

Outcome evaluation of a multi-disciplinary community-based continence service for Australian women

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by

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Abstract

This longitudinal study evaluated the effectiveness of a multi-disciplinary community-based service offering conservative treatment for Australian women suffering urinary incontinence and living independently in the community, in terms of urinary incontinence symptom severity, impact on quality of life and knowledge outcomes. One hundred and twenty-three women attending *The Waterworx Centre*, a multi-disciplinary, publicly funded community-based continence service in South East Queensland Australia participated in the study. They received multi-disciplinary conservative treatment for urinary incontinence, including comprehensive assessment and an individually-tailored plan of care. All the women were also linked back to their own generalist health professional for ongoing care and management.

Data were collected over a one-year period: at first consultation, and at three months and six months following the first consultation. The International Continence Society Urinary Symptom Index Short Form – Female Outcome was used to measure urinary symptoms and impact on quality of life, and a researcher-developed test was used to measure changes in knowledge.

Results showed that the women experienced an improvement in urinary symptoms and continence-related knowledge at three months following first consultation, and a decreased impact on quality of life, with these improvements either being sustained or increasing at six months. This study demonstrated that multi-disciplinary community-based services offering specialist conservative treatment for women suffering urinary incontinence can be effective in achieving improvements in urinary symptoms and continence-related knowledge and reducing the impact of urinary incontinence on quality of life.

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Introduction

Over two million community-based Australians are estimated to suffer urinary incontinence, including approximately 1.8 million (19.3%) women (Chiarelli *et al.*, 2001). Based on a meta-analysis of international studies, Chiarelli *et al.* estimated the prevalence of urinary incontinence in community-based women as 16.5% in women younger than 40 years, 20.9% at 40-49 years, rising to 28.4% at 80 years and older. Chronic urinary incontinence can persist for many years. It has been found to impact on health status (Roe & Doll, 2000; Johnson *et al.*, 1998), social activities (Fultz & Hersog, 2001; Peake & Manderson, 2003), psychological status (Dugan *et al.*, 2000; Meade-D'Alisera *et al.*, 2001; Burgio *et al.*, 2001) and quality of life (Wyman, 1998; Swithinbank & Abrams, 1999; Liberman *et al.*, 2001). Although there have been many advances in surgical and medical approaches to treatment, it is generally considered that behavioural / conservative management, such as treatment of contributing or exacerbating conditions, pelvic floor exercises, toileting techniques and social management, should be the first line of treatment for urinary incontinence (American Medical Directors Association, 2001; Sampsel, 2000).

Many studies have demonstrated improvements in urinary incontinence symptoms following conservative or behavioural interventions. Continence nurse-led interventions have been found to be effective (McGhee *et al.*, 1997; Williams *et al.*, 2000; Borrie *et al.*, 2002). Lewey, Billington, and O'Hara (1997) undertook a long-term follow-up of 89 women aged 18-92 years attending a nurse-led continence clinic offering conservative treatments, finding that 54% reported being symptom-free up to three years following discharge. Improvements in urinary incontinence have been found from interventions such as behavioural therapies, bladder and pelvic floor exercises and re-training (O'Brien, *et al.*, 1991; Seim, *et al.*, 1996; Publicover and Bear, 1997; McDowell *et al.*, 1999; Sampsel, 2000), with pelvic floor exercises resulting in improvements maintained over a six month period in elderly women (Burns *et al.*, 1993). Burgio *et al.* (2001) found that improvements in urinary incontinence symptoms resulted in improvements in psychological symptoms, particularly for clients receiving behavioural interventions.

Many of these studies involved mixed gender, home-bound or elderly sample groups, with few studies investigating older and younger, independent-living, community-dwelling women, particularly within an Australian context. Some studies have focussed on single interventions, such as pelvic floor exercises, however, it is usual for continence care and management to use a range of approaches concurrently. While some studies have examined outcomes of services provided by continence nurse specialists, none have examined the impact of undertaking comprehensive assessment and management utilising a multi-disciplinary approach with linkages between disciplines. Rather than examine the impact of specific interventions, it was considered important to evaluate the impact of offering a comprehensive model of care.

