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Prevalence of Shukra vega dharana in an Indian population: A cross sectional survey protocol

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ABSTRACT

Background: Despite being an important aspect of health and quality of life, individuals tend to suppress natural sexual urge ('Shukra vega') due to a variety of factors. Unless managed appropriately through self-regulatory mechanisms, suppressed sexual urge ('Shukra vega dharana', SVD) not only causes psychological suffering but may also put other basic needs at risk. Adult, married, males who are either living away from their spouse for long durations or separated or divorced are at a considerably higher risk of developing SVD as compared to others. Considering the recent rise of sexual diseases and sexual violence, it is critical to understand the extent and epidemiology of SVD in this sub-population of India. **Objective:** The study was attempted to understand the extent and epidemiology of SVD in this sub-population of India.

Materials and methods: To determine the prevalence of SVD in adult married, male individuals located in Nashik, Ahmadnagar and Thane cities of India who are either living away from their spouse or separated or divorced, a cross-sectional, anonymous survey will be conducted among a sample of male individuals meeting eligibility criteria. A multi-stage sampling approach will be used to identify cities/organizations (where the study will be conducted) and participants for the study. Post informed consent, eligible individuals will respond to a survey questionnaire. Responses will be populated in a spreadsheet, analyzed and reported. Understanding extent and epidemiology of SVD in an Indian sub-population will not only facilitate design of future research studies but will also inform health, social and educational policy associated with sex education (training individuals in the appropriate management of sexual urge).

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1. Introduction

Of all the different types of periodic natural urges (referred to as 'Vega' in Ayurveda) that arise in an individual, the urge for love, affection and sexual intimacy (termed as 'Shukra vega' (SV) in Ayurveda) is the strongest [1,2]. Its appropriate utilization, fulfillment, management and channelization can result in reproductive outcomes, mutual satisfaction and exchange of emotion & intimacy, self-development and self-realization respectively [3,4]. Even when utilized for hedonistic pursuits, its appropriate expression and gratification leads to personal satisfaction as well as generates

gratitude and affection towards the sexual partner. As a result, relationships strengthen and become more emotionally substantial [5,6].

Despite being an important aspect of health and quality of life [3,7], individuals do not usually receive training on appropriate expression and management of sexual urge [8,9]. As a result, they rely on familial, peer, moral, religious, social and cultural knowledge of relevant behavior, appropriateness and ethics [2,8,10–14]. The nature of the acquired know how (complete, incomplete, correct, incorrect), personal characteristics (age, experience etc.) and circumstances (conductive, non-conductive, for example: availability of sexual partner) eventually influence the expression and satisfaction of naturally incident sexual urge. Ideally, over time and with experience, individuals either become adept at managing sexual urge, achieve fulfillment and move to the next higher need or transcend it altogether [1,12].

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On the contrary, incomplete and incorrect know how, personal attitudes and beliefs, occupational circumstances, lack of appropriate educational material and cultural scripts encourage individuals to consciously/unconsciously neglect and suppress naturally incident sexual urge. On a personal level, factors like early sexual maturity [15,16], conflicting and guilt oriented morality [17], delayed marriage [18], separation and divorce [19,20] pose a challenge to the expression of sexual urge. Further, competitive and ambitious attitudes result in contrasting personal priorities where individuals end up choosing career over personal needs thus pushing sexual urge to the lowest priority of fulfillment. Occupational factors such as long working hours, frequent traveling and living away from spouse (migrant workers) respectively contribute to the development of stress, fatigue [21,22] and a feeling of isolation which in turn hinder expression of sexual urge. Lack of education on how to manage natural sexual urge, lack of appropriate parental guidance in adolescence, misguiding sexual literature and media further complicate matters [8,16,23]. Finally, incongruence between inner sexual urge and corresponding internalized cultural meaning results in intra-psychic conflicts that evoke defense mechanisms such as repression, reaction and sublimation [17]. Consequently, natural sexual urge remains as a suppressed emotion in the sub-conscious mind.

