

A systematic review of Information brochure on Stress Urinary Incontinence for female athletes in Papua New Guinea

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Abstract

The aim of this systematic review was to scope portable document format (pdf) brochures containing stress urinary incontinence information, to educate female athletes in Papua New Guinea. A systematic review based on health informational awareness was conducted on Google™. The search was conducted using the key words, “stress urinary incontinence (SUI), “brochure” and “female athletes” (FA). The first two pages of Google were used to extract pdf brochures containing SUI information. Pdf brochures contained information regarding females with SUI, written in English and published in the last five years. Fourteen pdf brochures extracted from Google™ and from the website were included in the study. The extracted SUI pdf brochures retrieved information about the condition, organisations and institutions and management. This review located well-produced patient information about SUI and its management through brochures. Interestingly, there was no material highlighted to the FA which suggest the need for the creation of tailored information brochure suitable for PNG FAs.

Key words: Stress urinary incontinence, brochure/pamphlets, female athletes

Introduction

Urinary incontinence has been identified as involuntary loss of urine that causes hygienic problem and restrict females to participate in physical activity (Poswiata, Socha, & Opara, 2014). Three types of UI are commonly experienced by females; stress, urge and mixed (Bo, Bratland-Sanda, & Sundgot-Borgen, 2011; Bø et al., 2015) with the most common type being stress urinary incontinence (SUI). SUI is defined as involuntary leakage on effort or exertion, coughing, sneezing, and high impact physical activity (Bø et al., 2015; Goldstick & Constantini, 2014; Opara, Socha, & Poświata, 2013). This is a common problem among females and occur across different age groups.

A review of the literature suggests 50% of women may be affected by this condition at some point in their lives (Fozzatti et al., 2012). Female athletes (FA) are likely to experience SUI both in their sports as well as daily activities. High intensity sports played such as trampoline, weightlifting and running has enormous pressure on the pelvic muscles and surrounding structures (Goldstick, et al 2013, Fozzatti et al, 2012). Conversely, repetitive jumping and landing movements can generate a vast amount of pressure on the abdomen and pelvic structures (da Silva Borin, Nunes, & De Oliveira Guirro, 2013; Ferreira et al., 2014). Moreover, there are several management options available to prevent/manage SUI among females. However, the challenge is linking the female athletes (FA) and their sports healthcare practitioners who are qualified to specifically screen and identify females with SUI.

Multidisciplinary, health practitioners work with sports team in injury prevention and health promotion role. Physiotherapy is part of the health team in managing injuries and conditions impacting on their performance and can assist female athletes with SUI. In Papua New Guinea (PNG), physiotherapists have recently started working with sports teams in areas such as strength and conditioning and health. In the PNG culture, it may be a problem for FA to openly discuss SUI with their health practitioners. Communication with (Michelle Fae) a physiotherapist attached to the High Performance programme and working with the female football teams revealed that FA feel uncomfortable to openly initiate conversation about SUI (M.Fae, personal communication July 4, 2017). Therefore, it may be assumed that SUI is a cultural taboo that is not openly discussed. There is a need to raise awareness about health issues including SUI and one of the steps to achieve awareness about SUI is the transfer of knowledge.

Knowledge translation is an important principle which underpins the relay of knowledge relevant to a specific population to encourage dialogue. In females with SUI, information should also suit to their cultural background (Spencer, 2012). Most of the published researchers include this model as part of initialising programme to ensure that valid and quality information are transferred (Graham et al., 2006). Three important components of the knowledge action cycle model are: addressing the gap, knowledge adaption to local context, and implementation

of the intervention. However, the focus of this study was on the essential step which is to address the gap in knowledge of SUI in FAs.

Hence, the format of any information developed to encourage dialogue and inform females about SUI has to suit the cultural background and the individual (Spencer, 2012). Providing factual, free information and understanding the cultural and sports specifications of the athlete are vital to start conservation and to break down barriers. The health information conveyed to the patients/clients may be provided in different modes to capture the interest of the patient, while reassuring them that they are not alone. There is a spectrum of modes of information such as written, oral, video, website, radio and television available and this must be aligned with the individual. Despite extensive searching for the literature about urinary incontinence and SUI prevalence, no specific literature focusing on the education and awareness of this condition by the FA was located. Physiotherapists, who are working with sports teams in PNG are in a better position to interact with athletes regarding SUI. One such way is to start the conservation with the athletes about SUI and providing print information (brochures) to athletes they are working with in the PNG elite and professional sports environment.

