Content available at: https://www.ipinnovative.com/open-access-journals

IP Indian Journal of Clinical and Experimental Dermatology

Journal homepage: www.ijced.org/

Original Research Article

Effect of hyperhidrosis on quality of life and its correlation with anxiety

Prabhnoor Monga[1], Mukesh Manjhi[1], Vivek Sagar[2], Azra Ferheen Chaudhary[3]*, Sneha Mohan[4]

[1]*Hamdard Institute of Medical Sciences and Research, New Delhi, India*
[2]*Dept. of Dermatology, Venereology, and Lepros, Dr. Baba Saheb Ambedkar Medical College and Hospital, Rohini, New Delhi, India*
[3]*Dept. of Dermatology, School of Medical Sciences & Resarch, Sharda University, Greater Noida, Uttar Pradesh, India*
[4]*Government Institute of Medical Sciences, Greater Noida, Uttar Pradesh, India*

ARTICLE INFO

Article history:
Received 14-06-2024
Accepted 08-10-2024
Available online 04-11-2024

Keywords:
Hyperhidrosis
quality of life
anxiety
STAI
psychosocial impact

ABSTRACT

Background: Hyperhidrosis, characterized by excessive sweating beyond thermoregulatory needs, affects about 3% of the global population. This condition, often underreported and underdiagnosed, significantly impairs quality of life (QoL) and may correlate with increased anxiety.
Aim & Objective: This study explores the impact of hyperhidrosis on QoL and examines its correlation with anxiety levels among affected individuals.
Materials and Methods: A qualitative and correlational study was conducted over two months, involving 70 participants who met inclusion criteria from an initial screening of 366 individuals. Data were collected using a QoL questionnaire and the State-Trait Anxiety Inventory (STAI). Participants were recruited through snowball sampling from a dermatology department and social networks.
Results: Of the 70 participants, 91.4% reported that excessive sweating adversely affected their daily lives. Key areas impacted included physical activities (37.1%), hobbies and chores (50%), work and career (24.3%), use of technology (37.5%), physical discomfort (62.8%), and clothing choices (50%). Psychosocial effects were substantial, with 88.6% of participants experiencing negative emotions, 78.5% reporting nervousness and lack of self-confidence, and 82.8% avoiding social interactions. STAI results indicated that 11.4% had no or low anxiety, 52.8% had moderate anxiety, and 35.7% had high anxiety. The severity of hyperhidrosis correlated with higher anxiety levels.
Conclusion: Hyperhidrosis profoundly impacts QoL and is strongly associated with elevated anxiety levels. Despite its significant effects, there is a lack of awareness and understanding of hyperhidrosis among sufferers and healthcare providers. Enhancing awareness and implementing appropriate interventions are crucial to improve the QoL and mental health of individuals with hyperhidrosis.

1. Introduction

Hyperhidrosis is defined as excessive production of sweat, that is, more than is required for thermoregulation. It can be defined gravimetrically as greater than 2 standard deviations above mean values of sweat secretion for a normal population in various sites (palmar 50 mg/min/m2, plantar 50 mg/min/m2, axillary 150 mg/min/m2 and facial 50 mg/min/m2).

It is estimated that approximately 3% of the world's population suffers from this condition.[1] Normal sweating is considered essential for thermoregulation but in the case of hyperhidrosis, this sweating majorly exceeds the body's

* *Corresponding author*.
E-mail address: aferheen@gmail.com (A. F. Chaudhary).

https://doi.org/10.18231/j.ijced.2024.072

need for physiological thermal regulation.[1] Based on the distribution of sweat it can be either systematic or localized and on basis of the cause of sweating it can be a primary or secondary hyperhidrosis.[2]

Hyperhidrosis is a social, emotional, and occupational disability that results in a decreased quality of life.[3–7] Several studies talk about what primary and secondary hyperhidrosis is and their occurrence.[2,3,8] Few articles discuss the affected quality of life of individuals (HidroQoL) in college students.[1,9] Previous studies employing qualitative methods have reported negative emotions among patients and substantially impaired QoL such as limitations in daily activities, social relationships, study, work, and emotional well-being.[10–15] Often people feel isolated and feel like they are the only ones with this problem.[16]

Hyperhidrosis in general is underreported by the patients and left underdiagnosed by the health care professionals due to a lack of knowledge based on this topic. The general population is seldom aware of this condition and sparsely seeks medical attention. Patients in general often try various over-the-counter remedies before approaching a general practitioner.[17] The tropical climate and the environment also influence and aggravate this condition. A lot of patients' first approach is to try and modify their lifestyle and get themselves adapted to this problem. This population may also be vulnerable to mental health conditions. There is thus a major need for practitioners to not only understand this silent disorder but also be aware of how to deal with it.[2]

Creating awareness will immensely help in understanding the hardships one has to go about in even daily chores. An in-depth understanding of the extent and nature of daily life and quality of life of various individuals suffering from hyperhidrosis and its correlation with mental health issues like anxiety especially in a developing country like India is still lacking. A qualitative study including semi-structured interviews, and online surveys along with the use of inventories like the STAI would definitely give us an insight into the subject, their lifestyle, and how they are affected by hyperhidrosis physically, socially, and mentally.

