International use of the Pelvic Organ Prolapse Symptom Score (POP-SS): results on an online survey

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Abstract

We describe an evaluation of the international use of the Pelvic Organ Prolapse Symptom Score (POP-SS). An online survey was sent to 149 individuals who had previously requested the POP-SS and 35% responded. Ninety percent confirmed that they used the POP-SS, of which 93% were physiotherapists and 51% were located in the UK, with the remainder split between Australia, Ireland, USA and the continents of Africa, North and South America and Asia. Eighty-nine percent used the POP-SS to monitor patients' prolapse symptoms, 78% to share information with patients, 60% to share information with clinicians and 40% to help make treatment decisions. Seventy-one percent included the POP-SS in patient records, 44% in audit and evaluation processes, and 18% in local clinical guidelines for the management of prolapse. With respect to the benefits of using the POP-SS in routine clinical care, 73% reported that clinical practice had improved, whilst 42% reported that it improved patient outcomes. Finally, 57% of users confirmed that they used the POP-SS in their research. The findings suggest that the POP-SS has global reach and is commonly used in high income countries to monitor patient symptoms of prolapse and to share information with patients, but is also reaching a number of lower and middle income countries as prolapse services begin to expand. Increased use of this brief validated symptom score would be beneficial. (225 words)

Keywords

pelvic organ prolapse, symptoms, outcome measure, online survey, impact

Background

Pelvic organ prolapse (POP), a common female condition affecting 50% of women over the age of 50 worldwide, is characterised by the symptomatic descent of one or more of the anterior vaginal wall, posterior vaginal wall, the uterus (cervix), or the apex of the vagina from the normal anatomical position (Haylen *et al.* 2010). Prolapse is strongly associated with childbirth, ageing and the menopause (Abrams *et al*. 2017). Women with prolapse present with a variety of symptoms (vaginal, bladder, bowel, back, abdominal and sexual). It is important in research and clinical practice that we quantify such symptoms using standardised instruments with known psychometric properties. In 2000, at the outset of a programme of research on the conservative management of prolapse, we identified the lack of a simple prolapse symptom score which could be used as a continuous primary outcome measure in randomised controlled trials. To that end, we developed the Pelvic Organ Prolapse Symptom Score (POP-SS), and have published on its internal consistency, construct validity, test-retest reliability and sensitivity to change (Hagen *et al*. 2009, Hagen *et al*. 2010). Since these publications, many clinicians and practitioners have requested to use the POP-SS and it is timely to determine the impact of the scoring system on outcomes such as improvements in research and clinical practice and ultimately changes in health through improvements in women's pelvic floor symptoms.

Participants and Methods

Design

An online survey of individuals who had requested the POP-SS was undertaken to assess impact of its use.

Recruitment

Ethical approval was obtained from the School of Health and Life Sciences at Glasgow Caledonian University to conduct an online anonymous survey using Microsoft Forms. The survey was sent by email on 3 March 2020 to 149 individuals from at least 24 countries who had previously requested a copy of the POP-SS directly from the first author. The email message contained information about the survey and a link to the survey itself. The link opened to the first question of the survey which then took respondents to the subsequent questions. Consent was assumed by participation in the survey. A follow-up email reminder was sent on 3 April 2020.

Materials

The 14 questions in the survey (Box 1) were developed by the present authors. They focused on establishing whether or not there had been any change in clinical practice, patient record systems, clinical care pathways, patient health and research activities as a result of the research undertaken to develop and validate the POP-SS and its subsequent use. The survey was short and easy to complete to encourage responses, particularly from users where English was not their first language. The Microsoft Forms survey platform was chosen for ease of use and known acceptability to health service organisations.

Box 1. Survey questions

(1) Since August 2013 have you (or your colleagues) used the POP-SS?

(2) What is your professional background?

(3) What is the current post you hold?

(4) In which country are you based?

(5) In which city are you based?

(6) In what way have you (or your colleagues) used the POP-SS? (*tick all that apply)*: To monitor changes in patients' symptoms; to help make treatment decisions; to share information with patients to show change; to share information with clinical colleagues; in research projects, Other (please specify)

(7) At a service level, is the POP-SS included in: Audits/service evaluations, Clinical guidelines, Patient records systems? (*Y, N, D/K, N/A for each*)

(8) In your opinion, has using the POP-SS improved clinical practice in your area? (*Y, N, D/K, N/A*)

(9) If you answered yes, please provide more details below about how using the POP-SS improved clinical practice in your area.

