses to the knowledge items between the age groups were also obtained. Adolescents were the smallest proportion of respondents who indicated that they had heard of ECT. This age group was more likely to indicate that they had heard about ECT via the Internet. They tended to indicate that they did not know where ECT is usually conducted.

A significantly larger proportion of adults indicated that they had heard of ECT. They were more likely to cite television, movie/film and/or books as sources of ECT information. More adults indicated that ECT involves passing electric current; used to electrify the patient; the patient is awake and aware during the treatment; ECT causes changes in personality; and the treatment is usually conducted in hospitals and day clinics.

Older adults tended to know about ECT through the experiences of family members and/or friends. A large proportion of this age group indicated a lack of knowledge in the process of ECT, its main purpose, and how the patient is during the treatment.

Table 11

Frequencies and Chi-Square Values of Significant Knowledge Differences Across Age Groups

	0-18	**19-64**	**65+**	χ^2 **(2, $N = 376$)**
Heard of ECT	94	125	101	16.94
Heard from television	52	80	40	22.54
Heard from movie/film	51	87	20	67.38
Read in books	23	50	20	19.88
Read in Internet	13	4	0	17.92
From the experience of family member	6	6	18	10.29
From the experience of a friend	8	14	34	22.63
ECT involves passing electric current	84	114	81	18.53
Don't know what ECT involves	33	15	42	18.27
ECT is used to electrify the patient	17	42	22	13.53
Don't know the main purpose of ECT	69	53	79	14.20
Patient is awake and aware during ECT	30	45	21	10.57
Don't know how is the patient during ECT	65	50	70	9.82
ECT causes changes in personality	29	56	39	9.88
ECT is conducted at hospitals/day clinics	50	93	81	23.49
Don't know where ECT is usually conducted	58	29	42	19.66

Essential versus peripheral knowledge items.

Chi-square test was conducted between scores of essential items and peripheral ones to ascertain any relationship between individuals with essential ECT literacy and those without. Respondents who scored low on essential ECT knowledge items were more likely to obtain low scores on peripheral items, $\chi^2(4, N = 312) = 102.88, p < .01$. Respondents with "medium" levels of essential ECT knowledge were equally likely to attain "medium" or "high" levels of peripheral ECT knowledge. More respondents who scored "high" levels of essential ECT knowledge attained "high" peripheral ECT knowledge. Thus, it appears that members of this sample were able to respond to both essential and peripheral knowledge questions fairly well (see frequency table in Appendix L).

The relationships between knowledge of essential ECT items and demographics of participants were examined. Knowledge of essential items was neither associated with age, gender and occupation of respondents, nor with respondents' intentions to know more about ECT. On the other hand, a large proportion of participants with "high" scores for essential knowledge items cited newspapers, χ^2 (2, $N = 312$) = 9.87, $p < .01$, books, χ^2 (2, $N = 312$) = 29.13, $p < .01$, magazines, χ^2 (2, $N = 312$) = 16.51, $p < .01$, and health care professionals, χ^2 (2, $N = 312$) = 14.93, $p < .01$, as sources of ECT information (see Appendix M for the frequency table).

Interest in knowing more about ECT across demographic variables.

To determine how ECT education programs would be received by the public, respondents were asked if they would like to know more about ECT. Less than half of the sample (41%) was interested in knowing more about ECT, while 38% indicated that they were interested because they wished to understand the treatment. The reasons others (59%) gave for not wanting to learn more about ECT were described as a lack of interest (12%); irrelevant to them (21%); and negative preconceptions of ECT (8%). Eighty respondents (21%) did not explain their decision to know, or not to know, more about ECT.

Different age groups tended to give different reasons as to whether they would like more information about ECT. Adolescents were more likely to indicate interest in learning more about ECT than the other two age groups, χ^2 (2, $N = 371$) = 26.83, $p < .01$. More adolescents and adults indicated that they would like to ascertain the facts about ECT as well, χ^2 (6, $N = 299$) = 29.44, $p < .01$. Older adults were likely to either state that ECT information was irrelevant to them, or that they would like to ascertain facts about the treatment (see frequency table in Appendix N).

A chi-square test was also used to determine any possible associations between these categories of reasons and gender, and job classifications. There were no gender differences in the types of reasons behind respondents' decisions of whether to obtain more ECT information. A significantly greater number of students and service workers reasoned that they would like to ascertain the facts about ECT, χ^2 (9, $N = 299$) = 51.86, $p < .01$. Pensioners were quite evenly distributed between wanting to ascertain the facts about ECT and stating that ECT information was irrelevant to them. Significantly more executives perceived such information as irrelevant to them (see Appendix O for the frequency table).

Effect of direct contact with ECT on ECT knowledge.

Finally, to ascertain if direct contact with ECT was associated with the individuals' ECT knowledge, chi-square test was conducted as well. Direct ECT contact referred to cases whereby the respondents reported that they had heard of ECT through the personal experiences, experiences of family members and/or friends. Surprisingly, more respondents with "medium" ECT knowledge scores had direct contact with the treatment than no, or indirect, ECT contact, χ^2 (2, $N = 379$) = 17.47, $p < .01$(see frequency table in Appendix P).

When direct ECT contact was compared with knowledge on essential items alone, it was found that participants with no direct ECT contact were more likely to have "low" scores on the essential items, χ^2 (2, $N = 379$) = 11.88, $p < .01$. Direct ECT contact was significantly associated with "high" scores on essential items. Individuals with "high" scores on essential items were more likely to report direct contact with the psychiatric treatment (see Appendix Q for frequency table).

Summary.

More than 85% of this survey population indicated that they had heard of ECT or "shock treatment". More than two-thirds of this public sample was knowledgeable about the main aspects of ECT. Participants were accurate in rating their personal levels of ECT knowledge.

Age and sex of the respondents were associated with differences in responses to the knowledge items in the questionnaires. Adults tended to rate their ECT knowledge levels at medium and high, while older adults were likely to rate themselves at a low level. Males were likely to have heard of ECT via television and newspapers, while females were more likely to have heard of the treatment from experiences of their friends. More males reported ECT being administered on children/adolescents and/or the patient is awake and aware during the treatment.

Adolescents were likely to indicate that they had never heard of ECT. For those in this age group that had heard of ECT, they were more likely to cite the Internet as the source. However, they were unlikely to know where ECT is usually conducted. Some respondents were cognisant of more important aspects of ECT that contribute towards making informed decisions. Comparatively more adults had heard of ECT, most likely via television, movie/film and/or books. Adults were also more likely to be aware of the processes ECT involves, and the venue where ECT is usually conducted. They tended to indicate that ECT is used to electrify patients, patients are awake and awake during the procedure, and/or ECT causes changes in personality. Older adults were more likely to have heard of ECT via the experiences of family members and/or friends. However, this group tended to be unaware of the process of ECT, its main purpose, and the conscious state of the patient during the treatment. Age, gender and occupation were not significantly related to respondents' levels of essential ECT knowledge. Participants who responded accurately to essential items were more likely to report newspapers, books, magazines and health care professionals as sources of ECT information.

Participants' knowledge of ECT was undifferentiated between essential and peripheral knowledge items. Essential knowledge of ECT was likely to be attained from newspapers, books, magazines and/or health care professionals.

Adolescents tended to report interest in seeking more information about ECT. Adolescents, adults, student and service workers were likely to state that they would like to do so to ascertain the facts about the treatment. Executives found ECT information to be irrelevant to them.

Respondents with direct ECT contact were more likely to obtain a medium level of ECT knowledge, according to their total ECT knowledge scores. Participants who were not knowledgeable of the responses to the essential items were more likely to report no, or only indirect, contact with ECT. Attitudes of this sample towards ECT are reported in the next section.

What were Public Attitudes towards ECT on Specific Groups?

As one of the main objectives of this survey was to examine public attitudes towards ECT, vignettes were used to investigate public attitudes towards ECT in specific situations. All the vignettes described ECT being recommended for depression but the specific situation of each patient differed. Four scenarios were designed to investigate attitudes towards ECT on the participants themselves; an adult with financial problems; patients of varying age groups (young child, middle-aged and older adult) presented in three different versions of the questionnaire; and an adult who is treated with ECT without consent. The survey also examined whether participants thought that there were particular individuals who would be able to persuade them to have ECT; the reasons underlying the respondents' attitudes; the factors that affected their attitudes towards ECT; and the types of information that respondents deemed important in making an informed judgement of ECT, in addition to that provided in the vignettes.

Respondents indicated their attitudes towards ECT by circling “strongly oppose”, “oppose”, “support” or “strongly support” to whether the individual in each vignette should have ECT. They were also encouraged to explain their responses. Many respondents offered more than one reason. The four categories of attitudes were not considered as continuous variables because the intervals between each attitudinal description might not be interpreted equally by all respondents. Thus, the frequency of each attitude in each vignette was tabulated separately (see Table 12). Moreover, in most data analyses, the sample size was sufficient to allow the maintenance of all four categories of attitudes without the need to combine them. The majority of the sample indicated negative attitudes towards ECT in all vignettes. The pattern was similar even when respondents with “low” levels of ECT knowledge were excluded from the analysis (see Table 12 italic figures).

Table 12

Frequencies of Each Attitude in Each Vignette

	No. of Responses (%)			
Vignette	**1. Strongly Oppose (%)**	**2. Oppose (%)**	**3. Support (%)**	**4. Strongly Support (%)**
ECT on Self	133 (36)	124 (33.6)	93 (25.2)	19 (5.1)
	99 (39.9)	*83 (33.5)*	*53 (21.4)*	*13 (5.2)*
ECT on Bill with Contextual Problems	74 (20.7)	109 (30.5)	134 (37.5)	40 (11.2)
	56 (23.0)	*82 (33.7)*	*78 (32.1)*	*27 (11.1)*
ECT on Harry (of different ages)	142 (39.6)	133 (37)	65 (18.1)	19 (5.3)
	110 (45.3)	*82 (33.7)*	*40 (16.5)*	*11 (4.5)*
ECT on Mary who is treated with ECT without consent	161 (45)	112 (31.3)	66 (18.4)	19 (5.3)
	110 (45.3)	*79 (32.5)*	*41 (16.9)*	*13 (5.3)*

Note. Figures in italics indicate frequency of each attitude in each vignette of participants in "medium" and "high" ECT knowledge groups.

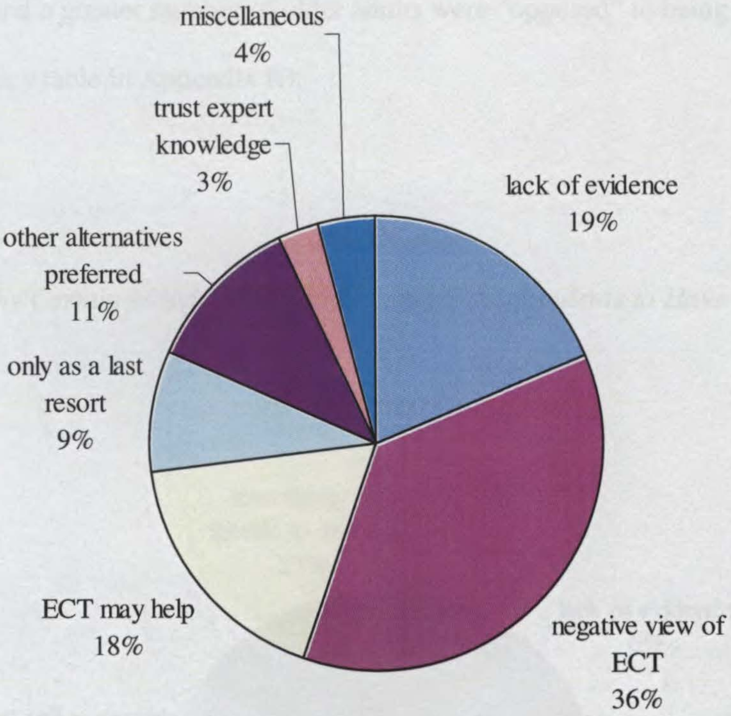
One of the objectives of this survey was to ascertain the variables that were likely to influence attitudes towards ECT. Thus, differential attitudes towards ECT in each vignette were analysed across different demographic variables, like age, gender and occupation. There was no gender difference in attitudes towards ECT within each vignette. On the other hand, differential attitudes amongst the age groups revealed several significant findings. The attitudinal findings are discussed by vignette.

ECT on self.

The first vignette described a hypothetical situation whereby the participant is diagnosed with depression and prescribed with ECT. In response to this, the majority opposed to having ECT on themselves if they were diagnosed with depression. Most of these participants described their negative attitudes as either a lack of empirical evidence for the efficacy of ECT, or they did not know enough about the treatment to reach a conclusion about the risks and benefits of ECT. More than one third of the responses were influenced by pessimistic preconceptions of ECT. Some described this as feeling "uncomfortable having electric current passed through the head" or that ECT was "too invasive". Less than 20% were optimistic about ECT, or approved its use only when all else failed. Few would not question the doctors' recommendations for ECT. The reasons 353 participants cited are categorised in Figure A. While some respondents offered more than one reason, 26 did not state any.

Figure A

Reasons for Attitudes towards ECT on Self

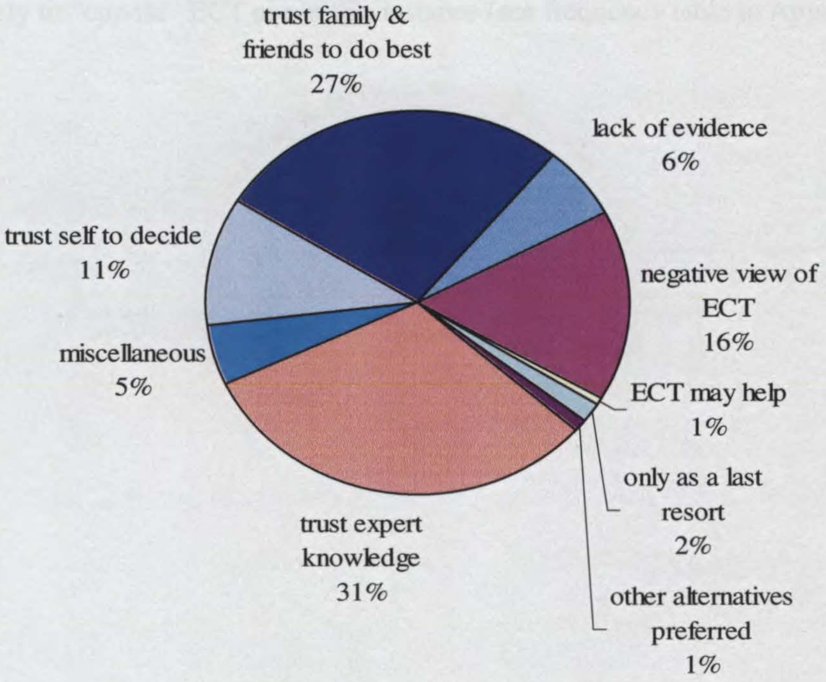


When asked who might persuade them to have ECT if they did not want it initially, most respondents (40%) indicated "no one"; 31% endorsed the opinion of a second psychiatrist, about 27% endorsed their family doctors or general practitioners (GP) and a close family member, respectively; 25% endorsed their partner/spouse; 17% endorsed a friend; 3% endorsed a mental health worker; and 2% preferred a work colleague. Respondents were allowed to choose more than one person, except when respondents endorsed "no one", which precluded anyone else. Fifty-four respondents did not offer any reason for their attitudes. As shown in Figure B, trust in expert knowledge, self, and family and/or friends were the main influential factors that respondents cited. Negative perceptions of ECT prevented 16% of respondents from being persuaded by anyone.

