



ESTIMATED RANGE OF COST OF TREATMENT OF ADULT SCHIZOPHRENIA PATIENTS AT A TERTIARY GOVERNMENT HOSPITAL AS OF OCTOBER 2015

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ABSTRACT

OBJECTIVES: Using the patient's perspective, the study's objective was to estimate the economic cost of treatment for adult schizophrenia patients in a tertiary hospital using key informant interviews.

METHODS: A guided structured key informant interview was done to determine key practices in the treatment of adult schizophrenic patients in the charity and pay in-patient and out-patient settings of the tertiary hospital. Cost of treatment included direct (medication, room and board, professional fees, ancillaries) and indirect costs (productivity losses of both patient and caregiver) and was computed based on 1 to 4 week length of stay for inpatients and varying intervals of follow-up for outpatients. Total costs were computed depending on the treatment setting.

RESULTS: Twenty nine members of the Department of Psychiatry, involving 5 psychiatric nursing staff, 13 residents-in-training, 4 fellows-in-training and 7 consultants were interviewed. The cost, for charity inpatient care, may range from PhP 2332.00 to PhP 44,861.00 (USD 50.88 to 978.86). For charity outpatient care, this may range from PhP 2892.00 to PhP 21,3612.00 (USD 63.10 to 4660.96) annually. For pay patients, costs were estimated to range from PhP15347.00 to PhP 24,6831.00 (USD 334.87 to 5385.80) for inpatient care and PhP 17,292.00 to PhP 1,125,600.00 (USD 377.31 to 25681.04) for outpatient care. The factor that influenced costs the most was the choice of medication. As of October 15, 2015, 1 USD = 45.83 PhP.

CONCLUSION: Schizophrenia is a chronic psychiatric illness that places a significant financial burden on patients and their caregivers. Based on the data gathered, patients' and their families could spend from as low as 2332 to as high as 1,125,600 pesos depending on the treatment setting.

KEYWORDS: *Cost of Treatment, Adult Schizophrenia, Tertiary Government Hospital*

INTRODUCTION

Global health care systems involve several entities to defray the cost of health care. Depending on the viewpoint of this particular system, 3 major perspectives (1) are referred to when noting the economic evaluation of healthcare. These are: society's perspective (socialized health care systems or services from the public sector), health care services (private health care providers and organizations), and the patients themselves (out-of-pocket expenses, as well as other non-financial costs such as emotional burden of caregiving) (1, 2). When evaluating healthcare from a health economics standpoint, a study must choose which perspective to take into account.

In the Philippines, majority of expenditures are paid for from out-of-pocket by patients and families. In 2005, 48.4% of health care expenses were paid by patients (3). On the other hand, the national health insurance program (PhilHealth) provides coverage for inpatient treatment of mental illnesses. As of 2013, the publicly posted Philhealth case rates for psychiatric disorders had (4), the same rate despite the variety of treatments and medications needed for each psychiatric disorder, including schizophrenia. This uniformity of case rates can be attributed to the absence of reliable local baseline information on the cost of care for psychiatric disorders, which are often chronic or lifelong and require constant financial expenses.

Schizophrenia, in particular, is a chronic mental illness requiring chronic medication, inpatient care, regular outpatient follow up and large amounts of money spent by patients and their caregivers. Given this situation, this study was done to estimate the cost for treatment of adult schizophrenia inpatients and outpatients at a tertiary hospital from the patients perspective. In line with this, cost of treatment referred to the financial costs incurred and sourced out-of-pocket from either the patient or his family as well as productivity losses of the patient, the caregiver or both. Due to the absence of local health economic data on schizophrenia, this study would not compare any particular treatment or intervention nor would consequences of any treatment be examined. Therefore this study served as a cost of illness study.

Rationale

The need for a baseline cost of illness of schizophrenia acted as the impetus for the creation of this study; data gathered may be used for higher order economic evaluations such as cost analyses or cost outcome descriptions. Additionally, data may also be presented to Philhealth to attempt to request for more accurate case rates for schizophrenia.

Disclosure

This study was done as a requirement for research as a 3rd year Psychiatry resident in the Department of Psychiatry of a tertiary hospital. The researcher did not have any financial benefit from this study and the expenses were financed by the researcher. The results of this study were presented to the Department of Psychiatry.

General Objective

With the patient's perspective in mind, this study determined the estimated economic cost of treatment for adult schizophrenia patients in the tertiary hospital using information gathered from guided interviews of key informants.

Specific Objectives

The specific objectives of this study were to estimate the range of economic costs involved in inpatient or outpatient treatment of an adult schizophrenia patient using the following indicators: range of costs of charity inpatient and outpatient care as well as cost of pay inpatient and outpatient care for the treatment of an adult schizophrenia patient.

Review of Related Literature

Given the long-term nature of schizophrenia, it poses a long-term burden on the patient, health care systems and caregivers. De Silva, Hanwell, and de Silva (5) broadly divided the financial cost of illness into direct and indirect costs (Figure 1). The former involves an actual exchange of monies for different services. This includes expenses paid for by a health care system as well as out-of-pocket payments made by the patient or carers. In studies conducted in Sri Lanka, India, and France (5,6,7), majority of these payments involved medications. Other direct costs are: transport costs, food expenses, as well as accommodations.

Sri Lankan (5) direct costs in 2012 per outpatient visit was found to be about US\$ 37.30 (travel, meals, medication, and routine laboratories were factored in); however this data was significantly skewed due to the much cheaper price of medications purchased directly from Indian manufacturers vs data obtained in industrialized nations. In France (7), for example, mean total cost for inpatient and outpatient care are US\$1,540.00 and US\$1,473.00, respectively, per patient; annually this is roughly US\$ 69 million for inpatient care vs US\$65 million for outpatient care. Indirect costs, on the other hand, is lost productivity from either the patient or the patient's caregiver. It may also include: personal suffering, premature mortality costs, criminal justice system costs, private informal alternative therapy costs. In comparison of inpatient and outpatient treatment, Chinese (8) data found significant differences in cost. Total costs were US\$ 2,008.00 (outpatient) vs US\$ 3,116.00 (inpatient), with larger direct and indirect costs for inpatient treatment (direct and indirect US\$ 1,281.00 and US\$ 1,835.00 vs US\$ 406.00 and US\$ 1,601.00).

One noted difference in studies involving the costs of schizophrenia: in a developed country such as France, direct costs far outstripped indirect costs (7) while the opposite was found in less developed countries (5). Nonetheless, medications still accounted for the majority of direct costs in any setting followed by costs incurred in inpatient and then outpatient settings. In addition, one possible reason for the discrepancy between the proportion of direct and indirect costs could be the greater use of informal rather than state-provided care in less developed nations.

Out-of-pocket expenditures are known to precipitate and worsen poverty; however these expenses have been found to be larger in inpatient rather than out-patient settings in terms of medication costs (6) and indirect costs (5). Measurement of direct and indirect costs vary, with the latter not having a uniform method of measurement. Sarlon's prospective study measured indirect costs' loss of productivity in terms of monetary value by computing a nation's average monthly or daily income and multiplying it by the number of days spent in inpatient care. Ideally, as part of the human

capital, time and psychological costs of schizophrenia--especially for caregivers--should be included as a computed cost yet there has been no reliable or standardized means of doing so (7).

Due to the chronicity of schizophrenia, relapse is another pertinent factor influencing the cost of treatment. Ascher, et al (9) identified predictors for relapse and its cost in 2010 in the United States. Costs for patients with relapse redounded into higher direct and indirect cost in either inpatient or outpatient setting. Predictors for relapse were: younger onset of illness, poor medication adherence, more severe symptoms, comorbid substance use disorder, and worse functional status; inpatient costs were found to be 5 times higher for patients who experienced relapse.

