



MONASH University

A study of urinary incontinence amongst Malaysian women in Selangor:
Prevalence, risk factors and quality of life

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Abstract

Background: Information on urinary incontinence (UI) in Malaysian women remains incomplete and inconclusive. Little has been documented on the risk factors, types of UI, its effects on QOL or the treatment seeking behavior in these women.

Objectives: To estimate the prevalence and types of UI, current risk factors, treatment seeking behavior and the impact of UI on the quality of life (QOL) of women with UI, their spouses or care providers.

Methodology: This was an observational, cross-sectional, population-based study. A validated, standardised Monash Malay Women Health Questionnaire (MMWHQ) was administered to 301 respondents in Selangor, Malaysia. Descriptive statistics, logistic regression analyses and phenomenology was used in the statistical analyses.

Results: Based on the QUID score criteria, the prevalence of UI among women living in Selangor was $21.6 \pm 4.65\%$ (95% Confidence Interval 16.95 - 26.25%). Another 34% had minimal urine leak (MUL) with a score of $\leq 3/15$ or $\leq 5/15$, the occurrence was only "once in a while" or "rarely". Of the 65 women with UI, majority suffered from stress urinary incontinence (SUI) (46.1%), followed by urge urinary incontinence (UUI) (33.8%) and mixed urinary incontinence (MUI) (20%).

Employed women were more than twice likely to report UI compared to unemployed women. Postmenopausal women who lacked energy were thrice likely to report UI than energized postmenopausal women. Women who were very healthy were less likely to report UI compared to fairly healthy women. Only 40 % of women with UI sought specific treatment. Majority (60%) preferred to use panty liners or double underwear instead of seeking medical treatment.

Similar to other international studies, Malaysian women were not always comfortable talking about their urinary symptoms as illustrated below.

Interviewer “Have you been to the doctor?”

Respondent: “Not yet (laughs in embarrassment)”.

Interviewer: “Why not?”

Respondent: “I am shy and I think it is not serious yet. Shy, if people around me, or friends or family members or husband know that I have this problem. So, as long as I can keep it to myself, I keep it to myself.”

Women commonly avoided talking about their urinary problem as it evoked feelings of embarrassment, fear, shame, and the loss of independence.

Respondent: “I had come across people who had this problem [UI] but they were mostly elderly people who have had children. And here I am, only about 25 or 26-years- old, single with no children. I couldn't accept the fact I had urinary problems and became worried”. Hence, reduced psychological general wellbeing was also considered a hindrance to treatment seeking behavior.

Conclusion: Prevalence of UI was higher than previously reported with SUI being more prevalent. Coffee consumers, general health score, employment and postmenopausal women were likely to report UI. Only 40% sought medical treatment while majority preferred using panty liners or double underwear. Women were uncomfortable talking about their urinary symptoms and suffered silently. Albeit, this is a very sensitive issue, but professionals have a duty to reach out and educate women to report early urinary symptoms and receive early medical intervention to improve their QOL

Declaration

This thesis contains no material, which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Publications during enrolment

The core theme of the thesis is (A study of urinary incontinence: prevalence, risk factors and QOL). The ideas, development and writing of all the papers in the thesis were the principal responsibility of me, the candidate, working within the (Jeffrey Cheah School of Medicine and Health Sciences) under the supervision of (Rusli Bin Nordin, Anuar Zaini Md Zain Quek Kia Fatt)

In the case of (*insert chapter numbers*) my contribution to the work involved the following:

Thesis chapter	Publication title	Publication status*	Nature and extent (%) of student's contribution
1.	Prevalence and risk factors of urinary incontinence and its impact on the quality of life and treatment seeking behavior amongst Malaysian women: a review	Dhillon et al., J Women's Health Care 2016, 5:6 DOI: 10.4172/2167-0420.1000337 Accepted (Appendix L)	90 %
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2.	Exploratory and Confirmatory Factor Analyses for Testing Validity and Reliability of the Malay Language Questionnaire for Urinary Incontinence Diagnosis (QUID)	Dhillon, H.K., et al. (2014) <i>Open Journal of Preventive Medicine</i> , 4 , 844-851. http://dx.doi.org/10.4236/ojpm.2014.411095 (Appendix K)	90 %

** e.g. 'published' / 'in press' / 'accepted' / 'returned for revision'*

I have not renumbered sections of submitted or published papers in order to generate a consistent presentation within the thesis.

Student signature:



Date: 27th December 2016

The undersigned hereby certifies that the above declaration correctly reflects the nature and extent of the student and co-authors' contributions to this work.

Main Supervisor signature:



Date: 27th December 2016

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‘ਵਿਦਿਆ ਵੀਚਾਰੀ ਤਾਂ ਪਰਉਪਕਾਰੀ॥’

Contemplate and reflect upon knowledge,
And you will become a benefactor to others.

Sri Guru Granth Sahib (Ang 356)

I am sincerely grateful to each and every person who had directly or indirectly contributed towards the success of this research project. My special thanks go to the respondents who were brave to share their intimate experiences and contribute new knowledge to the existing continuous research in Malaysian women’s health.

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FORWARD

“Oh God, why this!” lamented a respondent in despair

Indeed, female UI does not cause death, but it does take away one’s quality of life

Previous research trends when documenting Malaysian women’s urinary incontinence have primarily focused on some attributes of Caucasian women, such as prevalence and risk factors or the severity of the symptoms. This is later compared to similar attributes with those of women belonging to different ethnic groups. The research instrument, mainly in English language, may not be culturally congruent resulting in the assumption that the research findings may be incorrect. Furthermore, no qualitative research has been undertaken to document the lived experiences of women suffering from urinary incontinence. My previous study on three hundred and twenty-six menopausal women living in Kelantan found that up to 40 % of women complained of having occasional stress incontinence and at least 24 % of the women complained of having weak bladder control. Yet despite numerous studies documenting the prevalence of UI in women in a number of communities, the reasons for the wide-ranging differences remain unclear. Also, no local population based study in Malaysia using validated questionnaire translated in the local languages had been used to confirm these results. In addition, the nature and history of UI remains unknown, whether its severity improves with time or gets progressively worse and if there are specific risk factors within the population that contribute to this problem. The most effective therapy for incontinence will depend on targeting the correct populations to be treated, which relies upon how data is collected on prevalence and

severity. This again emphasises the fact that the prevalence of UI in Malaysian women remains poorly documented.

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LIST OF SYMBOLS, ABBREVIATIONS OR NOMENCLATURE

Definitions for Lower Urinary Tract Dysfunction including Incontinence adapted from International Continence Society (ICS) in collaboration with World Health Organization (WHO). [1]

1. LUTS Lower Urinary Tract Symptoms - Storage symptoms
- UI Urinary incontinence: “the complaint of any involuntary loss of urine”
This definition is suitable for epidemiological studies.
Or Urinary incontinence: “involuntary loss of urine that is a social or hygienic problem”
This definition is suitable when the prevalence of bothersome incontinence is sought.
- UII Urgency Urinary Incontinence is the complaint of involuntary leakage accompanied by or immediately preceded by urgency
- SUI Stress Urinary Incontinence is the complaint of involuntary leakage on effort or exertion, or on sneezing or coughing
- MUI Mixed Urinary Incontinence is the complaint of involuntary leakage associated with urgency and also with effort, exertion, sneezing and coughing
- NE Nocturnal Enuresis is any involuntary loss of urine occurring during sleep
- PMD Post Micturition Dribble and continuous urinary leakage denotes other symptomatic form of incontinence
- OAB Overactive bladder is characterized by the storage symptoms of urgency with or without urgency incontinence usually with frequency and nocturia.
2. LUTD Lower Urinary Tract Dysfunction – Filling symptoms
- UDD Urodynamic Diagnosis
- OADF Overactive Detrusor Function is characterised by involuntary detrusor contractions during the filling phase which may be spontaneous or provoked

- IDOA Idiopathic Detrusor Over activity defined as over activity when there is no clear cause
- NDOA Neurogenic Detrusor Over activity is defined as over activity due to a relevant neurological condition
- UDSI Urodynamic stress incontinence is noted during filling cytometry and is defined as the involuntary leakage of urine during increased abdominal pressure in the absence of detrusor contraction
3. BPS Bladder Pain Syndrome is defined as an unpleasant sensation (pain, pressure, and discomfort) perceived to be related to the urinary bladder, associated with lower urinary tract symptoms of more than 6 weeks' duration, in the absence of infection or other identifiable causes.
4. POP Pelvic Organ Prolapse
- UGP Urogenital Prolapse is defined as the symptomatic descent of one or more of: the anterior vaginal wall, the posterior vaginal wall, and the apex of the vagina (cervix/uterus) or vault (cuff) after hysterectomy. Urogenital prolapse is measured using the POPQ system (Pelvic Floor Distress Index).
5. AI Anal Incontinence is defined as “any involuntary loss of faecal material and/or flatus”
- FI Faecal incontinence is any involuntary loss of faecal material

CHAPTER 1

INTRODUCTION

1.0 Background

Urinary incontinence (UI) is defined as “the complaint of any involuntary loss of urine” based upon the terminology from the International Continence Society-International Urogynecological Association. [1-2] Myers [3] further reported that the symptom is considered bothersome or troublesome when it becomes a hygienic or social problem. Similarly, TheWHO ICD-10–CM diagnosis code N39.3 also defined UI as the clinical findings of “involuntary leak of urine” with an added clause “due to physical activities which increases abdominal pressure on the urinary bladder without detrusor contraction or over distended bladder”. [4] The six-item QUID questionnaire developed by Bradley et al [5] was made up of first three questions to diagnosis SUI (scoring $4 \geq /15$) and the last three questions to diagnose UUI (scoring $6 \geq /15$). However, Myers [3] further catergorised UI into three major groups instead of two; stress UI (SUI), urge UI (UUI) and included mixed UI (MUI) to the QUID diagnosis. She reported that there were some women who had responded “often” and “almost all the time” to more than three items [3] and had scored $10 \geq /30$. Stress predominate MUI was diagnosed when the women scored a total of 10 or more with higher scores in the SUI questions ($4 \geq /15$) than UUI questions ($6 \geq /15$) and vice versa for UUI predominate MUI. [3]

Other less common types of UI were continuous urinary leakage, insensible (without awareness) UI and coital UI. [3] While the classification used in the WHO ICD-10–CM diagnosis code N39.3 used the following classifications of the subtypes are based on the degree of leakage, deficiency in the ureteral sphincter and the lowering and opening of the bladder neck and urethra without bladder contraction. [4]

Yip and Cardozo [6] had dubbed UI as “the silent epidemic” because adults, particularly women, are reluctant to talk about their social and hygienic problem or seek treatment for it. Also, it has a negative impact on the quality of life of women because the prevalence of UI increases along their lifespan. To date, female UI continues to be a very common problem and its occurrence has been well documented in many communities throughout the world. [7-12] Women generally, do not talk about their urinary symptoms and it is assumed that the Malaysian women are no different. Tackling the problem of UI begins with accurate documentation of prevalence, types of UI, associated risk factors and quality of life of the sufferer, partner and care giver.

1.1 Prevalence of urinary incontinence: global and local perspectives

While UI has been well documented in developed countries, the world-wide prevalence data is difficult to summarize and impossible to generalise to the general population because of the large variations in the reported levels of its prevalence. [8] Hampel et al. [13] had reviewed 48 epidemiological studies conducted between 1954 and 1995. They reported that the majority of the studies consider UI as a symptom and therefore only used questionnaires for their investigations. A small number of

researchers, however, used the objectively demonstrable sign for UI, for instance Sandvik et al.'s severity index in female UI. [12-16] Validated urodynamic studies were rarely conducted during that period. The Scientific Committee of the International Continence Society [10] had estimated about 200 million adults worldwide are incontinent. The prevalence of female UI is estimated to be 25 to 45% worldwide. [7] Hunskar et al. [8] reported the prevalence of incontinence stabilizing at the age of 50 years (at around 30%) and then increasing at age 70 years to approximately 40%.

Within the local context, the Asia Pacific Continence Advisory Board [9] had studied overactive bladder in women from five South East Asian countries: Malaysia, Philippines, Singapore, Indonesia and Thailand. Of the 2,422 female respondents, 14.5% (n= 351) of Malaysian women [9] had reported some degree of UI. The prevalence had ranged from 10.6% (n = 257) in Indonesia to 37.3% (n = 904) in Thai women. The presence of UI was ascertained by a positive response to the question of ever having leaked urine before reaching the toilet. However, none of the questions applied the 2002 ICS definition of UI in their study.

The Asian Society for Female Urology (ASFU) conducted a cross-sectional survey of 5,506 Asian women to determine the prevalence of UI in eleven Asian countries including Malaysia [10]. Unfortunately, the questions used to establish the prevalence of UI in Asian countries were different from those used in the US and European surveys. Diokno [10] commented that the questions seemed to be leading

towards an answer favouring UUI and documented the prevalence of overactive bladder in 13.1% of Malaysian women. Hempel et al. [13] documented the different types of UI experienced by Asian and Caucasian women. The most common type of UI in Asian women was mixed UI (63.8%), followed by SUI (13.1%). Comparatively, Caucasian women experienced more of SUI (50%) followed by MUI (29%). A Norwegian study by Hannestad et al., [11] reported MUI between 20 and 36 %. However, no local studies have been conducted to verify this and/or even identify the possible reasons for this. Low et al. [14] reported that 19% of women in North Malaysia attending health clinics had lower urinary tract symptoms (LUTS). Indeed, it is difficult to generalise these results to the general Malaysian population. A study by Dhillon et al. [15] among menopausal women in Kelantan revealed that up to 40% of women complained of having occasional SUI and at least 24% complained of having weak bladder control. It appears that despite the numerous studies documenting the prevalence of UI in women in several communities, the reasons for the wide-ranging differences remain unclear. The variations in prevalence rates have however been attributed to a lack of conformity among the prevalence studies particularly in areas like definition of UI, demographics of the study population, survey and study design. [12, 16-18]

1.2 Classification types of urinary incontinence

One of the most probable reasons for such discrepancy in the prevalence rates could be the several perceptions of incontinence. In the medical history, UI is

considered a symptom. It is also a sign when urine leak is noticed during a clinical examination and finally to elicit the diagnosis of UI and call it a condition following urodynamic investigations. [6] UI is the complaint of any involuntary leakage of urine. [1] SUI is the complaint of involuntary leakage of urine on effort or exertion, sneezing and coughing. [1, 19-20] UUI is involuntary loss of urine accompanied by or immediately preceded by urgency. [1, 21-22] MUI refers to the complaint of involuntary leakage associated with urgency and with exertion, effort, sneezing and coughing. [1, 19-20] Contrary to SUI, overactive bladder (OAB) is defined by the ICS as women reporting urinary urgency, frequency and nocturia including with or without UUI (FIGURE 1). These symptoms must be present in the absence of any pathological or metabolic disorder (urinary tract infection or bladder cancer), which have similar symptoms to OAB. [20]

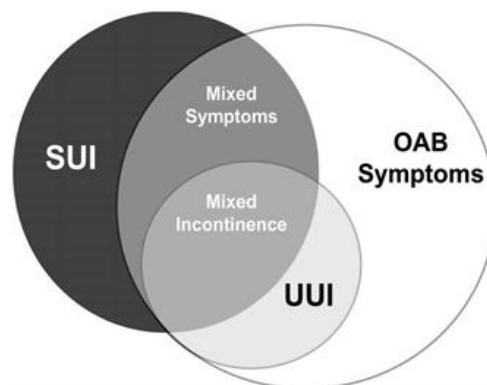


FIGURE 1: SPECTRUM OF OAB, SUI, UUI, and MUI [20]

(By courtesy of Abrams and Rackley, copyright 2006; used with permission)

Chu and Dmochowski [19] had reported that the treatment seeking behavior in these women was reduced because they believed that the urinary symptoms were no longer amenable to treatment provided by the primary care physicians. Furthermore,

the belief that the diagnosis and treatment of UI and urinary symptoms were the concerns of the specialist instead of the primary care physician [21] acted as a barrier to women who wished to seek treatment from local health services. To overcome this barrier and change the mindset of the public, the medical, nursing and allied health professionals at the primary health care settings need to have adequate knowledge of the normal bladder function and the urinary pathophysiology to address female UI and urinary symptoms.

1.3 The Lower Urinary Tract

The anatomy of the lower urinary tract (LUT) consists of urinary bladder, the urethra, internal urinary sphincter, the bladder outlet, the external urinary sphincter and the striated muscles of the pelvic floor (FIGURE 2). In females, the external urinary sphincter and the levator ani muscles are the main bladder support structures. The lining of the bladder consists of bundle of smooth muscle fibers called detrusor muscle, which is interspersed with connective tissue. The bladder has the ability to expand; due to its elasticity or compliance. [19] The internal urinary sphincter consists of the bladder neck and the proximal urethra and is surrounded by striated muscle fibres. The bladder outlet consists of the internal sphincter and is surrounded by striated muscle, which is supported by the pelvic floor muscles. [19]

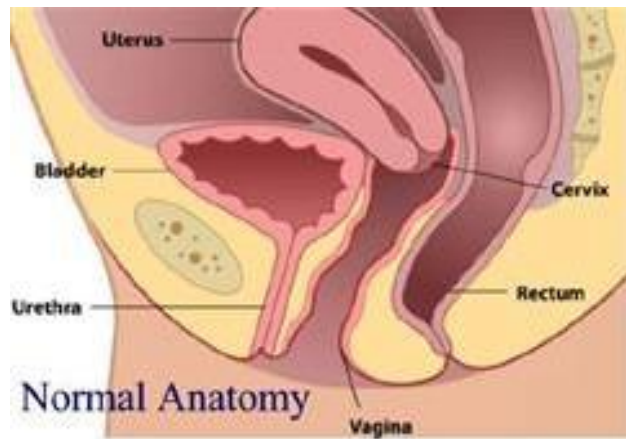


FIGURE 2: ANATOMY OF THE FEMALE PELVIC ORGANS [22]

Used with permission Mark Sillender <http://pearlobgyn.com/prolapse/>

1.4 Innervation

LUT is innervated by afferent and efferent neuronal complexes of peripheral neural circuits involving sympathetic, parasympathetic and somatic neurons (FIGURE 3). The efferent pathways are heavily myelinated whereas the bladder afferent pathways consist of myelinated A- δ fibres and unmyelinated C-fibres. The normal micturition reflex is initiated by signals from the A- δ fibres. The sympathetic nerves arise in the lateral horns of spinal segments T1-L2 and stimulate sphincter closure in the urethra as well as relaxation of the detrusor muscle during filling. [19-20]

The parasympathetic nervous system, which rises from the 2nd to 4th sacral segments of the spinal cord (FIGURE 3), is responsible for the contraction of the detrusor muscles during micturition while simultaneously relaxing the urethral sphincter. Similarly, the somatic efferent motor neurons also arise from the 2nd to 4th segments of the spinal cord. Somatic innervation not only maintains tone in the pelvic floor musculature but also provides excitatory innervation to the striated muscles of the external urethral sphincter. Apart from the spinal cord, the bladder is also

controlled by the higher centres; the influence of the brain stem is facilitatory and the cerebral cortex exerts a predominately inhibitory influence. [19]

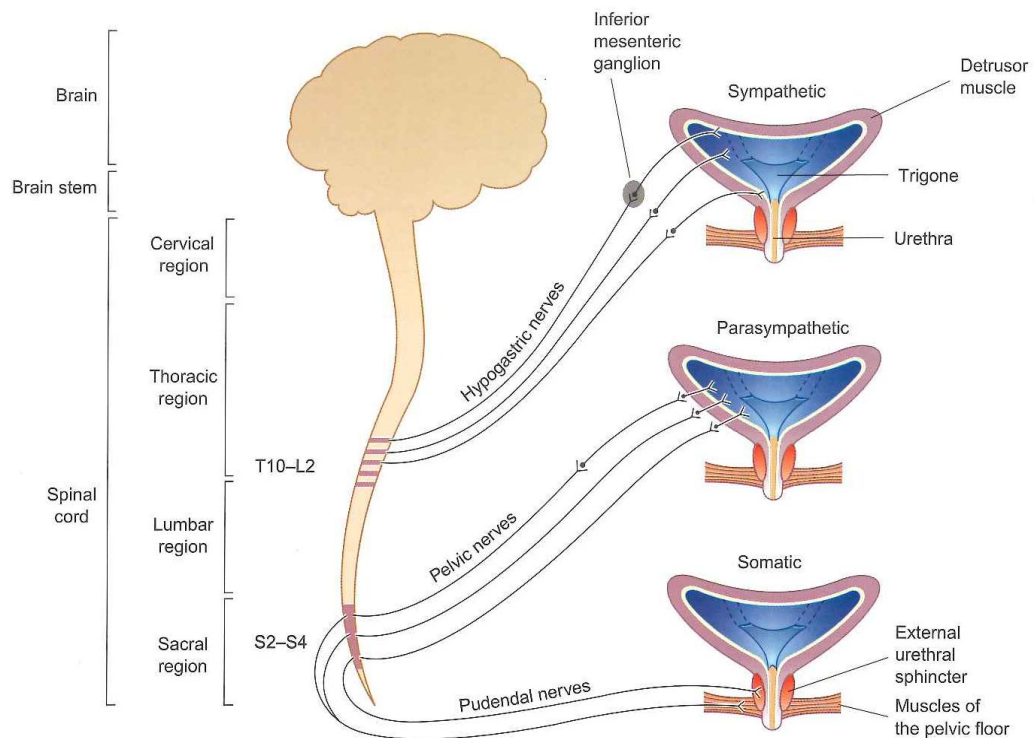


FIGURE 3: THE NEURAL CIRCUITS THAT CONTROL CONTINENCE AND MICTURITION [20] (By courtesy of Abrams and Weins, copyright 1998; used with permission)

1.5 Neurotransmission

The most important physiologic control for the urinary bladder is the acetylcholine activation of muscarinic receptors to contract the detrusor muscle [19-20]. Currently, 3 muscarinic receptor subtypes (M_1 to M_3) have been identified in the human bladder by receptor-binding assays. M_1 receptors appear to facilitate the release of acetylcholine in the human bladder but it is the M_3 receptors, which mediate the cholinergic-induced contractions of the detrusor muscle. M_2 is predominately found in the human bladder. Both the M_2 and M_3 receptors are

functionally coupled and act synergistically whereby the co-activation of M_2 receptors may enhance the detrusor response to M_3 receptors.

1.6 Normal bladder function

Bladder function involves a bladder filling and urine storage phase followed by emptying phase (FIGURE 4).

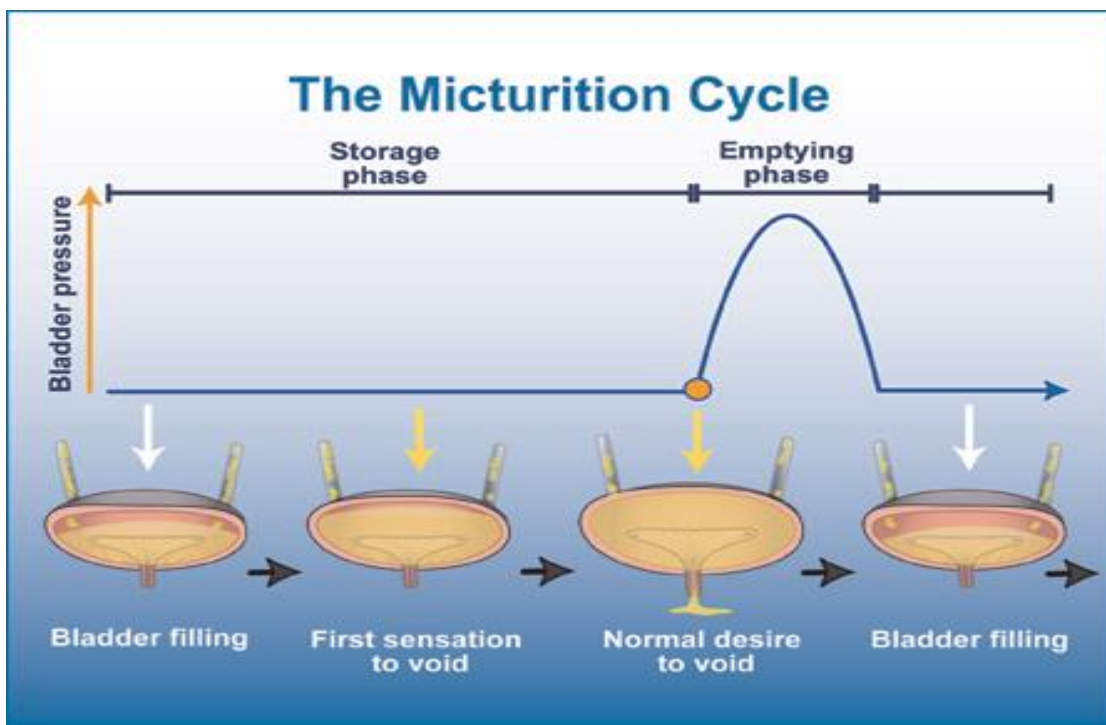


FIGURE 4: THE MICTURITION CYCLE [20, 23]

((By courtesy of Abrams and Weins, copyright 1998; used with permission)

1.6.1. Bladder filling/urine storage

The kidneys usually produce 1 to 2 litres of urine daily. Regular peristaltic contractions in the ureter propel the urine into the bladder. Normally, the bladder functions by filling and storing urine, including accommodating the increasing

volume of urine at low intravesical pressure. The sphincter usually remains closed during the increase in intra-abdominal pressure plus the absence of any involuntary bladder contractions. Usually, the detrusor muscle function enables bladder filling during the storage phase with little or no change in the intravesical pressure during early filling. When the bladder is empty, the bladder wall is extensively folded. Its intrinsic viscoelasticity enables the bladder wall to maintain a low and relatively constant pressure during bladder filling by expanding the length of the smooth muscles that make up the detrusor muscle hence allowing the bladder to stretch. In response to stretch, stretch receptors in the bladder wall are triggered, which generates continuous transmitter release with increasing afferent signaling mediated by myelinated A- δ sensory fibres. [19-20, 23]

The sympathetic nerves activated by this signaling inhibit the stimulatory parasympathetic pathway. It directly restrains detrusor contraction while stimulating contraction of the internal and external urethral sphincters, which maintain outlet resistance. The somatic outflow to urethral and pelvic floor striated muscles also inhibits the action of the parasympathetic outflow to the detrusor and at the same time causes the contraction of the external urinary sphincter. Therefore, during the bladder filling phase the neural pathways that stimulate the bladder for micturition are inhibited whereas the inhibitory pathways are active.

1.6.2. Bladder emptying

In order to empty the bladder, the normal function includes afferent nerves signaling a full bladder, coordinated contraction of the bladder smooth muscle of sufficient magnitude, concomitant lower resistance at the level of the smooth and striated sphincter muscles in the absence of anatomical obstruction. During filling the afferent pathways send information about the state of bladder fullness to the pontine micturition centre via the periaqueductal gray matter. As bladder filling continues, urethral resistance begins to rise and external urethral sphincter contractions progressively increases. But the urethral outlet remains closed thus raising the urethral pressure.

When bladder volume reaches a critical threshold, pelvic nerve afferents trigger the micturition reflex. Initially, when the volume of the urine has reached approximately half its physiological capacity, the micturition centre in the brain integrates the sensory information and the woman has a sensory awareness of a “full bladder”. As the bladder filling continues and the volume reaches 75% of bladder capacity, the desire to urinate is triggered (FIGURE 4).

Voiding reflexes involve supraspinal pathways under voluntary control. [19, 23] Voiding involves coordinated contraction of the bladder smooth muscles with simultaneous lowering of urethral resistance and opening of the bladder neck. The micturition centre starts the inhibitory input to the sympathetic and somatic centres in the spinal cord and stimulatory input in the parasympathetic centre (Figure 3). The spinal parasympathetic outflow is activated leading to bladder activation,

predominately via acetylcholine activation of M_3 receptors. At the same time, the sympathetic outflow to the urethral smooth muscle and somatic outflow to urethral and pelvic floor striated muscles are stopped resulting in the outflow region relaxing. The pressure in the bladder increases and allows the urine to flow through the relaxed urethra. The flow of the urine causes further secondary reflexes that facilitate bladder emptying. Micturition is a process in which neural pathways in the brain and spinal cord coordinate the activities of the bladder and urethra, alternating the LUT between filling, storage and elimination.

1.7 Age- related changes in the lower urinary tract

The development UI is a multifactorial process and several age-related changes may contribute towards it in the absence of urological disease. At the cellular level, the bladder may undergo several adaptations. Gomelski and Dmochowski [21] had cited Elbadawi et al.'s findings of a 'dense band pattern' represented in a structurally normal variation of the aging detrusor muscle. Apparently, this pattern was characterized by an overall normal configuration of muscle cells and cell junctions, but the muscle cell membrane was dominated by dense bands with depleted caveolae in interposed zone.

There was also slight widening of the space between muscle cells with little collagen content. In addition, several structural changes of the urethra may also be seen with advancing age. As women undergo the menopausal transition, the level of oestrogen in their vaginal and periurethral tissues is reduced. Further decrease also occurs in the vascularity of the urethral submucosa. Thus, the watertight seal might

be affected and women may be at risk of developing SUI. The rationale is that the number and density of the urethral striated muscle fibres both along the dorsal and ventral walls of the urethra and the bladder neck decline with age.

The drastic aged-related decline in the number of striated muscle cells may be attributed to apoptosis. Also, there is an age-related increase in the connective tissue in the paraurethral area. [21] From the urodynamic study, several changes were also observed in the aging bladder. The maximal urethral closure pressure appears to decrease with age. One study of incontinent women over aged 55 years reported 77% were suffering from SUI. Both bladder sensation and the ability to postpone voiding decreased, while the idiopathic detrusor over activity had increased. [21]

SUI is usually a result of weakness of the pelvic floor and poor support of the vesico-urethral sphincteric unit. Contrary to common beliefs, urodynamic studies had demonstrated that under stress conditions such as sneezing and coughing, involuntary detrusor contractions associated with the sensation of urge, may be triggered, which can be compatible with the diagnosis of UUI. This is the second most common type of UI and it is characterized by urge associated with an involuntary loss of urine. UUI is further subdivided into motor UUI in which uninhibited detrusor muscle contractions are associated with the sensation of urge and the sensory UUI in which the sensation of urge is not associated with detrusor muscle contractions. [19-20, 23] Both the sphincter and urethral resistance are intact. To elicit the diagnosis of UUI, the patients could be asked if there was any urine loss preceded by a sensation of urge, or precipitate, uncontrollable voiding with little or no warning time before hand.

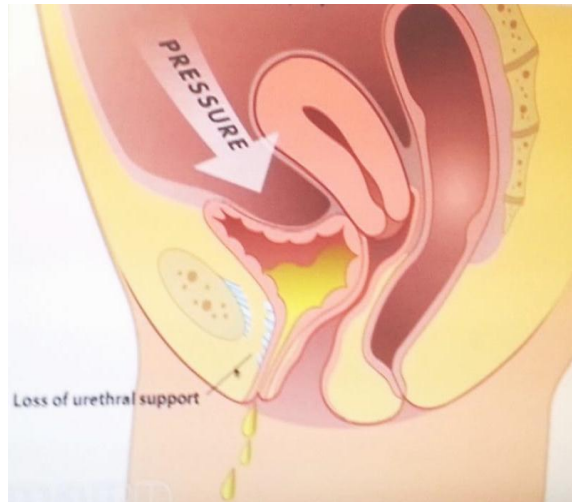


FIGURE 5: DIAGRAM ILLUSTRATES THE OCCURANCE OF SUI DUE TO ABDOMINAL PRESSURE ON THE BLADDER [22] used with permission Mark Sillender <http://pearlobgyn.com/prolapse/>

Anatomic and neurologic pathology can occur during the life time of the female patient; with childbearing, hormonal changes due to menopausal transition, surgical intervention and aging (FIGURE 5). The site of pathologic injury in this complex system determines the type of incontinence that results. [24] For many years, the posterior vesicourethral angle has been considered a key factor indicating the presence of anatomic stress incontinence (FIGURE 6). Some authors, however, have emphasized the axis of inclination, that is, the angle between the urethral line and the vertical plane while other investigators stress bony landmarks in the pelvis in their descriptions of the relationship of the bladder base and the vesicourethral junction to the sacrococcygeal inferior pubic point.

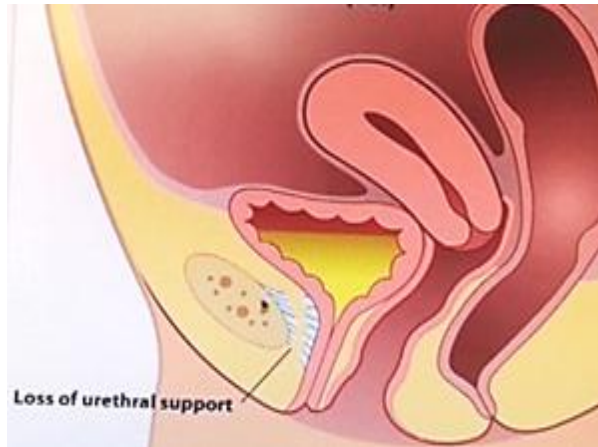


FIGURE 6: DIAGRAM SHOWS THE LOSS OF UTETHRAL SUPPORT TO THE BLADDER DUE TO CHILDBIRTH [22] Used with permission Mark Sillender <http://pearlobgyn.com/prolapse/>

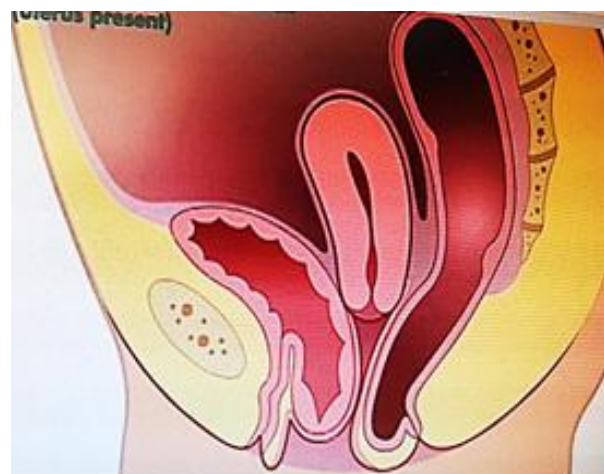


FIGURE 7: DIAGRAM ILLUSTRATES THE DISPLACEMENT OF BOTH THE POSTERIOR VESICURETHRAL ANGLE AND THE BLADDER BASE RESULTING IN THE DEVELOPMENT OF SUI [22] used with permission Mark Sillender <http://pearlobgyn.com/prolapse/>

1.8 Pelvic organ prolapses

Genuine stress UI is invariably associated with weakness of the pelvic floor support, permitting hypermobility of the vesicourethral segments, which in turn

impairs the efficiency of the sphincter musculature (FIGURES 6, 7 and 8). Its basic features are: an essentially intact sphincteric mechanism, a weak pelvic floor support and an anatomic abnormality. [24] Some women will suffer from transient UI especially those with excess intake of caffeine or alcohol, stool impaction, restricted mobility, and the use of certain classes of pharmaceutical agents. Transient UI does resolve spontaneously when associated risk factors are either eliminated or reduced. During aging, disease or neurogenic lesion, women may experience muscarinic receptor dysfunction. They develop abnormal up-regulated mechanism that normally have little clinical importance but could contribute to the pathophysiology. [19-20, 23]



FIGURE 8: DIAGRAM ILLUSTRATES WEAKNESS OF THE PELVIC FLOOR AND POOR SUPPORT OF THE VESICIOURETHRAL SPHINCTER UNIT [22] used with permission Mark Sillender <http://pearlobgyn.com/prolapse/>

However, some UI types will gradually become chronic and progressive in nature; neuropathic incontinence varies depending on the nerve lesion. The

incontinence can be active (detrusor hyperreflexia) or passive (sphincter atony) or occasionally, a combination of the two. Congenital incontinence is caused by ectopic ureters, duplicate or single system, with epispadias, atrophy or cloacal malformation. False (overflow) incontinence: is usually the result of an obstructive or neuropathic lesion. Traumatic incontinence is associated with fractured pelvis or with surgical damage to the sphincter during bladder neck resection or extensive internal urethrotomy. It may also result from failure of urethral diverticulectomy or repair of erosion of an artificial sphincter. Fistulous communication can be a ureteral, vesical or urethral fissure. Most of the time, the cause is iatrogenic from either pelvic or vaginal surgery. [24]

Data from the National Overactive Bladder Evaluation, in the US [21] indicated that 37% of patients with OAB did experience incontinence while 63% did not. The prevalence of OAB ‘wet’ (UII) increases with age and overall it was more common in women (9.3 vs 2.4%) than in men, who complained more of OAB ‘dry’ (non-UII). [19] A health-related quality of life (QOL) survey showed OAB caused QOL limitation and/or impacted various activities of daily living including physical activity, psychological wellbeing, social activities, sexual activities, occupational productivity, and domestic logistics. The patients had also expressed loss of self-esteem, fear of becoming incontinent in public and depression. [21]

The introductory chapter has attempted to provide an overview of various issues influencing the study of UI; global and local prevalence of UI, classification of UI types; treatment seeking behavior, anatomy of the LUT, physiology of micturition,

pathophysiology of UI and its impact on the women's QOL including some associated risk factors. The knowledge gap identified following literature review is as follows:

1.9 Problem statement

UI is a common problem that is under reported in Malaysian women. This stems from numerous differences in the questionnaire design used in the documentation of the prevalence and risk factors in the Malaysian women. Further studies are necessary, for example, using a standardized translated version of the Women Health Questionnaire in Malay, Mandarin and Tamil to document the prevalence of UI, together with the identification of the potential risk factors, or exacerbating factors in Malaysian women in Selangor. Although UI is frequently referred to as a “silent epidemic” but there is a lack of documented evidence on how the Malaysian women with UI experience this phenomena and what impact it has on the QOL of the individual, spouse and care giver.

1.10 Justification and rationale of the study

Some earlier studies have reported that there might be ethnic differences in women reporting on their urinary symptoms and the various types of UI they are afflicted with. But no study has been done in Malaysia with its ethnic diversity and also using the 2002 ICS terminology in their questionnaire. In this study, Questionnaire UI Diagnosis (QUID) uses terminology based on the International Continence Society 2002 guidelines and is recognised as a standardised instrument for the documentation of urinary incontinence. Additional risk factors predisposing

women to UI have been noted in recent studies. Younger aged women, overweight or obese women and sedentary lifestyle have been associated with UI but, once again no such study has been conducted in Malaysian women to explore these predisposing factors. Difference in treatment seeking behaviour has also been reported between women from developing and developed countries as well as women from higher and low income category. But this too has not been explored in detail in Malaysian women. Cross-cultural differences in the attitude and perception by women with UI exist but no phenomenology study has been undertaken in Malaysian women.

1.11 Importance of the study

Even though maternal mortality reduction has been impressive in Malaysia, it has reached a plateau in recent years. There are still unmet needs and issues surrounding women's health that require much attention. UI in women in Malaysia is one area that has not been adequately examined and requires attention. Appropriate instruments have to be designed and used to investigate the prevalence of UI, its consequences on the QOL and the attitude towards treatment of UI in women in Malaysia. The questionnaire that is used should be in the major languages used by the local population. In this regard, a standardised instrument in English, Malay, Mandarin and Tamil version was used to document accurately the prevalence and current risk factors associated with UI in this population based study. The evidence documented will contribute towards the Malaysian body of knowledge in urology clinical practice. UI has been dubbed "the silent epidemic" and majority of Malaysian women continue not to voice their suffering and avoid seeking any form of treatment.

Particularly surgical intervention; perhaps due to the embarrassment of having to expose themselves to others including health professionals.

The phenomenology study is intended to provide an insight to the Malaysian women's experience of the phenomena and the perspective of the individual, her spouse or care giver to the experience. Appropriate guidelines to the Ministry of Health will enable health professionals to deal with women with UI with greater sensitivity. This may increase the level of compliance to the management of UI.

1.12 Aims of the study

The aims of this study are

- To ascertain the prevalence of UI in women living in Selangor using QUID
- To identify specific risk factors of UI among Malaysian women living in Selangor
- To examine whether women with UI are influenced by their own, family or health providers' stigma and attitude towards UI which may impact upon the sufferers' treatment seeking behaviour
- To explore the impact of UI on the QOL of women and whether their relationship with their spouse and carer is affected

1.13 Research hypotheses

- The prevalence of UI in Malaysian women is higher than reported
- There are other risk factors causing Malaysian women to be susceptible to UI
- The impact of UI decreases the QOL, relationship with the spouse, and care giver
- Negative attitude and stigma to UI has a negative impact on the women's treatment seeking behaviour

1.14 Research null hypotheses

- The prevalence of UI in Malaysian women is the same as reported in previous studies.
- The risk factors are similar to those reported in previous studies
- The impact of UI did not decrease the QOL, relationship with the spouse, and care giver
- Women with UI are unaffected in their treatment seeking behaviour by their own or health providers' stigma and negative attitude towards UI

1.15 Research questions

- Has the prevalence of UI been documented accurately in Malaysian women compared to other studies conducted in Asian and Western countries?
- Is there is any difference in the risk factors compared to previous worldwide and local studies, which might contribute towards the development of UI in Malaysian women?
- Are Malaysian women with UI influenced by their own, family or health providers' stigma and negative attitude towards UI, which may impact upon the sufferers' treatment seeking behaviour?

