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# Current characteristics of patients seeking consultation at the physiotherapy outpatient department at Dhulikhel hospital, Nepal

A cross-sectional study

Master's thesis in Public Health -  
specializing in Global Health  
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Tine Camilla H. Norderhaug



## Abstract

**Background:** The last decade there has been tremendous changes concerning health, both in the world and Nepal. From primarily infectious disease, it is now a majority of persons facing the burden of noncommunicable diseases (NCDs). In order to tackle the increasing level of NCDs, physiotherapy (PT) has been suggested as giving benefits as part of the health care service. Compared to studies looking at patient characteristics in physiotherapy in HIC, there are few, if any, studies conducted in LIC. **Objective:** The present study describes patients' characteristics at the outpatient department in Dhulikhel hospital, through demographic variables, pain characteristics, health problems and expectations to physiotherapy. The purpose is to increase knowledge about the patient population in a LIC, to further develop and inform treatments in the future. **Method:** A cross-sectional descriptive study, using survey interviews with set alternatives. 100 patients, 57 women and 43 men were recruited to the study. The questions concerned demographic variables, pain assessment, physical activity level and expectation to treatment. **Results:** Patients have an average age of 40 years, slightly more women than men, living in both rural and urban areas of the district. The majority are lacking education and the most common expectation to physiotherapy treatment was a passive form, mainly massage followed by medicine/drugs. **Conclusion:** This study suggests that the patients seeking consultation at the physiotherapy outpatient department at Dhulikhel hospital are relatively young, with a higher representation of females. They are representing both rural and urban areas of the district, and the majority are lacking education. Lower back pain is the most frequent area of pain, and health problems in Nepal confirms the higher risk of developing NCDs. The patients are expecting a passive form of treatment. Future studies on this topic are needed in order to get more advanced knowledge within this field.

**Key words:** physiotherapy, outpatient department, patients, low-income country, noncommunicable diseases, Nepal

## List of abbreviations

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BMI	Body mass index
DALY	Disability-adjusted-life-years
DH	Dhulikhel hospital
HIC	High-income country
KUSMS/IRC	Kathmandu University School of Medical Sciences Institutional Review Committee
LIC	Low-income country
MSD	Musculoskeletal disorders
NCD	Noncommunicable diseases
NEPTA	Nepal Physiotherapy Association
OPD	Outpatient department
PA	Physical activity
PT	Physiotherapy/Physiotherapist
QNR	Questionnaire
QOL	Quality-of-life
WHO	World Health Organization

## **List of tables**

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- Table 1**      Subject characteristics
- Table 2**      Expected treatment
- Table 3**      Time waited before seeking treatment
- Table 4**      Physical demand and occupation
- Table 5**      Physical activity level and occupation

## **List of figures**

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- Figure 1**      Leading causes of DALYs in 2015 and percent change from 2005-2015
- Figure 2**      Flow chart
- Figure 3**      Awareness of physiotherapy
- Figure 4**      Pain assessment
- Figure 5**      Experience of pain
- Figure 6**      General physical activity level throughout the week

## **List of appendices**

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- Appendix 1**   Letter of agreement and consent form
- Appendix 2**   Questionnaire



# Table of Contents

Acknowledgement.....	i
Abstract.....	v
List of abbreviations.....	vi
List of tables.....	vii
List of figures.....	vii
List of appendices.....	vii
<b>1 Introduction.....</b>	<b>1</b>
<b>2 Theoretical background.....</b>	<b>3</b>
2.1 Physiotherapy in high-income countries.....	3
2.2 Physiotherapy and NCDs in Nepal.....	3
2.3 Purpose of the study.....	5
<b>3 Methods and material.....</b>	<b>7</b>
3.1 Study site.....	7
3.2 Study design.....	7
3.3 Study population.....	8
3.3.1 Inclusion and exclusion criteria.....	8
3.4 Data Collection Tools.....	9
3.4.1 Questionnaire.....	9
3.4.1.2 Validation.....	9
3.5 Procedure.....	10
3.6 Ethics.....	10
3.7 Data Analysis.....	11
<b>4 Results.....</b>	<b>13</b>
4.1 Demographic variables.....	13
4.2 Expectations to physiotherapy treatment and awareness.....	15
4.3 Pain.....	16
4.3 Time before seeking treatment.....	17
4.4 Physical activity level.....	17
<b>5 Discussion.....</b>	<b>19</b>
5.1 Demographic variables.....	19
5.2 Expectations to physiotherapy.....	20
5.3 Pain and health problems.....	21
5.4 Physical activity level.....	23
5.5 Data collection as a whole.....	24
5.5.1 Strengths and limitations.....	24
<b>6 Future perspectives.....</b>	<b>27</b>
<b>7 Conclusion.....</b>	<b>27</b>
<b>Reference list.....</b>	<b>29</b>
Appendix 1.....	33
Appendix 2.....	33



# 1 Introduction

According to United Nations Development Program, Nepal is one of the poorest and least developed countries in the world, and falls under the classification of a low-income country (LIC) with a gross national income per capita of US \$730 (1). It is a landlocked country surrounded by India and China, with a complex geographical outline ranging from the plain of Terai with an altitude at 59 meters to the hills and mountains with the highest altitude at 8848 meters at Mt. Everest (2). The distinct geographic divisions isolate most of the rural population (3), and limited infrastructure and poverty makes it challenging to deliver quality health services and maintain regular availability of essential commodities to deliver basic health care (WHO 2016).

The last decade there has been tremendous changes concerning health, both in the world and Nepal. The types of disease that affect the majority of the world's population has shifted from primarily infectious (communicable), such as diarrhea and pneumonia, to primarily noncommunicable diseases (NCDs) (4, 5). This change, called a health transition, is a concept that describes the change in disease patterns that occur during social-economic development (Omran 1971). The driving forces behind the health transition are improvements in medical care and the ageing of the population. Owing to success against infectious diseases through public health interventions such as vaccinations, provision of clean water and sanitation (4). In addition, socio-economic factors and the more affluent lifestyle where patterns of physical activity and food, alcohol and tobacco consumption are changing (5, 6).

NCDs are difficult to define, but are often lifestyle related conditions and diseases that are not caused by infectious agents. The four main types are cardiovascular diseases, cancer, chronic respiratory diseases (chronic obstructive pulmonary diseases and asthma) and diabetes. The definition also covers mental health conditions, neurological- and congenital disorders and musculoskeletal disorders (MSD) such as injuries, damage or disorder of the joints or other tissue (7) (Lee et al., 2012). The main risk factors for NCDs have been identified to be unhealthy diets, physical inactivity, exposure to tobacco smoke and the harmful use of alcohol (4).

NCDs were previously considered to only affect high-income countries (HIC). Now, they account for a large burden in terms of premature mortality and morbidity in LIC (8), such as Nepal. This results in a double burden of diseases. Meaning that LIC have to tackle challenges

of an increasing prevalence of NCDs, while still coping with the current burden of communicable diseases (5). However, all NCDs can either be prevented or, if identified early, treated and managed in a way that significantly reduces disability, financial and societal costs, and prolongs healthy years of life (9).

In order to tackle the increasing level of NCDs, physiotherapy (PT) has been suggested as giving benefits as part of the health care service (10). World Confederation of Physiotherapy (WCPT) emphasized in 2015 the important role that physiotherapists play in health promotion and disease prevention, as they provide services that develop, maintain and restore people's movement and functional ability which maximizes the patients quality of life (QOL) (11). They can help people at any stage of life, when movement and function are threatened by factors such as ageing, injury, diseases, disorders or environmental factors (12). PT is a non-pharmacological treatment, and is less expensive than pharmacological or surgical treatment. Not just because of the lower price, but because of the long term outcome, and benefits of achieving optimized function (12).