2. Aims and Objective

Assess the impact of hyperhidrosis on quality of life across different age groups and occupational sectors.

Investigate the correlation between hyperhidrosis and anxiety levels compared to the general population.

3. Materials and Methods

3.1. Study design

Type of Study Qualitative investigation and correlational study.

3.2. Duration of study

20th August 2022 to 20th October 2022. (02 months).

3.3. Study participants

Were recruited after screening as per our inclusion and exclusion criteria from the department of Dermatology of the hospital associated with the college the student is enrolled at and also from school and college acquaintances, family, and friends.

3.4. Inclusion criteria

This included individuals of the age of 15 years and above, self-reported cases of excessive sweating over a course of at least 6 months without any apparent cause.

3.5. Exclusion criteria

This included individuals with excessive sweating related to a specific underlying health issue (based on self-report or late onset of sweating along with the presence of other known health conditions or use of medication known to be associated with sweating).

3.6. Sample size

Initial screening of 366 individuals was conducted via the screening questionnaire out of which a few were selected in accordance with the inclusion and exclusion criteria and were thereafter inducted as participants in the study. The sample size came to be around 70.

3.7. Sampling

Snowball sampling was employed in the study. The sampling strategy was such, as to aim at including patients of hyperhidrosis of all severity levels, and areas of involvement and catering to different demographics.(Figure 1)

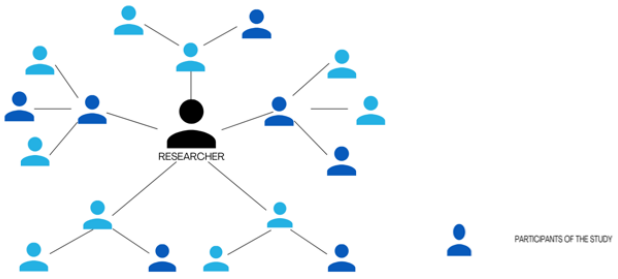

Figure 1: Snowball sampling

3.8. Recruitment of the participants

It was purely by application of resources available i.e about 400 people were approached which included the outpatients of the dermatology department of the hospital and the via the existing social media platforms. They were further asked to spread information about the study on their own social media platforms (if they were willing) to make the most of the opportunity and to be able to recruit more participants. Around 366 people diligently took part in the screening out of which a small proportion of 70 was finally recruited as participants based on the results of the screening.(Figure 2)

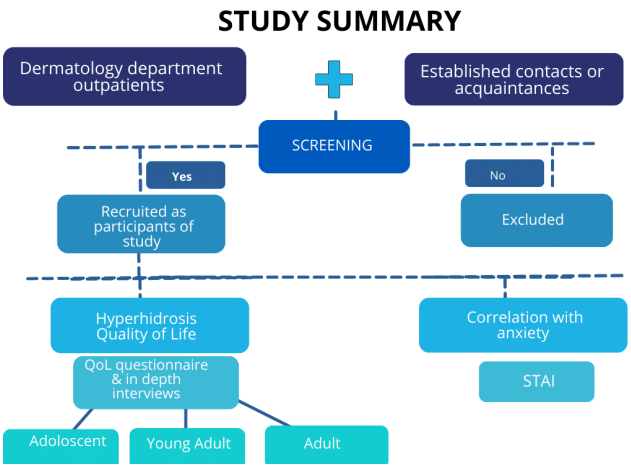

Figure 2: Study summary

3.9. Methodology

Initially, an online screening process via a series of questions was initiated. The screening took place with the help of a questionnaire which was presented as a Google form and sent forth. Around an average of 366 people filled out the initial screening questionnaire of which about 70 fulfilled the criteria for further investigation.

Those that fulfilled the screening criteria were then contacted and sent a participant information sheet for their further recruitment as participants of the study and their informed consent was taken. Once informed consent had been obtained an online survey was conducted using the QoL questionnaire allowing us to explore the various facets of the life of the participants and how homogenous and reflectively heterogeneous the experiences of different participants were about living with hyperhidrosis.