Published literature regarding the financial cost of schizophrenia in the Philippines was not discovered during this review of related literature. Additionally, there was no existing local clinical guideline or consensus statement regarding the management of schizophrenia; thus the difficulty in further making rational and adequately designed economic studies. Faced with the absence of data, several methods of filling in this gap in information can be made, especially with direct costs. This can be done by evaluation of medical records, pharmacies, etc. Indirect costs can be measured using lost productivity of both patient and caregiver, typically quantified as lost wages (6,8). In that regard, the absence of uniformity in patients' experience (and subsequent variations in management noted in medical records) makes the use of patient records problematic--there is the need to at least homogenize the treatments used in the current setting. Unlike evaluation of treatment for other medical specialties, the absence of generally followed algorithm for treatment makes it difficult to assess costs relative to length of time for treatment (3). Hence in consultation with a specialist in health economics, there is a need to collect this data using key informants involved in the decision-making when it comes to treatment.

METHODOLOGY

Definition of Terms

Rather than a full economic evaluation, a cost of

illness study identified the expenses involved in treatment of a particular clinical disorder. For this study, a cost description of treatment of adult schizophrenia patients was the focus.

Based on the health economics approach, the patient's perspective referred to the finances spent out-of-pocket from either the patient or his/her family. This could have been determined by either the actual or theoretical perspective. Instead of expounding on the direct experience of the patient, this perspective instead focused on financial or monetary values involved in healthcare. Hence this cost may be either financial or economic in nature. Financial costs (FC) referred to the amount of money spent on a good or service traded. Economic costs (EC) related to the wider concept of resource consumption, e.g. time spent by patients or caregivers, while it did not involve a direct out-of-pocket expense, were a real cost due to the loss of possible income or earnings. The economic cost referred to in this study involve both financial expenses or direct costs that came out-of-pocket, as well as a singular indirect cost (10). The economic cost of this study referred to the direct and indirect cost incurred by the patient and his or her family for the treatment of schizophrenia over a 1,2,3, or 4 week period of time for inpatients, 1-4x/month consult for outpatients, per annum costs, and estimated annual cost plus one week of inpatient care due to relapse.

Direct costs (DC) were defined as those expenses directly related to the treatment of schizophrenia. For this study, direct costs included: the cost of medication, the cost of laboratories and ancillaries, the cost of other expenses incurred for care for the patient and caregiver while as an in- or outpatient.

Due to the non-uniformity in measuring indirect costs (IC) especially for caregiver burden, emotional costs, and other related costs, for the purpose of this study this was limited to the productivity loss incurred by the patient, the caregiver, or both due to treatment of schizophrenia.

For inpatient care, productivity loss (PL) was measured using the most recently posted minimum daily wage for non-agricultural workers in the Philippines (PhP 481.00).

This was done multiplied by the number of days spent confined and again multiplied by a factor of two if both patient and caregiver were employed. If they were both unemployed then this was not factored into the total costs. For outpatients, this was computed by the assumption that consult would only involve a half-day's absence from work. Hence the productivity loss was assumed to be half the daily minimum wage which could also be multiplied if both parties were employed or was disregarded if both were unemployed.

Healthcare Expenditure Model assumes that treatment of schizophrenia followed a strictly linear model wherein medications were not combined, shifted, or altered in dose. Medications considered also focused strictly on oral antipsychotics and not on other medications used during the course of treatment. Second, it assumed ancillary procedures were either done once or none at all. Third, other expenses were assumed to have also been spent on a linear, unchanging model. Hence any possible spikes or variations were not taken into account. The rationale for this model was in line with the objectives of the study, which were to obtain the range (from lowest possible to highest). Thus, the model provides a basic formulation for costs over a specified period of time.

Study Design

The study is an economic evaluation, specifically a cost description of the cost of treatment of schizophrenia in either inpatient (and influenced by length of admission/hospital stay) or outpatient settings and the added costs incurred by patients and his/her family and/or relatives for episodes of relapse. (Figure 1)

Setting

The study was conducted at the Charity and Pay patient services of the Department of Psychiatry of the tertiary hospital. The Charity in-patient service only requires that patients' pay for their medication, and greatly reduced prices on laboratory and other ancillary services. Meanwhile, doctor's fees, inpatient fees (including room and board) are waived. The Charity out-patient service covers free doctor's consultations with resident trainees of the Department of Psychiatry. Patients, however, are expected to pay for their own medications,

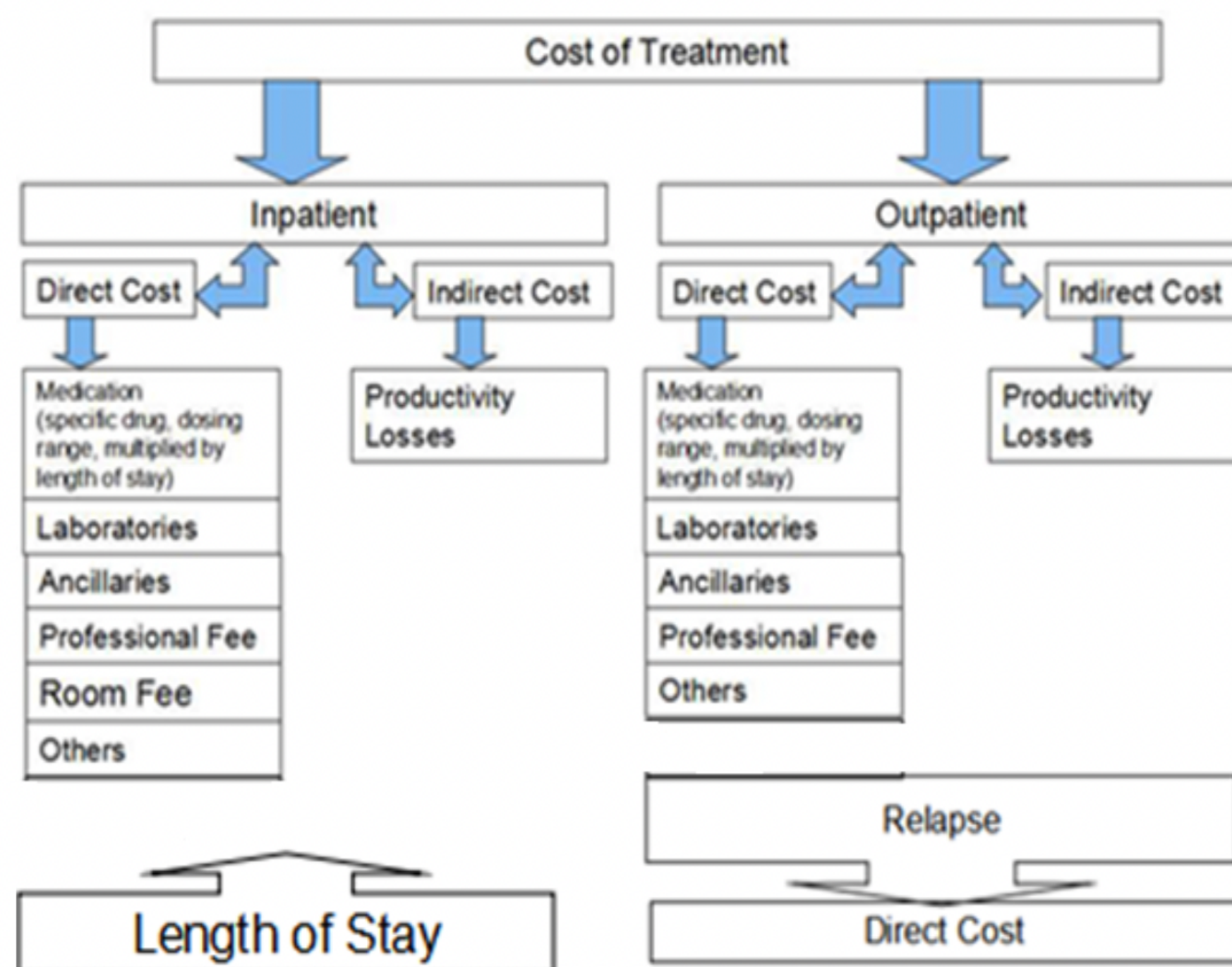


Figure 1. Conceptual Framework of Author's

laboratories, and ancillaries.