In deciding their attitudes towards ECT on themselves, adolescent respondents were more likely to support, χ^2 (6, $N = 367$) = 51.23, $p < .01$. More adults indicated "strongly opposed", and a greater number of older adults were "opposed" to being treated with ECT (see frequency table in Appendix R).

Figure B

Reasons Why Certain Individuals Could Persuade Respondents to Have ECT



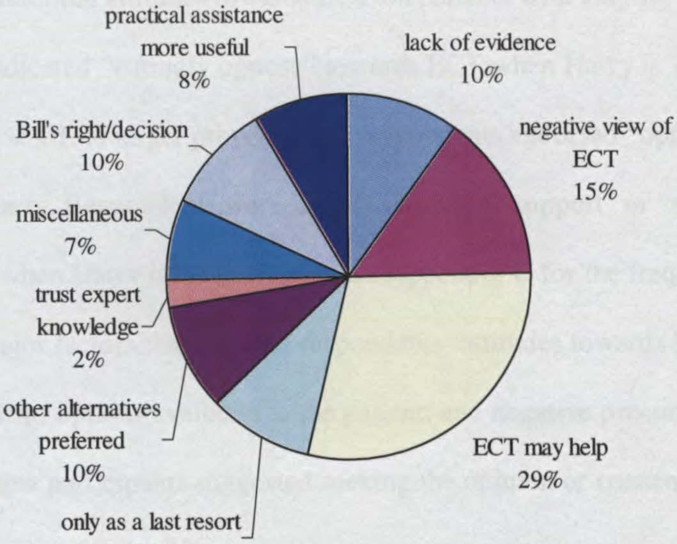
ECT on individual has psychosocial problems.

Slightly more than half of the respondents endorsed “strongly oppose” or “oppose” towards the prescription of ECT for Bill, who is experiencing financial difficulties. The rest was optimistic about the benefits of ECT for Bill, or supported the treatment only as a treatment of last resort (see Figure C). About 8% raised the issue of the importance of offering practical assistance to Bill, such as “getting him a job”. Another 10% believed that it was Bill’s decision/right alone, so were reluctant to assert their attitudes in this vignette.

Adolescents were more likely to “support” ECT for Bill, χ^2 (6, N = 355) = 48.34, $p <$ .01. Adults were more likely to either “strongly oppose” or “oppose”, while older adults were more likely to “oppose” ECT use in this instance (see frequency table in Appendix S).

Figure C

Reasons for Attitudes towards ECT on Bill with Financial Difficulties



ECT on different age groups.

In an attempt to examine the influence of the chronological age of an ECT patient on public attitudes, three experimental versions of a vignette were developed. The Harry vignette aimed to differentiate respondents' attitudes towards ECT on different age groups, specifically on a 7-year-old child, a 40-year-old middle-aged adult and a 78-year-old older adult. These three experimental versions of the questionnaire were randomly distributed amongst participants, so that about 34% of the sample responded to Harry aged 7 years; 33% responded to the 40-year-old Harry version; and another 33% were allocated the 78-year-old version of Harry.

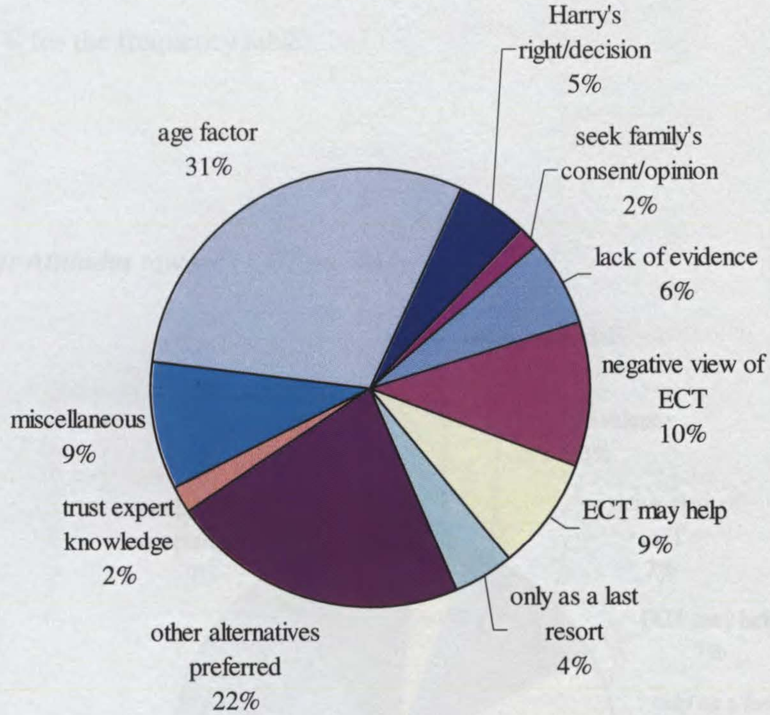
Overall, a large proportion of respondents were opposed to treating Harry, across all ages, with ECT. A greater proportion of adolescents and older adults were "opposed" to ECT on Harry, χ^2 (6, $N = 357$) = 29.78, $p < .01$. Relatively more adults indicated "strongly oppose" in this instance (see Appendix T for the frequency table).

In addition, the experimental condition conducted with this vignette elicited significant differential attitudes towards ECT on patients with varying ages. More respondents indicated "strongly oppose" towards ECT when Harry is 7 years old, χ^2 (6, N= 359) = 25.3, $p < .01$. A larger proportion of respondents endorsed "opposed" towards ECT on 78-year-old Harry. Respondents were likely to indicate "support" or "strongly support" towards ECT when Harry is 40 years old (see Appendix U for the frequency table).

The major factors that affected respondents' attitudes towards ECT on Harry were the age of the patient; options available to the patient; and negative preconceptions of ECT (see Figure D). A few participants suggested seeking the opinion or consent of the patient's family.

Figure D

Reasons for Attitudes towards ECT on Harry



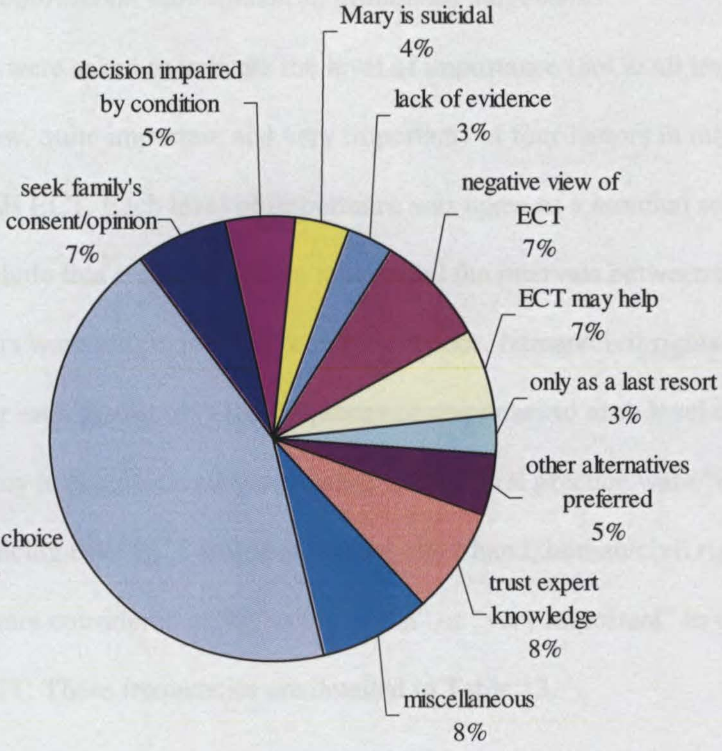
ECT on involuntary patients.

In the vignette about Mary, more than 70% were strongly opposed or opposed to ECT on individuals who do not consent to having the treatment. The reasons offered for these attitudes are presented in Figure E below. Nearly half of the attitudes towards ECT in this vignette involved freedom of choice, and/or stated that it was unethical to treat without informed consent. About 7% recommended that consent or the opinion of the patient's family be sought but a similar proportion stated ECT is beneficial for Mary. About 5% stated that the patient's refusal is impaired by her condition, while 8% trusted the decisions of doctors unreservedly.

Chi-square test was conducted to examine the relationship between age groups and attitudes towards ECT on Mary who was treated with ECT as an involuntary patient. All age groups were "strongly opposed" to involuntary ECT, χ^2 (6, $N = 357$) = 19.64, $p < .01$ (see Appendix V for the frequency table).

Figure E

Reasons for Attitudes towards ECT on Mary



Given that there were eight occupational groups, to increase statistical robustness in each cell, the four categories of attitudes (strongly oppose, oppose, support, strongly support) for each vignette were combined into two groups, "oppose" or "support". Chi-square revealed significant results for all the vignettes. Pensioners, executives and service workers were opposed to having ECT themselves, while students' responses were quite evenly distributed between the two attitudes in the vignette of ECT on self, χ^2 (7, $N = 377$) = 30.67, $p < .01$. Executives and service workers were opposed towards ECT on reactive depression, χ^2 (7, $N = 377$) = 20.65, $p < .01$. Students indicated support for ECT on individuals with contextual problems, while pensioners were divided between the two attitudes. All occupational groups were opposed to ECT on different age groups and involuntary patients, χ^2 (7, $N = 377$) = 18.48, $p < .01$ and χ^2 (7, $N = 377$) = 11.88, $p < .01$, respectively (see frequency table in Appendix W).

Factors and information that influenced attitudinal judgements.

Respondents were asked to indicate the level of importance (not at all important, important, don't know, quite important and very important) of four factors in influencing their attitudes towards ECT. Each level of importance was taken as a nominal scale because it was difficult to conclude that each respondent interpreted the intervals between each level equally. These factors were religious belief, cultural practice, human/civil rights and freedom of choice. Hence, for each factor, only the frequency of responses to each level of importance was counted. To many respondents, religious belief and cultural practice were "not at all important" in influencing their ECT attitudes. On the other hand, human/civil rights and freedom of choice were considered as "quite important" or "very important" in influencing attitudes towards ECT. These frequencies are detailed in Table 13.

Table 13

The Four Factors and Their Level of Importance in Influencing ECT Attitudes

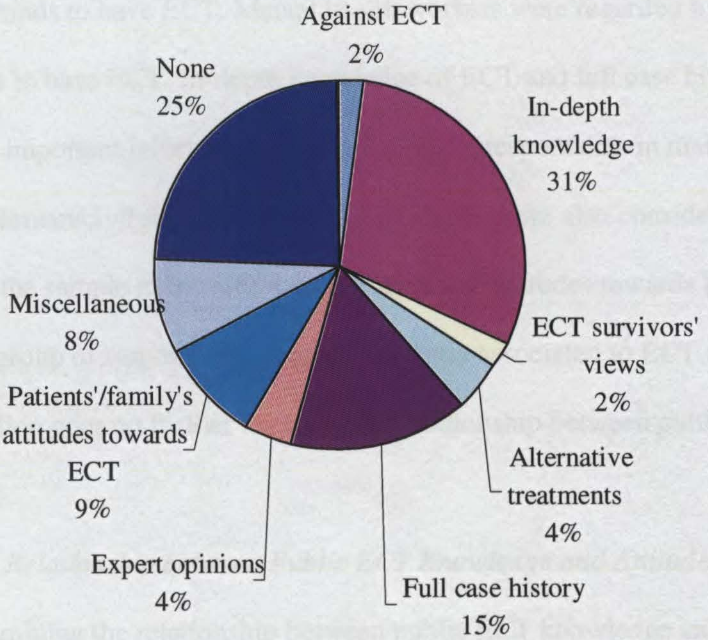
	No. of Responses (%)				
Factor	**1. Not At All Important**	**2. Important**	**3. Don't Know**	**4. Quite Important**	**5. Very Important**
Religious belief	247	24	38	22	27
	(69.0)	(6.7)	(10.6)	(6.1)	(7.5)
Cultural practice	196	38	57	37	19
	(56.5)	(11.0)	(16.4)	(10.7)	(5.5)
Human/civil rights	55	17	43	95	142
	(15.6)	(4.8)	(12.2)	(27.0)	(40.3)
Freedom of choice	21	11	11	75	248
	(5.7)	(3.0)	(3.0)	(20.5)	(67.8)

Furthermore, the frequencies of the importance of each factor were examined across the demographic variables. Some significant differences were found amongst the three age groups. Participants of all ages tended to rate religious belief and cultural practice as "not at all important" in influencing their attitudes towards ECT, χ^2 (8, N = 357) = 28.38, $p < .01$ and χ^2 (8, N = 346) = 42.67, $p < .01$, respectively. Adolescents and adults were likely to rate human/civil rights as "very important" in influencing their ECT attitudes, while older adults were likely to indicate that this factor was "not at all important" to them, χ^2 (8, N = 351) = 55.5, $p < .01$. Lastly, freedom of choice was considered by all age groups as "very important" in influencing their ECT attitudes, χ^2 (8, N = 364) = 22.4, $p < .01$ (see the frequency table in Appendix X).

Many respondents (75%) indicated that other information, not included in the vignettes, was important in helping them determine their attitudes towards ECT in each case. Only a quarter indicated that they would not require any additional information. These responses were analysed and described in Figure F. In-depth knowledge about ECT and full history of the patient were cited by a majority of the respondents as vital information in making judgements about the appropriateness of treatment. A few participants also cited the attitudes of the patient and/or the family towards ECT as factors.

Figure F

Categories of Additional Information Required by Participants in Addition to the Vignettes



Summary.

Overall, the vignettes were successful in eliciting attitudes towards ECT. Most members of the public strongly opposed, or opposed, the application of ECT within the circumstances described in the vignettes. The main reasons reported by respondents, who were opposed to ECT, were negative views of ECT; lack of evidence for the efficacy of ECT;

age of ECT patient being too young or too old; preference for other treatment alternatives; and freedom of choice. Generally, those respondents who indicated support for ECT did so because they were optimistic that the treatment would be helpful for patients. More than one third of the sample claimed that they would not be persuaded by anyone to undergo ECT. Psychiatrist, general practitioner and close family members were regarded as being able to change their minds to have ECT. Mental health workers were regarded by a few to be able to persuade them to have ECT. In-depth knowledge of ECT and full case histories of patients were noted as important information that would assist respondents in making informed judgements. Human/civil rights and freedom of choice were also considered by a large proportion of the sample to be important influences of attitudes towards ECT. The age and occupational group of respondents were significantly associated to ECT attitudes. The following section goes on further to clarify the relationship between public ECT knowledge and attitudes.

What was the Relationship between Public ECT Knowledge and Attitudes?

In examining the relationship between public ECT knowledge and ECT attitude, the frequency of each attitude in each vignette was calculated across objective and subjective (self-rated knowledge) ECT knowledge. No significant relationship was found between objective ECT knowledge and ECT attitudes.