## **2 Theoretical background**

### **2.1 Physiotherapy in high-income countries**

Some studies are looking at patients consulting physiotherapy treatment in HIC. From private institutes in Norway (13) (14) and Denmark (15), as well as primary care in the US, Israel and the Netherlands (16) it is indicated that those who go to physiotherapy often are in their working age, with an average around 50 years and that mostly women are using physiotherapy treatment (57-70 percent). In the Netherlands 38 % of the patients had acute symptoms (< 1 month), and a majority of the patients in the USA and Israel had chronic symptoms (> 3 months). In the three countries compared lumbar spine was the body part that was treated most frequently, followed by neck, knee and shoulder (16). Patients in the Norwegian studies had mainly muscle and skeletal related pain, and most reported nuisance and back pain (13) (14).

The most recent study in Norway found that the patient group who went to physiotherapy were highly educated, and those with long-term pain conditions remained largely at work, used many other healthcare services in addition to PT and a large proportion of patients had expectations that physiotherapy would help them become healthy (17). At the clinic where the study was completed there were about one-third that went regularly to physiotherapy. These had a higher incidence of painful body areas, more long-term pain, somewhat lower workload, used to a greater extent other healthcare, and had lower expectations that physiotherapy would make them healthy compared to the patient group who did not regularly go to physiotherapy (17).

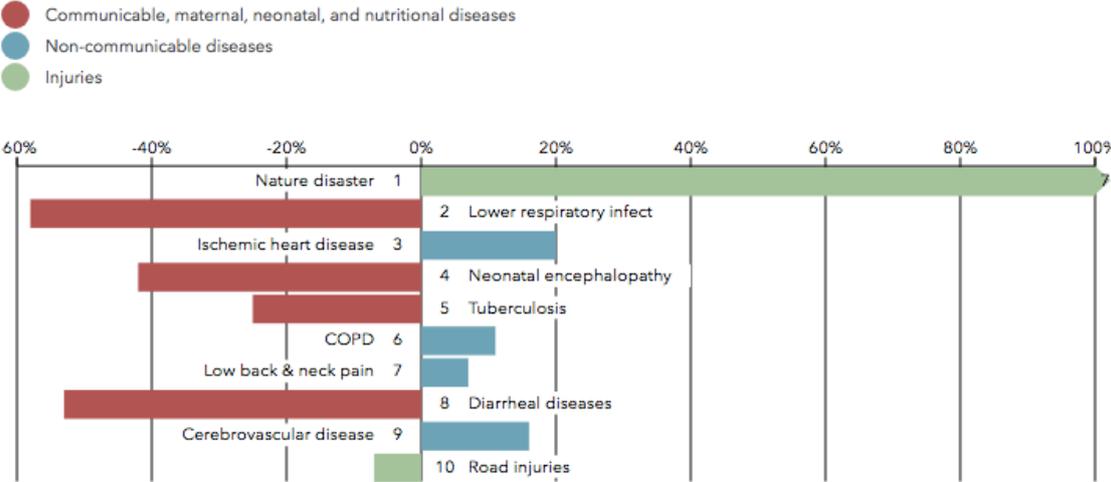
Compared to studies looking at patient characteristics in physiotherapy in HIC, there are few, if any, studies conducted in LIC.

### **2.2 Physiotherapy and NCDs in Nepal**

Physiotherapy is a profession that is relatively new in Nepal (Baidya, Acharya et al. 2016), and services providing this kind of treatment started around 30 years ago. In 2016 there were 2000 physiotherapists registered in the Nepal Health care council (NHPC). From the registered PTs approximately a number of 500-800 have moved abroad, and the remaining PTs are mostly based in urban areas and lesser number in the smaller towns and villages. A report from Nepal Physiotherapy Association (NEPTA) reported a ratio of number of physiotherapists per persons in the population being 1/10 000, and there is an estimated need of 1 per 300 patients. The majority of the PT's work in facilities providing care for musculoskeletal conditions, with some

working in neurology and rehabilitation units, and a smaller number in intensive-care units, obstetrics and pediatrics (18).

In Nepal NCDs are responsible for 6 out of 10 leading causes of disability adjusted life years (DALYs). This shows the emerging need of services offering prevention and rehabilitation of such diseases/disorders. The statistics shown in Figure 1, gives us an understanding of the burden of disease in the country and the transition from 2005-2015 (19).



Leading causes of DALYs in 2015 and percent change, 2005-2015

**Figure 1.** Retrieved from Institute for Health Metrics and Evaluation (19). The figure presents the leading causes of DALYs in 2015, and percent change from 2005-2015. The right hand side, with increasing percentage are demonstrating an increase in burden, while the negative percentage on the left shows that the burden of these diseases has decreased in this time period.

NCDs are demanding for both the society and the individual. At the national level treatment expenses can be high and the loss of labor due to disability caused by NCDs can make a substantial decrease in a country’s productive capacity (20). On an individual level people with disabilities generally have poorer health, lower education achievements, fewer economic opportunities and higher rates of poverty (21). NCDs often results in lengthy and expensive treatments, where costs of obtaining medical care and costs associated with being unable to work can be drastic (8).

### **2.3 Purpose of the study**

As a result of the rising burden of NCDs, it is an increasing need of services focusing on prevention and rehabilitation in LICs. Based on the lack of knowledge considering physiotherapy patients in LICs, the present research project is conducted at an outpatient physiotherapy department (OPD) in Dhulikhel, Nepal. To further develop and inform treatments in the future, the purpose of this study was to increase knowledge about patients consulting physiotherapy in Dhulikhel.

The research question was:

What characterize patients seeking consultation at the physiotherapy outpatient department at Dhulikhel hospital regarding demographic variables, pain characteristics, health problems and expectation of physiotherapy?



## **3 Methods and material**

### **3.1 Study site**

Dhulikhel hospital (DH), which is the study site for this thesis is located in the hill/ Central region of Nepal, 1650 meters above sea level and 30 km northeast of Kathmandu (22). More specifically DH is located in Dhulikhel Municipality, Kavre district, a district with a population of approximately 1.6 million people (23). The hospital is an independent non profit, non government institution that was established in 1996 and covers the population of approximately 1.9 million from Kavrepalanchowk, Sindhupalanchowk, Dolakha, Sindhuli, Ramechhap, Bhaktapur and other surrounding districts (22). Dhulikhel hospital is the university hospital for all the medical programs run under the collaboration with Kathmandu University (22). The hospital is ranked as number 2 of the top 10 hospitals in Nepal by WAPNepal (24) where Bir Hospital in Kathmandu was ranked as number 1.

The data collection took place at the outpatient physiotherapy department at the hospital (referred to as the OPD in the rest of this paper) from 05.09.2016-29.09.2016, Monday till Friday 9 am – 4.30 pm and two Saturdays the same hours.