Therefore, this study is to scope pdf brochures containing SUI information and produce an information package for FAs in PNG using the knowledge translation model (Graham et al., 2006) to increase their awareness about SUI as a treatable condition and to encourage them to seek healthcare for long term support.

The selected information will be used to create an educational information package for the FAs in PNG.

Methods and Materials

A systematic search was performed in Google™ to locate any SUI brochure information in portable document format (pdf). Ethical approval was not required for this study as no contacts with participants was undertaken and the information collected was freely available on Google™.

Eligibility criteria

The pdf brochures were screened and retained using the criteria for the brochures.

Inclusion and exclusion criteria

The following materials were included for analysis; pdf brochures written in English, published in the last five years and containing information regarding SUI in females.

The exclusion criteria were: brochures exclusively focused on surgical and medical management, SUI videos, conference papers, journal articles and pdf brochures not related to SUI, exclusively on men's health and pdf with no dates. Electronic books (e-books), blogs containing SUI were also excluded from the study.

Information source

The brochures were sorted from the Google™. Results from the first two search pages of each individual search were retained for analysis. Advertisements websites, incontinence products, (urine pads, bulking slings) were excluded.

Search terms

A systematic strategy as shown in Table 1 was used to identify the relevant SUI brochures published in pdf format using the Google engine www.google.com. The search aimed to identify electronic pdf brochures suitable for a lay-audience written in English. Following an exploratory search, a formal search was completed on 10th September 2017. Search terms such as “*stress urinary incontinence*”, “*brochure*,” and “*female athletes*” which represents the three key concepts namely conditions, mode of communication and target population (Table 1). Search terms for each of the three search concepts were used with the Boolean operator “AND” making a total of nine individual searches.

Table 1. Key search terms used in the search

Concept 1 Condition	AND	Concept 2 Mode of communication	AND	Concept 3 Target population
“stress urinary incontinence” “stress incontinence”		“brochure” “pamphlets” “patient education”		“female athletes”

Data items (Extraction of key content)

The pdf brochures identified were further examined by the PI (RW) and the following information was extracted: name of the organisation who produced the brochures, the number of pages, details of the explanation of SUI and types of urinary incontinence(UI), the presence of biomedical information, signs and symptoms, factors, prevention, management and referral information. The results of each were combined and loaded into Microsoft Excel™ 2016 for analysis.

Selection process

The pdf brochures were selected using eligibility criteria. The combined list was analysed to remove any further duplicates and reviewed with respect to the inclusion criteria and brochures not meeting the criteria were removed. The pdf brochures that met the study criteria were retained for further analysis.

Results

Search results

The initial search terms in Google™ identified 236 hits related to stress urinary incontinence and females and of these 14 pdf brochures met the inclusion criteria of the study. A flow chart of the pdf brochure selection process is presented in Figure 1. Items were excluded if the content was not related to SUI (n=8), journal articles (n=7), pdf brochures with past dates (n=6), surgical and medical procedures of SUI (n=4), no dates on pdf brochures (n=3), focus on men's health (n=2), conference papers (n=2) and SUI video (n=1).

Table 2 presents information extracted from pdf SUI brochures. All 14 brochures had included an explanation about SUI and types of UI, year of publication, management and referral. Eleven out of fourteen brochures (79%) contained information about the causes of SUI. Eight brochures mentioned biomedical information (57%) and six contained information about prevention and signs and symptoms (43%). The least common information was risk factors with only two brochures presenting this information (14%). None of the brochures included information specific to female athletes with their focus being on women in general.

The pdf brochures differed considerably with respect to the organisations which produced them and the country in which they were published. Three of the brochures were produced by pharmaceutical companies, five by speciality clinics, one each by a physiotherapy clinic and a university medical centre, two each by women's health clinic, and two from professional college and association. Moreover, majority of the brochures originated from the United States of America (n=9) followed by Great Britain (n=2), Canada (n=2) and Australia (n=1). The dates of publication/production ranged from 2012 to 2017 with five being published in 2015 and one brochure in 2012. The average length of the brochures was two pages with a maximum of 20 pages.