Research Design and Method

The aim of this study was to evaluate urinary incontinence symptom severity, impact on quality of life and knowledge outcomes for women after attending *The Waterworx Centre*, a multi-disciplinary community-based service offering behavioural / conservative treatments and therapies. This study incorporated a longitudinal pretest-posttest design. Data relating to urinary incontinence symptoms and client knowledge were collected by questionnaire and chart audit at first consultation and then at three and six months following the first consultation. This study was approved by the ethics committees of the university and the health service district involved.

Setting, Recruitment and Intervention

During the study period, *The Waterworx Centre* was located within the community health service of the publicly funded Gold Coast Health Service District, Queensland Australia. The Gold Coast City is one of the fastest growing in Australia, and is a major tourist destination, incorporating both rural and urban areas. The city is the second fastest growing local government area in Australia (Gold Coast City Council, 2004), with a population of 455,473 in 2003 (Australian Bureau of Statistics, 2003). It has a high intra-Australian and international migration into the area, with many older people choosing to retire to the region.

The Centre aimed to provide short-term specialist assessment and advice to people living independently in the community suffering urinary incontinence, then to link them back to generalist health practitioners for ongoing care and management. The Centre was promoted to health professionals and the public in the region via patient pamphlets, health professional Community-based continence care for women

pamphlets, posters, community talks and media stories. The Centre accepted self-referrals, together with referrals from medical practitioners, medical specialists, physiotherapists, community nurses, and on discharge from hospital. Criteria for admission to the study were the same as those for admission to the Centre: that clients suffered urinary incontinence, lived independently in the community and did not suffer dementia. All women attending the Centre between March 2001 and February 2002 were informed about the project and invited to participate when they inquired about services and made their first appointment. Those agreeing to participate in the study signed a consent form prior to their first appointment.

Services provided were based on the Waterworx model (St John, *et al.*, 2004, in press), which focuses on community-based conservative/behavioural treatments and therapies for urinary incontinence; emphasises expert multi-disciplinary care, inter-disciplinary collaboration and linkages; and promotes easy client access (St John, Wallis, & James, 2002). Clients had access to comprehensive assessment, conservative treatment, management, education, support and referral. The Centre, staffed by continence specialist nurses and physiotherapists, had strong links to local generalist health practitioners and the local public hospital.

Because of the multi-causal nature of urinary incontinence and the individualised nature of clients' social contexts, attitudes and circumstances, care provided by the Centre was individualised, multi-dimensional and targeted a range of factors, rather than being driven by single protocols and clinical pathways. At the first appointment, which took approximately an hour, a specialist continence nurse and/or physiotherapist undertook a comprehensive assessment. The assessment included a client interview focused on urinary symptoms, medical history, social history, social impact of urinary incontinence, current strategies for addressing urinary incontinence, goals for attending the Centre, and a physical examination, including pelvic floor strength and endurance (where appropriate). Urinary symptoms were assessed using the International Continence Society Urinary Symptom Index Short Form - Female (ICS USI-SF-F) (described below), a bladder diary and (where appropriate) a 24 hour pad test. Through linkage to a local medical practitioner investigations were carried out where they were clinically indicated, including: residual urine, mid-stream urine (for micro-biological studies) and urodynamics. Individualised evidence-based conservative management and treatment included continence-related education and advice about their incontinence condition, fluid management, Community-based continence care for women

food and fluids likely to exacerbate incontinence, medication education, hygiene and skin care, sexuality, supports and treatments for improved mobility, bladder training for urge incontinence, pelvic floor re-training/re-education exercises, toileting techniques for complete emptying of the bladder, bowel management to minimise constipation, appropriate continence aids for their condition, and information about management of urinary incontinence in social situations. Clients requiring further assessment, intervention and/or access to support for continence aids were referred as appropriate.