### **3.2 Study design**

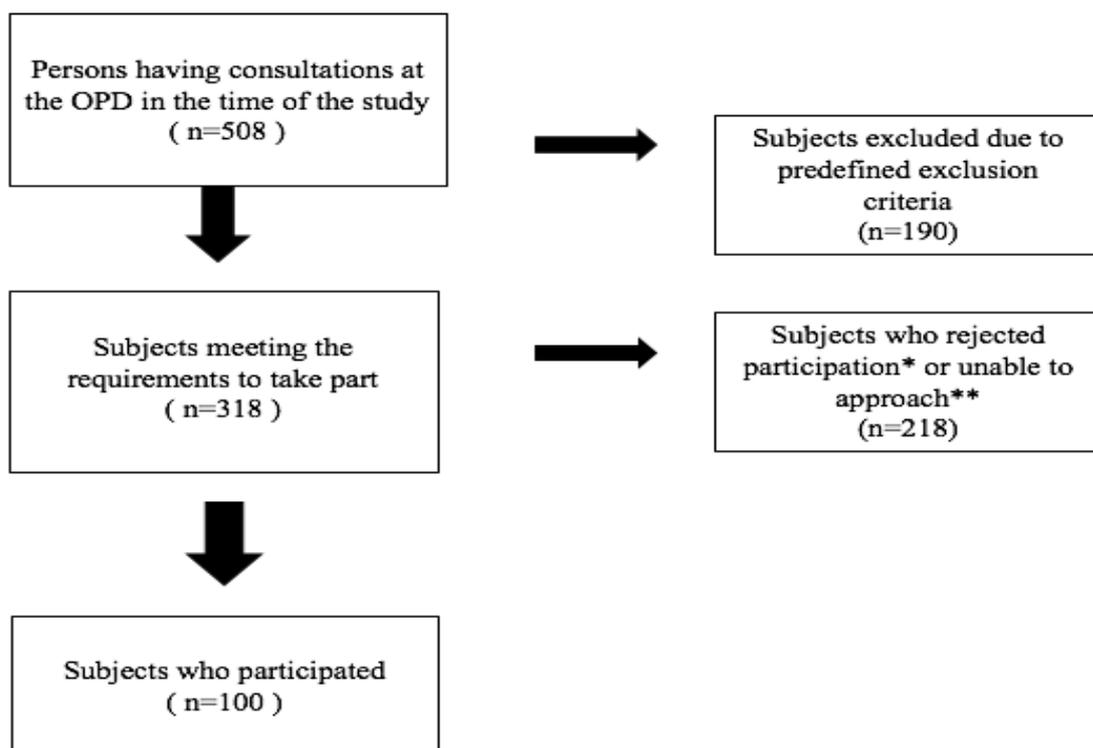
Through a cross-sectional descriptive study, survey interviews of patients at Dhulikhel Hospital was conducted with particular interest in patients' demographic variables, pain characteristics and expectations. The design was chosen based on the time available for the data collection, and the purpose of the study. As many in Nepal are illiterate it was decided to do all the questionnaires orally, a so called survey interview (25), even with the patients that were more educated and able to fill out the questionnaire on their own. This was to make sure the process was standardized (26). All data was processed without name, personal identification number or other directly recognizable type of information. A code number linked the participant to the data. The candidate from Norway was cooperating with a research assistant/interpreter (referred to as assistant from now on) from Nepal, who was hired for the purpose of the study. The participants were given the opportunity to withdraw their consent at any time without a given reason. Each subject received information about the procedures, and signed a consent form (Appendix 1).

### 3.3 Study population

The study population for this paper was a convenience sample of patients waiting for their appointment with a physiotherapist at the OPD. With regard to the day-to-day operation and the time frame set for data retrieval, a number of 100 participants were considered sufficient. During the period of the study a total of 508 patients were having consultations at the OPD, of these 43 men and 57 women participated in the study. Subject characteristics are presented in Table 1 in the result section.

#### 3.3.1 Inclusion and exclusion criteria

Patients who were excluded from the study were persons who had previous consultation by a physiotherapist at the OPD, was under the age of 16, reluctance to sign the consent form, or not speaking Nepali. Also, some persons we were unable to reach in order to keep the operation of the OPD as normal as possible. The patient flow is presented in Figure 1.



**Figure 2.** Flow chart

\*Reasons for rejecting the invitation to participate were; festival season, in a rush to get back home, needing permission of husband, simply not wanting to. \*\*As it was important for the OPD to operate as normal as possible it was impossible to approach all patients before they had their consultation. Also at times we were lacking a room because of practical exams for the physiotherapy students.

### **3.4 Data Collection Tools**

#### **3.4.1 Questionnaire**

The questionnaire (QNR) (Appendix 2) used to conduct the survey interview was specifically developed for the purpose of the study, in order to map the user group of physiotherapy and the expectations of physiotherapy at the study site. It was constructed by the researcher and was created using some basic theoretical rules, such as having a neutral language in order not to lead the participant in a desired direction (25), dividing the questions into themes in order to make it look more transparent and easy to follow (27). The QNR in this study addressed questions concerning demographic variables such as age, gender, marital status and education. It was organized starting with personalia and other general questions in order to build up trust with the participant and not start off with sensitive questions that could end up with the participant not wanting to continue answering (27). It consisted of twenty-two questions with set alternatives (Appendix 2).

To get an indication on respondents' activity level throughout the week, they were asked how physical demanding their occupation was and how often they took part in physical activity (PA) weekly. PA was defined as activity that made you sweat and lasted for 30 minutes, which is WHO's recommendation for PA (28). To assess pain among the participants a pain rating scale developed by Wong-Baker was used, and a body examination inspired by "The McGill Pain Questionnaire: major properties and scoring methods", where the participants were asked to mark on a drawing the areas where they felt pain. Also, to assess what expectations they had to physiotherapy some questions such as "how did you first hear about the physiotherapy OPD at Dhulikhel?" and "what kind of treatment do you expect to get by the physiotherapist?" were included in the QNR.

#### **3.4.1.2 Validation**

The questionnaire was first made in a Norwegian version. This version was validated by pre-testing the questionnaire with physiotherapy patients at Diakonhjemmet hospital in Oslo, Norway. A physiotherapist used the questionnaire, going through it orally with three of her patients. Afterwards, the physiotherapist who had used the questionnaire discussed with the researcher how it went, what the patients thought of the language and the questions, whether these questions were too direct or not, and if they were relevant. After that, some changes were made in order to make the questionnaire more appropriate to be used with patients, before being

translated in to Nepali by a native Nepali speaking student at the physiotherapy program at NTNU in Trondheim.

In Nepal proper training and instructions to the assistant, based on Ringdal's recommendations for standardized interviewing was given by the researcher. Focusing on the importance of reading each question in the same way and non-directive, having a clear understanding of how to follow up inadequate answers in a neutral manner and how to register the answers accurately. After discussing the questionnaire with the assistant, it was agreed that the translation that had been completed in Norway was not applicable as it was translated directly from Norwegian into Nepali. Some adjustments were made in order to make it more informal, understandable, fluent and useable for communication with the patients, as well as making sure the questions were formulated so that it was natural for the assistant to put it forward in the same way. After the edits, a new validation of the questionnaire was done in the context of the research. Five test-survey interviews were completed by the researcher and the assistant, at the OPD before the data collection started.

### **3.5 Procedure**

After approaching patients in the waiting room asking them to take part in the study and it was confirmed they were meeting the inclusion criteria, the patients were led to the room that was provided for the study. They sat down and the consent form was read aloud by the assistant. If they still agreed to take part in the study they signed the consent form by using their finger print, as many of the participants did not know how to write. Conducting the survey interview, each question was asked by the assistant in Nepali and answers were registered consecutively by the researcher. It took about 7-10 minutes to complete the survey interview, and height and weight measures were registered before the session was ended.

### **3.6 Ethics**

Prior to initiation of the study, clearance from Kathmandu University School of Medical Sciences Institutional Review Committee (KUSMS/IRC) was obtained, and all the aspects of the study were in agreement with the latest version of the Helsinki declaration.