Table 3 shows the frequency of materials presented in the pdf brochures. Pregnancy and childbirth information was mentioned as the main cause for SUI with urinary tract infection and pelvic organ prolapse being the least frequently mentioned. Doing vigorous exercises was the main triggering factor. Kegel/pelvic exercises were the management of SUI and mentioned in 13 brochures (n=13) and surgery by nine (n=9). Referral to doctor was mentioned eight times while referrals to pharmacist and physiotherapist were each mentioned once.

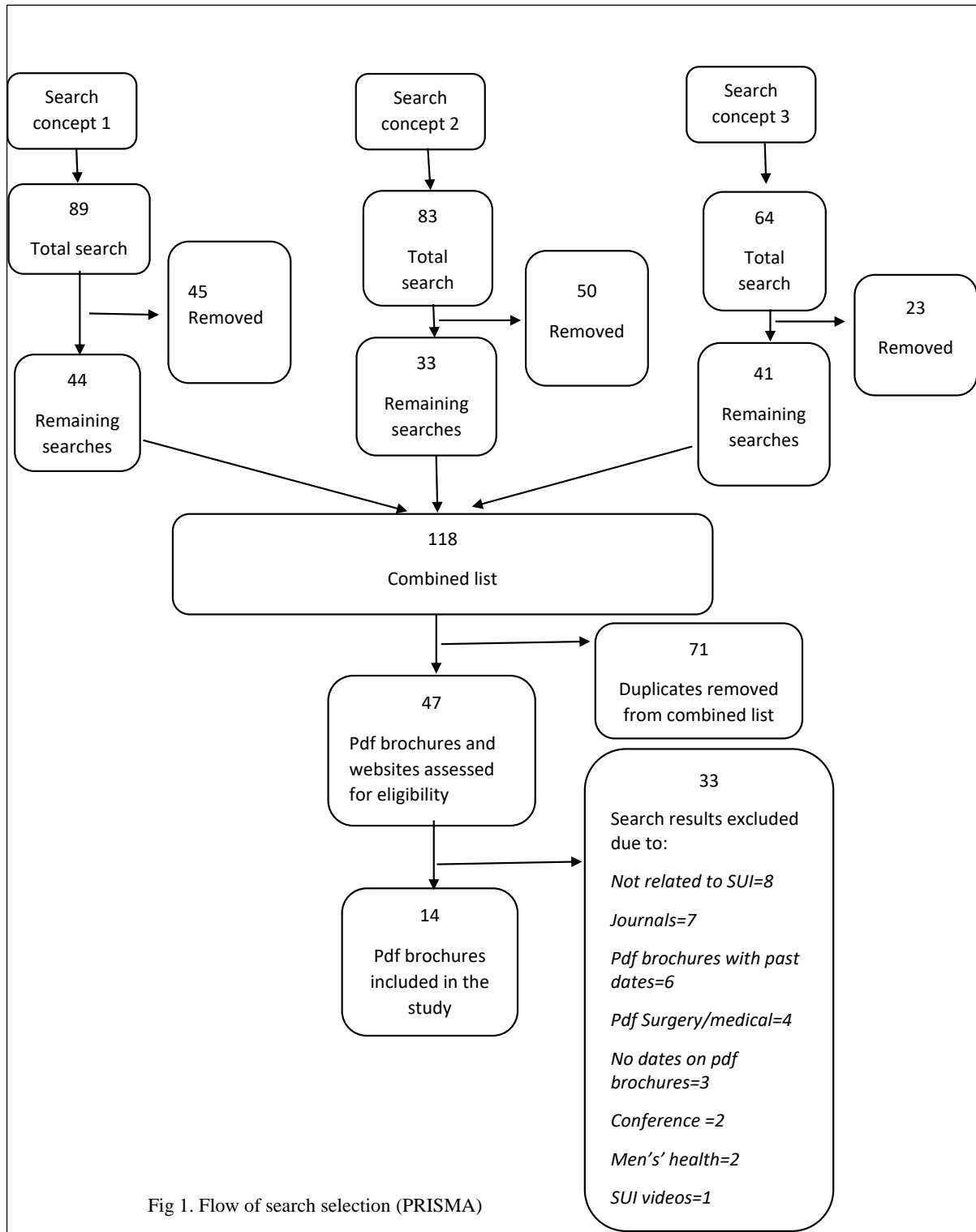


Table 2. Characteristics of the selected SUI pdf brochures

Brochure information			SUI information				Risk factors	Prevention	Treatment	Intended for female athletes	Referral and further information	Comments and additional information
Title of the brochure	Institutions/ Company(country) Website	Year, No. of pages	Explanation & types of Urinary Incontinence	Biomedical (Anatomy/Pathophysiology)	Causes	Signs and symptoms						
Understanding SUI	Boston Scientific(USA) http://www.bostonscientific.com/content/dam/bostonscientific/urowh/portfolio/group/healthconditions/stress-urinaryincontinence/SUIPatient-Brochure.pdf	2017, 7 pages	YES	YES	YES	YES	NO	YES	YES	NO	YES	Avoiding diary for frequency of urine leakage
Stress incontinence in women	Newcastle hospital(UK) http://www.newcastlehospitals.org.uk/download/Therapy%20Services/Physio_Stress_incontinence.pdf	2016 4 pages	YES	YES	YES	NO	NO	YES	YES	NO	YES	The content is mostly related to non-conservative management.
Stress incontinence	Patient EMIS group(UK) https://medical.azureedge.net/pdf/4277.pdf?v=636403123328499172	2016 6 pages	YES	YES	YES	NO	NO	NO	YES	NO	YES	Material contains wordy text and pictures of the anatomy of the bladder.
