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# Self-Medication Practice Among Allied and Non-Allied Health Students of the University of Santo Tomas

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**Abstract** – *Self-medication is presumed to be widely practiced around the world. This can be defined as the use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms. High level of education and professional status has also been mentioned as predictive factors for self-medication. Students from the allied and non-allied health institutions of the University of Santo Tomas were assessed for the factors of self-medication practices.A total of 66 graduating students were asked to accomplish the questionnaire. To ensure valid responses, the researchers supervised the respondents on accomplishing the questionnaires. Mean and range summarized the age while counts and percentages summarized the gender, school, practice of self-medication, therapeutic classes, health conditions, reasons and sources of self-medication. A total of 55 reported that they practice self-medication. On the total 66 respondents practicing self-medication is antibiotics, anti-allergic and antihistamine, and decongestants. The 55 respondents documented headache to be the most self-treated health condition followed by cough and cold, toothache, muscle pain pimples, back/chest pain, dizziness, and diarrhea/constipation. Significantly greater percentage of females ($p=0.038$) use antibiotics. Respondents with high self-care orientation are self-medicating on antibiotics ($p=0.027$), anti-allergic ($p<0.001$), and herbal medicine ($p=0.001$) than respondents with low self-care orientation.*

***Keywords*** **–** Self-medication, Self-care orientation, Allied-health students, Non-allied health students, Medicine

## I. INTRODUCTION

Self-medication is presumed to be widely practiced around the world. This can be defined as the use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms [1]. It is also defined as the use of any systemic or topical substance reported by the user as being used for health related problems [2]. Self-medication could be advantageous for the person who uses the medication without prescription if used appropriately. This may lower the demand for professional medical services and encourages the individual to become self-reliant and health conscious [3]. Thus, this may also lead to the serious problems since no medical intervention or advice from the physician as adverse effects and drug interactions are very common that could delay the effective treatment. In relation to this, high level of education and professional status has also been mentioned as predictive factors for self-medication [4]. Students from the medical and non-medical institutions were assessed for the factors of self-medication practices. Gathering of data and facility based from the campus of the University of Santo Tomas that offers educational services for both allied-health and non allied-health programs. Graduating students in the pre-medicine and medicine programs (those students who are taking up Pharmacy, Medical Technology, Biochemistry, Physical Therapy, Occupational Therapy, Medicine and Nursing) are categorized as allied-health students. Any other students in the university were considered non allied-health students.

Students from the two major disciplines were selected based from the preferences or self-judgment in using the medication. The population has the access to some healthcare facilities like hospitals, clinics and community drugstores. Questionnaire was pilot-tested and eventually distributed to collect information on the demographic and therapeutic reports regarding self-medication. The questionnaire was prepared in English

language. Data collection was conducted within the campus of the University of Santo Tomas by interviewing the selected students from the different faculties and colleges. This would include age, gender, degree program, self-care orientation and medication knowledge of a student. Percentage of UST students practicing self-medication was identified. Difference in the students practicing self-medication in the medical and the non-medical allied schools were identified.It was expected that a large number of the population are practicing self-medication treatment in order to manage the conditions of the students. The expected outcome is the usage of non-prescription drug is highly prevalent among university students. Age, gender, self-care orientation and medication knowledge varied and affect the association on the usage of the non-prescription drugs. On the other hand, the researcher also assumed the possibility of low prevalence of self-medication practice. These were carried out by the formulation of research design. Research methodologies include identification of the therapeutic classification of drugs used by the respondents, identification of the health conditions of the respondents that will trigger the utilization of identified non-prescription medications and selection of the reason(s) for practicing self-medication. Set of questions and analysis of the data was based from the methods anchored by Isacson and Bingefors [5].

## II. MATERIALS AND METHODS

Descriptive method of research was used in this study, specifically of survey. The questionnaire was adapted from the research of Sawalha (2008) [6], consisting of two sections. The first section contained questions regarding demographic information such as age, sex, and faculty affiliation. Students taking up Pharmacy, Medical Technology, Biochemistry, Physical Therapy, Occupational Therapy, Medicine and Nursing in UST are considered to be "allied-health students" while the remaining students are considered "non allied-health students". In addition, students were asked whether they had access to a health center, a physician, and/or a pharmacy nearby, and if they have ever practiced self-medication in general, and in the past month in particular. If they did not ever practice self-medication, a question follows asking for the reason. Only those who practiced self-medication answered the succeeding parts of the questionnaire.

