

Prevalence of Internet Addiction among Students at an Indian Higher Educational Institution and some proposed Yogic Prescriptions for its mitigation

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KEY WORDS

Internet Addiction
Yoga Therapy
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ABSTRACT

Introduction: The Internet is integral to modern life, but its overuse harms health and is treated as an addiction. This study aimed to explore the prevalence of Internet Addiction (IA) among university students and propose an integral yoga prescription for its prevention and treatment.

Methods: Young's Internet Addiction Test was used to rate IA among 154 participants (Mean Age \pm SD: 21.52 \pm 1.57, 84 males and 70 females) randomly sampled from the University of Patanjali (UoP) in May 2018. The study was approved by the Institutional Ethics Committee of the UoP (UOP/IEC/2018/01-A).

Results: The Cronbach's α , 0.765 computed from the current study, indicated its applicability in the Indian context. Of 154 participants, 27.27%, 53.25%, and 19.48% were found with normal, mild, and moderate IA, respectively. The mean \pm SD and level of IA were (42.66 \pm 11.48; 11.69% normal, 57.14% mild, 31.17% moderate) for urban participants and (35.59 \pm 11.48; 42.86% normal, 49.35% mild, 7.79% moderate) for rural participants, respectively. The mean \pm SD and level of IA were (37.85 \pm 12.56; 33.33% normal, 48.81% mild, and 17.86% moderate) for males and (40.67 \pm 11.14; 20% normal, 58.57% mild, 21.43% moderate) for females, respectively. The mean \pm SD and level of IA for postgraduate and undergraduate students were (39.02 \pm 12.12; 23.81% normal, 58.33% mild, 17.86% moderate) and (39.26 \pm 11.89; 31.43% normal, 47.14% mild, 21.43% moderate), respectively.

Conclusions: Female participants in the sample had greater IA. Higher IA, even among yoga students, warrants need of prescribing a preventive and therapeutic yoga lifestyle. The rationally proposed integral yoga lifestyle prescription described herein covering proper cleansing techniques, poses, breath regulations, seals, gestures, meditations, and dietary and lifestyle tips for preventing and mitigating IA, is to be tested in further research.

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Introduction

The use of the internet for shopping, business, travel, research, learning, entertainment and particularly social networking via E-mail, Facebook™, Twitter, LinkedIn, Whatsapp, Telegram, Instagram, Google+, YouTube, etc., has drastically altered human lifestyle, behaviour, health and productivity. Increased self-confidence, frequent communication with family and friends, and feelings of empowerment are some positive consequences of internet use (1). However, internet use may also result in compulsive overuse, described as Internet Addiction (2) (IA). Specifically, internet use for more than 19 hours per week is called IA, as reported by Kimberly Young in 1996 (3,4). IA is an impulse control disorder without intoxicating drug use (5).

College-going students have been more prone to IA (6) due to their online teaching-learning schedule supporting excessive internet use (7). Teenagers using the internet for long hours may paradoxically result in social isolation, self-distance, and family conflicts (8). College students with

weak self-management and cognitive capabilities who use the internet for social networking and studies are more prone to IA (9). Depressed girls are more prone to IA than depressed boys (10).

Internet-addicted teens have shown physical aggression toward parents when they try to divert them from online gadgets, and adults have faced marital conflicts/breakdowns. Research and clinical practices have also reported negative consequences of IA in adolescents due to their unmanaged lifestyle (11). The other adverse effects of IA are marital conflicts, sleep deprivation, poor dietary habits, poor work performance, isolation, dullness, false speaking, personality change, decreased libido, social withdrawal, self-neglect, family conflict, depression, anger, anxiety disorders, suicidal tendency, backache, obesity, vein thrombosis, and pulmonary embolus (8); and impaired cognitive growth/development and functioning (12). India holds the second rank globally in internet users, with 481 million in December 2017, expected to be 500 million by June 2018 (13). Thus, IA is a growing concern in India.

