

Chapter 5

Final-Year Medical Students' Opinions Concerning the Stages of Life and Age of Women that are Predisposed to Stress Urinary Incontinence

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DOI 10.34697/66007-45-1-2020-5

Abstract

Urinary incontinence is an embarrassing problem and is probably one of the last taboos in contemporary medicine. It is currently one of the most common chronic female diseases and constitutes a serious health problem in modern society. Stress urinary incontinence occurs when an increase in intra-abdominal pressure associated with coughing, sneezing, laughing, running, a rapid change in body position, or hard physical work is accompanied by involuntary urinary leakage. This is a widespread medical problem that has a real influence on the daily lives of millions of women around the world. It isolates them from society and prevents normal functioning, adversely affecting work, relaxation, relationships, and self-confidence; it also affects the psyche, leading to lower self-esteem, neurosis, and depression. The aim of the study was to evaluate the knowledge of students graduating from medical faculties regarding the stages of life, the age, and the percentage of women in Poland predisposed to stress urinary incontinence. The research included 1,581 participants who were students in their final year of medical studies at several universities. Research was conducted by means of the author's questionnaire. In all groups, the highest percentage of 'age' indications, particularly the age at which women are predisposed to experiencing the symptoms of stress urinary incontinence, ranged from 41% to 50%. Among the indications for the 'life stage', the vast majority of respondents stated that the menopausal period increased the likelihood of urinary incontinence. 92.5% of the respondents were from a group of physicians, 91% from a group of nurses and midwives, 85.7% from a group

of physiotherapists, and 79.3% were from other medical faculties. Conclusion. Students graduating from medical faculties possess good knowledge about the stages of life, the age, and the percentage of women in Poland predisposed to stress urinary incontinence. They know which group of women might be affected by this problem and they are aware that there is a substantial likelihood that they will be engaged in conversations with their patients regarding this embarrassing problem.

Key words: urinary incontinence, stages of life, women, students' knowledge

Introduction

Despite significant progress within the scope of diagnosis and treatment, urinary incontinence is still perceived by society as an embarrassing problem which is unwillingly reported to physicians. Stress urinary incontinence occurs when an increase in intra-abdominal pressure associated with coughing, sneezing, laughing, running, a rapid change in body position, or hard physical work is accompanied by involuntary urinary leakage [150]. It is the most common form of urinary incontinence and it can occur at any age. Patients unknowingly pass small amounts of urine without the sense of urinary urgency. It is characteristic for this type of urinary incontinence that the symptoms subside during night rest and the frequency of micturition during the day does not change [150]. There are numerous causes of stress urinary incontinence in women, including pelvic floor muscle weakness, lowered position of the organs of the minor pelvis, hard physical work, or hormone disorders (oestrogen deficiency) [151]. Urinary incontinence constitutes a symptom or a complication of numerous serious, often chronic, female diseases, including not only the organs of the minor pelvis and the urinary system [152–154]. This symptom may occur as a result of neurological conditions such as multiple sclerosis, or diseases of the respiratory system, including chronic obstructive pulmonary disease [155,156].

The results of the majority of epidemiological studies confirm that pregnancy and childbirth lower the pelvic floor; at the same time, they are an inseparable risk factor for urinary incontinence in the later period of a woman's life [157]. During pregnancy, the connective tissue (including

the pelvic floor diaphragm) relaxes, which constitutes a physiological process that prepares a woman for childbirth. During delivery, when the child passes through the reproductive tract, the tissues and surrounding nerves (particularly the anal sphincter) are often damaged and stratification of the visceral pelvic fascia that is responsible for maintaining the proper position of the reproductive organs occurs [158].

The menopausal period significantly contributes to the occurrence of symptoms of urinary incontinence. Oestrogen plays a very important role in the functioning of the lower part of the urinary system. Oestrogen receptors are in the urinary bladder, urethra, and central nervous system, all of which are areas responsible for initiation and control of micturition. Furthermore, oestrogen-dependent regulation of blood flow through the sub-mucous venous plexus increases intra-urethral pressure, which supports the mechanism of the urethral sphincters [159]. Hypoestrogenism initiates atrophic lesions, which are visible in the decreased mass and size of the reproductive organs as well as in the thickness of their mucous membranes. Urogenital atrophy is also related to the fasciomuscular structures of the minor pelvic floor and the lower part of the urinary system. Womb prolapse and the occurrence of the symptoms of urinary incontinence may be a consequence of low oestrogen levels and atrophic lesions. In Poland, the prevalence of urinary incontinence in women at the menopausal age is estimated at the level of 33% [160–162].