As general medical practitioners and / or health practitioners are responsible for providing ongoing health care, it was considered important to develop structured links with them. A linkage letter was mailed to all clients' general medical practitioners (GP) and/or health practitioners, informing them of clients' ongoing care and management and providing them with information about incontinence. Subsequent appointments at the Centre, of about 15-20 minutes, addressed ongoing progress with therapies, on an individual basis. Clients could attend as many appointments at the Centre as they considered useful in relation to their individual needs, for a period of up to six months. During the project period, in addition to the individual consultations, all Centre clients were invited to group sessions conducted by Centre staff every 1-2 weeks. These sessions focussed on pelvic floor exercises and 'refresher' information, aiming to consolidate the advice and education provided in individual consultations.

Instruments and Measures

Data were gathered at three collection points: at first appointment (T1), and at three (T2) and six (T3) months following first appointment. Incontinence symptom severity and impact on quality of life were measured using the ICS USI-SF-F. Client knowledge was assessed using a researcher-developed knowledge test.

The ICS USI-SF-F was chosen because it has been developed with the expressed intention of characterising severity for lower urinary tract symptoms, impact on quality of life and to evaluate treatment outcomes (personal communication Donovan, 2001; Jackson et al., 1996). Originally based on the International Continence Society Urinary Symptom Index – Male questionnaire, it was developed specifically for women as an extensively tested long form with 33 items (Jackson et al., 1996). A short form of the questionnaire has been developed with 19 items
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using Likert-type scale responses, divided into five sections: incontinence symptoms, voiding, filling, sexual symptoms and impact on quality of life (personal communication, Donovan 2001) (see Table 1). Reliability data from other studies are not yet available on this short form of the instrument. In this study the Cronbach alpha scores for the various sub-scales, measured at the initial data collection point, ranged from 0.52 – 0.88 (See Table 2).

Changes in continence-related knowledge were evaluated using a researcher-developed knowledge test. The test consisted of 17 multiple-choice items based on current knowledge about urinary incontinence related to fluids, urinary tract infections, toileting habits, exacerbating conditions and bladder function. Each question was given one point, and results were totalled to give a score out of 17.

Data Collection

Participants were mailed the ICS USI-SF-F to complete at home prior to attending their first appointment. The knowledge test was completed immediately prior to their first consultation, administered by a research assistant who was not a health professional. Demographic information and client history information were gathered via chart audit using a researcher-developed audit tool. Not all participants attended at the three and six month data collection points. Subsequent non-attenders were mailed ICS USI-SF-F and asked to return the questionnaire in a pre-paid envelope, receiving two phone reminders and a further copy of the questionnaire if they failed to return it.

Data analysis

All data were entered into the computer program SPSS. Descriptive univariate statistics were calculated on all demographic data. Cronbach's alphas were calculated on the sub-scales of the ICS USI SF-F. Repeated measures ANOVA were calculated for the data relating to outcome measures. An initial analysis was conducted with no covariates. Following this, the ANOVA was recalculated, controlling for age group (above and below 65 years) and duration of incontinence symptoms prior to attending the Centre. The age of 65 years was chosen as a cut-off because this is the normal retirement age for women in Australia, and most continence services are provided to women above 65 years via the Federal Home and Community Care

(HACC) program funding. In addition, a further ANOVA was calculated with the number of *The Waterworx Centre* attendances used as a co-variate.

As there was large loss to follow-up encountered in this study, Student's t-test analysis was used to determine whether there were differences between the subjects who only completed the initial data collection and the subjects who completed follow-up data collection. Due to the large number of non-responses to the sexual subscale of the USI-SF-F, a crosstabulation of sexual sub-scale response with age group and chi square analysis was undertaken.

Results

Description of Participants

Of 178 eligible women who attended the *The Waterworx Centre* during the project period, 123 (69%) gave consent and agreed to participate in the project, completing the ICS USI-SF-F and the knowledge test at T1. The mean age of participants was 63.9 years (sd=12.2; range 33-88 years). All study participants attended a first appointment at the Centre, however, the number of attendances at subsequent appointments varied. The average attendance was three visits (mean=3.37; sd 1.8; range 1-9).