Yoga as a mind-body-spirit practice has been a preventive and therapeutic measure of various psychological, somatic, psychosomatic, and somato-psyche health problems (14). Yoga therapy (YT) empowers individuals to progress toward improved health and well-being by applying the philosophy and practices of yoga (15). The three accepted benefits of yoga are improved psychosomatic efficiency, cleansing of psychosomatic planes, psychic centres and energy channels, and paranormal attainments (16). Body, breath, mind, diet, lifestyle, and environment are six essential factors of YT (15). Yoga and meditation have been indicated for substance abuse and addictive behaviours due to their potential impacts on reducing stress, addictive behaviours, mood swings, depression, and anxiety; and optimising psychological health, consciousness, self-awareness, self-esteem, self-efficacy and person-to-environment interactions (17). Supporting this notion, a 3-month yoga program administered to 45 internet addicts significantly improved their body pain, sleep, appetite, communication, and outside recreational activities (18). Yoga practice induces relaxation associated with decreased arousal, deactivated stress response system, and improved physical and mental well-being (19,20). Therefore, this study aimed to compute the reliability of Young's Internet Addiction Test in the Indian population and explore the prevalence of IA among a specific cohort of Indian higher education students. Additionally, we propose a rationally valid integral yoga lifestyle prescription for preventing/managing IA that is to be tested in a future study.

Materials and method

Participants, design and setting

A cross-sectional survey on IA was conducted among 154 postgraduate (PG) and undergraduate (UG) yoga students randomly selected from the University of Patanjali (UOP), Haridwar, in May 2018. Of 154 participants (Males/Females: 84/70, UG/PG: 84/70) aged 17 to 29 (Mean \pm SD: 21.52 \pm 1.57) years, proportionate counts were selected from urban and rural areas. The participants had been practising yoga for at least six months. Baseline data on IA was generated by administering a self-report Internet Addiction Test (IAT) developed by Young (21) after taking their informed consent. Participants spent 5–10 minutes to complete IAT. The study was approved by the Institutional Ethics Committee of the UOP (UOP/IEC/2018/01-A).

Measure

IAT is the 5-point Likert scale with 20 items to be rated as 0, 1, 2, 3, 4, and 5 if the given behaviour is applicable, rarely applicable, occasionally applicable, frequently applicable, often applicable, and always applicable in the user's life. IAT includes six factors—salience (10, 12, 13, 15, and 19); excessive use (1, 2, 14, 18, and 20); neglect work (6, 8, and 9); anticipation (7,11); lack of control (5, 16, and 17); and neglect of social life (3 and 4). Overall, Cronbach's α , 0.88 (22) computed for IAT, indicated it is a reliable psychometric measure of IA (23). Cronbach's α and Spearman-Brown coefficients calculated from the current sample were 0.765 and 0.737.

Data analysis

SPSS (21st version) was used to compute the descriptive statistical measures—mean, standard deviation, and frequency in count and percentage.

Results

Table 1 depicts the prevalence of IA among all participants and compares the prevalence between male and female, urban and rural, and PG and UG participants. Table 2, Table 3 and Table 4 display mean \pm SD for six factors and aggregate IA in terms of gender, region and educational programme.

Yoga lifestyle prescription for preventing and mitigating IA

Cleansing practices: Jala Neti and Trataka (24).

Postures: Pawanmuktasana (anti-rheumatic series) with mild bhastrika (24), Tadasana, Adhomukha Svanasana, Uttanasana, alligator twists (25), Vajrasana, Vipreetakarani, Shashankasana and Shavasana (24).

Breath regulations: Alternate nostril breathing (20), crown breath (Dhrti-Sakti-Vikasaka) (26), the breath of fire (27–29), Kapalabhati, Ujjayi, Bhramari, and Moorcha (24).

Locks and Gestures: Jalandhar Bandha and Moola Bandha, Gyan Mudra, Shambhavi Mudra, Khechhari and Nashikagra Mudra (30,31).

