

Original Article

Prevalence of Self-Diagnosis among Nepalese College Students

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Abstract: Practice of diagnosing oneself with medical condition or disorder without confirmation by official diagnostician through the usage of various symptoms checker websites, assurance from one's sources, books, magazines; apps and artificial intelligence chatbots to diagnose oneself with doubted medical condition, acute or chronic comes under self-diagnosis. This study determined the prevalence of self-diagnosis among Nepalese college students, was to examine the self-diagnosis habits and attitude of the students towards self-diagnosis in the absence of a registered doctor, physician or psychiatrist. A cross-sectional survey was conducted among N=408 college students of Kathmandu valley. A google form was designed with both close ended and open-ended questions to collect data. SPSS v20 was used to develop data file and descriptive statistical tools are used to analyze the collected data. Weighted average mean was calculated to develop attitude variable with four five-point Likert scale items. The study revealed that majority of Nepalese college students (76.5%) use Google as their main search engine for self-diagnosis. Friends and family members are the option of Nepalese students for self-diagnosis of their illness. The finding of the study suggested that most of Nepalese college students (66.7%) have doubt on accuracy of self-diagnosis through internet. The result of the study portrays that there is positive attitude towards self- diagnosis. Accuracy of self-diagnosis is still questionable, so self-diagnosis practice should be discouraged as sometimes it may provide false assurance to severe cases through mis-diagnosis. The positive attitude towards self-diagnosis among them indicates the future scope of internet of things in self-diagnosis. Accuracy of self-diagnosis is still questionable, so self-diagnosis practice should be discouraged as sometimes it may provide false assurance to severe cases through mis-diagnosis. The study identified limited evidence on the diagnostic accuracy of self-diagnosis. Awareness regarding negative impact of self-diagnosis and symptoms checking habits is necessary. Health literacy among the Nepalese people is essential, the study contributes in the literature of self-diagnosis. Policy makers should be aware towards discouraging self-diagnosing habits among Nepalese people.

Keywords: self-diagnosis, internet of things, attitude, illness, symptoms of disease, hypochondriac

1. INTRODUCTION

Self-diagnosis refers to the act of diagnosing oneself with medical conditions which may either be physical or mental with or without any biochemical, pathological, or other tests supporting it. The term self-diagnosis is somewhat misleading as those who self-diagnose rely on other information sources than themselves which sometimes may also be a healthcare professional or official diagnostician [1]. Key point is that self-diagnosis should not involve official diagnostician. It in the absence of a registered doctor, physician or psychiatrist. Self-diagnosis can be done with the use of proper kits as well, as seen during the COVID-19 pandemic. Many smartphone applications and web-based symptoms checker programs are also frequently used for self-diagnosis of minor illnesses such as cold, flu, skin rashes and

infections but their reliability still remains questionable. Samples taken are either processed at home or sent to a laboratory, and may offer screening, diagnosis, monitoring, or information about the risk of a disease. Many health organizations claim that such self-diagnosis kits are inadequate and are no substitute for a physician's diagnosis. [2,3]. The prevalence of self-diagnosis has been increasing among the social media users due to emerging self-diagnosis contents in social-media in last few years [4]. In digital era where any information regarding health, fitness, and general well-being are just a click away, rising use of online health-information, the term referring to 'Dr. google' is quite correlated [5]. Self-diagnosis can be helpful for minor illnesses as over-the-counter medicines can be accessed by people easily, however regarding the risk of differential diagnosis and mis-diagnosis, self-diagnosis done solely without proper tests and lab reports supporting it creates an environment of anxiety and fear among people. In Nepalese context, self-medication was common among people (78%) living in Kathmandu valley [6]. Another study done by [7] in Pokhara valley showed the prevalence of self-medication to be 38.2%. However, these studies also showed that people tend to self-medicate for treating and managing their minor symptoms like, headache, fever, cramps and pain rather than self-diagnosing oneself with a particular illness or medical condition. Self-diagnosis done without medical kits based solely upon self-examination of signs, symptoms, and unwell feelings is understood as self-diagnosis by the public vaguely. Using the internet technology to self-diagnose oneself with a particular illness often leads to undesired anxiety among people especially among those who are already "hypochondriacs". The term "cyberchondriac" has been coined to those people who are constantly worried of their symptoms that they found to be linked with either a particular illness or rather range of disorders they searched in the internet. People feel responsible for their own health and find the internet to be a source that provides information rapidly with accessibility at their convenience [8,9]. Self-diagnosis done using the internet leads to either unnecessary and constant worry about minor illnesses or leads the users to think their serious symptoms to be minor and nothing to be worried of which ends up creating further delay in provision of proper health care, sometimes emergency treatment; due to the false assurance provided by self-diagnosing websites [10]. Other than internet people seek their near ones to self-diagnose about their illnesses. Communication, simple conversations and greetings is also one-way people know about each other well-being within the community. It is more prevalent in rural context rather than in more urban cities where people are generally self-conserved. In context of Nepal, the ratio of health care professionals to the total population is still inadequate for all people to have easy access to medical advices and counselling, ignoring other constraints such as finances, geography, cultural interventions, etc. There are enough studies done on self-medication (SM) among people both inside Nepal and Outside Nepal, the study on self-diagnosing practices of the Nepalese people haven't been done or are not enough. Self-diagnosis and health information seeking through online is growing more common [9]. Thus, this study aims to find out the prevalence of self-diagnosing practices among Nepalese students. Nepalese students are familiar with internet of things after COVID-19 Pandemic, as during COVID-19 Pandemic most of the classes of the students at different levels were conducted by the educational institutions through online classes.