Table 3 provides a summary of demographic data, type of incontinence suffered and previous care for incontinence for all participants in the study. Approximately half the participants were aged 65 years or younger, and most had suffered urinary incontinence for many years (mean 9.1 years; sd=12.6; range 1 month to 70 years), experiencing mostly urge and stress incontinence. None experienced reflex or functional urinary incontinence. They had a range of educational backgrounds, were mostly retired, Australian born, and either living with a partner or alone. Of the 123 participants, less than half had received any previous care for their urinary incontinence (Table 3). Of those who had received care, most had seen medical practitioners or a medical specialist. Few had seen a continence specialist about their urinary incontinence, particularly continence nurse specialists or physiotherapists. Over half of the participants reported a range of co-morbidities (See Table 4). Nearly 46% of the female participants had undergone a hysterectomy and over 20% had previously had a pelvic floor or bladder repair.

Comparison Between Completers and Non-Completers

There was a large loss to follow-up in this study. Some participants did not wish to complete any of the follow-up surveys and some completed parts of the questionnaire but left some answers blank, particularly questions in the sexual symptoms subscale of the ICS USI-SF-F. Consequently the responses of only 63 subjects are reported in the outcome measures for this paper. Because of the large loss to follow-up, comparisons were made between those who only completed initial data collection and those who completed follow-up data collection. This analysis indicated that there were no statistically significant differences between the two groups with regard to duration of symptoms, scores in the initial knowledge test and all the subscales of the urinary symptoms index (See Table 5). However, the group that did not complete data collection were, on average, younger and made fewer visits to *The Waterworx Centre* (appointments and classes). Non-completion of the sexual sub-scale of the USI-SF-F decreased with increasing age. Table 6 shows that 87.5% of respondents under 50, 54% of those aged 50-69 years and only 15.9% of those over 70 years completed the sexual symptoms sub-scale. The differences between the groups reached statistical significance (chi square (df) = 28.8(2); $p < 0.0001$).

Outcome evaluation

For the participants who completed data collection at all three times, analysis revealed that, following attendance at *The Waterworx Centre*, there was an improvement in all subscales of the urinary symptom index, except for the sexual symptoms subscale, and there was an improvement in knowledge, and this improvement was maintained over time (See Table 7 and Figures 1 and 2).

When covariates were added to the analysis it became clear that age group, duration of symptoms prior to attending the Centre, and number of visits to the Centre did not influence the improvements in symptoms. The number of attendances when included as a covariate generated one statistically significant difference over time and that was in the sexual symptoms subscale ($F_{2,22}=6.2$; $p=0.005$).

Discussion

The model of service delivery being evaluated in the study provided the basis for comprehensive continence care provision. The model featured services and care that were: provided by a multi-disciplinary team of continence specialist nurses and physiotherapists linked to medical practitioners; community based; targeted women living independently in the community; and was attentive to the development of linkages between specialist and generalist health professionals. This study has confirmed that conservative multi-disciplinary management of urinary incontinence for community-based women results in improvements in symptoms, reduces the impact on quality of life, and improves knowledge in an Australian, community-based cohort of women. These findings were applicable, regardless of age or duration of symptoms prior to attending the Centre. The only symptom sub-category of the ICS USI-SF-F that did not demonstrate improvement was Sexual, which did not demonstrate statistically significant changes over time. When the co-variate of number of clinic visits was introduced there was a significant decrease following Centre attendance. However, these data should be treated with caution, as there was a large amount of missing data for the Sexual subscale. Non-completion was found to increase with age (Table 6), however, it was unclear whether this lack of reporting related to embarrassment, not being sexually active, or to not having a sexual partner. As sexuality is an important area of health and wellbeing, this area should be investigated further, perhaps using different methods, examining the impact of age more closely and using a more refined tool.