Meditation: Meditation on the breath (20) and five elements (32).

Dietary recommendations

Breakfast: carbohydrates (oats, wheat flakes, whole-grain bread), proteins (egg, yoghurt, milk, and sprouts), fruits and

Table 1: Frequency in count (C) and percentage (%) based on interpretation norms of IAT

Interpretation ranking	Male		Female		Urban		Rural		PG		UG		Total	
	C	%	C	%	C	%	C	%	C	%	C	%	C	%
Below 30	28	33.33	14	20.00	9	11.69	33	42.86	20	23.81	22	31.43	42	27.27
31–49	41	48.81	41	58.57	44	57.14	38	49.35	49	58.33	33	47.14	82	53.25
50–79	15	17.86	15	21.43	24	31.17	6	7.79	15	17.86	15	21.43	30	19.48
Above 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 2: Region-wise mean \pm SD for factors and total IA

Descriptive measures	Mean \pm SD		Range	
	Urban	Rural	Urban	Rural
IAT Factors				
Saliency Questions	10.52 \pm 3.73	8.82 \pm 3.21	18-2	16-0
Excessive Use	11.05 \pm 3.80	9.57 \pm 3.81	20-2	20-0
Anticipation	4.32 \pm 2.19	2.91 \pm 1.66	10-0	8-0
Lack of Control	8.18 \pm 2.84	6.83 \pm 3.13	15-3	15-0
Neglect Social Life	2.42 \pm 1.88	2.06 \pm 1.44	7-0	6-0
Neglect Work	6.17 \pm 3.23	5.40 \pm 2.79	14-1	13-0
Total IAT	42.66 \pm 11.48	35.59 \pm 11.48	68-21	70-0

Table 3: Gender-wise mean \pm SD for factors and total IA

Descriptive measures	Mean \pm SD		Range	
	Male	Female	Male	Female
IA				
Saliency Questions	9.00 \pm 3.38	10.46 \pm 3.65	18-0	18-1
Excessive Use	10.00 \pm 3.97	10.69 \pm 3.72	20-0	20-2
Anticipation	3.23 \pm 1.78	4.09 \pm 2.29	9-0	10-0
Lack of Control	7.45 \pm 3.06	7.57 \pm 3.07	15-0	14-1
Neglect Social Life	2.32 \pm 1.55	2.14 \pm 1.84	6-0	7-0
Neglect Work	5.83 \pm 3.033	5.73 \pm 3.05	14-0	13-0
IAT	37.85 \pm 12.56	40.67 \pm 11.14	70-0	67-21

Table 4: Program-wise mean \pm SD for factors and total IA

Statistical measures	Mean \pm SD		Range	
	PG	UG	PG	UG
IA				
Saliency Questions	9.69 \pm 3.53	9.64 \pm 3.65	18-0	17-1
Excessive Use	10.37 \pm 4.03	10.24 \pm 3.68	20-0	20-2
Anticipation	3.65 \pm 2.20	3.57 \pm 1.91	10-0	9-0
Lack of Control	7.57 \pm 3.20	7.43 \pm 2.89	15-0	14-3
Neglect Social Life	2.11 \pm 1.55	2.40 \pm 1.82	7-0	6-0
Neglect Work	5.63 \pm 3.09	5.97 \pm 2.96	14-0	13-0
IAT	39.02 \pm 12.12	39.26 \pm 11.89	70-0	67-21

nuts (carrot, lemon juice, almonds, chia seeds, flax seeds, pumpkin seeds, apricots, walnuts, figs, raisins) (33), drinks (green tea) (34-36).

Lunch: Cereals (2 cups rice+2 chapattis), pulses- 0.5 cups, and vegetables (0.75 cups cooked + salad), curd- 0.5 cups/butter-milk- 1 glass, oily fish (salmon, mackerel, herring, kippers, sardines) (37-39).

