

Correlation between enhancing stresses and trends of self-medication among young girls in Chandigarh

Ankush Wats ¹, Maansi ² and Meenu Wats ^{2,*}

¹ AAIMS, Jamaica, West Indies.

² Dept. of Zoology, DAV College, Punjab University, Chandigarh, India.

World Journal of Biology Pharmacy and Health Sciences, 2021, 08(01), 043–052

Publication history: Received on 07 September 2021; revised on 15 October 2021; accepted on 17 October 2021

Article DOI: <https://doi.org/10.30574/wjbphs.2021.8.1.0113>

Abstract

Chandigarh, a U.T., is an educational hub in North India having all types of professional and non-professional institutions invites recurring gush of students from all its adjoining states and countries. The city with its two satellite towns hosts many universities, more than two dozen of colleges and numerous other training institutions. The city has witnessed an exponential growth of native and migrant female's population in the past 2-3 decades. Majority of these female have been found to be the first generation migrants from their native places. This fair sex population was found subjected to multi-factorial distresses which manifest in the form of varied types of health issues that push them to get trapped in the vicious cycle of self-medication.

The present study was an outcome of personal interactions, group interactions and collection of data through questionnaires from 150 young females comprising of undergraduate and postgraduate students and young employees (50 each). The results were presented in the form of percentages within their respective group and amongst total respondents. The study revealed the prevalence of maximum distress (>85%) amongst young professionals or early age employees followed by final year P.G. students (>60%) and UG students (>50%). Prevalence of self-medication has also been found in parallel lines with the stress levels of the respondents. [Professionals (82.6%) > P.G. (69.7%) >UG (42.8%)]. The most commonly used drugs by them were belonging to various categories like analgesic, antipyretics, antibiotics, weight reduction formulations, dermatological applications, anti-anxiety drugs etc. The results projected that such an indiscriminate use of these drugs is a matter of social, medical and economic concerns. Present study also purposes some of the suggestive measures to check this menace.

Keywords: Self-medication; Health discomforts; Mental balance; Stressed group; Drugs

1. Introduction

Stress is a buzz word in today's society, victimising many of us. The word does not discriminate male or female, young or old, rural or urban, working or non-working, literate or illiterate population of any society [1-4]. The stress causing agents or stressors may be personal (physical, biological, psychological), social or environmental but in every situation, pose a challenge to an individual to change and adapt accordingly [5]. For the common man stress, in psychological terms, is a state when one's physical and mental balance is disturbed or when the situation is beyond the coping ability of an individual. These disturbances bounce back as a threat to a person's well-being [6]. Stressful society becomes a social and economic burden on the nation and this situation becomes more painful when such victims represent the young population of a country like India, where this demographic fraction has to be reaped as a future dividend.

* Corresponding author: Meenu Wats
Dept. of Zoology, DAV College, Punjab University, Chandigarh, India.

There is no thumb rule of the outcome of stress in human beings. It all depends on the type of stressors and the coping responses of an individual [7]. Stress is part and parcel of life. Different fractions of society are exposed differently to the types and extent of stressors. It is the consistency of the distress- a negative stress, if remain ignored, and unattended that often bud out as one or more types of health discomforts. The most common ones being frequent headaches, hypertension, behavioural irritation, inattention, impaired memory, erratic feeding behaviour, mood swings, depression, acne and skin related issues particularly in adolescents, oligo or dysmenorrhea, premature menopause, sometimes infertility, body weight fluctuations, irritable bowel syndromes, nausea, loss of appetite etc. [8,9]. Most of these symptoms are so generalized that their root causes remain ignored, hidden and unattended. Under such circumstances the distressed victim keeps suffering and are not able to get the right kind of medical help at the right time. These sub-clinical or non-clinical health discomforts are the main factors triggering the practices of self-medication (SM).

SM differs from the medication as the latter includes a well diagnosed, documented, and prescribed treatment of pathological conditions given by an authorised therapeutic [10]. While the former is the use of any pharmaceutical product for the treatment of self-diagnosed symptoms and experiences without consulting any medical professional [11]. SM with appropriate health information and precautions can be a saviour until appropriate medical assistance is available [12,13].

Practices of SM are not only found in India but is are worldwide concern found in more than 19% of the human population [14]. The rising trend (31%-90%) of SM, in India is a major concern of public health [15,16]. WHO Expert Committee on National Drug Policies (1995) [17] has also documented the increasing trends of SM in many developing and developed nations as well. Over-the-counter (OTC) drugs further enhance the execution of self-medication of drugs [18]. The OTC drugs, as per the guidelines formulated by National Drug Regulatory Authorities, are especially meant for those health issues which justify the non-consultation of medical consultants and are considered safe to use, risk-free, non-toxic and can be purchased without medical prescription [19] but their inappropriate use could have serious implication [20,21]. In our country, India, there is no specific list of OTC drugs [22] and such conditions further add fuel to the fire in flaring the trends of SM.