### Distribution of Question

The second section of the questionnaire consisted of questions related to the therapeutics classes that they have used in self-medication, health conditions that they self-treat, reasons of practicing self-medication, and sources of information. Students who answered more than five health conditions to be self-treated are considered to have high self-care orientation, whereas those who selected equal to or less than five health conditions were considered to have low self-care orientation. This cutoff is based on previous research indicating that respondents reporting 30% of the listed health conditions were considered to have high self-care orientation [5]. Pilot testing of the instrument was conducted on July 23 to 25, 2013.

### Respondents

Based on the previous study conducted by Sawalha [6] that 98 percent of students practice self-medication, providing 5% alpha and margin error and 80% power of the statistical test, 66 out of the 120 graduating students of the University of Santo Tomas were selected to be the respondents of the study. Computation of the sample size was performed through Wessa online sample size calculator [7].

### Sampling Survey and Data Gathering

Letters to conduct the survey addressed to the deans of the different colleges were sent. Survey was conducted on July 31 to Aug 3, 2013. A total of 66 graduating students were asked to accomplish the questionnaire. To ensure valid responses, the researchers supervised the respondents on accomplishing the questionnaires. Afterwards, data were encoded in spreadsheet form.

### Statistical Treatment

Mean and range summarized the age while counts and percentages summarized the gender, school, practice of self-medication, therapeutic classes, health conditions, reasons and sources of self-medication. Binomial test for single proportion was used to determine if the proportion of UST students who practice self-medication significantly differ with 98%. Moreover, chi-square test of independence was used to determine if the type of faculty and self-care orientation correlates to self-medication and the therapeutics used. All the statistical techniques were performed using MedCalc 12.1 and SPSS 19.0. All p-values less than 0.05 indicate significant difference.

## III. RESULTS AND DISCUSSION

*A. Demographic Profile of the Respondents*

The 66 respondents had a mean age of 19.03 years (range: 18 to 23 years). The mean age of respondents enrolled in allied-health program is 19.33 (range: 19 to 23), while those enrolled in non allied-health program is 18.94 (range: 18 to 21). See Table 1.

Table 1. Demographic Profile of the Respondents

| Demographics | TOTAL (n=66) | Allied Health Program (n=15) | Non-allied Health Program (n=51) |
|---|---|---|---|
| **Age** | 19.03 [18 to 23] | 19.33 [19 to 23] | 18.94 [18 to 21] |
| **Gender** | | | |
| Male | 14 (21.2 %) | 2 (13.3 %) | 12 (23.5 %) |
| Female | 52 (78.8 %) | 13 (86.7 %) | 39 (76.5 %) |

*Values presented for Age are mean and range in brackets; for Gender are counts and percentages in parentheses.*

Out of the 15 respondents from the allied-health programs, 13 (86.7%) are females and two (13.3%) are males, while out of the 51 non allied-health programs, 39 (76.5%) are females and 12 (23.5%) are males.

*B. Distribution of the Type of School of Respondents*

A total of 15 (22.7%) of the 66 respondents were enrolled in allied-health program, such as Pharmacy, Medical Technology, Biochemistry, Physical Therapy, Occupational Therapy, Medicine and Nursing. A total of 51 (77.3%) are in other fields like Engineering, Humanities and Social Sciences, Architecture and Business Administration. See Table 2.

Table 2. College/Faculty Affiliation of the Respondents (n=66)

| Type of School (Faculty Affiliation) | Counts | % |
|---|---|---|
| **Allied Health Program** | **15** | **22.7** |
| Pharmacy | 3 | 4.5 |
| Medical Technology | 3 | 4.5 |
| Biochemistry | 2 | 3.0 |
| Physical and Occupational Therapy | 2 | 3.0 |
| Medicine | 3 | 4.5 |
| Nursing | 2 | 3.0 |
| **Non-allied Health Program** | **51** | **77.3** |
| Engineering | 38 | 57.6 |
| Humanities and Social Sciences | 4 | 6.1 |
| Architecture | 4 | 6.1 |
| Business Administration | 5 | 7.5 |

*C. Percentage of UST Students Practicing Self-Medication*

From the 66 respondents, a total of 55 (83.3%, $CI_{95\%}$: 72.5 to 90.4%) reported that they practice self-medication (see Figure 4). Testing that 98% of the students practice self-medication, binomial test for single proportion [$Z = 8.530$, $p<0.001$] indicate that the percentage of students in UST practicing self-medication is significantly less than 98 percent.