Dinner: Cereals (2 cups rice +2 chapattis), pulses- 0.5 cups, vegetables (0.75 cups cooked + salad) (40), 1 teaspoon glutamine powder with cold water at bed time (34,35,37,39).

Lifestyle tips

The below lifestyle tips from Ayurvedic Swasthavritta help to prevent and mitigate IA (41,42).

- *Ushapan* drinking water immediately after waking in the early morning (at least 30 to 40 minutes before sunrise) detoxifies the body, removes constipation, and boosts psychosomatic health.
- Using collyrium (powders of a conch shell, *Samudraphone*, marine oyster shell, crystal, ruby, coral, *Asmantaka*, lapis lazuli, pearl, iron, copper, and antimony mixed in equal parts and then stuffed in a ram's horn), (43) daily prevents and moderate eyes problems. About 3-minute cold water eye irrigation in the morning and after meals with a blown mouth releases eye tension and strain.
- Medicated oil application (Shadvindu Taila) (44) into nostrils by fingers improves the gleam of skin and strength of the shoulders, neck, face, and chest preventing early hair whitening and neck stiffness, locked jaw, frequent headache, facial palsy, etc.
- Medicated oil (*Ksheera Bala tail*) (44) massage over the body, especially on the head, ears, and feet, moisturises the skin, nourishes the tissues, delays ageing, improves vision, and induces sound sleep.
- Familial support, parents' positive attitude, and parent-child solid relationship may prevent and mitigate IA (21).

Discussion

Of 154 yoga students surveyed, 27.27%, 53.25% and 19.48% exhibited normal, mild and moderate IA with no extreme addiction cases. There was a higher prevalence of IA in participants from urban backgrounds than in rural locations. This higher IA in urban areas might be due to higher internet facilities or the economic status of urban dwellers as compared to rural dwellers (45). The IA was higher in females as compared to males. Chiu et al. consistently reported higher IA in female students than males in Taiwan's schools (46).

Conversely, Shek et al. reported high internet addictive behaviour in high school male adolescents compared to females in Hong Kong's schools (47). The higher rate of IA in female students might be due to the selection of more female students from the urban area compared to males. In urban areas, economic status and technological access are better than in rural areas. The higher mean IA value in urban participants than in rural ones shows an immediate need for IA prevention via lifestyle prescription implementation among urban students. The mild IA was higher in PG than UG students, but moderate IA was more in UG than PG students.

Yoga and meditation have been effective treatments for substance abuse and addictive behaviours through their potential impacts on numerous psychological, behavioural and physical components (48). Based on CBT and extant research findings on yogic efficacies for preventing and managing addictions, an integral yogic prescription is rationally proposed hereunder.

Jala Neti (rinsing nasal passages with saline water) and Trataka (one-pointedness externally/internally) are prescribed yogic cleansing techniques to improve IA (49). Jala Neti has a soothing effect on the brain, moderates migraine and depression and induces freshness to remove the drowsiness (24). It enhances eyesight, and mitigates defective vision, nervous instability, insomnia, and mental fluctuations (31,39).

The gentle practice of anti-rheumatic series (Pavanmuktasana) loosens joints, reduces musculoskeletal stiffness, and may be indicated for frequently reported symptoms of IA—neck pain, backache, poor dietary habits, eye problems, and anxiety (21). Tadasana provides steadiness and better awareness. Adhomukhasana, Uttanasana, and Svanasana soothe the nervous system and relieve back stiffness (24,51). Alligator twists tone the liver and pancreas, remove excess trunk fat and improve digestion (25). Vajrasana practice after the meal helps improve digestive function and eases mind control (24). Vipreetakarani channelises pranic flow to purify the subtle body, which helps prevent somatic diseases and sublimate sexual energy from lower to higher centers (24). Shashankasana relaxes the sciatic nerve, soothes anger, and moderates sexual disorders. Savasana relaxes the whole psychophysiological system (24).