CHAPTER 2

LITERATURE REVIEW

2.1 Terminologies used for lower urinary tract symptoms

During the 1990s, terminologies like “stress incontinence”, “urge incontinence”, “dysuria” and “detrusor instability” were used in reports on LUT symptoms (LUTS). [25] In its attempt to standardise the terminologies used, in 2002 the International Continence Society (ICS) introduced major recommendations, making a number of terms obsolete and discouraging the use of others. [2, 10, 25-27] Specific terms and phrases were recommended for use in publications and in clinical practice to reduce ambiguity. To examine the usage of these recommended terminologies by, for example, the members of the British Society of Urogynaecologists [2] searched articles were indexed in the Scopus database over a period of a number of years. Their findings suggested that even though the 2002 ICS report had recommended the replacement of terms like “dysuria” with “urethral pain” and “vulvodynia” with “vulva pain syndrome, there was however a poor adoption of these suggested words. Instead the usage of both words “dysuria” and “vulvodynia” had grown.

The qualifier word “urinary” was introduced to both stress and urge incontinence. Once again only a modest increase in its use was observed in current papers. [2, 25] “Urge incontinence” was used more widely than urge UI before and

after the 2002 ICS report. Interestingly, “UUI had started to gain recognition from 2004 predating its inclusion in the 2009 report. “Neurogenic detrusor over-activity” was unrecorded in the Scopus database prior to 2002, and by 2004 was more commonly used. “Uro-dynamic stress incontinence” was introduced to replace “genuine stress incontinence” but by 2005 it was however still not as well used as the previous term “genuine stress incontinence”. The study concluded that there remains confusion in the use of more obscure terminology and it might have significant implications both for clinical practice and for communication of research findings. This might have compromised the interpretation of data in numerous studies determining the prevalence and the impact of UI on the QOL and might account for the widely variable prevalence of UI reported.

With respect to its definition, the two most commonly cited definitions are those proposed by the 2002 ICS report [28], which defines UI as “the complaint of any involuntary leakage of urine” and that by the UI Guidelines Panel in 1996 [28-29], which defines UI as “the involuntary loss of urine that is sufficient to be a problem. Both these definitions are basically subjective and are used commonly for prevalence studies. Not only do these definitions not capture the extent or severity of the incontinence problem, they are however also very subjective in that the volume and frequency of leakage perceived by an individual as being very problematic are not well reported. Moreover, the ICS further states that incontinence always requires further definition/description and must include factors such as type, frequency and severity of leakage, effect on the QOL [27, 30-31] and whether or not the individual wishes to seek treatment. [28] All of these have not been uniformly captured in all the

prevalence studies, and hence the widely ranging reported prevalence between studies.

Some authors have suggested the use of a validated tool to “quantify” the severity or impact of UI. [34] For example, the Second International World Health Organisation (WHO) Consultation on Incontinence recommended the severity index developed by Sandvik et al. [16-18] This tool utilized frequency and volume of leakage to classify the incontinence as slight, moderate or severe. This index has been validated against pad weight tests and used in studies conducted by Nihira & Henderson [33] and Sandvik et al. [16] and cited by Doughty. [30] Preliminary results from studies using this severity index have indicated a positive and significant correlation between the severity index and the patient’s subjective rating of “bother” associated with the UI. These findings seem to support the need for the use of standardised definitions and the inclusion of the severity index in all study tools used to document the impact of UI on the QOL of the sufferer. Inclusion of all these will provide a better measure of the extent of the problem in a population.

2.2 Questionnaires used in previous local studies in Malaysia

Most recent local studies have been community or clinic based cross-sectional studies using English language questionnaires either from Britain or America. For instance, Low et al. [14] had administered the English version of King’s Health Questionnaire, International Prostate Symptoms Score QOL assessment index and the Bristol Female Lower Urinary Tract Symptoms Questionnaire to Malaysian women

aged 19 years and above and living in Penang and Kedah. Quek et al. [34] used a validated English version of the General Health Questionnaire (GHQ-12) among urological patients with and without LUTS to assess QOL. Mohd Sidek [35] had used a validated Malay version of the Barthel's Index (BI) in her cross-sectional study to determine the prevalence of UI and its associated factors among the elderly in a rural community in Selangor.

Dhillon et al. [15] in their study on menopausal women living in Kelantan used both an English and Malay version of the validated and reliability tested semi-structured questionnaires designed specifically for postmenopausal women living in Kelantan to document the postmenopausal complaints, including UI. Finally, Zalina et al. [36] had used a standardized questionnaire to a cohort of medical and nursing student population in Ipoh Perak, but unlike Low et al [14] they had used the International Consultation on Incontinence Questionnaire (ICIQ)-FLUTS [34] instead. From the ensuing literature review, there appears a wide variation in the prevalence of UI amongst women, which seem to result from differences in the use of terminologies, definitions, sampling techniques etc. For instance, the prevalence of LUTS in Malaysia ranged from 19% [14] in women who had attended health centres outpatient's clinics in North Malaysia to 34.9% [36] in a cohort of nulliparous female medical and nursing students at an institution in Perak.

It appears that although numerous local studies have been conducted on women over the last two decades, these studies had used a variety of questionnaires in different settings in selected cohorts with the prevalence of UI that varied widely, and might therefore not be truly reflective of the extent of the problem of UI in Malaysian

women as a whole. Some of the local studies mentioned above had reported the prevalence at 34.9% [36], 40% [15], 19% [14] and 9.9% [35] respectively. In view of the magnitude of the health problem, it is imperative that more attention is paid to early intervention (primary intervention) as this might help to alleviate the complaints, or reduce suffering and burden of UI as well as reduce its impact on the QOL. For this to be possible a more reliable and standardised questionnaire has to be used to get a better measure of the prevalence and magnitude of problems associated with UI in the Malaysian women.

TABLE 1: LIST OF SOME MALAYSIAN STUDIES -2001 to 2015

Authors	Country	Design	Setting	Subjects	Age	Questionnaire	Prevalence of UI and associated factors
1.The Asian Society for Female Urology (ASFU) Lapitan & Chye (2001) [9]	Eleven Asian countries including Malaysia , Philippines, Thailand, Indonesia, Singapore, India, Pakistan, Taiwan, Korea, Hong Kong, China	Cross-sectional questionnaire survey	Women attending two health care outpatient clinics with no history of urologic or gynecological problems Women selected randomly	n=5502	18-70> years	Panel of experts from Asia Pacific Continence Advisory Board (APCAB) devised 34 items multiple choice, validated questionnaire translated from English	Malaysian women UI - 13.1% (n=351) Asian women's risk factors included older age, multiparity, a positive family history, residence in a rural area and use of a sitting type of toilet, higher income, and manual labour

2. Low et al (2006) [14]	Kedah and Penang Malaysia	Cross-sectional interview based survey	Women attending two health care outpatient clinics with no history of urologic or gynecological problems Women selected randomly	n=2732	>19 years	1. King's health questionnaire, and 2 questions from Bristol Female lower urinary tract symptoms (FLUTS) on SUI & UUI	64.5% (n=335) of the 519 patients with FLUTS had associated urinary incontinence. Risk factors were; age 50 years and older, parity of 4 or more, illiteracy, postmenopausal status, presence of one or more concomitant chronic medical illness
3.Dhillon et al. (2006) [15]	Some districts with the state of Kelantan, Malaysia	Cross-sectional, community-based survey	Post-menopausal women living within their communities Convenience sampling.	n=326	40 -70 years	Panel of women health experts at University Sains Malaysia devised the semi-structured menopause quality of life questionnaire in Malay language which was cultural congruent to the local population	SUI (40%) and UUI (24%) in association with Menopause Quality of Life
4.Mohd Sidek, S (2010) [35]	Sepang district Selangor, Malaysia	Cross – sectional community based survey	Participants were from traditional villages, small towns and one indigenous village. Stratified cluster sampling.	n=263	60 years >	Translated Malay version of the Barthel's Index: Urinary incontinence	UI- 9.9% among the elderly (60> years).Risk factors; age, gender, depression, functional dependence and diabetes mellitus

5. Zalina et al. (2011) [36]	Educational institution at Ipoh Perak, Malaysia	Prospective, cross-sectional institution-based survey	Nulliparous, single and not sexual active medical and nursing female students	n=200	18–29 years	Self-administered standardized questionnaire ICIQ-FLUTS (English and Malay language)	SUI 21.9%, UUI -11.6%, LUTS -52.7% consisting of overactive bladder, UI and avoiding difficulty respectively (51.3%; 34.9%; 45.2%)
6. Samiah Yasmin et al. (2013) [104]	Outpatient clinic @Health centre Seberang Takir Kuala Terengganu, Malaysia	Cross-sectional clinic-based survey	Married women who were patients at the clinic and could speak either English or Malay were selected. Systematic random sampling	n=480	20-60 years	A structured questionnaire using Bristol Female Lower urinary tract symptoms (BLUTS) questionnaire. A Malay language version was made available	UI - 44.1%; SUI-52%, UUI (19.1%), MUI (25.4%). Risk factors: married, younger and middle-aged women, increase in BMI, parity, types of delivery, gynecological operation e.g. dilatation & curette, hysterectomy.
8. Dariah Mohd Yusof et al (2014) [103]	Six maternal and child health clinics in 6 districts in Kelantan, Malaysia	Cross-sectional, clinic-based study	Postnatal mothers who had delivered 3 – 5 months ago; could read and comprehend Malay language. Convenience sampling	n=362	18-45 years	Self-completion questionnaire specifically for Traditional Malay Confinement Care (TMCC) and revised urinary incontinence scale including 26 other questions	PNUI-22.1% among postnatal women in Kelantan. Risk factors: UI before pregnancy, UI during pregnancy, vaginal deliveries in younger women, maternal BMI, maternal age > 30 years old and instrumental deliveries, vaginal birth damage the

							tissues of the pelvic floor.
9.Ahmad, Aznal & Tham (2015) [104]	Tertiary hospital Negri Sembilan Malaysia	Cross-section, hospital-based study	Women attending gynecological clinic for various diagnosis other than urinary problem. Universal sampling.	n=573	18-61> years	Self-administrated OAB-screener questionnaire as adapted from the International consultation on incontinence questionnaire (ICIQ). Translated to Malay language	Over active bladder - 19.1%. Risk factors macrosomic babies, utero-vaginal prolapse, advanced age, high parity and menopausal more than 5 years

In a review of seven studies investigating the prevalence of UI in Australia, Botlero et al [37] found the prevalence of UI ranging from 12.8 – 46%. The reason/s for this wide variability in prevalence rate is not clear, and the authors suggest that this might result from differences in the definitions used, duration of the reference period, or even the design of the questionnaire used. In a more recent prevalence study, the same authors had used the Questionnaire for UI Diagnosis (QUID). [38] They reported the overall prevalence of UI in Australia as 41.7%. [37] The QUID research instrument was described as a short, valid and responsive instrument that could serve as a diagnostic tool to determine the types of UI. [20]

2.3 Use of validated questionnaires -QUID, MENQOL, PFDI, PGWBI

After reviewing the various questionnaires used by fellow researchers in Malaysia, QUID appears superior because it is user friendly and might be used easily

by various health professionals within any healthcare settings and homes. Apart from the English version, QUID is also available in three other languages, Malay, Mandarin and Tamil, translated according to the MAPI Research Trust [93] linguistic guidelines [94]. Since it only contains six questions it can be used as a preliminary screening tool to determine if a patient has UI, the type of urinary incontinence and how bothersome it is to the individual.

No standardised research instrument to measure the prevalence of UI has been used in Malaysia, nor has a population based study on UI been conducted in the female Malaysian population. Therefore, this six-item questionnaire (QUID) is intended to be used to determine the prevalence and incidence of UI in the Malaysian women more accurately [98]. In addition, using a standardised tool that has been used in different populations could provide for a better comparison of the prevalence and incidence in Malaysia.

Currently, numerous validated and reliability tested international questionnaires are available to study the prevalence of UI, but to determine the most user friendly and culturally congruent questionnaires for a population based survey of Malaysian women is daunting. Previous comparative studies between American, European and Asian women had used epidemiological questionnaire in the American English language to collect data from Malaysian women attending outpatient clinics. [7-8, 12-13, 30, 39] It is possible that some of the terms used in the questionnaires might not have been comprehensive to Malaysian women and the investigators who had been mostly educated using British education system. Moreover, some of the

questionnaires had more emphasis on UUI and may have failed to capture the extent of the UI.

The Asia Pacific Continence Advisory Board study conducted by Lapitan & Chye [9] had documented a prevalence of UI as 14.5% in a study of 351 Malaysian women. The study group consisted of randomly selected women attending 2 selected health centre outpatient clinics in Malaysia and had no history of urologic and gynaecologic problems. The questionnaire used consisted of 34-item multiple choice questions, which were translated from the English language into the local dialects common to the people of these countries. They were validated and administered by medically trained personnel. It is however, unclear which dialects were used in the questionnaire. Furthermore, whether the questionnaire used had undergone appropriate linguistic validation was also unclear. Their findings also stated that MUI was the common type of UI in Asian women (63.8 %) compared to Caucasian women (50 %). [7-9, 16]

The Asian Society for Female Urology (ASFU) [10] had conducted a similar survey in eleven Asian countries using a questionnaire similar to that used by the European and US community dwelling women. [10] They reported a significant disparity evident in the prevalence of UI, which was attributed to the method and questions used in the Asian study. The author reported that the questions used to establish the prevalence of UI were different from the US and European surveys. The questions appeared to be leading towards an answer favouring UUI. They further stated that the discrepancy between the rates in Asia from that of European and

American rates could also be attributed to the method and questions used, although cultural difference and ethnicity may have contributed to the discrepancies.

For example, Diokno [10] cited Mallett and Graham study, who reported that there is a significant difference in the prevalence of SUI between African-American (22%) and American Caucasian women (46%) respectively. This indicated that many factors had to be considered in order to choose the most appropriate tool in collecting the data. Presently, no large scale local population based study using validated questionnaire translated into the local languages has been conducted on Malaysian adult women of all age groups to confirm this. In addition, most of the questionnaires used to date have for most part ascertained the prevalence of “urge” or “stress” or “mixed” UI and there has been very little on incontinence in the absence of stress or urge.

2.4 Risk factors of urinary incontinence

UI has been associated with several risk factors although their exact role remains to be clearly established. [51-54] Ageing [41, 44] or advancing age [42, 45-46], labouring occupation [42], frequent urinary tract infections [42, 52] and previous gynaecologic or urologic surgery [42, 45], obstetric history [42, 47, 55], menopause [42, 47-48, 52], postmenopausal hormone therapy [54, 57], oral contraception [46] (hysterectomy [46] obesity [44,50], body mass index and weight gain [32], type 2 diabetes [51], cough in chronic obstructive pulmonary disease, occupational lifting and chronic constipation [55] have all been considered as possible risk factors.

Although a lot of studies have identified some potential risk factors for UI, there are also significant conflicting reports on the impact of these risk factors on UI. For example, numerous studies have suggested a significant association between UI and mode of child delivery. [56-60, 67] Further, both McNevin [61] and Perry et al [62] had also suggested that the primary cause of faecal incontinence is related to pregnancy carriage and childbirth, regardless of route. However, there are also studies that have failed to show any significant association between UI and the mode of delivery [63] or even the number of deliveries. [64-65] Again, the reason for this discrepancy is unclear.

In addition to UI, some child-bearing and older women from all ethnicities also suffer simultaneously from bladder, uterine and/or rectal prolapse [60, 66, 70] collectively known as pelvic floor disorders (PFD). The term PFD is used to define a displacement or malfunction of one or more pelvic organs. When these anatomical structures and its network of muscles, ligaments, and other tissues that hold up the pelvic organs, are no longer functioning adequately, UI (involuntary loss of urine), fecal incontinence (involuntary loss of feces), constipation, rectal pain, vaginal and/or rectal prolapse, pelvic pain/trauma, and sexual dysfunction results. [27]

Pelvic floor distress symptoms in women are now increasingly recognised as insidious health problem. Pelvic floor distress is usually under diagnosed and results in decreased QOL. [66-68] The prevalence of female UI and faecal incontinence (FI) however is still not well documented in Malaysia, especially in relation to its risk

factors, help-seeking behaviour and its impact on QOL. Such documentation is necessary if we wish to effectively prevent or manage these health-related problems.

Hereditary is another risk factor for pelvic organ prolapse (POP). In the Women's Health Initiative, almost one fifth of nulliparous women had some degree of prolapse [67]. McLeannan et al., [68] reported that studies had established family history as a risk factor for pelvic disorders including urinary incontinence. They went on to report that Vico and Yuan [68-70] cited by McLeannan et al., [68] had documented a differential gene expression for the structural proteins in the pubococcygeus muscle between five women with prolapse and five controls. Vico and Yuan's findings cited in Allen et al's study [69] had concluded that the differences are the result of either genetic mutation or genetic inheritance. A recent American study has provided evidence for predisposition genes on chromosome 9q21 in some families with pelvic organ prolapse [60] but this result awaits further confirmation.

In the older age group, some investigators had postulated that multiple factors, especially those seen during climacteric, e.g. menopausal status [45, 53, 71] and postmenopausal hormone use [49, 54, 57] may account for the aetiology of UI in some of the postmenopausal women. Interestingly, low educational level and low family income have also been mentioned as possible factors contributing to UI. [47]

Although UI is often associated with significant physical morbidity, loss of independence, decreased QOL and decreased participation in social and domestic activities [45, 71-72], very little is however known about changes in its severity over time, including remission or improvement of symptoms, especially in younger and

middle-aged women. This information is of great importance for the management of UI in general, and without appropriate treatment or management, UI may lead to serious psychological and social complications such as depression, anxiety, embarrassment and low self-esteem in these women. [63] Further studies are necessary to document the prevalence of UI, together with the identification of the potential risk factors, or exacerbating factors in Malaysian women in Selangor.

Health related quality of life (HRQOL) represents the patient's evaluation of the impact of a health condition (menopausal symptoms) and its treatment on daily life. The Menopause Quality of Life Questionnaire [73, 90] is a multidimensional, reliable validated condition-specific QOL instrument and is considered appropriate for use in Malaysian women since its translation into Malay, Tamil and Mandarin language. Additional questions on reproductive health and behaviour lifestyle are also available in these three major languages in order to identify risk factors in contributing to pelvic floor distress symptoms particularly UI in Malaysian women.

2.5 Health-Related Quality of Life (HRQOL) of women with UI

The PRO Harmonization Group definition of HRQOL was used as a reference point in Zollner et al's study [73] of reviewing various questionnaires used to assess HRQOL during and after a health condition. HRQOL represents the patient's evaluation of the impact of a health condition and its treatment on daily life. [74] The perception that it is "normal" for women to have UI [48, 74-75] and that the condition is perceived by the public as more of a women's health problem than men [77-78] needs to be explored particularly among Malaysian women as it could influence the

approach to its prevention and management. Another common view shared by both public and health workers is that UI is associated with ageing, which may prevent its early recognition and therefore its early management or may prevent many women with urinary incontinence from seeking help [53, 78].

It has been reported that female UI, urgency and frequency significantly impair the QOL of both young and older women and also has negative effect on the partner's relationship. [4] The impact of UI on a women's own emotional health is increasingly apparent. There are many studies showing the association between involuntary urine loss and indicators of psychological distress or subjective burden. [79-81] The effect of UI on the emotional health of partners and family and spousal caregivers has been relatively neglected. It would be interesting to examine the psychosocial impact on the onset of spouse's incontinence and to look at the relationship between UI and marital disharmony or divorce.

Among adult patients, discussions about UI are usually avoided because they evoke feelings of embarrassment, fear, shame, and the loss of independence. [65] Incontinence has been associated with falls, functional decline, nursing home admissions, social isolation, and depressive symptoms. [11, 27] Patients are not always comfortable talking about the subject with their doctors, so it can be a challenge for clinicians to inform the afflicted woman about the condition and her treatment options. Another perspective observed in women living predominantly in Islamic countries like Malaysia [76], Pakistan [65, 82] and Indonesia [82] is that UI is equated with uncleanness or poor hygiene. There is a huge barrier of denial and

concealment that must be overcome through health awareness [65, 76, 82] before QOL can be improved.

Similarly, pelvic floor distress (PFD) symptoms are often recognised as complaints that can significantly impact the well-being and QOL of women. In addition to the negative impact of PFD on the QOL of women, there is now a growing belief that complaints associated with PFD appear a lot earlier in life than previously thought and progressively worsen with age in some women. [40] Botlero et al. [83] used the Psychological General Wellbeing Index (PGWBI) in their Australian study on UI. It covered five domains namely; depression, anxiety, tension/stress, health and general wellbeing. After obtaining permission from MAPI Trust, the PGWBI has been translated into Malay, Mandarin and Tamil language and is considered an appropriate instrument to be used by Malaysian women in assessing their QOL. The additional data obtained from in-depth interviews will explore both the woman and her partner or family member/care giver's QOL.

2.6 Treatment-seeking behaviour

There is little doubt that UI is a problem that often goes unreported by majority of adults who are anxious to conceal the problem or are reluctant to discuss it [4, 79]. Both Shaw et al., [64] and Wilkinson [65] have documented the consequences of UI, which include work-related difficulties and even, to some extent, social impairment. Low et al. [14] concluded that 88.6% women had complained of moderate symptom of UI and 11.4% suffered from severe symptom of UI. In terms of severity 50% of patients with FLUTS were mostly dissatisfied, unhappy or felt

terrible about their condition. Only a low percentage of patients with FLUTS sought treatment despite the severity and its impact on QOL. Among those who did not seek medical treatment, 76.9% revealed that the major reason was a lack of understanding of urinary symptoms and of the availability of effective treatment. They did not perceive it has a major health problem. Only 1% (n = 23) of patients with FLUTS actively sought treatment. The risk factors for FLUTS were age $50 \geq$ years and above, parity of 4, illiteracy, postmenopausal status and the presence of one or more concomitant chronic medical illness. Low et al. [14] had suggested a need for a systematic and effective dissemination of information regarding FLUTS through a properly structured healthcare system targeted at the risk group.

Even though, the psychosocial and socioeconomic burden of pelvic floor disorders remains poorly estimated, recent reports, albeit preliminary, nevertheless suggest that these complaints are associated with significant direct and indirect financial costs arising from both the loss of output and treatment of these complaints. [38,71,79] With the increasing life-span, which now stands at over 81 years in some developed nations, this burden does certainly increase with time as the number of women in a given population increases.

Based on the self-reported evidence in Mohd Sidak's study of UI among 223 elderly Malaysians living in Sepang district Selangor, approximately 1 in 10 (10%) were afflicted with UI. [35] The researcher suggested that a larger and more-in-depth study might reveal a much higher prevalence among Malaysians aged 60 years and above. In addition to that, treatment-seeking women do report that pelvic floor

disorders seriously disrupt their lives. [75] Complaints associated with pelvic floor disorders, particularly UI, can therefore no longer be placed as affecting a small minority but are complaints that affect a significant population requiring adequate attention. Hence detection of this problem is vital in order to prevent complications and improve QOL. A trilingual questionnaire consisting of medical history, demography and socio-economic status of the Malaysian women as well as in-depth interviews will certainly help determine more accurately the Malaysian women's treatment seeking behaviour.

2.7 Management of UI

In the past, different specialists tended to treat each pelvic floor disorder as a separate anatomical entity, often not addressing the symptoms of the neighbouring organ. However, the longitudinal concept of separate systems-urological, gynecological and colorectal is now regarded as pointless in favour of a more transverse concept of the female pelvic organs as a functional unit. [84] Therefore, when women approach general practitioners with their problems, they need to be referred to one specialist, a urogynecologist, rather than consult a urologist and then a gynecologist or *vice versa*. It would help to reduce the woman's embarrassment of seeing too many specialists as well as maintain her dignity and respect in dealing with an issue, which is both sensitive and private.

The management of UI consists of primary prevention, conservative treatment, medications and surgical therapy. One of the strategies used in primary prevention of UI is to control obesity and encourage women to perform regular pelvic floor

exercises during the antenatal and postpartum period. [103] These actions have shown to reduce the risk of developing UI. [83] Conservative treatment consists of assessing primary urine loss symptoms and an assessment of severity of incontinence made by maintaining a 3- or 5-day bladder diary. [28, 83] This instrument provides baseline information and serves as a tool for monitoring progress during therapy involving pelvic muscle floor training. Pelvic floor muscle training is a well-established therapy in the conservative management of women with SUI and /or MUI. A study on obese American women with at least 10 UI episodes per week found that an intensive 6 months' weight loss programme that included exercise, diet and behaviour modification resulted in a 47 % decrease in mean weekly numbers of incontinence episodes in the intervention group and 28% decrease in the control group. [50-52] precisely how weight loss helps in the reduction of episodes of UI is unclear.

Apart from weight reduction and pelvic floor exercises, other non-surgical therapies include bladder training for women with OAB and the use of common medications e.g. topical estrogens, oxybutynin and duloxetine.[84-85] Beside medical management, surgical intervention such as sub-urethral slings and supra-pubic surgery [85] are used for women suffering from SUI. However, the pubo-vaginal sling has remained the gold standard. [85] Currently in Malaysia, the ideal manner with which to report the outcomes of surgical interventions remains uncertain. Especially for surgical interventions, which are designed to reduce the impact of UI that is significant disrupts the QOL. Generally, Malaysian patients who have undergone medical or surgical treatments are followed up at urology clinics but within

the healthcare system there is no uniform and standardised questionnaire to evaluate the outcome effectively. [77] The compliance remains poor in these patients even with alternatives that include a combination of physical therapy, antidepressants, duloxetine, botulinum injections and neuromodulation. [77] UI has been dubbed “the silent epidemic” [6] and majority of Malaysian women continue not to voice their suffering and avoid seeking any form of treatment [76-77], particularly, surgical intervention.

2.8 CONCEPTUAL FRAMEWORK

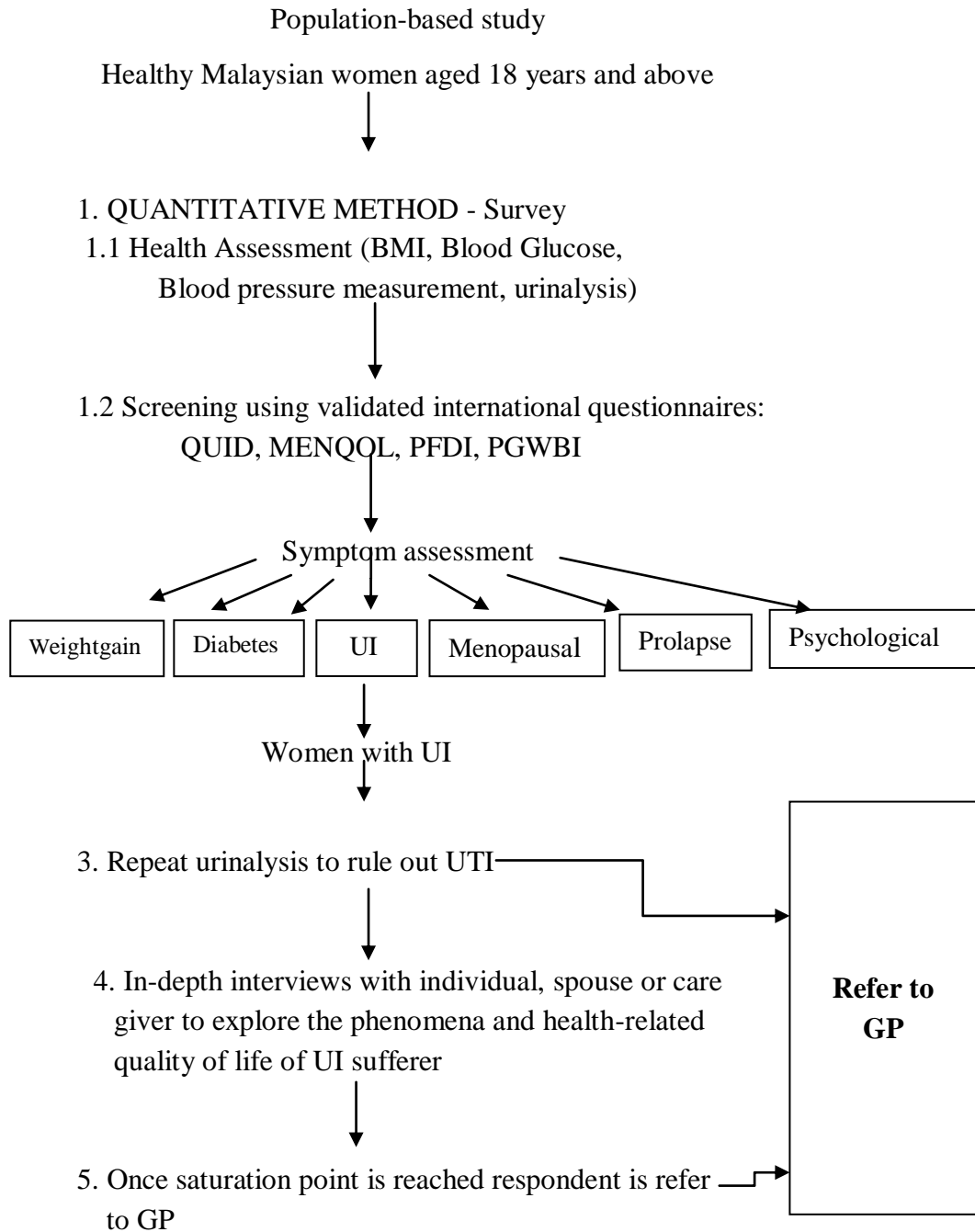


FIGURE 9: A CONCEPTUAL FRAMEWORK FLOW CHART

CHAPTER 3

METHODOLOGY

3.1. Triangulation approach

A triangulation approach or mixed method, applying both quantitative (survey) and qualitative (in-depth interviews) research methods, was used in this study, which was conducted in Selangor. The target group was Malaysian women who have lived in Selangor (FIGURE 9) for one year and more. A cross sectional, observational pilot study was conducted between 2010 and 2011 with a sample size of 111 and two women suffering from UI from this cohort were recruited to participate in an in-depth interview. The main study was undertaken from 2012 to 2015. The sample size was 301 with ten women with UI being recruited for in-depth interviews from within this cohort.

In 2008, the population of Malaysia was estimated to be 27,728,700 (WHO 2010). Malaysia is a multi-ethnic country with a population consisting of Malays, Chinese, Indian and others. There is a significant migrant population, with an estimated 1,907,800 non-Malaysian living in Malaysia. The population profile is relatively young, with 8,876,200 (32%) below 15 years old, 17,620,200 (63.5%) in 15-64 age group, and 1,232,300 (4.4%) aged 65 years and above. Selangor has a

population of around 5.46 million (FIGURE 11). The state's ethnic composition consists of Malays 57.1%, Malaysian Chinese 28.6%, Malaysian Indians 13.3%, and other ethnic groups 0.8%. [86]

3.2 The source population

The source population was women from the state of Selangor, Malaysia

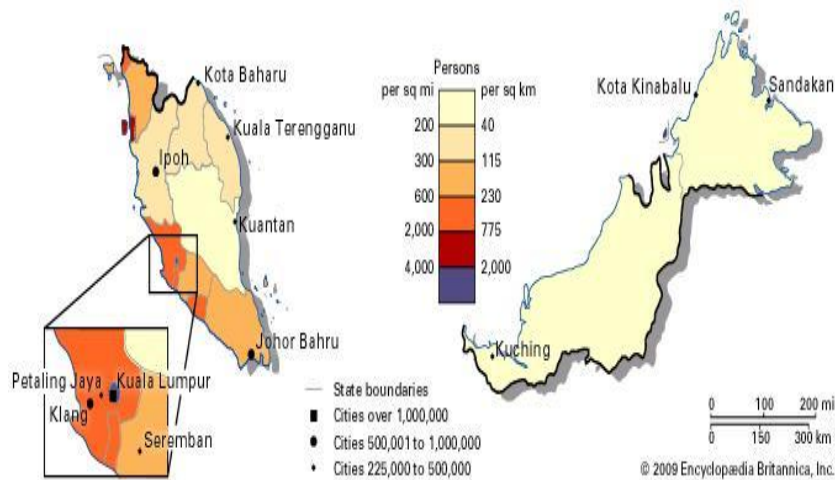


FIGURE 10: MAP OF MALAYSIA SHOWING STATE OF SELANGOR AS AN URBAN SETTLEMENT [87] (By courtesy of Encyclopaedia Britannica, Inc., copyright 2009; used with permission)

3.3 Location of study

The location of the research was to be based upon non-UI-focused surveys among the representative participants hence the location was community based rather than hospital or health clinic based. The state of Selangor was identified because of the convenience and limited research funds. The state of Selangor is divided into 9 administrative districts [88] FIGURE 12.



FIGURE 11: NINE ADMINISTRATIVE DISTRICTS OF SELANGOR [88]

Selangor Darul Ehsan is divided into 9 administrative districts⁸⁸, namely, 1.Gombak, 2. Hulu Langat, 3.Hulu Selangor, 4. Klang and Port Klang 5.Kuala Langat, 6. Kuala Selangor, 7. Petaling, 8. Sabak Bernam 9.Sepang

3.4. Methods and Materials

3.4.1. Recruitment process

The Department of Statistics Malaysia's staff was approached to determine the number of households required to interview 500 women within Selangor. With the assumption that each household has at least one eligible respondent for the study, 31.5 enumeration blocks (EBs) (3.5 per district) were randomly selected out of 15,786

EBs. All 16 living quarters (households) in each selected 3.5 EB were included in the survey. The staff of the Department of Statistics of Malaysia had also provided the researchers with marked maps of specific streets, roads, residential blocks and housing estates within the enumeration blocks to recruit the women voluntarily.

TABLE 2: ENUMERATION BLOCKS WITHIN THE 9 ADMINISTRATIVE DISTRICTS OF SELANGOR

No	District	Numbers of Enumeration Blocks	Enumeration Blocks Required	No of respondents
1.	Gombak	2074	3.5 x 16 houses=	56
2.	Ulu Langat	3258	3.5 x 16 houses=	56
3.	Ulu Selangor	750	3.5 x 16 houses=	56
4.	Klang & P.Klang	2522	3.5 x 16 houses=	56
5.	Kuala Langat	615	3.5 x 16 houses=	56
6.	Kuala Selangor	619	3.5 x 16 houses=	56
7.	Petaling	5036	3.5 x 16 houses=	56
8.	Sebak Bernam	341	3.5 x 16 houses=	56
9.	Sepang	571	3.5 x 16 houses=	56
	Total	15,786	31.5 x 16 houses=	504

Flyers with brief information sheet about the research project were placed into their letterboxes informing them of the research project. All women in the household fulfilling the inclusion and exclusion criteria were approached. Follow up home visits during the same week were made by the researcher to explain to the women about the research project and to find out if the women within the households were willing to participate in the project. Upon receiving a written consent to participate, the

volunteers were briefly interviewed to find out if they had met the inclusion criteria. If a selected household resident declined to participate in the health assessment but was willing to answer the questionnaire, then the missing data was also included into the database. But if the participant declines to participate after voluntarily agreeing to do so, then she was replaced by another participant from the same district.

3.4.2. Mixed method sampling using multiple probability techniques

Mixed methods (MM) sampling consists of using both quantitative and qualitative techniques to answer research questions using MM research design [89]. In this instance triangulation method was applied. Furthermore, the researchers used the multiple probability techniques to generate their sample. By using a probability sampling technique in a quantitative study to study; the prevalence, UI types and risk factors, the researchers expected to achieve a sample population which would accurately represent the entire population [89]. Geographically, the sampling individuals were spread out over the whole state of Selangor. The individuals were from similar neighbourhoods or locations (cluster) within the administrative districts (Table 1). Another sampling technique called simple random sampling was used to reduce the human bias in the selection of respondents. It not only provided each woman but also provided the researcher with a sample that was considered to be of greatly representative of the population of Selangor. The simple random sample selection was done at each location of the district by identifying houses on marked streets in the maps provided by the Department of Statistics. At times, there was no participation by women from identified households within the locations; willing volunteers meeting the inclusion criteria were recruited using convenience sampling through snowball technique. Since the study was gender-specific to only Malaysian women,

the stratified sampling was considered inappropriate for this study. Alternatively, the researchers used the purposive sampling technique to recruit women with UI from within the quantitative study sample. The women were expected to provide relevant information about their QOL that could not be obtained appropriately when using other types of sampling techniques e.g. random, cluster or stratified sampling.

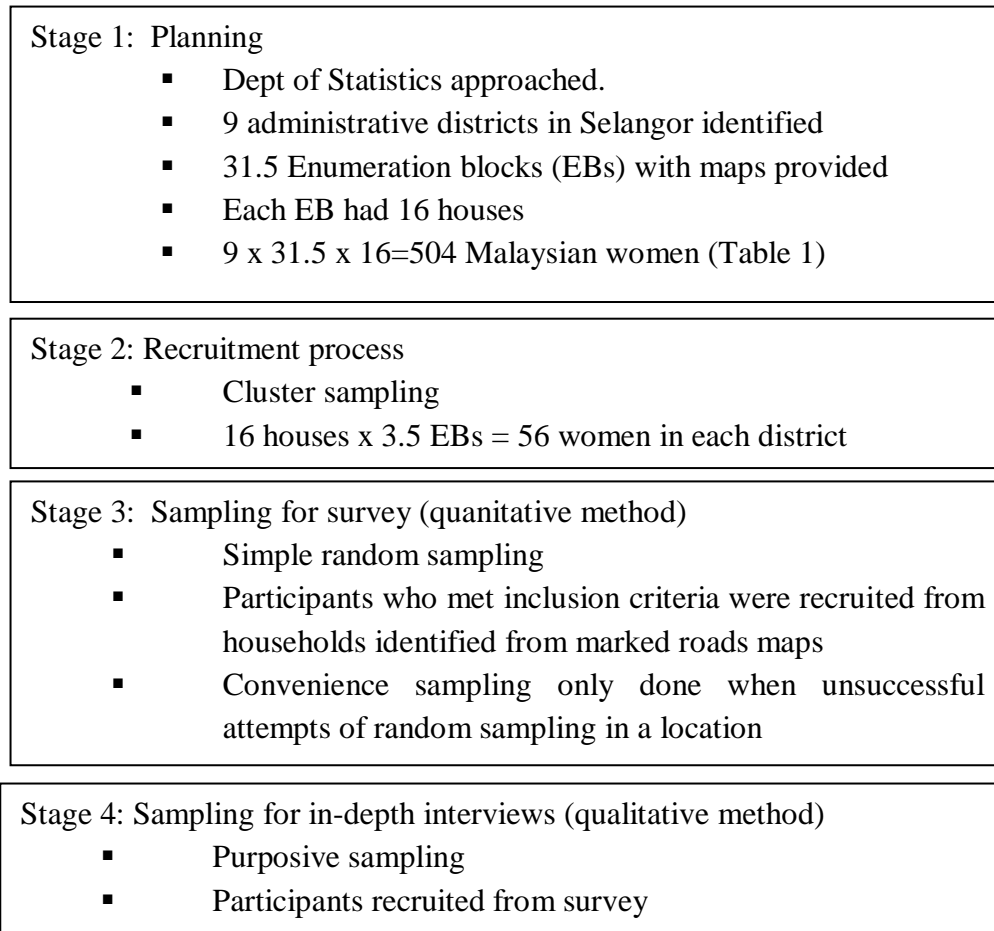


FIGURE 12: MIXED METHOD SAMPLING FLOWCHART

First, various locations in the state of Selangor were identified to recruit participants within the population so that there was an even distribution of respondents from all 9 districts of Selangor. A simple random sample was conducted whereby fifty-six women (unit of interest) from each enumeration block (EB) in the locations were visited to recruit volunteers. Researchers ensured that the volunteers

met the inclusion criteria before they could participate in the study. The inclusion criteria consisted of healthy women aged 18 years and above and women with well controlled non-communicable diseases such as diabetes and hypertension. The exclusion criteria consisted of pregnant women, women who had delivered within the last two years, women who have had an abortion within the year and women who had undergone recent surgery on their reproductive tract or had undergone cancer treatment in the last six months. The decision to include or exclude volunteers from the study was done at the first home visit.

3. 4. 3. Development of the Monash Malaysian Women Health Questionnaire (MMWHQ)

An Australian study by Botlero et al. [37-38] had used Questionnaire for UI Diagnosis (QUID) designed by Bradley et al. [5] The QUID research instrument is described as a short, valid and responsive instrument that could serve as a diagnostic tool to determine the types of UI. No standardized research instrument to measure the prevalence of UI has been used in Malaysia, nor has a population based study on UI been conducted in the female Malaysian population. Therefore, this six-item questionnaire (QUID) was intended to be used to determine the prevalence and incidence of UI in the Malaysian women more accurately. In addition, using a standardized tool that has been used in different populations could provide for a better comparison of the prevalence and incidence in Malaysia.