Definition of Population

For the purposes of this study, adult schizophrenia patients are those age 19 to 65, who fulfill the Diagnostic and Statistical Manual 5th Edition criteria for schizophrenia (13). Patients must also have no known medical comorbidities (13).

Informants

The study aimed to determine the costs incurred from the patient's perspective yet the informants were medical workers and physicians rather than the patients themselves. The rationale for this was as follows. Two factors were taken into account: first, the absence of uniformly accepted Filipino local practice guidelines for schizophrenia and second, the study's aim to estimate rather than provide a distinct and specific value for the cost. Therefore only common practices as noted by physicians and staff members were the required data to be gathered. Informants for the charity inpatient service were psychiatry residents and staff of the psychiatric ward (nurses, nursing aides) while charity outpatient service informants were psychiatry residents and nurses. Informants for both in- and out-patient pay services were the consultants of the department of Psychiatry.

The key informants for this study were present members of the Department of Psychiatry. Modeled after the studies of Sarlon (7), de Silva (5), healthcare workers were chosen as the key informants as the study seeks to estimate the cost based on ideal management based on their clinical judgment, as opposed to based on non-existent clinical practice guidelines. For costs incurred by charity patients, key informants were the current trainees of the department due to their actual hands-on contact with charity patients to be able to relate information about the patients cost. Additional informants for inpatients were ward staff who are exposed to the other materials bought by patients during the stay in the hospital. For costs incurred by pay patients, all active consultants with experience managing adult schizophrenia patients in the pay wards of the tertiary hospital were interviewed.

Inclusion & Exclusion Criteria

Resident and consultant psychiatrists, as well as ward workers, of the Department of Psychiatry who provided consent were interviewed. Only those with experience with the treatment of patients with schizophrenia within the study setting were included in the study. While informants who refused to be interviewed were excluded.

Informants who refused to divulge their professional fee were also excluded.

Ethical Considerations

This proposal was submitted for review to the Ethics Review Board for review and approval prior to data collection. The same panel provided approval for the study to be performed within the setting. Names and other identifying information of the key informants were collected; however years of training/practice will be recorded. The study was funded by the primary investigator, who has no conflicts of interest to disclose. There were no anticipated risks for the informants. There was no compensation provided to the informants. Truthfulness of informants was not anticipated to be an issue in this study due to the absence of any risks or possible punitive actions for participating or not participating. No coercion of informants was done. This study was presented to the Department of Psychiatry. The informed consent form was modeled after the Key Interview Consent form by the public health department of Los Angeles, USA (12).

Instruments

A structured interview guide was used while interviewing the informants. (Appendix 1) The interview determined the length of experience of the interviewee as well as questions on the costs of treatment. For costs in the inpatient setting, respondents reported on: medication, usual dosing range, requested laboratories and ancillaries, professional fees, room and board fee, PHIC enrollment, other expenses needed or purchased for the hospital stay (including food, transportation, additional supplies). Multiplication of medication expenditure was by the length of stay as provided by the informants. For indirect cost: length of stay (as estimated by informants) multiplied by average salary or the national minimum wage similar to Sarlon’s method of computation was done. (7) For the outpatient setting costs, similar items were factored in. (Figure 1)

Cost Estimate Plan

Addition of computed cost estimates will be done and presented as such (Table 1). The most recent prices of the medications reported by informants were gathered from the hospital pharmacy. For medications used that are not available in the inpatient pharmacy, prices of the cheapest available drug in Mercury Drug,

the largest national pharmacy chain were used. The latest daily room rates was obtained from the pay admitting services of the hospital and this will be multiplied against the length of stay of inpatients.

Limitations of the Study

Inherent limitations, as in other studies involving interviews, were recall biases from the interviewees. Additionally, the data of this study is time bound and may be affected by inflation. Generalizability to the national situation will be limited due to the single center setting of the study.

Table 1. Cost of Treatment

Inpatient				Outpatient			
Charity		Pay		Charity		Pay	
Length of Stay				# Out Ptt visits			
DC	IC	DC	IC	DC	IC	DC	IC
Meds*	P Loss	Med*	P Loss	Meds*	P Loss	Meds*	P Loss
Labs		Labs		Labs		Labs	
Ancil		Ancil		Ancil		Ancil	
ProFee		ProFee		ProFee		ProFee	
Room		Room		Room		Room	
Others		Others		Others		Others	
Total for 1 admission=DC+IC		Total for 1 admission=DC+IC		Total for 1 consult = DC+IC		Total for 1 consult =DC+IC	
		Cost of relapse = cost for monthly consult over one year period + cost of at least 1 week of admission					

RESULTS

Key informants for this research were: 13 residents-in-training of the Department of Psychiatry (ranging from 1 to 3 years of experience), 4 fellows-in-training (4-5 years) 5 nursing staff (1 to 9 years of experience), and 7 consultants (6-over 30 years of experience). Interviews were conducted in person after written consent was obtained. Each interview lasted from 10 to 15 minutes and were done in private. Data from the responses were written down on the same interview guide sheet of each respondent.

For inpatient treatment of schizophrenia, patients were admitted from a minimum of 1 to 4 weeks, whether in the pay or charity settings of the hospital. For outpatient treatment, patients were seen in varying intervals depending on the severity and/or control of the patient’s symptoms; the shortest interval was weekly while the longest interval was every 3 months. The aforementioned time periods were necessary in the subsequent results. Medications used in either treatment settings were largely unchanged with the dosage range

remaining similar whether for pay or charity patients. If a patient was being seen as an outpatient, dosage ranges were typically lower compared to inpatients, though once the best dosage had been identified, this was maintained throughout the patient's consults. One notable difference between either pay or charity patients' medications was the continued use of the first-generation antipsychotic chlorpromazine for charity patients which was not given as a preferred medication for pay patients. (Table 2)

Most medications were available in the pharmacy; prices for Amisulpride and Aripiprazole were based on the cheapest available generic brand of pharmacies in the perimeter of the hospital. For medications available within the tertiary hospital, prices were uniform regardless of the patient's socioeconomic status. For dosage ranges with no applicable single tablet available, the closest drug was used and the tablet's price was either halved or multiplied based on the dosage range. For example, Quetiapine has no 800 mg preparation and while both the 200 and 300 mg preparations were available, the dosage cost was approximated using four 200 mg tablets. Long-acting antipsychotics namely Paliperidone, Risperidone, and Fluphenazine were also noted but only Fluphenazine was the most commonly used LAI especially in charity outpatients. Other medications used, especially for inpatient treatment, were benzodiazepines however these were not included in the computation of costs. Benzodiazepines, while commonly used in the management of schizophrenia, were excluded as they are often used on an as needed basis. There is no standardized frequency on its provision to patients hence making it difficult to place an appropriate estimate.

Informants identified several laboratories and ancillaries requested. For inpatient care, as much as possible, all of the laboratories listed in Table 3, were requested. If, however, the patient has financial constraints, electrolytes and thyroid function tests were not included. Hence the range for costs for labs and ancillaries would be that involving all those listed below and that which excludes electrolytes and thyroid function tests. The most recent prices were obtained from the central cashier's database for expenses and were accurate as of October 2015.