Variation in the number of times each participant attended *The Waterworx Centre* was an important issue arising from the conduct of the project. All participants attended the first appointment, however, many participants did not return for further appointments, while others continued to attend for six months. Although the women were able to choose the number of times they attended the Centre, there was no significant difference between those attending more often and those attending less often. A range of personal and/or clinical factors could explain this finding including: one appointment was all that was required to gain the information and support they needed, services were not appropriate to needs, or personal circumstances prevented them from attending. Whatever the reason for this finding, this study suggests that conservative, multi-disciplinary, community-based, specialist continence services should be provided on a time-limited or consultative basis, and supports linking clients back to generalist Community-based continence care for women

health practitioners for ongoing care and management. The variation in attendance also points to the importance of tailoring care plans to individual physical, emotional and learning needs; underlines the multi-factorial causes of urinary incontinence; the necessity for creating better communication links with generalist health professionals; and the need to provide women with expert advice to empower them to manage their own condition.

Several issues from the findings of this study are striking. Despite having suffered from urinary incontinence for many years, it was disturbing that many of these women had never consulted a health practitioner about their urinary incontinence and few had consulted a specialist continence practitioner prior to attending *The Waterworx Centre*. This lack of access is particularly important given the improvements demonstrated and maintained over time in symptoms and knowledge, and the reduced impact on quality of life. It points to a need to investigate reasons why sufferers do not access generalist or specialist services for their urinary incontinence, and the importance of promoting the availability, nature and effectiveness of specialist continence services. The broad applicability of this multi-disciplinary model of service for older and younger women, together with women who had suffered urinary incontinence for many years or more recently is particularly important for informing appropriate planning and targeting of community-based services.

Limitations of Study

These results relate to *The Waterworx* model of service delivery, and should not be applied to other groups of clients or services that do not have the characteristics of this model of service delivery. Differences in the nature of urinary problems experienced by different client groups, the expertise of staff and the nature of services may result in different outcomes.

This study used a pretest-posttest design rather than a randomised controlled trial, because the benefits of conservative management over no treatment for urinary incontinence is well established and it was not deemed ethical to leave one group untreated. Using the waiting list to establish a control group was also not possible, because this was a new service without an established waiting list. The nature of urinary incontinence and its social stigma causes difficulties in designing and conducting rigorous studies. Perusal of the literature demonstrates that there is often difficulty in obtaining large or random sample sizes for studies related to Community-based continence care for women

urinary incontinence in community-dwelling populations. The nature of urinary incontinence and care provision contribute to a lack of a control, problems of missing data related to attrition (Williams, et al 2000), small sample size (Publicover & Bear, 1997), and poor return rate (Lewey et al., 1997). Thus, this was the most rigorous but pragmatic design possible.

Because a convenience sample was used, results of this study should be interpreted with caution. However, although participants' responses to treatment could not be compared with untreated controls, the two follow-up data collection points allow for an estimation of the long-term effect of treatment. Further, consistent with prevalence data from the literature (Chiarelli, Bower, Wilson, Sibbritt, & Attia, 2001), this convenience sample of all of the women attending the Centre during a specified period included both younger and older community-dwelling women.

While it is difficult to design and carry out rigorous research into continence outcomes it is, never-the-less, important to continue to evaluate the effectiveness of models of care, management and treatments of urinary incontinence, in a range of contexts.

Conclusion

This study adds to previous research by confirming that conservative management leads to symptom and knowledge improvements, and a reduction of the impact on quality of life in women living independently in the community. The conservative management and treatments offered by *The Waterworx Centre* using specialist multi-disciplinary approaches and close links with generalist health practitioners resulted in statistically and clinically significant improvements in urinary symptoms and continence-related knowledge in community-dwelling women suffering urinary incontinence. These results support the development of specialist multi-disciplinary community-based services for women.