### **3.7 Data Analysis**

After the data collection, the answers were registered as number codes and organized in a data matrix under suitable categorical variables. Descriptive analysis in Microsoft Excel for Mac version 15.17 and IBM SPSS Statistics version 24 were used to analyze the data. Demographic variables are presented in Table 1. Some of the categories in the questionnaires were merged together. In practice, some questions having many optional categories in the QNR were presented with fewer in the result section. One example would be education level. In the questionnaire it was eight possible options, but when doing the analysis demonstrated in Table 1, they were organized into four groups. This did not change the number of respondents, but made the material more presentable. During the analyses of pain, we counted the number of people who had pain at the same areas in Figure 3, how much pain they were experiencing in the time of the interview in Figure 4. Some topics/questions were excluded when presenting the main results because the researcher experienced it was too many categories and that not all of them were relevant/necessary in order to answer the research question after all. For example, mean of transportation to the hospital. The last section about expectation of PT was not that relevant and therefore including the answers of these questions were not appropriate.



## **4 Results**

Almost 20% of the persons visiting the OPD in the time of the study were participating in the study. Total number of questionnaires completed were 100, and all of these were filled out with no missing data. Total answers included in the study were 100 (100%).

### **4.1 Demographic variables**

Patients seeking consultation of a physiotherapist at the outpatient department at Dhulikhel hospital had a variety of demographic variables, and ranged in age from 17 to 75 years. It was slightly more female representation. A minority had a BMI meeting the criteria for being underweight ( $<18.5$ ), 36 were considered overweight ( $>25$ ) and 6 had a BMI  $>29.9$  which is considered as having obesity. 3/6 with obesity had no education and 1/6 had not completed lower education. The majority were married, half of the patients came from rural parts of the area, and 69 percent had no education or not completed lower education. There is a higher number of people having “traditional” occupations such as farming and household, compared to more “modern” occupations like business. Data presented below in Table 1.

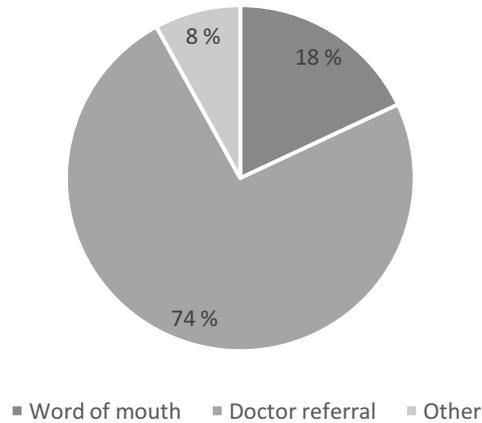
**Table 1. Subject characteristics**

Variable	Participants (n=100)	
Age (years), mean (SD)	40 (13)	
BMI ( $\text{kg}\cdot\text{m}^{-2}$ ), mean (SD)	24 (4)	
	Underweight	2
	Overweight	36
	Obese	6
Gender, n	Female	57
	Male	43
Marital status, n	Unmarried	16
	Married	81
	Divorced	2
	Widowed	1
Education, n	No education	26
	Not completed lower education (<12 years)	43
	Completed lower education (12 years)	19
	College/University	12
Residence, n	Rural	50
	Urban	50
Occupation, n	Student	9
	Household	16
	Farming	20
	Business	21
	Teacher	9
	Health profession	1
	Other	24

Data are presented as mean (SD) and number of subjects. BMI = Body mass index.

## 4.2 Expectations to physiotherapy treatment and awareness

The majority of the study population heard about the OPD by doctor referral, and some heard about it through acquaintances, see Figure 2.



**Figure 3.** Awareness of physiotherapy

Of all the patients included in the study almost everyone expected a passive form of treatment, presented in Table 2. The most common was massage, medication/drugs and taping respectively. Only a few expected exercise as a method.

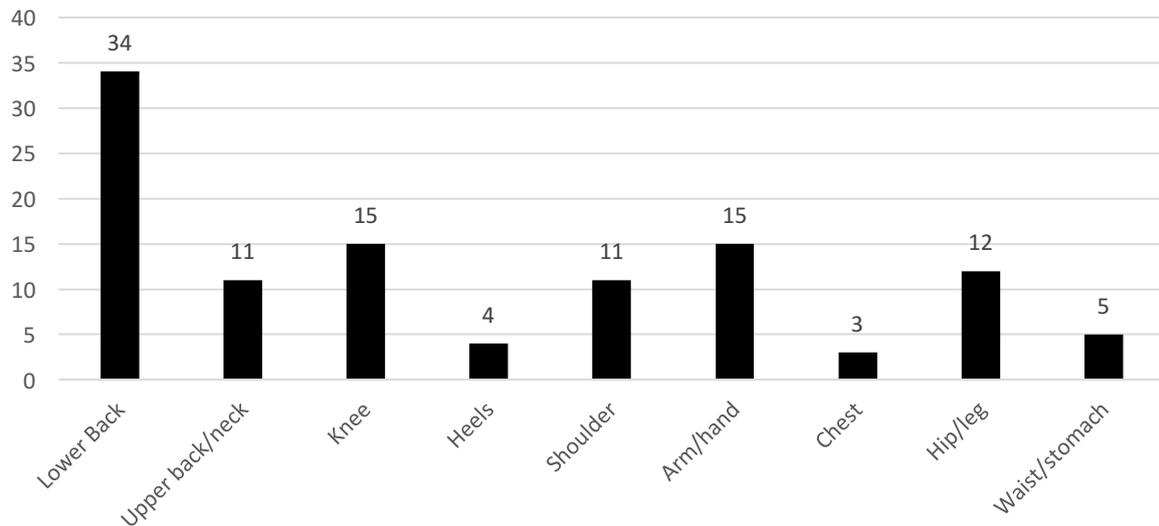
**Table 2. Expected treatment**

	Variable	Frequency	Percent
Valid	Medication/Drug	34	34.0
	Exercise	5	5.0
	Massage	46	46.0
	Counseling	2	2.0
	Electrotherapy	1	1.0
	Taping	8	8.0
	Don't know	2	2.0
	Other	2	2.0
	Total	100	100.0

Data are presented as number of subjects and percent.

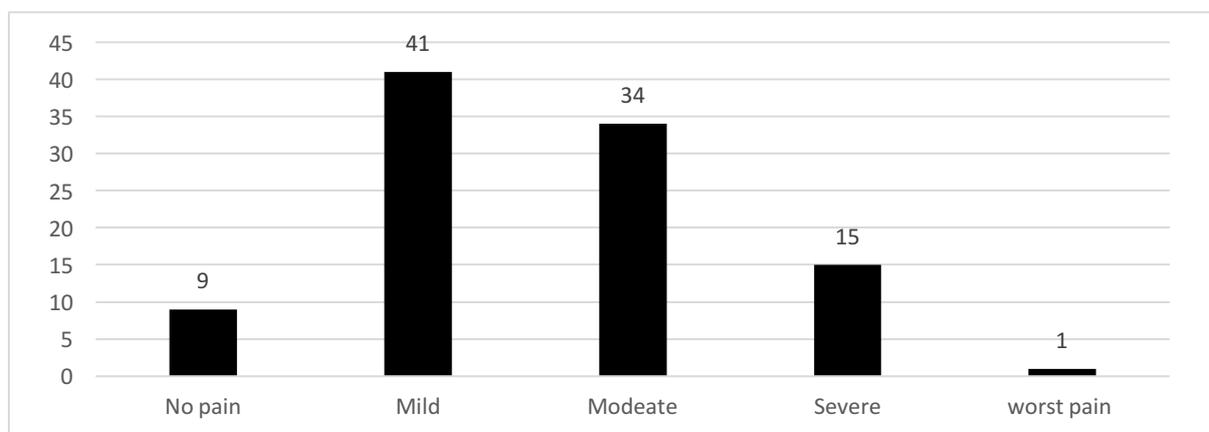
### 4.3 Pain

Area of pain is presented in Figure 3. Most of the respondents marked pain located to the lower back when asked to draw this in the body examination part of the QNR. Of persons experiencing pain in the arm/hand, 8 of these were fractures. Of persons with lower back pain, 12 had radiating pain.