(10) In your opinion, has using the POP-SS improved outcomes for patients in your area? (*Y, N, D/K, N/A*)

(11) If you answered yes, please provide more details about how using the POP-SS improved outcomes for patients in your area.

(12) In your opinion, has using the POP-SS been beneficial for your research? (*Y, N, D/K, N/A*)

(13) If you answered yes, please provide details below about how using the POP-SS has been beneficial for your research.

(14) Which version of the POP-SS have you used? (*tick all that apply*): English, Amharic, Turkish, Chinese, Other (please specify)

Procedure

Once all the questions had been completed, which took the participants on average 10 minutes, participants were directed to a de-brief page thanking them for their participation. The survey could be submitted without completing all the questions. All information collected was treated in accordance with the principles of GDPR. Analysis was carried out in Microsoft Excel.

Results

Of the 149 emails sent, 7 were undeliverable. From the remaining 142, 50 responses (35%) were received, representing 12 countries. The vast majority of respondents (90%, 45/50) confirmed that they (or their colleagues) had used the POP-SS. The remaining respondents (10%, 5/50) who reported they had not used the POP-SS were taken directly to the end of the survey. Of those who had used the POP-SS (hereafter referred to as users), 93% were physiotherapists (42/45), one was a nurse (2%, 1/45), one was a doctor (2%, 1/45) and one did not respond to the question. Fifty-six percent (25/45) described themselves as having a senior clinical or specialist role in female pelvic health, 2% (1/45) as company director, 2% (1/45) as a practice owner and 40% (18/45) did not state their role. Geographically, 51% of users (23/45) were based in the UK, 13% in Ireland (6/45), 16% in Australia (7/45), 7% in USA (3/45), and approximately 13% (6/45) from other countries (Table 1).

Responses relating to the purpose of using the POP-SS (Figure 1 and Table 2) indicated that 89% (40/45) did so to monitor patient symptoms of pelvic organ prolapse, 78% (35/45) to share information with patients, 60% (27/45) to share information with clinicians and 40% (18/45) to help make treatment decisions. Users from Australia, England and USA all reported to have used the POP-SS for all the listed purposes. In the majority of countries, including lower and middle income countries such as Brazil and Nepal, users employed the POP-SS to monitor patient symptoms, share information with patients to show change and share information with clinicians. Fewer countries used the tool to help make treatment decisions.

Users were asked whether the POP-SS was employed at a service level. Just over 70% (32/45) included the POP-SS in patient records whilst 44% (20/45) reported that the POP-SS was included in audit and evaluation processes. Furthermore, 18% (8/45) reported that it was included in their local clinical guidelines for the management of pelvic organ prolapse (Figure 2 and Table 3). Users from Australia, England and USA all reported to have used the POP-SS for all the listed service-level purposes. Ethiopia reported using the POP-SS in patient records only and Brazil reported using it in service evaluation/audits only.

When users were asked whether the POP-SS had led to improvements in clinical practice, 73% (33/45) reported that in their opinion clinical practice had been improved through its use (Figure 3 and Table 4). A senior physiotherapist from Nepal commented that *"it helped in assessing the symptoms of POP and helps in monitoring the change in symptoms after intervention"*. A physiotherapist from Brazil reported that *"I like that it have [has] bowel and bladder sin[ymp]toms, they are more usually seen in my clinical practice"* and a senior physiotherapist from Australia said that the POP-SS is an *"effective and measurable evaluation of improvements in symptoms"*. Furthermore, the symptom score could also contribute to care pathway decision making and this was corroborated by a physiotherapy manager from Ireland who commented that *"[The POP-SS] helps clinicians and patients make decisions about conservative treatment options and referral for surgical opinion"*. Finally, a senior physiotherapist and team leader from England commented that it is *"making the team think about the outcome measures and measure the success of physiotherapy"*.