2. MATERIALS & METHOD

A cross-sectional study was conducted among Nepalese college students of Kathmandu valley enrolled in various courses. The study area of the study was Kathmandu valley as it is a hub of Nepalese students for higher education after their completion of secondary education examination. A single response google-form was developed to address the research objectives of the study. The form was distributed online among the students and responses were collected through the same. The sample size for the study was calculated by using the formula advocated by Slovincs [11]. $n = 1.96 \cdot 1.96 \cdot .5 \cdot .5 / .05 \cdot .05$, $n = 384$, at 5% margin of error (level of significance). The sample size for the study was taken 408, greater than 384. The questionnaire was sent to 417 participants through email, messenger, WhatsApp and

Viber. Participants were informed of their voluntary and independent involvement in this survey. Out of 417, 408 complete responses were received. Confidentiality of personal information of the respondents was guaranteed. The questionnaire was divided into 2 sections. The first section comprised of demographic questions, which were age, sex, current address, educational status and course enrolled. Students who have graduated from high school and been enrolled for their bachelor's course were include under undergraduate section, while those who had not been enrolled and those who were still in high school were included under high school section. Similar rule was applied for graduates. Current address was chosen considering the fact that all of students studying within Kathmandu valley had at least lived a year of their life in Kathmandu; even though some might have different permanent home address other than Kathmandu. The second section of the questionnaire comprised total of 10 questions regarding the frequency of symptom checking habit on internet, search engine used for symptom checking, other sources than internet for self-diagnosis, how often did participants just ignored their symptoms, how strongly participants agreed to treat minor illnesses by themselves, and do they think internet is quite accurate in self-diagnosing illnesses. The questionnaire utilized 5-point Likert scale type: strongly agree, agree, neutral, disagree, strongly disagree; always, often, sometimes, rarely, never. For the open-ended questions popular responses were categorized while rare responses were merged under category 'others. Anxiety scale was rated from 1 being Not at all anxious and 5 being Very Anxious. A SPSS data file was created in IBM SPSS version 20. Descriptive statistical tools were used to analyze collected data to draw results and conclusions.

3. RESULTS & DISCUSSION

Respondents' demographic information is summarized in table 01.

Table 01: Demographic information of respondents

Age of respondents		
Age(year)	Frequency	Percentage
17	8	2.0
18	62	15.2
19	76	18.6
20	94	23.0
21	67	16.4
22	60	14.7
23	14	3.4
24	22	5.4
25	2	.5
26	3	.7
Total	408	100.0
Sex		
Male	184	45.1
Female	224	54.9
Total	408	100.0
Education level of respondents		
High School	66	16.2
Undergraduate	326	79.9
Graduate	16	3.9
Total	408	100.0
High School	66	16.2
Undergraduate	326	79.9