**Figure 4.** Area of pain. Data are presented as number of subjects

According to the assessment using the pain rating scale developed by Wong-Baker we assessed level of experienced pain, from no pain to worst pain imaginable. This is presented in Figure 4, and the experience of pain did not exceed “moderate pain” for the majority of the respondents.



**Figure 5.** Experience of pain on a rating scale using Wong-Baker faces to express the different levels. Data are presented as number of subjects

### 4.3 Time before seeking treatment

There are a slightly higher population in this study waiting longer than three weeks before seeking healthcare at the OPD

**Table 3. Time waited before seeking treatment**

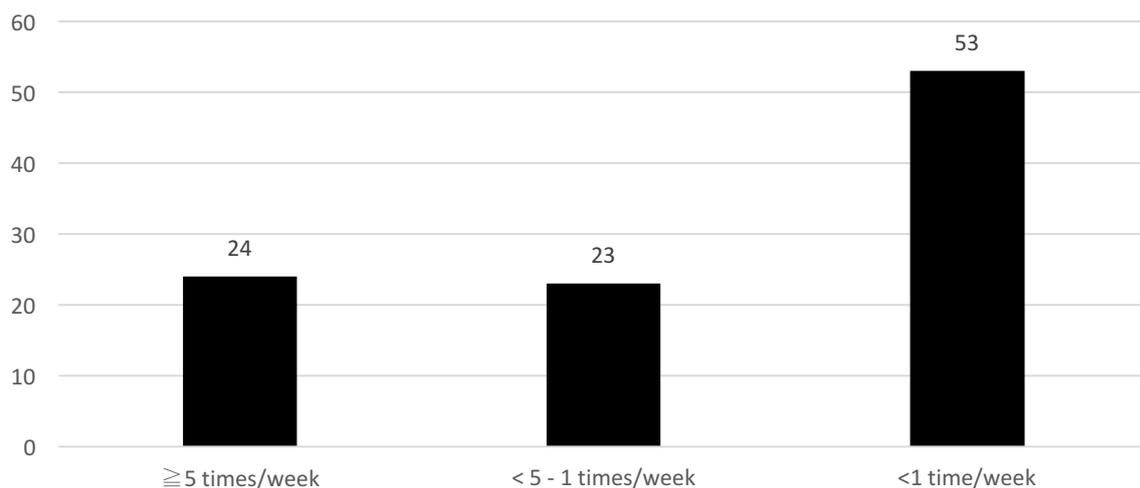
Variable	Frequency
Valid	
<3 weeks	43
> 3 weeks	57
Total	100

Data are presented as number of subjects and percent.

### 4.4 Physical activity level

Physical activity was defined as “activity that make you sweat”. This includes any bodily movement produced by skeletal muscles that requires energy expenditure (28). Activity level of the patients through out the week were self-reported, and is presented in Figure 5.

Combining the two groups of respondents who did not have a weekly PA level meeting the WHO recommendations (30 minutes of moderate activity  $\geq 5$  times per week), we get an indication that as many as 76 percent of the respondents were not meeting the recommended amount.



**Figure 6.** General physical activity level during the week. Data are presented as number of subjects

Experience of physical demand in occupation, presented in Table 3, were reported as being active or physically demanding. Table 4 is describing the activity level to the respondents of different occupations. Of the persons having farming as their occupation, 10 out of 20 farmers claimed to have an activity level < 5 times per week. For the persons having household as occupation only 1 reported to meet the WHO recommendations.

**Table 4.** Physical demand and occupation

PD /Occupation	H	F	B	S	T	HP	Other	Total
Sedentary	6	2	5	3	2	1	11	30
Active	10	9	15	6	7	0	9	56
Demanding	0	9	1	0	0	0	4	14
Total	16	20	21	9	9	1	24	100

Data are presented as number of subjects. PD=physical demand, H=household, F=farming, B=Business, S=student, T=teacher, HP=health profession.

**Table 5.** Physical activity level and occupation

PA level/ Occupation	H	F	B	S	T	HP	Other	Total
Over5	1	10	5	1	2	0	5	24
Under 5	3	4	7	4	1	1	3	23
Rare/Never	12	6	9	4	6	0	16	53
Total	16	20	21	9	9	1	24	100

Data are presented as number of subjects. PA=Physical activity, H=household, F=farming, B=Business, S=student, T=teacher, HP=health profession.

## **5 Discussion**

To the best of our knowledge, the current study is the first to describe characteristics and expectations in patients visiting an outpatient physiotherapy practice in Nepal. The results in the present study indicate that the patient population seeking physiotherapy at the OPD in Dhulikhel hospital consists of persons with an average age of 40 years, with slightly more women than men, living in both rural and urban areas of the district. The majority were lacking education and the most common expectation to physiotherapy treatment was a passive form, mainly massage followed by medicine/drugs. Despite high prevalence of active or demanding occupations most persons reported not meeting the recommended physical activity level.

### **5.1 Demographic variables**

Some of the demographic variables found in this study are differing from the variables seen in a HIC. This is not surprising knowing that the socio-economic status in general in a high-income versus a low in-come country is different. According to Opseth *et al.* (17) the patients using physiotherapy treatment were highly educated. In Nepal however, most of the patients had not completed 12 years of basic education. The reason for our study to find such a different result, is most likely because of the setting. This study is conducted in a LIC, where more persons are suffering from poverty and not having access to school. Research suggest that education is one of the main predictors for health (29), and has a critical impact on prevalence of morbidity and mortality, as well as exposure to different risk factors (29). Education acquires a person with skills such as personal control and self management that may impact response to stress and reaction to illness (30). Education might contribute to wealth and economic resources as it is less likely to experience unemployment, improves the access to social networks and support. All these factors might help to avoid risks and/or minimize the consequence of disease once occurred (31, 32). Being educated also reduce the engagement in unhealthy behaviors like smoking, drinking, and sets the premises for a healthier lifestyle regarding diet and exercise (31-33) as it equips a person with tools that helps absorb messages about important choices to prevent or manage disease more easily (33). Being aware of these important gains of being educated, and knowing the educational level of the patients using the services delivered, makes it easier to understand where the patients are coming from. For the physiotherapist to be aware of the educational level of the patient might help assure that the sharing of knowledge and advises are done in accordance to the patient's level of understanding.

Some of the similarities to the studies conducted in HIC with the data from this study is that the

patients receiving physiotherapy are fairly young with an average age around 40-50 years, and with a higher tendency of females seeking PT. According to research looking at the trends of different genders seeking health care, it seems to be normal to find results with a higher number of females, as women more often seek health care than men (34, 35).

The relevance of BMI as an indication on health status is highly discussed and it is known that factors such as muscle mass and pregnancy might affect the results (36). Besides this, we chose to include this as part of the patient characteristics to get an overview of the “size” of the population. The higher BMI, the higher the risk of developing a range of NCDs linked with excessive weight (36), such as diabetes mellitus, cardiovascular diseases and musculoskeletal. Meaning, that this measure could give a brief insight to the risk of developing such conditions. In our study we did not include questions about pregnancy. As the majority of the study population was women this might have affected the BMI average. In the OPD, 42 percent of the study population had a BMI > 24.9, and the physiotherapist consulting these patients should in addition to focusing on the area of pain also give advice concerning a healthier life style. A recent study by O’Donoghue *et al.* (37) identified the potential contribution of physiotherapists in addressing all risk factors associated with NCDs. In order to respond to the increasing speed of NCDs, physiotherapists need to adjust their goals and strategies and rethink their interactions with clients (11, 37). Using every opportunity to assess and advise on risk factors in patient encounter, the profession would make a significant contribution to the fight against NCDs (9).