Users were asked whether the POP-SS had led to improved outcomes for patients. Almost half of users (42%, 19/45) reported that it in their opinion the POP-SS had improved patient

outcomes (Figure 3 and Table 4). Users from Australia, Brazil, Canada, UK, Ireland and USA reported both improvements in clinical practice and outcomes for patients, whilst Wales and Nepal reported improvements in clinical practice alone (Table 4). A senior physiotherapist from Australia reported that *"it helps to motivate patients by showing them the changes"* and a physiotherapist in Brazil noted that *"I think they can saw [see] in other ways the change with the treatment"*. A physiotherapist in England commented *"It encourages the patients to do the pelvic floor exercises if the score reduces"*.

When asked whether the POP-SS had been beneficial to their research, 69% (31/45) reported this was not applicable to them. From those remaining, 57% (8/14) confirmed that their research had benefitted from using the questionnaire and these users were based in England, Wales, Ethiopia, India, Turkey and Nepal (Table 5). Two users reported no research benefit (14% (2/14)) and 4 responded that they did not know (29% (4/14)). A physiotherapist from Nepal stated *"I have used [POP-SS] in my research to see the symptoms of POP among women. It helped to address the symptoms difference among women with different severity."*

Ninety-three percent (42/25) reported using the English version of the POP-SS whilst 2% (1/45) used the Amharic version, 2% (1/45) the Turkish version and 2% (1/45) the Nepali version.

Table 1: Countries where POP-SS users were based

Country	Percentage of POP-SS users per country (n/N)
England (UK)	42% (19/45)
Wales (UK)	4% (2/45)
Scotland (UK)	4% (2/45)
Australia	16% (7/45)
Ireland	13% (6/45)
USA	7% (3/45)
Brazil	2% (1/45)
Canada	2% (1/45)
Ethiopia	2% (1/45)
India	2% (1/45)
Nepal	2% (1/45)
Turkey	2% (1/45)

Figure 1 here

Table 2: Purpose of use of the POP-SS, by country of user.

Purpose	**% answering yes (n/N)**	**Country, % answering yes (n/N)**
To monitor patient symptoms	89% (40/45)	Australia 86% (6/7) Brazil 100% (1/1) Canada 100% (1/1) England 100% (19/19) Ireland 100% (6/6) Nepal 100% (1/1) Scotland 50% (2/2) USA 100% (3/3) Wales 100% (2/2)
To share information with patients	78% (35/45)	Australia 86% (6/7) Brazil 100% (1/1) Canada 100% (1/1) England 95% (1/1) Ireland 67% (4/6) Scotland 50% (2/2) USA 67% (2/3)

		Wales 100% (2/2)
To share information with clinicians	60% (27/45)	Australia 71% (5/7) Brazil 100% (1/1) Canada 100% (1/1) England 58% (11/19) Ireland 83% (5/6) Nepal 100% (1/1) Scotland 100% (2/2) USA 33% (1/3)
To help make treatment decisions	40% (18/45)	Australia 57% (4/7) Brazil 100% (1/1) England 37% (7/7) Ireland 67% (4/6) USA 67% (2/3)

Figure 2 here

Table 3. Percentage using POP-SS at a service level, by country of user.

Service level use	**% answering yes (n/N)**	**Country, % (n/N)**
Included in record systems	71% (32/45)	Australia 71% (5/7) England 90% (17/19) Ethiopia 100% (1/1) Ireland 83% (5/6) Scotland 100% (2/2) USA 67% (2/3)
Included in audits/evaluations	44% (20/45)	Australia 29% (2/7) Brazil 100% (1/1) England 63% (12/19) Scotland 50% (1/2) USA 67% (2/3) Wales 100% (2/2)
Included in clinical guidelines	18% (8/45)	Australia 29% (2/7) England 16% (3/19) Ireland 33% (2/6) USA 33% (1/3)

Figure 3 here

Table 4. Percentage of users reporting benefits of using POP-SS, by country of respondent.

Reported benefits	**% answering yes (n/N)**	**Country, % (n/N)**
Clinical practice has improved	73% (33/45)	Australia 86% (6/7) Brazil 100% (1/1) Canada 100% (1/1) England 79% (15/19) Ireland 83% (5/6) Nepal 100% (1/1) Scotland 50% (1/2) USA 67% (2/3) Wales 50% (1/2)
Improved outcome for patients	42% (19/45)	Australia 57% (4/7) Brazil 100% (1/1) Canada 100% (1/1) England 37% (7/19) Ireland 33% (2/6) Scotland 100% (2/2) USA 67% (2/3)

Table 5. Percentage of users reporting benefits of using POP-SS in research.