The Menopause Quality of Life Questionnaire (MENQOL) [73, 90] is a multidimensional, reliable validated condition-specific quality of life instrument and

was considered appropriate for use in Malaysian women. In addition to MENQOL, there is a growing belief that complaints associated with pelvic floor distress (PFD) symptoms appear a lot earlier in life than previously thought and progressively worsen with age in some women [27, 40] and there also is a further negative impact of PFD on the quality of life of women with UI. Hence the pelvic floor distress inventory (PFDI-20) questionnaire by Baber, Walter and Bump [67] was included in this study. In order to better understand and manage quality of life of women with UI, Botlero et al. [83] used Psychological General Wellbeing Index (PGWBI) [91] in their Australian study. It covers six domains namely; depression, anxiety, vitality, general health and positive wellbeing and was also included as an appropriate instrument to be used in Malaysian women in assessing their quality of life.

The initial research instrument, Monash Women Health questionnaire (MWHQ) was used and it consisted of three internationally validated questionnaires, i.e. Questionnaire UI Diagnosis (QUID) [5], Menopause Quality of Life Questionnaire (MENQOL) [73, 90] and Psychological General Wellbeing Index (PGWBI). [91] Additional questions on medical conditions, and the management of UI were included.

However, within the Malaysian context, additional items and questions were included to the MWHQ. They were as follows; health assessment, reproductive health, behavioural lifestyle, socio-economic status, occupational lifting, being aware of Malaysia Continence Society and an intentionally validated questionnaire called Pelvic Floor Distress Inventory (PFDI-20) [67] were also incorporated into MMWHQ. [92] This resulted in the development of the English language Monash

Malaysian Women Health Questionnaire (MMWHQ) version: 1 2010 [92] (Appendix A). It provided a holistic health perspective of Malaysian women undertaking this study. Both explanatory statement (Appendix B) and consent form (Appendix C) were also prepared.

3.5 Quantitative study – survey

3.5.1 Study design: This was a cross-sectional, population based, analytical study

3.5.2. Sampling: was done in two stages:

3.4.2.1 Cluster sampling based on the enumeration blocks provided by the Dept of Statistics

3.4.2.2. Simple random sampling of household from marked maps in each enumeration block

3.5.3 Sample size estimation

a. Crude estimate

n = minimum required sample

$(Z\alpha) = 1.96$

[95% - Confidence Interval (CI) p= 0.05 significant value]

q = (1 - P) (P in decimal)

d / ▲ = precision 5% (absolute precision of 5%)

P = expected prevalence

The prevalence of UI has been documented as 14.5% (n = 351) Malaysian women [7].

$$n = \frac{Z^2 p (1-P)}{d^2} = \frac{1.96^2 \times 0.145 \times (0.855)}{(0.05)^2}$$

$$\frac{1.96 \times 1.96 \times 0.145 \times 0.855}{0.0025} = 190.5 = 191 \text{ respondents (minimal number)}$$

For cluster sampling: 191 x 2= 382 (minimal number)

Expected drop out rate: 20% of 382 = 77

The minimal sample size expected in the main study was 305 participants

Pilot test for questionnaire's validity and reliability (English language) = 100 women

Pilot test for questionnaire's validity and reliability (Malay language) = 100 women

The total expected number of participants in this study was 505 Malaysian women
(Table 1)

3.5.4 Data collection - (pilot and main study)

Initially, a pilot study was conducted among 100 Malaysian women using the English language Monash Women Health Questionnaire (Appendix A). Due to language difficulties in some respondents, a second pilot study was conducted, this time using the Malay language Monash Women Health Questionnaire (Appendix G). The sample size was 111 Malaysian women. Therefore, a total of 211 women had participated in these two different pilot studies. Following the pilot study, factor analysis was applied to MMWHQ and was found to be acceptable. The instrument was also reliable to be used by the Malaysian women. Malay language QUID was validated and published [98] (Appendix K).

Data were collected from participants during the second home visit after they had been provided with both verbal and written information known as explanatory statement (Appendix H) about the research project in the Malay language. Informed consent was obtained prior to their participation. Voluntary participants signed the consent form (Appendix I). Upon receiving the consent from the participants, an appointment was made for the researcher to visit the respondents again at home in

order to administer the Malay language version Monash Malaysian Women Health Questionnaire [95]. Later the English language MMWHQ [92] was translated to Mandarin [96] and Tamil [97] languages.

Each booklet consisted of questions with semi-structured responses. The respondents marked a cross in the box provided or where necessary, wrote an answer in the space provided. If there were any questions the respondents found sensitive and were reluctant to answer, they were not required to answer them. Throughout the interview the respondents had the right to refuse to answer any questions in the booklet. The duration to answer the questionnaire was 30 to 45 minutes. The questionnaire was either self-administered during the visit or completed during a face to face interview whereby the questions were read out to the respondent by the researcher and the answers ticked according to the response. Questions not answered were entered in the database as missing data. About 15 % of the total data was missing in this study.

Tanita body composition analyser (PHOTO 1) has been designed for general population who were interested in leading a healthy life by monitoring their weight on a regular basis. When used the body composition analyser emits a very weak electric current to measure impedance (electrical resistance) of the body. As a precaution, no volunteer with a pacemaker or internal medical device was allowed to use this equipment or included in the study. The equipment was calibrated prior to data collection. The researcher also measured the height using the SECA stand meter. Each respondent was weighed bare-footed. The respondents' age (18 - 99 years),

height, gender, physiques rating of standard rather than athletic mode plus clothes weight were keyed into the analyser.

Then the respondent stood on the scale with both feet parallel on the electrodes. They stood without bending knees. Following the assessment, a printout appears for each respondent. The following items were printed; weight (kg), total weight of fat mass in the body (kg), muscle mass, which is bone-free lean tissue mass (kg), total body water (%), basal metabolic rate representing the total energy expended by the body to maintain normal functions at rest such as respiration and circulation. The visceral fat rating of ideal body weight based on the BMI of 22, the degree of obesity (calculated as weight minus standard weight or standard weight multiply by 100) and impedance (Tanita).

The body composition analyser results were interpreted as follow: fat % (which is the amount of body fat as a proportion of body weight), fat free mass (FFM) comprises of muscle, bone, tissue, water and all other fat free mass in the body. Total body water (TBW) measured in kilograms, is the amount of water retained in the body. It is said to comprise between 50 and 70% of total body weight. Usually women tend to have lower TBW than men due to their lesser amount of muscle or slightly more percentage of fat. Bone mass was measured in kg (bone mineral amount included in the entire bone). Metabolic age was evaluated as young when the respondents' body muscle mass was higher than their fat percentage and their basal metabolic rate (BMR) was high. Body mass index (BMI) was calculated with "weight (kg) divided by height (m)²" and the desirable range was between 18.5 and

24.9. Finally, the mode of choice was standard mode for the respondents rather than the other option, which was for athletes. False results may occur after excessive food or fluid intake or after period of intense exercises but this did not occur in the study. Anyone who used transmitters such as mobile phones were asked to keep away from the unit to avoid causing margin errors as suggested by TANITA manual. [99]

Body measurements of waist (cm), hips (cm) and below breast (cm) were also included. Measurement of random blood glucose levels was done using Ultra glucometer. Omron automatic blood pressure apparatus was used to measure blood pressure (mmHg). Lastly, urinalysis was also undertaken using urine dip stick (Bililabstix) to rule out urinary tract infection. Health assessment comprised of body measurement in centimetres of waist, hips, waist hip ratio, below breast measurement and right wrist. Systolic and diastolic blood pressure measurements (mmHg), random blood glucose measurement in mmol/L via finger prick and urinalysis using dipstix were performed (PHOTO 2). There were respondents who declined to participate in the health assessment.



PHOTO 1: TANITA BODY COMPOSITION ANALYSER SC-330 AND SECA STANDOMETER



**PHOTO 2: HEALTH ASSESSMENT ITEMS; GLUCOMETER, OMRON
AUTOMATIC BLOOD PRESSURE**

Comorbidities were also considered as associated risk factors to UI; frequent urinary tract infections [43,48], hysterectomy [46,63], type 2 diabetes [40], cough in chronic obstructive pulmonary disease, occupational lifting and chronic constipation [55], to name a few. Hence the respondents' medical history was also documented. Eighteen medical conditions were included into the Monash Malaysian Women's Health Questionnaire; cancer (e.g. breast, ovary, uterus), stroke including transient ischemic attacks (TIA, mini stroke), diabetes (type 1 or 2), neurological conditions (Parkinson, multiple sclerosis, motor neuron disease), respiratory diseases (asthma, bronchitis, emphysema), trauma to the pelvis (following road traffic accident (RTA) or fall), rheumatic conditions (osteoarthritis, rheumatoid arthritis, ankylosing spondylitis). Gout, osteoporosis, fracture after minimal trauma, kidney disease,

urinary tract infection, vaginal tract infection, chronic cough, physical impairment that affects mobility, abdominal and reproductive tract surgery and mental illness. And respondents were asked the question “Have you been diagnosed with any of the following medical conditions in the last two years? And if yes, specify the type?”

3.6 Qualitative study – Phenomenological study

3.6.1 Study design: In-depth interviews using audio

3.6.2 Sampling: purposive/judgment sampling based on the sampling criteria. Women with episodes of urinary incontinence their spouses or care givers.

3.6.3 Sample size: saturation is expected to be achieved after 10 -12 interviews [100].

Phenomenology is both a philosophy and a methodology that is used to give insightful account of the relationship between UI and health related quality of life in the women who experience it, her spouse or care taker. It is a critical reflection on conscious experience. Language is the central medium for transmitting meaning and the main instrument of data collection is the interview. [101] the phenomenology theory underpinning the research study tried to understand people's perceptions, perspectives and understandings of a particular situation (or phenomenon).

3.6.4. Data collection -in-depth interviews

In this study, first the researchers attempted to comprehend the Malaysian women's lived experiences of urinary leak episodes or UI. Then they attempted to explore the individual's interpretation of those experiences, situation or phenomena [101] through in-depth face to face interviews using audio aid such as a Sony recorder. Incontinence Impact Questionnaire [138] (Appendix E) was administered to the respondent prior to their interview. A 3-day void diary (Appendix G) was provided to respondents with UI to assess their episodes of UI and diet intake. Also, interview questions were prepared (Appendix F) to be used as a guideline. Anecdotal experiences of their phenomena of UI and lived experiences on various aspects of their lives; phenomena of UI, the impact UI had on the women's QOL, perception, attitude and stigma towards UI, social and recreational activities, spousal attitude towards his partner's UI, marital relationship, some common risk factors associated with UI and finally treatment seeking behaviour were documented. Specific narrative scripts have been extracted based on the themes. The in-depth interviews attempted to examine the perception, attitude and stigma towards UI by the sufferer, family and society. In turn, how it might affect the women with UI was recorded. Secondly the researcher attempted to explore the impact of UI, if any, on the quality of life of women, their relationship with the spouse and carer. Women identified with UI (stress, urge or mixed) during the survey were invited to participate in the qualitative study. After completion of a brief questionnaire, namely the Incontinence Impact Questionnaire, to determine the level of impact urinary incontinence had on them, their partner or family member's quality of life, the respondents and partners / family

members were invited to participate in in-depth interviews to explore their attitude and openness towards UI. It was also to identify the potential gaps in knowledge, which were having the most adverse effects on treatment seeking behaviour in women, and to examine the impact of female urinary incontinence, on their quality of life including partner relationship.

3.7. Statistical analysis

3.7.1. Quantitative study

All quantitative analyses were conducted using statistical tests in SPSS for Windows (version 20, SPSS IBM) and AMOS for Window (version 20, SPSS IBM). Descriptive representation namely, mean, mode, standard deviation, frequency and percentage was used to describe the demographic characteristics of the respondents, prevalence of urinary incontinence symptoms, specific risk factors associated with women with UI who are of normal weight, overweight and obese. Binary logistic regression using the Backward Wald was applied to investigate the relationship between the risk factors and UI. The reference category was set at last (Yes). The dependent variable was UI and the following independent variables were applied to the model.

Health status

Age, BMI, random blood glucose, blood pressure and urinalysis

Childbirth

Parity, vaginal delivery, caesarean section, baby's birth weight ($\leq 3.5\text{kg}$ or $3.5\text{kg} \geq$).

Lifestyle behavior

Coffee consumption, smoking, alcohol consumption and physical activities

Socio economic status

Education level, employment, marital status,

Menopausal status and symptoms

Menopausal transition (early or late menopause)

Vasomotor symptoms: hot flushes, night sweat.

Psychological symptom: dissatisfaction with life and lacked energy.

Somatic symptoms: back ache, dry skin, increased facial hair, feeling bloatedness.

Uro-genital symptoms: altered sexual desire, vaginal dryness during coitus and avoiding intimacy.

Pelvic organ prolapses (POP)

Chronic constipation, pelvic organ prolapse distress; pressure in lower abdomen, having a bulge in the vaginal area, push around the rectum or vagina to have a complete bowel movement, feeling of incomplete bladder emptying, push on a bulge in the vaginal area to start or complete urination. Colo-recto-anal distress; strain hard to have a bowel movement, experience not completely emptied your bowel after bowel movement, pass formed stool beyond your control, pass loose stool beyond your control, pass 'wind' or 'gas' beyond your control, pain when you pass stool, experience a strong sense of urgency to rush to toilet have a bowel movement, does part of your bowel pass through the rectum and bulge outside during or after a bowel action. Urinary distress; experience frequency, experience urine leak associated with strong urgency to go to toilet, experience urine leak related to cough, sneeze and laughter, difficulty emptying your bladder, experience pain or discomfort in the lower abdomen or in the genital area.

Psychological General Wellbeing

The anxiety score, depressive mood score, general health score, positive wellbeing score, self-control score and vitality score.

A 'p' value of less than 0.05 was taken as a level of statistical significance.

About 15% of the total data was missing in this study. For statistical purpose, the missing data was substituted with the average mean of the continuous values of that particular independent variable. In the case of nominal or ordinal variables, missing data was considered as zero and interpreted as 'none' or 'no'. [106, 107-109]

3.7.2. Qualitative study

NVIVO 10 software was used to analyse the transcripts, which explored the attitude to incontinence and the use of support strategies in different ethnic groups, identifying the gaps in knowledge that were having the most adverse effect on the health seeking behavior of incontinent women and partners/family. To identify their coping strategies and examine the impact of female urinary incontinence, urgency and frequency on the quality of life (QOL), partner relationship and family dynamics. Phenomenology theory was used to interpret the interview data. [100-101]

3.8 Ethical considerations

Ethical approval was obtained from the Medical Research and Ethics Committee, Ministry of Health Malaysia (Project no: NMRR-11-149-8830). Monash University Human Research Ethics Committee Certificate of Approval was obtained from August 2011-2016 (Project no.CF10/1725-2010000963). During recruitment written informed consent was obtained from all participants who met the inclusion criteria.

3.9. Finance and resource use

Monash University Seed Grant was obtained from the cardio-metabolic research cluster in 2008 and 2009 respectively and the Ministry of Science, Technology and Innovation (MOSTI) e-Science Fund Project no: 06-02-10-SF0103 funded the main project.

CHAPTER 4

RESULTS

4.1. RESPONDENTS' DEMOGRAPHIC CHARACTERISTICS

The age range was evenly distributed throughout the sample population as shown by the test of normality (Shapiro-Wilk Statistics 0.992, df 301, p= 0.089). Majority (82.7%) were in the Young category (<59 years) and 17.3% were in the Old category (>60 years). Two thirds (69.3 %) were married. Majority of the respondents (43.5%) had 1 to 3 children while 21.6% were nulliparous. Half (50.2%) the respondents were still within the reproductive age while the remainder 49.8% were within the menopausal status. The respondents' ethnicity was Malay (35.2%), Chinese (40.2%) and Indians (24.6%). More than half (59%) had received secondary education More than two-thirds of the respondents had an income of less than RM999 per month (median RM500). Nearly half of the respondents (45.8%) lived in the Central zone.

TABLE 3: RESPONDENTS' DEMOGRAPHIC CHARACTERISTICS

Items	n (%)	Mean	SD
Age		48.07	11.951
20 - 34 years	41.0 (13.6)		
35 – 44 yrs	72.0 (23.9)		
45 - 54 yrs	89.0 (29.6)		
55 - 78 yrs	99.0 (32.9)		
Menopausal status			
Reproductive age	151 (50.2)		
Menopause	150 (49.8)		
Menopausal transition			
Early menopause	73 (24.3)		
Late menopause	77 (25.6)		
Ethnicity			
Malay	106.0 (35.2)		
Chinese	121.0 (40.2)		
Indian	74.0 (24.6)		
Education			
Tertiary/Diploma	43.0 (14.3)		
Secondary	178.0 (59.1)		
Primary /None	80.0 (26.6)		
Income		1323.9	1904.8
0 - RM999	186.0 (61.8)		
RM1,000 – RM 4999	84.0 (27.9)		
RM5000 >	31.0 (10.3)		
Marital status			
Married	210.0 (69.8)		
Single/Widow/Divorcee	91.0 (30.2)		
Parity			
Nullipara	65.0 (21.6)		
1 - 3 children	131.0 (43.5)		
4 children >	105.0 (34.9)		
Locations (Zones)			
North (Sabak Bernam, Kuala Selangor, Hulu Selangor)	44 (14.6)		
Central (Klang & Port, Petaling, Gombak)	138 (45.8)		
South (Kuala Langat, Sepang, Hulu Langat)	119 (39.5)		
Total	301 (100)		

4.2. RESPONSES TO MALAY LANGUAGE QUID BY RESPONDENTS

In response to the questions using the 6-point Likert scale, 78.4% (236) women had no UI symptoms as defined by QUID criteria. Women who indicated that they did leak 'even a few drops of urine' ranged from "rarely" (6.3 - 12.6%), "once in a while" (3.7 - 23.7%), "often" (1.7 - 8.0%), "most of the time" (0.0 - 2.3%) and "all the time" (0.3 - 2.0%).

TABLE 4: RESPONSES TO MALAY LANGUAGE QUID

Question: Do you ever leak urine even a few drops while ...	Mean \pm SD	None (0) n (%)	Rarely (1) n (%)	Once in a while (2) n (%)	Often (3) n (%)	Most of the time (4) n (%)	All the time (5) n (%)	Total n (%)
1. coughing /sneezing	(0.98 \pm 1.284)	169 (56.1)	24 (8.0)	71 (23.6)	24 (8.0)	7 (2.3)	6 (2.0)	301 (100)
2. bending over	(0.26 \pm 0.703)	256 (85.0)	19 (6.3)	20 (6.6)	5 (1.7)	0 (0)	1 (0.3)	301 (100)
3. jogging/ walking	(0.24 \pm 0.665)	255 (84.7)	29 (9.6)	11 (3.7)	4 (1.3)	1 (0.3)	1 (0.3)	301 (100)
4. undressing to use toilet	(0.53 \pm 1.001)	216 (71.8)	33 (11)	38 (12.6)	7 (2.3)	4 (1.3)	3 (1.0)	301 (100)
5. urinate as you reaching toilet	(0.53 \pm 1.025)	219 (72.8)	32 (10.6)	35 (11.6)	7 (2.3)	4 (1.3)	4 (1.3)	301 (100)
6. strong need to rush to urinate	(0.64 \pm 1.041)	199 (66.1)	38 (12.6)	46 (15.3)	10 (3.3)	7 (2.3)	1 (0.3)	301 (100)

QUID score for UUI: 6 -15/15

QUID score for SUI: 4 -15/15

QUID score for MUI: 11-30/30

4.3. PREVALENCE AND TYPES OF UI

The prevalence of UI was (n=65) at 21.6% \pm 4.65 (16.95 % to 26.25%) in Malaysian women residing in Selangor. From the total respondents (n=301), majority of the women (78.4 %) did not suffer from any type of UI. Thirty-two women complained of only SUI (12 %) based on the QUID score (\geq 4/15-15/15). While another 22 women (9.3 %) suffered with only UUI based on the QUID score (\geq 6/15- 15/15). Mixed UI was complained by 13 women. Six had stress predominate MUI and another 7 complained of urge predominate MUI. More than a third of the women (33.9%) had some degree of urinary leak also known as minimal urine leak (MUL), albeit the occurrence was “rarely” to “once in a while” hence it did not meet the QUID criteria of UI. To a question not applying the QUID score criteria, “Do you leak urine (even small drops)?” 167 women (55.5%) had responded ‘Yes’.

TABLE 5: ESTIMATED PREVALENCE OF UI AND TYPES OF UI

	Items	Prevalence		Total
		n (%)		n (%)
		No	Yes	
1.	Urinary Incontinence (based on QUID score criteria)	236 (78.4)	65 (21.6)	301 (100)
2.	Types of UI (QUID score criteria)			
	2.1 Stress UI (score $4 \geq /15$)	269 (88.0)	32 (12.0)	301 (100)
	2.2 Urge UI (score $6 \geq /15$)	279 (92.6)	22 (7.3)	301 (100)
	2.3 Mixed UI (score $11 \geq /30$)	288 (95.7)	13 (4.3)	301 (100)
	2.3.1 Stress predominate MUI (scored higher in SUI than UII)	7.0 (53.8)	6.0 (46.2)	13 (100)
	2.3.2 Urge predominate MUI (scored higher in UII than SUI)	6.0 (46.2)	7.0 (53.8)	13 (100)
3.	Minimal urine leak (MUL) (QUID score $\leq 3/15$ & $\leq 5/15$)	199 (66.0)	102 (33.9)	301 (100)
4.	Q*. Do you leak urine (even small drops)? Response: (No /Yes)	134 (44.5)	167 (55.5)	301 (100)

4.4. TREATMENT RECEIVED BY RESPONDENTS WITH UI

TABLE 6 shows that 21.6% (65) of women had reported UI symptoms. Some had been having the symptoms for less than a year (43%) and the rest for two years and more (57%). Two thirds did not seek any form of treatment. Those who did seek treatment, 12 were prescribed potassium citrate while another two had undergone hysterectomy due to prolapsed uterus. Fifteen undertook physiotherapy, participating mainly in bladder training and pelvic floor exercise (Kegel) for 3 to 6 months. The only measure everyone took was to use panty liners (61.5%) and the rest wore double underwear to manage their UI. Twelve women were undergoing multiple treatments such as medication and bladder training or performing Kegal exercises and bladder training.

TABLE 6: DESCRIPTIVE STATISTICS: TREATMENT RECEIVED BY WOMEN WITH UI

	n	%	Total
Duration of UI			65 (100)
< 1 year	28	43.0	
1 - 2 years	23	35.3	
3-37 years	14	21.5	
Specific measures taken			65 (100)
No	37	60	
Yes	28	40	
Medication			65 (100)
Potassium citrate	12	18.5	
None	53	81.5	
Surgery			65 (100)
Yes	2	18.5	
No	63	96.9	
Name of surgery			
Hysterectomy due to prolapse	2	3.1	
Years surgery performed			
1- 2 years	2	3.1	
Types of physiotherapy			65 (100)
Bladder training	15	23.0	
Regular pelvic floor (Kegel) exercises	15	23.0	
Multiple treatments			
Medication, bladder training, Kegel exercise	12	18.5	
Duration of physiotherapy			
3 - 6 months	15	23.0	
Complementary measures taken			65 (100)
Acupuncture	4	6.1	
Herba	6	9.2	
None	55	84.6	
Other measures taken			65 (100)
Double underwear	25	38.5	
Panty liners	40	61.5	
Outcome of management			65 (100)
Same	46	70.7	
Better	19	29.2	
Awareness of Malaysia Continence Society			65 (100)
No	64	98.5	
Yes	1	1.5	

4.5 RISK FACTORS ASSOCIATED WITH UI

Interpretation:

1. General Health: Women who were very healthy were less likely (adjusted OR=0.270; 95%CI 0.113, 0.645) to report urinary incontinence compared to women who were fairly healthy (Table Good/Fair).

2. Coffee Intake: Women who consumed coffee were less likely (adjusted OR=0.543; 95%CI 0.288, 1.022) to report urinary incontinence compared to women who did not consume coffee (Odds Ratio < 1.0, with 95% confidence interval that does include 1.0 indicating a non-significant protective factor).

3. Employment: Women who were employed were more than twice likely (adjusted OR=2.150; 95%CI 1.118, 4.134) to report urinary incontinence compared to women who were unemployed.

4. Lack of energy: Women who lacked energy were more than thrice likely (adjusted OR=3.322; 95%CI 1.541) Omnibus Test of coefficient for final model was $\chi^2 = 39.429$, df 9, p=0.001.

Model summary was -2 Log likelihood 237.638; Cox& Snell R square 0.123

Nagelkerke R square 0.125.

TABLE 7 ASSOCIATIONS BETWEEN RISK FACTORS AND UI

Variables in the Equation

Independent Variable	B	S.E.	Wald	df	Sig.	Adjusted OR	95% C.I. for Adjusted OR	
							Lower	Upper
General Health (0=Fair/1=Good)	-1.308	.444	8.688	1	.003	.270	.113	.645
Coffee Intake (0=No/1=Yes)	-.611	.323	3.587	1	.058	.543	.288	1.022
Employment (0=No/1=Yes)	.766	.334	5.269	1	.022	2.150	1.118	4.134
Lack of Energy (0=No/1=Yes)	1.201	.392	9.385	1	.002	3.322	1.541	7.161
Constant	-.688	.434	2.508	1	.113	.503		

Method: Backward Wald regression. Dependent variable: Urinary incontinence (0=No/1=Yes)

4.5.1 Lifestyle behavior and UI

A total of 158 (100%) women consumed coffee ranging from a cup measuring 150-200 mLs /day to 2-4 cups/day. Women who consumed coffee were less likely (adjusted OR=0.543; 95%CI 0.288, 1.022) to report urinary incontinence compared to women who did not consume coffee.

Almost all women (98.3%) did not smoke except for 5 women (1.7%) who smoked 1-9 butts/ day. Alcohol was consumed by 32 women (10.6%) ranging from 1-2 /week (3.6 %), 2-3 days/month (2.7%) a1-2 days/year (4.3%). Almost half of the women had participated in some form of physical activities. The duration of physical activities were divided into groups; 83 women undertook activities less than an hour per session while 65 women did more than an hour /session respectively. The frequency of activities / week was 1-3 times /week and more than 4 times / week. And the types of activities ranged from light to vigorous exercises (TABLE 8).

TABLE 8 DESCRIPTIVE STATISTICS: LIFESTYLE BEHAVIOUR AND UI

		Urinary Incontinence			Fisher's Exact Test (2-sided)
		No n (%)	Yes n (%)	Total within UI n (%)	
Coffee consumption	No	112 (78.3)	31 (21.7)	143 (100)	0.067
	Yes	137 (86.7)	21 (13.3)	158 (100)	
Smoking	No	245 (82.8)	51 (17.2)	296 (100)	1.000
	Yes	4 (80.0)	1 (20.0)	5 (100)	
Alcohol consumption	No	223 (82.9)	46 (17.1)	269 (100)	0.801
	Yes	26 (81.2)	6 (18.8)	32 (100)	
Physical activities	No	125 (81.7)	28 (18.3)	153 (100)	0.651
	Yes	124 (41.2)	24 (16.2)	148 (100)	
Types of physical activities					$\chi^2 = 1.572$, df 3, p= 0.666
None		125 (81.7)	28 (18.3)	153 (100)	
Gentle (stretching, swim, housechores)		6 (100)	0 (0.0)	6 (100)	
Moderate (brisk walk, social tennis)		84 (84.0)	16 (16.0)	100 (100)	
Vigorous (brisk walk, jogging, aerobics, cycling, gardening, yard work		34 (81.0)	8 (19.0)	42 (100)	
Experience urine leak during physical Activities	No	222(81.3)	51 (18.7)	273 (100)	0.062
	Yes	27 (96.4)	1 (3.6)	28 (100)	

4.5.2 Socio-economic status and UI

In this study, women in both categories suffered from UI. Women with UI were married (n=37, 17.5%) compared to single women with UI (n=15, 16.7%) who were either unmarried, divorced, separated or widowed. Women in both young and old category suffered from UI. Both more women in the “Young” (<59 years) category (n=46) complained of UI (88.5%) compared to the older women in the ‘Old’ (>60 years) category (n=6, 17.5%). Comparing the education level and UI, women with UI were found in both groups. But, more women with UI (n=46, 17.8%) were found in the ‘none to secondary level’ education group compared to the tertiary educated women (n=6, 14.0%). In terms of employment and UI, approximately similar numbers of women with or without UI were in employment. However, slightly more women with UI were in employment (n=25, 21.7%) compared to unemployed women with UI who staying at home (n=27, 14%). Almost 87% women with UI were from the lower educational and income bracket were unemployed (13.1%), homemakers (15.1%), labourers (25.6%), self-employed (27%), and the reminder 3% were from tertiary and higher income bracket. Women who were in employment were more than twice likely (p=0.022, adjusted OR=2.150, 95% CI 1.118-4.134) to report UI compared to women who were unemployed.

TABLE 9 DESCRIPTIVE STATISTICS: SOCIAL STATUS AND UI

		UI		TOTAL	Fisher Exact Test (2-sided)
		No n (%)	Yes n (%)		
Currently married					0.100
	No	75 (83.3)	15 (16.7)	90 (100)	
	Yes	174 (82.5)	37 (17.5)	211 (100)	
Age category					0.158
	Young <59 years	203 (81.5)	46 (88.5)	249 (82.7)	
	Old > 60 years	46 (18.5)	6 (11.5)	52 (17.3)	
Education					0.665
	None to Secondary	212 (82.2)	46 (17.8)	258 (100)	
	Tertiary	37 (86.0)	6 (14.0)	43 (100)	
Employment					0.118
	No	159 (85.5)	27 (14.5)	186 (100)	
	Yes	90 (78.3)	25 (21.7)	115 (100)	
Any lifting at work place?					0.590
	No	192 (83.5)	38 (16.5)	230 (100)	
	Yes	57 (80.3)	14 (19.7)	71 (100)	
Occupation					$\chi^2=7.434$, df 9, p=0.592
	Unemployed	86 (86.9)	13 (13.1)	99 (100)	
	Pensioner	5 (83.3)	1 (16.7)	6 (100)	
	Homemaker	64 (84.2)	12 (15.8)	76 (100)	
	Self-employed	27(73.0)	10 (27.0)	37 (100)	
	Labourer	29 (74.4)	10 (25.6)	39 (100)	
	Doctors/Pharmacists	7 (80.0)	1 (20.0)	8 (100)	
	Administrative staff	12 (80.0)	3 (20.0)	15 (100)	
	Academic staff	19 (85.0)	2 (15.0)	21 (100)	
Total		249 (82.7)	52 (17.3)	301 (100)	

4.5.3 MENQOL Menopause specific symptoms and UI

Out of the 52 (100%) women with UI, 65.8% women (n=14) had complained of lacked energy during menopause. Another 20% women (n=7) had complained of reduced sexual desire and further 28.6% women (n=10) suffered from vaginal dryness during coitus. Women who lacked energy during menopause were more than thrice likely (p=0.002, adjusted OR 3.322; 95% CI 1.541-7.161) to report UI compared to those women with energy.

TABLE 10 DESCRIPTIVE STATISTICS: MENOPAUSAL SYMPTOMS AND UI

MENOPAUSAL SYMPTOMS	UI			TOTAL	Fisher Exact Test (1-sided)
	No n (%)	Yes n (%)			
Hot flushes	No	216 (82.7)	45 (17.3)	261(100)	0.559
	Yes	33 (82.5)	7 (17.5)	40 (100)	
Night sweat	No	216 (83.7)	42 (16.3)	258 (100)	0.181
	Yes	33 (76.7)	10 23.2)	43(100)	
Day time sweat	No	192 (82.4)	41(17.6)	233(100)	0.473
	Yes	57 (83.8)	11(16.2)	68(100)	
Dissatisfaction with life	No	185 (84.5)	34 (15.5)	219 (100)	0.128
	Yes	64 (78.0)	18 (22.0)	82(100)	
Anxiety	No	215 (84.0)	42 (16.3)	257 (100)	0.203
	Yes	34 (77.3)	10 (23.0)	44 (100)	
Lack of energy	No	222 (85.4)	38 (14.7)	260(100)	0.004
	Yes	27 (9.0)	14 (65.8)	41(100)	
Dry skin	No	191 (83.0)	39 (17.0)	230(100)	0.458
	Yes	58 (81.7)	13 (18.3)	71(100)	
Weight gain	No	195 (70.5)	39 (16.7)	234(100)	0.309
	Yes	54 (80.6)	13 (19.4)	67(100)	
Change in skin text	No	212 (82.2)	46 (17.8)	258(100)	0.354
	Yes	37 (80.4)	9 (19.6)	46(100)	
Bloatedness	No	215 (83.3)	43 (16.7)	258(100)	0.311
	Yes	34 (79.0)	9 (21.0)	43(100)	
Low back pain	No	196 (84.0)	38 (16.2)	234(100)	0.237
	Yes	53 (79.1)	14 (20.9)	67(100)	
Frequency in urination	No	208 (83.0)	43 (17.1)	251(100)	0.510
	Yes	41 (82.0)	9 (18.0)	50(100)	
Urine leak	No	206 (82.0)	45 (18.0)	251(100)	0.330
	Yes	43 (86.0)	7 (14.0)	50(100)	
Altered sexual desire	No	221 (84.5)	40 (15.3)	261(100)	0.024
	Yes	28 (80.0)	7 (20.0)	35(100)	
Vaginal dryness (coitus)	No	224 (85.0)	40 (15.2)	264(100)	0.056
	Yes	25 (71.4)	10 (28.6)	35(100)	
Avoiding intimacy	No	216 (83.4)	43 (16.6)	259(100)	0.284
	Yes	33 (78.6)	9 (21.4)	42(100)	
Total		249 (100)	52 9(100)	301 (100)	

4.6.1 Psychological General Wellbeing Index (PGWBI) and UI

Majority of women with UI scored positively to all the domains. In contrast, only a small proportion of women with UI had suffered from anxiety, depressive mood and reduced positive wellbeing. Reduced self-control, low general health and reduced vitality were also reported among these women. Nevertheless, these women with UI who had low scores did indicate that UI had a negative impact on their quality of life. Positive Fisher Exact Test readings to General Health score ($p=0.008$), Vitality score ($p=0.052$) and Self-control score ($p=0.067$) were observed following cross tabulation. Women who were very healthy were less likely ($p=0.010$, adjusted OR 0.894; 95 % CI 0.820-0.974) to report UI compared to who were fairly healthy.

TABLE 11 DESCRIPTIVE STATISTICS: PGWBI AND UI

PGWBI	UI		TOTAL within UI	Fisher Exact Test (1-sided)
	No n (%)	Yes n (%)		
ANXIETY score				
0-12 (low score=negative)	17 (70.8)	7 (29.2)	24 (100)	0.097
13-25 (high score= positive)	232 (93.2)	45 (86.5)	277 (92.0)	
DEPRESSIVE MOOD score				
0-5 (low score= negative)	24 (9.6)	7 (13.5)	31 (10.3)	0.273
6-15 (high score= positive)	225 (90.4)	45 (86.5)	270 (89.7)	
POSITIVE WELLBEING score				
0-7 (negative)	26 (10.4)	7 (13.5)	33 (11.0)	0.336
8-20 (positive)	223 (89.6)	45 (86.5)	268 (89.0)	
SELF CONTROL score				
0-5 (negative)	26 (10.4)	10 (19.2)	36 (12.0)	0.067
6-15 (positive)	223 (89.6)	42 (80.8)	265 (88.0)	
GENERAL HEALTH score				
0-5 (negative)	20 (8.0)	11 (21.1)	31 (10.3)	0.008
6-15 (positive)	229 (92.0)	41 (78.8)	270 (89.7)	
VITALITY score				
0-7 (negative)	21 (8.4)	9 (17.3)	30 (10.0)	0.052
8-20 (positive)	228 (91.6)	43 (82.7)	271 (90.0)	
Total	249 (100)	52 (100)	301 (100)	

High score (positive option)

Low score (negative option)

4. 6 .2 Menopause specific quality of life (MENQOL) score and UI

Of the twenty-five menopausal women (100%) who had reported no menopausal symptoms and scored less than 34 in the MENQOL score, 84% did not have UI while 16% suffered from UI. Those postmenopausal women who scored between 35 and 74 and whose QOL had suffered mild degree of menopausal symptoms with 17% complaining of UI. The postmenopausal women with UI (31.6%) who had MENQOL score between 75 and 148 had suffered from moderate to severe menopausal symptoms.

TABLE 12 DESCRIPTIVE STATISTICS MENQOL SCORE AND UI

MENQOL SCORE	UI		Fisher Exact Test (1-sided)	TOTAL
	No N (%)	Yes N (%)		
REPRODUCTIVE AGE (women not in menopause)	127 (84.1)	24 (15.9)	0.314	151 (100)
SCORE 1-34 (Non-menopausal symptoms)	21 (84.0)	4 (16.0)		25 (100)
SCORE 35-74 (Mild)	88 (83.0)	18 (17.0)		106 (100)
SCORE 75-148 (Moderate to severe)	13 (68.4)	6.0 (31.6)		19 (100)
TOTAL	249 (100)	52 (100)		301 (100)

4.7. Pelvic floor distress inventory (PFDI) and UI

On the whole, 3 pelvic floor distress inventory symptoms out of 20 were significantly associated with UI. One symptom was from the pelvic organ prolapse distress inventory (POPDI) cluster and another two symptoms were from the colo-recto-anal distress inventory (CRADI) cluster. Overall, 10.6% (n=32) had the pelvic organ prolapse distress (POPD) symptom of having to “push on the vagina or rectum to have a bowel movement”. Of the total, 13.5% (n=7) women with UI had this complaint (p=0.002) and the remainder 78.1% women (n=25) did not. Of the 19% of the women (n=57) who had the colo-recto-anal distress (CRADI) symptom of “strained too hard to have bowel movement or action” only 8.8% women (n=5) with UI (p=0.037) suffered from this problem. The remainder 91.2% women (n=52) did not suffer from UI. Even though a total of 69 women (22.3%) complained of the colo-recto-anal distress symptom of “an urgency to rush to toilet to have a bowel action” again only 15 women (28.8%) with this complaint had UI (p=0.016).

TABLE 13 DESCRIPTIVE STATISTICS: PELVIC FLOOR SYMPTOMS AND UI

Question:	Pelvic floor symptoms (n=301)		UI (n=52)	Chi-square χ^2 df p value
	Yes	Yes	No	
	N (%)	n (%)	n (%)	
In the last three months have you experienced the following:				
Chronic constipation	24 (8.0)	3 (5.7)	49 (94.2)	ns
Pressure in lower abdomen	31 (10.3)	5 (9.6)	47 (90.4)	ns
Heaviness or dullness in the pelvic floor	27 (9.0)	5 (9.6)	47 (90.4)	ns
Having a bulge in the vaginal area	13 (4.3)	2 (3.8)	50 (96.1)	ns
Have to push on the vagina or the rectum to complete a bowel movement.	32 (10.6)	7 (13.5)	45 (86.5)	χ^2 16.591, df 4 p=0.002
Feeling of incomplete bladder emptying	62 (20.6)	12 (23.1)	40 (76.9)	ns
Push on bulge in the vaginal wall to complete urination	9 (3.0)	2 (3.8)	50 (96.1)	ns
Straining too hard to have a bowel movement /action.	57 (18.9)	5 (9.6)	47 (90.4)	χ^2 10.216, df 4, p=0.037
Incomplete emptying of bowel after bowel action	70 (23.3)	8 (15.4)	44 (84.6)	ns
Pas formed stool beyond your control	24 (8.0)	4 (7.69)	48 (92.3)	ns
Passed loose stool beyond your control	46 (15.3)	5 (9.6)	47 (90.4)	ns
Passed gas from rectum beyond your control	93 (30.9)	13 (25)	39 (75)	ns
Pain when passing stool /feaces.	26 (8.6)	3 (5.7)	49 (94.2)	ns
An urgency to rush to toilet to have a bowel action.	69 (22.3)	15 (28.8)	37 (71.2)	$\chi^2$12.263, df 4, p=0.016
Presence of bulge from rectum after bowel action	24 (8.0)	3 (5.7)	49 (94.2)	ns
Difficulty in emptying the urinary bladder	28 (9.3)	2 (3.8)	50 (96.2)	ns
Pain at lower abdomen or genital area	14 (4.7)	3 (5.8)	49 (94.2)	ns

4.8 Obstetric history and UI

Within this cohort, 236 women (78.4%) had experienced pregnancy and childbirth while 65 women (21.6%) had not (nullipara). Women with UI were found in both nullipara (23.1%) and parity categories, albeit higher in women who had experienced child birth. Women with UI had experienced various modes of childbirth; ranging from vaginal delivery with intact perineum (60.5%) to 14.6% undergoing Caesarean section (C/S). Since parity ranged from 1-10, some women had experienced various modes of delivery in their lifetime. For instant, those women with UI who had experienced C/S (n=4) had also experienced vaginal delivery with intact perineum (n=1) and vaginal delivery with episiotomy (n=3), and another 40 women who had experience C/S had not complained of UI (TABLE 14).

Cross tabulation between UI and modes of childbirth was significantly associated ($\chi^2 = 14.566$, df =6, p=0.024) and Fisher Exact Test (1-sided) was 0.085.