Table 1: International Continence Society, Urinary Symptom Index, Short Form – Female: Questionnaire and subscales

Question
Subscale 1: Urinary symptoms
Does urine leak before you can get to the toilet? (Q4)
How often do you leak urine? (Q6)
Does urine leak when you are physically active, exert yourself, cough or sneeze? (Q7)
Do you ever leak urine for no obvious reason and without feeling that you want to go? (Q8)
Do you leak urine when you are asleep? Q15)
Subscale 2: Voiding
Is there are delay before you can start to urinate? (Q12)
Do you have to strain to <u>urinate</u> ? (Q13)
Do you stop and start more than once while you urinate without meaning to? (Q14)
Subscale 3: Filling
During the night, how many times do you have to get up to urinate, on average? Q2)
Do you have to rush to the toilet to urinate? (Q3)
Do you have pain in your bladder? (Q5)
How often do you pass urine during the day? (Q25)
Subscale 4: Sexual
To what extent do you feel that your sex life has been spoilt by your urinary symptoms? (Q22)
Do you leak urine when you have sexual intercourse? (Q24)
Subscale 5: Impact on quality of life
Do you need to change your <u>outer clothing</u> during the day because of urine leakage? (Q11)
Do you cut down on the amount of fluid you drink so that your urinary symptoms improve, and you can do the things you want to do? (Q26)
To what extent have your urinary symptoms affected your ability to perform daily tasks (eg. cleaning, DIY (do it yourself), lifting objects)? (Q27)
Do you avoid places and situations where you know a toilet is not nearby (eg. shopping, travelling, theatre, church)? (Q28)
Overall, how much do your urinary symptoms interfere with your life? (Q31)

Table 2: Cronbach alpha results for the five sub-scales of the ICS USI-SF-F at the three data collection points of the study

ICS USI – SF – F Subscale	Number of items	Cronbach alpha scores
Incontinence symptoms	5	0.76
Voiding	3	0.68
Filling	4	0.52
Sexual symptoms	2	0.88
Impact on quality of life	5	0.78

Table 3: Demographic data, type of incontinence and previous care

Variable	Grouping	No. ^a (%)
Age (n=123)	65 years and younger	62(50.4)
	Over 65 years	61(49.6)
Australian born (n=122)	Yes	95(77.2)
	No	27(22.0)
Marital status (n=119)	Married / De Facto	73(59.3)
	Widowed	18(14.6)
	Divorced	18(14.6)
	Never married	4(3.3)
	Other	2(1.6)
Highest level of formal education (n=119)	Primary school	9(7.3)
	Secondary school	63(51.2)
	Apprenticeship / TAFE	21(17.1)
	College	16(13.0)
	University	10(8.1)
Employment status (n=122)	Employed	22(17.0)
	Home duties	16(13.0)
	Retired	33(26.8)
	Pension / Benefit	49(39.8)
	Other	2(1.6)
Living arrangements (n=119)	Spouse/partner only	53(43.1)
	Alone	36(29.3)
	Spouse/partner + children	20(16.3)
	Friends/other family	7(5.7)
	Other	3(2.4)
Type of Incontinence ^b (n=122)	Urge	93(76.6)
	Stress	90(73.2)
	Overflow	8(6.5)
	Other	27(22.0)
Previous care for urinary incontinence ^b (n=122)	None	44(35.8)
	General medical practitioner	55(44.7)
	Specialist medical practitioner	46(37.4)
	Physiotherapist	11(8.9)
	Hospital	10(8.1)
	Other	5(4.1)
	Continance nurse advisor	2(1.6)
Home visiting nursing	1(0.8)	

^a n may vary due to missing data

^b Participants could check more than one item

Table 4: Major Co-Morbidities and Medical History

	Condition ^b	No. ^a (%)
General (n=122)	Previous UTIs	67(54.5)
	Back pain	37(30.1)
	Respiratory problems	26(21.1)
	Obesity	19(15.4)
	Mobility impairment	14(11.4)
	Other neurological problems	14(11.4)
	Diabetes	9(7.3)
	Spinal injury	6(4.9)
	Congenital abnormality of the urinary tract	4(3.3)
	CA urinary tract	3(2.4)
	CVA	6(4.9)
Trauma	2(1.6)	
Obstetric and gynaecological (n=122)	Abdominal hysterectomy	44(35.8)
	Babies > 4 Kg	48(39.0)
	Vaginal hysterectomy	12(9.8)
	Bladder repair	20(16.3)
	> 3 pregnancies	34(27.6)
	Assisted delivery	25(20.3)
	Pelvic floor repair	7(5.7)