The recruited participants were also asked to partake in the State-Trait Anxiety Inventory (STAI) to help us establish a correlation between hyperhidrosis and the prevalence of anxiety in them.

3.10. Ethical considerations and confidentiality

1. This research was carried out only after clearance from the Institutional Ethics Committee (IEC) of the concerned college.
2. Informed consent was duly obtained before the participation and recruitment of the subject in the study.
3. The data identifying each individual by name was kept confidential and was accessible only to the researcher.
4. The investigator may publish the results of the study.

4. Results

A total of 70 people out of the initial 366 who were screened for the study responded with a yes to the question of whether they experience an excessive amount of sweating, which came out to a bare of 19.1% of the total.

Out of the 70 participants of the study who experienced an excessive amount of sweating, different people had different responses on how it affected them and their everyday life. (Table 1)

1. 6 of 70 never really noticed it and said that their sweating never really interfered with their daily activities.
2. 36 of 70 felt that their sweating was tolerable but sometimes it did tend to interfere with their daily activities.
3. 15 out of 70 felt that their sweating was barely tolerable and frequently interfered with their daily activities.
4. 13 out of 70 felt their sweating was intolerable and always interfered with their daily activities in some way or the other.

Table 1: Sweat tolerance

Sweat tolerance	Number of participants	Percentage
Not affected	6	8.6%
Tolerable	36	51.4%
Barely tolerable	15	21.4%
Intolerable	13	18.6%

Out of the 70 participants who experience an excessive amount of sweating, a bare minimum of 8.6% felt that their daily activities were not hampered by their condition. The rest 91.4% felt that the excessive amount of sweating took a toll on their daily life in varied forms. (Table 2)

1. 26 participants out of 70 (37.1%) felt that their physical activities were affected quite a lot as a result of excessive sweating.
2. 35 participants (50%) felt that their hobbies and everyday chores were gravely affected and many

avoided performing or acting out even certain simple household tasks like cooking, cleaning, and ironing

3. 17 of the participants (24.3%) felt that their work and career decisions were affected. They felt major interference in the performance of tasks at work or school; the majority regarded this as the most important impact of the condition as it changed the whole trajectory of who they were and what they did for a living.
4. 27 participants (37.5%) found it either slightly or majorly difficult to use touch technology due to their excessive sweating
5. 44 participants (62.8%) faced physical discomfort and skin problems in relation to an excessive amount of sweating.
6. 35 participants (50%) felt that their choice of clothing and footwear was majorly affected more so by their sweating instead of the weather.
7. 10 of 70 participants (14.3%) also agreed to the fact that their holiday planning was affected
8. 37 of the participants (52.8%) worried about the additional chores brought to the surface in response to dealing with their condition.
9. 39 of the participants (55.7%) worried about the additional time and money that went into dealing with it.

Table 2: Effect on daily life

Aspects of daily life Effected	Number of participants	Percentage
Physical activity	26	37.1
Hobbies and chores	35	50
Work and career	17	24.3
Use of technology	27	37.5
Physical discomfort and skin problems	44	62.8
Clothing and footwear	35	50
Holiday planning	10	14.3
Additional chores	37	52.8
Additional time and money	39	55.7

Along with the daily life of individuals the psychosocial life of the individuals is also affected in varied aspects due to hyperhidrosis.(Table 3)

1. 62 out of 70 (88.6%) of the participants associated negative emotions with the excessive amount of sweating that they experienced including frustration, embarrassment etc.
2. 55 out of 70 (78.5%) of the participants felt nervous in performing any task, careful of what others might say and lacked confidence.
3. 58 participants (82.8%) avoided social interactions and tried to run as far away from them as they could. Being the centre of attraction and various curious faces looking at them and pitying them with the basic concern of their condition was not something most of the participants appreciated and found it comforting being away and on their own.
4. 47 participants (67.1%) often worried about what people would say, how they would react.
5. 39 participants of 70 (55.7%) found it really hard expressing affection physically and were extremely uncomfortable doing so. They avoided it to the best they could and hoped people would understand
6. 30 participants of 70 (42.8%) avoided public speaking , escaping from the eyes of others.
7. 28 participants of 70 (40%) were concerned about their appearance, how they would look and how others would perceive them.
8. 42 participants (60%) worried about leaving sweat marks and dripping through their clothes.
9. 49 participants of 70 (70%) felt that sweating was a constant burden and it was always at the back of their mind