TABLE 14: DESCRIPTIVE STATISTICS OBSTETRIC HISTORY AND UI

Obstetric history	UI		Fisher Exact Test (1-sided)	TOTAL	
	No n (%)	Yes n (%)			
Parity					
None	53 (81.5)	12 (18.5)	0.451	65 (100)	
1-10	196 (83.0)	40 (17.0)		236 (100)	
Mode of childbirth					
Vaginal intact perineum	No	99 (75.6)	20 (16.9)	0.496	119 (100)
	Yes	150 (82.4)	32 (17.6)		182 (100)
Vaginal with tear	No	216 (83.1)	44 (17.0)	0.413	260 (100)
	Yes	33 (80.5)	8 (19.5)		41 (100)
Vaginal with episiotomy	No	205 (84.0)	39 (16.0)	0.151	244 (100)
	Yes	44 (77.2)	13 (23.0)		57 (100)
Forceps	No	245 (91.8)	52 (16.8)	0.466	297 (100)
	Yes	4 (100)	0 (0.0)		4 (100)
Caesarean section	No	209 (81.3)	48 (18.7)	0.085	257 (100)
	Yes	40 (90.1)	4 (10.0)		44 (14.6)
Place of delivery					
Hospital	No	69 (81.2)	16 (18.9)	0.386	85 (100)
	Yes	180 (83.3)	36 (16.7)		216 (100)
Baby's birth weight					
≤ 3.5kg	225 (83.0)	47 (17.3)	0.616	272 (100)	
3.5kg ≥	24 (83.0)	5 (17.2)		29 (100)	
Total	249 (100)	52 (100)		301 (100)	

4.9 BMI score and MUL*

Women with UI were divided into two categories, underweight to optimal BMI score (18.5 to 25) and overweight and obese women who scored 25.1- 30>. Both groups had very small percentage of women with UI. In contrast, 22.8% women had complained of MUL in both the underweight to optimal BMI category and a higher percentage (42%) in overweight and obese women category.

TABLE 15 DESCRIPTIVE STATISTICS: BMI AND UI & MUL

	No UI	SUI	UII	MUI	MUL *	Total	χ^2	df	p
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)			
BMI							14.338	4	0.006
18.5-25 (optimal)	76 (59.8)	9 (7.1)	6 (4.7)	7 (5.5)	29 (22.8)	127 (100)			
25.1-30> (overweig ht & obese)	71 (40.8)	15 (8.6)	9 (5.2)	6 (3.4)	73 (42.0)	126 (41.9)			
Total	147 (48.8)	24 (8.0)	15 (5.0)	13 (4.3)	102 (33.9)	301 (100)			

*minimal urine leak

CHAPTER 5

DISCUSSION

Unlike various local studies that had taken population samples ranging from local hospital clinics, health centres and medical and health allied educational institution, this study was conducted among women living in various communities within the districts of Selangor as shown in FIGURE 12 and TABLE 1 (p.65). Even though, 56 houses were identified from each district but there were instances where the houses that were randomly identified by researchers were found to be either unoccupied or derelict, or women living in that household refused to participate in the study. Another obstacle encountered by the researchers during the recruitment drive was that some of the maps obtained from the Department of Statistics were outdated. Instead of finding households in residential areas, the researchers came across low cost factories, religious buildings, shops and residential blocks belonging to uniformed government staff located in their identified roads. In these instances, willing volunteers within the same neighbourhood were then recruited into the study using convenient sampling via the snowball technique.

Reasons for failure to recruit participants

Arranging appointments to recruit women in this study had been a very time-consuming task. A minimum of at least three home visits were required to successfully recruit one participant. Those households, where the researcher was

unable to gain access during the week day, the researcher had to revisit these houses again in the evening during the weekend in order to recruit them. Most of these households were occupied by women who worked during office hours. They did not want to be disturbed when they were at home as they had to complete their house chores or wanted to spend time with their families. Many would not even consider us visiting them over the weekend as they did not want to compromise their weekend activities to participate in the study. Another observation was that during the first contact most of the women who met the inclusive criteria for the survey or the in-depth-interviews had showed keenness to participate in the study. But at the subsequent follow-up visit the women had lost interest. Majority gave the excuse that their spouses were not agreeable for them to participate in the survey or interviews. The men too were not interested in being interviewed as they considered the study to be women's issue. Finally, due to time constraint as a part time student, the researcher was only able to collect data within a limited time span of nine months during the sabbatical and a couple of months during end of semester breaks. The response rate was 85% and at times poor response to some questions may have affected the results.

The items chosen to describe the socio-demography characteristics of the respondents were age, ethnicity, education, occupation, income range, marital status and locations (TABLE 3). Apart from providing an overall view of the respondents' characteristics, various studies have also associated these items as risk factors to UI as described in CHAPTER 2. Further discussion has been done on these items on page 132 under the subheading of associated risk factors and UI.

From 2001 onwards, online databases namely Google Scholar, Cochrane library, Scopus and Medline were accessed to perform both basic and advance search for articles on UI among Asian and Malaysian women. The Boolean operators were applied to key words that included epidemiology, risk factors of urinary symptoms OR incontinence, frequency, urgency and Asian female. Other keywords used were ICIQ-SF questionnaire, BFLUTS questionnaire, QUID questionnaire, King's Health Questionnaire, prevalence and quality of life. There certainly was a need to use a proper standardised questionnaire with appropriate terminologies if an accurate prevalence of types of UI was to be estimated. Hence, the Malay language Questionnaire Urinary Incontinence Diagnosis (QUID) was considered, due to its sensitivity and a user-friendly questionnaire as shown in TABLE 4. The QUID questionnaire was also chosen due to its sensitive scoring criteria. It was able to differentiate women with UI from those women who complained of 'occasional', 'rarely' or 'once in while' episodes of urine leak as shown on TABLE 4. This uniqueness of QUID was able to determine which type of UI (SUI, UUI and MUI) the women were suffering from. Although numerous, world-wide studies on prevalence, risk factors and QoL of UI were made available, a specific search was also made for Asian studies particularly studies undertaken in Malaysia. The reported prevalence rates seem to vary widely, not only between communities but also between studies within a single community. The reported prevalence of UI in Malaysian women also appears to be wide and varied.

5.1 Respondents' socio-demographic characteristics

In this study, the respondents were age between 20 and 78 years (TABLE 3). Although majority of Malaysian women (82.7%) in this study did not complain of UI, but those who did (n=52), 43% were aged between 35 and 54 years and majority were married. Only a very small proportion of women with UI were aged $60 \geq$ years (14.1%) and ≤ 34 years (9.8%) respectively. These findings were similar to a recent local study, Samiah et al [102] who reported most of the married women with UI were from the young (31- 50 years) and middle aged (51-60 years) age groups.

The respondents were from three major ethnic groups; Malay, Chinese and Indians. No comparison was made between genders since all the respondents were deliberately recruited from the female population. More than half (59%) had received secondary education, a quarter had received primary or no formal education and a very small proportion (14%) had received tertiary education. Two-thirds of respondents, particularly home makers had an income of less than RM999 per month (median RM500). Home based food caterers or those managing small stalls or traders, administrative staff earned between RM1000 and RM499) and finally healthcare professionals and academic staff earned more than RM5000 per month.

Nearly half of the respondents lived in the Central zone, more than third were from the South zone and only a small group of respondents lived in the North (TABLE 3). This was due to the poor response to voluntary recruitment compared to women living in either Central or South zones.

5.2 Prevalence of UI

The prevalence of female UI, in this study was documented as $21.59\% \pm 4.65$ (16.94% - 26.24%) using QUID among Malaysian women residing in Selangor (TABLE 5). When the question “Do you leak urine (even small drops)?” was asked, the respondents’ answer Yes or No (without scoring to assess the degree of severity of urine leak), rose alarmingly to $55.5\% \pm 5.61$ (49.89% - 61.11%). One assumption was clear, that due to the construct of the question, using different definition of UI including severity of urine leak and response to the questions (Likert scale or Yes/No response) may influence the prevalence rate. When comparing other local studies whose prevalence rate had been between 9.9% and 64.5%, (TABLE 1), this study’s prevalence rate was higher than some studies [7, 33,146] and lower than others [14, 34, and 102].

In comparison to the prevalence of UI globally which has been estimated to range from 15 to 55% [Baek et al 2016 [110], this study’s QUID-based criteria prevalence was positioned in the middle (21.6%) of the global prevalence range. %) When questioned “Do you ever leak urine even a few drops? with a response of ‘No/Yes’ was used, the ranking altered to the high end of global prevalence range (55%).

Furthermore, the overall prevalence rates reported in local studies were widely variable and almost all had used various international validated questionnaires but none had used the QUID. Secondly, the settings where data had been collected were also widely varied. The various research studies had used medical healthcare

clinics in Penang and Kedah (14), elderly community-based population in Selangor (35), medical and health institution in Perak, [36] community-based women health clinic in Terengganu [102], hospital-based women's clinic in Negri Sembilan (104) and community dwelling postmenopausal women in Kelantan, [15]. One may deduce that the two main factors that could influence the prevalence rate were the types of research tool (questionnaire) used and the types of settings used to recruit voluntary participants.

UI prevalence estimates among community dwelling women worldwide ranges from 10% to 40% [Gleason et al 2013[111] and this study's prevalence rate was again ranked in the middle. Some international studies had higher and other had lower prevalence rates compared to this study. Hence in both local and international studies this study's prevalence rate had ranked in the middle of the range. Based on the use of QUID questionnaire, correct documentation of prevalence had occurred in this study. The researchers had used proper standardized questionnaire with appropriate terminologies and appropriate language (TABLE 4).

Overall, 301 respondents who had responded to the questions in the menopause history, half of them were still within their reproductive phase and therefore did not participate in the menopausal transition history. Surprisingly, both reproductive age women and late menopausal women had a common prevalence of 40.7% while the early menopausal women had a very much less prevalence. Interestingly, minimal urine leak (MUL) was highest (47.1%) in the reproductive age

than the menopausal women; a third (31.4%) was from early (≤ 5 yrs) postmenopausal group while less than a quarter (21.6%) were from late (≥ 5 years) postmenopausal women.

5.3 UI SubTypes

Based on QUID score criteria, three types of UI were identified (TABLE 4) and 46.1% of the respondents with UI (n=30) scored $\geq 4/15$ to 15/15 in the first three items of QUID and were diagnosed as having stress urinary incontinence (SUI). Twenty-two women (33.8%) scored $\geq 6/15$ to 15/15 in the last three questions of QUID and were diagnosed with UUI. Less than a quarter of the women who scored $\geq 10/30$ to 30/30 were diagnosed to have mixed UI (MUI). Of these women with MUI 46.1% respondents (n=6) suffered with stress-predominate MUI and another 53.8% respondents (n=7) complained of urge-predominate MUI [3].

A number of studies from other populations had indicated that mixed UI (MUI) was the commonest type of UI among Asian women followed by stress UI (SUI) [7-8, 12-13] Comparatively, Caucasian women experience more of SUI followed by MUI [7, 11-13] In addition, a significant difference in the prevalence of SUI between African-American and American Caucasian women has also been reported by Diokno. [10] Other American and Norwegian studies had reported a third of women with UI complaining of MUI [11] MUI is known to be more 'bothersome' and has a greater impact on QOL than other types of UI. [3, 9, 112-113] as shown in TABLE 5.

The prevalence of OAB (frequency and urgency symptoms) among women with gynaecological problems, living in Negri Sembilan (TABLE 1) was reported by Ahmad et al. [104]. Once again it is difficult to generalise these results to the general Malaysian population. In a previous study, Thom [12] had documented that two-thirds of women UI complained of MUI followed by a very small percentage of women who suffered from SUI. A number of recent studies from other populations [3, 9, 12-13] had also indicated that mixed urinary incontinence (MUI) was the common type of UI among Asian women.

Contrary to previous studies, this study clearly reported a majority of the respondents suffering from SUI followed by UII and finally MUI (TABLE 4). The findings clearly indicate that the Malaysian women were similar to Caucasian women as well as Norwegian women and contradicted Hempel's [13] finding that Asian women complained more of MUI than SUI. However, Hempel et al [13] was correct in reporting a higher prevalence of MUI among Asian women. During factor analysis of Malay language QUID in this study, item 1 'Do you leak (even a few drops) of urine when you cough and sneeze' (one of the items to diagnose SUI) it was noted to have a higher factor loading and was in the same component as item 4, 5, 6 (items to diagnose UII), indicating a stress-predominate MUI. Based on this study's factor analyses and from previous studies by Hempel *et al.* [13] and Thoms [12], and more recent local studies, it appeared that both Hempel et al. and Thoms were correct in their argument that Asian women complained more of MUI than SUI. Perhaps a bigger sample size of women with UI (n=100) instead of 65 respondents

may have provided a different perspective to the prevalence in the various types of UI.

Finally, women who scored less than 3/15 for the first three questions of QUID (TABLE 4) and less than 5/15 for the last questions of QUID were considered to have minimal urine leak (MUL). Surprisingly, 33.9% or more than a third of the women (n=102) had some degree of urinary leak, albeit the occurrence was “rarely” to “once in a while”. Less than of the women in this cohort did not have any urinary complaints. Narratives on the phenomena of UI are documented on pages 132 to 135.

5. 4 Treatment seeking behavior

Almost half of the women with UI had been having the symptoms for less than a year and more than half had urinary symptoms for two years and more. About two thirds of incontinent women did not seek any form of treatment about their UI. The help seeking or treatment seeking behavior among Malaysian women in Selangor was no different to other women in the world. Even though majority of women with UI had received primary and secondary school education while a smaller proportion of women with UI had received tertiary education but overall most of the women did not seek treatment (TABLE 6). In addition to that, half the women with UI were in some type of employment while the reminder half of women with UI were unemployed. Having received both education and being unemployment, the women had access to reasonable health care services, and yet the Malaysian women with UI were still reluctant to seek treatment. When given a choice, they would prefer taking medication

than undergoing surgery. Those who did seek treatment from either GPs or hospital clinics, 12 women were prescribed potassium citrate while another two had undergone hysterectomy due to prolapsed uterus. Fifteen undertook physiotherapy participated mainly in bladder training for 3 to 6 months and pelvic floor exercise (Kegel). Some had a combination of medication and physiotherapy. Many were shy to disclose to doctors that they had urinary symptoms. Since most women with UI did not consider it to be a life-threatening condition they choose not to mention to the doctor during medical consultation as it was not considered bothersome. In this study, the only measure taken by every woman with UI was to use panty liners (61.5%) and the rest wore double underwear to manage their UI. Narratives are documented on page 162 to 163.

Majority of the respondents were sufficiently educated to comprehend the health issue (UI) and were aware of the medical and healthcare services within the public sectors, which were easily accessible and affordable. The critical issue here was whether the women themselves considered their episodes of UI bothersome enough to seek medical care. Most women with UI were ignorant of the concept of early recognition of urinary symptoms and prevention of UI. This was deduced when only one respondent with UI was aware of the Continence Society Malaysia (TABLE 6). In this study, most women with UI appeared to hide behind their own incorrect perception, low-esteemed attitude and their own stigma towards UI. Their reluctance to seek appropriate treatment was highlighted in their narratives on page 171.

5.5 Associated Risk Factors with UI

Backward Wald logistic regression were constructed adjusting for sociodemographics, reproductive history, BMI, lifestyle behaviour; coffee consumption, alcohol consumption, smoking and physical activities. PFDI, MENQOL, PGWBI. The two negatively associated risk factors identified with UI were lifestyle behaviour of coffee consumption and PGWBI general health score. The two positive risk factors associated with women with UI were menopause specific QOL's symptom of "lacking energy during menopause" and women in employment.

5.5.1. Lifestyle Behaviour

Coffee consumption and UI

More than half the women within the cohort consumed any type of coffee; instant (caffeine 30 mg -90 mg) or local (caffeine 65-125mg). An average 150 mL brewed cup of coffee contains 95mg caffeine [112] In this study; women mainly drank a cup measuring 150-200 mLs /day while 17.6% women drank between 2 and 4 cups /day (TABLE 8). In this study, the Malaysian women who consumed coffee were less likely (adjusted OR=0.543; 95% CI 0.288, 1.022) to report UI compared to women who did not consume coffee. Since the Odds Ratio <1.0, with 95% confidence interval that does include 1.0 indicating that coffee consumption is a non-significant protective factor.

Up to date, none of the cross-sectional Malaysian studies had reported any significant association between coffee consumption and UI or its severity. A meta-analysis of seven studies was undertaken by Sun, Liu and Jiao [113] and they found no evidence associated between coffee/caffeine consumption and the risk of UI. In contrast, a Korean study on postmenopausal women reported an increase in the prevalence of UI with higher caffeine consumption. [110]

Even though conflicting findings regarding the relationship of caffeine intake and UI existed in various cross-sectional international studies, but in most recent studies such as Juru et al's [114] had stated that high caffeine intake (>450 mg/day) was associated with frequent UI and UUI. Similar findings were also made by Gleason et al [111] whose study reported that caffeine intake was associated with any types of UI as well have an association between caffeine intakes with moderate/severe degree of UI. The Malaysian women with UI had taken less caffeine (< 450mg/day) compared to the coffee consuming American women with UI. The Malaysian women also suffered to a lesser degree of UI (mild to moderate) compared to the American women who had complained of moderate to severe degree of UI. Finally, the Malaysian coffee consumers were also less likely to report UI compared to non-coffee consumers with UI.

Caffeine is known to have a diuretic effect and mainly acted upon the smooth muscles contractions in the bladder. Gleason et al [111] had cited Tomlinson et al. case-control study of a cystometric evaluation that detrusor instability was associated with women who consumed high caffeine intake (>400mg/day). It occurrence was

through neuronal activation of the micturition centre. [110] Fortunately, in this study, majority of the Malaysian women were optimally hydrated with total body water (TBW) between 45% and 60% while the remaining 23% (n=69) were under hydrated (35% to 44.9%). In terms of UI, most of the coffee consuming women with UI (88.5%) were optimally hydrated compared to the small number of under hydrated, coffee consumers who also suffered from with UI. Fisher Exact Test (2-sided) was $p=0.027$ indicating a significant relationship between coffee consumption and women with UI. Within the management of women with UI, caffeine reduction may be considered a treatment for women with UI who consume higher daily levels of caffeine (>200 mg/day). Since coffee caused diuretic effect on the bladder in some women, it was also important to inform women to maintain an adequate intake of fluids for optimal hydration. Narratives on lived experiences of recreational and social activities and UI are available on pages 149 to 151.

5.5.2. Social status

Employment and UI

Same proportion of employed and unemployed women complained of UI. In this study, more women with UI were from the lower educational and income bracket. A quarter was either unemployed or homemakers (40%) and another 19% were laborers doing laboring work in the vegetable farms in northern parts of Selangor. Approximately a quarter of woman with some degree of UI also carried out lifting tasks at their workplaces. Lower educational level, low family income [41], laboring occupations and occupational lifting [42] were also considered as risk factors

associated with UI (TABLE 9) but in this study, neither labouring occupation nor occupational lifting was found to be significantly associated to UI. Another twenty percent were self-employed or cleaners. A very small proportion of women with UI were from tertiary and higher income bracket. Nevertheless, these women who were in employment were more than twice likely to report UI compared to women who were unemployed.

5.5.3 Menopause

Overall, of the 301 respondents in this study, half the women were in their reproductive age while the other half was postmenopausal women. In this study, both reproductive age and postmenopausal women in their late (≥ 5 years) postmenopausal transition had reported a higher prevalence of UI (41%) compared to postmenopausal women in their early (≤ 5 yrs) menopausal transition who reported the least (16.7%). Interestingly, minimal urine leak (MUL) appeared to be very common among the reproductive age than the menopausal women. Although, following cross tabulation a significant relationship was noted between UI and menopausal transition, but this association was not statistically significant in the final regression model.

5.5.3.1 Menopause-specific QOL (MENQOL) and UI

In the older age group, some investigators had postulated that multiple factors, especially those seen during climacteric, such as menopausal status [11, 45, 71, 80] and postmenopausal hormone use [49, 54, 57] may account for the etiology of UI in some of the postmenopausal women. Increased risk of incontinence

and worsening of existing incontinence was reported in randomized controlled trials with daily postmenopausal hormone therapy in the HERS study. [53,56] Younger women taking oral contraception [46] had also complained of UI indicating that estrogen and progesterone contained in the preparation may also be associated factors in UI.

In this study, most respondents did not use oral contraceptives instead the majority opted for condom, intrauterine device, intramuscular contraceptives or tubal ligation. In this cohort, no association was noted between women with UI and oral contraceptives. The menopausal respondents in this cohort too did not use HRT so again no significant association was noted between women with UI and HRT.

5.5.3.2 Menopause specific symptoms and UI

Both aging [31, 33] or advancing age [32, 40, 45-47] and menopause [9, 46-49] have already been indicated as risk factor associated with UI. Based on WHO definition of young or old, a very high proportion of women (82.7%) in this study were in the Young category (aged 59 years and less). Another, small proportion of women aged 60 years and more were considered in the Old category. Apart from age, a women reproductive age or menopausal status needs to be considered. Almost all women in this study acquired natural menopause with a small proportion had been induced either surgically or medically.

Most of the menopausal women with UI had suffered from various degrees of menopausal symptoms ranging from ‘not bothered to extreme bother’. Within the 4 clusters of MENQOL questionnaire; vasomotor, psychological, somatic and uro-

genital symptoms, 16 questions were cross tabulated with UI. Three symptoms; one from the psychological cluster - “lacked energy during menopause”, and two symptoms from uro-genital cluster - “reduced sexual desire during menopause” and “vaginal dryness during coitus” were significantly associated with UI (TABLE 10). Women who lacked energy during menopause were more than thrice likely to report UI compared to postmenopausal energised women. Narratives on the lived experiences of women with UI and their marital relationships are available on page 140 to 146.

5.5.4 PGWBI score and UI

Psychological general wellbeing index (PGWBI) consisted of 6 domains; anxiety, depressive mood, general health, self-control, general wellbeing and vitality. On the whole, majority of women with UI scored positively to all the domains. Particularly, the following domains; General Health score ($p=0.008$) and Vitality score ($p=0.052$). Women who were very healthy were less likely to report UI compared to who those women who were fairly healthy.

In contrast, more women without UI had complained of anxiety, depression and reduced positive wellbeing than women with UI. Women in this study, who had low scores in all domains, would invariably indicate their quality of life was reduced irrespectively whether they suffered from UI or not. Finally, women who were very healthy were less likely to report UI compared to who were fairly healthy and bothered about their urinary symptoms. Most Malaysian women did not consider mild

to moderate degree of UI as bothersome but a few who did consider seeking medical treatment.

In comparison with the Australia study, [83] the Australian women with UI had a lower total PGWBI score than did women with no UI. The total PGWBI mean score was significantly lower in women with stress-only UI and mixed UI compared with no UI. No significant difference was observed in the mean total scores between women with UUI and women without UI. SUI was negatively associated with PBWBI subdomains of self-control, general health and vitality whereas those with MUI had lower scores with all the subdomains. The Australian study concluded that the community-dwelling women with UI have significantly reduced well-being [83]. Also, the relationship between different types of UI and well-being appears to differ from the other domains. In this Malaysian study, after cross tabulation, only three domains; anxiety, depressive mood and general health score of PGWBI were either negatively or positively associated with UI. The degree of general health score was fair in women with SUI and was negatively associated with mild depression. The degree of anxiety was mild and fair score for general health among Malaysian women with UUI.

An observation in this study was made that women with **no UI** had reported moderate to severe depressive mood compared to women with UI. While a review of population studies on UI, depression and psychological factors conducted by Avery and Stocks [115], had reported that some studies did observe a significantly higher

rate of depression amongst those with UI [115] Conflicting findings between this local study and those conducted abroad indicate that there is a further need to determine whether sufficient guidelines for assessment, and counseling were present within the community health care centres and hospital settings to ensure early detection of women with both urinary problems and reduced mental wellbeing.

5.6. Pelvic Floor symptoms and UI

Pelvic floor distress symptoms in women are now increasingly recognized as an insidious health problem. It is usually under diagnosed and results in decreased QOL. [67] In this study, women suffering from UI had also complained of having difficulty in defecation (TABLE 13). They strained too hard to complete their bowel action. Sengupta and Hillard [116] had stated that this was the most common health issue. Among the early postmenopausal period was utero-vaginal pelvic organ prolapse, UI, UTI and urogenital atrophy. Even though in TABLE 13, two variables of PFDI “straining too hard to complete bowel action” and “pushing on prolapsed vagina or rectum to complete bowel movement” were found to be significantly associated with women with UI but both did not appear in the final regression model.

Excessive straining could cause increased perineal decent which may stretch and result in damaging the pudental nerve including make the anorectal angle more than 90 degrees [117]. Sengupta and Hillard [116] had documented a study of postmenopausal women recruited in the Women Health Initiative (WHI) trial. It was noted that prolapses progresses and regresses with time and worsening prolapse

occurs frequently with age, multiparity and increased BMI. Due to chronic constipation and straining too hard to defecate an increase in abdominal pressure occurs during defecation. They also suffer from colon-rectal -anal distress due to weakened pelvic floor muscles. From these findings, the researcher agreed that PFDs seriously disrupted women's lives [67-68] and the sufferer's complaints associated with PFDs, particularly UI, can no longer be placed as affecting a small minority. Instead the complaints do affect a significant fraction of the population.

Hereditary was another risk factor for pelvic organ prolapse (POP). In the Women's Health Initiative, almost one fifth of nulliparous women had some degree of prolapse. [68] McLeannan and colleagues [71] reported that studies [55, 69] had established family history as a risk factor for pelvic disorders including urinary A respondent with UI narrated her family history of pelvic organ prolapse (POP) below.

Urinary incontinence is caused by a combination of factors. Interplay between both environment and heredity contribute to the various types of urinary tract disorders. There might not be a single incontinence gene, but a number of different genes play a role; combine with various environmental factors or cause disorders which, in turn, increase the risk of urinary incontinence. It is possible that genetic predisposition to some of the risk factors likes obesity, pelvic floor disorders and autonomic dysfunction together with the environment could lead to urinary incontinence. More studies on these are required to clearly ascertain the role of these in urinary incontinence. Narratives of lived experiences of women with UI and QOL are available on pages 135 to 139.

5.7 Obstetric history

. Some have suggested that the primary cause of UI was related to parity [55,102,104] and fetal weight [102,104], pregnancy, and childbirth, regardless of route. [67-68, 120] This study's finding showed that some women who had undergone the process of childbirth had reported varying degree of UI; women who had delivered 1 to 3 children had complained of either UUI or MUI, while those with a parity of 4 and more had suffered from SUI. Majority of women with UI had delivered babies less than 3.5kg, suggesting that the baby's birth weight was not a risk factor in this study. Following cross tabulation vaginal delivery and episiotomy was positively associated with UI but this relationship was not statistically significant in the final regression model.

In this cohort, majority of the women with UI had experienced vaginal delivery with or without episiotomy and caesarean section (CS). Most child bearing aged women (n=40) who had undergone CS in this study did not complain of UI however a small proportion of women who had undergone CS previously, had experiencing UI (Fisher Eaxct Test 0.014) as shown in TABLE 14.

Its an established fact that continuous exposure to any vaginal childbirth more than CS. increases the risk of experiencing UI in young and middle-aged women [118] This trend was also observed in this study, whereby women who had experienced various types of childbirth both vaginal and cesarean section in the past (TABLE 14) were now experiencing UI after menopause.

. Among healthy women the abdominal and pelvic floor muscles function synergistically. But due to abdominal surgeries and age related postural changes both musculoskeletal and nervous system is influenced by a number of pathophysiological changes that leads to uncoordinated performance. In the absence of micturition control, noticeable changes occur to the pelvic floor muscles activation pattern and they overload the spinal stabilizers causing low back pain. [119] The causes are multifactorial; metabolic, immunological and nutritional and hormonal, hence these changes constantly placed the menopausal women at risk [121].

Another reason worth taking note of is that Nygaard [118] had reported that the outcome from an emergency CS was not necessarily the same as an elective CS. Usually, a CS performed on the onset of labour particularly at the onset of second stage of labour had a different effect on the pelvic floor than an elective one. [118] He reported that several factors such as time since delivery, age at assessment and numbers of deliveries had to be considered because it had an impact on the outcome of the study. In order to eliminate this biasness in this study, women who had undergone recent (within the last two years) pregnancy, childbirth, reproductive tract surgery and abortion were excluded. However, certain amount of biasness did occur because the obstetric history collected had been based upon the respondents' recall. Fortunately, in this study most of respondents were within the 35 to 54 years' age groups hence the biasness was considerably reduced.

Furthermore, less than half the women who suffered from UUI had

experienced normal delivery with intact perineum. Approximately a quarter of women who underwent normal delivery with episiotomy reported SUI. Narratives on lived experiences of UI and modes of childbirth are available on pages 152 to 153.

5.8 Body Mass Index and UI /MUL

The women were almost equally divided into two categories, underweight to optimal BMI score (18.5 to 25) and overweight and obese women (25.1- 30>). In terms of menopausal status again the women were almost equally divided into reproductive age and menopausal categories. Although there had been a strong association ($p=0.006$) between BMI and UI types including MUL but both groups had very small percentage of women with UI types. In contrast, more overweight and obese women (40%) complained of MUL and SUI (TABLE 15).

Similar to this study, Mishra et al's [121] study had revealed that BMI had been positively associated with SUI, especially severe UI occurring during midlife. The rationale being that BMI transition had an accumulative effect, the higher BMI in adult women aged 20 and above years, it would contribute towards the development of SUI and severe UI in midlife. Contrarily in this study, a higher percentage of Malaysian overweight and obese women complained of minimal urine leak instead.

Following Huascar's systematic review [128], he too had suggested that they were a stronger association between weight and SUI, than either UUI or overactive

bladder syndrome. It has been widely speculated that obesity may contribute to SUI through increased intra-abdominal pressure from central adiposity, which in turn increased bladder pressure and urethral mobility, thus exacerbating UI. [129] The same mechanisms are thought to exacerbate detrusor instability and over active bladder. [129]

Weight loss intervention might help to reduce this intra-abdominal pressure on the bladder and pelvic floor, thus reducing SUI. Subak et al. [125] claimed that with moderate weight loss of 13% of baseline weight has been noted to significantly correlate between weight change and decreased initial intravesical pressure. Although over weight and obesity have been associated with increased risk of UI, little has been done in the way of research to identify the mechanism that might contribute to this. This is an area worth exploring in Malaysian women; since no studies on weight loss intervention in women with UI have been conducted. This was an interesting observation in terms of promoting health awareness and encouraging treatment-seeking behaviour for weight reduction in overweight and obese women with MUL and UI especially SUI. Narratives on the lived experiences of MUL and weight gain are available on pages 153 to 155.

5.9 QOL

Menopause-specific QOL (MENQOL)

A few menopausal women who had answered the MENQOL questionnaire and reported no symptoms (score <34) had very small percentage of UI. Those postmenopausal women with UI who scored between 35 and 74; their quality of life Finally, those postmenopausal women who had scored between 75 to 148 and whose quality of life had suffered moderate to severe symptoms reported a high percentage UI as tabulated in TABLE 12.

Most international studies (121-122) had stated that menopause was a risk factor associated with UI. And this study had further highlighted women with UI and who are menopausal are susceptible to reduced quality of life than the reproductive age women with UI. All women suffering from different types of UI had complained of gaining weight, which was a common occurrence among middle aged women. Most probably due to reduced basal metabolic rate and the 'lack of energy' associated with falling estrogen levels in their bodies. Women with UI also complained of urogenital symptoms; increased vaginal dryness leading to dyspareunia, resulting in avoiding intimacy. There is no doubt that the increased severity of both menopausal symptoms and UI will eventually affect the marital relationship between the sufferer and sexual partner. The QOL of both sufferer and sexual partner will gradually reduce unless timely management is accessed. Narratives on the lived experience of women with UI and their perception, attitude, stigma are available on page 139 to 140.

5.9 NARRATIVES

“Oh God, why this!” lamented a respondent in despair

Indeed, female UI does not cause death, but it does take away one’s quality of life. Below are some narratives providing insights of women with UI with their lived experiences of the phenomena.

5.9.1 The phenomena of UI

#1. Described by a 27 years old overweight, single, nulliparous career woman

Respondent: “I had come across people who had this problem but they were mostly elderly people who have had children. And here, I am only about 25 or 26-years-old at that time. I couldn’t accept the fact and became worried. As I gained weight, my thighs expanded. I thought that I was sweating profusely at the lower part of my body and that was the reason why my panty was sometimes wet.”

Interviewer: “When did you realize that you were actually experiencing urine leak and that you have to seriously look at this problem?”

Respondent: “Initially, I thought that I was moving a lot and if I minimize my movements, I will be able to curb the problem. However, I found the problem persisted even if I am not active and mainly sitting.”

#2. Described by a 35-year- old, overweight, married, nulliparous career woman

Respondent: “Then I will control the urge to urinate if I am engrossed in work, especially when I am working at the computer. I will spend at least 15 hours in a stretch when working on my project. I have acquired this bad habit of controlling the urge to urinate even at home. My sister too has the same habit, especially when we go out on shopping trips. We take about four hours to travel from home to run errands but we will usually not urinate until we come back home.”

Interviewer: “I believe you control the urge to urinate during your shopping trips because you are not keen on using the public toilets?”

Respondent: “Yes, that is the main reason.”

Interviewer: “Also, you have this habit of not wanting to relieve yourself even when you are at home citing study related work as a reason.”

Respondent: “Yes, I don’t want my train of thoughts to be disturbed.”

Interviewer: “So, what do you think that you are suffering from?”

Respondent: “I believe that I am having urinary incontinence.”

Interviewer: “When you talk about urine leak, how bad would it get?”

Respondent: “Oh...bad it can be quite bad [strong voice] because you can feel that you are wet. You are worried because you are wet (tone of voice is strong firm). Once you are wet it is irritable, another thing, the feeling itself that somebody might smell you. That you smell of urine and you just want to avoid being near anybody at that stage”.

#3. Described by a 40-years-old, overweight, married, nurse with two young children

Respondent: “Uh... so it’s a frequent thing lah. It often happens when... sometimes... when watching TV or something, I feel the need to urinate, I always don’t make it in time. Don’t make it to the toilet in time, ah – it leaks first. And sometimes when I return from work, I take a long time – long drive between home and the workplace – then I run (laughs) to the toilet. I can’t hold it in.” (*Uh... so benda itu kerap lah. Kerap berlaku bila ini... sometimes...bila tengok TV ke, ada rasa nak terkencing, saya selalunya tak sempat lah. Tak sempat nak sampai ke toilet, ah - dia akan terkeluar dulu. Dan sometimes bila saya balik kerja, I'm take a long time, long drive dari rumah ke tempat kerja, then saya akan berlari (laughs) ke toilet. Saya tak boleh nak taha).*

#4. Described by a 62-year-old, normal weight, post-menopausal, married, retired, diabetic dentist with adult children

Interviewer: “Do you have any urine leak while doing housework?”

Respondent: “While doing housework if I was to cough badly or if I have a bad cough, sneeze very loudly like a real big sneeze then I will have urine leak.”

Interviewer: “When you have the urine leak, Is it mild, moderate or severe?”

Respondent: “Now I will say it is moderate. Previously it was more severe.”

Interviewer: “When you say it was moderate what does that mean to you?”

Respondent: “Just like drops”

Interviewer: “Will you describe it has dampness? Like wetness?”

Respondent: “I don’t feel wetness but I know urine has come out. Drops has come out.”

Interviewer: “Do you need to change your underwear or are you able to carry on with your house work.”

Respondent: “The moment I have to go out I will change as I worry about the smell of urine. That worries me. Nothing else worries me.”

5.9.2 Treatment seeking behavior

A difference in treatment seeking behaviour has also been report between women from developing and developed countries as well as women from high and low-income categories. But this has not been explored in greater detail in Malaysian women. The narrative below illustrates one respondent’s treatment seeking behavior.

#3. Described by a 40-years-old, overweight, married, nurse with two young children-

Interviewer: ‘Do you think it’s a health problem and you need to see a doctor?’

Respondent: “I do think it’s a health problem....it is a health issue. That’s why it has interfered with my daily life activities.... things like these. But to see a doctor...I am not ready yet. I don’t know (laughs). Maybe I don’t know when I should see a doctor and how I should see a doctor, and inform them of this problem. Because.... I don’t know. I haven’t worked out yet what the way is of seeing a doctor and telling them of this problem of mine. And I feel this problem is still not that serious because I can still control it. That’s how I feel for now lah.” *(I think it’s a health problem juga, masalah kesihatan. Sebab tu dah mengganggu saya punya aktiviti harian benda dengan ini. Tapu untuk jumpa doctor tu. Saya belum bersedia. I tak tau. (laughs). Mungkin I tak*

tahu bila untuk I jumpa doctor dan macam mana cara untuk saya jumpa doktor bagitahu masalah ini. Dan, I rasa masalah ini masih tak serious because I boleh control lagi. Tu yang saya rasa buat masa ini lah).

Respondent: ‘Maybe if the condition gets worse, maybe if like now it interferes with my daily activities a little bit, but if the disruption gets worse, until I leak even when I sit down, maybe then I will see a doctor lah). Interviewer.’ *(Bila puan rasa time betul untuk jumpa doktor? Mungkin kalau keadaan ini makin teruk, mungkin kalau dah macam sekarang ganggu aktiviti harian saya, a lit bit, tapi kalau dah makin teruk mengganggu aktiviti sampai saya duduk pun ada leak, mungkin saya akan jumpa doctor lah)’*

Interviewer: ‘Although you work at a gynaecology ward and you see doctors every day but you have not seen a doctor at the clinic.’ *(Walaupun anda kerja di wad gyne, dan jumpa doktor setiap hari, tetapi puan tidak jumpa doctor di klink)’*

Respondent: ‘No (laughs). Not with doctor. Just with friends I have discussed Tak (laughs).’ *(Doktor tak ada lah. Jus kawan tu pernah lah, berbincang dengan kawan)’*

Interviewer: ‘When you discuss with your friends what do you ask? *(Bila anda bincang dengan kawan apa anda tanya?)’*

Respondent: ‘uh...treatment lah...You always hear about treatments that can be done...stress incontinence urine and all that. But I haven’t yet gone through those. They say there’s a machine where you can sit...that maybe I’ll try one day lah, try for the test.’ *(Uh... treatment lah...selalunya ada dengar ada treatment yang doa ada buat. stress incontinence urine semua kan, tapi saya tak gpo through lagi benda tu. Dia orang kata ada satu mesin yang kita boleh duduk, tu maybe satu hari saya akan cubalah, cuba untuk test itu).’*

5.9.3 Impact of UI on respondents’ QOL

Some studies [105,115] conducted abroad did observe that not only was the sufferer undergoing tremendous negative or reduced self-esteem but invariable the QOL of the spouse/partner or family members was also affected. This study noted that

in some instances similar experiences were observed and in others the impact of UI to their QOL was not so great. Some women with UI also described how they coped with episodes of UI.

#3. Described by a 40-years-old, overweight, married, nurse with two young children

Interviewer: ‘About the quality of life, you feel like it is 100% or 50%?’

Respondent: It has been disrupted-almost 20%. (*Dah terganggu, almost 20% dah kacau lah*’.

Interviewer: ‘How has urine leak affected your quality of life?’

Respondent: ‘Hmmm, quality... Some... This thing, I feel it is an issue lah, a small issue for me. So, nowadays I’m in the middle of... starting my diet again. Uh, exercise I now do... because, um, now I’m planning lah, to do um, an exercise routine with my husband, with the family. For example, on the weekends, we wanted to go to the lake and walk around. So now we have more practice in that area lah. So, um... I feel I will want to, want to do Kegel exercises more frequently lah. I want to make it as a routine lah, for me, to prevent this thing from getting worse’.

Respondent: ‘Ah. I have started a diet. I want to... I have started exercising uh... weekends, uh, going to the parks, start walking with my kids and my husband. And then... that lah. And I want to recontinue the Kegel exercises, to make it a frequent... this lah. Sometimes, I... Now also I’m trying to make it a routine, even while driving I try to do the Kegel exercise. Whenever I have time, I will do them. So, I try to change my life lah. (*Ah. I dah start diet. I nak... I dah start exercise uh... weekends, uh, pergi ke taman-taman, start walking with my kids and my husband. And then... tu lah. And I nak continue balik Kegel exercises, nak buat as a frequent... ni lah. Sometimes, I... Sekarang pun I dah try untuk jadi routine, tengah drive pun I try to do the Kegel exercise. Bila I ada masa je, I akan buat. So, I try untuk change my life lah*)’.

#4. Described by a 62-year-old, normal weight, post-menopausal, married, retired diabetic, dentist with adult children

Respondent: “You don’t feel like going out or anything. In the beginning, it was terrible. Sometimes in frustration I would say “oh my god why this?” For me, the

main part when I cannot run and exercise and skip that was very bad for me. I felt I can't carry on. [had tears in her eyes].

Interviewer: “How about your emotional aspect about episodes of urine leak?”