Breath regulation is one of the essential yogic practices for controlling the mind and easing addiction recovery (48). Breath of fire is found to be supportive of addiction recovery (52). Subsequent exhalations in Kapalbhata clear the nasal passages, and airways, remove psychic morbidity and tranquillise the mind (24). The practice of Ujjayi stimulates the baroreflexes to set a parasympathetic tone (53). Bhramari mitigates anxiety, anger, and stress and improves awareness (54). Morcha is indicated for anxiety, obsessions, compulsions and phobias. Alternate nostril breathing soothes the mind, synchronises the mind flow and the breath, and balances the sympathetic and parasympathetic tone (20). Crown breath (Tatha dhrti sakti vikasaka) empowers the psycho-immunity and will (26). Jalandhar Bandha stimulates baroreflex and interferes with blood flow in vertebral arteries resulting in reduced anxiety and stress. In contrast, Moola Bandha activates the external anal sphincter (EAS), ischiocavernosus, bulbospongiosus, perineal muscles, the urethral sphincter, and the pelvic diaphragm and pudendal nerve leading to improved psychosexual function (24,55,56). The fMRI recorded cerebral cortical control areas and brain activities during sustained wilful contraction of EAS (for 10 sec) were multifocal at anterior cingulate, prefrontal, parietal, occipital, and insular regions (57) and invariably recommended for neuropsychiatric problems—depression, emotional traumas, anxiety, phobias, obsessions, hysteria, suppressed desires, psychosexual dysfunctions, and impaired neuroendocrine secretions (56). Breath awareness and Jnana Mudra magnify postural benefits. Shambhavi and Nashik Agra Mudra strengthen eye muscles, mitigate stress and anger, and enhance mental concentration (24). Meditation transcends painful events in life and leads to a degree of happiness and calmness (20). Meditation on the breath induces self-awareness and peace.

A balanced dietary prescription proposed for internet addicts may improve their irregular dietary habits and nutritional deficiencies. Healthy lifestyle tips recommended from Ayurvedic Swasthavritta—waking in the early morning, defecation, cold water eye irrigation, nasal insufflation, yoga exercise, and massage may improve eye health, sleep, headache, musculoskeletal pain, somatic and psychic morbidities.

The administration of the proposed yoga prescription may be more productive by considering the appropriate teaching method, individual differences; region, body constitution, age, disposition, occupation, mental and bodily capacities, and ideology of the internet addicts, along with the optimal time (seasons, timing, and duration of yoga practice) to realise its expected benefits (16). As part of the selected sample, the unequal ratio of male and female students from UG and PG might have affected the overall prevalence of IA among university students. Future studies should include a proportionate sample regarding education level and gender.

Conclusion

The Internet Addiction Test developed by Young was applicable to the sampled university students. Mild IA was found in these students, with differences in prevalence correlated with their gender, education level, and region of upbringing. The higher IA in females and urban participants suggests the need for developing an inexpensive and standard yoga lifestyle prescription (YLP) as proposed herein. The efficacy of the proposed YLP for overcoming IA needs to be validated in further interventional studies.

Ethical statement

Ethical approval was obtained from the Institutional Ethics Committee of Patanjali University, Haridwar, India (Approval no. UoP/IEC/2018/01-A) dated 18/May/2018.

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Authors' contribution

RBB: Conception, Study Design, Literature Review, Data Analysis, Manuscript Writing and Editing.

RC: Literature review, data collection, compilation and collation.

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Conflict of interest

The authors declare no conflicts of interest regarding research, and authorship.