Medical options for Urinary Incontinence	Cleveland Clinic (USA) https://my.clevelandclinic.org/-/scassets/files/org/obgyn/urinary-incontinence/brochure-oct-2016.ashx?la=en	2016, 4 pages	YES	YES	YES	NO	NO	YES	YES	NO	YES	This contains information that is relevant and attractive pictures that may attract readers' attention

Table 2. Characteristics of the selected SUI pdf brochures (cont.)

Brochure information			SUI information				Risk factors	Prevention	Treatment	Intended for female athletes	Referral and further information	Comments and additional information
Title of the brochure	Institutions/ Company(country) Website	Year, No. of pages	Explanation & types of Urinary Incontinence	Biomedical (Anatomy/Pathophysiology)	Causes	Signs and symptoms						
Urinary incontinence in women	Ohio University Medical Centre(USA) https://patienteducation.osumc.edu/Documents/urinary-incontinence.pdf	2016, 3 pages	YES	NO	YES	NO	NO	NO	YES	NO	YES	This brochure provides brief information
Urinary incontinence	American College of Obstetricians & Gynaecologists(USA) https://www.acog.org/-/media/For-Patients/faq081.pdf?dmc=1&ts=20170915T2123506330	2016, 3 pages	YES	NO	YES	NO	NO	NO	YES	NO	YES	The content of the brochure contains questions and answer of UI
Urinary Incontinence embarrassing but treatable	College of Family Physician Canada (Canada) http://www.cfpc.ca/uploadedFiles/Resources/Resource_Items/Patients/UrinaryIncontinence_EN.pdf	2015, 2 pages	YES	YES	YES	YES	NO	NO	YES	NO	YES	The brochure contain relevant information
What you should know about SUI?	Ethicon (USA) http://www.ethicon.com/sites/default/files/managed-documents/031295-150316_tvt_patient_brochure11_cr_0.pdf	2015, 7 pages	YES	YES	YES	YES	NO	YES	YES	NO	YES	Pictures with information.

Table 2. Characteristics of the selected SUI pdf brochures (cont.)