Basic health care personnel (GPs, gynaecologists, midwives, nurses, and physiotherapists) should talk with women about stress urinary incontinence, promote preventive measures against this condition at every stage of a woman's life, organize training and indicate predisposing factors, and provide educational materials such as brochures or leaflets. Students in their final year of medical studies will soon be basic healthcare personnel, therefore they need to have specialist knowledge of this problem. A basic step when dealing with a female patient suffering from urinary incontinence is gathering information about the symptoms. It is crucial to have knowledge about this condition as only expertise makes it possible to lead a substantive discussion and to provide further professional assistance.

In this time of ageing populations and the resulting increasing incidence of urinary incontinence, it is important to call the attention of medical communities to this problem, to raise their awareness of this subject, and to encourage them to spread knowledge that will make it possible to take appropriate action for the benefit of women suffering from this condition. The task of medical staff is not only to promote knowledge about urinary incontinence among women of all ages, but also to eliminate misconceptions and the taboo surrounding it. Without well-educated and professional medical personnel who recognize the need to act in support of a particular problem, it is difficult to undertake long-term preventive or therapeutic initiatives.

The aim of the study was to evaluate knowledge of students graduating from medical faculties about the age and stage of life of women who are particularly predisposed to the symptoms of stress urinary incontinence. In addition, the authors made an attempt to determine whether students know what percentage of women in Poland suffer from this condition.

Materials and methods

The research included 1,581 students in their final years of medical studies from several universities: 1,255 women and 326 men participated in the research. Four hundred and thirty-two students of the faculty of medicine (including 282 women and 150 men aged 24.9 ± 0.95) constituted the L Group. Four hundred and two physiotherapy students (including 288 women and 114 men aged 25.4 ± 3.8) formed the F Group. Two hundred and fifty-eight female students of nursing and midwifery (aged 30.1 ± 7.59) constituted the P Group. Four hundred and eighty-nine students of medicine and dentistry, pharmacy, laboratory medicine, cosmetology, and public health studies (including 427 women and 62 men aged 24.8 ± 4.1) constituted the IK Group (control group).

The author's own questionnaire was applied, having been verified by the CEM Market and Public Opinion Research Institute, Kraków. In the questions regarding the problem, respondents were instructed to enter the age or period of life (of a woman) which they regard as predisposing to the occurrence of stress urinary incontinence. In addition, respondents were asked to give their opinion on what percentage of women in Poland suffer from stress urinary incontinence. A possible 'I do not know' answer was included in the questionnaire.

Data analysis

Excel 2016 and Statistica 9.0 software were used for archiving and statistical analysis. The χ^2 test was used for analysis: $\alpha=0.05$ was considered statistically significant.

Results

The respondents' answers were divided into three categories: age, stage of life, and the period of pregnancy and childbirth. The 'age' category was additionally divided into seven ranges: up to 20 years, 21–30 years, 31–40 years, 41–50 years, 51–60 years, 61–70 years, and over 70 years. The 'life' category was divided into five stages: mature, reproductive, menopausal, older, and every stage. When the responses were analysed, the number of indications in a specific category was regarded as 100% in each group. The answer 'I do not know' was chosen by 11.6% of respondents in the P group, 15.5% of respondents in the L group, 17.2% of respondents in the F group, and 25.3% of respondents in the IK group.

Most respondents stated that age was a factor that contributes to the occurrence of the symptoms of stress urinary incontinence in women (Figure 9). This opinion was expressed by 50.3% of people from the L group, 48.3% of people from the IK (control) group, 43% of people from the P group, and 39.9% of people from the F group.

The majority of the respondents (31.3%) in the P group indicated 'stage of life' as an important period for the occurrence of ailments of stress urinary incontinence; in the other groups, this answer was given by 23% of students from the L group, 20.8% of students from the F group, and 18.1% of students from the IK group. The period of pregnancy and childbirth was indicated by approximately 22% of students from the F group, about 14% of students in the P group, and by 11% and 8% of students from the L and IK groups, respectively. Statistical analysis confirmed that the statistical differences between all groups were significant, taking into account the perceptions of the age or period of life of women predisposed to the occurrence of stress urinary incontinence ($p < 0.001$ or $p < 0.05$) (Figure 9).