Costs for room and board and professional fees were non-existent for charity patients while pay patients expenses depended on the type of room they chose. Most informants reported a preference for a private room, though some were amenable to the patient being placed in a semi-private room. Hence the cost for room and board could range from PhP 950.00/day to PhP 3500.00/day.

Room rates as of October 2015 are listed in Appendix 2. Professional fees (PF) for inpatients were computed based on the daily room rate multiplied by the number of days confined with the largest PF rate adding another PhP 1000.00. Professional fees for outpatients ranged from PhP1100.00 to PhP1800.00 and this depended on whether the patient was a new patient or for follow-up. However it was also emphasized by informants that the professional fee could be negotiated and subject to discounts - taking into consideration the socioeconomic status of the patient and the difficulty of the case; sometimes even the waiving the fee altogether if necessary. For the purpose of this study, however, the cost estimate was based on the standard formula for computation of the professional fee.

Other out-of-pocket expenses for both in and out patients were taken into account. For inpatients, the most common identified expenses were: additional food, toiletries, and water for both patient and caregiver, and cellphone load for the caregiver. Food costs were computed based on the prices of rice meals in the hospital cooperative.

The cheapest and most expensive meals were PhP 35.00 and PhP 50.00, respectively. The former was assumed to be the meal of choice of charity patients while the latter was the meal of choice of pay patients. Cost for toiletries were assumed to be the same for both pay and charity patients. Water was also based on the cost of 5 gallons at the hospital cooperative store (15 pesos) and calculated that both patient and caregiver would consume 1 gallon/day.

Finally, the cheapest cellphone load for a brief phone call and several texts was obtained from the same store.

Outpatient expenses were assumed to involve both food and transport expenses. The cheapest

TABLE 2 MEDICATION COST AS OF OCTOBER 2015

CHARITY					PAY			
Meds	Dose/Day (mg)	Length of Stay (wks)	Drug Cost (PhP)	Total (PhP)	Dose/Day (mg)	Length of Stay (wks)	Drug Cost (PhP)	Total (PhP)
Risperidone	2	1	8	56	2	1	8	56
		2	8	112		2	8	112
		3	8	168		3	8	168
		4	8	224		4	8	224
	4	1	16	112	4	1	16	112
		2	16	224		2	16	224
		3	16	336		3	16	336
		4	16	448		4	16	448
Olanzapine	5	1	34.5	241.5	5	1	34.5	241.5
		2	34.5	483		2	34.5	483
		3	34.5	724.5		3	34.5	724.5
		4	34.5	966		4	34.5	966
	20	1	138	966	20	1	138	966
		2	138	1,932		2	138	1,932
		3	138	2,898		3	138	2,898
		4	138	2760		4	138	2760
Clozapine	50	1	8.5	59.5	50	1	8.5	59.5
		2	8.5	112		2	8.5	112
		3	8.5	178.5		3	8.5	178.5
		4	8.5	238		4	8.5	238
	600	1	102	714	600	1	102	714
		2	102	1,428		2	102	1,428
		3	102	2,142		3	102	2,142
		4	102	2,856		4	102	2,856
Quetiapine	200	1	152.25	1,065.75	200	1	152.25	1,065.75
		2	152.25	2,131.5		2	152.25	2,131.5
		3	152.25	3,197.25		3	152.25	3,197.25
		4	152.25	4,263		4	152.25	4,263
	800	1	609	4,263	800	1	609	4,263
		2	609	8,526		2	609	8,526
		3	609	12,789		3	609	12,789
		4	609	17,052		4	609	17,052
Amlisulpride	100	1	42.5	297.5	100	1	42.5	297.5
		2	42.5	595		2	42.5	595
		3	42.5	892.5		3	42.5	892.5
		4	42.5	1,190		4	42.5	1,190

Aripiprazole	400	1	136	952	400	1	136	952
		2	136	1,904		2	136	1,904
		3	136	2,856		3	136	2,856
		4	136	3,808		4	136	3,808
	5	1	58	406	5	1	58	406
		2	58	812		2	58	812
		3	58	1,218		3	58	1,218
		4	58	1,624		4	58	1,624
Chlorpromazine	30	1	202	1,414	30	1	202	1,414
		2	202	2,828		2	202	2,828
		3	202	4,242		3	202	4,242
		4	202	5,656		4	202	5,656
	200	1	13	91	200	1	13	91
		2	13	182		2	13	182
		3	13	273		3	13	273
		4	13	364		4	13	364
Haloperidol	600	1	39	273	600	1	39	273
		2	39	546		2	39	546
		3	39	819		3	39	819
		4	39	1,092		4	39	1,092
	5 mg/ml + 50mg/ml	At least 1 Dose	277	277	5 mg/ml + 50mg/ml	At least 1 Dose	277	277
Fluphenazine	25mg/ml	q 2-4 wks	55/dose	55	25mg/ml	q 2 - 4 wks	55/ dose	55

possible food cost for two people was assumed. (cheapest possible sandwich at the outpatient cafeteria: PhP 25.00, average price of rice meal: PhP 50.00) Table 4& 5 lists these other expenses below.

Transport expenses were reported based on the assumption that majority the hospital’s patients are from the immediate Metro Manila area hence the cheapest fare for public transportation extending about 2 kilometers was used and multiplied for 2 (jeepney base fare of 8.5x2). Relapse for known patients was reported to occur from a minimum of 0/year to about 4/year, especially for charity patients who were reported to be non-compliant to their medication.

TABLE 3. COST (PHP) OF LABORATORIES AND ANCILLARIES AS OF OCT 2015

	Class D	Outpatient	Ward/Semi-private	Private/Deluxe
CBC	45	150	220	325
FBS	20	95	215	225
Urinalysis	220	260 B- 55 C- 50 D- 45	260	275
Chest Xray (includes RF)	NC	500	500	500
ECG	NC	440	440	680
AST	25	120	290	300
ALT	35	120	270	280
BUN	25	95	210	225
Creatinine	25	95	210	220
Na	30	140	275	295
K	30	140	280	295
Cl	40	140	270	290
Lipid Profile	110	450	1105	1200
TSH	180	520	650	715
T3	350	595	630	665
T4	350	595	630	665

Indirect costs were found to vary depending on the employment status of the patient and the caregiver during either inpatient or outpatient care. Productivity losses were computed based on the assumption that most patients are based in Metro Manila hence the minimum daily wage for non-agricultural workers was used. In computing for indirect cost, the range of productivity losses could be as low as 0 if both patient and caregiver are unemployed to twice the daily minimum daily wage if both are employed.

Several notes about the general inpatient cost estimates: regardless of setting, intramuscular haloperidol was the medication of choice for acute agitation though there was no recalled number of times it was necessary to be given to patients hence the estimates do not reflect any administration of haloperidol. Additional administration of benzodiazepines and any long acting antipsychotics were not taken into account.

As mentioned earlier, frequency of benzodiazepine use could vary greatly depending on the need of the patient hence it's exclusion. Long acting antipsychotics were also

excluded due to the fact that dosage intervals may vary depending on the clinical status of the patient. Also, the variation in the tables listed below take into account whether laboratories and ancillaries requested were all versus the least number desired. The second line for every dose of each medication lists the cost estimate assuming both patient and caregiver are employed.

Finally, all cost estimates assume that a theoretical patient maintains the same dosage throughout the particular time period eg. 2 mg for all 4 weeks, which is not reflective of actual clinical practice hence the need for, again, the cost estimate between highest and lowest possible monetary values. For tables 6 to 10, all values in the upper row indicate cost based on medication alone while the lower row adds other costs as indicated in the first column, these costs include indirect costs, laboratories, and other expenses.