In the present day competitive times, the middle-income segment in India is the most stressful fraction that makes the females of the families to undertake multitasking activities. Initially the house makers, have now stepped out of their homes and started sharing the financial burden of their male counter-parts. Their multitasking lifestyle has put an extraneous pressure on them making them more vulnerable to SM. Current pandemic situations had further fanned the flames [3]. COVID-19 has not only acted as a physiological disease, rather as one of the biggest stressors especially for the health workers amongst whom the trends of SM have been found enhanced almost twice and the working mothers [2,23].

A lot has been done for the enhancement of the opportunities of women in India like induction and establishment of woman rights, gender equality, women educational institutions, female reservations, ban on female foeticides, single girl child scholarships and jobs, woman scientists fellowships, the latest one is “Beti bachao, beti padao” etc. These opportunities too are pressurizing the females to prove themselves no less than the males in their respective fields. Females have been found to become more vulnerable to distress owing to natural differences in the female’s biology, physiology and psychology than male’s and accordingly their stress bearing, resilience, stress management and outcome also differs from those in males [24]. Nielsen’s survey of 2011 has claimed that about 87% of Indian females (over 18 years of age) are stressed and 82% had no time to relax. In this fraction the worst hit segment is the young woman of the age group 25-55 years, especially married and working woman in their early career age [25].

1.1. The main reasons for the aforesaid situation are [12]

- Conflict between social, domestic and personal expectations
- Missing social and family support and infrastructures at the work place like crèches, reliable domestic helpers, day care centers etc.
- Lack of proper training to the first generation working females for their multitasking roles
- Competition with self to excel

1.2. Common reasons of the rising trend of SM

- Inadequate and expensive health care services
- Social hindrances of diagnosis of certain health issues

- Time constrains to visit and revisit the medical centers
- Publicity of some drugs on various social web sites and media
- Rising trend of e-pharmacy
- Occurrence of mild ailments
- Promotion and marketing of certain drugs by pharmacists/chemists
- Over-the-counter (OTC) availability of large number of the drugs
- Illiteracy and inhibitions
- Self-sublimation of anger and anxiety

1.3. Negative aspects of SM

Popping pills without a doctor's prescription, even in minor ailment, could have serious repercussions like:

- Misdiagnosis or inaccurate or delayed diagnosis
- Prolongation of the illness
- Addiction of certain drugs
- Risk of insufficient or over dosage of certain drugs
- Side effects and legal complications
- Drug interactions and pathogen resistance
- Development of allergies from certain drugs
- Risk of stroke or even death

The rising trends of intake of drugs under SM practices are due to frequently occurring health discomforts which will subsequently enhance the economic burden on our nation. Indiscriminate usage of drugs of certain categories like anti-microbial may lead to pathogen's resistance or even renal failure, analgesics to acute renal failures, or development of allergies, hypersensitiveness or even enhance morbidity [14,26].

Keeping in view the importance of the above concerns in mind a study was conducted on the young female population of the city, Chandigarh. This first planned city of post independent India has multiple reasons to attract the young population, especially females. Like the availability of numberless educational and training institutions in various disciplines, flaring employment opportunities, fashionable and smart life style, a city with good transport network, lots of parks and gardens, very high green cover, comfortable climate, numberless unique tourist places to de-stress life, beautiful geographical location in the Shivalik foothills, etc.

To make their stay comfortable and affordable, most of the females (students, trainees as well as employees), try to search for diverse types of accommodations like paying guest (P.G.), independent rented flats (IRF), institutional hostels (IH) or even sharing houses with their near and dear relatives. In the majority of the cases, these females are the first generation migrants from their native places and have been found to be subjected to varied kinds of distresses like loneliness, the burden of responsibilities, achievement of professional and personal targets and competitions etc. [27]. The rising anxieties have always been found as a potential factor promoting the habit of popping pills without medical consultations [6].

The present study tries to assess the prevalence of stress, types and frequency of health discomforts, trends of SM, category and frequencies of drugs consumed among the young females in Chandigarh (U.T.),

2. Material and methods

A descriptive cross sectional study was carried in Chandigarh (U.T.) for one year (2016) by enrolling 150 adolescents' females through cluster-sectional survey. These young females were divided into three groups i.e., under graduates (U.G.) and post graduates (P.G.) students and early carrier working females (W.F.). Each group was equally represented by 50 participants*. This study was based on a self-designed questionnaire with both open and closed ended items. The questionnaire included demographic profile sheet along with the questions primarily focused on their health status, types of health discomforts and the frequencies of reoccurrence of health, sources of medication, tendencies of SM, types and frequencies of drugs taken for SM. SM included consumption of drugs without prescription from any physician. Complete data was obtained from 138 respondents. The names of diseases and drugs reported by them were discussed with medical professional of the survey team. Questionnaires with incomplete information were excluded. The results

was summarised as counts and percentages. The data was collected by getting their due consent and the purpose was disclosed to them with a confidence of not disclosing their identity.