Significant relationships between self-rated ECT knowledge and attitudes towards the vignettes about ECT on self and Harry were found. Respondents with "low" subjective ECT knowledge were more likely to endorse "support" towards ECT on themselves, χ^2 (6, N = 369) = 17.04, $p < .01$. Respondents with "medium" levels of self-rated ECT knowledge were likely to "oppose" ECT on themselves. Those with "high" subjective ECT knowledge were more likely to indicate "strongly oppose" ECT on themselves. Participants with "low" and "medium" levels of subjective knowledge were more likely to "oppose" ECT on Harry, χ^2 (6,

$N = 359) = 27.78$, $p < .01$. Those with "high" levels of subjective ECT knowledge were more likely to "strongly oppose" ECT on Harry (see the frequency table in Appendix Y).

The degree of direct ECT contact was not significantly associated with attitudes towards ECT in each vignette. Having direct experience with ECT did not necessarily affect one's attitudes towards the treatment.

Summary.

These findings indicated that a low level of ECT knowledge was associated with more positive attitudes towards ECT on various subpopulations. On the other hand, a high level of ECT knowledge was also associated with negative ECT attitudes. Personal experiences with the treatment did not significantly affect the individuals' attitudes.

As another aim of this project was to understand the practice of ECT in WA, databases from MHIS and other psychiatric facilities were analysed. Study 3 is described in the next chapter.

Chapter 6

ECT Practice in WA

Given that the historical background of ECT dates back more than three decades, empirical studies have only begun to document its usage in the past twenty years (e.g., Pippard & Ellam, 1981), albeit sporadically in various parts of the world (e.g., Duffett & Lelliott, 1998; Hermann et al., 1995). In Australia, where ECT research is generally lacking, Jorm and Henderson (1989) described the use of private psychiatric services, including ECT. No research has focused solely on ECT practice within Australia until recently (Wood & Burgess, 2003). Nevertheless, differences in the data registered in each Australian States preclude the assumption that these Victorian statistics directly reflected the practice locally. Therefore, this research further aimed to examine ECT practice in WA.

Participants

Study 3 involves the analysis of ECT data, provided by the Health Department of WA and some psychiatric facilities. The data include the characteristics of ECT patients treated in WA, and the frequency of these administrations. The participants consist of patients who had or were receiving ECT in WA.

Materials

This study analysed the MHIS, collated by the Health Department of WA, and ECT data of some psychiatric facilities. Established in 1966, the MHIS provided comprehensive information on patients' demography, and inpatient and outpatient mental health attendance history for the entire State of WA. However, it did not include ECT data from all psychiatric facilities for the period prior to 2000. The MHIS included ECT patients who were discharged during the period between January 1988 and December 2001. ECT data from some of the excluded psychiatric facilities were obtained separately from one psychiatric hospital. The data obtained from these facilities included the number of ECT administrations and recipients in each hospital for the period of 1997 to 1999.

Due to the differences in the variables contained in the MHIS and ECT data from the psychiatric hospital (MHIS data contained more detailed ECT patients' information), it was not feasible to combine them for data analyses. Instead, the MHIS was used to provide an impression of the characteristics of ECT patients, while data from one psychiatric facility and part of the MHIS were used to estimate the prevalence of ECT practice in WA during 1997 to 2001. Overall, the data included ECT information from all registered psychiatric facilities in WA, except one facility that was no longer in operation.

Design and Procedure

To obtain approval to access the MHIS, a written application was submitted to the Health Department of WA Confidentiality of Health Information Committee (CHIC). The application details the types of information required, the purposes of the present study, and the management and storage of the data. The MHIS data were released on August 6, 2002 under the supervision of the external supervisor of this study, who was based in the Health Department of WA.

The MHIS did not include ECT information from some psychiatric facilities before the year 2000. These hospitals were identified, one of which had shut down in the early 1990s. Attempts were made to trace the ECT records from these treatment centres. Data could not be recovered for the State hospital that had shut down. Limited ECT data from the rest of the treatment centres that were not included in the MHIS were held in one facility.

Permission was sought from the ECT consultant in-charge, and the data were subsequently retrieved over June and July 2003.

Given the time constraints and the availability of data regarding the number of ECT patients treated in WA prior to 2000, ECT information from all of the psychiatric facilities that were excluded in MHIS were obtained for the period between 1997 and 1999, except data from one facility that was no longer in operation. Together with similar information from the MHIS, the number of ECT recipients in WA was determined for the period of 1997 to 2001. Consultations were conducted with the external supervisor, who was aware of the specific psychiatric facilities that were not included in the MHIS, to ensure that no double counting was committed in combining the data.

On the other hand, the MHIS do not stipulate the exact number of courses administered for each patient. The register codes ECT treatments each patient admission before July 1, 1999 according to *The International Statistical Classification of Diseases and Related Health Problems, 9th Revision, Clinical Modification* (National Coding Centre, 1996), and treatments after that date according to *The International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification* (National Centre for Classification in Health, 2000). The latter codes either less than or equal to eight ECT treatments, or more than eight ECT treatments. The number of ECT courses cannot be determined accurately because an individual might have had more than one course during one hospital admission but the MHIS indicates only one of the above descriptions. It is also difficult to determine if each code refers to one session or one course of ECT. Thus, the discrepancies between the MHIS and data from the excluded psychiatric facilities do not allow for a combined analysis.

In view of the above factors, the number of ECT courses administered in WA is estimated from ECT data of all registered psychiatric facilities within WA currently, except one hospital that is no longer in practice. These data were provided by a State psychiatric facility that held the records. The number of individuals being treated with ECT in WA is estimated as the total of ECT patients from this database together with the MHIS.

Results

What were the Characteristics of ECT Recipients Treated in WA?

One of the main aims of this study was to describe the characteristics of ECT recipients in WA using the MHIS since the latter contains detailed information collected over a relatively long period of time. This register comprises details relating to 1,469 individuals treated with ECT over the period of 1988 to 2001. This excludes ECT patients treated in some psychiatric hospitals and lodges prior to 2000. The characteristics of the MHIS ECT patients are shown in Table 14.

More than half (65%) of the 1,469 ECT patients were female. The age of their first ECT admission ranged from 15 to 96 years. The average age of both genders at first admission was about 50 years old (SD = 18.85), although the age range of female recipients was marginally wider (15 to 96 years old) than their male counterparts (17 to 91 years old). Most recipients were aged 46 years. More than 70% were adults aged between 19 and 64 years of age, and about one third was above 64 years old.

The data showed that more than 60% of patients diagnosed with psychiatric conditions were treated with ECT at least once during the period of 1988 to 2001. The total length of hospitalisation had a wide range that spanned from 1 to 914 days. The mean hospitalisation for ECT was 56 days (*SD* = 65) with a median of 39 days, and mode of 20 days.

Out of 622 individuals treated with ECT over 1988 to 2001 within State psychiatric facilities, which could commit individuals involuntarily under the Mental Health Act ("The

Mental Health Act," Western Australia, 1996), 132 (21%) were treated as involuntary patients at least once. More than 82% of ECT patients in WA were diagnosed with affective disorders. Other psychiatric diagnoses treated with ECT included schizophrenic disorders and neurotic disorders.

Table 14

Characteristics of ECT Recipients In WA

Characteristics	Freq / % / Range
Gender:	
Males	35.10%
Females	64.90%
Age of 1st ECT	15 – 96 years
Average age of ECT patient at 1st treatment	50 years
Age group:	
0 – 18 years old	2.20%
19 – 64 years old	70.70%
65+ years old	27.00%
Educational level:	
Primary school	6.10%
High school, no certificate	18.50%
High school certificate & matriculation	14.10%
Tertiary education, no qualifications	4.10%
Tertiary qualifications	5.30%
Marital status:	
Married/de facto	51.70%
Never married	22.90%
Widowed	11.30%
Divorced	7.40%
Separated	5.20%
Country of birth:	
Australian	36.8%
Other English-speaking countries	12.5%
Non-English-speaking countries	42.6%
Aboriginality:	
Aborigines	0.60%
Non-Aborigines	99.40%
Employment status:	
On unemployment benefits	58.40%

Employed	9.60%
Student	2.40%
SES:	
Disadvantaged	23.60%
Less disadvantaged	18.40%
Not disadvantaged or advantaged	17.10%
Fair advantaged	18.60%
Advantaged	21.80%
No. of ECT admissions:	
Once	61.60%
Twice	16.10%
Three times	5.70%
Four times	3.20%
Eight times	2.00%
Involuntary status:	
Involuntary	21.22%
Voluntary	78.78%
Diagnostic category:	
Affective psychoses	42.90%
Depressive episode	15.18%
Recurrent depressive disorder	12.88%
Depressive disorder, not elsewhere classified	6.47%
Bipolar affective disorder	4.16%
Schizophrenic disorders	2.25%
Neurotic disorders	2.14%

Were the Numbers of ECT Recipients and Administrations Increasing in WA?

According to data from MHIS and other psychiatric facilities, from 1997 to 2001, the number of ECT patients in WA was estimated at 1,175. Generally, the annual number of ECT recipients displayed an upward trend across a five-year span, from 150 ECT patients in 1997 to 259 in 2001 (Figure G).

To examine the rate of ECT administration within WA, these annual frequencies were compared with changes in the local resident population as in similar empirical studies conducted in the past (Duffett & Lelliott, 1998; Hermann et al., 1995; Thompson & Blaine, 1987; Thompson et al., 1994; Walter & Rey, 1997; Wood & Burgess, 2003). Results showed that the rise in ECT usage is not proportionate to the estimated annual increase of about 1% within the WA resident population over the same period (Codde et al., 1997). ECT patients treated in WA rose by 73%, compared to the estimated resident population growth of 5% over the same five-year period. ECT recipients constituted about 0.008%, 0.013%, 0.012%, 0.016% and 0.014% of the estimated annual resident populations in WA in 1997, 1998, 1999, 2000 and 2001, respectively.

Focusing on the specific age groups, Figure H shows that while the number of ECT recipients, aged 0 to 17 years and above 64 years, fluctuates over the same 5-year period, child/adolescent recipients increased marginally by 2001. Older adult recipients decreased in 1999, and then increased slightly in 2001. On the other hand, the number of adult ECT recipients in WA increased greatly each year.

Figure G

Number of ECT Patients Treated in WA

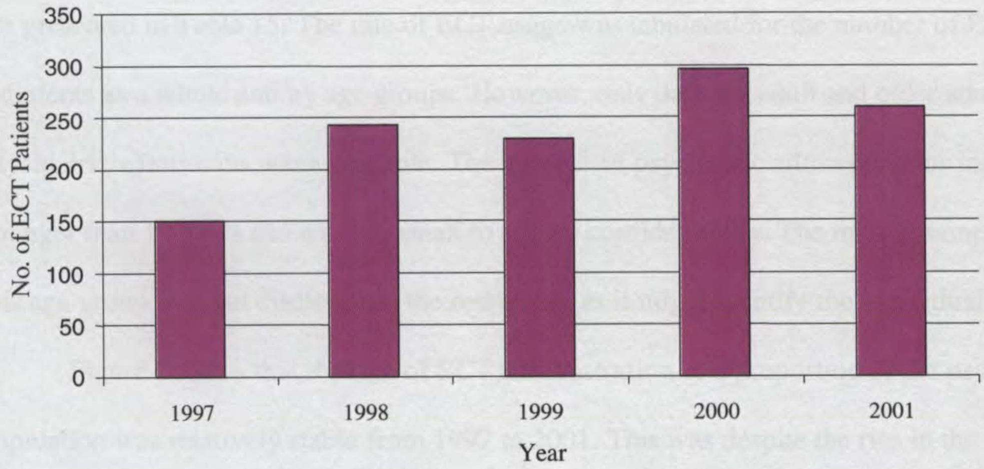
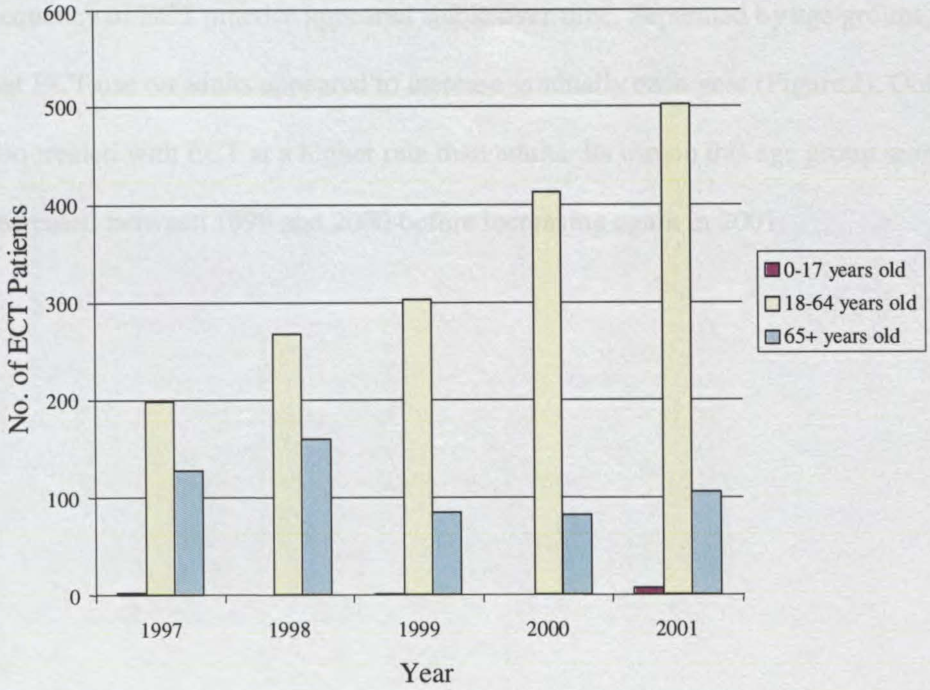


Figure H

Number of WA ECT Patients Per Year by Age



The rate of ECT administration was also calculated as a proportion of the psychiatric resident population in WA over the same time period. The data used to calculate these rates are presented in Table 15. The rate of ECT usage was tabulated for the number of ECT recipients as a whole and by age groups. However, only data for adult and older adult ECT psychiatric admissions were available. The number of psychiatric admissions for individuals younger than 19 years old was too small to ensure confidentiality. The minute sample size for this age group was not disclosed to the researcher as it might identify the individual patient.

Figure I shows that the rate of ECT administration as a proportion of the psychiatric population was relatively stable from 1997 to 2001. This was despite the rise in the number of ECT recipients treated in WA as mentioned above. Indeed, psychiatric population rose by about 2% in the 1st year, 15% in the second, 11% in the 3rd and 3% from 2000 to 2001. The psychiatric population in WA rose approximately 33% over the same period, so that the frequency of ECT practice appeared stable over time. Separated by age groups, it was shown that ECT use on adults appeared to increase gradually each year (Figure J). Older adults were also treated with ECT at a higher rate than adults. Its use on this age group seemed to have decreased between 1999 and 2000 before increasing again in 2001.