Respondent: “Definitely, it is not good. Because you feel that there are so many things you want to do but you can't do. Like say for example you want to dance sometimes, just can't dance. You want to give a jump sometimes, I feel like I can jump, let me jump over... I can't jump. Definitely I am going to leak if I jump”

Respondent: “And sometimes when you go with the children to the theme parks...I used to enjoy going there. I will join in everything but now I cannot”.

Interviewer: “And you had two boys and a husband who were very, inclined towards hiking, walking, outdoor sports. And then all those things you use to do. So, you find that.”

Respondent: “I can't join in that now. I can't join in that. That is what that puts me off sometimes I want to do. Like the children will say “Mum let's go to the theme parks. Because I was always the one not my husband who will not go but I will go.... for all the jumps and everything. But now I cannot. I am scared of that now because of the leak”

Respondent: “Later part I realized I cannot skip or I cannot run when I wanted very badly to do skipping and sometimes like even dancing, when more vigorous with dancing there will be a slight leak. (voice became soft and un audible). So, once I know which activities will cause urine leak I will not do those activities e.g. dancing and running and skip. I want to skip for exercise purpose. I can't skip...I want to do skipping for exercise purpose but I completely stopped it. Another thing I have is that I sometimes have a sudden jerk in which way; like I trip over something without conscious and just trip over something I have a slight leak. But it is not that bad now. I have improved through the years and because now I do alot of walking. I feel much better this time than last time.’

The impact of UI on a woman's own emotional health is increasingly apparent. There are many studies showing the association between involuntary urine loss and indicators of psychological distress or subjective burden. [2, 71, 79-80] The effect of UI on the emotional health of partners and family and spousal caregivers in particular has been relatively neglected. [105,115] The following narrative by one respondent illustrated the level of low-self-esteem she had been

experiencing since she started having episodes of urine leak.

#3. Described by a 40-years-old, overweight, married, nurse with two young children

Interviewer: “Why have you not mentioned your problem to anyone?”

Respondent: “Maybe I am shy (smiles) and maybe another one, I think it is not serious yet lah. That’s both lah...Shy and not serious. Shy, if people around me, or friends or family members or husband or...know that I have this problem lah. So as long as I can keep it to myself, I keep it to myself.” (*Saya berasa tidak senang dan dan lagipun saya rasa problem bukan serius lagi. Tidak senang jika orang sekeliling, kawan, member keluarga atau suami tahu yang saya ada masalah ini. Selama kita boleh simpan kita simpan*)’.

Respondent: ‘That’s the biggest thing. I feel). So, that is why I don’t want to share this problem with another person. As long as I still can keep I keep as a secret lah, for myself. I feel my confidence has dropped. This are my feelings. That is the biggest thing I feel.’ (*Itulah yang paling besar saya rasa. Ini perasaan saya. Pada diri sendiri saya sendiri rasa “confidens sudah turun” (laughs)*)’.

Interviewer: ‘Why do you feel like that?’

Respondent: Oh (sigh) because I am 40 years old. I feel like I going old lah! (laugh). This (UI) may be one of the symptoms of aging. I feel this may be one of the risk factors, my age and also, I have undergone Caesarian section and my body weight has increased. Because previously before marriage I was just 45 kg. Now it is about 60kg and it has reached 69 kg. But I have try to diet, but I know I don’t diet so well. So, that is what I think. (*Saya rasa ini mungkin salah satu factor, umur saya, dan mungkin sebab ku ta dah pernah melalui Caesar, umur, mungkin berat badan juga bertambah kut. Sebab dulu berat badan saya, uh.... sebelum berkahwin lah, sahaja 45kg. Sekarang lebeh kurung 60kg, kadangkala sampai hingga 69kg. Saya cuba diet, tetapi saya tahu diet saya tidak berapa bagus, so itu saya fikir*).

From the results of the study and the narratives from a select group of respondents there is no doubt that UI has a significant impact on the confidence and self-esteem of the sufferer. It certainly seems to impact their quality of life most of the women with UI. One other aspect that seems to appear from the narratives is their shyness to admit it as a problem and the wish to want to keep it a secret. There

appears to be a fear of stigma associated with this. This certainly hinders their will to seek help for UI. There is certainly a need to address this amongst sufferers of UI.

5.9.4 Perception, attitude and stigma

The perception that it is “normal” for women to have UI [41, 64, 83] and that the condition was perceived by the public as more of a women’s health problem has been cited by many international and local studies. [14, 15, 35, 42, 65, 83) Cross-cultural differences in the attitude and perception by women with UI exist but no phenomenology study has been undertaken in Malaysian women. It is critical that the psychological and mental ill health is always being considered seriously during the medical and surgical management of UI. [115] within some communities, similar to menstruation, leaking urine was considered lack of cleanliness therefore women were prohibited to participate in religious and cultural activities. [64-65, 82]

#1. Described by a 27 years old overweight, single, nulliparous career woman

Interviewer: “How did the experience bother you or affected your mood?”

Respondent: “I became very disturbed wondering why I am going through this problem. I had come across people who had this problem but they were mostly elderly people who have borne children. And here, I am only about 25 or 26 years old at that time. I couldn’t accept the fact and became worried.”

Interviewer: “At that time, have you thought that it could be sweat instead of urine leak?”

Respondent: “Yes, that thought didn’t escape my mind too. As I gained weight, my thighs expanded. I thought that I was sweating profusely at the lower part of my body and that was the reason why my panty was wet.”

Another perspective predominantly observed in women living in countries like Malaysia, Pakistan and Indonesia is that UI is equated with uncleanness or

poor hygiene. [11, 82] Efforts are often made to conceal it. There is a huge barrier of denial and concealment that must be overcome through health awareness before QOL can be improved.

#3. Described by a 40-years-old, overweight, married, nurse with two young children

Interviewer: “Have you been to the doctor?”

Respondent: “Not yet (laughs)”

Interviewer: “Why not?”

Respondent: “Maybe I am shy (smiles) and maybe another one, I think it is not serious yet lah. That’s both lah...Shy and not serious. Shy, if people around me, or friends or family members or husband or...know that I have this problem lah. So as long as I can keep it to myself, I keep it to myself.” (*Saya berasa tidak senang dan lagipun saya rasa problem bukan serius lagi. Tidak senang jika orang sekeliling, kawan, member keluarga atau suami tahu yang saya ada masalah ini. Selagi kita boleh simpan kita simpan.*)

Interviewer: “So how much do you leak?” (*So berapa banyak awak leak?*)

Respondent: ‘It is wet lah. My panties, pantyliner will be wet ...damp (*Panties tu, pantyliner tu akan wet lah, basah. lembap lah*)’.

Interviewer: “So when do you use?” (*So bila you guna?*)

Respondent: “Always if I am going to be walking far, or doing a time-consuming activity. Then I will use a pantyliner. If I work I don’t wear them lah, because the toilet is nearby right. So, I don’t wear them. Except for when I am heading home from work and I take long that’s when it drenches lah. On arrival at home I just enter the bathroom ... then it (urine) comes out. In the bathroom, I don’t make it in time to sit on the toilet lah.” (*Selalu kalau saya nak berjalan jauh, ataupun satu aktiviti yang memakan masalah. Tu akan guna pantiliner. Kalau kerja, I tak pakailah, because toilet dekat kan. So, I tak pakai lah. Kecuali kalau saya... nak balik ke rumah dan ambil masa lama, tu yang dia akan lencun lah. Ababila saya sampai ke rumah saya terus masuk ka bilek mandi... tu(kencing) akan keluar lah sebab tidak sempat duduk diatas toilet lah.*)’

5.9.5 Marital Relationship

The effect of UI on the emotional health of partners and family and spousal caregivers in particular has been relatively neglected. It was considered important to examine the psychosocial impact on the onset of spouse's UI and also to look at the relationship between UI and marital disharmony or divorce.

#2. Described by a 35-year-old, overweight, married, nulliparous career woman

Interviewer: 'I am now going to ask a very private and personal question and you may choose not to answer if you want. Have you experienced urine leakage during sexual intercourse with your husband?'

Respondent: 'Never at any time. I will usually relieve myself before the intercourse. Furthermore, I am trying to conceive so I can't keep washing myself during and immediately after intercourse. And also, my husband and me are very concerned about hygiene. I definitely don't want to be caught in an embarrassing situation.'

#1. Described by a 27 years old overweight, single, nulliparous career woman

Interviewer: 'We are towards the tail end of this interview. I have one final question to ask, which is very private and intimate. At the start of this interview, I asked if you have a partner and you said no. Let's assume that you are married or have a partner and during the intercourse you had urine leak. How would you handle the situation?'

Respondent: 'Then, I would definitely consult a gynecologist because I view this as a very serious matter.'

Interviewer: 'What is it so severe that you are willing to loosen your stand?'

Respondent: 'Because there is another person involved too. My future husband may not feel comfortable with this situation. So, I have to address the problem immediately.'

Interviewer: 'Is it mainly due to hygiene and cleanliness?'

Respondent: 'Yes, and also I am not keen on bothering my husband with my condition.'

#3. Described by a 40-years-old, overweight, married, nurse with two young children

Interviewer: ‘When you have sexual intercourse with your husband, do you leak urine? (*Masa buat hubungan seks dengan suami, adakah bocor kencing?*)’.

Respondent: ‘I go to the toilet beforehand. (*Saya akan ke toilet dulu*)’.

Interviewer: ‘But you don’t know if there is leakage occurring during coitus. (*Tapi you tak tahu ada ke bocoran masa hubungan seks*)’.

Respondent: ‘It doesn’t feel like there is. (*Rasanya tak ada*)’.

Interviewer: ‘Is there any smell of urine or not? (*ada bau kencing atau tidak?*)’.

Respondent: ‘No, there isn’t. (*Tak ada*)’.

Interviewer: Which means there’s no problem. (*So maknanya tak ada masalah*)’.

Respondent: ‘No problem. (*Tak ada masalah*)’

Interviewer: ‘Because there is no episode of urine leak during coitus, you don’t feel there’s a problem? (*So sebab itu, sebab ini dia tak - belum jadi masalah masa hubungan seks, you pun rasa macam tak ada masalah?*)’

Respondent: ‘Ah, yeah. It’s still okay lah. Can manage. (*Ya, masih okay lah, saya rasa. Boleh tahan*)’. (laughs)’.

5.9.6 Spouse’s attitudes towards partner’s episodes of urine leakage

Among adult patients, discussions about UI are usually avoided because they evoke feelings of embarrassment, fear, shame and loss of independence. [65,74] Another common view shared by both public and health workers is that UI is associated with ageing, which may prevent its early recognition and therefore its early

management or may prevent many younger women with UI from seeking help. [64, 79-80] Below are some insights shared by women with UI.

#2. Described by a 35-year-old, overweight, married, nulliparous career

Interviewer: ‘What about your spouse, does he have any issues with you going to the toilet frequently, especially when you are travelling with him?’

Respondent: ‘This to him is a minor issue and he is extremely supportive of me. For your information, I have an aunt who is in her 40s and my mother-in-law who is 65-years-old who have weak bladders too. I usually share my problems with them by putting myself in their shoes. But they assured me that what I am facing is relatively minor issue compared to them’.

6. Described by 45-year-old married housewife

Interviewer: ‘The QUID criteria indicate you suffer from UI. Will you be prepared to participate in the in-depth interview?’

Respondent: ‘No’

Interviewer: ‘Any reason?’

Respondent: ‘My husband does not allow me to participate in the interviews.’

#3. Described by a 40-years-old, overweight, married, nurse with two young children

Interviewer: ‘How many people live with you at home? (*Berapa ahli keluarga duduk dirumah?*)’.

Respondent: ‘Husband and children. (*Suami dan anak*)’.

Interviewer: ‘As mentioned earlier, your episodes of leaking urine is a secret and you feel embarrassed. Have you informed your husband about your urinary leak episodes? (*Ini satu rashi dan puan rasa malu. Ada kah puan bagi tahu kepada suami tentang kebocukkan pundi kencing*)’.

Respondent: ‘So far, umm, my husband did notice that I leaked urine, but uh, so far he hasn’t bothered talking about it’.

Interviewer: ‘How does he know you leak? (*Macam mana dia tahu you terkencing?*)’.

Respondent: ‘Because he has seen me run. (Laughs.) And sometimes when I can’t remove my pants in time, sometimes my pants are wet and he knows. He enters the toilet, okay, I have washed my pants, so he would know lah what happened. (*Sebab dia tengok saya lari. (Laughs.) Dan sometimes bila saya tak sempat buka seluar kan, sometimes seluar saya akan basah dia tahu. Dia masuk toilet okay, saya dah basuh seluar, so dia akan tahu lah*)’.

Respondent: ‘Sometimes when we’ve reached home, as he’s shutting the car door, I would be running to the bathroom, ah, when he finds me wet, bathing, ah, he knows. (*Sometimes bila dah balik rumah tu, dia tutup dia punya pintu kereta, saya akan lari ke tandas, ah, bila dia find saya basah, mandi, ah, dia tahu*)’.

Respondent: ‘So far he has never asked lah, is it bad, or not bad. Because... (pause) it’s not often that he finds me like that... (*dia tak pernah tanya lah, teruk ke, tak teruk. Because... (pause) tak selalu dia jumpa macam itu kan...*)’.

Interviewer: So, he pretends to behave as if he doesn’t know. (*Dia buat macam tak tahu...?*)

Respondent: ‘Ah, he behaves like it is not a problem yet. (*Ah, dia buat macam... okay... tak kisah lagi lah*)’.

Interviewer: ‘Have the children noticed your running to the toilet?’

Respondent: ‘The children, they’re still small, right?’

Interviewer: ‘Don’t they ask you why mother runs to the toilet?’ (*Adik tak tanya mengapa ibu lari ke tandas?*)’

Respondent: ‘They know! They know (*Dia orang tahu! Dia orang tahu...*)’.

Interviewer: ‘What do they know? (*Apa dia orang tahu?*)’.

Respondent: ‘Because if I run, I surely head to the toilet. (Laughs.) They’ve noticed that. (*Sebab kalau saya lari tu mesti saya akan tuju ke tandas. (Laughs.) Dia orang sudah notice*)’

.

Interviewer: ‘They have seen – noticed – and they know, mother is running to the toilet to urinate. (*Mereka sudah nampak dan tahu, oh, ibu nak lari ke tandas nak kencing*).

Interviewer: Is any other member of the extended family aware of your health problem?

Respondent: ‘So far I haven’t discussed lah, with my family... and I’ve never asked a family member if they have the same problem as me or not. Because they all live in Kelantan... so so far... And we just meet sometimes so it’s rare to talk about these kinds of things. (Not ready yet to discuss. *(So far I tak discuss lah, dengan my family... dan tak pernah tanya family member they all ada benda yang sama macam saya atau tidak. Sebab dia orang duduk dekat Kelantan... so so far... And we just meet sometimes sometimes kan so jaranglah nak bincang benda macam it)*’.

Respondent: ‘Not ready yet. *(Tak bersedia lag)*’.

In this study, the attitude, perception, and stigma of the women, spouse and family members rather than their level of education was considered to influence the women’s treatment seeking behavior. Another challenge worth considering was with such negative perception and attitude towards UI, would these women be receptive to being educated in their health problem. That is becoming awareness of its prevention and early management. It is apparent that health professionals would first need to consider and deal with the psychological makeup of the woman before learning about UI can take place

Women with UI were secretive about their urine leak and did not share this information with their spouse readily. In this study, the issue of marital disharmony did not occur as many found their spouses tolerant about their inability to control their bladder adequately. Those women who were interviewed had said they emptied their urinary bladder and washed their genitalia before engaging in coitus so there were no embarrassing moments about urine leak during sexual intercourse. Furthermore, having a wash after sexual activity was also a norm among Malaysian women. So, if there was any trace of urine leak it was managed immediately without any discussion with the spouse.

It has been reported that female UI, urgency and frequency significantly impair the quality of life of both young and older women and has negative effect on partner's relationship [2, 6,105]. Similar trends were also observed in this study. There was a negative effect on the QOL of both sufferer and partner. Most of the women with UI in this study did not report any urine leak during coitus. In contrast to reproductive age women, middle aged menopausal women suffering from UI had uro-genital symptoms too, which resulted in severe reduction in their QOL compared to younger age group. However, both groups were reluctant to seek medical treatment due to their own negative perception as well as to the negative societal stigma.

Low et al [14] had reported that of those who did not seek medical treatment, majority revealed that the major reason was a lack of understanding of urinary symptoms and of the availability of effective treatment. Patients are not always comfortable talking about the subject with their doctors, so it can be a challenge for the clinicians to inform the afflicted woman about the condition and her treatment options. This information is of great importance for the management of UI in general. Without appropriate treatment or management, UI may lead to serious psychological and social complications such as depression, anxiety, embarrassment and low self-esteem in these women. [65] There is little doubt that UI is a problem that often goes unreported by the majority of adults who are anxious to conceal the problem or are reluctant to discuss it. [14, 65, 115] Many therefore, shy away from seeking treatment and only a low percentage of patients seek help for their problem. Perhaps it is better to first treat the depression successfully; only than to treat the UI since the sufferer would be more incline to cooperate with the physician. Unfortunately, a psychosocial barrier to treatment such as reduced help-seeking continues to present a dilemma.

5.9.7 Women with UI and pelvic floor squeeze and family history

#4. Described by a 62-year-old, normal weight, post-menopausal, married, retired diabetic, dentist with adult children

Interviewer: “What about when you decide to watch a movie or attend a conference or concert and are seated in a place for two to three hours? Do you leak urine?”

Respondent: “Then the best part of it for me. When I am seated and I cough or sneeze I don’t leak. I rather be seated, if I am seated I don’t leak.”

Interviewer: “So if you are standing and are no longer crossing your legs...”

Respondent: “I leak”

Interviewer: “when you are walking?”

Respondent: “I leak if I am coughing. Yes”

Interviewer: “If you are coughing then you leak?”

Respondent: “That is why sometimes I try to... squeeze my legs when I am going to cough I try to squeeze my pelvic floor ... Like within your legs you squeeze yourself.eh then I may have the mildest, like very slight leak will come and sometimes no leak. That is why the moment I am coughing. I tend to stand still and squeeze myself.”

Interviewer: “Yah even then do you still leak?”

Respondent: “Sometimes yes and sometimes no”.

Interviewer: “Depends on how strong your squeeze is?”

Respondent: “Depends on how deeply I am coughing, if I have a bad cough then the exertion will cause the leak. That is why if I am seated then I don’t have the problem.”

Interviewer: “So when you are standing then you will cross your legs?”

Respondent: “I will squeeze my legs so that the leak is minimum.”

Respondent: ‘If standing and you leak than you don’t want to sit down. You know why, like me I wear pants. When you sit down the outer layer will get wet, whatever blouse or shirt you are wearing might get wet. You rather remain standing if you do not have a change. Because sometimes you are at official function you are dressed up nicely, you cannot go and change so you remain standing. I will only worry that if I leak then the outer layer will get wet if I go and sit down. I better not sit down.’

Interviewer: “Do you empty your urinary bladder regularly?”

Respondent: “If I have not taken too much water for the day I can hold for three hours. That is not a problem. Then I want to empty my bladder. I don’t want a leak to take place”.

Family History of Pelvic Floor Prolapse

#4. Described by a 62-year-old, normal weight, post-menopausal, married, retired diabetic, dentist with adult children

Interviewer: “Is there any family history of prolapses?”

Respondent: “Actually I don’t know. My mother passed away when she was very young. I would not know. Whereas my eldest sister she had it. When she went for her womb removal they lifted her bladder. That’s when she was in Australia. But she is perfect with that and she has no problem with any leak since.”

Interviewer: “So when did her problem start?”

Respondent: “Actually, I don’t know”

Interviewer: “Do you remember how old she was?”

Respondent: “She was very young. She was in her early thirties when her womb was removed.”

Interviewer: “Did she have any children?”

Respondent: “She had two boys.”

Interviewer: “Also what sort of delivery? Do you know?”

Respondent: “She had vaginal delivery for both of them. Later she complained of urine leak before she was going for her hysterectomy, they lifted her bladder and gave support to her bladder.”

Interviewer: “There is a family history of prolapse of the urinary bladder in your sister.”

Respondent: ‘Yes’

Health related QOL represents the patient's evaluation of the impact of their health problem (UI) on their QOL and the management of their complaint. Dupuy's [91] Psychological General Well-Being Index (PGWBI) questionnaire in Malay language was considered an appropriate tool to measure the QOL of Malaysian women with UI.

5.9.8 Women with UI and their recreational and social activities

UI had often been associated with significant physical morbidity, loss of independence, decreased QOL and decreased participation in social and domestic activities. [44, 62, 79] Narratives below highlighted the experience by women with UI.

#2. Described by a 35-year- old, overweight, married, nulliparous career woman

Respondent: 'I have resigned to the fact that I do have problem controlling my bladder. I have to cope with it by subscribing to several methods that I find best. I would like to share with you my experience coping with this condition when I was young. My family lived on the fifth floor of flats that had no lift facility. I would refuse to drink water after college because I knew very well that I would wet my panties while climbing the stairs. I would never drink water before leaving house because I may wet my panties in the bus while travelling'.

Respondent: 'I was either 22 or 23-years-old at that time. Due to low water intake, I became very tired. I too suffered from improper flow of urine at that time'.

Interviewer: 'What did you do to prevent these symptoms from recurring?'

Respondent: 'I drank a lot of warm water at night while watching the television and before going to bed'.

Interviewer: 'Don't you mind waking up at the midnight to relieve yourself, should the need arise?'

Respondent: 'Not at all. I don't mind even if my sleep is interrupted.'

Interviewer: ‘Have you wet your bed at any time?’

Respondent: ‘Not at all’.

#3. Described by a 40-years-old, overweight, married, nurse with two young children

Interviewer: ‘Okay. How about when you go out to see a film or a concert? (*Bila keluar pergi tengok gambar atau konsert*)’.

Respondent: ‘To the movies?’

Interviewer: ‘Yes, do you feel like you need to see where the toilets are? (Ya, adalah puan tengok mana tandas?)’

Respondent: ‘Yes, I look for them. I will ‘survey’ where the bathrooms are first. Before I enter a movie, I survey, where the toilets are’.

Interviewer: ‘And once you’ve surveyed and know where the toilets are, you’re at ease, and relax. (*Dan sekali you sudah survey tahu mana toilet, you senang hati*)’.

Respondent: ‘Yes, I’m okay. (*Yes, saya okay*)’.

Interviewer: ‘And how about drinks and all that, like many people when they see a film, they eat and drink, how about you? (*Dan macam mana minuman, dan semua, macam ramai orang bila dia tengok gambar, dia ada makan, dia ada minum, macam mana puan?*)’

Respondent: ‘Ah, no. I do not control. I do drink, get drinks and all when I go to a movie. But if the movie is, say 1 hour 45 minutes, like that, or an hour, I will go to the cinema toilet lah. Maybe once or twice. Maybe between that. (*Ah, tak ada. Saya tak ada control. Saya memang minum, ambil air semua masuk wayang. Tapi kalau wayang itu, katalah 1 jam 45 minit, macam tu, ataupun 1 jam, saya akan ke tandas dipangung wayang lah. Maybe sekali atau 2 kali. Maybe between that*)’.

Interviewer: ‘When you go to community function and participate in communal meal then how do you cope? (*Bila pergi kenduri di rumah jiran, macam mana awak kawal?*)’

Respondent: ‘I will always urinate beforehand. Before I go out I urinate. Make sure my bladder is empty. I then feel at ease to go. Then if I go to the place of community function, or to a restaurant, I always survey, okay, does this restaurant have a toilet or not? (Laughs). I will look for one. (*Selalu saya akan kencing dulu lah. Sebelum saya keluar saya akan kencing dulu. Make sure bladder saya kosong. Saya akan senang*)’.

hati untuk pergi. Then kalau pergi tempat kenduri pun, selalu, ataupun, ke kedai makan, selalunya akan survey, okay, kedai makan ini ada toilet ke tak? (Laughs.) Saya akan cari).

Interviewer: (Laughs.) ‘Okay, when you go into a shop you see if there’s a toilet, you sit and eat. (Okay, jika kedai you masuk dan tengok jika ada toilet puan duduk makan)’.

Respondent: ‘Or if I have emptied my bladder before going to the restaurant, then I am okay. But not more than 3 or 4 hours then I need to use the toilet. (Yeah. Ataupun kalau macam saya dah kencing sebelum pergi kedai, it's okay. Tapi jangan lebih pada 3, 4 hours lah. Lepas 3 atau 4 jam saya akan cari tandas)’.

Interviewer: ‘When you drive the car yourself then you are unable to control your urinary bladder. (Bila puan mandu kereta sendiri, baru puan tak boleh kawal pundi kencing)’.

Respondent: ‘Yes, that is correct. (ya, itu betul)’.

#4. Described by a 35-year-old, overweight, married, nulliparous career woman

Interviewer: Do you experience urine leak when coughing or sneezing?

Respondent: Not really. However, I experienced urine leak when doing vigorous exercises.

#5. Described by a 58-years old, obese, diabetic housewife with adult children

Interviewer: ‘When do you experience urine leak?’

Respondent: ‘Walking yes. The panties are wet slightly. I can reach the door without leaking but when I am undressing to urinate the urge is very strong but when I urinate it is only a few drops. When I have gone out and coming back from out of the car I cannot “Tahaan” (cannot control). Even though I try to control, can hold but a little bit does leak out’. ‘For me, the minute I come home I am running to the bathroom. In my mind, I know that I am not going to urinate a lot or fully but still I am running’.

#6. Described by a 62-year-old, normal weight, post-menopausal, married, retired diabetic, dentist with adult children

Interviewer: ‘You found you had it (urine leak) only when coughing and sneezing.’

Respondent: ‘Yes but later part I realized I cannot skip or I cannot run when I wanted very badly to do so. Sometimes like even dancing, when more vigorous with dancing there will be a slight urine leak’.

Respondent: ‘But the bad leaks have only been three or four times. So, once I know that activities so I will not do those activities e.g. dancing and running and skipping. I want to skip for exercise purpose.’

Interviewer: ‘Dancing is another. What about walking?’

Respondent: ‘Walking is ok, I never do skipping nowadays. I can't skip...I want to do skipping for exercise purpose but I completely stopped it. Another thing I have is that I sometimes have a sudden jerk like I trip over something without conscious then I have a slight leak. But it is not that bad. Maybe I have improved through the years because now I do lot of walking. I feel it is much better than last time.’

5.9.9 Women with UI and modes of childbirth

#3. Described by a 40-years-old, overweight, married, nurse with two young children

Interviewer: “Could you please tell me a bit about your urinary incontinence problem?”

Respondent: “This problem started after I gave birth to my child lah, almost 3, 4 years ago, Uh, I always, when... I am unable to hold in my urine. It leaks by itself, uh... Usually when I sneeze or cough, it comes out, and my underwear becomes wet. And sometimes, when I feel uh... that I need to urinate, I always run to the bathroom and I don't make it to the bathroom in time and my urine leaks.” (*Masalah ini saya berlaku... Masalah ini berlaku selepas bersalin anak saya lah, almost 3, 4 tahun lepas. Uh, saya selalu bila... tak boleh nak tahan terkencing. Dia akan terkeluar sendiri, uh... Selalunya bila time I bersin or batuk, dia memang akan terkeluar, dan seluar dalam saya akan basah. Dan sometimes, bila saya rasa uh... nak terkencing, saya selalu berlari ke tandas dan saya tak sempat sampai ke tandas dan air kencing saya akan keluar*).

#4. Described by a 62-year-old, normal weight, post-menopausal, married, retired diabetic, dentist with adult children

Interviewer: “How many children do you have?”

Respondent: “I have two boys who are adults now.”

Interviewer: “Did you experience any urine leak episode during your pregnancies or after childbirth?”

Respondent: “Actually[pondering and thinking a second or two] but during my 2nd pregnancy while carrying the baby whenever I sneezing or coughing I will have a urine leak. To me it was like, maybe too much weight on my bladder and all that. But at the end of the day after delivery I did not have any urine leak. I was ok until I was diagnosed a diabetic in my forties (1992). Then I realized, every time I cough or every time I sneeze then I would leak urine”.

Interviewer: “What sort of delivery did you have?”

Respondent: “My first one was a caesarean section and second one was a vacuum.”

Interviewer: “During that time what was the state of your pelvic floor?”

Respondent: “I had no problems with my stitches.”

Interviewer: “Did anyone talk about kegel exercise to you?”

Respondent: [thinking]No

Interviewer: Have you heard of Kegel exercise?

Respondent: Yes. I have, but during that time no body mentioned it [Kegel].

5.9.10 Women with UI and increased weight gain

#1. Described by a 27 years old overweight, single, nulliparous career woman

Interviewer: ‘Can you tell me when did you first experience it [urine leak]?’

Respondent: ‘It happened when I gained weight. At that time, I was doing my Master’s degree. My weight increased due to stress. Then I started experiencing urine leakage’.

Interviewer: ‘Can you tell me how much weight you gained at that time?’

Respondent: ‘My initial weight was about 58 to 59 kgs. Then it increased to about 68 to 69 kgs. In total, I put on about 10 kgs.’

Interviewer: ‘Can you tell me the duration within which you gained weight?’

Respondent: ‘In less than a year, I believe’.

Interviewer: ‘In less than a year, you gained 10kgs?’

Respondent: ‘Yes, I did’.

Interviewer: ‘Then, what happened? Can you elaborate?’

Respondent: ‘Sorry, I didn’t get you. What would you like to know? Is it about my weight or other matters?’

Interviewer: ‘It could be any matter that you would want to bring to my attention’.

Respondent: ‘I used to be active earlier. When I gained weight, I started leading sedentary life. That was when I started encountering urine leakage problem’.

Interviewer: ‘So, your problem was solved after the medication?’

Respondent: ‘Yes, indeed, I was fine after the medication. In fact, I also lost some weight. But the problem recurred when I was doing my higher education’.

Interviewer: ‘When you say during studies, at which part of the programme you started encountering this problem again? Was it during revision or writing of your project?’

Respondent: ‘When I was doing studies, I again gained weight. I have this tendency of gaining weight whenever I am stressed’.

Interviewer: ‘You again had this problem during data collection as well?’

Respondent: ‘Yes. It was again during data collection when I was required to frequent the hospitals. My weight increased by about 13 kgs due to the study stress’.

Interviewer: ‘You mentioned earlier that you lost some weight after the medication during your first encounter. How much weight you were able to shed?’

Respondent: ‘I lost about 6 kgs, I guess’.

Interviewer: ‘After losing weight, did you experience urine leakage?’

Respondent: ‘Actually, I realised that I only had the problem when I was heavier’

Interviewer: ‘In the interim, you didn’t experience urine leakage’.

Respondent: ‘Yes. I only started having the problem again after gaining weight due to study stress and also due to my habit of controlling the urge to urinate’.

Interviewer: ‘Did you consult a doctor when you had your second encounter?’

Respondent: ‘No, I didn’t. I wanted to address the problem on my own. I knew that if I consult the GP again, he will put me through medication just like earlier. I found that the root cause of this problem was my weight gain due to study stress. I want to complete my study first before putting a complete stop to this problem. As a short term, precautionary measure, I joined the gymnasium to get involved in exercises that would help strengthen my abdominal muscles and also to keep my weight in check’.

#3. Described by a 40-years-old, overweight, married, nurse with two young children

Interviewer: ‘What was your weight before marriage?’

Respondent: ‘Oh (sigh.) I guess my body weight has increased. Because before marriage I was just 45 kg. Now it is 60-something kg. Sometimes it reaches 69. But I try to diet, but you know diet not so well kan. That’s why lah I think. (*mungkin berat badan juga bertambah kut. Because dulu berat badan saya, uh... sebelum berkahwin lah, just 45 kg. Now 60-something. Sometimes reach 69. But I try to diet, but you know diet not so well kan. So that’s why lah I think*)’.

Interviewer: ‘You were 45 kg before marriage. How old were you then?’

Respondent: ‘Yes. Um (thinking) 27... 29 years old. I was still 45 kg’.

Interviewer: ‘When did you... gain weight till you were 69 kg? (*Bila berat badan puan tambah sampai 69 kg?*)’

Respondent: ‘Ah. After delivered second child lah. First child I still continue with my diet, my weight still balanced at 55, but after second child, quite busy. I did not take much care of my body. With less exercise, my body weight started to increase. (*so, dah tak jaga sangat berat badan, kurang exercise, so my body weight dah naik*)’.

Interviewer: ‘Yes. So now your body weight has risen, do you feel it is difficult to control your bladder? (*So, masa sekarang puan berat badan sudah meningkat, puan rasa nak kawal pundi kencing susah kah?*)’

Respondent: ‘Yes (*Ya*)’.

Interviewer: ‘Where do you think you are carrying your extra body fat? (*Lebih lemak ada di mana di kawasan badan puan?*)’.

Respondent: ‘Most fat is at the abdomen and thighs. (*lebih lemak ada dekat perut dengan paha lah*)’. Macam pear shape. (Laughs.)

6.0 SUMMARY

The study on UI in Malaysian women revealed wide ranging prevalence rates in local studies. The reason/s for this was not immediately apparent but it might be due to the study design, the type of questionnaires used, the terminologies and definitions used, and the population group under study. Therefore, a validated standardized, symptom-based with degree of severity questionnaire in appropriate languages was necessary. One such questionnaire called Monash Malaysia women health questionnaire (MMWHQ) in *Bahasa* Malaysia or Malay language was identified and used in this study. It was able to document accurately the prevalence and types of UI, current risk factors, QOL and treatment seeking behavior associated with urinary symptoms including UI, urgency and frequency in Malaysia.

This study was an analytical, cross sectional, population-based study conducted in Selangor. Using the QUID, the UI prevalence was documented at 21.6% (n = 65) based on the QUID score criteria. Most previous, local studies that had been conducted at healthcare centres had reported the prevalence value between 13.1 to 44.1%. Unlike most local studies, this population based study was the first to use QUID score criteria to document accurately the prevalence in Selangor.

In terms of UI types among these women with UI (n = 65), the QUID score criteria were applied. Forty-nine percent of these woman had SUI ($\geq 4/15$), which was the commonest type, followed by 34 % with UUI ($\geq 6/15$) and finally 20% MUI

($\geq 10/30$). Another 40% of the women had complained of OAB symptoms including occasional episodes or minimal urine leak (MUL). These women had scored $\leq 3/15$ for SUI or $\leq 5/15$ for UUI symptoms. Most local studies had reported SUI as the commonest type instead of MUI, which had been reported as the commonest types among Asian population in US.

The final model following Wald backward regression documented the following negative or positive associated risk factors of women with UI.

i. Lifestyle behavior - daily consumption of coffee

Women, who consumed coffee daily, were less likely to report UI compared to women who did not consume coffee and in this study coffee consumption was considered a non-significant protective factor.

ii. Socio-economic status

Women who were in employment were more than twice likely to report UI as compared to unemployed women with UI.

iii. Menopause

Women who lacked energy during menopause were more than thrice likely to report UI compared to those women with energy and also suffered from UI.

iv. PGWBI- General health

Women who were very healthy were less likely to report UI compared to those who were fairly healthy.

Following descriptive statistics cross tabulation, the mentioned risk factors below were considered to be significantly associated to women with UI even though they did not appear in the final regression model

i. Age – common risk

SUI was highest (41.7%) amongst reproductive women aged 35 to 44 while UUI was highest (50%) in the middle-aged women aged 45 -54 years.

ii. Increased weight gain (BMI) – common risk

Most women with UI were in the overweight category with weight between 51 and 75 kg. Raised fat percentage score of between 25 and 30% placed women with UI in the overweight category.

iii. Pelvic floor distress inventory (PFDI)

Four items from pelvic floor distress inventory (PFDI) had shown some association with UI and types. Three symptoms were from the CRADI domain while 1 item was from POPDI.

Quality of Life

Poor treatment seeking behavior based on the sufferer's negative perception, negative attitude and negative social stigma towards urine leak episode were observed in this study. Women with UI had reduced self-esteem, mild anxiety and depression with fair general health score. This evidence was clearly indicative of reduced psychological wellbeing. Women with UI relied more on conservative treatment such

as physiotherapy rather than medical treatment. In terms of self-care action all opted for panty liners or double underwear. Furthermore most women with UI were either ignorant of their urinary symptoms or were slow to recognize the symptoms as a health problem.

Reduced QOL for both sufferer and partner due to women with UI may also have co-morbidity conditions such as diabetes, hypertension, obesity and other medical conditions, associated menopausal symptoms, pelvic floor distress symptoms and reduced psychological general wellbeing which may hinder treatment seeking behavior. The impact of urinary incontinence on a women's own emotional health is increasingly apparent. Many studies have showed an association between involuntary urine loss and indicators of psychological distress or subjective burden. Even though some considered it bothersome but many had the view that they were coping with the issue satisfactorily. Therefore, it was considered a condition that did not warrant any attention from the doctors as the sufferers appeared to be coping and managing their UI.

7.0 CONCLUSION

MMWHQ was recognized as a standardized instrument that contained internationally validated Malay language QUID, MENQOL, PFDI and PGWBI. Based on the QUID score criteria, this population based study reported the prevalence of UI at 21.6% in women living in Selangor. It was higher than some previous local studies, which documented the range between 9.9% and 19%. However, a more recent local study had reported the prevalence of UI at 44% in married, Malaysian women living in Terengganu, albeit the researchers applied a different internationally validated questionnaire. SUI was more prevalent than UUI and MUI. The final regression model indicated that employed women were more than twice likely to report UI, postmenopausal women who lacked energy were more than thrice likely to report UI compared to energized postmenopausal women with UI. Women who were very healthy were less likely to report UI compared to fairly healthy women with UI. Women who consumed coffee daily were less likely to report UI compared to women who did not consume coffee and in this study coffee consumption was considered a non-significant protective factor.

Discussion about UI among women was commonly avoided because they evoked feelings of embarrassment, fear, shame, and the loss of independence. Women are not always comfortable talking about the subject with their doctors, so it can be a challenge for the clinicians to inform the afflicted woman about the condition and her treatment options. There was a huge barrier of denial and concealment from their partners and family members. To overcome this barrier,

health professionals need to be proactive through identification of risk factors associated with female UI. Also, to educate women on early detection of abnormal urinary symptoms through health awareness activities before QOL could be improved. Reduced psychological general wellbeing may also hinder treatment seeking behavior. Particularly, incontinent persons who also experiencing co-morbid depression was unlikely to seek help for their incontinence. Their QOL may be lower, they may be more socially isolated, their perception of symptom severity may be greater, and their use of health services may be less when compared to individuals with incontinence who was not depressed.

There is little doubt that UI is a problem that often goes unreported by the majority of adults. Many therefore, shy away from seeking treatment and only a low percentage of patients seek help for their problem. Unfortunately, reduced help-seeking behavior continues to be a current dilemma.

8.0 LIMITATION OF STUDY

Although the population sample size ($n = 301$) was appropriate but the number of women with UI was small ($n = 65$). The power of the study was achieved but a bigger sample size of perhaps 100 women with UI would have shown better statistical results.

9.0 FUTURE RESEARCH PROJECTS

In this study, there appeared to be a link between UI and components of MTs such as obesity. Although, overweight, obesity and sedentary lifestyle have been associated with UI but very few studies have been conducted in Malaysian women to confirm the association of these risk factors with UI. This research gap requires further study.

This study's findings, reported an association between colorectal distress inventory (CRADI) symptoms and types of UI. Women with UI had also narrated anecdotal experiences of undergoing vaginal childbirth including developing antenatal UI, which ceased postnatally, only to have it develop in mid-life. Very few studies had highlighted that antenatal UI could be a marker of poor pelvic floor function that can be potentially improved with pelvic floor muscle strengthening from kegel exercises. The study highlighted a correlation between antenatal UI and postnatal FI and UI. Future prospective research is indicated to determine whether identification and intervention could decrease future morbidity among Malaysian women.

Both UI and depression have an impact on quality of life. However, literature review has shown that little recent research has considered the association between incontinence and psychosocial factors, such as help-seeking behaviour and QOL, with depression. When incontinence and depression are combined, they have a greater effect on psychosocial factors than when these conditions stand alone. Further research in this area is warranted, particularly into interventions that are able to manage the symptoms of either condition.

Although a number of risk factors have been identified but the underlying mechanisms that might be involved in UI are poorly understood. In this regard, studies involving physiology of urinary continence and pathogenesis of urinary incontinence need to examine. The role of autonomic nervous dysfunction has to be explored too as UI might involve alteration in the micturition reflex apart from just incompetent bladder sphincters.

10.0 RECOMMENDATION

In view of the magnitude of the health problem, it has become imperative that more attention is paid to early intervention (primary intervention) as this might help to alleviate the complaints, or reduce suffering and burden of urinary incontinence as well as reduce its impact on the quality of life. For this to be possible a more reliable and standardised questionnaire such as QUID has to be used to get a better measure of the prevalence and magnitude of problems associated with UI in the Malaysian women.