Graduate	16	3.9
Total	408	100.0
Course enrolled by respondents		
+2	66	16.2
B. A	42	10.3
B.E.C. E	10	2.5
B.IT	8	2.0
B.Sc. CSIT	56	13.7
B.Sc. IT	19	4.7
B.Sc. Physics	35	8.6
BBA	23	5.6
BBS	31	7.6
Engineering	51	12.5
Journalism	14	3.4
Microbiology	8	2.0
Nursing	11	2.7
M.Sc. Physics	12	2.9
Psychology	22	5.4
Total	408	100

Table 02: online platforms used by respondents

Variables	Other	Chat GPT	Gemini	Google	Yahoo	You tube	Total
Age (yr)							
17 N	0	2	0	6	0	0	8
%	0.0%	25.0%	0.0%	75.0%	0.0%	0.0%	100.0%
18 N	0	2	0	54	0	6	62
%	0.0%	3.2%	0.0%	87.1%	0.0%	9.7%	100.0%
19 N	0	6	4	58	0	8	76
%	0.0%	7.9%	5.3%	76.3%	0.0%	10.5%	100.0%
20 N	1	10	11	61	5	6	94
%	1.1%	10.6%	11.7%	64.9%	5.3%	6.4%	100.0%
21 N	0	15	3	49	0	0	67
%	0.0%	22.4%	4.5%	73.1%	0.0%	0.0%	100.0%
22 N	2	5	2	51	0	0	60
%	3.3%	8.3%	3.3%	85.0%	0.0%	0.0%	100.0%
23 N	1	1	0	12	0	0	14
%	7.1%	7.1%	0.0%	85.7%	0.0%	0.0%	100.0%
24 N	0	1	0	21	0	0	22
%	0.0%	4.5%	0.0%	95.5%	0.0%	0.0%	100.0%
25 N	1	1	0	0	0	0	2
%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	100.0%
26 N	3	0	0	0	0	0	3
%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Sex							
Male N	2	26	19	122	0	15	184
%	1.1%	14.1%	10.3%	66.3%	0.0%	8.2%	100.0%
Female N	6	17	1	190	5	5	224

%	2.7%	7.6%	0.4%	84.8%	2.2%	2.2%	100.0%
Education							
High School N	0	6	0	60	0	0	66
%	0.0%	9.1%	0.0%	90.9%	0.0%	0.0%	100.0%
Under graduate N	3	36	20	242	5	20	326
%	0.9%	11.0%	6.1%	74.2%	1.5%	6.1%	100.0%
Graduate N	5	1	0	10	0	0	16
%	31.2%	6.2%	0.0%	62.5%	0.0%	0.0%	100.0%
Total N	8	43	20	312	5	20	408
%	2.0%	10.5%	4.9%	76.5%	1.2%	4.9%	100.0%

Table No 2 revealed that majority of Nepalese college students (76.5%) use Google as their main search engine for self-diagnosis, followed by ChatGPT (10.5%), YouTube and Gemini (4.9%), yahoo (1.2%) and other (2%). Respondents were asked other sources of self-diagnosis other than searching online. Majority of respondents reported that they are taking help from friends and family members for self-diagnosing in their doubted illness (176, 43.1%). 88 respondents (21.6%) depended upon previous prescriptions of doctor or physician to self-diagnose doubted illness. 25 respondents (6.1%) preferred Book, magazines and paper. 15% (61) respondents claimed self-knowledge and 58 (14.2%) students self-diagnosed from other information sources.