## **5.2 Expectations to physiotherapy**

Our data material shows that the majority of the respondents were expecting some kind of passive treatment. For the researcher coming from a HIC this was surprising. However, after spending four weeks in the OPD it was evident that the treatment practices were different from Norway, and the patients’ expectations to treatment might in fact reflect the performed treatment by the physiotherapist workforce in Nepal. A study looking at physiotherapy practice patterns in Intensive Care Units (ICUs) in different parts of Nepal (38) found that the involvement of physiotherapy in the ICU were limited, compared to a study in the US (39), and that the least preferred form of treatment was therapeutic exercise. In the study from ICU in Nepal, they discussed that this might be due to lack of awareness among Nepali physiotherapists about advantages of using therapeutic exercise as a treatment method. In a study done in Australia, (40) 42 percent of the physiotherapists believed that exercise was included for all ICU patients, where active-assisted/free active exercise was the most common form of exercise

prescribed (40). Even though these studies were conducted at ICU units there are reasons to believe this also reflects the practice in an outpatient setting.

It might seem like Nepal is still lagging behind the HIC, when it comes to performing treatments that will benefit the health system and the patients in a highly effective manner. As mentioned previously, exercise would help the patients restore their functional movement, and speed up the rehabilitation processes by providing the patient with guidance for proper exercise. This would make the patients more responsible for their own health and well-being, and make them a bigger part of the process returning back to better health (41). With basis in the definitions of physiotherapy (12), there should be more focus on physical activity and movement in the treatments being conducted in Nepal. In order to change the perception of physiotherapy treatment being only a passive treatment, physiotherapists in Nepal first need to be aware of the benefits of exercise, and share this with other departments in the health sector as well as the people of the country.

### **5.3 Pain and health problems**

In this study we found that pain in the lower back area was most frequent. Studies looking at physiotherapy in the US, the Netherlands and Israel (16), were reporting what (i.e. body part) physiotherapists were treating, and not particularly the patients experience of pain. Their results still give an indication of areas of pain, and based on that there were similarities in pain occurrence with the majority suffering from lower back pain. Also, in Norway (13, 14) back pain is of high prevalence. This might imply that despite differences in socio-economical factors of the countries and patient population, persons experiencing pain and/or dysfunction in the lower back utilize PTs.

Other than these findings there are little comparable material between this thesis research and the material on patient characteristics from HIC. Unfortunately, we only registered if the patients waited  $<$  or  $>$  3 and can therefore not distinguish between patient having an acute or chronic condition. A chronic condition is defined if lasting  $>3$  months. It is also difficult to draw conclusions concerning how affected the patients in our study were of pain. Despite the fact that questions about pain experience were reported, our QNR did not include questions about drugs, and therefore we don't know if the patients had taken any pain relieving medications before they came to the OPD. This could have an effect on experienced pain level.

To date there are not much data with specific numbers of people suffering from disorders/disabilities in Nepal. However there are there are three recent studies that can support some of the indications in this study about health problems among the citizens of Nepal. These three are covering the topics of disability, risk factors to NCDs and incidence of musculoskeletal disease. The first one is looking at living conditions for people with disability(42). That study indicated fewer males reporting chronic illness and that more females have poor, or very poor, physical and mental health. The second study, the Nepal STEP survey, collected baseline data on NCD risk factors in the Nepalese population. It consisted of three steps for measuring NCD risk factors: First, socio demographic and behavioral information including tobacco use, harmful alcohol consumption, low fruit and vegetable consumption, history of raised blood pressure and blood glucose levels, oral health, dietary salt consumption, and housing and energy (indoor air pollution) (43). Followed by physical measurements (height, weight and blood pressure) and biochemical measurements such as blood glucose and cholesterol levels (43). This study concluded that only 0.4 percent of the study population was found to be totally free of established NCD risk factors, meaning 99.6 percent had at least one risk factor. The third, and most recent study was a community-based survey identified possible incidence of musculoskeletal disease (MSD) (44). MSDs is considered to be an NCD as previously mentioned in the first chapter of this thesis. The study on MSDs indicated that there are approximately 2.35 million people living with MSDs in Nepal. This study might give an even better picture of how the health status is in the rural parts of Nepal, as the majority of the study population were living in rural areas. The study found a prevalence of MSD at around 14 percent. The estimated prevalence of traumatic MSD was 8.7 percent and non-traumatic MSD was 6.2 percent. Of the respondents with a non-traumatic MSD that had developed within the past year, 69 percent desired medical evaluation but were unable to receive it (44). This might indicate that there are indeed more persons within Nepal with difficulties and disorders that would benefit physiotherapy treatment. That study found a small percentage having back pain, more persons having problems in the extremities, and the most common types of MSDs were due to growth or mass and congenital deformities. They identified that non-availability to treatment, lack of money and fear/lack of trusts was main barriers to orthopedic care in Nepal, which likely is the same for physiotherapy treatment.

The prevalence rate of disability is unclear, as the numbers are varying between the studies compiled. The National Census 2011 (23) conducted by Government of Nepal reported that

1.94 percent of the total population of Nepal is living with some kind of disability, whereas the National living standard survey report, for the same year, has claimed it to be 3.6 percent. These figures are low compared to the 15 percent disability prevalence rate claimed by WHO and World Bank in the World Report on Disability (21). After the earthquake hit Nepal in 2014, chances of people living with a disability/injury is high. The study looking at living conditions of people with disabilities in Nepal discussed that the prevailing poverty and illiteracy in the Nepali society, difficulties in accessing health services, an ageing population and high rates of accidents are other factors that one could expect leading to high disability prevalence in the country (42).

#### **5.4 Physical activity level**

Our study aimed to collect information about PA as it is positively associated with improvements in both mental and physical health, treatment of diseases and overall well-being (45). With physical activity we refer to the definition by WHO “... *any bodily movement produced by skeletal muscles that requires energy expenditure*” (28, 46). There is compelling evidence between physical inactivity and the development of NCDs (47). If one meets the recommended amount of 150 minutes of moderate PA weekly, benefits such as reducing the risk of hypertension, diabetes, depression and the risk of falls, as a result of improved bone and functional health (28, 46). The majority of respondents in this study reported that they did not meet the recommended regular physical activity level. However, based on the occupations they are involved in and other studies looking at physical activity level within Nepal, there are reasons to believe that the respondents have a higher weekly activity level than they reported. In HIC over-reported numbers of PA levels are common. Most people in these countries knows the benefits of an higher level of PA and also social norms makes you want to “fit in”, completing you 30 minutes of daily activity. In Nepal on the other hand, this might be underreported as a consequence of persons not “everyday activity”, such as walking to the fields where they work, in the definition of PA. Difference in cultures and the perception of the term might effect the results, an indicate lower activity level in the populations that actually have the highest PA level throughout the week.

In our study self-report were used. As demonstrated in the paragraph above, this kind of measurement may provide a reasonable indication of PA level, but it is also a high chance

of misleading results because of possible bias. Self-reported methods have several limitations, due to recall bias and dependency on respondents' perception of what "physical activity" actually is (48, 49). Looking at our results it might indicate that our respondents did not understand what our definition of PA meant. The majority answered that they were not involved with a moderate PA level lasting for 30 minutes  $\geq$  5 times per week, but when comparing their occupation with what they perceived as their activity level we might assume the level of PA is higher. A systematic review looking at current physical activity patterns among South-Asian adults conducted in 2013 (50) found that the most active regional country was Nepal, possibly due to 80% of the Nepalese population being involved in agriculture. In all the regional countries compared in the study, work and transport related activity was higher compared to leisure time activity. This is probably the same for our population group.