Of the 55 respondents who reported that they practice self-medication, 16 (24.2%) reported that they practice it twice in the last 30 days, 12 (18.2%) practiced it thrice, 7 (10.6%) practiced it four times, six (9.1%) practiced once, and one (1.5%) practiced it five or more. A total of 13 (19.7%) respondents did not put response in the item (see Table 3).

Table 3. Percentage of Students Practicing Self Medication

| Self-Medication Practice | Counts | % |
|---|---|---|
| **Practicing** | **55** | ***83.3%** |
| Once in the last 30 days | 6 | 9.1% |
| Twice in the last 30 days | 16 | 24.2% |
| Thrice in the last 30 days | 12 | 18.2% |
| Four times in the last 30 days | 7 | 10.6% |
| Five or more | 1 | 1.5% |
| No Response | 13 | 19.7% |
| **Not practicing** | **11** | **16.7%** |
| **TOTAL** | **66** | **100%** |

*df = 1*

*D. Comparison of Medical Allied and Non-Medical Allied Schools in Practicing Self-medication*

A total of 14 or 93.3 percent respondents enrolled in medical allied program, while 41 or 80.4 percent of those enrolled in non-medical allied program are practicing self-medication. Chi-square test of independence showed (see Table 4) that there is no significant difference in the percentage of students in the medical and non-medical allied programs who are practicing self-medication.

Table 4. Percentage of Students Practicing Self-medication According to School

| Practice of Self-Medication | Allied Health Program (n=15) | Non-allied Health Program (n=51) | *p-value |
|---|---|---|---|
| Practicing | 14 (93.3%) | 41 (80.4%) | 0.237 |
| Not practicing | 1 (6.7%) | 10 (19.6%) | |

* p-value is based on Chi-square test of independence [$\chi 2$ (df = 1) = 1.398, p=0.237].


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*E. Commonly Used Therapeutics in Self-Medication*

Based on the 66 respondents who reported to be practicing self-medication, it was found that the most common therapeutics used in self medication is antibiotics, followed by anti-allergic and antihistamine medication, and decongestants. Herbal remedies, back/chest pain relievers, topical treatments and laxatives/antidiarrheal/ anti-constipation agents, back/ chest pain (NSAIDS) and ulcer medications. See Table 5.

Table 5. Commonly Used Therapeutics for Self-medication (n=55)

| Commonly Used Therapeutics | f | % |
|---|---|---|
| Antibiotics | 36 | 65.5% |
| Anti-allergic and antihistamine medication | 33 | 60.0% |
| Decongestants | 20 | 36.4% |
| Herbal Remedies | 10 | 18.2% |
| Back/Chestpain Relievers (Paracetamol) | 8 | 14.5% |
| Topical treatments | 8 | 14.5% |
| Laxatives/ antidiarrheal/ anticonstipation agents | 7 | 12.7% |
| Back/Chestpain Relievers (NSAIDS) | 4 | 7.3% |
| Ulcer Medications | 1 | 1.8% |

*F. Self-Treated Health Conditions*

Table 6. Self-Treated Health Conditions

| Self-Treated Health Conditions | Count | % |
|---|---|---|
| Headache | 43 | 78.2% |
| Cough and cold | 42 | 76.4% |
| Fever | 38 | 69.1% |
| Toothache | 35 | 63.6% |
| Muscle pain | 34 | 61.8% |
| Pimples | 18 | 32.7% |
| Back/chest pain | 15 | 27.3% |
| Dizziness | 15 | 27.3% |
| Diarrhea/ constipation | 14 | 25.5% |
| Fatigue/ Stress | 11 | 20.0% |
| Dysmenorrhea | 10 | 18.2% |
| Vomiting | 9 | 16.4% |
| Eye disease | 8 | 14.5% |
| Ulcer/ hyperacidity | 5 | 9.1% |
| Asthma attack | 3 | 5.5% |
| Stomach ache other than ulcer | 3 | 5.5% |
| Skin itchiness | 2 | 3.6% |
| Skin rashes | 2 | 3.6% |
| Weight loss | 2 | 3.6% |

The 55 respondents reported headache to be the most self-treated health condition. It is followed by cough and cold, fever, toothache, muscle pain, pimples, back/chest pain, dizziness, diarrhea/constipation, fatigue/stress, dysmenorrhea, vomiting, eye disease, ulcer/hyperacidity, asthma attack, stomach ache other than ulcer. The least self-treated condition are skin itchiness, skin rashes, and weight loss. Percentages were computed based from the total of 55 respondents who reported to be practicing self-medication.