TABLE 4. OTHER INPATIENT EXPENSES (PHP)

CHARITY			PA		
Item (PhP)	Cost (wks)	Total (PhP)	Item (PhP)	Cost (wks)	Total (PhP)
Food for patient (105/day)	1	735	Food for patient (150/day)	1	350
	2	1,470		2	2,100
	3	2,205		3	3,150
	4	2,940		4	4,200
Food for Caregiver (105/day)	1	735	Food for caregiver (150/day)	1	350
	2	1,470		2	2,100
	3	2,205		3	3,150
	4	2,940		4	4,200
Food (Patient+Caregiver)	1	1,470	Food (Patient+Caregiver)	1	1,470
	2	2,940		2	2,940
	3	4,410		3	4,410
	4	5,880		4	5,880
Toiletries (Patient + Caregiver 20/day)	1	140	Toiletries (Patient + Caregiver 20/day)	1	140
	2	280		2	280
	3	420		3	420
	4	560		4	560
Cellphone load (20/day)	1	140	Cellphone load (20/day)	1	140
	2	280		2	280
	3	420		3	420
	4	560		4	560
Water (3/day)	1	21	Water (3/day)	1	21
	2	42		2	42
	3	63		3	63
	4	84		4	84

Table 5. Other Expenses for Outpatients (PhP)

Item	Charity	Pay
Food	50	100
Transport Cost	17	17

The above values displayed conservative estimates erring on higher possible costs. The cheapest possible course of charity inpatient treatment was PhP 2332.00 (Risperidone 2 mg with the least laboratories, both patient and caregiver unemployed) while the most expensive possible course was PhP 44,861.00 (Quetiapine 800 mg, all laboratories, both patient and caregiver employed). (Table 6)

Table 7 lists the cost estimates for charity outpatient treatment in PGH. While interviewees reported variable periods of follow-up for their patients, the most often was on a weekly basis while the longest period was 3 months. All listed values do not take into account any laboratories.

Values listed below include the purchase of one week's supply of medication from the hospital pharmacy. The cheapest outpatient drug, Risperidone 2 mg comes in at a cost of PhP 241.00 for monthly visits (this includes one month's supply of the drug and one outpatient consult for patient and caregiver both docked half a day's wages) while the most expensive was Quetiapine 800 mg/day with a cost of PhP 17,801.00. Extrapolated on an annual basis, outpatient costs would range from PhP 2892.00 (Risperidone with monthly consults) to PhP 21,3612. 00. Again, this estimate does not include costs for laboratories requested during the course of the year. If laboratories may be necessary, this can add an additional PhP 1330 if the physician requests for all the standard baseline laboratories.

Should at least one 1 week readmission occur, additional cost would range from PhP 3312.00 (Risperidone) to PhP 17,320.00 (Quetiapine) to the annual cost of treatment. (Table 7)

For pay patients, the range was based on the cheapest possible to the most expensive room rate. Hence Table 8 illustrates cost estimates for a patient admitted at a semi-private room while Table 9 shows cost estimates for admission to a private deluxe room. Note that these estimates do not include the cost of possible administration of intramuscular haloperidol, benzodiazepines, or

long -acting agents. Professional fees were also added to these estimates. Also, charges for laboratories and ancillaries were

As in the charity inpatient, Risperidone (PhP 15,347.00) and Quetiapine PhP 89, 031 were the cheapest and most expensive treatments, respectively. Note that if Haloperidol + Diphenhydramine had to be given, PhP 277 would be added per administration of this rescue medication. (Table 8)

As in the charity inpatient, Risperidone (PhP 55,547.00) and Quetiapine (PhP 246,831.00) were the cheapest and most expensive treatments, respectively. (Table 9)

Finally, outpatient pay treatment were identified in Table 10. Again, the cheapest out patient treatment involves the use of Risperidone (PhP 1441.00, 1/month visit) and the most expensive is Quetiapine (PhP 93,800.00 weekly visits, highest PF). Extrapolated on an annual basis, the cheapest possible course of pay outpatient treatment, with Risperidone and Quetiapine, respectively, amounts to PhP 17,292.00 to PhP 1,125,600.00.

The high cost estimate of PhP 1,125,600, however, is based on a weekly visit for 52 weeks with high dosage and professional fees. Hence 93, 800 per month amounts to 1,125,600 assuming the patient follows up every week and maintains the high dose Quetiapine. Should relapse occur, minimum added additional cost would range from at least PhP 15,347 .00 (Risperidone 2 mg with cheapest room, PF, and only 1 week stay) to PhP 244,906.00 (Quetiapine 800 mg, most expensive room and PF rate, and 4 week stay).

The cost estimates in the table below do not include additional possible costs incurred if laboratories are requested. An additional PhP 2325 to 4455 may be added depending on if the physician requests for only the most important tests versus all appropriate tests. Note that the table is divided based on the lowest versus highest professional fee charged by the physician.

If a patient visits a physician charging the lowest fees monthly then this cost is 1,100 while biweekly visits cost 2,200 and weekly visits cost 4,400

TABLE 6. COST (PHP) OF CHARITY INPATIENT CARE

	1 week	2 weeks	3 weeks	4 weeks
Meds: Ris 2 mg	33 12	51 39	69 66	87 93
Labs & Ancillaries: All Other Expenses Indirect Cost	81 22	14,759	21,396	28,033
Meds: Ris 4 mg	33 68	52 51	71 34	90 17
Labs & Ancillaries: All Other Expenses Indirect Cost	81 78	14,871	21,564	28,257
Meds: Ris 2 mg	23 32	41 59	59 86	78 13
Labs & Ancillaries: Least Other Expenses Indirect Cost	71 42	13,779	20,416	27,053
Meds: Ris 4 mg	23 88	42 71	61 54	80 37
Labs & Ancillaries: Least Other Expenses Indirect Cost	71 98	13,891	20,584	27,277
Meds: Olan 5 mg	34 97.5	55 10	75 22.5	95 35
Labs & Ancillaries: All Other Expenses Indirect Cost	83 07.5	13 359	21,952.5	28,775
Meds: Olan 20 mg	42 22	69 59	96 96	11 329
Labs & Ancillaries: All Other Expenses Indirect Cost	90 32	16,579	24,126	30,569
Meds: Olan 5 mg Labs & Ancillaries: Least Other Expenses Indirect Cost	25 17.5 73 27.5	45 30 14,150	65 42.5 20,972.5	85 55 27,795
Meds: Olan 20 mg	32 42	59 79	87 16	10 349
Labs & Ancillaries: Least Other Expenses Indirect Cost	80 52	15,599	23,146	29,589
Meds: Cloza 50 mg	33 15.5	51 39	69 76.5	88 07
Labs & Ancillaries: All Other Expenses Indirect Cost	81 25.5	14,759	21,406.5	28 047
Meds: Cloza 600mg	39 70	64 55	89 40	11 425
Labs & Ancillaries: All Other Expenses Indirect Cost	87 80	16,075	23,370	30,665
Meds: Cloza 50 mg	23 35.5	41 59	59 96.5	78 27
Labs & Ancillaries: Least Other Expenses Indirect Cos	71 45.5	13,779	20,426.5	27,067
Meds: Cloza 600mg	29 90	54 75	79 60	10,445
Labs & Ancillaries: Least Other Expenses Indirect Cos	78 00	15,095	22,390	29,685
Meds: Que 200 mg	43 21.75	71 58.5	99 95.25	12,832
Labs & Ancillaries: All Other Expenses Indirect Cost	91 31.75	16,778.5	24,425.25	32,072
Meds: Que 800 mg	75 19	13,553	19,587	25,621
Labs & Ancillaries: All Other Expenses Indirect Cost	12,329	23,173	34,017	44,861
Meds: Que 200 mg	33 41.75	61 78.5	90 15.25	11,852
Labs & Ancillaries: Least Other Expenses Indirect Cost	81 51.75	15,798.5	23,445.25	31,092
Meds: Que 800 mg	65 39	12,573	18,607	24,641
Labs & Ancillaries: Least Other Expenses Indirect Cost	11,349	22,193	33,037	43,881
Meds: Ami 100 mg	35 53.5	56 22	76 90.5	97 59
Labs & Ancillaries: All Other Expenses Indirect Cost	83 63.5	15,242	22,120.5	28,999
Meds: Ami 400 mg	42 08	69 31	96 54	12,377
Labs & Ancillaries: All Other Expenses Indirect Cost	90 18	16,551	24,084	31,617
Meds: Ami 100 mg	25 73.5	46 42	67 10.5	87 79