^a n may vary due to missing data

^b Participants could check more than one item

Table 5: T-test results comparing those who completed some follow-up data collection with non-completers

Variable	Mean (sd)	t-test t(df)	P value
Age			
Completers	66 (11.8)		
Non-completers	62 (12.2)	2.1(120)	0.04*
Duration of symptoms			
Completers	11.2 (13.9)		
Non-completers	7.5 (9.7)	1.7(115)	0.10
Number of clinic attendances in six months			
Completers	4.1 (1.7)		
Non-completers	2.6 (1.6)	4.5(121)	<0.0001**
Initial knowledge test score			
Completers	7.4 (3.5)		
Non-completers	7.7 (2.7)	-0.6(115)	0.53
ICS USI: urinary symptom subscale			
Completers	7.4 (4.1)		
Non-completers	7.8 (4.2)	-0.43(118)	0.66
ICS USI: voiding subscale			
Completers	1.7 (2.1)		
Non-completers	1.4 (1.8)	0.9(115)	0.38
ICS USI: filling subscale			
Completers	5.4 (1.9)		
Non-completers	5.5 (2.2)	-0.29(100)	0.77
ICS USI: sexual symptoms subscale			
Completers	1.2 (1.2)		
Non-completers	1.1 (1.6)	0.16(53)	0.87
ICS USI: impact on quality of life subscale			
Completers	5.9 (3.6)		
Non-completers	5.3 (3.9)	0.70(91)	0.49

*Significant to the level of $p < 0.05$

**Significant to the level of $p < 0.0001$

Table 6: Cross tabulation of those who completed the sexual sub-scale of the USI-SF-F by age group

		Completed sexual subscale at Time 1			
		Did not complete sexual subscale	Completed sexual sub-scale	Total	
Age groups	30-49 yrs	Count	2	14	16
		% within Age groups	12.5%	87.5%	100.0%
		% within Completed sexual subscale T1	2.9%	25.5%	13.0%
	50-69 yrs	Count	29	34	63
		% within Age groups	46.0%	54.0%	100.0%
		% within Completed sexual subscale T1	42.6%	61.8%	51.2%
	70-89yrs	Count	37	7	44
		% within Age groups	84.1%	15.9%	100.0%
		% within Completed sexual subscale T1	54.4%	12.7%	35.8%
Total	Count	68	55	123	
	% within Age groups	55.3%	44.7%	100.0%	
	% within Completed sexual subscale T1	100.0%	100.0%	100.0%	

Table 7: Repeated measures ANOVA results for urinary symptom sub-scales, and knowledge over time

Variable	F	df	P value
Knowledge test score	20.4	2	<0.0001
ICS USI: urinary symptom subscale	21.7	2	<0.0001
ICS USI: voiding subscale	4.6	2	0.014
ICS USI: filling subscale	7.3	2	<0.001
ICS USI: sexual symptoms subscale	0.7	2	0.51*
ICS USI: impact on quality of life subscale	15.3	2	<0.0001
Knowledge test score	20.4	2	<0.0001

* Not significant at 0.05 level

Figure 1: Line graph of mean USI subscale scores at initial consultation (T1), three months (T2) and six months (T3)