## **5.5 Data collection as a whole**

### **5.5.1 Strengths and limitations**

First, the strength of this research was covering a topic that are poorly understood. Second, the use of survey interviews made illiteracy not a limitation to take part in the study. The study had a 100 percent answering rate meaning no missing data in the collected material, which might underline the advantages of having a high degree of closeness during the completion of the survey. Being present at the OPD for four weeks as well as speaking with the staff it does seem like our findings do align with the staffs' observations in terms of typical pain/cases being treated and persons seeking the OPD.

This study has several key limitations that should be recognized. In order to keep the practice at the OPD as normal as possible, the selection of patients was by convenience sampling which makes it difficult to generalize the results conducted. Some circumstances that might have had an impact on the data collection was the availability of a room to conduct the survey interviews in. At times there were no rooms available, due to serve functions at the OPD. The survey interviews were conducted in another language, which makes it difficult to be certain of the reliability of the survey interviews. The researcher cannot be 100 percent sure that the topics covered were understood and interpreted the way it was meant. Neither assure that the questions were asked in a neutral manner, not leading the participant in a desired direction. Detailed explanations and clarification of how to conduct the survey interviews before the collection was

completed, but the lack of experience for the researcher and assistant might have affected the way the interviews were conducted. This study gathered data from 20 percent of the patients coming to the OPD in the time of the study. This is estimated including the patients that were excluded based on pre-set exclusion criteria. This is a decent number of respondents, but the time period the data collection was conducted might have resulted in the population not being representative to the “regular” patient flow. This was a time of festival season in Nepal and according to the staff in the OPD many patients prioritize preparing for the celebrations rather than seeking healthcare during these times. Also, the monsoon with heavy rain showers could make it difficult for patients travelling from rural parts of the district to get to the hospital.

If we were to conduct this again: First, prior to the research we would spend more efforts to see if there are questionnaires already validated we could use, or at least be inspired from. At the early stages of this thesis, we could not find any appropriate questionnaires. After this period of research, however, chances are greater to find more useable material, based on the experiences of the researcher. This would be more time efficient and it would make it easier to compare the data with other studies using the same QNR. If, structuring the QNRs, they would contain fewer and more detailed questions about the specific topics to ensure the aim of the study were covered. For example, more details about what kind of pain / condition the patients had. Was it internal or external, duration of pain/disease, < 3 or > 3 months. The questions of our research have been covered, even though it could have been even more detailed. Based on the fact that Kavre district was badly affected by the earthquake, it is likely that more patients than those 508 seeking the OPD in this time period, could be in need of rehabilitation or other treatments facilitated by a physiotherapist. According to the WCPT, the general practice in Nepal is that patients are first referred to orthopedics or other medical faculties, before seeking physiotherapy treatment. There are no regulations stating that a person cannot refer him/her self to a physiotherapist, but lack of awareness about where to seek help and possible benefits of using physiotherapist might lead to persons not getting the necessary healthcare. Awareness about the profession and the option of self-referral could lead to a higher number of persons using the OPD.



## **6 Future perspectives**

Based on the findings in our study, several recommendations for future research can be suggested. First, to conduct data collection at a different time of the year, to see whether the patient flow is different during the festival and monsoon season. Second, it might be beneficial to include all patients coming to the clinic. Third, it would be interesting to compare differences in the persons coming back to the OPD for follow up, and those who don't. Registering way of referral can help understand the physiotherapists role in the health system of Nepal (general practitioner, self-referral or other health facilities). It could be desirable to follow up expectations to physiotherapy focusing more on the treatment outcome (whether or not they believe that physiotherapy will help them). Another suggestion would be to look at how treatment is being carried out in the outpatient department versus in the ICUs that have been previously described.

## **7 Conclusion**

This study suggests that the patients seeking consultation at the physiotherapy outpatient department at Dhulikhel hospital are relatively young, with a higher representation of females. They are representing both rural and urban areas of the district, and the majority are lacking education. Lower back pain is the most frequent area of pain, and health problems in Nepal confirms the higher risk of developing NCDs. The patients are expecting a passive form of treatment. Future studies on this topic are needed in order to get more advanced knowledge within this field.



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## **Appendix 1**

### **Letter of Consent**

## ***“Current practice at the physiotherapy out-patient clinic in Dhulikhel Hospital”***

### **Background and purpose**

This is an invitation for you to participate in a study which involves that you answer a questionnaire about your expectations to the help/treatment you will receive at the clinic today, and also some information on your general background. The purpose of the study is to get an overview of what kind of patients are using the physiotherapy outpatient department, and first time visitors will be asked to take part in the study.

### **What will happen to the samples and your personal information?**

The data that are registered about you will only be used in accordance with the purpose of the study as described above. All the data will be processed without name, personal identification number or other directly recognisable type of information. A code number links you to your data and samples through a list of names. The list that can link your name to the code number will be stored at the clinic/hospital only, and only the authorised study staff will have access to this list.

It will not be possible to identify you in the results of the study when these are published.

### **Potential advantages and disadvantages**

There are no obvious disadvantages taking part in the study. In order to fill in the questionnaire, it requires 10 minutes of your time in advance of your appointment with the physiotherapist. The information collected will benefit the future development of the outpatient clinic and may result in a better offer for you and other patients in the future.

### **Voluntary participation**

Participation in the study is voluntary. You can withdraw your consent to participate in the study at any time and without stating any particular reason. This will not have any consequences for your further treatment. If you wish to participate, sign the declaration of consent on the next page.

### **Right to access and material storage**

If you agree to participate in the study, you are entitled to have access to the information registered about you. You are further entitled to correct any mistakes in the information we have registered.

**If you have questions concerning the study, you may contact researcher Ms. Norderhaug +4745202785, or Project Manager Mr. Nishchal Shakya.**



## Appendix 2

प्रश्नावली – १० मिनेट

Questionnaire – approximately 10 minutes

(NEPALI / ENGLISH)

आधारभूत जानकारी :

### Basic info

१. लिंग : महिला / पुरुष, २. उमेर : .....वर्ष  
1. Gender: Female / Male, 2. Age: \_\_\_\_\_ yrs
३. उचाई : .....से.मि , ४. तौल : .....के.जी.  
3. Height: \_\_\_\_\_ cm, 4. Weight: \_\_\_\_\_ kg,
५. वैवाहिक स्थिति : -अविवाहित -विवाहित -सम्बन्ध विच्छेद -विधवा  
5. Relationship status: -Unmarried -Married -Divorced -Widowed
६. पुरा भएको शैक्षिक स्तर :  
-कुनै पनि छैन -प्राथमिक स्कूल -निम्न माध्यमिक  
-उच्च माध्यमिक -स्नातक तह -स्नातकोत्तर तह -पी. एच डी  
6. Education level completed:  
-No education -Primary school- Lower Secondary  
-Higher Secondary -Bachelor's Degree -Master's degree -Ph. D
७. निवास :  
-शहरमा -गाउँमा  
आफू बस्ने ठाउँको नाम : .....
7. Residence:  
- Urban - Rural  
Name of place you live \_\_\_\_\_
८. के काम गर्नु हुन्छ ?  
-घरको काम -खेतिकिसानी -व्यापार -इन्जिनियर -डाक्टर  
-अन्य स्वास्थ्य -व्यवसायी -शेर्पा/भरिया -निर्माणको कामदार -अन्य(उल्लेख  
गर्नुहोस) \_\_\_\_\_
8. What is your occupation?  
-Household -farming -business -engineer -doctor  
- Other health profession-Sherpa/porter -construction worker  
- Other (specify): \_\_\_\_\_
९. आफ्नो कामको व्याख्या गर्नुहोस् ।  
-आसिन खालको -सक्रिय हुनुपर्छ खालको -शारीरिक बल माग भएको
9. In terms of physical demand, how would you describe your job?  
-Sedentary - Active - Physically Demanding
१०. के तपाईंको काममा यात्रा गर्नुपर्नेहुन्छ ?  
-पर्छ -पर्दैन  
यदि पर्छ भने गाडीको प्रयोग गर्नुहुन्छ वा हिडेर?  
कति समय यात्रा गर्नुपर्छ.....
10. Does your job require travel?  
Yes No  
If yes, vehicle or by walking?  
How far in time \_\_\_\_\_
११. ३० वा सो भन्दा बढि मिनेटको पसिना आउने शारीरिक क्रियाकलापहरु कतिको गर्नेगर्नुहुन्छ,?  
-हप्तामा ५-७ पटक गर्छु, -हप्तामा ३-४ पटक गर्छु,  
-हप्तामा १-२ पटक गर्छु -हप्तामा १ पटक भन्दा कम गर्छु,