In all groups, the highest percentage of indications ranged from 41 to 50 years as the age at which women are particularly predisposed to the occurrence of this condition (Figure 10). This answer was given by 57.3% of students from the L group, 45.1% of students from the P group, 40.2% of students from the IK group, and 33% of students from the F group. The following results were provided for the 31–40 age group: 30.3% in the F group, 24.6% in the P group, 22.4% in the IK group, and 19.7% in the L group. The results for the 21–30 age group were 17.6% in the F group, 11.8% in the IK group, 6.8% in the L group, and 3.3% in the P group. The 51–60 age range was considered predisposing to the occurrence of urinary incontinence in women by 18% of people in the P group, 17.1% of people in the IK group, 13.8% of people in the F group, and 11.5% of people from the L group. Only respondents in groups IK, L, and P reported that only women over the age of 70 are predisposed, but this percentage was low, ranging from 0.4% to 0.8%. Respondents rarely mentioned the age up to 20 (from 1.6% to 4.3%). The F group significantly differed statistically from all groups (L and P $p < 0.001$, IK $p < 0.05$). There were no statistically significant differences between the P group and the IK group or between the P group and the L group (Figure 10).

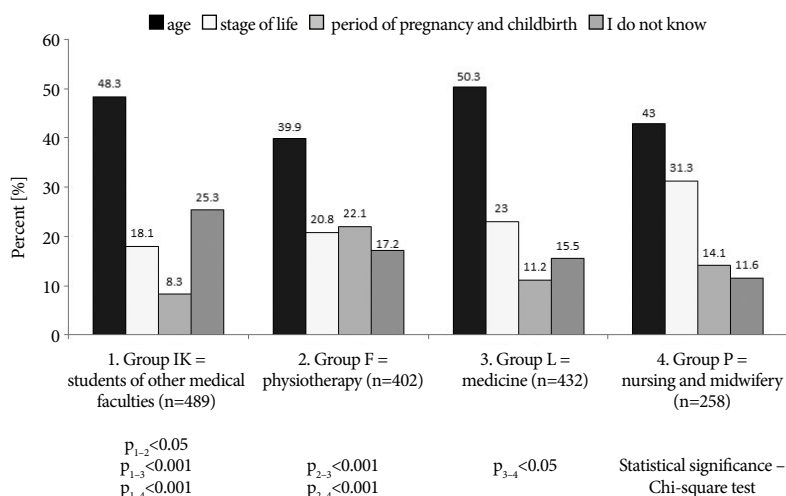


Figure 9. Percentage of respondents who considered various ages, periods, or stages of women's life as predisposing to the occurrence of stress urinary incontinence

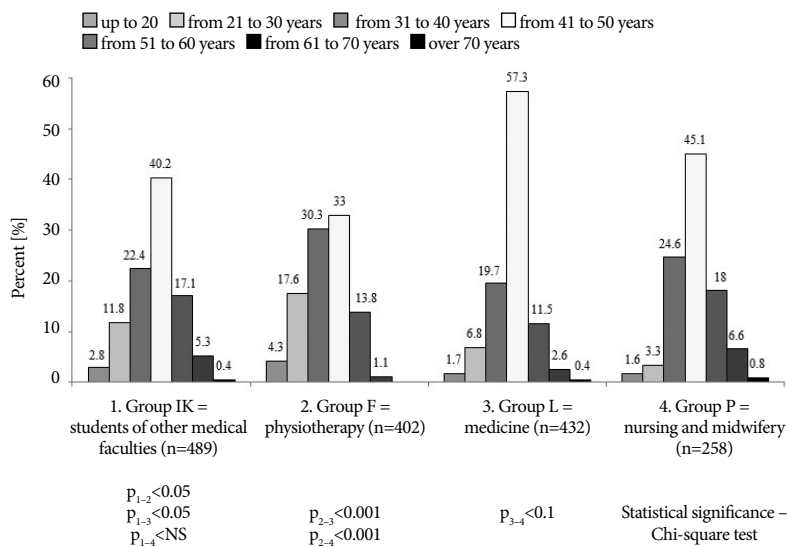


Figure 10. Percentage of indications for various decades of life as predisposing factors for the occurrence of stress urinary incontinence in women (n = number of indications in the group, NS = non-significant).