The suppression (conscious/unconscious) of naturally emergent sexual urge is termed as 'Shukra vega dharana' (SVD) in Ayurveda [24,25]. On the other hand, exposure to external sexual stimuli in any form (books, movies, media etc.) or volitional transgression (inappropriate use of will) may generate sexual thoughts and remind a past sexual experience thus initiating an urge to fulfill sexual desire [2]. This is termed as 'Shukra vega udeerana' (SVU) in Ayurveda [24,25]. Persistent incidence of stimuli and absence of relevant means to satisfy the resultant urge leads to disturbance of psycho-somatic axis. Aetiopathogenesis ('Samprapti') of both SVD and SVU are different; both result in aggravation of vata ('prakopa') but the former takes place through obstruction ('Aavaran') while the latter takes place due to depletion of tissues ('dhatu kshaya') [26]. Accordingly, their management also varies. Clinical presentation indicates that SVD and SVU may co-occur and in such cases it is difficult to differentiate between their signs and symptoms. Moreover, over a period of time, suppressed sexual urge (SVD) in the sub-conscious mind may itself try to initiate a non-existent natural sexual urge (SVU). In order to avoid confusion and complexity as well as in alignment with Ayurveda's primary purpose of focusing on the root of a disorder, for the purpose of this study, we preferred to focus and prioritize initially on SVD (root) rather than on SVU (trigger).

Individuals with suppressed sexual urge (SVD) utilize a variety of coping methods to keep natural sexual urge at bay. Common coping methods include masturbation, regular exercise, prayer, constructive activities, planning, goal setting, self-control, self-restraint, delayed gratification and other emotional regulation methods (emotional detachment, emotional reappraisal and suppression) [27–35].

While these methods may yield results in the short term, they are cognitively taxing [28] and unsustainable in the long run. Most importantly, self-regulation mechanisms may fail and the suppressed behavior may backfire with a vengeance [31,36–38]. In the absence of coping mechanisms, suppressed sexual urge not only leads to discomfort, stress, psychological suffering, depression, neurosis, hysteria and loneliness but also puts other basic needs at risk [2,39,40]. Abundance of provocative sexual stimuli in public life and media [41] serve as unavoidable and untimely triggers that test individual self-regulatory mechanisms to the fullest and frequently result in forceful initiation of non-existent sexual urge (SV). In some individuals, where self-regulatory mechanisms fail, the sub-

conscious mind overpowers reasoning and results in inappropriate external expression of suppressed sexual urge on other individuals in the form of aggressive behavior, crime against women, rape etc. [40,42,43] In case, if self-regulatory mechanisms succeed, they take an internal toll and result in physical, physiological and psychological sequelae like mental and emotional imbalance, obsessive disorders, personality disorders like psychopathy etc. [34] The latter match the manifestations (signs and symptoms) of SVD described in Ayurveda [24,25,44].

Currently, the incidence and prevalence of factors that contribute and facilitate the development of suppressed sexual urge is significantly high. Logically, the prevalence of SVD would be equally higher. Despite its importance, the prevalence of SVD has not been systematically studied till date. Adult male individuals who are married but living away from their spouse for long durations (due to any reason, for example: work, nature of occupation etc.) or who are separated/divorced are at a considerably higher risk of developing SVD as compared to other sections of society. Considering the rise of sexual diseases [45] and sexual violence [46,47] in society, it is critical to understand the extent and epidemiology of SVD in this sub-population of India. Resulting information would contribute to the development of educational programs that can help individuals understand and manage their sexual urge and inform social and health policy planning.

Dhat syndrome - a culture bound, semen loss related psychological distress is widely prevalent in natives of Indian sub-continent. Affected individuals have an 'undue concern about passing of semen through urine' [48–50]. Detailed comparison and analysis of etiological factors, demographic characteristics of affected individuals and clinical picture of SVD and Dhat syndrome indicate similarity on some levels. The signs and symptoms of Dhat syndrome appear to be an advanced stage or extreme version of physical, psychological signs and symptoms of suppressed sexual urge (SVD). Although presumed to have high prevalence in India, there is a paucity of formal cross-sectional studies evaluating the prevalence of Dhat syndrome [51].

The primary objective of this study is thus to conduct an exploratory survey for determining the prevalence of SVD in adult married male individuals located in Nashik, Ahmadnagar and Thane cities of India who are either living away from their spouse or separated or divorced.

2. Methods

This protocol was designed using guidelines pertaining to the conduct and reporting of survey studies [52].