3. Results

The study revealed the prevalence of maximum distress amongst working females followed by P.G. students and UG students. The tendencies of being distressed had been found to show a direct impact on the inception and perpetuation of SM amongst all groups. Approximately 65% of the respondents were found practicing SM for their commonly occurring health issues in the past one year of recall time. A much higher trend of SM (92.8%) has been reported by Kumar *et al.* [22] amongst the general population in an urban colony in South Delhi, India. The intensity of stress hence the execution of SM was found to have shown its dependence on the subject’s age group in the current study. The elderly group of W.F. was found badly hit targets of SM and all that was due to the regularly occurring health issues amongst them forcing them to get trapped in the vicious cycle of SM. Though the SM pervasiveness was reported much higher (73.92%) in the distressed group the habit of taking pills for immediate relief was also reported by those respondents (45.65%) which did not find themselves distressed (Figure 1).

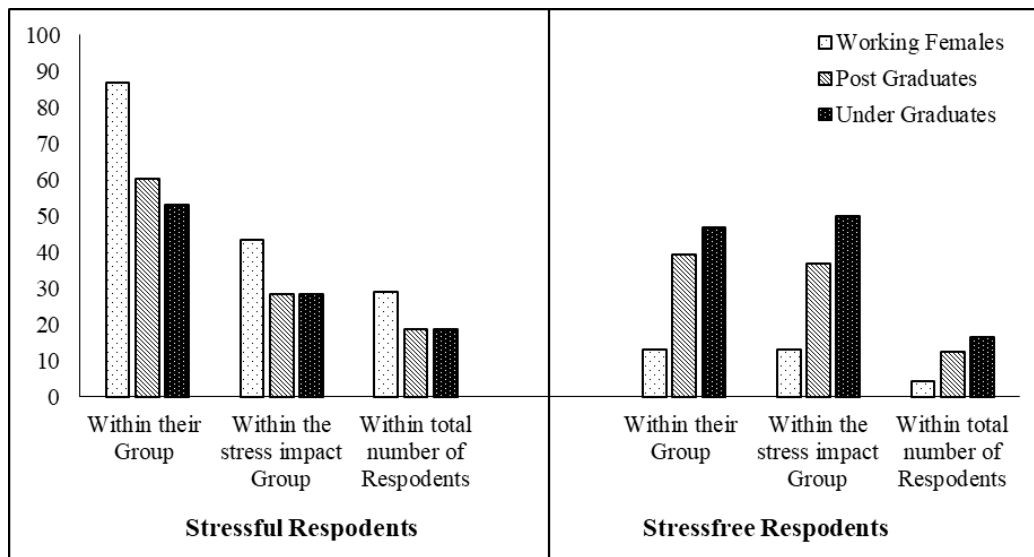


Figure 1 Comparative representation of respondents from stressful and stress-free category displaying prevalence of SM

Levels of stress were also found to exhibit its relationship with the type of accommodations chosen by these young females to live in. As per feedback from the responders, their preferences were to have more independent abodes like IRF (32%) or P.G. (28%) in comparison to little restricted ones like IH (21%). A small fraction of these females preferred to share their RH (5.8%) in the city (Figure 2).

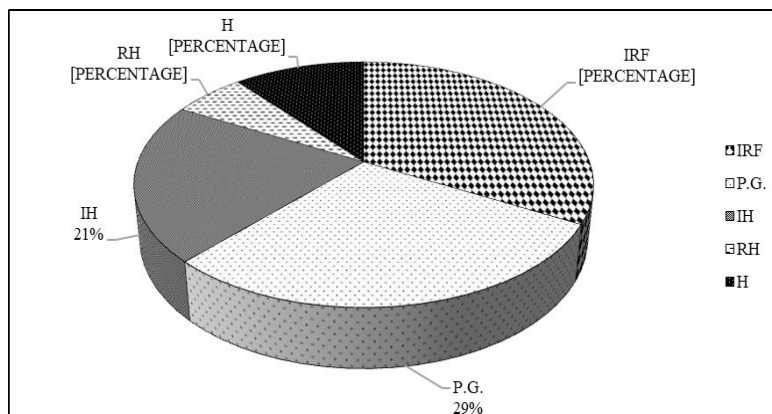


Figure 2 Percentage distribution of the respondents according to nature of their accommodation

It was revealed by the repliers that loneliness, lack of social security, absence of family warmth and enhanced responsibilities on the females living independently (IRF or P.G.) were found to feel more stressed than the ones living in their H or sharing RH (Figure 3). The ones staying in their own houses (H) too reported to perceive stressed due to their parental pressures as domestic workloads, family expectations and peer’s performance pressures.