Brochure information			SUI information				Risk factors	Prevention	Treatment	Intended for female athletes	Referral and further information	Comments and additional information
Title of the brochure	Institutions/ Company (country) Website	Year, No. of pages	Explanation & types of UI	Biomedical (Anatomy/Physiology)	Causes	Signs and symptoms						
Managing incontinence & Answers incontinence	Walgreens(USA) https://www.walgreens.com/images/adaptive/pdf/Answers_Incontinence_Brochure.pdf	2015, 16 pages	YES	NO	YES	NO	NO	YES	YES	NO	YES	The management on SUI for both male and female
Stress urinary incontinence	Canadian Urological Association(Canada) https://www.cua.org/the-mes/web/assets/files/patient_info/secured/en/24e-stressurinaryincontin_s.pdf	2014, 2 pages	YES	NO	NO	YES	YES	NO	YES	NO	YES	Brief information and relevant to SUI
Take control of your SUI	Coloplast (USA) https://www.lowmq.com/info/surgery/surgery_procedures/Altis.pdf	2013, 20 pages	YES	YES	YES	YES	NO	YES	YES	NO	YES	Lengthy text information on SUI, pictures presented
UI patient info sheet	MPR/National association of incontinence(USA) http://www.empr.com/patient-fact-sheets/urinary-incontinence-patient-information-fact-sheet/article/222466/	2013, 2 pages	YES	NO	NO	NO	NO	NO	YES	NO	YES	Lengthy text information

Table 2. Characteristics of the selected SUI pdf brochures (cont.)

Brochure information			SUI information				Risk factors	Prevention	Treatment	Intended for female athletes	Referral and further information	Comments and additional information
Title of the brochure	Institutions/ Company (country) Website	Year, No. of pages	Explanation & types of UI	Biomedical (Anatomy/Pathophysiology)	Causes	Signs and symptoms						
Urinary incontinence	Women's Health Wide Inc. (Australia) http://womhealth.org.au/sites/womhealth/files/public/documents/urinaryincontinenceMarch14.pdf	2014 6 pages	YES	YES	YES	NO	YES	NO	YES	NO	YES	All types of continence mentioned
Non-surgical treatments for urinary incontinence	Agency for Healthcare Research & Quality(USA) http://m.bardmedical.com/media/3324/Bard%20SUI%20Patient%20Pamphlet.pdf	2012 20 pages	YES	NO	NO	YES	NO	NO	YES	NO	YES	Information related to SUI and questions about management.

Table 3: Frequency of texts

Interested information	
Causes	Frequency/number
pregnancy & childbirth	6
Overweight	3
Nerve damage	3
Weak pelvic floor muscles	3
Constipation	2
Menopause	2
Pelvic organ prolapse	1
Urinary tract infection	1
Triggering factors	
Vigorous exercises (running, jumping)	5
Laughing/lifting	4
Sneezing	3
Walking/jogging/engage in intercourse/sitting to standing	2
Management strategy	
Kegel exercises	13
Further surgery	9
Medication	10
Other medical devices (Biofeedback, electrical stimulation, bulking agents)	10
Referral	
Doctor	8
Pharmacists	1
Physiotherapy	1

Discussion

This study was a systematic review of pdf brochures to develop an informational package for FAs in PNG. Brochures are effective tools that contain succinct health education information for patients to understand a condition (Hölzel et al., 2015; Murray, Thomas, & Pollock, 2017; Schoeps, Tallberg, & Gunningberg, 2017). The review identified fourteen SUI pdf brochures none of which contained information specific to FAs or positioned their content within the context of female athletes.

With the increased participation of females in both competitive and recreational sport in the last decade, studies have found that SUI was a common problem experienced by young female athletes particularly in high-intensity sports (Da Roza, Brandão, Mascarenhas, Jorge, & Duarte, 2015; da Silva Borin, Nunes, & De Oliveira Guirro, 2013; Ferreira et al., 2014). Other issues speculated as causative factors for SUI are pelvic organ prolapse, urinary tract infection, constipation and menopause, which are often observed in postnatal women and not in young females (Bardino, Di Martino, Ricci, & Parazzini, 2015). As shown in table 3, of all the triggering factors, vigorous exercises was the factor which most frequently contributed to SUI. These activities are reported to trigger urine leakage more frequently than activities such as sneezing, walking and jogging that also can provoke a urine leak.