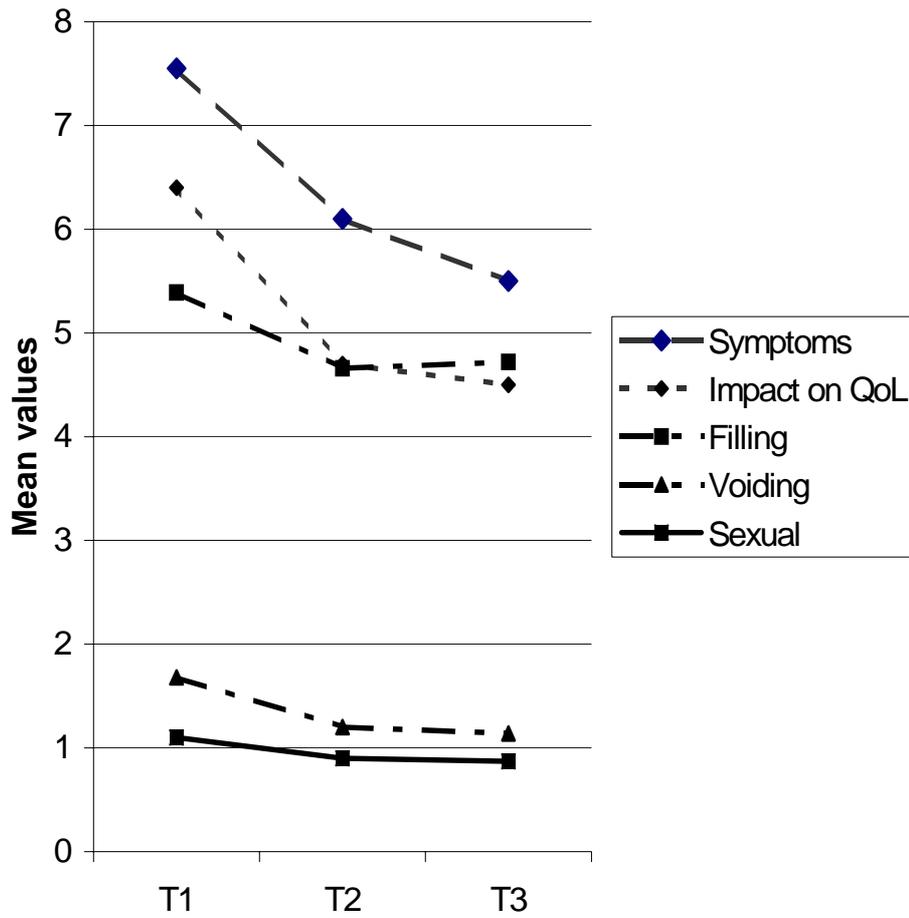
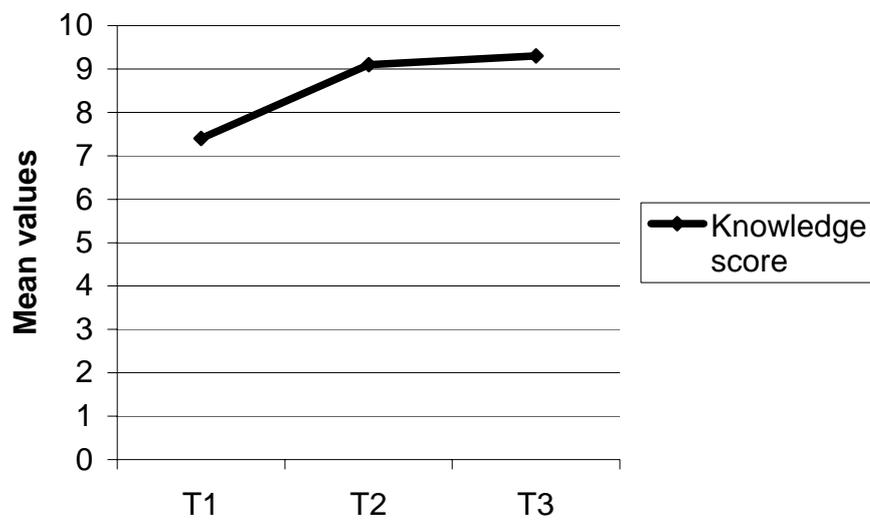


Figure 2: Line graph of mean knowledge scores at initial consultation (T1), three months (T2) and six months (T3)



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