Table 15

Frequencies of Psychiatric Admissions and ECT Recipients in WA

	Year of Discharge (*f*)				
Category	**1997**	**1998**	**1999**	**2000**	**2001**
ECT recipients	150	242	229	295	259
Psychiatric admissions	14440	14660	16801	18590	19190
ECT recipients by Age					
19 – 64 years	199	267	303	412	504
65+ years	128	160	84	83	107
Psychiatric admissions by Age					
19 – 64 years old	10156	10704	12730	14682	15329
65+ years	2429	2456	2266	2197	2216

Figure I

Rate of ECT Administrations as a Proportion of Psychiatric Admissions in WA

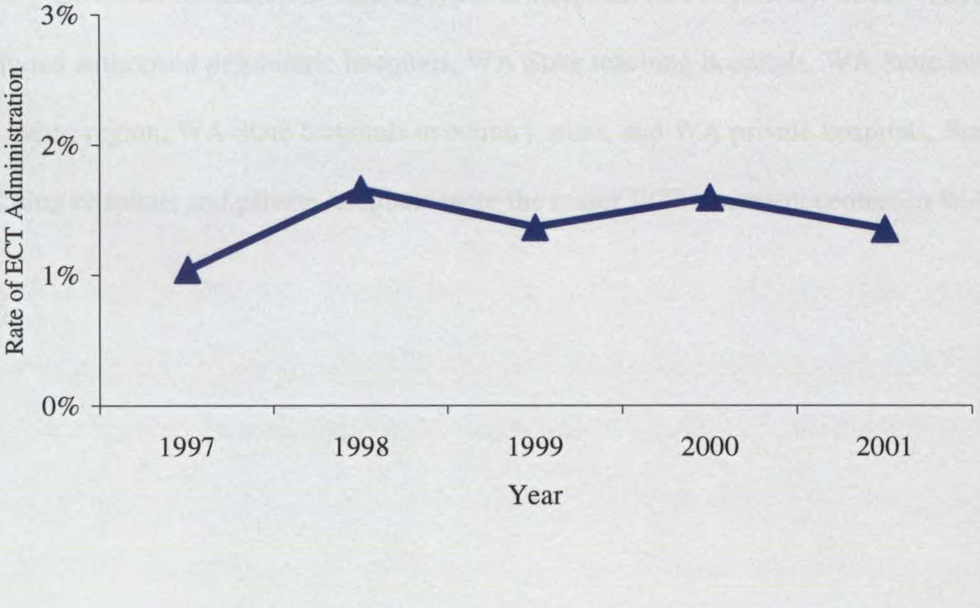
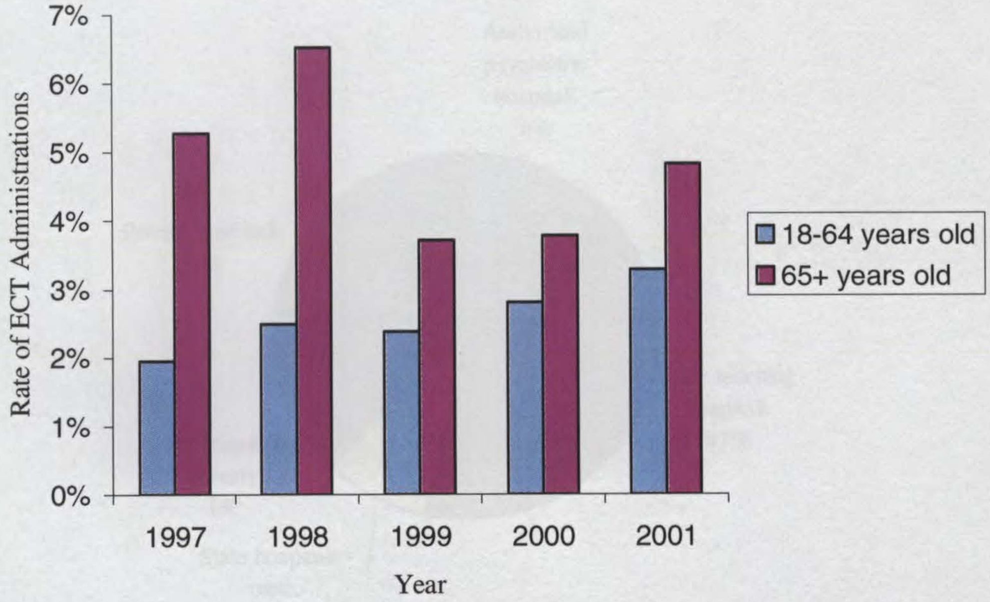


Figure J

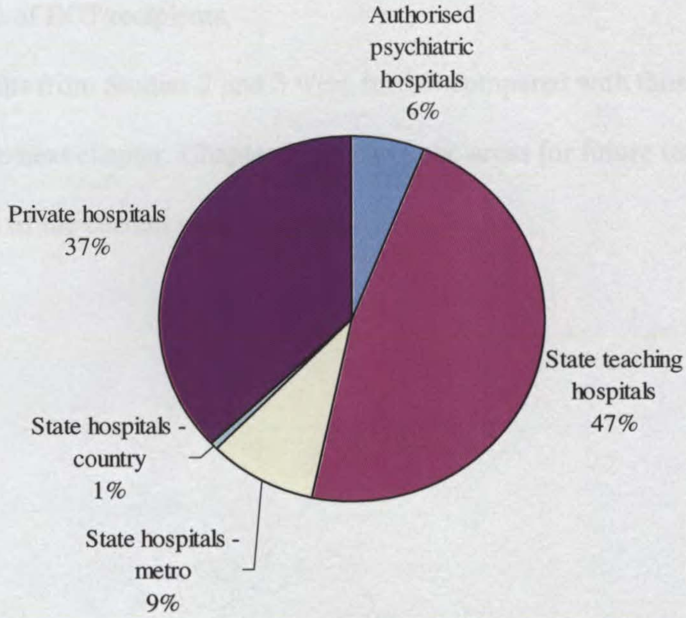
Rate of ECT Administrations as a Proportion of Psychiatric Admissions in WA by Age Groups



ECT was conducted in various types of hospitals (see Figure K). These venues included authorised psychiatric hospitals, WA State teaching hospitals, WA State hospital in the metro region, WA State hospitals in country areas, and WA private hospitals. State teaching hospitals and private hospitals were the major ECT treatment centres in WA.

Figure K

Proportion of ECT Patients Treated in Various Hospital Types from 1988 to 2001



Summary

Overall, the data show that most ECT recipients were female adults, whose first admission for ECT was at the age of 46 years old. In addition, ECT patients in WA were mostly married or in de facto relationships; migrants from non-English-speaking countries; from disadvantaged SES; admitted once for ECT; treated as voluntary patients; and diagnosed with an affective disorder. Attempts were also made to estimate the number of ECT recipients and administrations in WA each year. The annual number of ECT recipients treated in WA increased over a five-year period. This was mainly due to the rise in the number of adult ECT recipients over the years. Yet, the rate of ECT administration as a proportion of the psychiatric population had remained stable between 1% and 2% from 1997 to 2000. This was due to the growth of in the psychiatric population of about 33% over the five-year span. The rate of ECT administration on adults as a proportion of the psychiatric population illustrated a gradual rise. The rates of ECT usage on older adults fluctuated across a five-year period but they were comparatively higher than that for adults. State teaching hospitals and private hospitals in WA were the major treatment centres, being responsible for treating 84% of ECT recipients.

Results from Studies 2 and 3 were further compared with those obtained from past studies in the next chapter. Chapter 7 discusses the areas for future research, and presents the implications of the current study as well.

Chapter 7

Discussion

The research questions that were addressed in this study are as follows:

1. What was the level of public knowledge of ECT?
2. What were public attitudes towards ECT on specific groups?
3. What was the relationship between public ECT knowledge and attitudes?
4. What were the characteristics of ECT patients treated in WA?
5. Were the numbers of ECT recipients and administrations increasing in WA?

The first three questions were examined in Study 2 using the questionnaires that were developed in Study 1. Study 3 analysed the databases from WA Health Department and a psychiatric hospital to investigate research questions 4 and 5. In this chapter, discussion of the findings is structured around the research questions. Further, attempts were made to draw the results of Studies 2 and 3 together, before suggestions were offered for future research. Finally, the implications and conclusions of the present research are presented.

What was the Level of Public Knowledge of ECT?

No study has thoroughly examined ECT knowledge within the local community, although the public comprises of past, present and future mental health users, and patients are expected to be well-informed of the treatment in order to be able to give informed consent ("The Mental Health Act," Western Australia, 1996). Hence, a questionnaire was developed and distributed amongst the local community. Discussion groups and literature review ensured the construct and face validity of the questionnaire. It had to be acknowledged that the stringent criteria used in this study to define the accuracy of responses to ECT knowledge items in the questionnaire might have underestimated the level of public ECT knowledge.

Nevertheless, findings from a sample of 379 participants showed some overall trends and some interesting differences in ECT knowledge between age groups, genders and various occupational categories. Comparisons were made with previous studies where appropriate.

One of the main trends was that a majority of the sample (85%) had heard of ECT. About 67% of the participants were reasonably knowledgeable about ECT, which was consistent with findings from past Australian studies (Jorm et al., 1997; Kerr et al., 1982). This might suggest that ECT information was widely known within the Australian community, and/or public knowledge had been enhanced by mental health awareness programs that were implemented across the nation (eg. Beyondblue, 2000). Members of this public either knew little about ECT overall, or had fairly detailed and accurate knowledge.

For those who had never heard of the treatment, most identified it as a medical procedure, while some thought ECT was a defibrillator to resuscitate individuals with heart failure. This might be due to the common notion that electricity is usually used within medical settings to resuscitate patients. Given the different levels of ECT knowledge displayed by respondents in this study, the association of other variables, like demographics, were examined.

Variables Associated with Responses to ECT Knowledge Items

Sources of ECT information were associated with the age and gender of participants. More males heard of ECT through television and newspapers. Females were more likely to have heard of ECT via the experience of a family member and/or friend. The Internet was, perhaps unsurprisingly, the most common source of ECT knowledge for adolescent participants. This age group was more likely to have learnt to use computers in school and were more familiar with advanced technology. The sources of ECT information reported by adults were television, movie/film and books. While this suggested that ECT information was increasingly more accessible now, it could not be firmly determined if the media were incorporating more accurate information since this age group was unaware of the main purpose of ECT and the state of the patient during the treatment. Older adults were more likely to know of ECT through the experiences of friends and/or family members, which might stem from their relatively close-knit social interaction of their retired lifestyles. These findings indicated the types of media that would be useful in mental health education for each age group and gender.

The age and gender of the respondents were also related to the differential responses towards the knowledge items in the survey. Significantly more males stated that ECT is administered on children/adolescents, and that patients are awake and aware during ECT. Adolescents were less likely to be knowledgeable about ECT, consistent with findings from Kerr et al. (1982). Given that high school students comprised a third of the sample, this group could possibly account for the low level of ECT knowledge in 33% of the sample. The academic curricular and social contexts of adolescents rarely involved ECT, so that this group had little, or no, access to the relevant information. Yet, some of them might already be ECT recipients, or would be recommended this treatment, and/or knew someone who was recommended ECT. They need to be reasonably knowledgeable about ECT to assent to their treatment ("The Mental Health Act," Western Australia, 1996), or make informed decisions later for themselves and/or their family. In order to do so, the Internet (a popular source of information for this age group as stated above) and school curriculum could be used to disseminate ECT information to adolescents to improve their ECT knowledge.

In the meantime, clinicians, who are prescribing this treatment to young individuals, should ensure that their clients have access to, or possess ECT information that allows them to assent to the treatment. Otherwise, Jorm et al. (1997) warned that younger patients might become disillusioned with mental health care and not seek professional assistance in mental health issues as adults.

Participants of this survey differed in their self-ratings of their ECT knowledge, depending on their age group. Adolescents tended to rate their ECT knowledge as "low" or "medium", and adults were more likely to rate themselves as having "medium" or "high" levels of ECT knowledge. Older adults were likely to rate themselves as having "low" levels of ECT knowledge. However, this difference across the three age groups seemed to reflect their actual levels of ECT knowledge, rather than their ages. Indeed, respondents' self-ratings were significantly associated with their levels of ECT knowledge measured objectively. These differential levels of ECT knowledge might stem from individual differences, such as personal experience, interpretation of information, types of social contexts, and access to resources.

While no respondent obtained full marks, and 18% scored zero, only 41% were interested in knowing more about ECT. This proportion mostly comprised adolescents, although they rarely encounter this topic within their social and academic contexts. While all age groups tended to endorse "ascertain facts" as their reasons for wanting to know more about ECT, older adults were also more likely to state that ECT information was irrelevant to them. The adolescents' interest to ascertain the facts about ECT appeared to be consistent with their developmental phase, characterised by curiosity and interest in acquiring knowledge about the world. On the other hand, older adults' perception that ECT information was irrelevant to them might reflect their focused individual objectives. It could also indicate that this age group had developed certain perceptions of ECT to the extent that contradictory information may not be readily accepted.

Further, many respondents stated that they did not want to know about ECT because they hoped that they would never need the treatment, possibly illustrating a form of coping mechanism. The interest of participants in learning more about ECT and their reasons behind it extended the ECT literature since past studies have not explored this issue with people in general. Whilst the survey examined the respondents' understanding on a whole range of factors to do with ECT, knowledge of some items was more important than others in gauging whether individuals could give informed consent for the treatment.

Variables Associated with Knowledge of Essential Items

The Mental Health Act ("The Mental Health Act," Western Australia, 1996) stipulates that certain aspects of ECT are central to individuals' decisions about ECT. It might not be essential for the public to be aware of the recommendations for ECT; where ECT is administered on the human body; the specialists who deliver the treatment; and the venue in which ECT is usually conducted. However, information about ECT processes; the main purpose of ECT; the conditions for which ECT is usually recommended as a treatment; the consciousness of the patient during the treatment; its benefits; and the risks involved is crucial in assisting an individual in making informed judgements about ECT. When the essential items were selected from the questionnaire, and the responses compared with other variables, it was found that some respondents were aware of the basic aspects of ECT that would help them make informed decisions about the treatment. Furthermore, direct contact with ECT appeared to consolidate ECT knowledge regarding the essential aspects to facilitate informed decision-making.

Contrary to Freeman and Cheshire's (1986) and Kerr's et al. (1982) claims that the media did not convey accurate information, significantly more respondents, who were knowledgeable about the essential aspects of ECT, cited television, movie/film, newspapers, books, magazines and health care professionals as sources of ECT information. This suggested that the media had become more informed of ECT to convey a balanced perspective for individuals to make judgements of the treatment based on grounded facts. Hence, newspapers, books, magazines along with health care professionals had become useful media through which to disseminate ECT information to increase ECT knowledge.

The focus of this study went beyond looking purely at knowledge to examine attitudes towards ECT amongst members of the local public. The findings from this component of the project are discussed below.

What were Public Attitudes towards ECT on Specific Groups?