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References

- Chakraborty K, Basu D, Vijaya Kumar KG. Internet addiction: Consensus, controversies, and the way ahead. *East Asian Archives of Psychiatry*. 2010;20(3):123–132.
- Kuss DJ, Lopez-Fernandez O. Internet addiction and problematic Internet use: A systematic review of clinical research. *World Journal of Psychiatry*. 2016;6(1):143. <https://doi.org/10.5498/WJP.V6.I1.143>
- Sharma KD, Gupta ID, Sharma V, Sharma R, Sharma D. Internet Addiction Pattern among High School Students of Jaipur City: A Descriptive Study. *International Multispecialty Journal of Health*. 2016;2(5):25–31.
- Maurya S, Singh KN. Relationship between Psychological Aspects and Internet Addiction: A Review. *International Journal of Advanced Ayurveda, Yoga, Unani, Siddha and Homeopathy*. 2015;2(1):16–19.
- Mahanty B, Mishra G. Internet Addiction and Estimation Procedure, Among Computer and Medical Professional Students: A Cross Sectional Study Odisha, India. *International Journal of Biomedical Materials Research*. 2016;4(1):1–5. <https://doi.org/10.11648/j.ijbmr.20160401.11>
- Kuss DJ, Griffiths MD, Binder JF. Internet addiction in adolescents: Prevalence and risk factors. *Computers in Human Behavior*. 2013;29(5):959–966. <https://doi.org/10.1016/j.chb.2013.04.002>
- Sharma A, Sahu R, Kasar PK, Sharma R. Research Article Internet Addiction among Professional Courses Students: A Study from Central India. *International Journal of Medical Science and Public Health*. 2014;3(9). <https://doi.org/10.5455/ijmsph.2014.180620142>
- Flisher C. Getting plugged in: An overview of Internet addiction. *Journal of Paediatrics and Child Health*. 2010;46:557–559. <https://doi.org/10.1111/j.1440-1754.2010.01879.x>
- Bagdey P, Adikane H, Narlawar U, Dhage D, Kishor S, Kaware A. A Cross Sectional Study on the Prevalence of Internet Addiction and Its Association with Mental Health Among College Going Students in Nanded City. *International Journal of Community Medicine and Public Health*. 2018;5(4):1658–1665. <http://dx.doi.org/10.18203/2394-6040.ijcmph20181252>
- Ha Y-M, Hwang WJ. Gender Differences in Internet Addiction Associated with Psychological Health Indicators Among Adolescents Using a National Web-based Survey. *International Journal of Mental Health and Addiction*. 2014;12(5):660–669. <https://doi.org/10.1007/s11469-014-9500-7>
- van Rooij AJ, Zinn MF, Schoenmakers TM, van de Mheen D. Treating Internet Addiction With Cognitive-Behavioral Therapy: A Thematic Analysis of the Experiences of Therapists. *International Journal of Mental Health and Addiction*. 2012;10(1):69–82. <https://doi.org/10.1007/s11469-010-9295-0>
- Kuss DJ, Van Rooij AJ, Shorter GW, Griffiths MD, Van De Mheen D. Internet addiction in adolescents: Prevalence and risk factors. *Computers in Human Behavior*. 2013;29(5):1987–1996. <https://doi.org/10.1016/j.chb.2013.04.002>
- Agarwal S. Internet users in India expected to reach 500 million by June: IAMAI. <https://economictimes.indiatimes.com/tech/internet/internet-users-in-india-expected-to-reach-500-million-by-june-iamai/articleshow/63000198.cms>. Published February 20, 2018.
- Jeter PE, Slutsky J, Singh N, Khalsa SBS. Yoga as a Therapeutic Intervention: A Bibliometric Analysis of Published Research Studies from 1967 to 2013. *The Journal of Alternative and Complementary Medicine*. 2015;21(10):586–592. <https://doi.org/10.1089/acm.2015.0057>
- Mohan G. Exploring Yoga as Therapy. *International Journal of Yoga Therapy*. 2006;16:13–19. <https://doi.org/10.17761/ijyt.16.1.eg82344786245592>
- Miller R. Yoga Therapy: Definition, Perspective and Principles. International Association of Yoga Therapists. Published 2013. Accessed December 13, 2018. <https://www.iayt.org/page/YogaTherapy>