Among the indications for the 'stage of life', the vast majority of respondents stated the menopausal period contributed to the occurrence of symptoms of stress urinary incontinence (Figure 11). This answer was provided by 92.5% of respondents from the L group, 91% of respondents from the P group, 85.7% of respondents from the F group, and 79.3% of respondents from the IK group. Approximately 11% of people in the IK group found that symptoms of stress urinary incontinence in women might occur at 'every' age and period of life. The same answer was given by 6.5% of people from the L group, 5.6% from the P group, and 4.1% from the F group. Only the IK group (4.3%) and F group (5.1%) indicated 'older' age, whereas the F group (2%) as well as the P and IK groups regarded 'mature' age as predisposing to the occurrence of this condition. A small percentage of all respondents indicated the 'reproductive' age: 4.3% in the IK group, 3.1% in the F group, 2.2% in the P group, and 0.9% in the L group. The distribution of indications for various periods of life as predisposing factors for the occurrence of stress urinary incontinence in women was significantly statistically different between the IK group and F group ($P < 0.05$) (Figure 11).

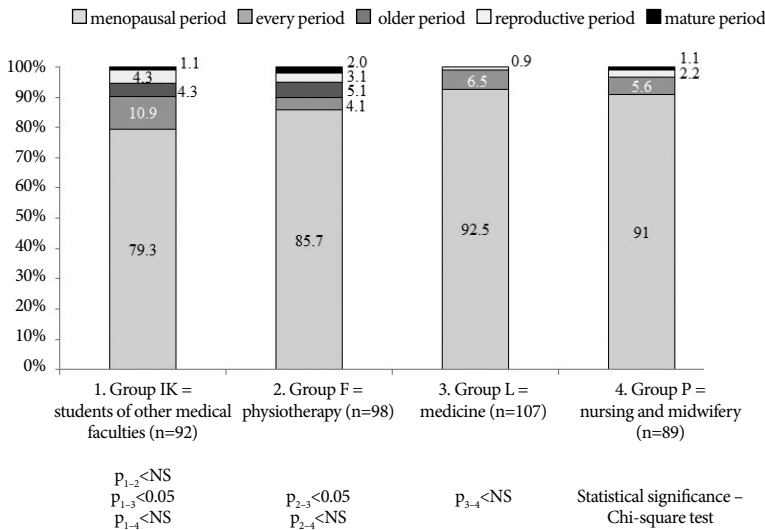


Figure 11. Percentage of indications for different stages of life as predisposing factors for the occurrence of stress urinary incontinence in women (n = number of indications in the group, NS = non-significant)

The respondents were also asked to give their opinion concerning the percentage of adult women in Poland suffering from stress urinary incontinence. The respondents' task was to enter a number between 1 and 99% which in their opinion illustrated the scale of this problem. If a respondent did not respond, it was assumed that they did not know or were not aware of the percentage of women in Poland suffering from urinary incontinence. Almost all respondents, more than 95% in each group, answered this question.

In a further analysis of the obtained results, the number of provided answers in each group was 100%. The highest percentage of respondents concluded that 21% to 40% of women in Poland suffer from stress urinary incontinence. This answer was provided by 45.3% of respondents from the P group, 41.9% from the IK group, 39.3% from the F group and 35.4% from the L group (Figure 12). In the IK group, 26.2% of students believed that 6% to 20% of women in Poland suffer from stress urinary incontinence. A similar opinion was held by 21.6% of respondents in the F group, 18.6% in the P group, and 42.8% in the L group. According to 25.6% of respondents in the P group, the percentage of women suffering from this condition ranges between 41% and 60%. 23.1% of students from the F group, 18.6% from the IK group, and only 9.3% from the L group had the same opinion. From 2.8% to 10.4% of respondents concluded that the percentage ranges from 61% to 80%, and 0.2% to 0.8% state that it ranges from 81% to 100%. Significant differences were demonstrated between the control group (IK) and the F group ($p < 0.01$), the L group ($p < 0.001$) and the P group ($p < 0.05$), and between the L group and the F and P groups ($p < 0.001$) (Figure 12).