In order to achieve the Healthy People 2020 goal in any community, the first step for the health professional is to determine the current status of prevalence, risk factors, treatment seeking behaviour, and quality of life of women living within the community. By developing participatory research program, health professionals help communities to identify, understand, find solutions and determine common goals in resolving community problems. Hence, the researchers used the Community-As-Partner Model–Community Assessment Wheel framework (FIGURE 14) [150 p.149-150]. It was used to assess a defined group within the community in this instance, healthy women aged 18 years and above who met the inclusion criteria. Through a population based survey, using culturally congruent questionnaire, the prevalence, risk factors and health related quality of life of women with UI living within the communities was undertaken.

Furthermore, the goal of Healthy People 2020 was to promote quality of life, healthy development and healthy behaviour across all life stages. The QUID could be

used as an educational tool to enable women to recognize the type of UI they were suffering from and seek appropriate treatment. It was devised to educate women to recognize the severity of their UI symptoms and considered it a health problem. They need to comprehend that early medical intervention also indicated a good prognosis. This study has provided the new information on urinary incontinence in women in Malaysia, in particular the risk factors and the impact of UI on QOL, relationship with the spouse and family dynamics. Health preventive and promotion activities for all throughout the lifespan could be considered, including mental health. For example, weight reduction programme through regular physical activities (brisk walk and kegel exercises) and upkeeping psychological wellbeing.

Pregnant women could be encouraged to attend antenatal classes to be educated on the importance of early detection of urine leak following childbirth and during postnatal period and its early management is vital. Family planning and menopause clinics are vital in order for medical and health professionals to sustain continuous health promotion activities for every women irrespective of age.

The attitude of medical and health professionals need to be appropriate for women to approach the healthcare services in a timely manner. Collaborative management of UI, especially when dealing with sensitive health issues, was considered paramount between patient, medical and health professionals.

This hopefully will enable women to receive personalised, user friendly service resulting in good compliance from patients and better prognosis in the medical

and surgical management of various types UI . These additional new findings could contribute towards existing medical evidence based practice within local context.

Therefore, the researcher recommended that the Ministry of Health Malaysia implements evidence based practice through the use of the mentioned framework in Figure 14 p.182. The QUID could be used as a diagnostic and educational tool. Various intermittent health promotion activities could be conducted to the community dwelling women via local health campaigns or continuous health education and health programmes at local healthcare centres. Topics such as health awareness on urinary symptoms of an overactive bladder, minimal urine leak and UI which could be introduced to adolescent school children in order to create awareness of unusual, abnormal urinary symptoms and the importance of developing a treatment seeking behavior. The school health nurses are in an excellent position to perform the task of teaching this health issue in school on a regular basis. Lifestyle modification using ESSENCE model, stress released programme e.g. mindful eating habits, applying Prochaska DeClemente behavior change cycle, teaching progressive muscle relaxation technique and mindfulness exercise, conducting a series of physical activities including kegal exercise on regular basis to motivate women to modify their lifestyle to a healthy one. Highlighting risk factors associated with UI among Malaysian women was also considered important. Daily coffee consumers, being fairly healthy, being in employment and postmenopausal women who lacked energy were more likely to report UI than women with UI who were; non-coffee consumers, unemployed, postmenopausal energized women and healthy women

Conducting health awareness on urinary symptoms and encouraging treatment seeking behavior among pregnant and postnatal women should be encourage at antenatal and postnatal parentcraft. The research finding suggests that health policy makers to provide suitable, culturally congruent healthcare services to women, partners and family at community based centres and hospital settings. It should provide for research opportunities in ways to minimise the impact of UI on QOL and optimise mental health among Malaysian women.

The Community-As-Partner Model – Community Assessment Wheel

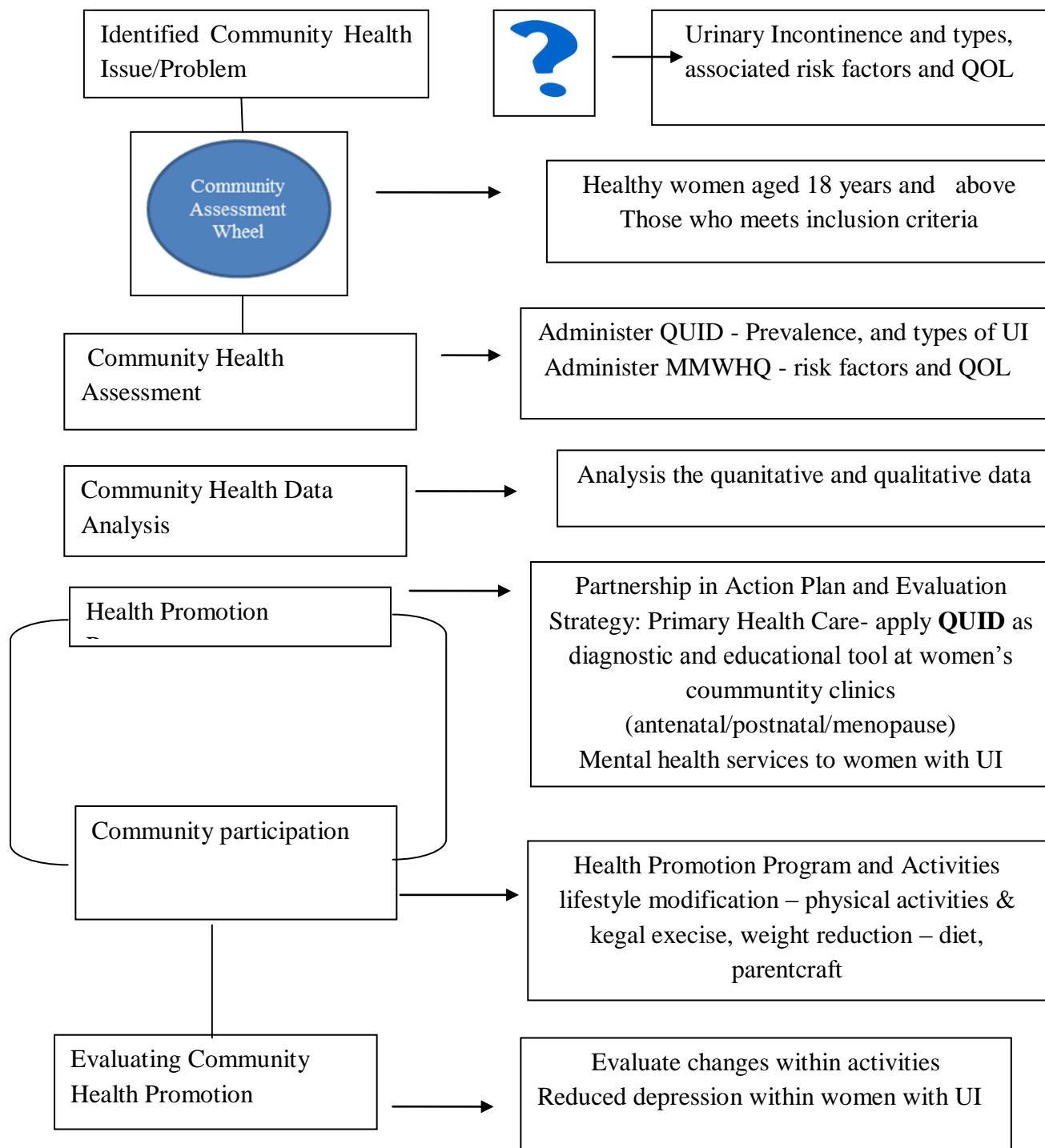


FIGURE 14: THE COMMUNITY-AS-PARTNER MODEL

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A Study of Women's Health

If you have any queries about the study or would like some help in completing this questionnaire, please contact Ms. Hardip Kaur Dhillon, Women's Health Program, Monash University, Sunway campus (MUSC) at 03 5514 5830 (office) or 0129867516 (mobile).

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A Study of Women's Health

Signature page

I have been informed and given an information sheet about this study. I hereby give my written consent to participate voluntary in this study. If necessary, I am free to withdraw anytime from this study. The investigators can advise me to withdraw from the study anytime if I violate the inclusion criteria of this study

Signature

Witness signature

Date:

Time

Name & Signature of Interviewer

Date

Please

This page will be REMOVED from the questionnaire after coding.

Name:

Given names

Surname

Address:

Street No. and Name

Town

Postcode

State

Telephone:

Home: () _ _ _ _ _

Work: () _ _ _ _ _

Mobile: _ _ _ _ _

We would appreciate it if you could confirm the contact details of a relative or friend that you would be happy for us to communicate with if we cannot contact you in the future (e.g. if you unexpectedly move).

Name: _____

Alternative contact:

Relationship: _____

Telephone: Mobile: - - - - - - - - - - - - - - -

Home: (- -) - - - - - - - - - -

Office use only

Date of receipt:

, ,

Day

Month

Year

A Study of Women's Health

This research program continues to explore key issues that affect the health of adult women.

This study focuses on investigating **FACTORS** that lead to the onset of incontinence. This information is essential if we are to identify women at risk of these conditions and develop effective prevention strategies.

We would be grateful if you could find the time to complete and return this questionnaire in the enclosed reply-paid envelope or give it to the interviewer personally. It may take you up to 30 - 45 minutes to complete the questionnaire.

Please make a careful note of which time period each question is asking about.

Some of the questions may not apply to you. If this is the case, please mark the 'No' answer.

How to complete this form:

1. Please complete this form carefully using black ballpoint pen (not felt). Alternatively, use blue pen.

2. Most questions only require you to answer by marking the appropriate box or boxes with a

cross like this:



Please **DO NOT** mark any areas outside the box.



3. Other questions will require a numeric answer and can be filled in like this

Please make sure to write only one number in each space provided, as demonstrated in the example above



4. Please Do Not cross the number seven



7

1. Please enter the postcode of your home address

2. Please enter your date of birth:

Day

/

Month

/

Year

3. Please enter the date that you started this questionnaire:

Day

/

Month

/

Year

We are interested in knowing about your general health, including medical conditions that you may have

1. Health Assessment

1.1. Please enter your current WEIGHT: Kg OR Pounds

1.2. Please enter your current HEIGHT: cm OR feet inches

1.3. Please enter your **RIGHT WRIST** measurement cm

1.4. Please enter your current measurement:

1.4.1 Waist cm

1.4.2 Hips cm

1.4.3 Ratio

1.5. Please enter your current UPPER abdominal girth cm

1.6. Please enter your current RANDOM blood glucose mmol/L

1.7. Please enter your current blood pressure measurement: Systole Diastole mmHg

1.8. Which of the following option best describes your ethnic background?

Malay Chinese South Indian Northern Indian

Orang Asli (specify) Mixed / Others (specify)

REPRODUCTIVE HEALTH

We are interested to know about your reproductive health. We understand that some of the questions may touch on areas that you find quite sensitive. However all the information that you provide will be kept completely confidential.

Many of the questions may not apply to you. If this is the case, please mark the 'No' answer.

2.0 MENSTRUATION

2.1. Your first menses (period) started at the age of _____ years.

2.2. Are you still menstruating? Yes No

2.3. What is / was your **normal** length of menstrual cycle?

2.3.1. 21 - 25 days

2.3.2. 26 - 30 days

2.3.3. 31 days and more

2.4. Is there a change in the pattern or flow of your menses? Yes No

2.5. Current contraceptives: No Yes → OCP Condom IUCD
 Implant Tubal ligation

3.0 PREGNANCY

3.1. Are you currently pregnant? Yes No

3.2. If yes, how many weeks pregnant are you? Weeks

4.0 CHILDBIRTH

4.1. Have you given birth in **the past 2 years**? Yes No

4.2. State your total number of pregnancies (Go to Q.4.3.)

4.3. Please complete the table indicating the year you gave birth, type of delivery, place of delivery and conducted by whom. Mark all the boxes that apply to you. If you have more than four pregnancies, then continue on the last page of this booklet.

4.3. Year of birth dd/mm/yy	Type of Delivery	Delivery conducted at
1.1 <input type="text" value="/ /"/>	1.2. <input type="checkbox"/> Vaginal with intact perineum <input type="checkbox"/> Vaginal with 2 nd or 3 rd degree tear <input type="checkbox"/> Vaginal with episiotomy <input type="checkbox"/> Caesarean section <input type="checkbox"/> Forceps with episiotomy <input type="checkbox"/> Vacuum with episiotomy	1.3. <input type="checkbox"/> Home by midwife <input type="checkbox"/> Home by village <i>bidan</i> <input type="checkbox"/> Hospital by midwife <input type="checkbox"/> Hospital by doctor <input type="checkbox"/> Others Specify _____
2.1 <input type="text" value="/ /"/>	2.2. <input type="checkbox"/> Vaginal with intact perineum <input type="checkbox"/> Vaginal with 2 nd or 3 rd degree tear <input type="checkbox"/> Vaginal with episiotomy <input type="checkbox"/> Caesarean section <input type="checkbox"/> Forceps with episiotomy <input type="checkbox"/> Vacuum with episiotomy	2.3. <input type="checkbox"/> Home by midwife <input type="checkbox"/> Home by village <i>bidan</i> <input type="checkbox"/> Hospital by midwife <input type="checkbox"/> Hospital by doctor <input type="checkbox"/> Others Specify _____
3.1. <input type="text" value="/ /"/>	3.2. <input type="checkbox"/> Vaginal with intact perineum <input type="checkbox"/> Vaginal with 2 nd or 3 rd degree tear <input type="checkbox"/> Vaginal with episiotomy <input type="checkbox"/> Caesarean section <input type="checkbox"/> Forceps with episiotomy <input type="checkbox"/> Vacuum with episiotomy	3.3. <input type="checkbox"/> Home by midwife <input type="checkbox"/> Home by village <i>bidan</i> <input type="checkbox"/> Hospital by midwife <input type="checkbox"/> Hospital by doctor <input type="checkbox"/> Others Specify _____
4.1. <input type="text" value="/ /"/>	4.2. <input type="checkbox"/> Vaginal with intact perineum <input type="checkbox"/> Vaginal with 2 nd or 3 rd degree tear <input type="checkbox"/> Vaginal with episiotomy <input type="checkbox"/> Caesarean section <input type="checkbox"/> Forceps with episiotomy <input type="checkbox"/> Vacuum with episiotomy	4.3. <input type="checkbox"/> Home by midwife <input type="checkbox"/> Home by village <i>bidan</i> <input type="checkbox"/> Hospital by midwife <input type="checkbox"/> Hospital by doctor <input type="checkbox"/> Others Specify _____



MENOPAUSE

5.1. Your menses stopped at the age of _____ years

5.2. Your menopause occurred: Naturally Surgically Medically

5.3. Your menopausal transition is at Perimenopause (irregular/scanty menses)
 Early menopause (1 - 5 years after last menses)
 Late menopause (5 years > after last menses)

5.4. Current medication to treat menopausal symptoms

None

Hormone Replacement Therapy non bleeding regime

Hormone Replacement Therapy bleeding regime

Others Specify _____

5.5. Any other self care action taken by you for your menopausal complaints in the last 2 years.

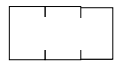
State _____

The questions below on page 10 are from the Menopause-Specific Quality of Life ('MENQOL') questionnaire (permission to use this questionnaire was obtained).

For each of the following items listed on pages 9 and 10, please indicate whether or not you have experienced the problem in the LAST MONTH.

- If you **have NOT** experienced the problem, mark the 'No' box and **go to the next item**.
- If you **have** experienced the problem, mark the 'Yes' box and **then mark the box that indicates how bothered you were by the problem**.
- Please note: 0 indicates you were 'not at all bothered' by the problem,
6 indicates that you were 'extremely bothered' by the problem.

Please complete the table below



Not at all 0 1 2 3 4 5 6 Extremely

5.6. 1.	Hot Flashes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No Yes			0	1	2	3	4	5	6
5.6. 2.	Night Sweats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No Yes			0	1	2	3	4	5	6
5.6. 3.	Sweating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No Yes			0	1	2	3	4	5	6
5.6. 4.	Being dissatisfied with my personal life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No Yes			0	1	2	3	4	5	6
5.6. 5.	Feeling anxious or nervous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No Yes			0	1	2	3	4	5	6
5.6. 6	Feeling a lack of energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No Yes			0	1	2	3	4	5	6
5.6. 7.	Drying skin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No Yes			0	1	2	3	4	5	6
5.6. 8.	Weight gain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No Yes			0	1	2	3	4	5	6
5.6. 9.	Increased facial hair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No Yes			0	1	2	3	4	5	6
5.6. 10	Change in skin texture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No Yes			0	1	2	3	4	5	6
5.6. 11.	Feeling bloated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No Yes			0	1	2	3	4	5	6
5.6. 12.	Low back pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No Yes			0	1	2	3	4	5	6

Frequent urination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No	Yes	0	1	2	3	4	5	6
Involuntary urination when laughing or coughing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No	Yes	0	1	2	3	4	5	6
Change in your sexual desire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No	Yes	0	1	2	3	4	5	6
Vaginal dryness during intercourse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No	Yes	0	1	2	3	4	5	6
Avoiding intimacy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	No	Yes	0	1	2	3	4	5	6

GENERAL MEDICAL HISTORY

6.1. Have you been hospitalized within the **past 2 years**? Please note to be 'hospitalized' you must have been admitted to hospital for greater than 24 hours. Presentations to the emergency department for less than 24 hours are not included.

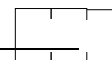
Yes (go to Q6.2) No

↓

6.2. Please specify the exact reason(s) for your hospitalization in the **past 2 years**:

No.	Date (mm/yyyy)	Reason
1.		
2.		

Have you been diagnosed with any of the following conditions in the past 2 years?



6.3.1. Cancer (current or previous) Yes No

6.3.2. If yes, please indicate the type of cancer (e.g. breast cancer, ovarian cancer)

6.4. Stroke (includes transient ischemic attack (TIA), mini stroke) Yes No

6.5. Diabetes Yes No

If yes, please indicate whether it is controlled by

1. Diet
2. Tablets
3. Insulin
4. Others _____
(Please specify)

6.6. Neurological (nervous system) condition Yes No

If yes, please specify:

1. Parkinson Disease
2. Multiple Sclerosis
3. Motor Neuron Disease
4. Others _____
(Please specify)

6.7. Respiratory condition Yes No

If yes, please specify

1. Asthma
2. Bronchitis
3. Emphysema
4. Others _____

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(Please specify)

6.8. Trauma to the spine and/or pelvis. This includes fractures sustained after a mobile car accident or other serious fall or accidents Yes No

If Yes, please specify the location



1. Neck
 2. Middle back
 3. Lower back
 4. Pelvis
 5. Other _____
- Please specify

6.9. Rheumatic condition

Yes No



If Yes, please specify

Osteoarthritis

Location (s) (e.g. hands):

2. Rheumatoid arthritis (stiff joints)
 3. Ankylosing spondylitis (neck and back pain)
 4. Gout (painful big toes)
 5. Others _____
- (Specify)

6.10 Osteoporosis

Yes No



If yes, was this diagnosed with a bone density test (DEXA)?

1. Yes No

6.11. Fracture after 'minimal trauma'
By 'minimal trauma' we mean a very mild accident or no accident at all. For example, some women have fractured a rib after a cough spasm or a wrist after a very mild fall. This does not include fractures sustained after a motor car accident or other serious falls or accident

Yes No



If yes, please specify location

1. Spine
2. Pelvis
3. Arm
4. Leg
5. Others _____

Please specify

6.12. Kidney disease

Yes No

6.13. Urinary Tract Infection

Yes No

6.14. Vaginal Tract Infection

Yes No

6.15. Chronic cough Yes No

6.16. Physical impairment that affects mobility Yes No

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6.17. Abdominal surgery Yes No

1. Vaginal hysterectomy
2. Abdominal hysterectomy
3. Other _____
(Specify)

6.18. Mental Illness Yes No

1. Depression
2. Bipolar Depression
3. Schizophrenia
4. Other _____
(Specify)

LIFE STYLE BEHAVIOUR

7.0

CAFFEINE CONSUMPTION

7.1. Do you consume coffee daily? Yes No

7.1.1. If yes, how many cups (200 mLs) do you consume in a day?

1 per day 2 per day 3 per day 4 per day 5 or more per day

SMOKING

7.2. Do you smoke? Yes No

7.2.1. If yes, how many cigarette butts per day?

More than 40 butts 30-39 butts 10-20 butts less than 9 butts

ALCOHOL CONSUMPTION

7.3. Do you drink alcohol? Yes No

7.3.1. How often do you drink alcohol?

Every day 5 - 6 days a week 3 - 4 days a week 1 - 2 days a week
 2 - 3 days a month 1-2 days a year Others _____

The following are all equal to approximately **one standard drink**:

Low alcohol beer (3.5%)	1 can or 1.5 pint	375 mLs
Regular beer (4.9%)	1/2 'pint' or 1 pint	285 mLs
Wine (12%)	1 small glass	100 mLs
Spirits (whisky, gin, vodka)	1 small glass undiluted / diluted	30 mLs
Liqueurs (Bailey)	1 small glass undiluted / diluted	30 mLs
Cocktail/Mixed drinks	1 small glass spirit & mixer e.g. coke, tomato, orange juice	30mLs
Shandy (5.5%)	1 can or bottle	250mLs

7.3.2. On a day that you would have an alcoholic drink how many standard drinks would you usually have?

1 - 2 3 - 4 5 - 6 7 - 10 11 - 12 13 or more

7.3.3. How often would have 4 or more standard drinks per day?

- Every day 4 - 6 days /week 2 -3 days /week about 1 day / week

PHSICAL ACTIVITY2

7.4. Do you participate in any regular exercise / recreational activity? Yes No

7.4.1. If yes, please state the number of hours per week _____

7.5 Please place a cross (X) in the appropriate box (es) below which correspond to the number of sessions of exercise you would perform in an average week. State how much time have you is spent on each session.

Physical activities	Hr/sess ion	Sessions per week			
		0	1 - 2	3 - 4	5 and more
Walking					
Moderate intensity exercise (e.g. gentle swimming, social tennis)					
Vigorous intensity exercise (e.g. jogging, cycling, aerobics, competitive tennis)					
Vigorous intensity work (e.g. gardening / labourer's work)					

7.6. Have you experienced urine leak while doing exercise or playing recreational activity?
 Yes No

7.7. If yes, to what extend?
 undergarment is damp undergarment is wet undergarment is soaked

7.8. Do you perform any pelvic floor exercise (Kegel exercise) before you undertake exercise, lift or recreational activity Yes No

7.9. If yes, state the number of times you perform the pelvic floor exercise (Kegel exercises)?
 1 time/day 2 times/day 3 times/day 4 times /day Other _____

QUESTIONNAIRE FOR URINARY INCONTINENCE DIAGNOSIS (QUID)

This is the 'Questionnaire for Urinary Incontinence Diagnosis' (QUID). This questionnaire assists in finding our more about the type of urinary incontinence women experience. Please put a cross in ONE box for each question☒.

Questions	None of the time	Rarely	Once in a while	Often	Most of the time	All of the time
-----------	------------------	--------	-----------------	-------	------------------	-----------------

Do you leak urine (even small drops), wet yourself, or wet your pads or undergarments....

8.1. When you cough or sneeze?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

8.2. When you bend down or lift something up?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

8.3. When you walk quickly, jog, or exercise?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

8.4. While you are undressing to use the toilet?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

8.5. Do you get such a strong and uncomfortable need to urinate that you leak urine (even small drops) or wet yourself before reaching the toilet?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

8.6. Do you have to rush to the bathroom because you get a sudden, strong need to urinate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

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8.7. If you reported urinary incontinence, how long have you experienced this problem for?

(Best estimate): year(s) month(s)

8.8. If you had/have incontinence, have you used specific measures or treatment to control or cure this problem?

Yes No



8.9. If yes, what type of treatment/measures have you received? (Tick as many boxes as appropriate)

8.9.1. Medical (with medications)

Yes No

8.9.2. Surgical

Yes No

8.9.3. If yes, please indicate the name of the surgery (if possible) and year of surgery (best estimate)

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Type/Name of surgery

Year

 / /

8.10.1. Physiotherapy (pelvic floor exercise, bladder training, electrical stimulation)

Yes No

8.10.2. Duration of physiotherapy Days months

8.10.3. Are you continuing with the pelvic floor exercise (Kegel exercises) regularly?

Yes No

8.11.1. Complementary treatments (e.g. herbal medicine, acupuncture, homeopathy)

Yes (specify No

8.12. Other measures (e.g. incontinence pad, sanitary towel, tissue, cloth)

Yes (specify) → No

8.13. How was your urinary incontinence after treatment?

Better Same Worse

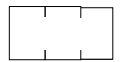
The following question is related to the assessment of transient/intermittent urinary incontinence in the last 2 years.

8.14. If you did **NOT** report urinary incontinence **2 years ago** and you do not currently have this problem

Have you leaked / lost urine involuntarily at some time within the last 2 years?

No Yes

8.15. Is there any family history in your mother and/or father side with the following condition(s)?



8.15.1 Leak urine beyond their control (urinary incontinence)

Don't know No Yes

State relationship

8.15.2. Passed faeces beyond their control (fecal incontinence)

Don't know No Yes

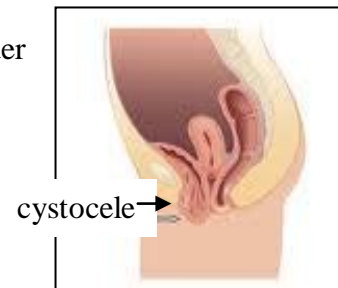
State relationship

8.15.3. Has a displaced bladder (cystocele). Protrusion of the bladder into the anterior wall of the vagina.

Don't know No

Yes

State relationship



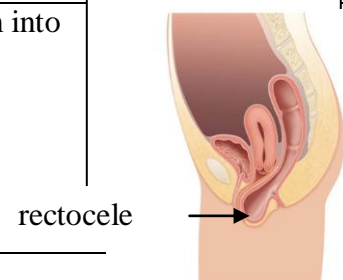
Dorland's Medical Dictionary for Health Consumers. © 2007 by Saunders, an imprint of Elsevier, Inc. All rights reserve

8.15.4. Has a displaced rectum (rectocele). Protrusion of the rectum into the posterior wall of the vagina.

Don't know No

Yes

The Jacksonville Continence Centre at the Molver Urological Clinic Copy

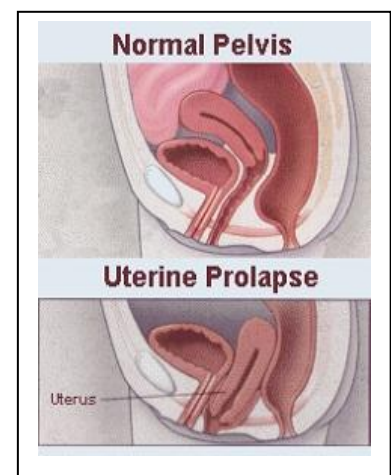


8.15.5. Has a displaced womb (uterus). Protrusion of the uterus into the vagina.

Don't know No

Yes

State relationship



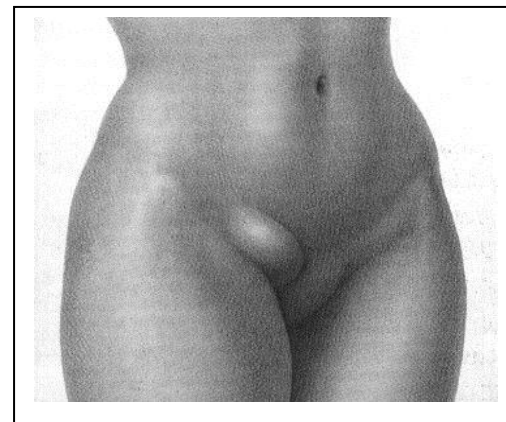
Physicianschoiceusa.com/modules/shop/Non-SurgicalOptions.as

8.15.6. Bulge in the groin area (inguinal hernia)

Don't know No

Yes

State relationship



[http:// surgery4you.com/hernia_surgery.html](http://surgery4you.com/hernia_surgery.html)

8.16.7. Bulge around the umbilicus (umbilical hernia)

Don't know No

Yes

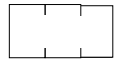
State relationship



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Pelvic Floor Distress Inventory (PFDI) Questionnaire

Question 9 Please answer these questions by putting an **X** in the appropriate box (☒). If you are unsure about how to answer a question, give the best answer you can. While answering these questions, please consider your symptoms over the **last 3 months**.



9. 6.1 If yes, how much does this bother you?

Not at all Sometimes Moderately A lot

9.7. Do you ever have to push up on a bulge in the vaginal area with your fingers to start or complete urination?

Yes No

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9.1. In the last 3 months, have you usually emptied your bowels (passed stools) less often than 3 times per week? (Chronic constipation)

Yes No

9.2. Do you usually experience pressure in the lower abdomen?

Yes No

9.2. 1. If yes, how much does this bother you?

Not at all Sometimes Moderately A lot

9.3. Do you usually experience heaviness or dullness in the pelvic area?

Yes No

9.3.1 If yes, how much does this bother you?

Not at all Sometimes Moderately A lot

9.4. Do you usually have a bulge or something falling out that you can see or feel in the vaginal area?

Yes No

9.4.1 If yes, how much does this bother you?

Not at all Sometimes Moderately A lot

9.5. Do you ever have to push on the vagina or around the rectum to have or complete a bowel movement?

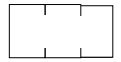
Yes No

9.5.1 If yes, how much does this bother you?

Not at all Sometimes Moderately A lot

9.6. Do you usually experience a feeling of incomplete bladder emptying?

Yes No



9.7.1 If yes, how much does this bother you?
 Not at all Sometimes Moderately A lot

9.8. Do you feel you need to strain too hard to have a bowel movement?
 Yes No

9.8.1 If yes, how much does this bother you?
 Not at all Sometimes Moderately A lot

9.9. Do you feel you have not completely emptied your bowels at the end of a bowel movement?
 Yes No

9.9.1 If yes, how much does this bother you?
 Not at all Sometimes Moderately A lot

9.10. Do you usually pass well formed stool beyond your control?
 Yes No

9.10.1. If yes, how much does this bother you?
 Not at all Sometimes Moderately A lot

9.11. Do you usually pass loose stool beyond your control?
 Yes No

9.11.1 If yes, how much does this bother you?
 Not at all Sometimes Moderately A lot

9.12. Do you usually pass wind (gas) from the rectum beyond your control?
 Yes No

9.12.1 If yes, how much does this bother you?
 Not at all Sometimes Moderately A lot

9.13. Do you usually have pain when you pass stool?
 Yes No

9.13.1. If yes, how much does this bother you?
 Not at all Sometimes Moderately A lot

9.14. Do you usually experience a strong sense of urgency and have to rush to the bathroom to have a bowel movement?
 Yes No

9.14.1. If yes, how much does this bother you?
 Not at all Sometimes Moderately A lot

9.15. Does a part of your bowel ever pass through the rectum and bulge outside during or after a bowel movement Yes No

9.15.1. If yes, how much does this bother you?
 Not at all Sometimes Moderately A lot

9.16. Do you usually experience frequent urination?
 Yes No

9.16.1. If yes, how much does this bother you?
 Not at all Sometimes Moderately A lot

9.17. Do you usually experience urine leakage associated with a feeling of urgency that is a strong sensation of needing to go to the bathroom?
 Yes No

9.17.1. If yes, how much does this bother you?
 Not at all Sometimes Moderately A lot

9.18. Do you usually experience urine leakage related to coughing, sneezing or laughing?
 Yes No

9.18.1. If yes, how much does this bother you?
 Not at all Sometimes Moderately A lot

9.19. Do you experience difficulty emptying your bladder?
 Yes No

9.19.1. If yes, how much does this bother you?
 Not at all Sometimes Moderately A lot

9.20. Do you experience pain or discomfort in the lower abdomen or genital area?
 Yes No

9.20.1. If yes, how much does this bother you?
 Not at all Sometimes Moderately A lot

10.1. Your highest education level is:
 Tertiary STPM/A level SPM / O level PMR UPSR Religious school
 None

10.2. Do you have an occupation: Yes No

10.2.1. If yes, state your current occupation:

10.3. Is there any lifting or carrying involved in your work? Yes No

10.3.1. How much of lifting or carrying is involved in your daily work activities?

- None Slight Moderate A lot

10.4. Your current monthly take home salary is RM_____

10.5. What is your current marital status?

- Married Single with a partner Single without partner Separated Divorcee
 Widow

10.6. Are you aware of Malaysian Incontinence Society? Yes No

EMOTIONAL AND PSYCHOLOGICAL WELLBEING

Question 11

We are interested in knowing about your feelings about your health, your outlook on life and changes in your emotional and psychological wellbeing during the past month(s).

These questions are from the Psychological General Well-being ('PGWB') Index (permission to use this index was obtained).

Listed below are a number of statements concerning how you feel and how things have been going with you. **Please read each statement carefully and indicate the answer which best applies to you by marking it with an .**

11.1. How have you been feeling in general during the past month?

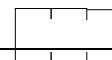
1. In excellent spirits
 2. In very good spirits
 3. In good spirits mostly
 4. I have been up and down in spirits a lot
 5. In low spirits mostly
 6. In very low spirits

11.2. How often were you bothered by any illness, bodily disorder, aches or pains during the past month?

1. Every day
 2. Almost every day
 3. About half of the time
 4. Now and then, but less than half of the time
 5. Rarely
 6. None of the time

11.3. Did you feel depressed during the past month?

1. Yes - to the point that I felt like taking my life
 2. Yes - to the point that I did not care about anything
 3. Yes - very depressed almost every day
 4. Yes - quite depressed several times
 5. Yes - a little depressed now and then



6. No – never felt depressed at all

11.4. Have you been in firm control of your behaviour, thoughts, emotions, or feelings during the past month?

1. Yes, definitely so
 2. Yes, for the most part
 3. Generally so
 4. Not too well
 5. No, and am somewhat disturbed
 6. No, and am very disturbed

11.5. Have you been bothered by nervousness or your “nerves” during the past month?

1. Extremely so – to the point where I could not work or take care of things
 2. Very much so
 3. Quite a bit
 4. Some – enough to bother me
 5. A little
 6. Not at all

11.6. How much energy, pep, or vitality did you have or feel during the past month?

1. Very full of energy – lots of pep
 2. Fairly energetic most of the time
 3. My energy level varied quite a bit
 4. Generally low in energy or pep
 5. Very low in energy or pep most of the time
 6. No energy or pep at all – I felt drained, sapped

11.7. I felt downhearted and blue during the past month.

1. None of the time
 2. A little of the time
 3. Some of the time
 4. A good bit of the time
 5. Most of the time
 6. All of the time

11.8. Were you generally tense or did you feel any tension during the past month?

1. Yes – extremely tense, most or all of the time
 2. Yes – very tense most of the time
 3. Not generally tense, but did feel fairly tense several times
 4. I felt a little tense a few times
 5. My general tension level was quite low
 6. I never felt tense or any tensions at all

11.9. How happy, satisfied, or pleased have you been with your personal life during the past month?

1. Extremely happy – could not have been more satisfied or pleased
 2. Very happy most of the time
 3. Generally satisfied – pleased
 4. Sometimes fairly happy, sometimes fairly unhappy



- 5. Generally dissatisfied, unhappy
- 6. Very dissatisfied or unhappy most of the time

11.10. Did you feel healthy enough to carry out the things you like to do or had to during the past month?

- 1. Yes – definitely so
- 2. For the most part
- 3. Health problems limited me in some important ways
- 4. I was only healthy enough to take care of myself
- 5. I needed some help in taking care of myself
- 6. I needed someone to help me with most or all of the things I had to do

11.11. Have you felt so sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile during the past month?

- 1. Extremely so – to the point I have just about given up
- 2. Very much so
- 3. Quite a bit
- 4. Some – enough to bother me
- 5. A little bit
- 6. Not at all

11.12. I wake up feeling fresh and rested during the past month

- 1. None of the time
- 2. A little of the time
- 3. Some of the time
- 4. A good bit of the time
- 5. Most of the time
- 6. All of the time

11.13. Have you been concerned, worried or had any fears about your health during the past month?

- 1. Extremely so
- 2. Very much so
- 3. Quite a bit
- 4. Some, but not a lot
- 5. Practically never
- 6. Not at all

11.14. Have you had any reason to wonder if you were losing your mind, or losing control over the way you act, talk, think, feel or of your memory during the past month?

- 1. Not at all
- 2. Only a bit
- 3. Some – but not enough to be concerned or worried about
- 4. Some and I have been a little concerned
- 5. Some and I am quite concerned
- 6. Yes, very much so and I am very concerned

11.15. My daily life was full of things that were interesting to me during the past month.

- 1. None of the time
- 2. A little of the time
- 3. Some of the time
- 4. A good bit of the time
- 5. Most of the time
- 6. All of the time

11.16. Did you feel active, vigorous, or dull, sluggish during the past month?

- 1. Very active, vigorous every day
- 2. Mostly active, vigorous – never really dull, sluggish
- 3. Fairly active, vigorous – seldom dull, sluggish
- 4. Fairly dull, sluggish – seldom active, vigorous
- 5. Mostly dull, sluggish – never really active, vigorous
- 6. Very dull, sluggish every day

11.17. Have you been anxious, worried or upset during the past month?

- 1. Extremely so – to the point of being sick or almost sick
- 2. Very much so
- 3. Quite a bit
- 4. Some – enough to bother me
- 5. A little bit
- 6. Not at all



11.18. I was emotionally stable and sure of myself during the past month.

- 1. None of the time
- 2. A little of the time
- 3. Some of the time
- 4. A good bit of the time
- 5. Most of the time
- 6. All of the time

11.19. Did you feel relaxed, at ease or high strung, tight or keyed-up during the past month?

- 1. Felt relaxed and at ease the whole month
- 2. Felt relaxed and at ease most of the time
- 3. Generally, felt relaxed but at times felt fairly high strung
- 4. Generally, felt high strung but at times felt fairly relaxed
- 5. Felt high strung, tight, or keyed-up most of the time
- 6. Felt high strung, tight, or keyed-up the whole time

11.20. I felt cheerful, light hearted during the past month

- 1. None of the time
- 2. A little of the time
- 3. Some of the time
- 4. A good bit of the time
- 5. Most of the time
- 6. All of the time

11.21. I felt tired, worn out, used up, or exhausted during the past month.

- 1. None of the time
- 2. A little of the time
- 3. Some of the time
- 4. A good bit of the time
- 5. Most of the time
- 6. All of the time

11.22. Have you been under or felt you were under any strain, stress or pressure during the past month?

- 1. Yes – almost more than I could bear or stand
- 2. Yes – Quite a bit of pressure
- 3. Yes – some – more than usual
- 4. Yes – some – but about usual
- 5. Yes – a little
- 6. Not at all

Please enter the date that you completed this questionnaire:

	/		/				
--	---	--	---	--	--	--	--

Day

Month

Year

Name of Interviewer

Date & Time

The research team involved with this study would like to thank you for your time and effort in completing this questionnaire. It is much appreciated.

Continue from Q.3.3 p.8.

Year of birth mm/yy	Type of Delivery	Delivery conducted at
5.1 <input type="text" value="/ /"/>	5.2. <input type="checkbox"/> Vaginal with intact perineum	5.3. <input type="checkbox"/> Home by midwife
5.4. <input type="checkbox"/> Abortion	<input type="checkbox"/> Vaginal with 2 nd or 3 rd degree tear	<input type="checkbox"/> Home by village <i>bidan</i>
5.5. <input type="checkbox"/> Still birth	<input type="checkbox"/> Vaginal with episiotomy	<input type="checkbox"/> Hospital by midwife
5.6. <input type="checkbox"/> Life birth	<input type="checkbox"/> Caesarean section	<input type="checkbox"/> Hospital by doctor
5.7. <input type="checkbox"/> Kg. BW	<input type="checkbox"/> Forceps with episiotomy	<input type="checkbox"/> Others _____ Specify
	<input type="checkbox"/> Vacuum with episiotomy	.
6.1 <input type="text" value="/ /"/>	6.2. <input type="checkbox"/> Vaginal with intact perineum	6.3. <input type="checkbox"/> Home by midwife
6.4. <input type="checkbox"/> Abortion	<input type="checkbox"/> Vaginal with 2 nd or 3 rd degree tear	<input type="checkbox"/> Home by village <i>bidan</i>
6.5. <input type="checkbox"/> Still birth	<input type="checkbox"/> Vaginal with episiotomy	<input type="checkbox"/> Hospital by midwife
6.6. <input type="checkbox"/> Life birth	<input type="checkbox"/> Caesarean section	<input type="checkbox"/> Hospital by doctor
6.7. <input type="checkbox"/> Kg. BW	<input type="checkbox"/> Forceps with episiotomy	<input type="checkbox"/> Others _____ Specify
	<input type="checkbox"/> Vacuum with episiotomy	.
7.1 <input type="text" value="/ /"/>	7.2. <input type="checkbox"/> Vaginal with intact perineum	7.3. <input type="checkbox"/> Home by midwife
7.4. <input type="checkbox"/> Abortion	<input type="checkbox"/> Vaginal with 2 nd or 3 rd degree tear	<input type="checkbox"/> Home by village <i>bidan</i>
7.5. <input type="checkbox"/> Still birth	<input type="checkbox"/> Vaginal with episiotomy	<input type="checkbox"/> Hospital by midwife
7.6. <input type="checkbox"/> Life birth	<input type="checkbox"/> Caesarean section	<input type="checkbox"/> Hospital by doctor
7.7. <input type="checkbox"/> Kg. BW	<input type="checkbox"/> Forceps with episiotomy	<input type="checkbox"/> Others _____ Specify
	<input type="checkbox"/> Vacuum with episiotomy	.
8.1 <input type="text" value="/ /"/>	8.2. <input type="checkbox"/> Vaginal with intact perineum	8.3. <input type="checkbox"/> Home by midwife
8.4. <input type="checkbox"/> Abortion	<input type="checkbox"/> Vaginal with 2 nd or 3 rd degree tear	<input type="checkbox"/> Home by village <i>bidan</i>
8.5. <input type="checkbox"/> Still birth	<input type="checkbox"/> Vaginal with episiotomy	<input type="checkbox"/> Hospital by midwife
8.6. <input type="checkbox"/> Life birth	<input type="checkbox"/> Caesarean section	<input type="checkbox"/> Hospital by doctor
8.7. <input type="checkbox"/> Kg. BW	<input type="checkbox"/> Forceps with episiotomy	<input type="checkbox"/> Others _____ Specify
	<input type="checkbox"/> Vacuum with episiotomy	.