G. Reasons for Practicing Self-Medication

Table 7. Reasons for Practicing Self-Medication (n=55)

| Reasons for Self-Medication | Count | % |
|---|---|---|
| To save time | 31 | 56.4% |
| Low severity of illness | 16 | 29.1% |
| Had previous of episodes of same illness | 12 | 21.8% |
| To save money | 5 | 9.1% |
| Remoteness of health-care facility | 3 | 5.5% |

The most common reason why the 55 respondents practice self-medication is to save time, followed by low severity of illness, having previous episodes of same illness, and to save money. The least is due to remoteness of health-care facility.

*H. Reasons for Not Practicing Self-Medication*

There were six or 54.5 percent of the 11 respondents who reported that they do not practice self-medication are due to fear of complications, and one or 9.1 percent due to readily available and accessible health service. Percentages were computed based from the total of 11 respondents who reported to be not practicing self-medication, respectively.

Table 8. Reasons for Not Practicing Self-Medication

| Reasons for Non Self-Medication | Count | % |
|---|---|---|
| Fear of complications | 6 | 54.5% |
| Readily available health service | 1 | 9.1% |

*I. Sources of Practicing Self-Medication*

According to the 55 respondents who reported that they practice self-medication, their most common source is drug outlets, followed by prescription leftover, television advertisement, and private clinics. The source with the least frequency is printed advertisement. See Table 9.


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Table 9. Sources of Practicing Self-Medication

| Sources of Practicing Self-Medication | Count | % |
|---|---|---|
| Drug outlets | 28 | 50.9% |
| Past prescription leftover | 19 | 34.5% |
| Television advertisement | 15 | 27.3% |
| Private clinics | 12 | 21.8% |
| Market | 4 | 7.3% |
| Neighbors | 4 | 7.3% |
| Printed advertisement | 1 | 1.8% |

*J. Perceived Frequency of Improvement upon Practicing Self-Medication*

From the 55 respondents, 10 (18.2%) of them reported that their conditions always improved after self-medication, 11 (20.0%) oftentimes improved their condition, 25 (45.5%) sometimes, and 9 (16.4%) rarely. No respondent reported that they never experienced improvement after self-medication. See Table 10.

Table 10. Perceived Frequency of Improvement upon Practicing Self-Medication

| Improvement | Count | % |
|---|---|---|
| Always | 10 | 18.2% |
| Oftentimes | 11 | 20.0% |
| Sometimes | 25 | 45.5% |
| Rarely | 9 | 16.4% |
| TOTAL | 55 | 100.0% |

*K. Therapeutics Used By Male and Female Students*

Significant correlation was found in the therapeutics used and gender. Specifically, it was found that the proportion of female students self-medicating taking antibiotics is significantly greater than males. No other significant correlations were found in therapeutics used and gender. See Table 11.

Table 11. Comparison of the Therapeutics Used by Self-Medicating Male and Female Students

| Therapeutics used | Male (n=13) | Female (n=42) | *p*-value |
|---|---|---|---|
| Antibiotics | 11 (84.6%) | 22 (52.4%) | 0.038 |
| Anti-allergic | 8 (61.5%) | 28 (66.7%) | 0.734 |
| Backpain (NSAIDS) | 1 (7.7%) | 3 (7.1%) | 0.947 |
| Backpain (Paracetamol) | 2 (15.4%) | 6 (14.3%) | 0.922 |
| Decongestants | 5 (38.5%) | 15 (35.7%) | 0.857 |
| Herbal | 0 (0.0%) | 10 (23.8%) | 0.052 |
| Laxatives | 2 (15.4%) | 5 (11.9%) | 0.742 |
| Topical Treatments | 2 (15.4%) | 6 (14.3%) | 0.922 |
| Ulcer Medicine | 1 (7.7%) | 0 (0.0%) | 0.070 |

*All p-values are based on Chi-square test of independence; df = 1*

*L. Therapeutics used by the Allied and Non-allied Health Students*

Table 12. Comparison of the Therapeutics Used by Self-Medicating Allied and Non-allied health students

| Therapeutics used | Allied Health (n=14) | Non-allied Health (n=41) | p-value |
|---|---|---|---|
| Antibiotics | 7 (50%) | 26 (63.4%) | 0.376 |
| Anti-allergic | 3 (21.4%) | 33 (80.5%) | <0.001 |
| Backpain (NSAIDS) | 3 (21.4%) | 1 (2.4%) | 0.018 |
| Backpain (Paracetamol) | 6 (42.9%) | 2 (4.9%) | 0.001 |
| Decongestants | 10 (71.4%) | 10 (24.4%) | 0.002 |
| Herbal | 1 (7.1%) | 9 (22%) | 0.215 |
| Laxatives | 5 (35.7%) | 2 (4.9%) | 0.003 |
| Topical Treatments | 3 (21.4%) | 5 (12.2%) | 0.398 |
| Ulcer Medicine | 0 (0%) | 1 (2.4%) | 0.555 |