Studies that focused on public perceptions of ECT in Australia are scant. This is unfortunate, because of the considerable influence that public opinion can have on legislation (Durham, 1989) and prescription patterns (Bucens et al., 1986). Hence, the emphasis of the present survey in assessing the attitudes of lay people towards ECT is intended to gain some insight into the social acceptability of the treatment within various situations. This section of Study 2 focused on the attitudinal component of the questionnaire. The questionnaire aimed at examining participants' willingness to have ECT, and their attitudes towards ECT on individuals with psychosocial issues, children, older adults and non-consenting individuals. The study was also interested in the relationships between public attitudes towards ECT and demographic variables. The importance of freedom of choice, religion, culture and human rights on public attitudes towards ECT was also assessed, while the types of information that participants considered essential to make informed judgements about ECT were noted. These findings are discussed in light of prior research.

By and large, ECT was opposed by participants in all the hypothetical situations with which they were presented, echoing the finding of Jorm et al. (1997) that ECT was rated the most negatively amongst psychiatric treatments. The current survey also replicated the results obtained by Jorm et al. with its success in eliciting public attitudes towards ECT on specific groups using vignettes.

The importance of understanding the reasons behind quantitative responses had been raised by recent qualitative studies (Johnstone, 1999; Koopowitz et al., 2003) that examined the subjective experiences of ECT recipients. This was considered during the development of the questionnaire. Hence, respondents were asked to explain their attitudes towards ECT in each vignette. These subjective reason(s) were designed to elucidate why respondents held those attitudes. The use of both quantitative and qualitative data in the current survey to examine public ECT knowledge and attitudes on specific issues (e.g., on individuals who are unwilling to have ECT) increased the richness of the data obtained. Each vignette would be discussed separately. The attitudes of respondents would also be described in terms of the themes that were revealed in their written comments.

ECT on self.

The first hypothetical situation was constructed to investigate respondents' willingness to have ECT. About 66% indicated that they would be reluctant to undertake the treatment, if they were in the situation described. Explanations for this reluctance mainly revolved around negative pre-conceptions of ECT; their beliefs that ECT is a practice not based on evidence; and/or preference for other types of treatment. Even amongst the 30% of participants, who indicated optimism or willingness to have ECT, most would accept the prescription only as a treatment of last resort. Many respondents stated that they could not be persuaded to have ECT under any circumstances.

Perhaps, such negativity towards ECT was due to "fear of the unknown". Many individuals (some health care professionals and lay people) faced difficulty comprehending how causing a general convulsion could enhance one's wellbeing, while such convulsions have been actively prevented in other conditions, like epilepsy. Indeed, for over more than 65 years of practice, health care professionals are no closer to understanding the underlying mechanism of ECT (Fink, 2001). Likewise, this negativity might reflect lay people's realistic assessment of the "costs" of ECT. The uncertainty amongst health care professionals and the lack of unequivocal empirical support made it difficult for lay people to predict the outcome of the treatment reliably. While the financial expenses of the treatment might add to the liabilities of those who were already incapacitated from work by their psychiatric conditions, any additional costs of non-therapeutic complications could increase their emotional burden.

In contrast, ECT recipients in some studies have been reported to have perceived ECT as a helpful treatment (Kerr et al., 1982), to the extent that some were willing to have it again (Wheeldon et al., 1999). This suggested that personal experience of ECT influences attitudes towards the treatment, although this was not found amongst the current survey population. Perhaps, these attitudinal differences reflected variations in community culture, mental health policies, and/or geographical area. The manner in which the participants were recruited and interviewed or surveyed, and whether the researchers were health care professionals, treating doctors or consumer groups might affect the responses of participants (Service User Research Enterprise, 2002) as well. In the same way, ECT recipients were more candid about their opinions of the treatment in studies conducted by consumer support groups, although it must be acknowledged that this group might only represent a small group of disgruntled ECT recipients. These groups of ECT recipients might perceive surveys as opportunities for the minority to vent their frustrations.

Family, friends and general practitioners were frequently reported as persuasive individuals who might be able to change the respondents' minds about ECT, similar to findings of Jorm et al. (1997) and Kerr et al. (1982). Jorm et al. reported that family doctors, counsellors, close friends and family were regarded by most respondents as helpful in assisting an individual overcome depression. This suggested that general practitioners, close friends and family were people trusted by others in regards to mental health issues. Of course, this did not necessarily imply that assisting others overcome depression was the same as persuading them to have ECT. Rather, the public perceived this group as trustworthy in managing their mental health issues, particularly, the older adult subpopulation. Many older adults were reluctant to endorse any attitude towards ECT because they trusted their doctors to make judgements about their welfare. Hence, it would be important for this group of trusted individuals to be well informed of ECT to support others, who are prescribed ECT (Kerr et al.), particularly general practitioners who were regarded as experts by some participants in this current survey.

Indeed, most of the participants in the present study who were interviewed in a semi-structured manner using the questionnaire, reported that close family and friends would be able to tell the severity of behavioural, cognitive and/or emotional changes in determining the usefulness of ECT for them, so that if the trusted family member(s), friend and/or family doctor believed that the individual would benefit from ECT, they were more likely to be persuaded. Some of these interviewees also reported that deciding whether to have ECT was as much an intellectual decision as an emotional one. Whilst they weighed the risks and benefits of the ECT, they would also determine the availability of emotional support to help them through the treatment and cope with the consequences thereafter.

ECT on an individual with psychosocial issues.

The vignette about Bill and his financial problems aimed to elicit attitudes towards ECT on individuals who are depressed about their circumstances. About 18% of respondents recognised that Bill's depression stemmed from his impoverished situation, and preferred other alternative treatments, such as counselling, and/or practical assistance, like getting him a job. These respondents did not think that ECT was useful since his financial problems would remain after the treatment. Some participants reported that Bill could not afford the treatment since he was already having financial difficulty. His depression could worsen in the face of secondary problems, such as additional financial burden from the costs of treatment. Participants, who opposed ECT on individuals in such circumstances, cited reasons such as "it is Bill's right/decision", "lack of evidence" and "negative concept". Of the one third, who supported ECT on individuals with psychosocial issues, their reasons for supporting were "only as a last resort", "trust expert knowledge" and "ECT may help".

Anecdotal reports indicated that some ECT recipients did not recover after ECT, as they continued to face psychosocial problems that exacerbated anxiety and depression issues. While some of these individuals might benefit from counselling and/or skills training to manage their issues, such options were often withheld (Pedler, 2001). Instead, booster ECT and/or maintenance pharmacotherapy are usually recommended at post-treatment to manage the high relapse rates of ECT (American Psychiatric Association, 1990). It was also unlikely that additional medical costs would alleviate psychosocial or financial problems of those individuals whom Bill represents. As such, ECT might not be the optimum treatment for individuals with psychosocial issues.

Besides, efficacy studies on ECT (eg. Black et al., 1989) often stated the clinical diagnoses of the patients without any reference to the psychosocial triggers of their psychiatric conditions. Psychosocial factors were not taken into account when assessing the recovery of the patient. For instance, evaluations were rarely conducted after ECT to ascertain the patients' ability to cope socially and/or emotionally within their communities. It seemed that these respondents were realistic about the problems associated with recommending ECT to someone in Bill's position.

ECT on different age groups.

Generally, about 15% supported treating Harry with ECT across all ages because of trust in expert knowledge; belief that ECT should be used "only as a last resort" and/or that ECT is beneficial. Given the interest of this study in public attitudes towards the use of ECT with children, adults and older adults, three versions of the questionnaire manipulated the age of the individual described in the vignette, with the versions describing Harry as 7, 40 or 78 years old, respectively.

While 31% indicated that age was a major factor in determining their attitudes towards ECT on Harry, most other reasons also reflected concern over the impact of the treatment on the development of the recipient. These included "other alternatives preferred" (22%), "negative concept of ECT" (10%) and "seek family's consent/opinion" (2%).

Respondents were more likely to "strongly oppose" the use of ECT on Harry at age seven. Significantly more respondents supported ECT on Harry at 40 years of age. Evidently, lay people perceived ECT as a treatment more suitable for adults than young children.

Attitudinal responses were often explained by the participants' written explanations. The qualitative responses obtained in the vignette about 7-year-old Harry focused on the physical vulnerability of this age group, with expressed concern over the impact of ECT on the development of the child, and the ability of the child to comprehend the treatment and its effects in order to assent to ECT. These concerns might be well-founded, since health care professionals' inadequate knowledge of long-term treatment outcome and the risk of brain damage were often associated with difficulties of treating young children and adolescents with ECT (Baker, 1994). With a lower electrical resistance in the skulls of young children, administering electrical charges similar to that used on adult ECT patients implied exposing young children's skulls to higher currents (Baker), any neurological impairment caused to minors might only be apparent in later years (Miller, 1995). Moreover, minors were usually treated in adult psychiatric units (Baker), by junior doctors with inadequate training and/or supervision, whilst child and adolescent Psychiatrists had little involvement (Pippard & Ellam, 1981). The limitations of our technology to detect abnormalities in time (Coffey et al., 1991), the impact of ECT on the neurological anomaly associated with affective disorders (Videbech, 1997), and the sparse knowledge of the effects of the use of ECT with children (Parmar, 1993), combined with the opposition towards ECT on this age group as indicated by the current sample, raised the need to reconsider the use of ECT with children/adolescents.

Until technology and human knowledge could provide unequivocal indications regarding the effects of the use of ECT with children, health care professionals should reconsider prescribing ECT to children in view of the negative public attitudes towards such circumstance.

ECT on involuntary patients.

The vignette about Mary aimed to obtain attitudes towards ECT on an individual who refuses to have ECT. Only about 23% of this sample supported over-riding the patient's refusal to treat with ECT, as compared to a larger proportion (72%) of WA psychiatrists who indicated that they would do so (Bucens et al., 1986). Current respondents, who supported ECT on involuntary patients, referred to the impact of depression and suicidal ideation on the patient's ability to make a rational decision, and/or perceived ECT optimistically. Some supported ECT on involuntary patients only as a treatment of last resort. Overall, the qualitative responses to this vignette focused on the rights of an individual to decide whether to have the treatment. Nearly half of the responses cited freedom of choice, with respondents opposed to ECT on an unwilling patient, particularly adult participants. Seven percent recommended that health care professionals seek consent from the family when the patient refuses to give consent. While older adults tended to trust health care professionals implicitly, adults were more likely to oppose involuntary treatment in view of social idealism, reflecting differences in generational eras.

When an individual, who is diagnosed with a psychiatric condition, refuses to have ECT, his/her level of competence to make the informed decision is often questioned. This is despite a want of universally applicable set of criteria to determine the patient's level of competence in an absolute manner (Durham, 1988). Paradoxically, a depressed patient is deemed incompetent when he/she refuses to give consent to ECT because certain symptoms of the condition, such as "delusions", place constraints on rational thinking but these constraints do not raise questions about the patient's competence if he/she chooses to have ECT. It is difficult to expect an individual to give true voluntary informed consent as long as there is the threat of involuntary treatment (Breeding, 2000). Unless explicit criteria to determine an individual's competence to give informed consent are established, such negative public attitudes should prompt practitioners to consider the rights of patients in making decisions for themselves, and explore other treatment options when patients are unwilling to undertake ECT. After all, a large proportion of the current sample indicated that individual rights and freedom of choice were important social entities.

Attitudinal differences across age groups.

Survey results only found a significant relationship between age and attitudes towards ECT on self. Specifically, adolescents were more likely to support the recommendation of having ECT themselves, even "as an experiment". This might be due to their lack of knowledge of ECT. This optimism about ECT amongst adolescent respondents was consistent with the favourable responses from some participants surveyed in previous studies (Kalayam & Steinhart, 1981; Kerr et al., 1982; Walter, Koster et al., 1999). Such optimism towards ECT amongst adolescents might stem from the cultural openness, developmental differences, and scientific and technological advancements between cohorts. Growing up amidst sophisticated technology and medical advancement might have made them more hopeful, unquestioning and/or accustomed to strange gadgets and inexplicable scientific procedures. Adolescents might also feel invincible, and hence, might not consider the risks involved with ECT appropriately. Indeed, a few adolescent respondents in this survey were curious about having ECT, so that they could "experience what the effects would be". Only one would rather volunteer others for the experiment; unwilling to have the treatment personally if he were prescribed ECT.

Interestingly, older respondents were more likely to oppose to having ECT themselves in view of their relative willingness to accept the recommendation of health care professionals as mentioned above. This phenomenon could only be speculated about as further evidence of older respondents' trust in health care professionals to act in their best interests. Older adults would accept the recommendations of health care professionals in spite of their personal attitudes towards the treatment.

Attitudinal differences across occupational groups.

This attitudinal study extended the survey by Kalayam and Steinhart (1981) in examining the differential attitudes amongst participants from various occupational groups. Pensioners, executives and service workers indicated reluctance to undertake ECT, while a relatively equal proportion of students indicated willingness and reluctance to have ECT. Executives and pensioners were also against the recommendation of ECT on individuals diagnosed with reactive depression. However, students tended to support ECT use on reactive depression, while pensioners were evenly split between opposed and support in this instance. Support for ECT use on Bill, who was described as having financial problems, might be another reflection of public belief that ECT was more suitable for adults. All occupational groups were unanimously against ECT on different age groups and involuntary patients.

Factors that influenced attitudinal judgements.

Out of four factors from which they could choose, many respondents indicated that human/civil rights and freedom of choice were very important influences on their attitudes towards ECT, particularly for adult respondents. This lent support to Ruger's argument (2003) that freedom of choice is vital in health care decisions, and might reflect the sense of independence that was central to adulthood.

However, the level of importance of these factors differed significantly across the age of respondents. In particular, adolescents reported uncertainty regarding how important religious belief, cultural practice, human/civil rights and freedom of choice influenced their judgement about ECT. In contrast, older adults perceived these factors as "not at all important", while some regarded human/civil rights and freedom of choice to be very important factors. This might indicate that the adolescent participants have yet to understand the motivations underlying their behaviour, whilst the opinions of older adults were shaped by their accrued life experiences with a focus on human rights and freedom of choice.

When asked what other information would respondents require to make informed judgements about ECT, other than that described in the vignette, participants cited several, including in-depth ECT information, opinions of health care professionals and ECT survivors, attitudes of patients and their families, full history of patients, and alternative treatment options. Indeed, professional guidelines recommend a comprehensive understanding of similar issues to determine the suitability of ECT for each individual (eg. Department of Human Services, 2000).

These attitudes were further examined in relation to public knowledge about ECT, knowledge about essential items, and direct contact with the treatment. These findings are discussed, while comparisons were made with past studies.

What was the Relationship between Public ECT Knowledge and Attitudes?

Clarification of the relationship between ECT knowledge and attitudes was required, given the inconsistent results reported previously (Jorm et al., 1997; Kalayam & Steinhart, 1981). Current findings suggested a significant relationship between the level of subjective ECT knowledge and attitudes towards ECT. Specifically, individuals with high levels of self-rated ECT knowledge were more likely to oppose ECT on themselves and various subgroups. This was in contrast to the attitudes of mental health nurses described by Gass (1998), and the psychiatric and non-psychiatric patients described in Battersby et al. (1993).