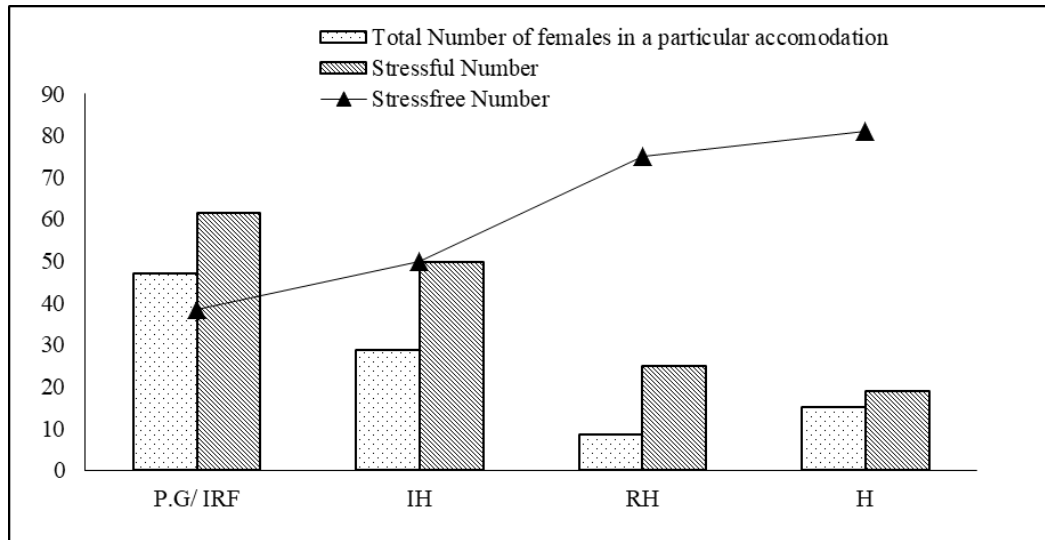


Figure 3 Percentage of respondents showing levels of stress according to their nature of the accommodations they live in

Consistency of distress, in majority of the cases, was found to manifest itself in the form of various health discomforts. The most common complaints from the informants were like incidents of headache, body ache, common cold and cough, fever, acidity, acne, body weight gains, irregular mensuration, painful mensuration etc. The W.F. population was found to face more ailments and even their re occurrences were also found more in the same group. More than 50% of the W.F. respondents complained of headaches, body aches, cold and cough and acidity. While slightly lesser number for acne, fever and infections, 1/4th of them complained of dysmenorrhoea and the least number of females from this group were facing issues related to overweight or obesity (Figure 4). The youngest of all respondents (U.G. group) were found as the least suffering group.

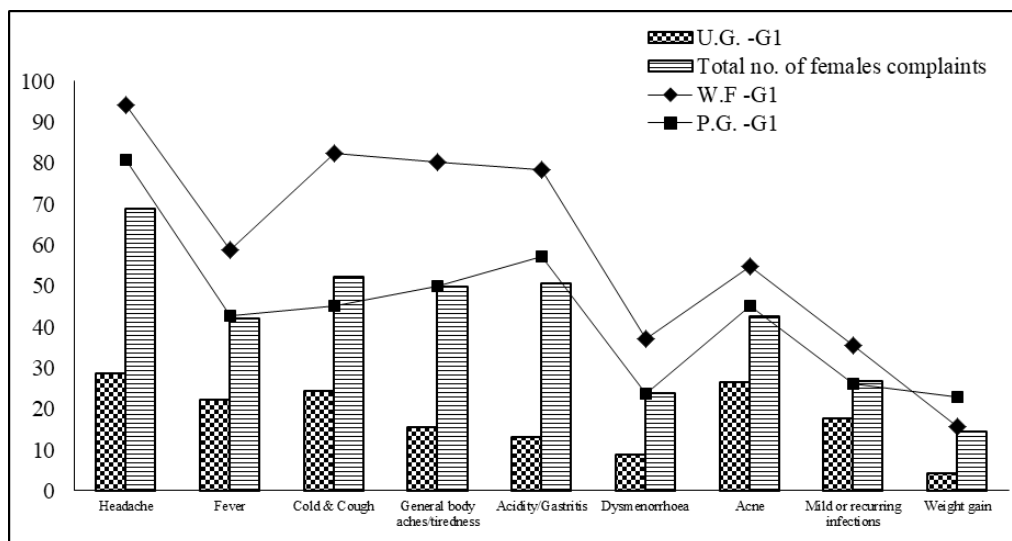


Figure 4 Percentage of respondents for various health discomforts

Health discomforts and their repetitiveness were found to show a direct influence on the inclinations towards SM practices. The trends of SM were observed both in stressful (>65%) and stress free (>30%) groups, though much higher

in the former population. A declining trend in SM was observed from WF to P.G to U.G. students (Figure 5). It may also be related with better stress bearing physical capacities of younger females than older ones.