SUI is treatable, but not all interventions mentioned in the brochures work for all females. Different treatment approaches such as biofeedback and electrical stimulation are acknowledged in the brochures. Thus, Kegel/pelvic floor exercises are considered as the first line of treatment to prevent SUI. Kegel exercises are easy to manage and aid in short-term relief (Bø & Hilde, 2013). A recent systematic review provides evidence that Kegel exercises can prevent stress urinary incontinence (Bø & Hilde, 2013; Ghaderi & Oskouei, 2014; Joshi, Mohsin, & Joshi, 2016). Frequent use of Kegel/pelvic floor exercise (PFE) has been shown to relieve the symptoms. The pdf brochures included in the study strongly suggest the importance of Kegel/PFE as a prevention method. In an RCT study (Ferreira et al., 2014; Opara, Socha, Bidzan, Mehlich, & Poświata, 2011), it is emphasised that PFE is an effective method to prevent SUI in female athletes. Surgical treatment is also mentioned in the brochures, however, it is considered as the last option if the other methods of treatment are unsuccessful. Consultation with a medical/specialist doctor is highly recommended in the brochures for females to seek advice for their problems whereas consultation with a physiotherapist and pharmacist is least mentioned in the brochures. In general, it is found that the pdf brochures are important materials to provide female athletes with information about SUI.

Brochures were selected as the target format for the transmission of knowledge and information in research, clinical practice, and community. The transfer of knowledge is a fundamental concept of content analysis and best healthcare practices (Graham, Tetroe, & Group, 2007). Since the results of this study showed no evidence of information material tailored for female athletes, the importance to provide valid and useful information to enhance their understanding of SUI becomes clear. While generic pdf brochures are available, these are most probably not being accessed specifically by females participating in high level sports activities.

Brochures act as an ideal way of transferring information from the published literature to the general public (Doane & Boyd, 2016; Edmonds et al., 2017). For topics such as SUI, there is a certain degree of sensitivity associated with the information. The brochure has the advantage of getting information to the potential audience, who might not be actively looking for it via web searching or other similar strategies. The brochure or patient information sheet format can be specifically developed to attract and align with a specific target audience (Negarandeh, Mahmoodi, Noktehdan, Heshmat, & Shakibazadeh, 2013; Schoeps et al., 2017), thus enhancing the transfer of knowledge. Readily available information has to be culturally pertinent for the audience to receive the information.

The SUI brochures can be a sensitive issue to discuss in PNG context as culturally SUI and women's health are considered sacred and sensitive to discuss openly and people might feel uncomfortable. The development of brochures for FAs in PNG has to consider the traditional beliefs that contribute to the avoidance of discussions about women's issues or SUI. This is a challenge to females participating in sports, and one way to break that barrier is to develop an information package. The content of the brochure to be developed for FAs will contain language and vocabulary appropriate for FAs, graphics that captures the reader's attention, visually appealing and catchy and one-page pocket size brochure for FA to carry around in their training gear bag.

Limitations

This study specifically searched for publically available information on SUI specifically targeted to female athletes. It employed common search strategies and principles to ensure an extensive investigation. The extracted information from Google™ is suitable for a lay audience, specifically pdf brochures, that contains succinct and easy-to-read information to transfer knowledge to a lay audience rather than traditional academic data bases. The search was conducted by one person, however, a professional Librarian was consulted in the development of the search strategy. The fact that only one person (the PI) reviewed and extracted the data implies the possibility of bias in identifying the brochures and extracting the information by using the Google™ search engine. Furthermore, the search was limited to the first two pages of the results from each individual Google™ search implies that there could have been brochures in subsequent pages which are not included in this study.

Implications of this study

The study was conducted using Google™ as the search engine for a lay-audience, on pdf brochures. The key features of a brochure designed for a target population are important to transfer the correct and succinct information on a topic. The SUI brochure will be developed based on the findings of the review and will synthesise the relevant SUI knowledge to educate FAs in PNG. The overall component in this study are the gap in knowledge about SUI information adapted to the local context for FA.

Conclusion

Knowledge inquiry is an essential way that promotes evidence for knowledge transfer and is used widely to share information to deliver the relevant information to a particular group. The project was aimed to collect pdf brochures for female athletes, however, the pdf brochures used in the study were directed to general women population with SUI. The study also has revealed that Google search engine™ can be used as an innovative way to extract information materials focused on a specific lay audience.

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Disclaimer statements

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