The present attitudinal survey showed that lay people with higher levels of ECT knowledge tended to oppose ECT. The negative attitudes seemed to relate to the importance of individual freedom of choice and civil rights. Thus, treatment of involuntary patients under the Act ("The Mental Health Act," Western Australia, 1996) was considered unacceptable. Specifically, more than 40% of this public sample indicated that “human/civil rights” was “very important” in influencing their attitudes towards ECT, and another 68% endorsed “freedom of choice” to be “very important”. ECT recipients (Service User Research Enterprise, 2002), including a few from the present sample who had received ECT, have reported loss of control over their clinical management, and did not think they had any choice when asked for consent to treatment; they had felt “a sense of total powerlessness” (Service User Research Enterprise, p. 41). On the other hand, as mentioned above, adolescents in this study were generally less knowledgeable about ECT but were relatively more willingness to have ECT if they were prescribed the treatment.

Direct experience with ECT was defined as having heard about ECT via personal experience, the experience of family member and/or friends. Respondents with direct ECT contact were more likely to have attained high levels of essential ECT knowledge and medium scores for objective ECT knowledge. This did not seem to be out of the ordinary since direct ECT contact allows firsthand understanding of the treatment through interaction and observation of recipients. However, direct ECT contact was not significantly associated with attitudes towards ECT.

In contrast, Kerr et al. (1982) asserted that hospital visitors, who became familiar with the effects of ECT via observation of ECT recipients whom they were visiting, perceived the treatment more positively. This difference might underscore the importance of types of ECT information presented. Perhaps, the attitudes of the current public sample were swayed by their knowledge of negative aspects of ECT, such as the possible non-therapeutic effects. The visitors mentioned in the study by Kerr et al. (1982) might have noted only the behavioural improvements displayed by their ECT patients, so that they were more likely to develop positive attitudes with increase knowledge of ECT. The difference between the current study and previous research suggested that the relationship between ECT knowledge and attitudes might be dependent on the specific experiences of the respondents. Perhaps, the current sample comprised more individuals with negative personal experiences of ECT than the previous sample. Few respondents from the current study reported positive experiences with ECT, and indeed, a handful reported negative experiences, such as, loss of a child to suicide after being treated with ECT.

Summary

Taken as a whole, this survey indicated that the majority of the local community had some knowledge about ECT. Television, movie/film, magazines, newspapers and books appeared to convey sufficiently accurate information about the psychiatric treatment that would allow some individuals to make informed judgements. Most lay individuals held negative attitudes towards ECT on individuals with psychosocial issues, children, and involuntary patients. Such negative attitudes appeared to stem from negative pre-conceptions of ECT; belief that there is a lack of empirical support for this psychiatric treatment; and preference for alternative treatment options. However, trust in family and/or friends and general practitioners was cited as being influential in potentially persuading many individuals to change their minds about the treatment. Many individuals stated that additional information, like in-depth knowledge of ECT; opinions of health care professionals and ECT recipients; attitudes of patients recommended for ECT and their families; full history of patients; and information on alternative treatment procedures, were vital in making informed judgements about ECT. Knowledge about, and attitudes towards, ECT were mainly associated with age and gender. For instance, adolescent participants knew less about ECT but were more optimistic about the treatment. Negative attitudes towards ECT were associated with well-informed knowledge about the treatment. The degree of direct contact with ECT was associated with the levels of ECT knowledge.

Having examined the level of public knowledge about, and attitudes towards, ECT in the local community, investigation of the practice within WA would further allow in-depth understanding of the application of this psychiatric treatment. ECT practice in WA was investigated in terms of the characteristics of ECT recipients, and the frequency of ECT administration.

What were the Characteristics of ECT Patients Treated in WA?

An understanding of the characteristics of ECT patients treated in WA would give insight into the practice of ECT in WA, for example the conditions for which the treatment is usually recommended, and the age of ECT recipients. This information would also allow comparisons with ECT practices elsewhere.

According to the MHIS from the WA Health Department, 1,469 individuals were treated with ECT in WA between 1988 and 2001. More than 60% of these individuals received at least one ECT session. Approximately 65% of ECT patients in WA during this period were females, which was similar to the proportion of female American patients (71%) in 1986 (Thompson et al., 1994). The youngest male recipient was 17 years old, while the youngest female recipient was 15 years, with the average age for both sexes being 50.

Adults, aged 19 to 64 years old, constituted more than 70% of the patients treated with ECT, and older adults (above 64 years old) made up about 27% of the ECT patient population. The percentage of older adult ECT recipients in WA was similar to the American survey (34%) conducted by Thompson and colleagues (1994), despite the fact that this age group comprised only an estimated 9% to 11% of the resident population (Codde et al., 1997), and faced a greater probability of ECT-induced cognitive impairment (Flint, 1999), and cardiovascular problems (Benbow, 1995; Zorumski et al., 1988). However, there were fewer older adult ECT recipients in WA (27% in 14 years; average of 2% per year) than the estimated figure in a NSW hospital (50% in five years; average of 10% per year) (Gassy & Rey, 1990). This was intriguing since there were more restrictions placed on this practice in NSW (Durham, 1988).

Further, there were few minors in WA being treated with ECT, although there was a marginal increase by 2001. While this age group constituted more than 2% of ECT recipients in WA between 1988 and 2001, and this percentage was comparable to that in NSW (1%) within a 5-year period (Walter & Rey, 1997), the restrictions on ECT practice in NSW (Durham, 1988) made it difficult to make direct comparisons. Nevertheless, the figure for WA ECT recipients who were minors might be an underestimation since the MHIS might not record children who were treated in acute adult psychiatric facilities (Baker, 1994).

Notwithstanding the age of the patient, affective disorders constituted nearly 82% of the diagnoses of these ECT recipients, which was consistent with the NSW study (Gassy & Rey, 1990) within a psychiatric hospital, and a more recent epidemiological perspective within Victoria (Wood & Burgess, 2003). It would appear that ECT practice within Australian States was less varied than in the USA (Hermann et al., 1995). The relatively homogeneous ECT recipients in Australia might be a result of a highly selective prescription practices within the country, as speculated by Olfson et al. (1998), and indicative of some form of national consensus amongst clinicians (Wennberg, Barnes, & Subkoff, 1982).

Taken together, most ECT recipients were adult females diagnosed with affective diagnoses. This might be attributed to various factors: (1) increased awareness of depression via national programs (eg. Beyondblue, 2000); and/or (2) biological, psychological and psychosocial components that placed females at a greater risk of developing depression than their male counterparts (Kuehner, 2003); (3) differences in pubertal experiences between the genders (Hankin et al., 1998). Nevertheless, while it could not be determined conclusively, gender bias in the prescription of ECT, as speculated on by Wood and Burgess (2003) in their Victorian sample, might also be a factor here in WA.

About 21% of individuals were treated as involuntary patients in public psychiatric hospitals in WA. This significant proportion of involuntary patients provided further justification for the investigation of public views regarding ECT on this subgroup. This was further consistent with Bucens' et al. (1986) results that exhibited a large proportion of WA psychiatrists' (72%) willingness to over-ride the patients' refusal in treating with ECT.

If the differential attitudes towards ECT across the age groups were indicative of cohort differences, the proportion of the age demographic of ECT recipients might change over time. For instance, as the adolescent population turns into adulthood, more of them might have had ECT since adolescent respondents were more inclined to indicate more support for its prescription in this study. This might lead to a rise in the number of adult ECT recipients and/or decrease the number of involuntary patients in future.

Were the Numbers of ECT Recipients and Administrations Increasing in WA?

In order to understand the practice of ECT within WA, the annual numbers of ECT recipients and administrations were calculated. This section discusses the prevalence of ECT within WA, including comparisons with other Australian States and overseas.

The annual number of ECT patients in WA nearly doubled within five years, from 1997 to 2001. The number of adolescent and older adult ECT recipients fluctuated over the five-year period, with the latter group comprising a larger proportion than the former. The proportions of older adult ECT recipients in 1999 to 2001 were smaller than in 1997 and 1998. The largest group of the ECT recipients in WA, that is, adults, had been increasing annually over the past few years. This rise occurred despite considerations of annual resident population growth estimated at about 1% (Codde et al., 1997). The number of ECT recipients in WA increased at a faster rate than the growth of the resident population over the five-year period. However, the possibility that this dramatic increase in the administration of ECT within WA was due to under-reporting of the treatment in MHIS during the early years could not be excluded.

The proportions of ECT recipients out of the estimated resident populations of WA (Codde et al., 1997) and Victoria (Australian Bureau of Statistics, 2000) showed that an estimated 0.008% of the resident population of WA received ECT in 1999, while about 0.03% of Victorians received ECT in the same year. Since there were no recent Victorian attitudinal studies on ECT, it was impossible to assess whether this difference reflected cultural differences in ECT attitudes between the two States such that WA patients were more likely to refuse this treatment. Marginal increases in the numbers of older adult ECT recipients over the last three years (1999 to 2001) might reflect increases in the resident population within this age group as well.

In contrast, the proportion of ECT recipients, as a percentage of psychiatric admissions, appeared to be relatively stable from 1997 to 2001. This was due to the rapid rise (33%) in psychiatric population over the same period. Hence, increases in the frequency of ECT application were reflective of the growth of psychiatric populations. This further indicated consistency in the prescription of ECT.

While older adults were treated with ECT at a higher rate than adults, there was a dramatic drop in its use on the former group from 1998 to 1999 before a rise again by 2000. The higher rate of use with older adults, as a proportion of the psychiatric population, was consistent with the trends reported in previous Australian (Jorm & Henderson, 1989) and overseas (Hermann et al., 1995) studies. The decrease in ECT use on older adults might reflect the availability of other forms of treatment for depression at that time, such as improved strands of antidepressants, evidence-based psychotherapy and alternative medicine

(Fink, 2001). However, the problems with polypharmacy within the older adult group, dissatisfactory progress with other forms of intervention and/or the need for instantaneous relief might have resulted in the rise of ECT use on older adults by the new millennium. On the other hand, ECT use on adults was increasing at a constant rate when compared to the growth of the psychiatric population.

State teaching and private hospitals were the major ECT treatment centres in WA. The current WA trend whereby academic and private hospitals administered more ECT sessions than other treatment centres is similar to those found in American studies (Hermann et al., 1995; Olfson et al., 1998; Thompson et al., 1994).

Summary

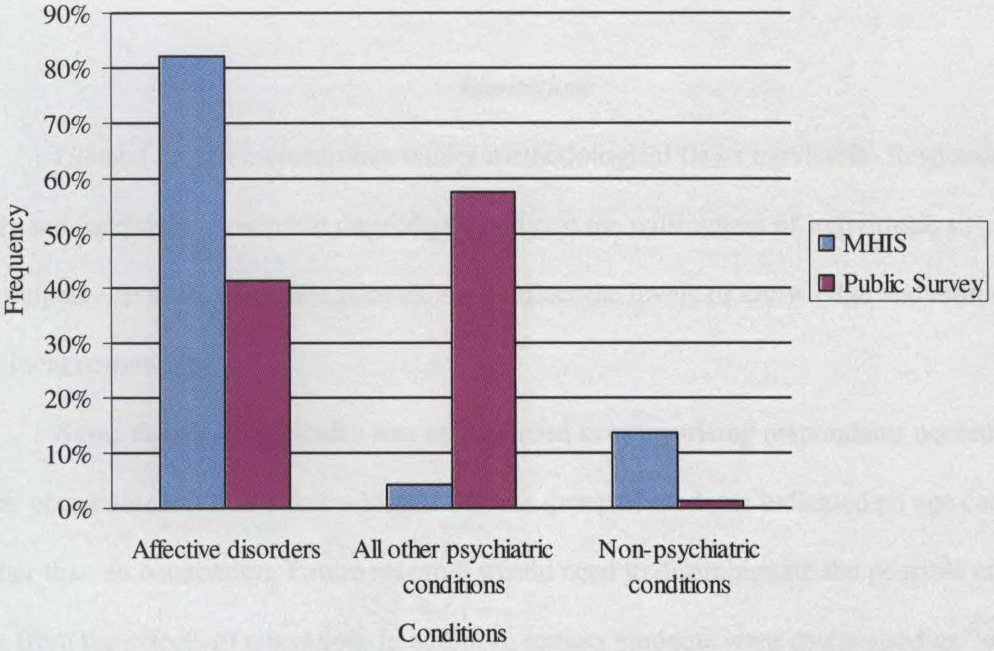
Comparisons with past Australian studies indicated that ECT was prescribed for similar patients and similar conditions across Australia, namely females who were diagnosed with mood affective disorders. A smaller percentage of the resident population in WA received ECT in comparison with the percentage treated in Victoria. Whilst the number of underage ECT recipients in WA was similar to NSW, fewer older adults received ECT in WA than in NSW. The rate of incidence appeared to be quite stable over a five-year period. The proportion of WA older adult psychiatric patients being treated with ECT was similar to areas outside WA, at a higher proportion than adults. While the rate of annual ECT use on adults increased steadily throughout the five-year period, the trend for older adults appeared to fluctuate. Taken together, Studies 2 and 3 have implications for the practice of ECT within WA. For instance, practitioners might be more reluctant to prescribe ECT, in light of the negative attitudes towards the treatment.

A Holistic View

Given public perceptions of ECT, information about the recipients of the treatment and prevalence of the practice, a few issues were of note. The perspectives of the public regarding the conditions that are usually recommended for ECT were distinctly different from the local practice (see Figure L). For instance, nearly 60% of survey respondents stated that ECT is usually recommended for schizophrenia, neurosis and other psychiatric conditions, other than affective disorders, while only about 40% indicated affective disorders. Yet, the MHIS data indicated affective disorders as the main diagnosis of 82% of ECT recipients across 14 years. Whilst a small minority of ECT recipients were treated for non-psychiatric conditions, such as epilepsy, adolescent participants of this surveyed sample perceived ECT as a device to control an individual, including thoughts, behaviour and sexual orientation. This might be consistent with the salience of punishment within their environments, that is, home and school, in shaping their behaviours. Many older interviewees reported that ECT is used to treat physical conditions, like heart disease. This might reflect their primary concern over their physical wellbeing as they age.

Figure L

ECT Practice versus Public Knowledge of ECT Recipients' Diagnoses in WA



Moreover, the rate of ECT administrations as a proportion of WA resident population had been increasing, whilst only two-thirds of the public surveyed had some knowledge of ECT without fully comprehending the treatment. Indeed, many survey participants were surprised that this form of psychiatric treatment is still in use, and increasing each year! Yet, the public includes individuals who are current and future consumers of mental health services, such as ECT. If more and more individuals were prescribed with ECT, in order for them to give informed consent for the treatment, they need to be truly informed with the basic details of ECT as stipulated in the Mental Health Act ("The Mental Health Act," Western Australia, 1996).

Summary

Results from this study showed disparity between public knowledge of ECT and the practice of the treatment in WA. Given that a third of the current survey population had no knowledge about it at all, it was likely that individuals who might be ECT recipients now and/or in future might not be fully knowledgeable about the treatment. Nonetheless, caution should be practiced in the generalisation of the results obtained.

Limitations

General research constraints render methodological flaws inevitable. Respondents were not randomly chosen but depended largely on the willingness of individuals to participate. As such, the findings could only reflect the levels of knowledge and attitudes of the local community.