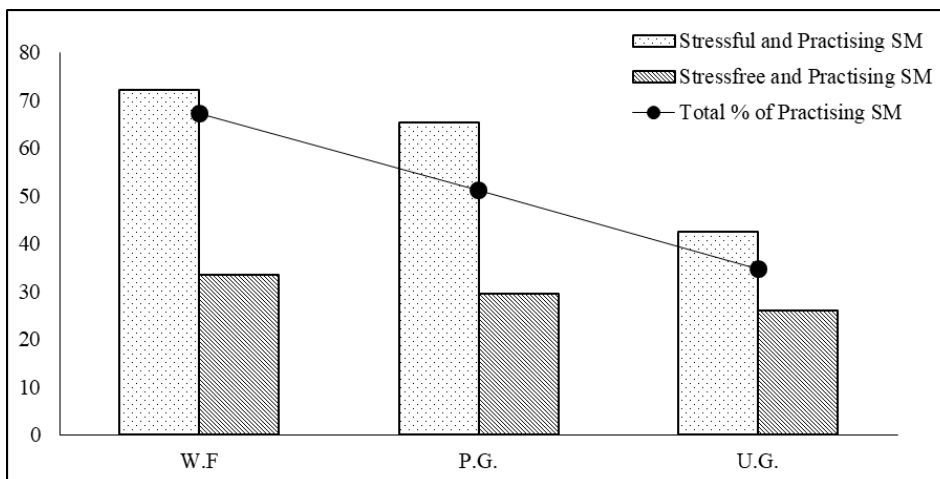


Figure 5 Percentage comparison of stressful and stress free groups practicing SM

The most frequently occurring malaises reported by the respondents were pains, cold and cough, fever and acidity but the most frequently used drugs by these young females were variety of dermatological applications followed by drugs to cure cold and cough, common allergies and pains. More than 50% of the respondents were found consuming variety of analgesics, antipyretic and syrups and tablets for cold and cough. Antacids were mainly used by the elderly population (W.F.). Use of weight reduction formulations were the least observed trends (Figure 6).

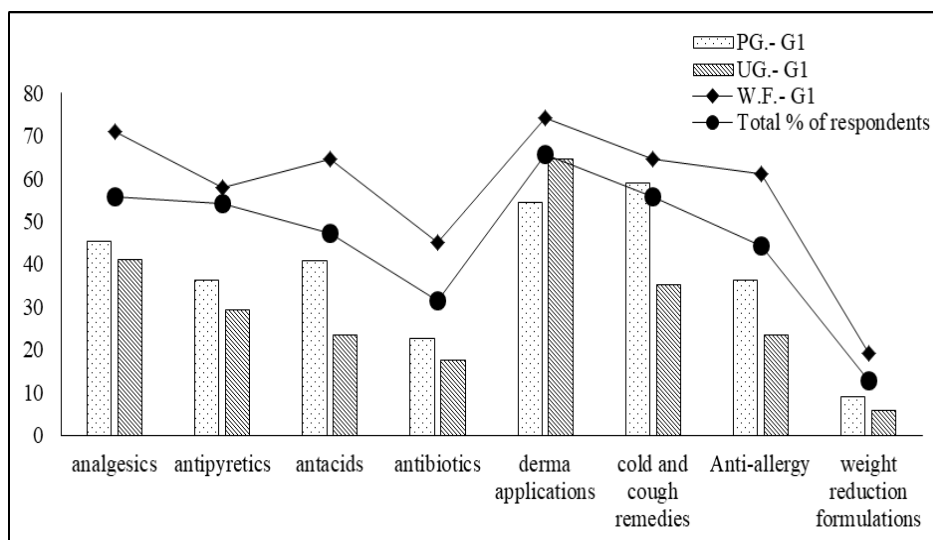


Figure 6 Percentage comparison of drugs used under SM practices

The frequency of drug intake was found corresponding to the reoccurrence of health discomforts and the urgency to get well soon. Some of the drugs were found used by the responders on a daily basis while others were on SOS (Figure 7). Such trends are alarming for antibiotics, analgesics and antacids, especially in the case of females, whose bodies respond more negatively to the drugs of abuse than their male counterparts. A unique inclination of the use of varied dermatological applications was observed in all three groups under study on a routine basis to treat acne, get rid of facial hair and acne scars. The skin lightening, anti-wrinkle, anti-ageing were other group of cosmetic chemicals used preferably by the elderly group (W.F.). These gels, creams, ointments, pills, masks, capsules were again found in more usage amongst the subjects who witnessed higher stress levels.