*All p-values are based on Chi-square test of independence; df = 1*

It was also found that the proportion of medical-allied students self-medicating on back pain (NSAIDS) and Paracetamol, decongestants and laxatives are significantly greater than non-medical students. On the contrary, there are more non-medical students self-medicating on anti-allergic drugs. No significant correlations were found in taking antibiotics, herbal medicine, topical treatments, and ulcer medicine.

*M. Therapeutics Used By Students with High and Low Self-care Orientation*

Students who answered more than five self-treated health conditions are considered having high self-care orientation [5]. These students with high self-care orientation are tend to self-medicate on antibiotics, anti-allergic and herbal medicine more than the students with low self-care orientation. On the contrary, students with low self-care orientation tend to self-medicate more on decongestants than the students with high self-care orientation. No other significant correlations were found.

Table 13 shows the comparison of the therapeutics used by self-medicating students with low and high self-care orientation


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Table 13. Comparison of the Therapeutics Used by Self-Medicating Students with Low and High Self-Care Orientation

| Therapeutics used | Low (n=25) | High (n=30) | p-value |
|---|---|---|---|
| Antibiotics | 6 (24%) | 16 (53.3%) | 0.027 |
| Anti-allergic | 10 (40%) | 26 (86.7%) | <0.001 |
| Backpain (NSAIDS) | 2 (8%) | 2 (6.7%) | 0.850 |
| Backpain (Paracetamol) | 4 (16%) | 4 (13.3%) | 0.780 |
| Decongestants | 14 (56%) | 6 (20%) | 0.006 |
| Herbal | 0 (0%) | 10 (33.3%) | 0.001 |
| Laxatives | 4 (16%) | 3 (10%) | 0.506 |
| Topical Treatments | 2 (8%) | 6 (20%) | 0.209 |
| Ulcer Medicine | 0 (0%) | 1 (3.3%) | 0.357 |

*All p-values are based on Chi-square test of independence.*

## IV. DISCUSSION

This study shows that although self-medication is common (72.5 to 90.4%) to students at the University of Santo Tomas, it is significantl y lower compared to the study conducted by Sawalha [6]. However, in a study done in Ethiopia [8] and India [9], this percentage is higher as only 38.5% and 57.1% practice self-medication in their university, respectively.

Similarly, our study showed that most drugs for self-medication were obtained from the pharmacy or drug outlets [8][10]. Antibiotics and decongestants were also found to be common [6][8][9]. Fever, cough and cold, and headache [8][9][10][11] were also the common treated illness. But unlike in this study that saving time was the most common reason, low severity of the illness were top reported factors for self-medication [6][8][9][10].

Unlike the results of Sawalha [6] that males were more inclined to use anti-allergy medications than females, this study found that both gender had both genders are inclined to use allergy anti-allergic therapeutics equally. Likewise, the use of laxative of allied and non-allied health students and the use of use headache relievers of those with high and low self-care orientation are equal in the study but not in the study by Sawalha [6].

## V. CONCLUSION AND RECOMMENDATION

This researcher poses the following conclusions derived from the results and insights obtained in the conduct of the study.Significant correlations were found in the therapeutics used and gender.Proportion of female students self-medicating on antibiotics is significantly greater than males. No other significant correlations were found in therapeutics used and gender. Proportion of medical-allied students self-medicating on back pain (using NSAIDS and Paracetamol), decongestants and laxatives are significantly greater than non-medical students. More non-medical students are self-medicating on anti-allergic regimens. No significant correlations were found in taking antibiotics, herbal medicine, topical treatments and ulcer medicine.Significantly more respondents with high self-care orientation are self-medicating on antibiotics, anti-allergic and herbal medicine more than the students with low self-care orientation.Students with low self-care orientation tend to self-medicate on decongestants than the students with high self-care orientation. No other significant correlations were found.

Finally, for continuity of this study, the following are recommended for further research: To conduct a survey on the self-medication practices among the freshmen, sophomore and junior college students in the University of Santo Tomas. To determine the specific therapeutic classes of drugs which are commonly used in the self-medication practice to the previously identified respondents. To evaluate the necessities of using the identified drugs used in the self-medication practice and to come up with a summary of the previous and present self-medication research and study in the University of Santo Tomas.

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