Table 3: Effect on psychosocial life

Effect on psychosocial life	Number of participants	Percentage
Associated negative emotions	62	88.6
Nervousness and lack of self-confidence	55	78.5
Avoiding social interactions	58	82.8
Worry about others' perceptions	47	67.1
Uncomfortable physically expressing affection	39	55.7
Avoid public speaking	30	42.8
Appearance and intimacy	28	40
Worry about sweat marks	42	60
Constant burden at back of mind	49	70

The State-Trait Anxiety Inventory assesses both state and trait anxiety separately. Low scores on the test indicate a mild form of anxiety and high scores are indicative of a severe form of anxiety. There are two forms of the STAI, one for children, and one for adults. The scale is useful for many different socio-economic backgrounds and groups and therefore can be utilized for many people.

On getting our 70 subjects to fill out the STAI, the following were the results.(Table 4)

1. 8 (11.4%) of the study population have a score lying between 20-37 which is indicative of a low score and thus corresponds to NO OR LOW ANXIETY.
2. 37(52.8%) of the participants have a score lying between 38-44, which is indicative of a moderate score and thus corresponds to MODERATE ANXIETY.

3. 25(35.7%) of the participants have a score lying between 45-80 which is indicative of a high score and corresponds to HIGH ANXIETY.

Table 4: STAI

Severity of anxiety	Number of participants	Percentage
Low or no Anxiety	8	11.4
Moderate Anxiety	37	52.8
High Anxiety	25	35.7

Depicted above are the results of effect of excessive sweating and the result of STAI respectively, we can now interpret the correlation between hyperhidrosis and anxiety and confirm. According to our study, 8.4% of participants didn't really notice it and reported not really being bothered by it. In a similar fashion, 11.4% of individuals were reported to have NO or LOW ANXIETY. 51.4% of the participants tolerated their sweating and reported interference with their daily activities either sometimes. This comes to being consistent with the 52.8% of the participants that reported MODERATE ANXIETY. 40% of the participants felt that either their sweating was intolerable or only barely tolerable or that it frequently or most often always interfered with their daily activities. This was consistent with the 35.7% of the participants that had HIGH ANXIETY. With these stats in mind, a clear interpretation of hyperhidrosis being associated with anxiety can be made. [18]

5. Conclusion

Our study as a whole suggests that hyperhidrosis affects various to almost all aspects of a person's life but what might come as a shock is the fact that the very people who suffer from hyperhidrosis are not really aware of what it is and they go through its consequences on a daily basis.

Hyperhidrosis not only affects all aspects of an individual's life but also predisposes the individuals that suffer from it to high amounts of stress, and anxiety. They don't know whom they can talk to or where they can go for help. They consider the fact that no one else really understands what they go through and that there's no treatment out there for this condition. Creating awareness about hyperhidrosis amongst people, and breaking down the stigmas/myths associated with it is integral.

6. Summary

Hyperhidrosis is a benign disorder, that is rare and is less known and understood however, it does affect a small percentage of people and affects their quality of life and psychosocial well-being. The overhanging question that formed the basis of the study was how it affected various aspects of an individual's life, their quality of life, and how it correlated to anxiety along with increasing its awareness amongst the general public.

The results were conclusive with the fact that hyperhidrosis impaired day-to-day activities and in doing so had a negative impact on quality of life. The results showed that associated negative emotions like embarrassment, frustration, and nervousness become second nature. People who experienced excessive sweating reported being self-conscious and having low self-esteem, and self-confidence. Some people even reported them avoiding any kind of social situations, and being in the public eye entirely pertaining of the fear of judgment and being ridiculed by others. The results were consistent with very few people approaching a doctor for their condition, those who did were suggested how they could greatly benefit from counseling and therapy in reducing the burden and dealing with excessive sweating during all aspects of their lives.

7. Source of Funding

None.

8. Conflict of Interest

None.