2.1. Study design

A cross-sectional, anonymous, observational study using the survey strategy to collect data will be conducted among a representative sample of male individuals meeting eligibility criteria. The primary research question is aimed at determining the prevalence of SVD in adult, married, male individuals located in Nashik, Ahmadnagar and Thane cities of India. Additionally, as a secondary research question, the same participants will also be evaluated to understand whether they suffer from Dhat syndrome. Other, secondary research questions are aimed at understanding the number of individuals suffering from SVD who have a rural-urban lifestyle, who spend-do not spend time in non-productive activities during their free time/leisure, who are sexually active-inactive while living away from their spouse, who masturbate-do not masturbate, who feel-do not feel guilty about masturbation and nocturnal emission of semen.

2.2. Sampling

The study will employ a multi-stage sampling approach. In the first stage of sampling, three cities (Thane, Nashik, and Ahmednagar) will be selected from Maharashtra state. These cities were selected from a feasibility point-of-view as the study team has collaborators that can facilitate the conduct of the study in these cities [53,54]. Nevertheless, all three cities are considered among urban parts of Maharashtra and represent demographic characteristics similar to rest of the urban Maharashtra [55]. In the second stage of the sampling, organizations (armed force station, agricultural farms, industrial units, hotels, restaurants, construction sites, security agencies, universities, colleges, and jails) will be randomly selected [54]. The number of organizations from each city will be proportional to the general population of the city. In case, an organization does not provide permission for the conduct of the study, immediately next organization will be selected from the sampling frame (online/offline city directory). In the third stage of sampling, potential participants will be randomly selected and approached to participate in the study.

2.3. Eligibility criteria

Literate, male individuals (able to read and write in Hindi and/or English) aged 18–40 years who are (i) Married but living away from their spouse since the last four months (migrants) or (ii) Married and separated from their spouse since the last four months or (iii) Divorced from their wife for more than four months or (iv) Widowed more than four months ago AND who are working at any one of the following types of organizations: Armed force stations, Agricultural farms/farmhouses, industrial areas, hotels, restaurants, construction sites, security agencies, universities, colleges OR who are serving time in jails in Nashik, Ahmadnagar and Thane cities of Maharashtra will be invited to participate in the survey. Individuals who are single (never married) or married and living with their spouse in their native location will not be invited to participate in the study.

2.4. Setting and participants

To facilitate the successful conduct of the survey, the study will be conducted in Nashik (Total population: 1,486,053, Male population: 782,517; Census 2011), Ahmadnagar (Total population: 350,859, Male population: 178,899; Census 2011) and Thane (Total population: 1,841,488, Male population: 975,399; Census 2011) cities of Maharashtra, India [55].

2.5. Recruitment

In order to ensure a simple random sample, as a first step, a list of workplaces/organizations (armed force stations, agricultural farms/farmhouses, industrial areas, hotels, restaurants construction sites, security agencies, universities, colleges, jails) will be collected from justdial - an online directory (where available) Other online/offline directories (where available) or Google search will be used to generate the list in case if relevant information is not available in justdial. A random list of 50 workplaces/organizations will be drawn by applying a randomization code generated in R software [56]. In case, if desired response rate is not achieved from the initial random list, consecutive random lists will be generated in a similar manner to facilitate recruitment.

Next, a brief description of the study will be mailed to the head/owner of these workplaces along with a request for prior approval to conduct the survey in their respective organizations. Alternately, the principal investigator (PI) will personally visit and submit the

same and seek written approval. Post approval, the head/owner of workplace/organization will be requested to display details of the survey on publicly accessible notice boards. This step will allow study details to be shared with potential participants working in that workplace. The head/owner of workplace/organization will also be asked to share a list of employees/workers that are males, married but either migrants or separated/divorced. The head/owner of workplace/organization will also be requested to (i) Allocate a separate cabin where survey participants can answer the survey questionnaire without concerns of privacy and (ii) Place a secret ballot in the allocated cabin so that survey participants can submit their responses anonymously. Finally, the PI will visit the workplace/organization on pre-scheduled dates to randomly recruit participants from the list of employees shared by the head/owner of organization.

2.5.1. Mode of contact

During a scheduled visit to each workplace, the PI will randomly approach employees present in the list shared by the head/owner of organization while they arrive at work, during their tea break/lunch break or while they depart from work. A brief description of the study will be provided to potential participants. Those interested and meeting eligibility criteria will be recruited in the study. The PI will keep a count of all the individuals approached at each workplace on each scheduled visit. This count will facilitate the calculation of response rate. Further, efforts will be taken to document the reasons for refusal to participate in the study. Based on the response rate and size of workplace/organization, if needed, the PI may visit the workplace/organization on more than one occasion.