Some degree of difficulty was encountered in categorising respondents according to their occupations. It was acknowledged that the group of students indicated an age category rather than an occupation. Future research would need to disambiguate the possible effects of age from the effects of education. In addition, tertiary students were categorised as "students" together with high school students because they were in fulltime studies. Yet, as Kerr et al. (1982) suggested that individuals with higher education exhibited higher levels of ECT knowledge, future studies could categorise tertiary students separately from high school students to investigate closely the association between educational levels attained and levels of ECT knowledge.

Relevant options, like school, tertiary education and/or specialist training, were omitted as possible sources of ECT information. These were not considered during the discussion group sessions in the development of the questionnaire because the study aimed to survey the public at large, who did not possess any expertise in this area. In the rare occasion when participants had professional experience, such as nurses and doctors, the 'book' option was endorsed.

ECT knowledge results might have possibly been biased by the use of the short ECT description in the survey. The description was aimed at allowing individuals who had not heard of ECT to be able to take an attitudinal stance on ECT in each vignette. Given that the knowledge and attitude survey was mostly self-administered at the respondents' leisure, it was difficult to determine if respondents had used the description to respond to the ECT knowledge items. When feedback was obtained from some respondents, few reported that they had noted the relevance of the ECT description to the knowledge items. Some who had noted it reported that the information did not affect their responses. For those who had responded to the knowledge questions using the description given overleaf, the information might be considered a source of knowledge for them, although only a handful might have done so. Hence, the description could have led to a mild overestimation of the level of public ECT knowledge.

Furthermore, differences in the recruitment of participants of different age groups might have biased between-group analyses. While the questionnaires were self-administered with most participants, older adult participants were frequently surveyed using semi-structured interviews based on the questionnaires. The interview format was used to increase participation rate as older adults faced great difficulty reading and/or writing. The interview ensured qualitative responses, which was vital for an understanding of public attitudes towards ECT, although such information might be quite restricted to the older population. As the interviews were predominantly confined to the items in the questionnaires, no significant difference in results was expected.

Attitudinal differences might have stemmed from the use of a different patient gender in the vignette about ECT on a non-consenting patient. However, no reference was made to this gender difference from the results obtained. It would be useful to manipulate the gender of the ECT patient to investigate its effect explicitly in future studies.

While the vignettes provided a short-form manner in eliciting rich responses regarding attitudes towards ECT, they posed some limitations, which warrant scrutiny. The vignettes described specific situations and individuals that might be more easily identified by some respondents than others, as described by Study 2 Participant 88 (S2/P88), "Never experienced it to understand the condition". Besides, most of the patients included in the hypothetical situations were described as strangers to the respondents. Perhaps, respondents would have different attitudes towards ECT if the patients involved had some personal relationship with them. Indeed, some respondents were reluctant to assert an attitude because they did not know the person to understand his needs (S2/286, "Don't know how Bill felt about the procedure"), or possibly because they did not think they should interfere with non-family affairs (S2/P327, "It's not my business to support or oppose"). This reluctance to make judgements about what kind of treatment would be appropriate for other people might be consistent with the emphasis on the importance of freedom of choice.

Furthermore, development of knowledge items to measure levels of ECT knowledge proved to be a challenge. The controversy surrounding this form of treatment has generated extensive research. However, studies reviewed were not conclusive because of inherent flaws (Baldwin & Jones, 1998), and/or because the findings were skewed by the researchers' vested interests (Chrzanowski, 2001). Without unequivocal information regarding aspects of ECT, including its benefits and risks, it was difficult to construct the questionnaire and define the accuracy of responses. As such, a conservative system was used to assess the level of ECT knowledge in this study. Thus, the survey might have, consequently, underestimated the true level of ECT knowledge of the public.

Finally, some objectives of this study were not achieved. The limitations of the WA ECT register, MHIS, did not allow for accurate calculation of the number of ECT administrations in WA over time. It was not feasible to embark on the time-consuming task of collecting data from individual treatment centres because each centre registered different treatment data. The incremental estimations of ECT patients and administrations as presented above call for the need to establish a more detailed register to facilitate such tabulations for future research, and permit more effective and efficient monitoring of ECT practice in WA. A more comprehensive ECT register would also make it easier for the relevant medical colleges to supervise and regulate the professional standards of ECT practice. Given these limitations, this study had made findings that might have noteworthy implications.

Implications and Conclusions

This research obtained results that were consistent with those found in some past studies. Most members of the public had some knowledge about ECT, although it must be acknowledged that a conservative marking system was used to estimate public ECT knowledge from the completed questionnaires. In addition, the large majority of the public possessed negative attitudes towards this practice. ECT was used as a treatment for predominantly adult females diagnosed with affective disorders individuals, similar to Eastern Australian States and overseas. The rate of ECT usage from 1997 to 2001, as a proportion of the psychiatric population, appeared to be quite stable, indicating consistency in the prescribing pattern of ECT.

Furthermore, the current study and findings extended the ECT literature in various ways. It was the first systematic investigation of public knowledge about, and attitudes towards, ECT in the local community. The large survey sample showed differences in the levels of knowledge about, and attitudes towards, ECT amongst individuals across gender, age and occupational groups. It was also the first survey of the public to examine attitudes towards ECT on individuals with contextual problems, children, older adults and those who refuse to consent to ECT. The relationship between knowledge and attitudes was also investigated, together with their associations with direct ECT contact. Study 3 further extended the literature with the inaugural description of the characteristics of ECT recipients treated, and an estimation of the frequency of its application in WA.

Given that the majority of the sample displayed adequate levels of ECT knowledge and negative attitudes towards this form of treatment in most situations, it was anticipated that these negative attitudes could lead practitioners to reconsider the prescription of ECT, particularly on individuals with contextual problems, children/adolescents, and individuals who refuse to have ECT. Clinicians could offer other alternative treatments.

In addition, public attitudes towards ECT might change in future since the younger generation appeared to be more accepting of the treatment. While the results from this survey showed that higher levels of self-rated ECT knowledge were associated with negative perceptions of ECT, the differential attitudes towards ECT across respondents of various ages might be indicative of cohort differences, which might not change with increased knowledge.

Further, mental health education programs and policies could consider the levels of ECT knowledge that are held by individuals when expecting the latter to make informed judgements of the treatment, as determined by the Mental Health Act ("The Mental Health Act," Western Australia, 1996). For instance, revising the information provided by local ECT treatment centres in pamphlets. More unequivocal ECT research was also implied to ensure the accessibility of such information. Otherwise, consent for ECT would not be authentic. Moreover, individuals would be less likely to seek mental health services on their own when they are poorly informed, which would further affect their compliance with psychiatric treatments (Jorm, 2000).

In addition, Study 3 revealed the limitations of the State ECT register, which indicated the need for a more comprehensive coding. This would allow the WA Health Department to monitor the frequency of ECT in each treatment centre, and for the medical college to regulate their professional standards more closely.

To conclude, in view of the varying levels of knowledge of the treatment in the community, the present study hoped to remind health care professionals to provide pertinent information to individuals prescribed with ECT, so that they have sufficient information to make informed decisions. It was expected that the study might encourage health care authorities to pay a closer scrutiny on the practice within WA to maintain appropriate professional standards in accordance to the Mental Health Act ("The Mental Health Act," Western Australia, 1996). Last but not least, it was anticipated that the study would act as a catalyst in generating public forums with a focus on enriching mental health literacy, with particular emphasis on available psychiatric treatments.

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Appendix A

Information and Consent Forms for Participants of Discussion Groups

A Public Survey on Electroconvulsive Therapy

Information Sheet

Dear XXX,

My name is Serene Teh and I am currently pursuing the course of Doctor of Psychology (Clinical Psychology) at Edith Cowan University. This study is part of my dissertation for the course, and has been approved by the Ethics Committee at the Edith Cowan University.

This study aims to construct questionnaires for use with the general public. The objectives of the questionnaires are to tap the level of public knowledge about, and attitude towards, Electroconvulsive Therapy (ECT) for Depression. Past research has shown that the attitudes of the public towards ECT influence clinicians' prescription practices. It is anticipated that an understanding of these issues would direct future research and mental health education policies.

In the development of the questionnaires to survey these issues, your feedback and/or suggestions are important. Small group discussions will be encouraged to refine, rephrase, extend and/or increase the questions that have been drawn up. The discussions will take about 30 to 45 minutes, and will be recorded to facilitate the use of all comments and/or suggestions in the development of the questionnaire at a later time. All tapes and transcripts will be destroyed at the completion of this study.

Participation in this study is strictly voluntary, and no participant will be identified by name. To indicate your consent, please complete the following consent form and return it to me.

Please do not hesitate to contact me [redacted] or my supervisor, Dr. Deirdre Drake (9400 5052), if you have further queries about this study.

Thank you.

Yours Faithfully

....
Serene Teh
D.Psych (Clinical Psychology) Candidate

Consent Form

I, ………………………………………(Name) have read the above information. Any questions I have asked have been answered to my satisfaction.

I agree to participate in this activity, realising that I may withdraw at any time.

I agree that the research data gathered for this study may be published provided I am not identifiable.

…………………………..	…………………………
Participant's Signature	Date

Appendix B

ECT Survey I: Questionnaire Developed From Pilot Study to Assess Public ECT Knowledge

This is not a test. Your opinion is important, rather than what it should be. Please take some time to complete the following questions, and try not to change your answers.

ID:

1. What is your gender?

   Male ☐ Female ☐

2. What is your age in years? ____________________Years

3. What is your usual/main occupation? ____________________________________

4. Have you heard of Electroconvulsive Therapy (ECT) or "Shock Therapy"?

   Yes ☐ ***(Go to question 6)*** No ☐ ***(Go to question 5)***

5. If no, what do you think ECT is? ***(Tick ALL boxes that apply)***

   Lie detector ☐
   Current medical procedure ☐
   Ancient medical practice no longer in use ☐
   Others: please specify. ___________________________ ☐
   (If you have never heard of ECT, go to question 19.)

6. Where have you heard of ECT? ***(Tick ALL boxes that apply)***

   TV ☐
   Radio ☐
   Movie/film ☐
   Newspaper ☐
   Books ☐
   Magazines ☐
   The Internet ☐
   Health care professional (eg. GP, therapist) ☐
   Personal experience ☐
   From the experience of a family member ☐
   From the experience of a friend ☐

7. What does ECT involve? ***(Tick only ONE box)***

- Talking to the patient ☐
- Passing electric current ☐
- Injecting substance/medication ☐
- Don't know ☐

8. On which part on the human body is ECT administered? ***(Tick only ONE box)***

- Head ☐
- Back ☐
- Feet ☐
- Don't know ☐

9. What is the main purpose of ECT? ***(Tick only ONE box)***

- Electrify the patient ☐
- Make the patient unconscious ☐
- Cause a fit ☐
- Don't know ☐

10. What are the condition(s) for which ECT is usually recommended as a treatment? ***(Tick ALL boxes that apply)***

- Addictions to substances ☐
- Eating disorders ☐
- High anxiety levels ☐
- Low/depressed mood ☐
- Experiences of agitation/hyperactivity ☐
- Nervous breakdown, and/or not in touch with reality ☐
- Sudden dizziness, hot flushes and feelings of losing control/dying ☐
- Weird/eccentric personalities ☐
- Others: please specify. ________________________________ ☐
- Don't know ☐

11. What factor(s) helps a Psychiatrist decide if ECT is a suitable treatment? ***(Tick ALL boxes that apply)***

- When the patient causes problems ☐
- When medications are not helpful ☐
- When the patient is hospitalised ☐
- When the patient stops eating and/or drinking ☐
- When the patient often thinks of committing suicide ☐
- Don't know ☐

12. On what age group(s) is ECT administered? ***(Tick ALL boxes that apply)***

- Children/adolescents (younger than 18 years old) ☐
- Adults (18 – 64 years old) ☐
- Older adults (65 years and older) ☐
- Don't know ☐

13. How is the patient during ECT? ***(Tick only ONE box)***
Awake and aware ☐
Awake but unaware ☐
Asleep and unaware ☐
Don't know ☐

14. Who administers ECT? ***(Tick ALL boxes that apply)***
Psychiatrist ☐
Social Worker ☐
General Practitioner (GP) / Family doctor ☐
Psychologist ☐
Muscle Relaxant Administrator ☐
Medical doctor ☐
Anaesthetist ☐
Don't know ☐

15. What are the possible side effects of ECT? ***(Tick ALL boxes that apply)***
Loss of memory for recent events ☐
Brain damage ☐
Nausea / Vomiting ☐
Headache ☐
Confusion ☐
Changes in the structure of the brain ☐
Changes in personality ☐
Don't know ☐

16. What type of relief does ECT provide? ***(Tick ALL boxes that apply)***
Temporary relief ☐
Permanent relief ☐
Partial relief ☐
Complete relief ☐
None at all ☐
Don't know ☐

17. Where is ECT usually conducted? ***(Tick ALL boxes that apply)***
Patient's residential home ☐
Respite Care Centre ☐
Hospital / Day Clinic ☐
Nursing Home ☐
Don't know ☐

18. How much knowledge do you think you have about ECT? ***(Mark a cross on the line to indicate where you would stand.)***

I---I
A lot Some A little Nothing

19. Would you like to know more about ECT?
Yes ☐ No ☐
Why?

____

____

Appendix C

ECT Survey IIA: Questionnaire Developed From Pilot Study to Assess Public Attitudes towards ECT on Young Children

Electroconvulsive Therapy (ECT), also known as "Shock Therapy", is a medical procedure that involves passing electric current through the brain to cause a fit. It is often recommended to individuals diagnosed with Depression. Some report beneficial effects, such as the ability to resume their daily lives, whilst others experience negative changes that led to a poorer quality of life after having ECT.

Please read the following short descriptions. For each question, give a response that you think is the most appropriate by circling the number that corresponds to the attitude above, and explain your choice. There is no right or wrong answer.

1. In the last 18 months, you have been feeling tired easily, have lost interest in the activities that you usually enjoy, and have had difficulty sleeping. You do not feel like eating and have lost a lost of weight. Your work has also been affected badly. You have been diagnosed with Depression and did not appear to respond well to medications. How would you feel about having ECT?

Strongly oppose	Oppose	Support	Strongly support
1	2	3	4

Why?

____

____

2. Who would be able to persuade you to have ECT if you initially refuse to have ECT? ***(You may tick one or more boxes.)***
   - A second Psychiatrist ☐
   - Other mental health worker: please specify, ____________________ ☐
   - Your GP ☐
   - Partner/Spouse ☐
   - Close family member ☐
   - Friend ☐
   - Work colleague ☐
   - No one ☐

Why?

____

____

3. Bill is 35 years old. He has lost his job and has had difficulty getting another one. He worries about the finances of his family of 6. He has become very depressed, and has not been eating or sleeping well. He does not enjoy activities he usually enjoys and finds no pleasure in life. He has suffered like this for more than 2 years. His Psychiatrist diagnosed him with Depression but anti-depressants failed to make him better. How would you feel about Bill being treated with ECT?

Strongly oppose	Oppose	Support	Strongly support
1	2	3	4

Why?

____

____

4. Harry is 7 years old. He is almost always tired and does not seem interested in his usual activities. He has poor concentration and does not look forward to the future. He is diagnosed with Depression. How would you feel about Harry being treated with ECT?

Strongly oppose	Oppose	Support	Strongly support
1	2	3	4

Why?