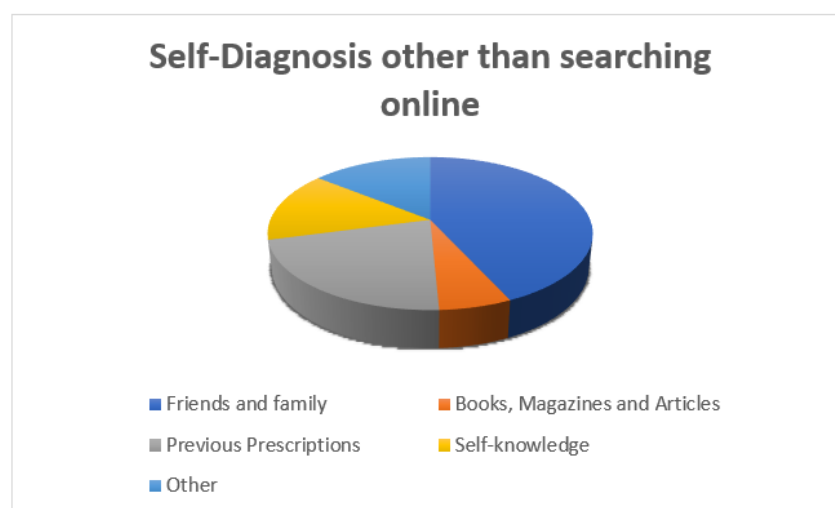


Figure 01: Pie chart of self-diagnosis other than searching online.

Figure 01 Pie chart of self-diagnosis other than searching online clearly displays that the highest portion of the respondents' (43.1%) diagnosis their illness with the information obtained from friends and family members. Only 6.1% respondents search the symptoms of illness through books, magazines and research articles. When participants were asked if they believed that internet is quite accurate in diagnosing illnesses, most participants (272, 66.7%) responded as 'No'; 92 (22.5%) responded as 'Maybe'. Least participants responded 'Yes' (16, 3.9%). 28 participants (6.9%) didn't know what to respond which was also recorded.

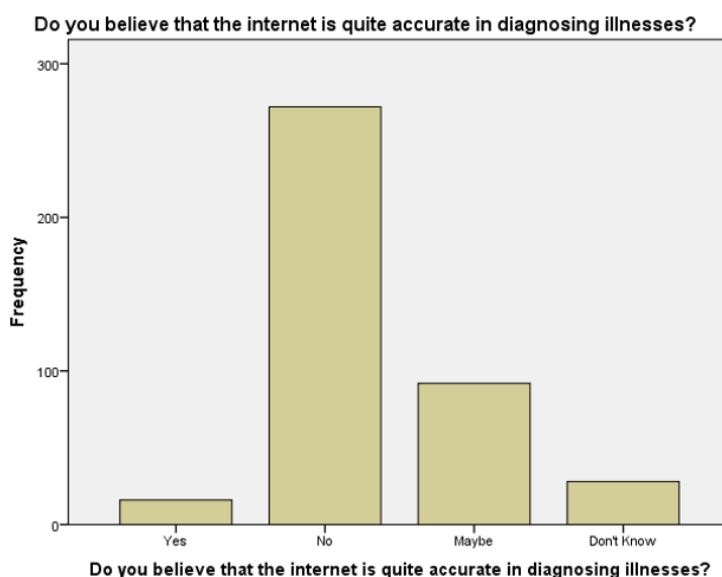


Figure 02: Bar graph of accuracy of internet in self-diagnosis

Figure No 02 clearly displays that the largest number of respondents don't believe on the accuracy of self-diagnosis through the systems searched in internet to diagnosis their illness. Four statements of questionnaire based on Likert scale were summated to develop attitude of respondents towards self-diagnosis. The result of attitude of respondents is presented in Table 3. The mean score is calculated by dividing the total scores by the total number of respondents $\text{Mean Score} = \frac{\sum (f_i \times \text{Likert Item Score})}{\text{Number of Respondents}}$ [12].

Table 03: Mean scores of Likert scale items

Statements	SA	A	N	D	SD	WT Mean Score
Searching symptoms online frequently	122	86	148	41	11	3.654
Consulting of doctor after self-diagnosis	22	122	144	56	64	2.955
Ignorance of minor symptoms after self-diagnosis	68	190	131	19	0	3.752
Treating minor illnesses at home	231	137	9	31	0	4.392

Overall Mean Score = $(\sum \text{Mean score}) / 4$

$$= (3.654 + 2.955 + 3.752 + 4.392) / 4$$

$$= 3.688$$

Table No:3 revealed that the overall mean score of attitudes towards self-diagnosis is 3.688 (>3.0) which indicates that respondents had positive attitude towards self-diagnosis. The study also disclosed that 90.2% $((231+137)/408 * 100)$ of Nepalese college students at least agreed that minor illnesses such as cold and flu should be treated at home. The main aim of the study was to explore the intention of Nepalese college students towards self-diagnosis. The study found that 87.25% Nepalese college students had at-least used internet once in a while for self-diagnosing their doubted illness which is in consistence of the findings of [13], who carried out the study on "Self-diagnosis and self-medication based on internet search among Non-Medical University students of Karachi" noted that 75% non-medical students of Karachi used internet for self-diagnosis. The study revealed that majority of the students (76.5%) use google search engine to carryout self-diagnosis on the basis of signs and symptoms of their doubted illness. Finding of the study conducted by [14] is similar as they urged that