Labs & Ancillaries: Least Other Expenses Indirect Cost	7383.5	14,262	21,140.5	28,019
Meds: Ami 400 mg	32 28	59 51	86 74	11,397
Labs & Ancillaries: Least Other Expenses Indirect Cost	80 38	15,571	17,791	30,637
Meds: Arip 5 mg	36 62	58 39	80 16	10,193
Labs & Ancillaries: All Other Expenses Indirect Cost	84 72	15,459	22,446	29,433
Meds: Arip 30 mg	46 70	78 55	11,040	14,225
Labs & Ancillaries: All Other Expenses Indirect Cost	94 80	17,475	25,470	33,465
Meds: Arip 5 mg	26 82	48 59	70 36	92 13
Labs & Ancillaries: Least Other Expenses Indirect Cost	57 21	14,479	21,466	28,453
Meds: Arip 30 mg	36 90	10,595	10,060	13,245
Labs & Ancillaries: Least Other Expenses Indirect Cost	85 00	20,215	24,490	33,485
Meds: Chlor 200 mg	33 47	52 09	70 71	89 33
Labs & Ancillaries: All Other Expenses Indirect Cost	81 57	14,829	21,501	28,173
Meds: Chlor 600 mg	35 29	55 73	76 17	96 61
Labs & Ancillaries: All Other Expenses Indirect Cost	83 39	15 193	22 047	28 901
Meds: Chlor 200 mg	23 67	42 29	60 91	79 53
Labs & Ancillaries Other Expenses Indirect Cost	71 77	13,849	20,521	27,193
Meds: Chlor 600 mg	25 49	45 93	66 37	86 81
Labs & Ancillaries: Least Other Expenses Indirect Cost	73 59	14,213	21,067	27,921

TABLE 7. CHARITY OUTPATIENT EXPENSES (PHP)

Visits/ Month	1	2	4
Medication: Risperidone 2 mg	291	358	492
Labs and Ancillaries Other Expenses Indirect Cost	772	839	973
Medication: Risperidone 4 mg	515	582	716
Labs and Ancillaries Other Expenses Indirect Cost	996	1063	1197
Medication: Olanzapine 5 mg	1033	1100	1234
Labs and Ancillaries Other Expenses Indirect Cost	1514	1581	1715
Medication: Olanzapine 20 mg	2827	2894	3028
Labs and Ancillaries Other Expenses Indirect Cost	3308	3375	3509
Medication: Clozapine 50 mg	305	372	506
Labs and Ancillaries Other Expenses Indirect Cost	786	853	987
Medication: Clozapine 600 mg	2923	2990	3124
Labs and Ancillaries Other Expenses Indirect Cost	3404	3471	3605
Medication: Quetiapine 200 mg	4330	4397	4531
Labs and Ancillaries Other Expenses Indirect Cost	4811	4878	5012
Medication: Quetiapine 800 mg	17,119	17,186	17320
Labs and Ancillaries: All Other Expenses Indirect Cost	17,600	17,667	17,801
Medication: Amisulpride 00 mg	1257	1324	1458
Labs and Ancillaries: All Other Expenses Indirect Cost	1738	1805	1939
Medication: Amisulpride 400 mg	3875	3942	4076
Labs and Ancillaries: All Other Expenses Indirect Cost	4356	4423	4557
Medication: Aripiprazole 5 mg	1691	1758	1892
Labs and Ancillaries: All Other Expenses Indirect Cost	2172	2239	2373
Medication: Aripiprazole 30 mg	5723	5790	5924
Labs and Ancillaries: All Other Expenses Indirect Cost	6204	6271	6405
Medication: Chlorpromazine 200 mg	431	498	632
Labs and Ancillaries: All Other Expenses Indirect Cost	912	979	1113
Medication: Chlorpromazine 600 mg	1159	1226	1360
Labs and Ancillaries: All Other Expenses Indirect Cost	1640	1707	1841

TABLE 8 PAY INPATIENT-LOWEST ROOM RATE AND LABS/ANCILLARIES - LOWEST PF

	1 week	2 weeks	3 weeks	4 weeks
Meds: Ris 2 mg	18,082	29709	41336	52963
Room Labs & Ancillaries: All PF & Other Expenses Indirect Cost	22892	39329	55766	72203
Meds: Ris 4 mg	18,138	29,821	41,504	53,187
Labs & Ancillaries: All Other Expenses Indirect Cost	22,948	39,441	55,934	72,427
Meds: Ris 2 mg	15,347	26,974	38,601	50,228
Labs & Ancillaries: Least Other Expenses Indirect Cost	20,157	36,594	53,031	69,468
Meds Ris 4 mg	15,403	27,086	38,769	50,452
Labs & Ancillaries: Least Other Expenses Indirect Cost	20,213	36,706	53,199	69,692
Meds: Olan 5 mg	18,267.5	30,080	41,892.5	53,705
Labs & Ancillaries: All Other Expenses Indirect Cost	23,077.5	39,700	56,322.5	72,945
Meds: Olan 20 mg	18,992	31,529	44,066	55,499
Labs & Ancillaries: All Other Expenses Indirect Cost	23,802	41,149	58,496	74,739
Meds: Olan 5 mg	15,532.5	27,345	39,157.5	50,970
Labs & Ancillaries: Least Other Expenses Indirect Cost	20,342.5	36,965	53,587.5	70,210
Meds: Olan 20 mg	16,257	28,794	41,331	52,764
Labs & Ancillaries: Least Other Expenses Indirect Cost	21,067	38,414	55,761	72,004
Meds: Clozapine 50 mg	18,085.5	29,709	41,346.5	52,977
Labs & Ancillaries: All Other Expenses Indirect Cost	22,895.5	39,329	55,776.5	72,217
Meds: Clozapine 600 mg	18,740	31,025	43,310	55,595
Labs & Ancillaries: All Other Expenses Indirect Cost	23,550	40,645	57,740	74,835
Meds: Clozapine 50 mg	15,350.5	26,974	38,611.5	50,242
Labs & Ancillaries: Least Other Expenses Indirect Cost	20,160.5	36,594	53,041.5	69,482
Meds: Clozapine 600 mg	16,005	28,290	40,575	52,860
Labs & Ancillaries: Least Other Expenses Indirect Cost	20,815	37,910	55,005	72,100
Meds: Que 200 mg	19,091.75	31,728.5	44,365.25	57,002
Labs & Ancillaries: All Other Expenses Indirect Cost	23,901.75	41,348.5	58,795.25	76,242
Meds: Que 800 mg	22,289	38,123	53,957	69,791
Labs & Ancillaries: All Other Expenses Indirect Cost	27,099	47,743	68,387	89,031
Meds: Que 200 mg	16,356.75	28,993.5	41,630.25	54,267
Labs & Ancillaries: Least Other Expenses Indirect Cost	21,166.75	38,613.5	56,060.25	73,507
Meds: Que 800 mg	19,554	35,388	51,222	67,056
Labs & Ancillaries: Least Other Expenses Indirect Cost	24,364	45,008	65,652	86,296
Meds: Amisulpride 100 mg	18,323.5	30,192	42,060.5	53,929
Labs & Ancillaries: All Other Expenses Indirect Cost	23,133.5	39,812	56,490.5	73,169
Meds: Amisulpride 400 mg	18,978	31,501	44,024	56,547
Labs & Ancillaries: All Other Expenses Indirect Cost	23,788	41,121	58,454	75,787
Meds: Amisulpride 100 mg	15,588.5	27,457	39,325.5	51,194
Labs & Ancillaries: Least Other Expenses Indirect Cost	20,398.5	37,077	53,755.5	70,434
Meds: Amisulpride 400 mg	16,243	28,766	41,289	53,812
Labs & Ancillaries: Least Other Expenses Indirect Cost	21,053	38,386	55,719	73,052
Meds: Aripiprazole 5 mg	18,432	30,409	42,386	54,363
Labs & Ancillaries: All Other Expenses Indirect Cost	23,242	40,029	56,816	73,603
Meds: Aripiprazole 30 mg	19,440	32,425	45,410	58,395
Labs & Ancillaries: All Other Expenses Indirect Cost	24,250	42,045	59,840	77,635
Meds: Aripiprazole 5 mg	15,697	27,674	39,651	51,628
Labs & Ancillaries: Least Other Expenses Indirect Cost	20,507	37,294	54,081	70,868
Meds: Aripiprazole 30 mg	16,705	29,690	42,675	55,660
Labs & Ancillaries: Least Other Expenses Indirect Cost	21,515	39,310	57,105	74,900
Meds: Chlorpromazine 200 mg	18,117	29,779	41,441	53,103
Labs & Ancillaries: All Other Expenses Indirect Cost	22,927	39,399	55,871	72,343
Meds: Chlorpromazine 600 mg	18,299	30,143	41,987	53,831
Labs & Ancillaries: All Other Expenses Indirect Cost	23,109	39,763	56,417	73,071
Meds: Chlorpromazine 200 mg	15,382	27,044	38,706	50,368
Labs & Ancillaries: Least Other Expenses Indirect Cost	20,192	36,664	53,136	69,608
Meds: Chlorpromazine 600 mg	15,564	27,408	39,252	51,096
Labs & Ancillaries: Least Other Expenses Indirect Cost	20,374	37,028	53,682	70,336