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NOTES



EXPLANATORY STATEMENT

Date _____

Explanatory Statement - Women, their partners and/or family member aged 18 years and above

Title: A study on urinary incontinence in Malaysian women living in Selangor

This information sheet is for you to keep.

Researchers

My name is Hardip Kaur Dhillon and I am conducting a research project with Prof. Dr. Rusli Bin Nordin Professor in Public Health and Occupational Medicine and Prof. Dr. Anuar Zaini Mat Zain, Professor in Internal Medicine – Endocrinologist, at Jeffrey Cheah School of Medicine and Health Sciences, Monash University Sunway campus, towards a Doctor of Philosophy (PhD) at Monash University. This means that I will be writing a thesis which is the equivalent of a 300 page book.

Participants

In order for me to carry out this study, I work together with the National Institute of Health, Ministry of Health and Dept. of Statistics Malaysia. The staffs chose randomly 20 blocks of households within nine administrative districts of Selangor Darul Ehsan, namely Gombak, Hulu Langat, Hulu Selangor, Klang, along with Port Klang, Kuala Langat, Kuala Selangor, Petaling, Sabak Bernam and Sepang. In each location, 32 house numbers and addresses are selected freely for home visits by the researchers. In every location, each house is approached by the researcher. An adult member of the household is informed briefly about the research project and invited to participate in the study. When the potential participant shows interest to participate voluntarily and if the inclusion criteria are met, her/ his contact details are obtained.

Inclusion criteria - Phase I survey

Includes healthy women aged 18 years and above, women who never had any pregnancies or children, women who have been pregnant and have children, women with controlled diabetes, controlled heart diseases, controlled high blood pressure and women with menopausal symptoms.

Inclusion criteria - Phase 1 interviews

Includes women with complaints of severe UI, their partners, their family member aged 18 and above, obese/overweight women with complaints of UI, from one of the three major ethnic groups (Malay, Chinese & Indian) and are bilingual (speak English language and own mother tongue).

Purpose of the research

The purpose of this study is to find out how many Malaysian women in Selangor complaints of urine leak or is constantly rushing to the toilet to pass urine (urgency). What are the common reasons for these complaints and do the women have any change in their complaints after a period 1.5 years? Also, I am doing this research to find out from some women, with very bad urine leak or those who are constantly rushing to the toilet to pass urine (urgency), to describe their quality of life (QoL): functional, emotional and general wellbeing, and how this affects their partners and/ or family member.

Possible benefits

The possible benefit of this study is to publish the research findings on UI and / or urgency by Malaysian women in Selangor which will increase further health awareness in both the public and health workers. Also, reporting the negative emotional and social aspect of UI and how it affects the woman's quality of life, her partners and care givers to policy makers. The findings will further support the multidisciplinary approach towards management of this health problem.

To highlight the possible relationship between the onset of UI and/or urgency and risk factors. This valuable information is targeted towards the health professionals to focus more on preventative measures and early recognition of UI. Also to provide appropriate treatment for women with UI before their QoL deteriorates. The research findings will be used to recommend guidelines to healthcare service policy makers to have in place an unbiased healthcare service to all aged women with UI/urgency including their partners and/or care givers in hospital and healthcare settings.

Methods used to collect information

In Phase 1 survey, the student researcher (state registered nurse) conducts a health assessment consisting of reading your weight, height, body fat analysis, taking measurement of your hip and waist, blood pressure measurement and a drop of blood from a finger prick to check your blood sugar level. Your urine will also be tested for infection. The whole assessment should take about 20 minutes. Another half an hour of your time is used to interview you to complete a lengthy questionnaire.

From within the Phase I group, some women with very bad UI will be interviewed in detail for about half an hour to 45 minutes about their experiences. Approximately 5 to 6 sessions of interviews are to be conducted. Their partners and /or family member are encouraged to share their experiences too. Their experiences will be explored from various aspects of QoL through semi-structured questions and the detailed interviews are recorded on audio tapes. A brief questionnaire (7 sentences) will also be answered.

In Phase II survey, 1.5 years later the same questionnaire used in Phase I survey will be repeated on the same group of women.

Time frame

Twenty minutes for health assessment and half an hour to 45 minutes for answering questionnaire.

Thirty minutes to 45 minutes per session for detailed interview, approximately 5 to 6 sessions of interviews will be conducted per family.

Inconvenience/discomfort

Some of the questions in the questionnaire or interview questions may be considered too sensitive and distressful for you to answer. Among Asian women it is culturally unacceptable to discuss bodily functions openly and you may be too embarrassed or very shy to respond to these questions. Also, you may feel intimidated as well as have a sense of intrusion into your privacy that could cause distress some time later. In rare instances, the distress could be serious enough for you to require counselling service. Another discomfort worth mentioning is the finger prick. Some women may refuse to have it done during the health assessment.

Payment

You are paid honorarium fee for your time and effort in volunteering to participate in the study. You are advised to spend it on travel or meal expenses. RM 5/- is given to you when you complete Phase I questionnaire and health assessment and another RM5/- is given 1.5 years later after Phase II follow up questionnaire and health assessment. For any reason, if you incomplete your assessment and questionnaire in Phase I or in Phase II survey you will still be given RM5/- for the questionnaire you have volunteered to participate.

A further honorarium fee of RM50/- is paid to you if you agree to participate in the in-depth interviews of exploring the lived experiences of women with UI I and their QOL as well as their partners and family member's experiences.

Withdrawal from the research

Being in this study is voluntary and you are under no obligation to consent to participation. However, if you do consent to participate, you may only withdraw prior to the questionnaire being submitted / having approved the interview transcript. Once questionnaire or transcript has been submitted it cannot be withdrawn.

Confidentiality

To ensure confidentiality, no name or postal address will be mentioned verbally or in writing. Total privacy and confidentiality will be maintained throughout the study. The student researcher will place both your signed consent form and your personal details from the questionnaire booklet, stapled together in a plastic file which is stored in a separate locked iron filing cabinet from the coded questionnaire. Your coded questionnaire(s) are also filed in a locked iron filing cabinet.

Storage of data

Storage of the data collected will adhere to the University regulations and kept on University premises in a locked cupboard/filing cabinet for 5 years. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

Use of data for other purposes

Your anonymous data may be widely circulated in journals, conferences, and seminars, NGOs, associations of doctors and other health care professionals and because it is an anonymous data, nobody will be named and you will not be identified in any way.

Results

You have access to the information given by you at a later stage if you request for it from the student researcher, Ms. Hardip Kaur Dhillon, by writing.

Contact

Contact details are as follows: Ms. Hardip Kaur Dhillon, Senior Lecturer Jeffrey Cheah School of Medicine and Health Sciences, Monash University Sunway campus, 46150 Bandar Sunway, Petaling Jaya, Selangor, Malaysia.

<p>If you would like to contact the researchers about any aspect of this study, please contact the Chief Investigator:</p>	<p>If you have a complaint concerning the manner in which this research project number – CF10/1725-2010000963 is being conducted, please contact:</p>
<p>Prof. Dr. Rusli Bin Nordin Head, Clinical School Johor Bahru/ Professor of Public Health (Occupational Medicine) Jeffrey Cheah School of Medicine and Health Sciences, Monash University Sunway Campus JKR 1235, Bukit Azah, 80100 Johor Bahru Johor, Malaysia _____ _____ Fax:+607-226 2413</p>	<p>Prof. Dr. Iekhsan Othman, Deputy Head Research Head, Biomedical Sciences, Jeffrey Cheah School of Medicine and Health Sciences, Monash University Sunway campus. 46150, Bandar Sunway Selangor, Malaysia _____ _____ Fax: +603 5514 6323 AND/OR</p>
	<p>Executive Officer, Human Research Ethics Monash University Human Research Ethics Committee (MUHREC) Building 3e Room 111 Research Office Monash University VIC 3800 _____ _____ _____</p>



CONSENT FORM

Explanatory Statement - Women their partners and/or family member aged 18 years and above

Title: A study on urinary incontinence in Malaysian women living in Selangor

NOTE: This consent form will remain with the Monash University researcher for their records

I agree to take part in the Monash University research project specified above. I have had the project explained to me, and I have read the Explanatory Statement, which I keep for my records. I understand that agreeing to take part means that:

- I agree to complete all questionnaires related to the study on urinary incontinence Yes No
- I agree to a general health assessment conducted by the researcher Yes No
- I agree to have a finger prick done by the researcher Yes No
- I agree to have my urine tested by the researcher Yes No
- I agree to be interviewed by the researcher Yes No
- I agree to allow the interview to be audio and video taped Yes No
- I agree to make myself available for a further interview if require Yes No
- I agree for my data to be used in future research Yes No

and/or

I understand that my participation is voluntary; that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project without being penalized or disadvantaged in any way. However, once questionnaire or transcript has been submitted it cannot be withdrawn.

and/or

I understand that any data that the researcher extracts from the interview / focus group / questionnaire / survey for use in reports or published findings will not, under any circumstances, contain names or identifying characteristics.

and/or

I understand that I will be given a transcript of data concerning me for my approval before it is included in the write up of the research.

and/or

I understand that any information I provide is confidential, and that no information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party.

and/or

I understand that data from the health assessment/ interview/ focus group/ transcript/ audio-tape will be kept in a secure storage and accessible to the research team. I also understand that the data will be destroyed after a 5 year period unless I consent to it being used in future research.

Participant's name

Signature

Date

INCONTINENCE IMPACT QUESTIONNAIRE [146]

Has urine leakage affected your		("X" one for each question)			
		Not at all	Slightly	Moderately	Greatly
1.	Ability to do household chores (cooking, housecleaning, laundry)?				
2.	Physical recreation such as walking swimming or other exercise?				
3.	Entertainment activities (movies, concerts, etc.)?				
4.	Ability to travel by car or bus more than 30 minutes from home?				
5.	Participation in social activities outside your house?				
6.	Emotional health (nervousness, depression, etc.)?				
7.	Feeling frustrated?				

Shumaker SA, Wyman JF, Uebersax JS, McClish D, Fantl JA. Health related QOL measures for women with urinary incontinence:the incontinence impact questionnaire and urogenital distress inventory. Qual Life Res 1994 Oct 3:291 -306.

QUALITATIVE STUDY

INTERVIEW QUESTIONS

APPENDIX E

1. Explain what you/partner/care giver understand about you leaking urine &/ being unable to control your urine.
2. Do you /partner /care giver recognize urine leakage as a health related &/or social related problem?
3. Describe your communication between you, your partner& /family; to openly discuss about you leaking urine &/ being unable to control your urine.
4. Explain how urine leakage &/or unable to control urine has affected your activity of daily living?
5. How do you or your partner/family member deal with negative emotions such as frustrated, nervous, depression, anxiety, that are related to your problem?
6. Describe you and your spouse's relationship since you started leaking urine &/ being unable to control urine.
7. Describe how the health/social related problem is / has affected your intimate and personal relationship.
8. Explain how you or your partner/family member can solve this problem.
9. Describe what you/partner/family member's idea of quality of life is.

APPENDIX F

Bladder Ovid/ Urine Diary

Participant code no _____

Day Time	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
00.00							
01.00							
02.00							
03.00							
04.00							
05.00							
06.00							
07.00							
08.00							
09.00							
10.00							
11.00							

12.00							
13.00							
14.00							
15.00							
16.00							
17.00							
18.00							
19.00							
20.00							
21.00							
22.00							
23.00							
24.00							

APPENDIX: G

**TRANSLATION PROCESS: MALAY LANGUAGE MONASH MALAYSIA
WOMEN HEALTH QUESTIONNAIRE (MMWHQ)**

No.	Date	Venue	Meetings
1.	06/02/2010 AM- 1hr	SoMHS Monash University Malaysia	Ms. Hardip Kaur Dhillon identified translators to translate English language MMWHQ to target language (Malay version)
2.	10/02/10 AM -1hr	SoMHS Monash University Malaysia	Translators confirmed and questionnaire send via email for translation in target language (Malay version) by Ms. Hardip Kaur Dhillon.
3.	March - May 2010	SoMHS Monash University Malaysia	Forward translation (Step 1) MAPI guidelines: US English to Malay language Ghazali Othman (Tutor)
4.	15/05/21 Pm- 1hr	Clinical school JB Monash University Malaysia	Proof reading of forward translation (Step 1) using MAPI Guidelines Prof. Dr. Rusli Nordin
5.	30/6/10 After work	SoMHS Monash University Malaysia	Backward translation (Phase 2) MAPI guidelines: Malay to English language Nurulhuda Zainol Shameema Banu Ahmed Ibrahim
6.	30/7/10	SoMHS Monash University Malaysia	Proof reading of backward translation (Step 2) of MAPI guidelines: Malaysian English language Norhayati Abdul Malek
7	3/8/10	Clinical school JB Monash university Malaysia	Step 3 MAPI Guidelines Review by clinicians Prof Dr. Rusli Nordin and team
8.	16/8/10	Clinical school JB SoMHS Monash university	Step 4 MAPI Guidelines Cognitive debriefing Reviewing responses and feedback from respondents to Malay version MMWHQ Prof. Dr Rusli Nordin

		Malaysia	Ms. Hardip Kaur Dhillon
9.	30/8/10	Clinical school JB SoMHS Monash university Malaysia	Step 5 MAPI Guidelines Proof reading minor corrections Prof Dr Rusli Nordin Ms. Hardip Kaur Dhillon
10.	05/09/10	Clinical school JB SoMHS Monash university Malaysia	Final editing Prof Dr Rusli Nordin Ghazali Othman (Tutor) Nurulhuda Zainol

3.3.4 Translation of MMWHQ

Written permission to use and translate their validated, international questionnaires was then obtained from the respective researchers (owners). The translation process was based on MAPI guidelines [93, 94]. In the case of translating the US English language PGWBI questionnaire, a MAPI user agreement and translation agreement forms were signed between the researcher from Monash University Malaysia and MAPI Research Institute, France. [93] Malay language PGWBI was not translated as MAPI had already had a previous translation and had given the researcher permission to use their copy. The Translator's Agreement was signed on 28th December 2010 between Monash University Sunway Campus Malaysia Sdn. Bhd. and MAPI Research Trust. On behalf of Dr. Harold Dupuy, copyright owners in the PGWBI, MAPI Research Trust had given permission to Monash University Sunway Campus Malaysia Sdn. Bhd., to translate the PGWBI to Tamil language spoken by Tamils in Malaysia and Mandarin spoken by

Malaysian Chinese. The study framework ID was No.22287736. The translation was subjected to the condition that each new translation must undergo a full linguistic validation process according to standard recognized methodology of translation, as described by Acquadro et al [94] from MAPI research institute.

The English version MMWHQ version-1 questionnaire was translated into the Malay language [95] (Appendix H-J), followed by the translation to Mandarin [96] and Tamil [97] languages based on the MAPI Research Trust guidelines [94]. The researchers coordinated the full linguistic validation process. Below is an example of the MAPI full linguistic validation process, translating from US English questionnaires to Malay language [95] (Appendix H-J). The recommended methodology included the following steps:

- Forward translation
- Backward translation
- Review by clinicians
- Cognitive debriefing
- International harmonization
(if more than one language is involved)
- Proof reading
- Report

The team consisted of a Malay academician who was also a clinician and researcher, a Malay language teacher and three female Malay professional staff and the coordinator who were all proficient in the Malay and English languages. All team

members were staff of Jeffrey Cheah School of Medicine and Health Sciences, Monash University Malaysia.

Phase 1: Forward translation step and proof read

In 2010, the questionnaire in the source language (US English) was translated to the target language (Malay language spoken in Malaysia) by a Malay language tutor. It took him approximately 6 weeks to complete the forward translation independently. An academician who was a clinician and research did the proof reading of the forward translation. He made sure that the appropriate culturally congruent words were used within the local context for the Malaysian women without distorting the items of US English language questionnaire. The ability for the local illiterate Malaysian women to engage in a face to face interview to provide responses to the Malay version questionnaire was crucial. Also, educated Malaysian women were able to self-administer the questionnaire on their own without misconstruing the meaning of the words used. This was imperative for the researchers to avoid bias in the data collection. Simultaneously, the questionnaire had to be comprehensive enough to convey the gist in the source language (US English) questionnaire. Hence in the target language, both colloquial and easy to understand words was used for the Malaysian women.

Phase 2: Backward translation step

Another two independent persons, whose mother tongue was also the Malay language (source language) and were fluent in the English (target) language, produced the backward version of the Malay language MMWHQ. At this point in time neither had access to the original US English questionnaire. Both the team coordinator and independent persons met a few times to go through the backward translated version to detect any misunderstandings, mistranslation or inaccuracies. The backward translation was done in Malaysian English language. Approximately another 3 weeks were taken to complete the backward translation

Phase 3: Patient testing

The target language (Malay language) MMWHQ was tested on 10 Malaysian participants at a community clinic. The test was conducted by an interviewer who was also bilingual. After completion, the participants were interviewed to find out if they had encountered any problems comprehending the questions and responding to the statements given. Within a week, we could conduct the interviews and receive a feedback, which was reported based on the following questions.

Question 1. How many participants?

Answer. 10

Question 2. What was the age of participants?

Answer 45 – 65- years old

Question 3. What was the duration of time taken to complete the questionnaire?

Answer. The time it took to complete the questionnaire was 30-45 minutes. Self-administered questionnaire took about 30 minutes while face to face interviews took about 45 minutes. Although the respondents were quick to comprehend the questions, but their responses to the questions were slow. This is because the respondents were never exposed to such questions before. They had to think before responding to the questions.

Question 4. Any difficulties encountered?

Answer Yes. According to source language the name was to be filled beginning with the last then first and finally middle name. But this was not culturally congruent to the Malaysian respondents who either had a first name followed by their father's name (Malay and Indians) or a clan/surname followed by the given name (Chinese).

Question 5. Any suggested solution?

Answer. Full name was written in the target language. For example, Normah binti or (daughter of) Samsuddin (Malay name) or Ganeswari d/o Karuppiah. [Ganeswari (given name of respondent) daughter of (d/o) Karuppiah (her father's name)] in the case of a Tamil woman. In a Chinese woman, her name would be written in the following manner; Lee (surname) Chong Xin (given name).

Question 6. Was a third version of questionnaire produced?

Answer: No

Phase 4: Proof reading and finalisation

Finally, proof reading was undertaken by an academician, a tutor, and a professional staff. All three were bilingual and their mother tongue was the Malay language. Report was sent to MAPI Research Institute, 27 rue la Villette, 69003 Lyon - France on 17th

March 2011. The whole translation process for Malay language MMWHQ has been tabulated in (Appendix G).




MONASH University

Jeffrey Cheah School of Medicine and Health Sciences
Jalan Lagoon Selatan, 46150. Bandar Sunway
Selangor Darul Ehsan. Malaysia



Kajian Mengenai Kesihatan Wanita

Sekiranya bantuan diperlukan atau anda mempunyai sebarang pertanyaan semasa mengisi borang soal selidik ini, sila hubungi Puan Hardip Kaur Dhillon, Women's Health Program, Monash University, Sunway campus (MUSC) di talian 

Kandungan	Mukasurat
Muka surat Tandatangan	3
Peribadi Peserta	4
Arahan	5
1.0 Penilaian Kesihatan Am	6
2.0 Sejarah Haid	7
3.0 Sejarah Kehamilan	7
4.0 Sejarah Kelahiran	8
5.0 Sejarah Putus Haid	9
6.0. Sejarah Perubatan Am	11
7.0 Gaya Hidup	14
8.0. Soalselidik Diagnosos Kencing Tidak Berkawal (QUID)	16
9.0 Index Masalah Lantai Pelvik (PFD)	20
10.0 Isu sosial dan kewangan	24
11.0 Sejahtera psikologi dan emosi	25
12.0 Sambungan Sejarah Kelahiran	31
13.0 Nota	32

Satu Kajian Mengenai Kesihatan Wanita

KEBENARAN

Penyelidik memaklumkan kepada saya tentang kajian ini dan saya pun telah menerima kertas maklumat mengenai kajian ini. Saya faham dan memberikan kebenaran melalui tandatangan untuk mengambil bahagian didalam kajian ini. Jika perlu, saya boleh menarik diri dengan bebas pada bila-bila masa. Penyelidik boleh menaasihati saya untuk menarik diri dari kajian ini pada bila-bila masa, jika saya tidak menepati kriteria untuk menyertai kajian tersebut.

Tandatangan peserta

Nama wakil kajian

Tanda tangan

Tarikh

Kajian Mengenai Kesihatan Wanita

Sila lengkapkan butir-butir mengenai diri anda di bawah ini.

Muka surat ini akan diasingkan daripada soalan selepas diberi nombor pengenalan.

Nama: _____
(Nama penuh)

Alamat: _____
Nombor dan nama jalan

Pekan/bandar

Poskod

Negeri

Telefon: Rumah: (_ _) _ _ _ _ _ _ _ _
Pejabat: (_ _) _ _ _ _ _ _ _ _
Bimbit : _ _ _ _ _ _ _ _

Sila nyatakan maklumat dan nombor telefon saudara mara atau sahabat anda di bawah. Sekiranya anda tidak dapat dihubun.

Nama: _____

Hubungan: _____

No Telefon: Bimbit:
Rumah: ()

Untuk kegunaan penyelidik

Tarikh: / /
 Hari Bulan Tahun

Satu Kajian Mengenai Kesehatan Wanita

Program kajian ini secara menerus menjelajah tentang isu utama yang mengancam kesihatan wanita dewasa.

Kajian ini memfokuskan kepada penyelidikan **FAKTOR FAKTOR** yang mana menunjukkan permulaan ketidakmampuan mengawal diri.

Maklumat ini adalah penting sekiranya kita hendak mengenalpasti wanita yang berisiko terhadap masalah ini dan kita akan dapat membangunkan strategi pencegahan yang efektif.

Anda mungkin mengambil masa 40 - 60 minit untuk melengkapkan soal selidik ini. Sila kembalikan soal selidik yang telah dilengkapi kepada penemuduga

Sila mewujudkan dengan memerhati hampir ketika masa setiap soalan ditanya.

Sekiranya terdapat soalan yang tidak berkenaan dengan anda sila tandakan dibahagian "Tidak"

Pastikan semua soalan telah dijawab dan tidak dibiarkan kosong.

Untuk makluman anda semua maklumat yang anda berikan adalah sulit.

ARAHAN SEBELUM MENJAWAB SOALAN

Bagaimana untuk melengkapkan borang ini:

Sila lengkapkan borang ini dengan cermat.

Gunakan pena mata bola yang berwarna hitam atau biru.

Kebanyakan soalan hanya memerlukan anda menandakan kotak seperti berikut



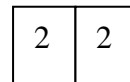
Sila jangan menulis apa-apa di bahagian luar kotak.



Sila jangan pangkah nombor 7.



Pastikan anda menulis hanya satu nombor dalam setiap ruangan yang disediakan.



Jika anda membuat kesilapan, hitamkan seluruh kotak itu dan buat tanda baru yang betul.



3. Masukkan tarikh anda mula menjawab soalan

--	--	--	--	--	--	--	--

Hari , Bulan ' Tahun

2. Masukkan tarikh anda dilahirkan:

Hari ' Bulan ' Tahun 245

1. Masukkan poskod alamat rumah anda:

--	--	--	--	--	--	--	--

KESIHATAN AM

Kami berminat untuk mengetahui kesihatan anda secara am termasuklah rawatan perubatan yang anda pernah lalui/alami

Kesihatan Am

1.1. Sila masukkan berat tubuh badan semasa anda:

Kg ATAU Pound oz

1.2. Sila masukkan ukuran tinggi semasa anda:

cm ATAU Kaki Inci

1.3 Sila masukkan ukuran pergelangan tangan KANAN semasa anda: cm

1.4. Sila masukkan ukuran semasa:

1.4.1. Jarak bahagian pinggang cm

1.4.2 Jarak bahagian punggung cm

1.4.3 Nisbah

1.5. Jarak bahagian teratas abdomen cm

1.6. Sila masukkan secara rawak bacaan darah glukos semasa: mmol/L

1.7. Sila masukkan bacaan tekanan darah semasa: Sistole Diastole mmHg

1.8. Daripada kaum kamu tersebut dibawah, kaum yang mana lebih sesuai untuk anda?

Melayu Cina India Selatan India Utara
 Orang Asli Kacukan/Lain-lain

KESIHATAN REPRODUKTIF

Kami berminat untuk mengetahui anda secara am termasuklah rawatan perubatan yang anda pernah

2.0. HAID

2.1 Umur saya _____ tahun ketika haid pertama mula. (Isi jawapan diruang kosong)

2.2. Adakah anda masih mengalami kitaran haid? Tidak Ya 249

Apakah jangkamasa kitaran haid biasa anda?

2.3. 21 -25 hari 26 - 30 hari 31 hari dan lebih

2.4. Adakah terdapat perubahan dalam corak atau aliran haid semasa anda? Tidak Ya

2.5. Adakah anda mengambil langkah cegah kehamilan Tidak Ya (Nyatakan)

OCP Kondom IUCD Implant Pensterilan perempuan

Lain _____

3.0. KEHAMILAN

3.1. Adakah anda sedang hamil? Tidak Ya

3.2. Jika Ya, nyatakan berapa minggu kehamilan anda? Minggu

4.0. KELAHIRAN

4.1. Adakah anda pernah bersalin **DUA tahun** yang lalu?

Ya Tidak

4.2. Nyatakan jumlah kehamilan

Sila isikan maklumat dimukasurat **8** tentang tahun, jenis kelahiran, tempat kelahiran, siapa lahirkan bayi dan berat badan bayi.

4.3 **Tahun Kelahiran**
hh/bb/tt

Bersalin

Tempat Bersalin

1.1 / /

1.2. Melalui faraj dengan otot sempurna

1.3. Dirumah oleh bidan berdaftar

1.4. Keguguran

Melalui faraj terhasil koyakan teruk

Dirumah oleh *bidan kampung*

1.5. Lahir mati

Melalui faraj dengan episiotomi

Dihospital oleh bidan berdaftar

1.6. Lahir hidup

Pembedahan ceasarean

Dihospital oleh doktor

1.7. Berat (kg)

Forsep dengan episiotomy

Lain _____
Nyatakan

Vakuem dengan episiotomi

250

2.1 / /

2.2 Faraj dengan kulit, otot sempurna

2.3. Dirumah oleh bidan berdaftar

2.4. Keguguran

Faraj terhasil koyakan yang teruk

Dirumah oleh *bidan kampung*

2.5. Lahir mati

Faraj dengan episiotomi

Dihospital oleh bidan berdaftar

- 2.6. Lahir hidup Pembedahan ceasarean Dihospital oleh doktor
- 2.7. Berat (kg) Forsep dengan episiotomy Lain
- Vakuu dengan episiotomi Nyatakan _____

- 3.1.
- 3.2. Faraj dengan kulit, otot sempurna
- 3.3. Dirumah oleh bidan berdaftar
- 3.4. Keguguran Faraj terhasil koyakan yang teruk Dirumah oleh *bidan kampung*
- 3.5. Lahir mati Faraj dengan episiotomi Dihospital oleh bidan berdaftar
- 3.6. Lahir hidup Pembedahan ceasarean Dihospital oleh doktor
- 3.7. Berat (kg) Forsep dengan episiotomi Lain
- Vakuu dengan episiotomy Nyatakan _____

- 4.1.
- 4.2. Faraj dengan kulit, otot sempurna
- 4.3. Dirumah oleh bidan berdaftar
- 4.4. Keguguran Faraj terhasil koyakan yang teruk Dirumah oleh *bidan kampung*
- 4.5. Lahir mati Faraj dengan episiotomi Dihospital oleh bidan berdaftar
- 4.6. Lahir hidup Pembedahan ceasarean Dihospital oleh doktor
- 4.7. Berat (kg) Forsep dengan episiotomi Lain
- Vakuu dengan episiotomy Nyatakan _____

5.1. Haid anda berhenti pada umur _____ tahun

PUTUS HAID

5.2. Putus haid anda berlaku secara _____, _____, _____, _____

- 5.3. Jangka masa putus haid anda adalah Perimenopos (perubahan dalam kitaran haid)
- Putus haid 1 hingga 5 tahun selepas haid terakhir
- Putus haid lebih daripada 5 tahun selepas haid terakhir 251

- 5.4. Pengambilan ubat bagi rawatan gejala-gejala putus haid anda adalah
- Tiada
- Terapi hormon tanpa kitaran haid
- Terapi hormon dengan kitaran haid

Lain nyatakan _____

5.5 Nyatakan penjagaan – penjagaan sendiri yang dilakukan oleh anda untuk mengatasi gejala –gejala putus haid dalam 2 tahun yang lalu

5.0. Soalan berikut adalah dari Sifat **Kehidupan semasa Putus Haid (Menopuase-Specific Quality of Life (MENQOL))** Kebenaran untuk menggunakan soalan ini sudah diterima)

Bagi setiap soalan tentang gejala-gejala putus haid yang disenaraikan di mukasurat 9 dan 10, Anda perlu tandakan **A** atau **TIDAK** untuk gejala dalam tempoh satu bulan yang lepas sahaja.

Sila nilaikan 1 bagi gejala paling sedikit sehingga 6 bagi gejala paling banyak.

		Gejala									
		0	1	2	3	4	5	6			
		Gejala paling sedikit								Gejala paling banyak	
5. 6.1.	Merah muka / panas muka	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Tidak	Ya	0	1	2	3	4	5	6	
5.6.2.	Berpeluh di waktu malam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Tidak	Ya	0	1	2	3	4	5	6	
5.6.3.	Berpeluh	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Tidak	Ya	0	1	2	3	4	5	6	
5.6.4.	Perasaan tidak puas hati dengan kehidupan secara peribadi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Tidak	Ya	0	1	2	3	4	5	6	
5.6.5.	Perasaan cemas atau bimbang	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	252
		Tidak	Ya	0	1	2	3	4	5	6	
5.6.6.	kekurangan atau tiada ketenangan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Tida	Ya	0	1	2	3	4	5	6	
5.6.7.	Kekeringan kulit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Tida	Ya	0	1	2	3	4	5	6	
5.6.8.	Berat badan bertambah	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Tidak	Ya	0	1	2	3	4	5	6	

5.6.9.	Tambahan bulu muka	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Tida	Ya	0	1	2	3	4	5	6	
5.6.10.	Perubahan dalam kemunculan atau ketegangan kulit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Tida	Ya	0	1	2	3	4	5	6	
5.6.11.	Merasa Kembang (bloated)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Tida	Ya	0	1	2	3	4	5	6	
5.6.12.	Sakit belakang / pinggang	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Tida	Ya	0	1	2	3	4	5	6	

Kekerapan kencing

5.6.14.	Semasa ketawa / batuk terkeluar air kencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Tida	Ya	0	1	2	3	4	5	6	
5.6.15.	Perubahan dalam keinginan (nafsu berahi) seks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Tida	Ya	0	1	2	3	4	5	6	
5.6.16.	Kekeringan faraj semasa persetubuhan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Tida	Ya	0	1	2	3	4	5	6	
5.6.17.	Mengelakkan kerapatan persetubuhan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Tidak	Ya	0	1	2	3	4	5	6	253

SEJARAH AM PERUBATAN

6.1. Pernahkah anda dimasukkan ke hospital dalam masa **2 tahun yang lalu**? Catatan: Dimasukkan ke hospital bermaksud anda dirawat dalam wad bagi tempoh masa melebihi 24 jam. Kurang dari 24 jam tidak diambil kira.

Ya (jika tidak, sila ke soalan 6.2) Tidak

6.2. Sila nyatakan sebab-sebab anda dimasukkan ke wad hospital untuk rawatan dalam

masa

2 tahun yang lalu.

Bil	Tarikh	Sebab
1.		
2.		
3.		
4.		
5.		
6.		

Latar Belakang Perubatan: Adakah anda pernah mengalami penyakit-penyakit seperti berikut :

6.3 Barah (sekarang atau masa lalu) Ya Tidak

Jika Ya, nyatakan jenisnya (cth: Barah payudara, ovari, rahim)

6.4 Sering lemah, strok kecil, kelumpuhan atau serangan iskemia sementara (SIS) 254
 Ya Tidak

6.5 Kencing Manis (Diabetes) Ya Tidak

Jika Ya, penyakit dikawal secara

1. Makanan 2. Ubatan 3. Insulin 4. Lain _____
(Sila nyatakan)

6.6 Penyakit Sistem Saraf Ya Tidak

Jika Ya, sila tandakan kotak dibawah

1. Penyakit Parkinson 2. Sklerosis Multipel 3. Penyakit motor neuron

(gerakan berirama)

(kelemahan anggota)

(kelemahan otot serta atrofi)

4. Lain _____
(Sila nyatakan)

6.7. Penyakit Pernafasan Ya Tidak

Jika Ya, sila tandakan kotak dibawah

1. Asma (Lelah) 2. Bronkitis 3. Emfisema

4. Lain- Lain _____
(Sila nyatakan)

6.8 Trauma terhadap Tulang Pinggul / Pelvik: Ini termasuklah kecederaan yang dilalui selepas kemalangan kereta atau kemalangan semasa jatuh yang serius Ya Tidak

Jika ya, sila tandakan kotak dibawah

1. Leher 2. Belakang tengah 3. Belakang bawah 4. Pelvis

4. Lain-lain _____
(Sila nyatakan)

6.9. Penyakit Rheumatik Ya Tidak

Jika ya, sila nyatakan:

1. Penyakit rawan pada sendi (osteoarthritis)
Tempatnya (misalnya lutut)

255

(nyatakan di mana

2. Artritis melibatkan sendi- sendi pada jari-jari (rheumatoid arthritis)

3. Inflamasi tisu tisu tulang dan sendi-sendi synovial pada tulang belakang (ankylosing spondylitis)

4. Penyakit kecatatan metabolisme asid urik (gout)

5. Lain-lain _____
(sila nyatakan)

6.10. Kehilangan tisu tulang mengakibatkan tulang rapuh dan mudah patah (Osteoporosis) Ya Tidak

Jika ya, adakah kehilangan tisu tulang ditentukan secara *bone density test* (DEXA)?

6.10.1 Ya Tidak

6.11. Kecederaan selepas ‘*minimal trauma*’

Minimal trauma bermaksud: Kemalangan ringan atau tiada kemalangan langsung. Contohnya kecederaan selepas jatuh yang perlahan. Ini tidak meliputi kemalangan serius.

Ya Tidak

Jika Ya, sila tandakan kotak yang sesuai:

1. Spine (tulang pinggul) 2. Pelvis 3. Lengan 4. Kaki
5. Lain-lain _____
(sila nyatakan)

6.12. Penyakit Buah Pinggang Ya Tidak

6.13. Jangkitan kuman pada saluran faraj Ya Tidak

6.13. Jangkitan kuman pada saluran kencing Ya Tidak

6.14. Batuk yang kronik Ya Tidak

6.15. Kecacatan fizikal yang mengganggu pergerakan atau mobilisasi
 Ya Tidak

6.16. Pembedahan Ya Tidak

Jika Ya, sila tandakan kotak yang sesuai

1. Pembuangan rahim melalui faraj 2. Pembuangan rahim melalui abdomen
3. Lain-Lain _____
(sila nyatakan)

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6.17. Sakit Jiwa (Mental) Ya Tidak

Jika Ya, sila tandakan kotak yang sesuai

1. Kemurungan (Depresi) 2. Depresi Bipolar 3. Skizofrenia 4. Lain _____
(Sila nyatakan)

GAYA HIDUP

KEGUNAAN KAFEIN

7.1. Adakah anda minum kopi setiap hari? Ya Tidak

7.1.1. Jika anda minum kopi, berapakah cawan (200mLs) yang anda minum setiap hari?

- 1cawan 2 cawan 3 cawan 4 cawan 5 atau lebih cawan

MEROKOK

7.2. Adakah anda merokok? Ya Tidak

7.2.1. Jika anda merokok, berapakah batang rokok yang anda hisap setiap hari

Lebih dari 40 batang 21 – 39 batang 10 – 20 batang Kurang dari 9 batang

KEGUNAAN ARAK (ALKOHOL)

7.3. Adakah anda mengambil minuman beralkohol? Ya Tidak

Jika anda mengambil minuman beralkohol, sila jawab 3 soalan berikut:

7 Berapa kerapkah anda mengambil minuman beralkohol?

Setiap hari 5 – 6 hari dalam seminggu 3 - 4 hari dalam seminggu
 1 - 2 hari dalam seminggu 2 - 3 hari dalam sebulan 1-2 days a year
 Lain -lain _____
(Sila nyatakan)

Bir sedikit beralkohol (3.5%)	1 tin atau 1.5 sukatan.....	375mLs
Bir biasa (4.9%)	1/2 atau 1 sukatan.....	285mLs
Wain (12%)	1 gelas kecil.....	100mLs
Arak (whisky, gin, vodka)	1 gelas kecil cecair atau tidak.....	30mLs
Liqueurs (contoh Bailey)	1 gelas kecil cecair atau tidak	30 mLs
Arak campuran /cocktail	1 gelas kecil arak campur dengan coke/ jus oren/tomato.....	30mLs
Shandy (5.5%)	1 tin atau sebotol.....	250mLs

7.3.2 Apabila anda mengambil minuman beralkohol, berapakah jumlah purata anda akan minum **sehari**?

1 - 2 3 – 4 5 -6 7 - 10 11 - 12 13 atau lebih

7.3.3 Nyatakan berapa kerap anda meminum **4 atau lebih minuman beralkohol purata sehari**.

Setiap hari 4 - 6 kali seminggu 2 - 3 kali seminggu kali seminggu

KEGIATAN JASMANI

Adakah anda terlibat dengan kegiatan jasmani/aktiviti jasmani Ya Tidak

Jika ya nyatakan jumlah jam dalam seminggu. _____ jam seminggu.

7.5. Tandakan pangkah (X) dalam kotak di bawah bagi menunjukkan jumlah sesi latihan dalam seminggu.

	Aktiviti	Jam/ sessi	Sesi dalam seminggu			
			0	1 - 2	3 - 4	> 5 atau lebih
1.	Berjalan kaki					
2.	Latihan sederhana berat (Contoh : berenang, bermain tenis)					
3.	Aktiviti berat (Contoh : Joging, berbasikal, aerobic, perlawanan tenis)					
4.	Kerja berat/lasak (Contoh : berkebun/bertukang atau kerja kampung)					

7.6. Pernahkah anda mengalami keadaan di mana anda terkencing ketika sedang melakukan senaman, mengangkat barang atau ketika melakukan aktiviti rekreasi 258

Ya Tidak

7.7. Jika ya, pada kadar manakah anda mengalami keadaan tersebut?

seluar dalam/pelapik seluar dalam lembap
 seluar dalam/pelapik seluar dalam basah
 seluar dalam/tuala wanita bertakung

7.8. Adakah anda melakukan sebarang aktiviti untuk lantai pelvis (Latihan Kegel) sebelum anda melakukan sebarang senaman atau aktiviti riadah?

Ya Tidak

7.9. Jika ya, nyatakan jumlah waktu anda melakukan latihan untuk lantai pelvis (Latihan Kegel)

1 kali/sehari 2 kali/sehari 3 kali/sehari 4 kali/sehari _____

HILANG KAWALAN BUANG AIR KECIL: PENGESAHAN PENYAKIT

SOALAN 8.

Soal-selidik mengenai 'Urinary Incontinence Diagnosis' (QUID) ini boleh membantu mencari lebih banyak maklumat mengenai jenis-jenis penyakit hilang kawalan membuang air kecil di kalangan wanita. Sila tandakan bagi setiap soalan

Soalan	Tidak pernah	Jarang terjadi	Sekali-sekala	Kerap	Kebanyakan	Sepanjang
--------	--------------	----------------	---------------	-------	------------	-----------

	terjadi				masa		masa
Adakah kencing anda terkeluar (walaupun titisan kecil), membasahkan anda, atau membasahi seluar dalam atau tuala wanita anda ketika keadaan-keadaan di bawah;							
8.1. Ketika anda terbatuk atau terbersin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.2. Ketika anda membengkokkan badan atau ketika anda mengangkat sesuatu barang?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
259							
8.3. Ketika anda berjalan dengan cepat, jogging atau bersenam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.4. Ketika anda membuka pakaian untuk ke tandas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.5. Pernahkah anda berasa begitu terdesak sehingga anda terkencing (walaupun titisan kecil) sebelum sampai ke tandas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.6. Pernahkah anda tergesa-gesa pergi ke tandas disebabkan rasa ingin terkencing yang datang secara tiba-tiba?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8.7. Jika anda mempunyai masalah hilang kawalan membuang air kecil, sudah berapa lama anda mengalami masalah ini?