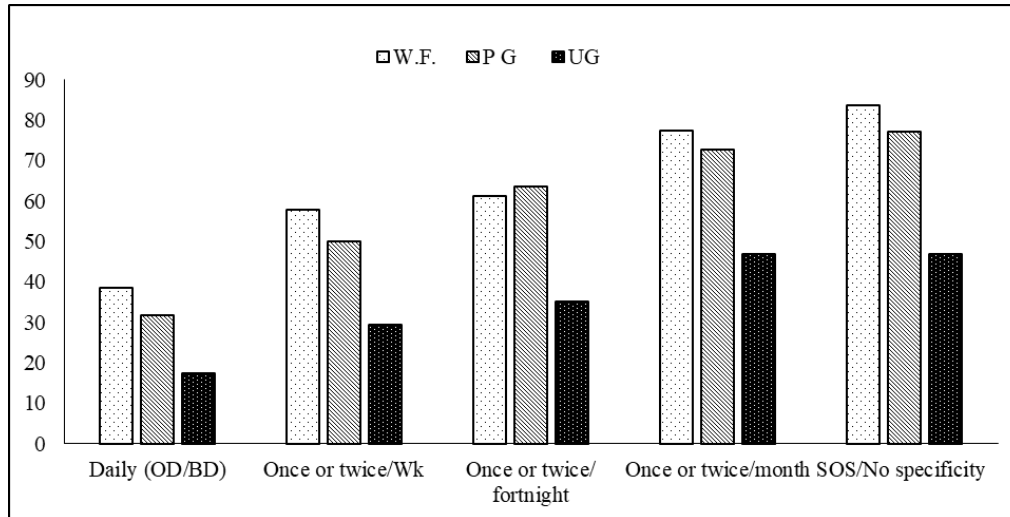


Figure 7 Percentage comparison of frequency of drug intake under SM practices

The study indicated that these rising trends of SM in our society were mainly due to an easy access to the OTC drugs. Pharmacists (28%) were found to play an important role in promoting this menace. The rising trend of e-pharmacy or use of internet (26%) was found the main source of information for the self-diagnosis of diseases, self-interpretation of symptoms and self-prescriptions of the drugs. Practice of SM was found highly dependent on previous prescriptions (25%) and consultation from friends and family (23%) (Figure 8).

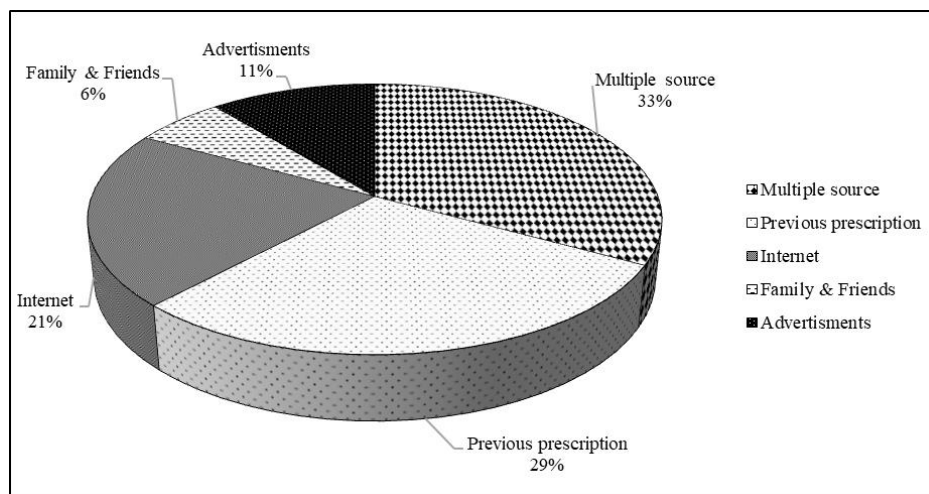


Figure 8 Comparison of respondents according to the source of information for SM practices

4. Discussion

The present study found that more than 60% of the young females (64.49%) chose for the practice of SM, though its trends were prevailing more in the stressed responders (73.92%) than non-stressed (45.65%). Kumar *et al.* [22] reported a much higher prevalence (92.8%) of SM practices in an urban colony in the south district of Delhi. On the similar lines Gupta and Singh [28] conducted a study to assess the prevalence, practices and perceptions of self-medication amongst the young (age 18-20 years) first year health care students (medical and dental sciences) from northern India and found almost similar trend (92.7%) of self-medication practices. Trends of higher level (73.6%) of the prevalence of SM was reported by Jain *et al.* [29] among the general population in an urban area of southern Rajasthan. Jamshed *et al.* [30] found the occurrence of this practice in more than 50% (57.2%) of Malaysian female students in the institutions of higher education. Ebrahimi *et al.* [31] found increased incidences of SM (63.9%) amongst young women before the pregnancy than during pregnancy period. Limaye *et al.* [32] found that urban households go for more (urban; 51.5%) frequent usage of non-prescribed drugs than rural (7.7%) population in Maharashtra. Mathias *et al.* [27] observed the around 50% of female adolescents in South Karnataka practicing SM. Some lower trends of SM

were also observed by some workers. Aylew [33] in his review study found that on an average 36.8% of the Ethiopian population was practicing SM and such trends were more common in females. Selaraj *et al.* [34] found that only 11.7% of the urban household communities in Puducherry.