References

1. Muthusamy A, Gajendran R, Ponnan S, Thangavel D, Ranga V. Dinesh Thangavel, and Venkatesan Rangan A Study on the Impact of Hyperhidrosis on the Quality of Life among College Students. *J Clin Diagn Res*. 2016;10(6):8–10.
2. Lenefsky M, Rice ZP. Hyperhidrosis and its impact on those living with it. *Am J Manag Care*. 2018;24(23):491–5.
3. Moraites E, Vaughn O, Hill S. Incidence and prevalence of hyperhidrosis. *Dermatol Clin*. 2014;32(4):457–65.
4. Lima SO, Aragao JF, Neto JM, Almeida KBS, Menezes LMS, Santana VR, et al. Research of primary hyperhidrosis in students of medicine of the state of Sergipe, Brazil. *An Bras Dermatol*. 2015;90(5):661–5.
5. Rystedt A, Brismar K, Aquilonius SM, Naver H, Swartling C. Hyperhidrosis - an unknown widespread "silent" disorder. *J Neurol Neuromed*. 2016;1(4):25–33.
6. Zur E. Eyal Zur Topical Treatment of Primary Focal Hyperhidrosis, Part 1. *Int J Pharm Compd*. 2019;23(1):23–31.
7. Nawrocki S, Cha J. The etiology, diagnosis, and management of hyperhidrosis: A comprehensive review: Therapeutic options. *J Am Acad Dermatol*. 2019;81(3):669–80.
8. Fujimoto T, Kawahara K, Yokozeki H. Epidemiological study and considerations of primary focal hyperhidrosis in Japan: from questionnaire analysis. *J Dermatol*. 2013;40(11):886–90.
9. Kamudoni P, Mueller B, Salek M. The development and validation of a disease-specific quality of life measure in hyperhidrosis: the Hyperhidrosis Quality of Life Index (HidroQOL©). *Qual Life Res*. 2015;24(4):1017–27.
10. Kamudoni P, Mueller B, Halford J, Schouveller A, Stacey B, Salek MS, et al. The impact of hyperhidrosis on patients' daily life and quality of life: a qualitative investigation. *Health Qual Life Outcomes*. 2017;15(1):121. doi:10.1186/s12955-017-0693-x.
11. Rice ZP, Pieretti LJ, Wheeler A, Payne J, Gillard KK, Devlin T, et al.. Quality of Life Impact and Awareness of Primary Focal Hyperhidrosis in Children and Adolescents; 2020. Available from: QOL_impact_and_awareness_of_primary_focal_hh_in_children.pdf.
12. Rice ZP, Pieretti LJ, Wheeler A, Payne J, Gillard KK, Devlin T, et al.. Characterization of Disease Awareness and Coping Strategies in Primary Focal Hyperhidrosis: Qualitative Focus

Group Results in Children, Adolescents, and Young Adults; 2020. Available from: https://www.sweathelp.org/pdf/2020%20-%20Rice,%20Pieretti%20etc%20-%20Characterization%20of%20Disease%20Awareness%20and%20Coping%20Strategies%20in%20Primary%20Focal%20Hh%20qualitative%20focus%20group%20results%20in%20children.pdf.
13. Strutton DR, Kowalski JW, Glaser DA, Stang PE. US prevalence of hyperhidrosis and impact on individuals with axillary hyperhidrosis: results from a national survey. *J Am Acad Dermatol*. 2004;51(2):241–8.
14. Bahar R, Zhou P, Liu Y, Huang Y, Tim AP, Lee K, et al. The prevalence of anxiety and depression in patients with or without hyperhidrosis (HH). *J Am Acad Dermatol*. 2016;75(6):1126–33.
15. Nilsson S, Buchholz M, Thunberg G. Assessing Children's Anxiety Using the Modified Short State-Trait Anxiety Inventory and Talking Mats: A Pilot Study. *Nurs Res Pract*. 2012;2012:932570. doi:10.1155/2012/932570.
16. Gingerich CP. Hyperhidrosis Associated with Higher Anxiety, Depression, ADD. In: Glaser DA, editor. American Academy of Dermatology; 2019. Available from: https://www.hcplive.com/view/hyperhidrosis-associated-with-higher-anxiety-depression-add/1000.
17. Wade R, Rice S, Llewellyn A, Moloney E, Jones-Diette J, Stoniute J, et al. Interventions for hyperhidrosis in secondary care: a systematic review and value-of-information analysis. *Health Technol Assess*. 2017;21(80):1–280.
18. Golics C, Basra M, Finlay A, Salek M. Adolescents with skin disease have specific quality of life issues. *Dermatology*. 2009;218(4):357–66.

Author's biography

Prabhnoor Monga, Student https://orcid.org/0009-0006-5872-7159

Mukesh Manjhi, HOD https://orcid.org/0009-0002-3282-607X

Vivek Sagar, Assistant Professor https://orcid.org/0009-0005-3121-0160

Azra Ferheen Chaudhary, Assistant Professor https://orcid.org/0000-0001-7497-5212

Sneha Mohan, Assistant Professor https://orcid.org/0009-0005-8563-0179

Cite this article: Monga P, Manjhi M, Sagar V, Chaudhary AF, Mohan S. Effect of hyperhidrosis on quality of life and its correlation with anxiety. *IP Indian J Clin Exp Dermatol* 2024;10(4):409-414.