____

____

5. Mary is 28 years old. She is diagnosed with Depression and has admitted to thoughts of killing herself. She has been recommended ECT. She understands what is involved and refuses to give consent. She is treated with ECT after a second Psychiatrist supports the recommendation, and because her condition was deemed to have affected her ability to decide. How would you feel about Mary being treated with ECT without her consent?

Strongly oppose	Oppose	Support	Strongly support
1	2	3	4

Why?

____

____

6. Generally, how important are the following factors in influencing your attitude towards the use of ECT? ***(For each factor, circle the number that corresponds to the attitude above.)***

	Not at all important		Don't know		Very important
Religious belief	1	2	3	4	5
Cultural practice	1	2	3	4	5
Human/civil rights	1	2	3	4	5
Freedom of choice	1	2	3	4	5

7. What additional information in the above cases would you require to help you in your decision?

____

____

____

____

Thank you for your time and cooperation.

Appendix D

ECT Survey IIB

Questionnaire Developed From Pilot Study to Assess Public Attitudes towards ECT on Adults

Electroconvulsive Therapy (ECT), also known as "Shock Therapy", is a medical procedure that involves passing electric current through the brain to cause a fit. It is often recommended to individuals diagnosed with Depression. Some report beneficial effects, such as the ability to resume their daily lives, whilst others experience negative changes that led to a poorer quality of life after having ECT.

Please read the following short descriptions. For each question, give a response that you think is the most appropriate by circling the number that corresponds to the attitude above, and explain your choice. There is no right or wrong answer.

1. In the last 18 months, you have been feeling tired easily, have lost interest in the activities that you usually enjoy, and have had difficulty sleeping. You do not feel like eating and have lost a lost of weight. Your work has also been affected badly. You have been diagnosed with Depression and did not appear to respond well to medications. How would you feel about having ECT?

Strongly oppose	Oppose	Support	Strongly support
1	2	3	4

Why?

____

____

2. Who would be able to persuade you to have ECT if you initially refuse to have ECT? ***(You may tick one or more boxes.)***
   - A second Psychiatrist ☐
   - Other mental health worker: please specify, ____________________ ☐
   - Your GP ☐
   - Partner/Spouse ☐
   - Close family member ☐
   - Friend ☐
   - Work colleague ☐
   - No one ☐

Why?

____

____

3. Bill is 35 years old. He has lost his job and has had difficulty getting another one. He worries about the finances of his family of 6. He has become very depressed, and has not been eating or sleeping well. He does not enjoy activities he usually enjoys and finds no pleasure in life. He has suffered like this for more than 2 years. His Psychiatrist diagnosed him with Depression but anti-depressants failed to make him better. How would you feel about Bill being treated with ECT?

Strongly oppose	Oppose	Support	Strongly support
1	2	3	4

Why?

____

____

4. Harry is 40 years old. He is almost always tired and does not seem interested in his usual activities. He has poor concentration and does not look forward to the future. He is diagnosed with Depression. How would you feel about Harry being treated with ECT?

Strongly oppose	Oppose	Support	Strongly support
1	2	3	4

Why?

____

____

5. Mary is 28 years old. She is diagnosed with Depression and has admitted to thoughts of killing herself. She has been recommended ECT. She understands what is involved and refuses to give consent. She is treated with ECT after a second Psychiatrist supports the recommendation, and because her condition was deemed to have affected her ability to decide. How would you feel about Mary being treated with ECT without her consent?

Strongly oppose	Oppose	Support	Strongly support
1	2	3	4

Why?

____

____

6. Generally, how important are the following factors in influencing your attitude towards the use of ECT? ***(For each factor, circle the number that corresponds to the attitude above.)***

	Not at all important		Don't know		Very important
Religious belief	1	2	3	4	5
Cultural practice	1	2	3	4	5
Human/civil rights	1	2	3	4	5
Freedom of choice	1	2	3	4	5

7. What additional information in the above cases would you require to help you in your decision?

Thank you for your time and cooperation.

Appendix E

ECT Survey IIC: Questionnaire Developed From Pilot Study to Assess Public Attitudes towards ECT on Older Adults

Electroconvulsive Therapy (ECT), also known as "Shock Therapy", is a medical procedure that involves passing electric current through the brain to cause a fit. It is often recommended to individuals diagnosed with Depression. Some report beneficial effects, such as the ability to resume their daily lives, whilst others experience negative changes that led to a poorer quality of life after having ECT.

Please read the following short descriptions. For each question, give a response that you think is the most appropriate by circling the number that corresponds to the attitude above, and explain your choice. There is no right or wrong answer.

1. In the last 18 months, you have been feeling tired easily, have lost interest in the activities that you usually enjoy, and have had difficulty sleeping. You do not feel like eating and have lost a lost of weight. Your work has also been affected badly. You have been diagnosed with Depression and did not appear to respond well to medications. How would you feel about having ECT?

Strongly oppose	Oppose	Support	Strongly support
1	2	3	4

Why?

2. Who would be able to persuade you to have ECT if you initially refuse to have ECT? ***(You may tick one or more boxes.)***
A second Psychiatrist ☐
Other mental health worker: please specify, ______________________ ☐
Your GP ☐
Partner/Spouse ☐
Close family member ☐
Friend ☐
Work colleague ☐
No one ☐

Why?

3. Bill is 35 years old. He has lost his job and has had difficulty getting another one. He worries about the finances of his family of 6. He has become very depressed, and has not been eating or sleeping well. He does not enjoy activities he usually enjoys and finds no pleasure in life. He has suffered like this for more than 2 years. His Psychiatrist diagnosed him with Depression but anti-depressants failed to make him better. How would you feel about Bill being treated with ECT?

Strongly oppose	Oppose	Support	Strongly support
1	2	3	4

Why?

4. Harry is 78 years old. He is almost always tired and does not seem interested in his usual activities. He has poor concentration and does not look forward to the future. He is diagnosed with Depression. How would you feel about Harry being treated with ECT?

Strongly oppose	Oppose	Support	Strongly support
1	2	3	4

Why?

5. Mary is 28 years old. She is diagnosed with Depression and has admitted to thoughts of killing herself. She has been recommended ECT. She understands what is involved and refuses to give consent. She is treated with ECT after a second Psychiatrist supports the recommendation, and because her condition was deemed to have affected her ability to decide. How would you feel about Mary being treated with ECT without her consent?

Strongly oppose	Oppose	Support	Strongly support
1	2	3	4

Why?

6. Generally, how important are the following factors in influencing your attitude towards the use of ECT? ***(For each factor, circle the number that corresponds to the attitude above.)***

	Not at all important		Don't know		Very important
Religious belief	1	2	3	4	5
Cultural practice	1	2	3	4	5
Human/civil rights	1	2	3	4	5
Freedom of choice	1	2	3	4	5

7. What additional information in the above cases would you require to help you in your decision?

____

____

____

____

Thank you for your time and cooperation.

Appendix F

Cover Letter to Recruit Survey Participants

12 March 2002

To: Whom-It-May-Concern

Dear Sir/Madam

Re: A Public Survey on Electroconvulsive Therapy

My name is Serene Teh and I am currently pursuing the course of Doctor of Psychology (Clinical Psychology) at the Edith Cowan University. This research is part of my dissertation project, and has been approved by the University Ethics Committee.

In this survey, I am studying the public knowledge about, and attitudes towards Electroconvulsive Therapy (ECT), also known as "Shock Therapy". Past research has shown that the public attitudes towards ECT influence doctors' prescription practices. Moreover, it is anticipated that as a participant, your responses may direct future research and mental health education policies. It is important that research like this obtains the view of a wide range of people, and I would be most grateful for your assistance.

The organisation that you are working for was chosen at random to participate. If you decide to take part, you will be required to complete 2 short questionnaires taking no more than 10-15 minutes in total. Participation is strictly voluntary. You may withdraw at any time during the study and/or refuse to answer any question. Your refusal will not affect your professional standing within the organization in any manner. To ensure that your responses are confidential, returned completed questionnaires will be taken as an indication of consent to participate in this study. No invasive/stressful/painful procedure is involved.

You may contact me (9400 5862) or my supervisor, Dr. Deirdre Drake (9400 5020), if you have any queries about this study.

Thank you for your interest in this research.

Yours Faithfully

....
Serene Teh
D.Psych (Clinical Psychology) Candidate
School of Psychology
Department of Community Services, Education & Social Sciences
Edith Cowan University

Appendix G

Cover Letter with Survey Administration Instructions for Teachers

17 June 2002

To: XXX
XXX High School
Grade Street
Woodbridge WA 6056

Dear XXX

Re: A Public Survey on Electroconvulsive Therapy

My name is Serene Teh and I am currently pursuing the course of Doctor of Psychology (Clinical Psychology) at Edith Cowan University. This study is part of my dissertation project for the course, and has been approved by the Ethics Committee at the Edith Cowan University.

In this study, I am interested in the level of public knowledge about, and attitude towards, Electroconvulsive Therapy (ECT) on depression. Past research has shown that the attitudes of the public towards ECT influence clinicians' prescription practices. Moreover, it is anticipated that participants will become more aware that ECT is being used as a treatment for depression. At a broader level, an understanding of these issues will provide directions for future research and/or mental health education policies.

To investigate these issues, I hope to distribute questionnaires to 360 members of the general public. As such, I hope to recruit 20 students (Year 11) from your school. It takes about 10 minutes to complete the questionnaires. Participation is strictly voluntary. Participants may withdraw anytime during the survey, or refuse to respond to any question. Returned completed questionnaires will be taken as an indication of consent to participate in this study, so that participants remain completely anonymous. No invasive/stressful/painful procedure is involved.

Thank you for your assistance. As discussed in our telephone conversation, dated 17 June 2002, please find attached 20 copies of information/consent forms, questionnaires and self-addressed reply paid envelopes for the return of completed consent forms and questionnaires. All instructions are printed on the questionnaires. Only students who submit completed consent forms will be given questionnaires to complete.

Please do not hesitate to call me [redacted] or my supervisor, Dr. Deirdre Drake (9400 5020), if you have any queries about this study.

Thank you.

Yours Faithfully,

……………………………………..
Serene Teh
D.Psych (Clinical Psychology) Candidate
School of Psychology
Faculty of Community Services, Education & Social Sciences
Edith Cowan University

Appendix H

Information and Consent Forms for Parents/Guardians of High School Students

12 February 2002

To: Whom-It-May-Concern

Re: A Public Survey Electroconvulsive Therapy

My name is Serene Teh and I am currently pursuing the course of Doctor of Psychology (Clinical Psychology) at Edith Cowan University. This study is part of my dissertation for the course, and has been approved by the Ethics Committee at the Edith Cowan University.

In this study, I am interested in the level of public knowledge about, and attitude towards Electroconvulsive Therapy (ECT) for depression. Past research has shown that the attitudes of the public towards ECT influence clinicians' prescription practices. Moreover, it is anticipated that participants will become more aware of ECT as a treatment for depression. At a broader level, an understanding of these issues will provide directions for future research and/or mental health education policies.

To investigate these issues, I hope to distribute questionnaires to 240 to 300 members of the general public. As such, I am writing to obtain your consent for your child/ward to participate in this study. Participation is strictly voluntary. Your child may withdraw at any time during the survey. No participant will be identified by name. To indicate your consent, please complete the following consent form and return it to me via your child/ward.

Please do not hesitate to call me [redacted] or my supervisor, Dr. Deirdre Drake (9400 5020), if you have any queries about this study.

Thank you.

Yours Faithfully

……………………………..

Serene Teh
D.Psych (Clinical Psychology) Candidate
School of Psychology
Faculty of Community Services, Education & Social Sciences
Edith Cowan University

Consent Form

I, ...(Name of Parent/Teacher) have read the above information about the research project. Any questions I have asked have been answered to my satisfaction.

I consent to my child/ward to participate in this activity, realising that he/she may withdraw at any time.

I agree that the research data gathered for this study may be published provided he/she is not identifiable.

....

Signature of Parent/Teacher Date

Appendix I

Demographics of Survey Sample

Characteristics	**Freq (%) / Range**
Male	161 (42.5)
Female	218 (57.5)
65+ years old Male	39 (31.0)
65+ years old Female	87 (69.0)
Age range	13-99 years old
Students	131 (34.6)
Pensioners	146 (38.5)
Executives	59 (15.6)
Service workers	41 (10.8)

Appendix J

Frequency Table of Subjective ECT knowledge and Objective ECT Knowledge

Subjective ECT Knowledge	**Levels of Objective ECT knowledge (*f*)**			**Total of Rows**
	Low	**Medium**	**High**	
Low	97	16	13	126
Medium	25	61	48	134
High	2	41	76	119
Total of Columns	124	118	137	379

Appendix K

Frequency Table of Age and Subjective ECT Knowledge

	Levels of Subjective ECT knowledge (*f*)			Total of
Age Category	**Low**	**Medium**	**High**	**Rows**
0-18 years old	44	47	28	119
19 – 64 years old	30	53	48	131
65+ years old	52	32	42	126
Total of Columns	126	132	118	379

Appendix L

Frequency Table of Essential ECT Knowledge and Peripheral ECT Knowledge

Groups of Essential Knowledge	**Groups of Peripheral Knowledge (*f*)**			**Total of Rows**
	Low	**Medium**	**High**	
Low	56	33	14	103
Medium	17	38	38	93
High	3	34	79	116
Total of Columns	76	105	131	312

Appendix M

Frequency Table of Essential ECT Knowledge and Sources of ECT Information

Sources of ECT Information	**Groups of Essential Knowledge (*f*)**			**Total of Rows**
	Low	**Medium**	**High**	
Newspapers	23	22	46	91
Books	17	20	55	92
Magazines	13	15	39	67
Health Care Professionals	4	12	25	41
Total of Columns	57	69	165	291

Appendix N

Frequency Table of Age and Categorical Reasons Whether to Know more About ECT

Age Category	**Categorical Reasons for Q19**				**Total of Rows**
	No interest	**Irrelevant**	**Ascertain facts**	**Negative concept**	
0-18 years old	20	15	70	4	109
19-64 years old	11	27	37	13	88
65+ years old	14	37	37	14	102
Total of Columns	45	79	144	31	299

Appendix O

Frequency Table of Occupation and Categorical Reasons Whether to Know More About ECT

	Categorical Reasons for Q19				
Occupational Group	**No Interest**	**Irrelevant**	**Ascertain facts**	**Negative concept**	**Total of Rows**
Students	20	17	79	5	121
Pensioners	15	40	42	14	111
Executives	5	20	8	5	38
Service workers	5	2	15	7	7
Total of Columns	45	79	144	31	31

Appendix P

Frequency Table of Direct Contact With ECT and Objective ECT Knowledge

Direct ECT Contact	**Levels of Objective ECT Knowledge (*f*)**			**Total of Rows**
	Low	**Medium**	**High**	
Yes	13	38	36	87
No	111	80	101	292
Total of Columns	124	118	137	379

Appendix Q

Frequency Table of Direct Contact with ECT and Essential ECT Knowledge

	Groups of Essential Knowledge (*f*)			**Total of**
Direct ECT Contact	**Low**	**Medium**	**High**	**Rows**
Yes	25	28	34	87
No	145	65	82	292
Total of Columns	170	93	116	379