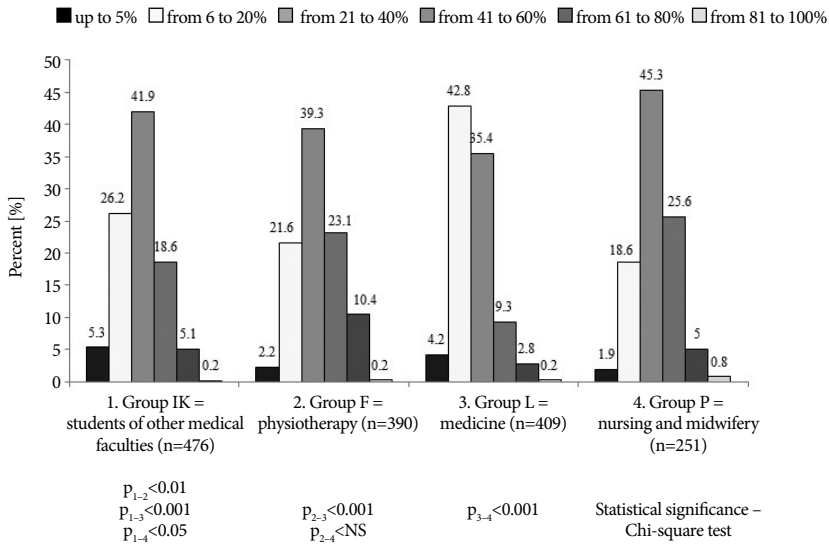


Figure 12. The percentage of respondents who stated what percentage of adult women in Poland suffer from stress urinary incontinence (NS – non-significant)

Discussion

Stress urinary incontinence affects women at all ages, both young, especially those after natural childbirth, as well as those at menopausal ages. It is also a common geriatric problem and the prevalence of urinary incontinence increases with age. The influence of pregnancy and childbirth on the occurrence of stress urinary incontinence has been confirmed in numerous studies [163–167], but many incidences of this disorder that occur after this period continue to remain hidden due to embarrassment. The reason for the occurrence of urinary incontinence in pregnant women is related to the period of general hormonal changes and topical changes in the pelvic floor and lower part of the urinary system. Urinary incontinence in women is closely related to the function of the reproductive organs. Women who have had more pregnancies definitely suffer more frequent incidents of urinary incontinence due to

the greater extent of soft tissue injuries sustained during natural labour [163–167].

During pregnancy, numerous changes occur in a woman's body, including the functions of the urinary bladder. The most common symptom is increased frequency of micturition. This is related to compression of the pregnant uterus on the wall of the urinary bladder, resulting in its decreased capacity as well as increased urinary continence in the ureters. Higher susceptibility to urinary tract infections may constitute an additional factor that affects problems with urinary continence in the course of pregnancy [163–167].

Most scientific reports emphasize that the menopausal period predisposes women to the occurrence of symptoms of stress urinary incontinence [161,162,168,169]. A decline in the hormonal function of the ovaries and associated low oestrogen levels contribute to urinary incontinence [170]. The lack of sex hormones is responsible for decreased vaginal acidity and physiological disappearance of bacterial flora, which increases susceptibility to infections caused by bacteria migrating from the vulva. Inflammatory conditions in the vagina are often accompanied by chronic infections of the lower part of the urinary system, which can lead to difficulties in urinary continence. Therefore, during the menopausal period urinary incontinence affects 19% to 70% of women, depending on the examined population. Urinary incontinence symptoms are present in 33% of women at menopausal age, and this is the period of life in which they occur most frequently [168–170].

Urinary incontinence is also a common geriatric syndrome which leads to serious health consequences such as urinary tract infections, skin lesions, bedsores and (in the event of night diuresis) sleep disorders and an increased risk of falls and bone fractures [161,162,168,171–173]. The vast majority of women with urinary incontinence do not seek medical attention, believing that the condition is age-related and so is not responsive to treatment. In the United States, urinary incontinence occurs in half of women over the age of 60 and is becoming one of the main causes of early admission to nursing homes. The reasons for avoiding medical

care include shame, embarrassment, lack of faith in obtaining effective assistance, and the difference in age between patients and young medical staff [171–175].