TABLE 9. PAY INPATIENT - HIGHEST ROOM RATE AND LABS/ANCILLARIES - HIGHEST PF

	1 week	2 weeks	3 weeks	4 weeks
Meds: Ris 2 mg	58,282	109,109	159,936	210,763
Room Labs & Ancil: All PF, Other Expenses Indirect Cost	63,092	111,879	174,366	230,003
Meds: Ris 4 mg	58,338	109,221	160,104	210,987
Labs & Ancil: All Other Expenses Indirect Cost	63,148	118,841	174,534	230,227
Meds: Ris 2 mg	55,547	106,374	157,201	208,028
Labs & Ancil: Least Other Expenses Indirect Cost	60,357	115,994	171,631	227,268
Meds: Ris 4 mg	55,603	106,486	157,369	208,252
Labs & Ancil: Least Other Expenses Indirect Cost	60,413	116,106	171,799	227,492
Meds: Olan 5 mg	58,467.5	109,480	160,492.5	211,505
Labs & Ancil: All Other Expenses Indirect Cost	63,277.5	119,100	174,922.5	230,745
Meds: Olan 20 mg	59,192	110,929	162,666	214,403
Labs & Ancil: All Other Expenses Indirect Cost	64,002	120,549	177,096	233,643
Meds: Olan 5 mg	55,732.5	106,745	157,757.5	208,770
Labs & Ancil: Least Other Expenses Indirect Cost	60,542.5	116,365	172,187.5	228,010
Meds: Olan 20 mg	56,457	108,194	159,931	211,668
Labs & Ancil: Least Other Expenses Indirect Cost	61,267	117,814	174,361	230,908
Meds: Cloza 50 mg	58,285.5	109,109	159,946.5	210,777
Labs & Ancil: All Other Expenses Indirect Cost	63,095.5	118,729	174,376.5	230,017
Meds: Cloza 600 mg	58,940	110,425	161,910	213,395
Labs & Ancil: All Other Expenses Indirect Cost	63,750	120,045	176,340	232,635
Meds: Cloza 50 mg	55,550.5	106,374	157,211.5	208,042
Labs & Ancil: Least Other Expenses Indirect Cos	60,360.5	115,994	171,641.5	227,282
Meds: Cloza 600 mg	56,205	107,690	159,175	210,660
Labs & Ancil: Least Other Expenses Indirect Cost	61,015	117,310	173,605	229,900
Meds: Que 200 mg	59,291.75	111,128.5	162,965.25	214,802
Labs & Ancil: All Other Expenses Indirect Cost	64,101.75	120,748.5	177,395.25	234,042
Meds Que 800 mg	62,489	117,523	172,557	227,591
Labs & Ancil: All Other Expenses Indirect Cost	67,299	127,143	186,987	246,831
Meds Que 200 mg	56,556.75	108,393.5	160,230.25	212,067
Labs & Ancil: Least Other Expenses Indirect Cost	61,366.75	118,013.5	174,660.25	231,307
Meds: Que 800 mg	59,754	114,788	169,822	224,856
Labs & Ancil: Least Other Expenses Indirect Cost	64,564	124,408	184,252	244,096
Meds: Ami 100 mg	58,523.5	109,592	160,660.5	211,729
Labs & Ancil: All Other Expenses Indirect Cost	63,333.5	119,212	175,090.5	230,969
Meds: Ami 400 mg	59,178	110,901	162,624	214,347
Labs & Ancil: All Other Expenses Indirect Cost	63,988	120,521	177,054	233,587
Meds: Ami 100 mg	56,556.75	108,393.5	160,230.25	212,067

Labs & Ancil: Least Other Expenses Indirect Cost	61,366.75	118,013.5	174,660.25	231,307
Meds Ami 400 mg	59,754	114788	169,822	224,856
Labs & Ancil: Least Other Expenses Indirect Cost	64,564	124,408	184,252	244,096
Meds: Arip 5 mg	58,632	109,809	160986	212163
Labs & Ancil: All Other Expenses Indirect Cost	63,442	119,429	175,416	231,403
Meds: Arip30 mg	59,640	111,825	164,010	216,195
Labs & Ancil: All Other Expenses Indirect Cost	64,450	121,445	178,440	235,435
Meds: Arip 5 mg	55,897	107,074	158,251	209,428
Labs & Ancil: Least Other Expenses Indirect Cost	60,707	116,694	172,681	228,668
Meds: Arip 30 mg	56,905	109,090	161,275	213,460
Labs & Ancil: Least Other Expenses Indirect Cost	61,715	118,710	175,705	232,700
Meds Chlor 200 mg	58,317	109,179	160,041	210,903
Labs & Ancil: All Other Expenses Indirect Cost	63,127	118,799	174,471	230,143
Meds: Chlor 600 mg	58,499	109,543	<u>160,587</u>	211,631
Labs & Ancil: All Other Expenses Indirect Cost	63,309	119,163	175,017	230,871
Meds: Chlor 200 mg	55,582	106,444	157,306	208,168
Labs & Ancil: Least Other Expenses Indirect Cost	60,392	116,064	171,73,6	227,408
Meds: Chlor 600 mg	55,764	106,808	157,852	208,896
Labs & Ancil: Least Other Expenses Indirect Cost	60,574	116,428	172,282	22,8136

Should the patient consult with the physician charging the highest fees costs incurred are Php 1,800 (monthly visits), 3,600 (biweekly visits), and 7,200 (weekly visits). Further computational breakdowns may be found in Appendix 2.