- Khalsa SBS, Khalsa. Evaluation of a residential Kundalini Yoga lifestyle pilot program for addiction in India. *Journal of Ethnicity in Substance Abuse*. 2008;7(1):67–79. <https://doi.org/10.1080/15332640802081968>
- Sharma MK, Bhargav H. Yoga as an adjunct modality for promotion of healthy use of information technology. *International Journal of Yoga*. 2016;9(2):176–177. <https://doi.org/10.4103/0973-6131.183706>
- Khalsa SBS, Khalsa GS, Khalsa HK, Khalsa MK. Evaluation of a residential Kundalini Yoga lifestyle pilot program for addiction in India. *Journal of Ethnicity in Substance Abuse*. 2008;7(1):67–79. <https://doi.org/10.1080/15332640802081968>
- McCall T. *Yoga as Medicine: The Yogic Prescription Fond Healing*. Bantam Dell; 2007.
- Young KS. *Internet Addiction: A Handbook and Guide to Evaluation and Treatment*. (Young KS, Abreu CN de, eds.) John Wiley & Sons, Inc.; 2011.
- Frangos, Constantinos C., Frangos CC, Sotiropoulos I. A Meta-analysis of the Reliability of Young's Internet Addiction Test. In: *Proceedings of the World Congress on Engineering 2012*. Vol I. WCE; 2012:8–11. http://www.iaeng.org/publication/WCE2012/WCE2012_pp368-371.pdf
- Widyanto L, McMullan M. The Psychometric Properties of the Internet Addiction Test. *CyberPsychology & Behavior*. 2004;7(4):443–450. <https://doi.org/10.1089/cpb.2004.7.443>
- Satyanda S, Saraswati SS. *Asana Pranayama Mudra Bandha*. Bihar School of Yoga; 1995.
- Frawley D, Kozak SS. *Yoga for Your Type: An Ayurvedic Approach to Your Asana Practice*. New Age Books; 2001.
- Brahmachari D. *Yogic Suksha Vyayama: The Complete Sequence of 48 Yogic Exercises*. 2nd ed. Vishwayatan Yogashram; 1965.
- Fields GP. *Religious Therapeutics: Body and Health in Yoga, Ayurveda, and Tantra*. State University of New York Press; 2001.
- Rama S. *Path of Fire and Light: Advanced Practices of Yoga*. Vol 1. The Himalayan Institute Press; 1996.
- Rama S. *Path of Fire and Light*. Vol 2. Himalayan Institute Press; 2007.
- Saraswati SS. *A Systematic Course in the Ancient Tantric Techniques of Yoga and Kriya*. Yoga Publications Trust; 2004.
- Sivananda S. *The Bhagavad Gita: Word-to-Word Meaning, Translation and Commentary*. 11th ed. The Divine Life Society; 2003.
- Browne C. *Natural Therapies for Overcoming Opioid Dependency*. Storey Publishing; 2018.
- Tiwari M. *Ayurveda: A Life of Balance- The Complete Guide to Ayurvedic Nutrition and Body Types with Recipes*. Motilal Banarsidass; 2005.
- Holford P, Burne J. *Food Is Better Medicine than Drugs*. Hachette Digital; 2006.
- Frawley D, Lad V. *The Yoga of Herbs: An Ayurvedic Guide to Herbal Medicine*. 2nd ed. Lotus Press; 2008.
- Amr M, El-Mogy A, Shams T, Vieira K, Lakhan SE. Clinical Nutrition Clinical: The Interface Between Metabolism, Diet, and Disease. In: Coles L, ed. Apple Academic Press; 2014.
- Holford P, Braly J. *How to Quit Without Feeling S**T*. Hachette Digital; 2008.
- Frawley D. *Ayurvedic Healing*. Motilal Banaridass Publishers; 1994.
- Stanfield PS, Hui YH. *Nutrition and Diet Therapy: Self-Instructional Approaches*. Jones and Bartlett Publishers; 2010. <https://doi.org/10.1017/CBO9781107415324.004>
- Mudambi SR, Rajagopal MV. *Fundamentals of Foods, Nutrition and Diet Therapy*. 5th ed. New Age International (P) Limited, Publishers; 2007.
- Ketabi SR. *Idiot's Guides: Ayurveda*. Dorling Kindersley Limited; 2017.
- Shiva SS. *The Ayurveda Encyclopedia: Natural Secrets to Healing, Prevention & Longevity*. Ayurveda Holistic Center Press; 2005.
- Bhishagratna KL. *An English Translation of The Sushruta Samhita*. Vol III. S. L. BAHADURI, B. L.; 1916. <https://doi.org/10.1121/1.1856273>
- Lavekar GS, ed. *A Practical Handbook of Panchakarma Procedures-Central Council for Research in Ayurveda and Siddha*. Central Council for Research in Ayurveda and Siddha; 2009.