2.5.2. Recruitment process

All eligible participants will be informed in advance about the purpose as well as anonymous nature of the survey and time required to complete the survey questionnaire. Appropriate informed consent will be administered for each participant in a language they understand (English, Hindi). Participation will be voluntary and participants will not be offered any incentive to participate in the survey. To facilitate privacy, those willing to participate will be asked to answer a printed copy of the survey questionnaire in a separate cabin located within their organizations and submit the completed questionnaire using a secret ballot box placed in the same cabin.

The questionnaire will not capture personal identifiers like name, address, affiliation, phone number and email address. As the survey questionnaire includes sensitive questions on sexual history and behavior, individual participants will be reassured about the confidentiality of their responses. They will further be reassured that their individual responses will not be identified in any resulting publication. Finally, only male study team members (PI) will administer informed consent as well as the survey questionnaire to the participants to avoid any possible embarrassment. In case, if participants have any questions, they will be resolved by the PI.

2.6. Data collection

2.6.1. Development of survey questionnaire (Ref: Appendix 1)

Extensive literature search and review were first carried out in Ayurvedic and modern medical literature to identify previously published and psychometrically tested survey questionnaires related to the topic. Observing the absence of previously published questionnaires, literature review was carried out in Ayurvedic texts to prepare a list of clinical characteristics associated with SVD [24,25,44]. Additional feedback on the clinical picture and beliefs of patients were collected from expert Ayurvedic and modern

Psychiatric practitioners who usually treat individuals suffering from SVD. Further, emerging themes of a qualitative study specifically aimed at understanding qualitative factors that contribute to the development of SVD were used to guide the development of the survey questionnaire for this study. (Protocol of qualitative study [57], results of the qualitative study: unpublished). As an existing comprehensive questionnaire designed for the assessment of Dhat syndrome was already available [58], it was used to generate corresponding section of questions in our survey questionnaire. The final survey questionnaire thus includes sections that will capture demographic data and signs & symptoms. The latter will aid the diagnosis of SVD and Dhat syndrome in survey participants.

Adequate efforts were made to limit the number of open questions and avoid the use of ambiguous, leading, 'double barreled' (two questions in one) or negative content in the questions [52]. Further, efforts were made to use simple, clear, specific, comprehensible and non-offensive words in the questionnaire [59]. Detailed instructions were included in the beginning and end of the survey questionnaire. These instructions were aimed at stressing the confidentiality and privacy of participants' responses and how the responses would be used. Instructions stressing on the need to provide accurate responses to all questions and avoiding the inclusion of personal identifiers anywhere in the questionnaire were also included. Considering the fact that the survey would be carried out in Maharashtra and with male individuals some of whom would be migrants, the resulting questionnaire was translated into Hindi (national language of India) to aid the implementation of the survey. The questionnaire was forward translated by a bilingual expert and professional translator having a Master's degree and previous experience in translation. Finally, the translated questionnaire was back translated by an independent translator to confirm semantic equivalence and linguistic validity.

2.6.2. Randomization and adaptive questions

Since the survey is anonymous and involves one time participation, randomization of questions or adaptive questions were not included in the survey questionnaire.

2.6.3. Completeness check

Survey questionnaires will be checked manually for completeness. Incomplete survey questions will be discarded from the analysis.

2.6.4. Review step

The survey questionnaire will provide detailed instructions for the participant at the beginning. Notably, the participant will be asked to read the questionnaire in detail and providing accurate answers, double check their responses and make corrections if any using a separate colored ink (red/black) and refrain from adding personal information. Finally, each participant will be asked to submit the completed survey questionnaires in a secret ballot box placed in a pre-specified cabin/location.

2.7. Pilot survey

A pilot survey will initially be conducted among 35 participants (10% of the sample size) that meet the eligibility criteria. After explaining the study details and pilot nature of the survey, informed consent will be administered in a language they understand (English, Hindi). Each participant will answer a printed questionnaire in a language they understand (English, Hindi). Responses from the completed questionnaires will be manually entered into a spreadsheet (Microsoft excel) and analyzed. After reviewing the results of the pilot survey, if required, the questionnaire will be revised to facilitate data collection.

2.8. Sample size

Assuming 20% prevalence of SVD in adult, married, males of India, a sample size of 246 participants (completed questionnaires) is required to have a two-sided 95% confidence interval of width $\pm 5\%$. Expecting 30% incomplete questionnaires, at least 352 participants (questionnaires) will be surveyed to have 246 completed questionnaires.