In the current study age, work-profile, loneliness, lack of social security, availability of information and resources of drugs were found to be significantly related to the rising trends of SM among young females in the city. Similar relationships in the younger populations were observed by other workers also [4,19,22,27,29].

Accelerating trends of SM were observed more in the females facing more frequent health discomforts. The re-occurrence of these health issues further reinforces the practice of SM amongst them. In the current study the health troubling issues like headaches, acidity, general body aches, cold and cough, acne, frequent fever, and infections were found as the recurrent forces pushing these young females to get trapped in the vicious cycle of SM. Headache has been found as a universal factor responsible for inculcating the habit of SM [1,14,29,35].

The data from the present study indicated that the most common drugs of abuse were found belonging the category of pain killers (NSA IDs- Non-Steroidal Anti Inflammatory Drugs), cold and cough pills, syrups and drops and a variety of antacids including proton pump inhibitors (PPIs) followed by anti-histamines and antibiotics. Similar trends had also been reported in few other studies [1,3,14,27,28,30,31,32,33].

The most potential sources of information of drug for SM had been found as pharmacists, previous prescriptions, friends and family. The same trends have also been documented by earlier works too both from the urban and rural areas in India [1,3,4,10,14,28,32]. But the present study has found the prominent role of the internet, social media and peers in promoting the habit of SM among the young and educated females in Chandigarh. Some workers have even reported the use of drugs for major ailments like heart diseases, diabetes, cancer, psychological and GIT (Gastro intestinal tract), COVID-19 etc. [1,4,30]. Such inclinations were reported due leaning on internet for all types of information by our youngsters. But no such observation was found by the current authors.

5. Conclusion

A variety of personal, professional and societal pressures are victimising the young females' of the city beautiful, Chandigarh, to become victims of distress and hence SM. The trends were found to prevail more amongst working females than the fresh college students (first year). Easy access to OTC drugs, promotion by pharmacists, the flood of information on various social web sites, peer group's sharing were the main forces driving these stressed youngsters to opt for such practices. The tendencies of SM were mainly to meet personal, professional and academic expectations. Such trends of self-diagnosis and self-prescription of drugs should be catered seriously and some strict guidelines need to be established to curb this rising trend.

Compliance with ethical standards

Acknowledgments

Authors are highly thankful to both the institutions (All American Institute of Medical Sciences, Jamaica, West Indies and DAV College, Punjab University, Chandigarh, India) for giving ample opportunity to collect data and frame the manuscript. We are equally thankful to the respondents for their time devotion and cooperation in data collection.

Disclosure of conflict of interest

The authors declare that there is no conflict of interest.

Statement of informed consent

Informed consent was obtained from the individual participant included in this study. No animal is used in this study and direct intervention was not performed.

References

- [1] Ahmad A, Patel I, Mohanta GP, Balkrishnan R. Evaluation of self medication practices in rural area of town Sahaswan at Northern India. *Annals of medical and health sciences research*. 2014; 4(8): 73-8.