45. Xin M, Xing J, Pengfei W, Houru L, Mengcheng W, Hong Z. Online activities, prevalence of Internet addiction and risk factors related to family and school among adolescents in China. *Addictive Behaviors Reports*. 2018;7(June 2017):14–18. <https://doi.org/10.1016/j.abrep.2017.10.003>
46. Chiu S-I, Hong F-Y, Chiu S-L. An Analysis on the Correlation and Gender Difference between College Students' Internet Addiction and Mobile Phone Addiction in Taiwan. *ISRN Addiction*. 2013;1–10. <https://doi.org/10.1155/2013/360607>
47. Shek DTL, Yu L. L Internet Addiction Phenomenon in Early Adolescents in Hong Kong. *The Scientific World Journal*. Published online 2012:1–9. <https://doi.org/10.1100/2012/104304>
48. Simpkins AM, Simpkins CA. *Meditation and Yoga in Psychotherapy: Techniques for Clinical Practice*. 2011th ed. John Wiley & Sons, Inc.; 2011.
49. Raghavendra BR, Singh P. Immediate effect of yogic visual concentration on cognitive performance. *Journal of Traditional and Complementary Medicine*. 2016;6(1):34–36. <https://doi.org/10.1016/j.jtcme.2014.11.030>
50. Sarswati SS. *Asana Pranayama Mudra Bandha*. 8th ed. Yoga Publications Trust; 2015.
51. Iyengar BKS. *Yoga: The Path to Holistic Health*. 1st ed. Dorling Kindersley; 2001.
52. Rosen T. *Recovery 2.0 Move Beyond Addiction and Upgrade Your Life*. Hay House Publishers India; 2014. doi: <https://doi.org/oct,2014>
53. Brown RP, Gerbarg PL. Sudarshan Kriya Yogic Breathing in the Treatment of Stress, Anxiety, and Depression: Part I—Neurophysiologic Model. *The Journal of Alternative and Complementary Medicine*. 2005;11(1):189–201. <https://doi.org/10.1089/acm.2005.11.189>
54. Vialatte FB, Bakardjian H, Prasad R, Cichocki A. EEG paroxysmal gamma waves during Bhramari Pranayama: A yoga breathing technique. *Consciousness and Cognition*. 2009;18(4):977–988. <https://doi.org/10.1016/j.concog.2008.01.004>
55. Coulter HD. *Anatomy of Hatha Yoga: A Manual for Students, Teachers and Practitioners*. Body and Breath; 2001.
56. Buddhananda S. *Moola Bandha: The Master Key*. Yoga Publications Trust; 2011.
57. Kern MK, Arndorfer RC, Hyde JS, Shaker R. Cerebral cortical representation of external anal sphincter contraction: Effect of effort. *American Journal of Physiology – Gastrointestinal and Liver Physiology*. 2004;286(2):G304–11. <https://doi.org/10.1152/ajpgi.00201.2003>