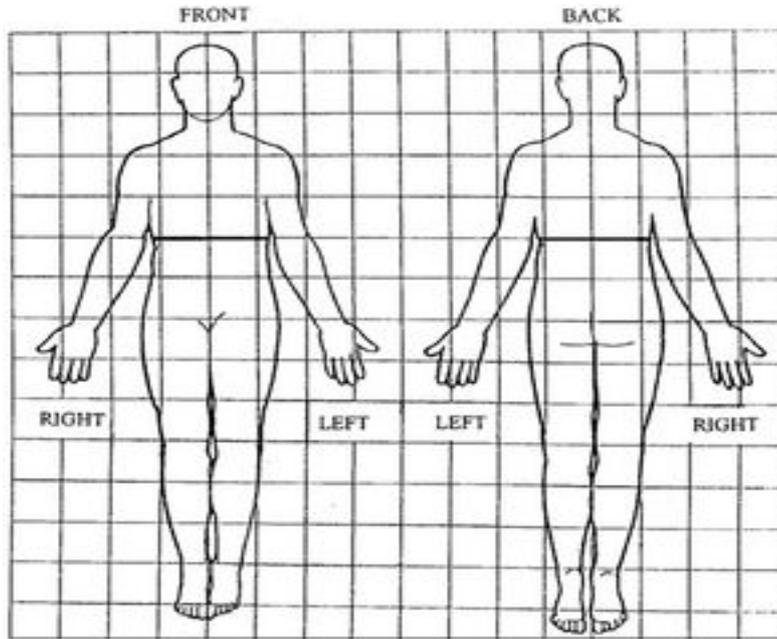


दुखाई परिक्षण :

**Pain assessment:**

१४. शरीरको जाँच :-आफूलाई कहाँ दुख्छ तलको चित्रमा चिन्ह लगाउनुहोस्

14. Body examination – Mark where it hurts:



१५. तपाईंलाई  
15.

painful is it right now?

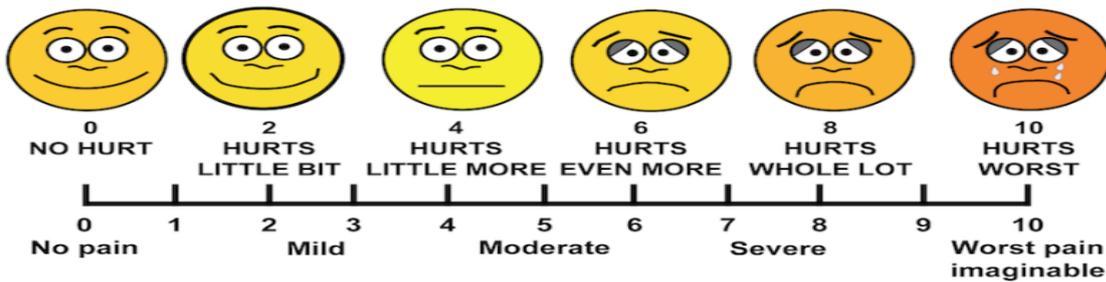
दुखाईको मात्रा : अहिले कतिसम्म दुखेको छ ?  
Scale of pain: How

आफूलाई सही लागेको उत्तरमा गोलो लगाउनुहोला ।  
Circle the one that is correct for you

**दुखाई निर्धारण स्केल**

० दुख्दैन      २-३ अलिअलि दुख्छ      ५ मध्यम खालको दुख्छ      ७-८ एकदम दुख्छ,      १० असाध्यै दुख्छ,

**PAIN MEASUREMENT SCALE**



१६. तपाईले धुलिखेल अस्पतालको फिजियोथेरापी ओ.पि.डी को बारेमा पहिलो पटक कसरी सुन्नुभयो?

- कसैको मुखबाट -डाक्टर/कन्सल्ट्यान्टको सिपारीस बाट  
-अनलाईनको खोजीबाट -अन्य

16. How did you first hear about the Physiotherapy OPD at Dhulikhel?

- Word of Mouth - Doctor/Consultant Referral  
- Online/Search Engine - Other

१७. तपाईले दुखाई महसुस गरेदेखि ओ.पि.डी आउँदा सम्म कति समय पर्खनुभयो ?

- १ हप्ता भन्दा कम, -१-२ हप्ता -२-३ हप्ता  
-३ हप्ता भन्दा बढी

17. How long did you wait from you felt pain till you visited the OPD?

- Less than 1 week -1 – 2 weeks -2 – 3 weeks  
- More than 3 weeks

१८. तपाईले ओ. पी.डी मा फिजियोथेरापिष्टबाट कस्तो प्रकारको उपचारको अपेक्षा गर्नु भएको छ ?

- उदाहरन - औषधी -ब्यायाम -मसाज -परामर्श - इलेक्ट्रोथेरापी  
-टेपिङ -अन्य (उल्लेख गर्नुहोस् )

18. What kind of treatment do you expect to get by the Physiotherapist at the OPD?

- Medication/ Drugs - Exercise - Massage -counseling -electrotherapy  
-Taping -other (specify):

अपेक्षाहरु :

### Expectations

अपेक्षा अनुसारको स्केल :

१	२	३	४	५
गर्दिन	खासै गर्दिन	थोरै गर्दछु	गर्दछु	निश्चित रुपमा गर्दछु

Scale of expectation:

1	2	3	4	5
No	Not really	To some extent	Yes	Definitely yes

तपाईसँग जुन सम्बन्धीत छ त्यस अङ्कमा गोलो लगाउनुहोस् ।

Mark which number concerns you (circle the right number)

१९. फिजियोथेरापिष्टले मेरो रोग /समस्या /दुखाईको बारेमा मलाई विस्तृत रुपमा भनियोस् ।

- १ २ ३ ४ ५

19. I expect the physiotherapist to explain in detail what my disease/problem/pain is.

- 1 2 3 4 5

२०. फिजियोथेरापिष्टले मेरो शारीरिक समस्या र संबन्धित अरु समस्याहरु बुझिदियोस् ।

१ २ ३ ४ ५

20. I expect the physiotherapist to understand the difficulties I am facing because of pain.

1 2 3 4 5

२१. फिजियोथेरापिष्टले मेरो कुराहरुलाई सुनिदियोस् र मलाई समर्थन गरिदियोस् ।

१ २ ३ ४ ५

21. I expect the physiotherapist to support and listen to me.

1 2 3 4 5

२२. फिजियोथेरापिष्टले मैले गरिराखेको व्यायाममा निगरानी राखिदियोस् साथै व्यायामको सकारात्मक तथा नकारात्मक प्रभावको बारेमा मलाई जानकारी गरिदियोस् ।

१ २ ३ ४ ५

22. I expect the physiotherapist to monitor and inform me of the positive or negative effects of exercises conducted.

1 2 3 4 5