2.9. Data extraction and management

Manual data entry will be carried out from each completed survey questionnaire received from participants. The data entry spreadsheet will not have any personal identifiers like name, address or affiliation. Unique identifier associated with the survey questionnaire will be used to identify individual responses and analyze the data. Study data and analysis results will be stored in a password protected laptop accessible only to the PI.

2.10. Data analysis

For the purpose of this study, survey participants who provide a positive response (Answer option: Yes) to Question 2.7 and Question 3.1 will be considered suffering from Dhat syndrome. At the same time, Survey participants who provide a positive response (Answer option: Yes) to Question 2.7, Question 4.1 and to any one or more of the following questions - Q 4.3, Q 4.4, Q 4.6, Q 4.8, Q 4.10, Q 4.12, Q 4.13, Q 4.14, Q 4.15, Q 4.16, Q 4.17 will be considered suffering from SVD.

2.10.1. Statistical methods

Descriptive statistics (n, mean, standard deviation) of the demographic and other participant characteristics will be calculated. A single categorical variable will be described by frequency distribution. Every analysis will be performed on observed data (no imputation will be used to replace missing values). A Cross tabulation with Chi-square test will be used to assess association between two categorical variables (e.g. marital status and prevalence of SVD). Similarly, independent two-sample *t*-test will be used to assess mean difference between two continuous variables. Analysis of variance will be used to test the equality of means for continuous variables between more than two groups. A *p*-value of <0.05 will be considered statistically significant. All statistical analyses will be performed using SPSS [60] for Windows.

3. Discussion

Despite their importance, little is known about the epidemiology of SVD in India. To the best of our knowledge this is the first cross-sectional study that will use a survey strategy to capture prevalence of SVD and Dhat syndrome in married, migrant male individuals of Nashik, Ahmadnagar and Thane cities of Maharashtra, India. Documenting the prevalence of SVD in India will shed light on an important etiological factor contributing to the rising levels of psychological diseases and sexual crimes in India. It will in turn encourage a better systems level understanding and evaluation of causal factors and outcomes as well as inform health, social and educational policy. Moreover, a possible outcome could be better sex education material aimed at training individuals in the appropriate management of sexual urge thus avoiding health related sequelae in the long run.

Cross-sectional surveys capture data about a population of interest at a single point in time and are considered most suited for determining prevalence of a condition [54]. Further, surveys collect real world data from a diverse and representative population using

structured questionnaires thus enhancing the generalizability of their findings [52]. Accordingly, cross-sectional survey design was thus found to be more appropriate to answer our research question. Given the sensitive nature of the study topic, participants may not be comfortable in answering questions on their sexual urge. This could significantly influence participation and response rates. In a questionnaire based survey design involving self-completion/self-report feature, a participant can answer the questionnaire in their privacy and submit their responses in a secret ballot box without fear of loss of confidentiality [59]. Questionnaire based survey design (self-completion) was thus chosen over telephonic and interview based survey design.

Recent census data indicate that a majority of males and male migrants (internal) in India belong to the 15–40 years age group and are married [61,62]. Maharashtra is one of the key destination areas for short term, seasonal/circular internal migrants within India [61,62]. Nashik, Ahmednagar and Thane cities of Maharashtra, India were chosen for the implementation of this survey as these districts are known to have a high internal and external migrant population [62,63] and are also conveniently accessible to the PI. To avoid volunteer bias faced by sex behavior studies in the past [59], potential participants present in the list shared by the head/owner of organization will be randomly approached at their respective workplaces while they arrive at work, during their tea break/lunch break or while they depart from work.

Literature review indicates that sexual urge is stronger in males as compared to females and in adolescent and adult males as compared to males of other age groups [2,64]. Isolation, lack of appropriate company and activity in free time as well as exposure to sexual stimuli are common challenges faced by married migrant males and separated/divorced males. Although, data from recent population based and surveillance surveys indicate that married males and married migrant males do not form a significant clientele of sex workers respectively [63,65], other studies report a high prevalence of extra-marital affairs in this sub-population of India [66,67]. In light of all these facts, it is apparent that married men who migrate to other locations for work and live away from their spouse for longer durations as well as separated/divorced males are at a higher risk of developing SVD unless they find an alternative method to manage their sexual urge. Selection criteria aimed at identifying appropriate population sample for this survey (age group, gender) were designed after considering all these facts.