In the authors' own research, respondents used the age criterion most frequently (40–50%), most often giving the fourth and fifth decade of women's life. Among students who associated the occurrence of the disease with a stage of life (18–31%), about 80% to 93% of them regarded the menopausal period as being particularly predisposing to the occurrence of the condition. About 8% to 22% of respondents stated that the periods of pregnancy and childbirth were particularly predisposing. About 12% of nurses and midwives, about 15% of physicians and 17% of physiotherapists did not attempt to indicate the age or period of life in which urinary incontinence may occur. About 11% of respondents from the IK group believed that each stage of life can predispose women to the onset of this illness

Undoubtedly, the prevalence of urinary incontinence among women increases with age. Demographic analysis of women with urinary incontinence confirms that 4.4% of patients aged 20–29 suffer from urinary incontinence, whereas in women aged 30–39 there is an increase to 12% [176].

It was also found that in 36% of women the disease occurred during the reproductive period, and in the remaining percentage of women it occurred during the menopause. Urinary incontinence affects 8% to 30% of women aged 40–60, whereas only 25% of women report it as a common condition [176–179]. Other studies state that in the second decade of life the problem affects about 10% of women, in the fifth decade about 30%, and in the eighth decade of life up to 40% of women. Goforth et al. [180] point out that in the fifth decade of life, 27.6% of women suffer from urinary incontinence, followed by a decrease in morbidity, then an increase in the eighth decade of life up to 34%. In total, urinary incontinence occurs in about 30% of women in their forties and increases to 35% for women aged over sixty, whereas stress urinary incontinence is diagnosed in 63% of these patients.

The 2003 ICS report presented a survey of over 4,500 women in nine countries. It was confirmed that the percentage of women suffering from urinary incontinence depended on the age of the examined individuals. This problem affects 25% of women aged under 18, 37% of women aged 35–54, and 39% of women aged over 55. Considering the fact that urinary incontinence is present in 3 out of 10 women, 49% of women suffer from stress urinary incontinence, 22% suffer from urge incontinence, and 29% suffer from mixed urinary incontinence. For example, 42% of women in Canada, 41% in the UK, 36% in Australia, 35% in Sweden, 30% in the United States and Mexico, 29% in Germany, 27% in Italy, and 23% in France and Spain suffer from stress urinary incontinence. In comparison to urinary incontinence, 21% to 25% of women suffer from hypertension, 20% suffer from depression, and 8% to 9% suffer from diabetes. Urinary incontinence is regarded as a social disease [180,181] due to its presence in over 5% of the population, regardless of ethnic or cultural differences.

Epidemiological studies on the incidence of urinary incontinence within the population show a large data discrepancy which falls between 17% and 60% of the population [182–184]. Stress urinary incontinence in women is a widespread problem. However, women all over the world most often remain silent about this subject and not admit to this embarrassing condition for many years, so it is difficult to determine precisely what percentage of women suffer from it [182–184]. Respondents in this study are to a large extent aware of how many women in Poland suffer from this condition. The percentage of responses ranged from approximately 45% in the L group to approximately 60% in the F and IK groups. This percentage was slightly overstated only among respondents from the P group, in which it amounted to approximately 70%.

The majority of the examined students showed good knowledge about the age, the stage of life, and the percentage of women in Poland suffering from stress urinary incontinence. It might be concluded that they are familiar with the scale of the problem and know which groups of women are particularly affected by this embarrassing condition. This research suggests that respondents may talk about this disease with their

patients in the future because they have expertise in it, but most importantly they know which particular groups of women they should talk to about this issue.

As such activities are included in their professional abilities, general practitioners, gynaecologists, urologists, midwives, nurses, and physiotherapists are required to offer effective measures to assist patients suffering from stress urinary incontinence. These people should talk to women about stress urinary incontinence and promote preventive measures against this condition at every stage of a woman's life. Health care workers can and should improve the life quality of women suffering from stress urinary incontinence if they are convinced that this is an important and worthwhile problem. In addition, creating a preventive program which aims to reduce the number of women suffering from this condition would prove to be an investment in the future health and comfort of women's lives.

Conclusions

Students graduating from medical studies display good knowledge about the stages of life, the age, and the percentage of women in Poland suffering from stress urinary incontinence. It is highly probable that young medical personnel will be able to break down the barrier of shame and raise this issue with their patients.