Reported benefits for research of using POP-SS	
% answering Yes:	**Country, % (n/N)**
57% (8/14)	England 11% (2/19) Wales 100% (2/2) Ethiopia 100% (1/1) India 100% (1/1) Nepal 100% (1/1) Turkey 100% (1/1)

Discussion

This survey found that the POP-SS has a worldwide reach and is currently being used in at least 12 different countries within Australasia, Asia, North and South America, Europe and Africa. Amongst the responders, the main users were physiotherapists, and the majority were based in England but the POP-SS appears to be being used frequently in Australia, Ireland and USA. The POP-SS had been predominantly used in its English format, but also small numbers reported using the Amharic, Turkish, Chinese and Nepali versions.

A large proportion of users reported using the POP-SS to monitor symptoms of pelvic organ prolapse and to share information with their patients about progress following interventions, and also to share information with other clinicians.

Furthermore, the POP-SS has been useful in performing clinical audits and evaluations of treatment outcomes for prolapse in half of the countries responding. Similarly, half of the countries represented had included the POP-SS in patient record systems. Fewer users in lower middle income countries (Ethiopia, Turkey, Nepal) included the POP-SS in clinical guidelines or audit and service evaluations and this may reflect the early stages of pelvic organ prolapse services in these countries.

The majority of users employing the POP-SS reported that clinical practice had improved through its use and to a lesser extent this had led to improved outcome for patients. The latter may reflect the fact that it is difficult to quantify the impact on patients' symptoms of using

the POP-SS as part of a treatment programme or service without specifically measuring this, and distinguishing the effect from that of the treatment received.

The results of the survey demonstrate that a high proportion of practitioners value the use of the symptom score as a patient reported outcome measure. In their opinion, it has helped guide appropriate treatment, for example, deciding between surgical and non-surgical interventions and alleviate patient fears around their condition by educating them about signs and symptoms. It also encourages patients to engage with the intervention as it is a powerful motivational aid to demonstrate improvements from baseline and monitor success.

The POP-SS was used by a smaller proportion of users for research purposes. Interestingly, of the eight users, half of them were from lower and middle income countries which possibly reflects that in countries where English is not the first language, clinicians may have undertaken research to translate and validate the POP-SS prior to its use.

The main strengths of the study were that it was designed to evaluate the 'real-world' utility of the POP-SS in clinical practice and research, and to gain important information about the benefits that the tool can bring to services and patients from a practitioner's viewpoint. The survey was designed to be accessible and easy to use across a number of countries, particularly where English is not the first language. To the best of our knowledge other commonly used prolapse outcome measures, such as the Pelvic Floor Dysfunction Inventory (Barber *et al*. 2011) and the International Consultation on Incontinence Questionnaire -

Vaginal Symptoms (Price *et al*. 2006), have not been evaluated for their utility for practice in a similar way, focusing only on the establishment of their psychometric properties.

The survey response rate of 35% is very similar to the 37% mean response rate found in a review of email surveys (Sheehan 2001) and is higher than that of a more recent survey relating to pelvic floor muscle training services (23%) conducted using an online platform (Reed *et al*. 2020). The response was undoubtedly influenced however by the impact of the covid-19 pandemic which was placing a major pressure on clinical staff worldwide at the time. Some individuals emailed to say that they were unable to complete the survey due to dealing with covid-19. Due to the anonymous nature of the survey, we were not able to able to compare the characteristics of respondents and non-respondents. The convenience sample of individuals surveyed may not be representative of all POP-SS users. Only those who had directly requested the POP-SS from the first author were included, and the POP-SS could have been accessed indirectly in other ways. It is highly likely therefore that the reach of the POP-SS is greater than reported here, but the perceived usefulness of it may differ in other contexts not represented here.

The original POP-SS was developed involving women with prolapse and gaining their understanding of the questions and their relevance, however further research gathering data about patient experiences of using POP-SS in the context of their care would be useful to supplement the results of this survey. The authors are currently involved in translating the POP-SS into Samoan and conducting interviews with Samoan women about their experience of using it.

In summary, our findings suggest that there is potential benefit for practitioners, healthcare managers and women from across the globe from inclusion of the POP-SS in the management of pelvic organ prolapse. Increased use of this brief validated symptom score should be encouraged.

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