In summary, the most influential factor on cost of treatment was the type of medication used: Risperidone and Quetiapine were the medication for the cheapest and most expensive course of treatment, respectively.

DISCUSSION

The study showed a range of costs for hospitalization and outpatient treatment for schizophrenia using information provided by key informants. The study’s model, however, makes for several key assumptions erring more on the lowest and highest possible estimates. In comparison to studies done in Sri Lanka (5), Europe (6, 7), China (8), and the United States (9), the estimated of cost of treatment for schizophrenia in the Philippines are higher, especially in the pay service setting.

As a study based on key informant interviews and prospective costs, the data provides a linear estimated model and does not take into account possible decreases in the cost based on the clinical picture of a patient. Nonetheless, the cost involved in treating patients with schizophrenia, based on these estimates, will significantly affect the economic burden on the patient and their caregivers.

The study’s focus is on the patient’s and family’s estimated costs to be incurred in the treatment of schizophrenia.. The perspective that represented the viewpoint of the analysis was important since it affected what types of costs were included and how they were measured and valued. In addition, the viewpoint allowed for the analysis to lead to a decision-making context, namely the national health insurance program (or the PhilHealth). The government has tried to alleviate the cost of healthcare by packages provided for inpatient coverage of mental illnesses. However, PhilHealth only covers two weeks of inpatient care as well as a uniform case rate regardless of the type of mental illness. Specifically, PhilHealth provides a total of PhP 7800.00 (PhP 2340.00 for Professional Fee and PhP 5460.00 for HealthCare Institution Fee). (4) Depending on the medication used, it appears that PhilHealth coverage would be enough for

TABLE 10. PAY OUTPATIENT EXPENSES (PHP)

Visits per Month	1		2		4	
Professional Fee (PF)	Lowest	Highest	Lowest	Highest	Lowest	Highest
Meds: Ris 2 mg	1441	2141	2882	4282	5764	8564
Other Expenses Indirect Cost	5922	6622	11,844	13,244	23,688	26,488
Meds:Ris 4 mg	1665	2365	3330	4730	6660	9460
Other Expenses Indirect Cost	6146	6846	12,292	13,692	24,584	27,384
Meds:Olan 5 mg	1458.5	2158.5	2917	4317	5834	8634
Other Expenses Indirect Cost	5939.5	6639.5	11,879	13,279	23,758	26,558
Meds: Olan20 mg	3977	4677	7954	9354	15,908	18,708
Other Expenses Indirect Cost	8458	9158	16,916	18,316	33,832	36,632
Meds: Cloza 50 mg	1276.5	1976.5	2553	3953	5106	7906
Other Expenses Indirect Cost	57,57.5	64,57.5	11,515	12,915	23,030	25,830
Meds: Cloza 600 mg	4073	4773	8146	9546	16292	19,092
Other Expenses Indirect Cost	8554	9254	17,108	18508	34,216	37,016
Meds: Que 200 mg	2282.75	2982.75	4565.5	5965.5	9131	11,931
Other Expenses Indirect Cost	6763.75	7463.75	13,527.5	14,927.5	27,055	29,855
Meds: Que 800 mg	18,269	18969	36,538	37,938	73,076	75,876
Other Expenses Indirect Cost	22,750	23,450	45,500	46,900	91,000	93,800
Meds: Ami 100 mg	1514.5	2214.5	3029	4429	6058	8858
Other Expenses Indirect Cost	5995.5	6695.5	11,991	13,391	23,982	26,782
Meds: Ami 400 mg	5025	5725	10,050	11,450	20,100	22,900
Other Expenses Indirect Cost	9506	10,206	19,012	20,412	38,024	40,824
Meds: Arip 5 mg	1623	2323	3246	4646	6492	9292
Other Expenses Indirect Cost	6104	6804	12,208	13,608	24,416	27,216
Meds:Arip 30 mg	6873	7573	13,746	15,146	27,492	30,292
Other Expenses Indirect Cost	11,354	12,054	22,708	24,108	45,416	48,216
Meds:Chlor 200 mg	1308	2008	2616	4016	5232	8032
Other Expenses Indirect Cost	5789	6489	11,578	12,978	23,156	25,956
Meds: Chlor 600 mg	2309	3009	4618	6018	9236	12,036
Other Expenses Indirect Cost	6790	7490	13,580	14,980	27,160	29,960

inpatient charity care; however the above model was unable to take into account other possible sources of indirect costs. On the other hand, application of this model shows the case rate to only be able to cover approximately 30-40% of the total expense. Thus this coverage may be deemed lacking, especially for treatment on the lower end of length of time (2 weeks). However the model, especially on the 3rd and 4th weeks of treatment can be considered to be highly excessive due to the large amount contributed by professional fees that may be decreased or socialized. The possibility that the listed costs may be overestimations are also an inherent limitation of the linearity of the model.

Another additional item to be considered would be other financial sources. The hospital's patients, particularly charity patients, often opt to request additional funding assistance from other agencies such as the Philippine Charity Sweepstakes Office, Philippine Gaming Corporation, and the Department of Health. inpatient charity care; however the above model was unable to take into account other possible sources of indirect costs. On the other hand, application of this model shows the case rate to only be able to cover approximately 30-40% of the total expense. Thus this coverage may be deemed lacking, especially for treatment on the lower end of length of time (2 weeks). However the model, especially on the 3rd and 4th weeks of treatment can be considered to be highly excessive due to the large amount contributed by professional fees that may be decreased or socialized. The possibility that the listed costs may be overestimations are also an inherent limitation of the linearity of the model.

Another additional item to be considered would be other financial sources. The hospital's patients, particularly charity patients, often opt to request additional funding assistance from other agencies such as the Philippine Charity Sweepstakes Office, Philippine Gaming Corporation, and the Department of Health.

These agencies typically provide financial subsidies for medications of patients; however there are no publicly posted standard amounts given for these subsidies. With this study, the appropriate amounts could be requested--one key caveat of this model is that drug prices are based on the hospital pharmacy, which heavily subsidizes the price of medication. For example, private pharmacies price Risperidone 2 mg at PhP 30.00 (the cheapest generic brand) versus PhP 8.00 in the tertiary hospital.

Conclusions, Limitations & Recommendations

The study determined the cost of treatment for pay and charity inpatient and outpatient care at a government tertiary hospital. The cost, for charity inpatient care, may ranged from PhP 2332.00 to PhP 44,861.00. For charity outpatient care, this may range from PhP 2892.00 to PhP 213,612.00 annually. For pay patients, costs were estimated to range from PhP 15,347.00 to PhP 246,831.00. The above costs prove that schizophrenia is a significant healthcare burden

or patients in the Philippines. Though the study's model errs on the higher end of estimates, this may prove to be obsolete as prices and costs increase over time.

As mentioned earlier, the study had several limitations. First, several medications (long acting antipsychotics, as needed intramuscular Haloperidol, benzodiazepines) were not taken into account due to their variability in administration. Secondly, the cost estimates did not factor the possibility of patients being PhilHealth members that may have decreased the out-of-pocket expenditure. Thirdly, the model assumes a linear use of medication--it assumes patients use the same dose over the same period of time, which is not true of actual clinical practice where variation of dosages may occur. Fourthly, the use of a single center setting with highly subsidized costs may also skew data towards lower values compared to other private institutions. Finally, valuation of productivity costs continue to be difficult to define and uniform hence the indirect cost (assuming 0 cost) is unlikely.

The chief recommendation for this study is that it may be used in further future studies, especially in a multi-center study. The same model may also be used for rough estimates of other psychiatric disorders. The data obtained should also help justify the increase of benefits and financial support provided to the patient and his/her family.

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