around 96.1% of people used Google Scholar to search for their diagnoses and medications. ChatGPT, an AI tool developed by OpenAI Co. is becoming popular among Nepalese students after Google for self-diagnosis. The study showed that other than online searches, most of the students (43.1%) reported taking help, advices and guides from their family members and friends for diagnosing their illness. Limited students, only 6.1%, dependents on books, magazines and research articles for self-diagnosis. The result of the study examines whether Nepalese college students are agreed on accuracy of self-diagnosis through internet. The finding of the study suggests that most of Nepalese college students (66.7%) have doubt on accuracy of self-diagnosis through internet. Patients value healthcare professionals as a source of medical advice more than the internet [9]. The finding is in consistent with the finding of [15] as they mentioned that online self-diagnosis worsened the diagnosis. Regarding the attitude of Nepalese college students towards self- diagnosis the result of the study portrays that there is positive attitude (over all mean score ,3.688) towards self- diagnosis. A positive relationship between online search of symptoms and health anxiety was found by [16,17] which shows that people have positive attitude towards self-diagnosis. A study conducted by [18] on “The Relationship Between E-Health Literacy, Health Anxiety, Cyberchondria, and Death Anxiety in University Students That Study in Health-Related Department” revealed that health anxiety was positively correlated with cyberchondria. A study on Self-Testing as an Invaluable Tool in Fighting the COVID-19 Pandemic conducted by [19] concluded that the majority of participants (79%; n=196) reported willingness to self-test and the remaining individuals reported no. $90.2\% ((231+137)/408 * 100)$ of Nepalese college students at least agreed that minor illnesses such as cold and flu should be treated at home. This is in line with the findings of the study done by [20]. The survey research conducted by [21] in Wuhan city of China suggested that self-diagnosis is practiced where the disease is not severe enough is similar as the result of this study. Community awareness regarding various illnesses such as Dengue, Malaria, Typhoid, Tuberculosis, Asthma, Cardiovascular disorders, have somewhat established self-diagnosing practices among Nepalese people. This also explains the positive attitude of students towards self-diagnosis. The main concern however is that self-diagnosing individuals lack the knowledge that proper diagnostician have [22]. Self-diagnosing can create irrational and constant worry over minor illnesses as variety of diseases have variety of symptoms which often overall. Sump et.al., in their study on Self-diagnosis and help-seeking behaviors concluded that despite the high prevalence of self-diagnosis, only 47% of participants with mental health concerns pursued counselling, while 53% relied on self-diagnosis without professional guidance [23]. Individuals who are younger, have low health literacy, and high technology literacy were more likely to use internet of things for self-diagnosis [24].

4. CONCLUSIONS

The study examined the growing practice of self-diagnosis among Nepalese college students and revealed important insights into their health-seeking behaviors. The findings indicated that the majority of students (76.5%) rely primarily on Google and other online resources for self-diagnosis, while friends and family also play a considerable role in the process. Although a large proportion (66.7%) of students expressed doubt regarding the accuracy of internet-based self-diagnosis, their continued reliance on these sources highlights the paradox between perceived reliability and actual usage. The study further demonstrated that Nepalese students generally maintain a positive attitude toward self-diagnosis, which underscores the future scope of Internet of Things (IoT) applications in healthcare. However, the diagnostic accuracy of self-diagnosis remains highly questionable, and in certain cases, may lead to false reassurance or harmful misdiagnosis. These findings suggest the urgent need to discourage overreliance on self-diagnosis and to increase awareness about its potential risks. Improving health literacy is vital to mitigating the negative impacts of self-diagnosis, while policymakers should design strategies to promote safe, informed, and professional healthcare-seeking practices. Given that this research was conducted among literate students with relatively good access to health services,

generalizability is limited. Future studies should explore diverse populations and additional variables of self-diagnosis to provide a more comprehensive understanding of this growing phenomenon.

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