There exists little literature on SVD with most of it being limited to Ayurvedic texts. In the absence of a previously designed survey questionnaire, clinical signs and symptoms of SVD described in Ayurvedic texts [24,25,44], feedback from expert Ayurvedic and modern Psychiatric practitioners and results from a previous qualitative study were used to design the survey questionnaire for this study. (Protocol of qualitative study [57], results of the qualitative study: unpublished).

Dhat syndrome resembles SVD to some extent. Affected individuals primarily report - 'Loss of semen in urine' which they presume to be a direct result of excessive indulgence in sexual activity or masturbation or to nocturnal emissions [68]. It produces significant anxiety, grief, guilt and concern among affected individuals. Notably, despite the patient's assertion and concern about passage of semen in urine, there is no objective evidence of presence of semen in urine. Associated symptoms include vague and multiple somatic and psychological complaints such as fatigue, listlessness, loss of appetite, lack of physical strength, poor concentration, forgetfulness, and other vague somatic troubles [49,50]. Most individuals suffering from Dhat syndrome may have the following characteristics: single men (unmarried/separated/divorced), illiterate/less educated, addicted/over indulgent in

pornography, intake of spicy and hot diet, living a fast track lifestyle, irregular sleep patterns, inappropriate use of free time [69,72]. All these factors favor suppression or provocation of Shukra vega by unnatural means. Since prevalence of Dhat syndrome in India has not been documented, relevant questions from an existing survey questionnaire [58] were included in our questionnaire to answer our secondary research question (prevalence of Dhat syndrome from the same sub-population).

We are likely to face numerous challenges while implementing this study. Securing a high response rate is difficult in survey studies [52]. Given the sensitive nature of the study topic, it probably will be more challenging to seek approval from respective workplace owners/administrators as well recruit participants from each of the workplaces. Further, previous studies indicate that participants of surveys involving personal and sensitive information are either unwilling or uncomfortable to share information on their sex lives. If they do share this information, they tend to provide inaccurate or incomplete information thus influencing the utility of the results [71]. In order to enhance recruitment, an attempt will be made to assuage all concerns of participants during the informed consent stage as well as through instructions in the survey questionnaire.

This survey protocol has numerous limitations. From a design perspective, survey studies have been criticized in the past for being superficial and lacking enough context to draw associations [52]. We hope that simple random sampling and higher response rates will facilitate a robust estimate of the prevalence of SVD in an Indian sub-population [59]. From a target population perspective, SVD also affects females, adolescents and individuals from other age groups. Given the sensitive nature of the topic, it was felt appropriate to design and implement separate surveys in the future evaluating prevalence in these sub-populations. Non-probability sampling methods (Convenience sampling) were used only for the selection of cities. While approaching potential participants (randomly from a list shared by head/owner of organization) at their corresponding workplaces (while they arrive at work, during their tea break/lunch break or while they depart from work) for recruitment does not introduce selection bias at the individual participant level, use of convenience sampling to select a city could limit the generalizability of the survey findings (prevalence) to a sub-population (city) level. Similar to other cross-sectional studies evaluating sexual behavior, this study may also face measurement error introduced by participation bias, recall and comprehension bias, item response bias as well as social desirability bias [59]. Efforts have been made to include relevant interventions in the study protocol at a design level (use of self-completion/self-reported survey questionnaire, privacy and submission of completed questionnaire in a secret ballot box), study implementation level (efforts to achieve high response rate) and questionnaire level (language, use of simple and clear words, detailed instructions in the beginning and end of the questionnaire, framing questions that place the burden of denial on participants, confidentiality assurances, stressing the importance of accurate responses and how they will be used). These interventions will enhance the perception of anonymity, privacy and credibility which will in turn reduce the biases [59,72]. Although, the impact of item response bias is small, relevant questionnaire level intervention (stressing on need to answer all questions, reviewing completed questionnaire before submitting it) as well as discarding incompletely answered questionnaires from final analysis will help reduce its impact [59].

Finally, evaluation of published research literature in Ayurveda indicates a paucity of cross-sectional surveys. We believe that publication of a cross-sectional survey protocol on an important

Ayurvedic concept like SVD would serve as a template/example that other Ayurvedic researchers can use in the future.

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None.

Conflict of interest

None.

Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.jaim.2017.12.003>.

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