- [2] Onchonga D, Omwoyo J, Nyamamba D. Assessing the prevalence of self-medication among healthcare workers before and during the 2019 SARS-CoV-2 (COVID-19) pandemic in Kenya. *Saudi Pharmaceutical Journal*. 1 oct 2020; 28(10): 1149-54.
- [3] Blanchard J, Solaipandian M, John EB, Pandith M, Jeo B, Saji S, Kumar A, May L, Davey K, Douglass K, Smith J. Self-prescribing of antibiotics by patients seeking care in Indian emergency departments. *Journal of the American College of Emergency Physicians Open*. Apr 2021; 2(2): e12432.
- [4] Agarwal T, Agarwal V, Agarwal P, Sharma D. Use of internet for practice of self-medication: We are heading toward an era of internet pharmacy. *Medical Journal of Dr. DY Patil Vidyapeeth*. 1 Jan 2021; 14(1): 36.
- [5] Davies JN. Self-medication and patent medicines. *British medical journal*. 15 Jul 1944; 2(4358): 87.
- [6] Chopra D, Bhandari B, Sidhu JK, Jakhar K, Jamil F, Gupta R. Prevalence of self-reported anxiety and self-medication among upper and middle socioeconomic strata amidst COVID-19 pandemic. *Journal of Education and Health Promotion*. 2021; 10.
- [7] Gazzaniga MS, Heatherton TF, Halpern DF. *Psychological Science* (3rd ed.). New York: W.W.Norton & Company. 2010.
- [8] Goyal M. Indian women most stressed in the world: Nielsen survey. *Economic Times*. 29 Jun 2011.
- [9] Casarella J. *The effects of stress on your body*. 2019.
- [10] Gupta P, Bobhate PS, Shrivastava SR. Determinants of self-medication practices in an urban slum community. *Asian J Pharm Clin Res*. 2011; 4(3): 54-7.
- [11] Giaconia RM, Reinherz HZ, Silverman AB, Pakiz B, Frost AK, Cohen E. Traumas and posttraumatic stress disorder in a community population of older adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*. 1 Oct 1995; 34(10): 1369-80.
- [12] McEwen BS, Sapolsky RM. Stress and cognitive function. *Current opinion in neurobiology*. 1 Apr 1995; 5(2): 205-16.
- [13] Kreek MJ, Koob GF. Drug dependence: stress and dysregulation of brain reward pathways. *Drug and alcohol dependence*. 1998.
- [14] Kher V. Rising incidences of self-medication in India is a major concern. 2020.
- [15] Pandey D, Gedam D. Self-medication: Rising trends. *Public health Rev: Int J Public health Res* 2015; 2(4): 61-62.
- [16] Hazarika K, Bharali K, Kumar N, Lahon J. Evaluation of self-medication practices among undergraduate medical students in a medical institute of North India. *National Journal of Physiology, Pharmacy and Pharmacology*. 2021; 11(8): 890-894.
- [17] World Health Organization. *Action Programme on Essential Drugs: report of the seventh Management Advisory Committee Meeting, Geneva, 21-22 March 1995*. World Health Organization. 1995.
- [18] Amoako EP, Richardson-Campbell L, Kennedy-Malone L. Self-medication with over-the-counter drugs among elderly adults. 2003; 10-15.
- [19] Keshari SS, Kesarwani P, Mishra M. Prevalence and pattern of self-medication practices in rural area of Barabanki. *Indian J Clin Pract*. Dec 2014; 25(7): 636-9.
- [20] Goel D, Gupta S. Self-medication patterns among nursing students in North India. *Reason*. Jan 2013; 16: 15-24.
- [21] Tesfamariam S, Anand IS, Kaleab G, Berhane S, Woldai B, Habte E, Russom M. Self-medication with over the counter drugs, prevalence of risky practice and its associated factors in pharmacy outlets of Asmara, Eritrea. *BMC public health*. Dec 2019; 19(1): 1-9.
- [22] Kumar V, Mangal A, Yadav G, Raut D, Singh S. Prevalence and pattern of self-medication practices in an urban area of Delhi, India. *Medical Journal of Dr. DY Patil University*. 1 Jan 2015; 8(1): 16.
- [23] Mathur N. Nearly 50% of India's working women more stressed due to pandemic: LinkedIn. 2020.
- [24] Verma R, Balhara YP, Gupta CS. Gender differences in stress response: Role of developmental and biological determinants. *Industrial psychiatry journal*. Jan 2011; 20(1): 4.
- [25] Hewlett SA, Rashid R. Why are India's women so stressed out?. 2011.
- [26] Bennadi D. Self-medication: A current challenge. *Journal of basic and clinical pharmacy*. Dec 2013; 5(1): 19.

- [27] Mathias EG, D'souza A, Prabhu S. Self-Medication Practices among the Adolescent Population of South Karnataka, India. *Journal of Environmental and Public Health*. 7 Sep 2020.
- [28] Gupta S, Singh M. Self-medication among North Indian first-year undergraduate healthcare students: A questionnaire-based study. *Trop J Med Res*. 1 Jul 2016; 19(2): 162-7.
- [29] Jain M, Prakash R, Bapna D, Jain R. Prevalence and pattern of self-medication practices in urban area of southern Rajasthan. *Ntl J of Community Med*. Oct 2015; 6(4): 474-7.
- [30] Jamshed SQ, Wong PS, Yi HC, Yun GS, Khan MU, Ahmad A. Self-medication practices among female students of higher educational institutions in Selangor, Malaysia: A quantitative insight. *Journal of pharmacy & bioallied sciences*. Jul 2016; 8(3): 217.
- [31] Ebrahimi H, Atashsokhan G, Amanpour F, Hamidzadeh A. Self-medication and its risk factors among women before and during pregnancy. *Pan African Medical Journal*. 8 Aug 2017; 27(1).
- [32] Limaye D, Limaye V, Fortwengel G, Krause G. Self-medication practices in urban and rural areas of western India: a cross sectional study. *International Journal of Community Medicine and Public Health*. 2018; (5 (7)): 2672-85.
- [33] Ayalew MB. Self-medication practice in Ethiopia: a systematic review. *Patient preference and adherence*. 2017; 11: 401.
- [34] Selvaraj K, Kumar SG, Ramalingam A. Prevalence of self-medication practices and its associated factors in Urban Puducherry, India. *Perspectives in Clinical Research*. Jan 2014; 5(1): 32.
- [35] Fauzi MF, Anuar TS, Teh LK, Lim WF, James RJ, Ahmad R, Mohamed M, Abu Bakar SH, Mohd Yusof FZ, Salleh MZ. Stress, anxiety and depression among a cohort of health sciences undergraduate students: the prevalence and risk factors. *International journal of environmental research and public health*. Jan 2021; 18(6): 3269.