(Anggaran terbaik): tahun bulan

8.8. Adakah anda telah mengambil tindakan atau rawatan untuk mengawal atau merawat masalah hilang kawalan buang air kecil ini?

Tidak Ya

(nyatakan) _____

8.9. Jika ya, apakah jenis kawalan atau rawatan yang anda terima? (Periksa semua jawapan yang sesuai.)

8.9.1. Perubatan (dengan ubatnya)

Tidak Ya

(nyatakan) _____

6.9.2 .Pembedahan

Tidak Ya

(nyatakan) _____

8.9.3. Jika ya, sila nyatakan nama pembedahan tersebut (jika boleh) dan tahun pembedahan dilakukan (anggaran terbaik).

Jenis>Nama pembedahan

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8.10. 1. Fisioterapi (senaman lantai pelvis (Kegel), latihan pundi kencing, stimulasi letrik)

Tidak Ya (nyatakan) _____

8.10. 2. Jangka masa fisioterapi hari bulan

8.10.3. Adakah anda terus berlaku senaman lantai pelvis (Kegel) secara tetap?

Tidak Ya

8.11. Rawatan Tambahan (contoh: perubatan herba, akupuntur, homeopati)

Tidak Ya (nyatakan)

8.12. Tindakan lain (contoh: penggunaan tuala pelapik, tisu, kain)

Tidak Ya (nyatakan)

8.13. Bagaimanakah masalah hilang kawalan membuang air kecil anda selepas mendapatkan rawatan?

Semakin baik Sama saja Semakin teruk Tidak pasti

Jika anda tidak melaporkan kegagalan mengawal kencing 2 tahun lalu dan anda tidak mengalami masalah ini:

18.14. Adakah anda pernah kecaciran/gagal mengawal kencing pada masa yang sama dalam masa 2 tahun lalu? Tidak Ya

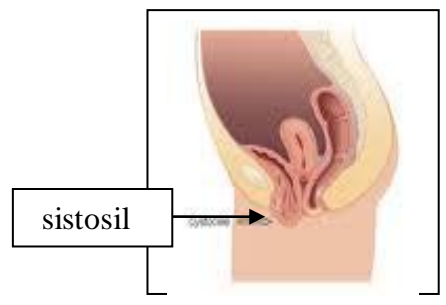
8.15. Adakah ibu dan/atau keluarga sebelah bapa mengalami masalah di bawah?;

8.15.1 Keciciran kencing di luar kawalan mereka (kencing tak terkawal)
 Tidak tahu Tidak Ya
 Nyatakan hubungan

8.15.2. Membuang air besar di luar kawalan mereka (berak tak terkawal)
 Tidak tahu Tidak Ya
 Nyatakan hubungan

8.15.3. Mempunyai pundi kencing tergelincir (sistosil). Pundi terjatuh ke bahagian dinding hadapan faraj.
 Tidak tahu Tidak Ya

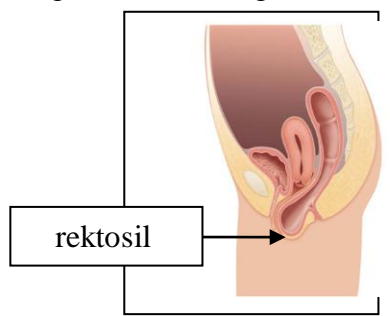
 Nyatakan hubungan



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8.15.4. Mempunyai rektum tergelincir (rektosil). Rektum tergelincir ke bahagian dinding belakang faraj.
 Tidak tahu Tidak Ya

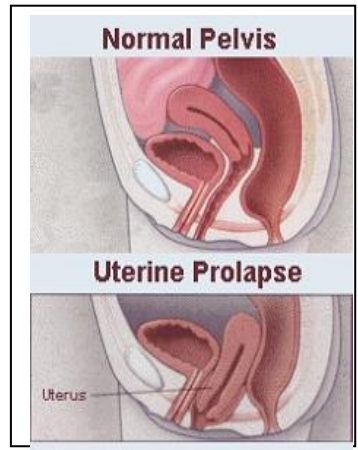
 Nyatakan hubungan



The Jacksonville Continence Centre at the McIver Urological Clinic
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8.15.5. Mempunyai rahim (uterus) yang tergelincir. Uterus tergelincir ke kawasan faraj
 Tidak tahu Tidak Ya

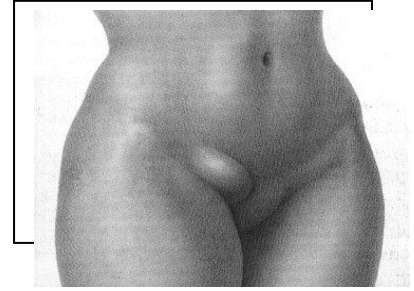
 Nyatakan hubungan



8.15.6. Bengkak di kawasan kelengkang (angin pasang)

Tidak tahu Tidak Ya

Nyatakan hubungan



[http:// surgery4you.com/hernia_surgery.html](http://surgery4you.com/hernia_surgery.html) 262

8.16.7. Bengkak di kawasan pusaran pusat (Hernia Umbilical)

Tidak tahu Tidak Ya

Nyatakan hubungan



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Pelvic Floor Distress Inventory (PFDI)

Jawab soalan berikut dengan menandakan tanda (X) dalam kotak yang sesuai (). Pastikan anda beri jawapan yang terbaik. Timbangkan tanda-tanda (gejala) penyakit dalam masa **3 bulan** yang lalu.

9.1. Dalam tiga bulan yang lalu adakah anda buang air besar (najis) kurang dari 3 kali se minggu? (sembelit temboh panjang). Ya Tidak

9.2. Adakah anda biasanya mengalami tekanan di bahagian bawah abdomen anda?

Ya Tidak

9.2.1 Jika ya, sekuat manakah anda meghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.3. Adakah kebiasaannya anda mengalami rasa berat (heaviness) atau sentiasa sakit (dullness) di kawasan pelvik anda?

Ya Tidak

9.2.1. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

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9.4. Pernah atau tidak anda ada bonjol atau rasa sesuatu benda keluar yang anda boleh melihat /rasa di kawasan faraj anda?

Ya Tidak

9.4.1. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.5. Untuk menyempurnakan buang air besar (najis) anda, adakah anda terpaksa menolak ke atas faraj anda, atau di sekeliling rektum anda?

Ya Tidak

9.5.1. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.6. Biasanya, ada tak anda rasa buang air kencing anda tak habis keluar?

Ya Tidak

9.6.1. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.7. Untuk mula terkencing atau menyelesaikan mengeluarkan air kencing, pernahkah anda perlu menolak bonjol itu dengan jari anda?

Ya Tidak

9.7.1. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.8. Adakah anda rasa perlu menekan kuat-kuat untuk mengeluarkan najis anda ketika buang air besar?

Ya Tidak

9.8.1. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.9. Setelah selesai buang air besar, adakah anda masih merasakan najis anda masih ada di dalam rektum anda dan belum keluar lagi semuanya?

Ya Tida

9.9.1. Jika ya, sekuat manakah anda megghiraukannya?

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Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.10 Najis anda keluar terlalu cepat, hingga anda tak boleh kawal, sedangkan anda rasa bentuk najis anda sempurna. Pernahkah alami hal ini?

Ya Tidak
↓

9.10.1. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.11. Jika najis anda cair, najis anda keluar di luar kawalan anda. Pernah alami hal ini?

Ya Tidak
↓

9.11.1. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.12. Kentut keluar dari rectum anda tanpa kawalan?

Ya Tidak
↓

9.11.1. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.13. Bila terberak, adakah anda terasa sakit?

Ya Tidak
↓

9.13.1 Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.14. Anda merasakan anda perlu segera pergi ke tandas untuk terberak?

Ya Tidak
↓

9.14.1. Adakah anda mengalami gesaan ini. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.15 Sebahagian dari najis anda jeluar melalui rectum dan membonjol di luar ketika atau selepas anda terberak. Pernahkah ini terjadi?

Ya Tidak
↓

9.15.1. Jika ya, sekuat manakah anda megghiraukannya?
 Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.16. Adakah mengalami masalah kerap buang air kecil?

Ya Tidak
↓

9.16.1. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.17. Pernahkah air kencing anda terkeluar/ bocor disebabkan anda digesa oleh kencing nak cepat keluar dan perlu segera pergi ke bilik air?

Ya Tidak
↓

9.17.1. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.18. Apabila anda terbatuk, terbersin atau ketawa, pernahkah air kencing anda terkeluar?

Ya Tidak
↓

9.18.1. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.19. Biasakah anda mengalami kesukaran mengosongkan pundi-pundi kencing anda?

Ya Tidak
↓

9.19.1. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

9.20. Adakah anda sering mengalami kesakitan atau ketakselesaan di bahagian bawah abdomen atau kawasan kemaluan?

Ya Tidak
↓

9.20.1. Jika ya, sekuat manakah anda megghiraukannya?

Tidak hirau langsung Sedikit sahaja Sederhana Teruk

ISU SOSIAL DAN KEWANGAN

10.1. Tahap pendidikan tertinggi

- Peringkat universiti STPM / A Level SPM /O Level
 PMR UPSR Tiada pendidikan formal
 Sekolah agama

10.2. Adakah anda berkerja sekarang? Ya Tidak

10.2.1. Pekerjaan semasa anda adalah

10.3. Di tempat kerja, adakah anda berangkat atau dukung benda/ orang semasa berlakukan tugas?

- Ya Tidak

10.3.1. Berapa banyak kali anda berangkat atau dukung benda/orang semasa berkerja sehari?

- Tiada Sedikit Serdahana Banyak

10.4. Pendapatan semasa anda adalah RM _____

10.5. Apakah taraf perkahwinan anda sekarang?

- Berkahwin Bujang dengan teman Bujang tanpa teman
 Berpisah Bercerai Janda

10.6. Adakah anda pernah dengar /tahu tentang Persatuan kontinens Malaysia?

- Ya Tidak

SEJAHTERA PSIKOLOGI DAN EMOSI

Soalan 11

Kami berminat untuk mengetahui tentang perasaan anda terhadap tahap kesihatan anda, pandangan anda terhadap kehidupan dan perubahan emosi serta tahap psikologi anda pada bulan-bulan sebelumnya.

Soalan-soalan ini diambil dari “Psychological General Well-being Index” (‘PGWBI’)

(kebenaran menggunakan soalan-soalan tersebut telah diperolehi)

Di bawah merupakan kenyataan-kenyataan mengenai perasaan anda rasa dan bagaimana anda menangani keadaan tersebut.

Sila baca setiap kenyataan dengan teliti dan pilih jawapan yang paling sesuai dengan menandakan dengan



11.1. Secara keseluruhan, apa yang anda rasa pada bulan-bulan sebelum ini?

- 1. Dalam semangat yang sangat memberangsangkan
- 2. Dalam semangat yang baik
- 3. Dalam semangat yang baik kebanyakannya
- 4. Mengalami semangat yang turun naik
- 5. Dalam semangat yang rendah kebanyakannya
- 6. Dalam semangat yang sangat rendah

11.2. Berapa kerapkah anda berasa terganggu dengan sebarang penyakit, lemah badan atau sakit-sakit badan untuk beberapa bulan sebelum ini?

- 1. Setiap hari
- 2. Hampir setiap hari
- 3. Anggaran separuh hari
- 4. Kadang-kadang, tetapi kurang dari separuh hari
- 5. Jarang
- 6. Tidak pernah

11.3. Adakah anda merasa tertekan untuk beberapa bulan sebelum ini?

- 1. Ya – sehingga ke tahap untuk membunuh diri
- 2. Ya – sehingga ke tahap saya tidak mempedulikannya
- 3. Ya – sangat tertekan hamper setiap hari
- 4. Ya – agak tertekan beberapa kali
- 5. Ya – sedikit tertekan, kadang-kadang
- 6. Tidak – tidak pernah berasa tertekan langsung

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-
- 11.4. Pernahkah anda tegas dalam mengawal kelakuan, pemikiran, emosi, atau perasaan anda untuk
- 1. Ya, semestinya
 - 2. Ya, hampir setiap masa
 - 3. Keseluruhannya ya
 - 4. Tidak terlalu bagus
 - 5. Tidak, dan sedikit terganggu
 - 6. Tidak, dan berasa sangat terganggu
-

- 11.5. Adakah anda berasa terganggu dengan perasaan cemas untuk beberapa bulan sebelum ini?
- 1. Sangat cemas – sehingga ke tahap di mana saya tidak mampu melakukan sebarang k
 - 2. Agak kuat terganggu
 - 3. Agak terganggu
 - 4. Memadai untuk berasa terganggu
 - 5. Sedikit
 - 6. Tidak langsung
-

- 11.6. Berapa banyak tenaga yang dapat anda rasakan pada beberapa bulan sebelum ini?
- 1. Penuh bertenaga
 - 2. Kebanyakan masa adalah bertenaga
 - 3. Keadaan tenaga saya berubah-ubah
 - 4. Keadaan tenaga kebiasaannya rendah
 - 5. Tenaga sangat rendah pada kebanyakan masa
 - 6. Tidak bertenaga langsung, hilang tenaga
-

- 11.7. Saya berasa sangat kecewa pada beberapa bulan sebelum ini
- 1. Tidak pernah
 - 2. Pada segelintir masa
 - 3. Kadang-kadang
 - 4. Selalu
 - 5. Hampir setiap masa
 - 6. Setiap mas
-

- 11.8. Adakah anda berasa tertekan pada beberapa bulan sebelum ini?
- 1. Ya – sangat tertekan, hampir atau setiap masa
-

-
2. Ya – sangat tertekan hampir setiap masa
3. Tidak secara keseluruhannya, tetapi saya pernah rasa tertekan beberapa kali
4. Sedikit tertekan beberapa kali
5. Rasa tertekan saya agak rendah secara amnya
6. Saya tidak langsung berasa tertekan
-
- 11.9. Adakah anda gembira, berpuas hati, atau selesa dengan kehidupan anda untuk beberapa bulan sebelum ini?
1. Sangat gembira – terlalu berpuas hati dan selesa
2. Sangat gembira kebanyakan masanya
3. Secara amnya gembira – berpuas hati
4. Kadangkala gembira, kadangkala tidak
5. Secara amnya tidak gembira
6. Sangat tidak berpuas hati dan tidak gembira pada kebanyakan masa
-
- 11.10. Adakah anda berasa sihat untuk melakukan sebarang kerja pada beberapa bulan sebelum ini?
1. Ya – semestinya sihat
2. Sihat pada kebanyakan masa
3. Tahap kesihatan menghadkan aktiviti yang saya lakukan
4. Kesihatan saya memadai untuk saya menjaga diri saya sendiri sahaja
5. Saya memerlukan bantuan untuk menjaga diri saya
6. Saya memerlukan pertolongan orang lain bagi hampir setiap kerja yang saya lakukan
-
- 11.11. Adakah anda berasa sedih, tidak bersemangat, putus harapan atau menghadapi terlalu banyak masalah untuk beberapa bulan sebelum ini?
1. Terlalu sedih – sehingga ke tahap berputus asa
2. Sangat sedih
3. Agak sedih
4. Agak sedih – ke tahap mampu mengganggu saya
5. Tidak terlalu sedih
6. Tidak sedih langsung
-
- 11.12. Saya berasa segar apabila bangun dari tidur untuk beberapa bulan sebelum ini
1. Tidak pernah langsung
2. Pada segelintir masa
3. Kadang-kadang
4. Selalu
5. Hampir setiap masa
6. Setiap masa
-
- 11.13. Adakah anda risau, khuatir atau mengalami rasa takut mengenai tahap kesihatan anda beberapa bulan sebelum ini?
1. Terlalu risau

-
- 2. Risau
 - 3. Agak risau
 - 4. Risau, tetapi tidak terlalu banyak
 - 5. Secara praktikal tidak pernah
 - 6. Tidak pernah langsung
-

11.14. Adakah anda pernah terfikir sekiranya anda hilang kawalan emosi atau hilang keupayaan mengawal percakapan, pemikiran, rasa atau ingatan untuk beberapa bulan sebelum ini?

- 1. Tidak langsung
 - 2. Hanya sedikit
 - 3. Sedikit – tetapi tidak cukup membuatkan saya risau
 - 4. Menyebabkan saya risau sedikit
 - 5. Sedikit, membuatkan saya agak risau
 - 6. Ya, sangat risau
-

11.15. Kehidupan seharian saya dipenuhi dengan perkara-perkara menarik untuk beberapa bulan sebelum ini

- 1. Tidak pernah
 - 2. Pada segelintir masa
 - 3. Kadang-kadang
 - 4. Selalu
 - 5. Hampir setiap masa
 - 6. Setiap masa
-

11.16. Adakah anda berasa cergas, bertenaga, lesu atau tidak bermaya untuk beberapa bulan sebelum ini?

- 1. Sangat cergas, bertenaga setiap hari
 - 2. Tidak pernah berasa lesu
 - 3. Jarang berasa lesu
 - 4. Jarang berasa cergas dan bertenaga
 - 5. Selalunya lesu, tidak bermaya
 - 6. Sangat lesu, tidak bermaya setiap hari
-

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11.17. Adakah anda berasa bimbang atau sedih pada bulan lalu?

- 1. Tidak pernah
 - 2. Pada segelintir masa
 - 3. Kadang-kadang
 - 4. Selalu
 - 5. Hampir setiap masa
 - 6. Setiap masa
-

11.18. Emosi saya stabil dan berasa sangat yakin dengan diri pada bulan lalu

- 1. Tidak pernah
- 2. Pada segelintir masa
- 3. Kadang-kadang
- 4. Selalu
- 5. Hampir setiap masa
- 6. Setiap masa

8.19. Adakah anda berasa tenang dan selesa pada bulan lalu?

- 1. Berasa sangat tenang sepanjang bulan lalu
- 2. Berasa tenang pada hampir setiap masa
- 3. Berasa tenang secara amnya tetapi kadangkala berasa murung
- 4. Berasa murung secara amnya tetapi kadangkala berasa tenang
- 5. Berasa murung, tegang dan tertekan hampir setiap masa
- 6. Berasa murung, tegang dan tertekan pada setiap masa

8.20. Saya berasa gembira, senang hati sepanjang bulan lepas

- 1. Tidak pernah
- 2. Pada segelintir masa
- 3. Kadang-kadang
- 4. Selalu
- 5. Hampir setiap masa
- 6. Setiap masa

8.21. Saya berasa penat, letih, hilang tenaga sepanjang bulan lepas

- 1. Tidak pernah
- 2. Pada segelintir masa
- 3. Kadang-kadang
- 4. Selalu
- 5. Hampir setiap masa
- 6. Setiap masa

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8.22. Adakah anda berada dalam keadaan tertekan sepanjang bulan lepas?

- 1. Ya – hampir tidak sanggup menerimanya
 - 2. Ya – Sedikit tertekan
 - 3. Ya – tertekan lebih dari biasa
 - 4. Ya – sedikit – tetapi seperti kebiasaan
 - 5. Ya – sedikit tertekan
 - 6. Tidak mengalami tekanan langsung
-

6.1	<input type="text" value="/ /"/>	6.2	<input type="checkbox"/> Faraj dengan kulit, otot sempurna	6.3.	<input type="checkbox"/> Dirumah oleh bidan berdaftar
6.4.	<input type="checkbox"/> Keguguran		<input type="checkbox"/> Faraj terhasil koyakan yang teruk		<input type="checkbox"/> Dirumah oleh <i>bidan kampung</i>
6.5.	<input type="checkbox"/> Lahir mati		<input type="checkbox"/> Faraj dengan episiotomi		<input type="checkbox"/> Dihospital oleh bidan berdaftar
6.6.	<input type="checkbox"/> Lahir hidup		<input type="checkbox"/> Pembedahan ceasarean		<input type="checkbox"/> Dihospital oleh doktor
6.7.	<input type="checkbox"/> Berat (kg)		<input type="checkbox"/> Forsep dengan episiotomy		<input type="checkbox"/> Lain
	°		<input type="checkbox"/> Vakuu dengan episiotomi		Nyatakan _____

7.1	<input type="checkbox"/>	7.2	<input type="checkbox"/> Faraj dengan kulit, otot sempurna	7.3.	<input type="checkbox"/> Dirumah oleh bidan berdaftar
7.4.	<input type="checkbox"/> Keguguran		<input type="checkbox"/> Faraj terhasil koyakan yang teruk		<input type="checkbox"/> Dirumah oleh <i>bidan kampung</i>
7.5.	<input type="checkbox"/> Lahir mati		<input type="checkbox"/> Faraj dengan episiotomi		<input type="checkbox"/> Dihospital oleh bidan berdaftar
7.6.	<input type="checkbox"/> Lahir hidup		<input type="checkbox"/> Pembedahan ceasarean		<input type="checkbox"/> Dihospital oleh doktor
7.7.	<input type="checkbox"/> Berat (kg)		<input type="checkbox"/> Forsep dengan episiotomi		<input type="checkbox"/> Lain
			<input type="checkbox"/> Vakuu dengan episiotomi		Nyatakan _____

8.1	<input type="checkbox"/>	8.2	<input type="checkbox"/> Faraj dengan kulit, otot sempurna	8.3.	<input type="checkbox"/> Dirumah oleh bidan berdaftar
8.4.	<input type="checkbox"/> Keguguran		<input type="checkbox"/> Faraj terhasil koyakan yang teruk		<input type="checkbox"/> Dirumah oleh <i>bidan kampung</i>
8.5.	<input type="checkbox"/> Lahir mati		<input type="checkbox"/> Faraj dengan episiotomi		<input type="checkbox"/> Dihospital oleh bidan berdaftar
8.6.	<input type="checkbox"/> Lahir hidup		<input type="checkbox"/> Pembedahan ceasarean		<input type="checkbox"/> Dihospital oleh doktor
8.7.	<input type="checkbox"/> Berat (kg)		<input type="checkbox"/> Forsep dengan episiotomi		<input type="checkbox"/> Lain
			<input type="checkbox"/> Vakuu dengan episiotomy		Nyatakan _____



Tarikh: _____

Huraian Kenyataan: Dokumentasi mengenai jumlah kes, klasifikasi termasuk faktor risiko bagi penyakit kencing tidak lawas dan kesannya terhadap kualiti hidup wanita Malaysia. Latihan yang kerap dapat mengurangkan lemak pada bahagian badan, menguatkan otot dan membantu mengurangkan keadaan bagi berlakunya kencing tidak lawas.

Tajuk: Kegemukan menambahkan kesan terhadap kes kencing tidak lawas dan mengurangkan kualiti hidup wanita Malaysia.

Maklumat di bawah adalah untuk disimpan oleh anda

Nama saya ialah Hardip Kaur Pretam Singh Dhillon dan saya sedang menjalankan projek kajian bagi memperoleh Ijazah Kedoktoran di Monash University. Kedua-dua penyelia projek saya iaitu Profesor Dr. Rusli Nordin dan Profesor Dato Dr. Anuar Zaini Md Zain adalah dari Jeffrey Cheah School of Medicine and Health Sciences, Monash University kampus Sunway. Pada penghujung projek ini saya akan menulis tesis yang berketebalan 300 mukasurat bagi satu buku.

Sukarelawan perlu memenuhi ciri-ciri di bawah bagi pemilihan projek:

Wanita yang sihat berumur 18 tahun dan ke atas
 Wanita yang tidak pernah dan yang pernah melahirkan anak
 Wanita dengan diabetes terkawal, berpenyakit jantung dan berkolestrol tinggi
 Wanita yang telah putus haid
 Wanita dengan berat badan ideal, gemuk dan yang obese.

Sukarelawan tidak akan dipilih sekiranya mereka mempunyai ciri-ciri di bawah:

Wanita yang sedang hamil, 6 minggu selepas bersalin atau wanita yang mengalami keguguran kandungan dalam tempoh setahun lalu.
 Mempunyai pengalaman dalam keadaan perubatan – pembedahan yang dinyatakan bagi tempoh 3 bulan sebelum ini: penyakit psikiatrik yang teruk, masalah buah pinggang, penyakit barah hati, penyakit jantung.

Sebarang penyakit teruk : pembedahan sistem peranakan, ketumbuhan yang aktif atau rawatan kanser.

Saya ingin menanyakan soalan yang lebih lanjut mengenai tahap kesihatan anda dengan lebih terperinci, kesihatan sistem pembiakan, keadaan sistem perkumuhan, tanda-tanda putus haid dan kesihatan mental anda.

Saya menjalankan kajian ini yang telah dibahagikan kepada tiga fasa. Fasa I dijalankan bagi mendapatkan jumlah kes dan faktor risiko yang menyumbang kepada perkembangan keadaan kencing tidak lawas. Di dalam Fasa III, wanita yang sama akan ditemui sekali lagi selepas

setahun setengah bagi menjawab soalan yang sama. Di dalam Fasa II sebahagian wanita akan mengambil bahagian dalam program perantaraan, di mana mereka perlu mengambil bahagian dalam latihan seperti berjalan kaki dan/atau latihan lantai pelvik. Bagi tujuan ini, saya akan memilih wanita yang tinggal dalam kawasan Selangor.

Antara faedah yang boleh diperolehi dari kajian ini termasuklah menambah pengetahuan terhadap kekerapan kes, faktor risiko dan kesan latihan terhadap keadaan kencing tidak lawas terhadap wanita Malaysia yang tinggal di dalam kawasan Selangor. Maklumat yang dicetak akan menyokong lagi bukti yang telah wujud bagi golongan perubatan serta meningkatkan lagi pengesanan awal tanda-tanda akan berlakunya penyakit kencing tidak lawas di kalangan wanita. Kesan berjalan kaki dan latihan Kegel untuk menghalang atau mengurangkan keadaan kencing tidak lawas akan membantu wanita untuk memperbaiki kualiti hidup mereka.

Kajian ini melibatkan soal selidik kesihatan dan jawapan dari soalan kajiselidik "Women Health Survey" Kajiselidik kesihatan akan memerlukan penyelidik untuk mengambil bacaan tinggi, berat, ukuran pinggang, tekanan darah dan mencucuk jari anda bagi mendapatkan tahap glukosa dalam darah anda. Menjawab soalan dalam kajiselidik ini akan mengambil tempoh lebih kurang 45 minit hingga satu jam dan ianya disediakan dalam Bahasa Melayu, Bahasa Cina dan Bahasa Inggeris.

Sekiranya anda terlibat dalam perantaraan Fasa III, anda akan mendapat pemeriksaan kesihatan secara percuma dan ujian makmal sebelum dan selepas penyertaan. Selepas menjawab soalan kajiselidik dalam "Women Health Study", anda dijangka untuk menyertai latihan berjalan kaki, latihan Kegel atau kedua-duanya untuk tempoh 9 bulan. Kumpulan kawalan tidak akan menyertai mana-mana aktiviti dalam fasa perantaraan. Anda akan menyimpan laporan keadaan kencing tidak lawas dalam seminggu bagi tempoh 3 bulan dan berat badan serta analisis lemak badan akan diambil bagi tempoh 3 bulan juga.

Sepanjang program ini anda akan ditemukan dengan kumpulan yang akan menyokong anda bagi mencapai tujuan program. Anda berhak untuk menarik diri samada dari kajiselidik atau dari mana-mana fasa program ini.

Anda akan diminta untuk mennyatakan alamat dan nombor telefon anda untuk membolehkan penyelidik menghubungi anda semula bagi Fasa III dan bagi menjawab Kaji selidik susulan. Maklumat ini akan disimpan di dalam fail yang berasingan dari soalan kajian. Jawapan soalan kajian anda akan dikod untuk memastikan ianya sebagai sulit. Jika anda mempunyai sebarang soalan, sila tujukan soalan anda dengan cara menghantar email atau menghubungi Puan Hardip Kaur Dhillon. Maklumat boleh didapati pada helaian pertama soalan kajiselidik dan boleh juga didapati di bahagian bawah dokumen ini.

Sebahagian dari soalan-soalan ini akan saya tanyakan secara individu dan jika anda berasa tidak selesa dengan soalan-soalan tersebut anda tidak perlu memberikan sebarang jawapan. Sekiranya anda mengalami rasa kurang senang anda boleh menarik diri dari temuduga ini.

Anda akan dibayar sekiranya menyertai kajian ini. Bayaran sebanyak RM10/- akan diberikan sekiranya anda melengkapkan kedua-dua soalan kajian Fasa I dan Fasa II. Bayaran sebanyak RM50/- akan diberikan sekiranya anda melengkapkan soalan kajiselidik bagi program Fasa III yang berlangsung selama 9 bulan. Tambahan lagi, keputusan dari kajian ini akan digunakan dengan meluas dalam jurnal, persidangan dan seminar, Badan-badan Berkecuali, persatuan pakar-pakar perubatan dan mana-mana pakar penjagaan kesihatan.

Penglibatan dalam kajian ini adalah secara sukarela dan anda tidak tertakluk pada mana-mana syarat untuk mengambil bahagian. Anda bebas untuk memilih samada ingin menyertai kajiselidik ini atau sebaliknya. Sekiranya anda memilih untuk tidak menyertai kajian ini tiada apa-apa yang akan berlaku pada anda. Anda juga bebas untuk menarik diri pada bila-bila masa semasa temuduga ini tanpa sebarang tindakan akan diambil.

Anda boleh menggunakan maklumat yang anda telah beri pada peringkat kemudian sekiranya anda memohonnya. Saya akan memastikan nama anda tidak akan ditulis di atas kertas ini, hanya kod nombor yang akan dinyatakan. Nama anda tidak akan didedahkan kepada sesiapa. Penglibatan dan maklumbalas temuduga anda akan disimpan sebagai rahsia dan sulit kecuali jika terdapat keraguan yang serius bagi kepentingan keselamatan anda. Jawapan anda terhadap soalan-soalan saya akan digabungkan dengan jawapan wanita-wanita lain supaya orang lain tidak boleh mengesan yang mana adalah jawapan anda.

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Borang-borang ini akan disimpan mengikut peraturan Universiti dan akan disimpan di Monash University di dalam kabinet berkunci untuk tempoh minimum 5 tahun. Selepas 5 tahun, kesemua salinan boring kajiselidik akan dicarik dan salinan data akan dibuang dari komputer Universiti.

Laporan kajian akan dihantar bagi tujuan percetakan, tetapi tiada identiti individu yang boleh didedahkan dari laporan tersebut.

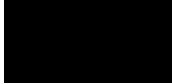
Sekiranya anda memerlukan penjelasan lanjut mengenai temuduga ini atau anda berminat untuk menerima laporan berkenaan penemuan kajian sila hubungi Hardip Kaur Dhillon di talian bimbit bernombor 0129867516 atau email: [REDACTED].my atau [REDACTED]

<p>Sekiranya anda ingin menghubungi pihak penyelidik mengenai sebarang aspek berkenaan kajian ini, sila hubungi Ketua Penyelidik iaitu:</p>	<p>Sekiranya anda mempunyai sebarang aduan mengenai cara kajian ini dijalankan, sila hubungi:</p>
<p>Prof. Dr. Rusli Bin Nordin Head, Clinical School Johor Bahru/ Professor of Public Health (Occupational Medicine) Jeffrey Cheah School of Medicine and Health Sciences Monash University Sunway Campus JKR 1235, Bukit Azah 80100 Johor Bahru Johor, Malaysia e-mail 1: [REDACTED] [REDACTED] [REDACTED] Fax:+607-226 2413 Bimbit: 012-7211994</p>	<p>Professor Dato Dr. Anuar Zaini Mat Zain Head and Professor (Internal Medicine) Jeffery Cheah School Medicine and Health Sciences, Monash University Malaysia, Jalan Lagoon Selatan, 46150, Bandar Sunway, Petaling Jaya, Selangor Tel: [REDACTED] Email: [REDACTED] [REDACTED] [REDACTED]</p>
	<p>DAN/ATAU</p> <p>Executive Officer, Human Research Ethics Monash University Human Research Ethics Committee (MUHREC) Monash University Malaysia, Jalan Lagoon Selatan, 46150, Bandar Sunway, Petaling Jaya, Selangor</p> <p>[REDACTED] [REDACTED] [REDACTED]</p> <p>Executive Officer, Human Research Ethics Monash University Human</p>

	Research Ethics Committee (MUHREC) Building 3e Room 111 Research Office Monash University VIC 3800 [REDACTED] [REDACTED] Email: [REDACTED]
--	--

Thank you.

SIGNATURE:



NAME:

Hardip Kaur Dhillon



Borang Kebenaran – (Kaji selidik dan Penyertaan)

Penerangan Kenyataan: untuk wanita Malaysian berumur lapan belas tahun dan atas yang tinggal di Negri Selangor Darul Ehsan satu tahun dan lebih.

Tajuk: Kegemukan menambahkan kesan terhadap kes kencing tidak lawas dan mengurangkan kualiti hidup wanita Malaysia.

Nota: Borang kebenaran ini akan disimpan oleh penyelidik Monash University bagi tujuan rekod.

Saya bersetuju menyertai kajian yang dijalankan oleh Monash University seperti yang dimaklumkan di atas. Saya telah difahamkan mengenai projek, dan saya telah membaca Penjelasan Kenyataan yang perlu saya simpan bagi tujuan rekod. Saya faham dan bersetuju untuk mengambil bahagian yang di mana bermaksud:

Senaraikan kesemua prosedur yang berkaitan bagi tujuan pengumpulan data anda – padamkan yang tidak berkenaan

Saya telah menjalani ujian kesihatan yang dilakukan oleh penyelidik Ya
 Tidak

Saya bersetuju untuk menjawab setiap soalan di dalam kajiselidik ini Ya
 Tidak

Saya bersetuju untuk menjalani ujian perubatan dan ujian makmal Ya
 Tidak

Saya bersetuju untuk menyertai dalam program latihan sekiranya dipilih Ya
 Tidak

Saya bersetuju untuk menyertai kumpulan kawalan Ya
 Tidak

dan

Saya faham bahawa penyertaan saya adalah secara sukarela, di mana saya berhak memilih untuk tidak menyertai dalam sebahagian mahupun dalam keseluruhan projek, dan saya bebas untuk menarik diri pada sebarang peringkat tanpa perlu didenda.

dan

Saya faham bahawa setiap data yang diambil oleh penyelidik daripada kajiselidik/tinjauan atau program latihan bagi tujuan laporan atau percetakan tidak akan mengandungi nama atau sifat yang boleh dikenalpasti, di bawah sebarang keadaan.

dan

Saya faham bahawa segala maklumat yang saya nyatakan adalah terpelihara, dan tiada maklumat individu yang boleh mendedahkan identiti mereka akan dinyatakan dalam laporan projek atau kepada mana-mana pihak lain.

dan/atau

Saya faham bahawa data yang diperoleh hasil dari temuduga akan disimpan dengan selamat dan hanya boleh digunakan oleh kumpulan pengkaji. Saya juga faham bahawa semua data akan dimansuhkan selepas tempoh 5 tahun kecuali saya membenarkan ianya digunakan bagi kajian pada masa akan datang.

Nama peserta _____

No. Kad Pengenalan _____

Tandatangan _____

Tarikh _____



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Exploratory and Confirmatory Factor Analyses for Testing Validity and Reliability of the Malay Language Questionnaire for Urinary Incontinence Diagnosis (QUID)

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Open Journal of Preventive Medicine, 4, 844-851. <http://dx.doi.org/10.4236/ojpm.2014.411095>

Abstract

This study examines the construct validity and reliability of the Malay language questionnaire for urinary incontinence diagnosis (QUID) in women. Study Design: Random sampling design was used in this cross-sectional survey. **Materials and Methods:** The Americanized English language questionnaire was translated to the Malay language and distributed to community-dwelling Malaysian women living in various locations in Selangor. The construct validity was tested using exploratory factor analysis (EFA) followed by confirmatory factor analysis (CFA). The reliability was determined using Cronbach's α . **Results:** A total of 111 women completed the Malay language QUID in this pilot study. The Keiser-Meyer-Olkin (KMO) measure of sampling adequacy of 0.675 and Bartlett's test of sphericity ($\chi^2 = 284.633$, $df = 15$, $p = 0.001$) indicated that the EFA was possible. The total variance and the scree plot identified two factors above the initial eigenvalue of 1 while a third factor was just below it (0.758). The CFA output showed a recursive model with the solution being not admissible because two unobserved and exogenous variables had negative variance estimates.

The following values of absolute fit indices showed an acceptable level of fit: 1) Chi-square test with $\chi^2 = 4.997$, $df = 5$, $p = 0.416$, indicated a smaller difference between the expected and observed covariance matrices; 2) GFI = 0.986, AGFI = 0.939, RMR = 0.021 and CMIN/DF = 1.0 indicated acceptable level of fit; 3) The baseline comparison values of NFI = 0.983 and CFI = 1.0 also indicated a good fit to the data; 4) RMSEA = 0.000 was considered a perfect fit indicating that the hypothesized model was a good fit to the observed data.

Under the hypothesis of “close fit”, the probability of getting a sample RMSEA as large as 0.000 was 0.567. The Cronbach’s α coefficient of 0.823 indicated good reliability. **Conclusion:** The Malay language QUID is a valid and reliable instrument for diagnosing female urinary incontinence in the Malaysian population.

Keywords

Confirmatory Factor Analysis, Exploratory Factor Analysis, Malay Language, Questionnaire for Urinary Incontinence Diagnosis, Reliability



Prevalence and Risk Factors of Urinary Incontinence and its Impact on the Quality of Life and Treatment Seeking Behavior among Malaysian Women: A Review

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Abstract

Background: Reports of the prevalence of urinary incontinence (UI) in women seem to vary widely globally. This paper attempts to review the current literature on urinary UI, its prevalence, risk factors and quality of life (QOL) amongst Malaysian women.

Methods: Scopus and Medline search was made to access the databases. Both basic and advance search for articles on female UI among Asian women were sought. Epidemiology, risk factors, urinary symptoms in Asian females, ICIQ-SF questionnaire, BFLUTS questionnaire, QUID questionnaire, King's Health Questionnaire, prevalence, and QOL were some of the key words used to retrieve these articles. References related to relevant studies were searched manually. Relevant sources were identified from 2001 to 2015. Observational studies and review articles were included. A total of 295 local and international publications were identified.

Results: A total of nine reports based on the Malaysian population were identified with their sample sizes ranging from 212 to 5502 participants. The 5502 participants were from ten other Asian countries. Documented prevalence in these studies ranged from 9.9% to 44%. Little was documented on the risk factors, types of UI, its effect on QOL or the treatment seeking behavior in these studies.

Conclusions: Information on UI in Malaysian women is incomplete and inconclusive; there appears to be a vital need to conduct a bigger national population based study using a validated standardized symptom-based questionnaire in various local languages with sufficient details to allow grading of UI severity and to accurately estimate the prevalence of UI, current risk factors, QOL and treatment seeking behavior. This will provide better information on the status of the problem, and the evidence documented will contribute towards the Malaysian body of knowledge in urology and clinical practice.

Keywords: Urinary incontinence; validated questionnaire; Prevalence; Risk factors; Treatment seeking behavior; QOL; Review; Malaysia; QUID

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Research Article

Female Urinary Incontinence: A Study Protocol Using the Malay QUID in Selangor, Malaysia

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Abstract

Background: Female urinary incontinence (UI) is a common complaint that is perhaps under reported in Malaysian women. Despite several studies conducted in various healthcare settings to document the prevalence, risk factors and quality of life, there continues to be a wide disparity in the results.

Objective: This study has been designed to document the prevalence, types of UI and some of the risk factors of female UI in Selangor, including the impact of UI on the sufferer's and family member's quality of life.

Methods/design: The study employs a mixed method approach. It is a cross-sectional, household study conducted in the state of Selangor, Malaysia, followed by a phenomenology study on a small sample of women. The research instrument used was the Monash Malaysia Women Health Questionnaire (MMWHQ), which consisted of four internationally validated questionnaires; 6-items Questionnaire for Urinary Incontinence Diagnosis (QUID), 17- items Menopause Quality of Life Questionnaire (MENQOL), 20-item Pelvic Floor Distress Inventory (PFDI-20) and

22-items Psychological General Wellbeing Index (PGWBI). Written permission to use and translate these validated, international questionnaires was obtained from the respective researchers. Additional questions on health assessment, reproductive health, behavioral lifestyle and socio-economic status were also included in the MMWHQ to provide a holistic health perspective of Malaysian women undertaking this study. Descriptive statistics were applied to document the prevalence and types of UI using the QUID criteria while binary and multinomial logistic regression were used to determine the predictive factors for UI and type of UI, respectively.

Discussion: This survey is anticipated to determine the estimated prevalence, risk factors and quality of life of community dwellers rather than women visiting healthcare settings. This is the first community based survey on UI ever to be conducted in Selangor, Malaysia.

Keywords: Female urinary incontinence; QUID; Prevalence; Risk factors, QOL; MMWHQ

