

## ORIGINAL ARTICLE

# Epidemiological Profile of Patients Attending Physiotherapy Unit at *Klinik Kesihatan* Bagan Serai, Perak

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## ABSTRACT

**Introduction:** As the front line of the health service and the provider of 90% of formal health care services, *Klinik Kesihatan* plays key role in developing an equitable health service and responding to the needs of different population groups. Thus, it is important to know the epidemiological profile of the people attending Physiotherapy Unit at *Klinik Kesihatan* in order to understand the role, responsibilities and challenges of physiotherapist working in *Klinik Kesihatan*. **Methods:** This is a retrospective study where the clinical records of patients attended Physiotherapy Unit at *Klinik Kesihatan* Bagan Serai between November 2017 and November 2019 were retrieved. Three categories of information were defined prospectively (i) sociodemographic, (ii) physiotherapy services and (iii) defaulter. **Results:** Of the 380 evaluation cards selected via random sampling, 350 met the study criteria. Most of the patients who attended Physiotherapy Unit were female (57%), 25-59 years (65%), Malay (69%), married (70%), unemployed (34%) and from the B40 household income (86%). Among the unemployed, majority (73%) of patients who attended the physiotherapy unit are housewife. Main cases referred to physiotherapy were musculoskeletal (90%) with the problem mostly on knee (25%), shoulder (21%) and back (19%). The most common physiotherapy treatment given was therapeutic exercise (56%). As high as 40% default rates were identified within this sample. **Conclusion:** Understanding the epidemiological profile of patients attending *Klinik Kesihatan* is important to maximize the benefits of physiotherapy treatment and prevent defaulters.

*Malaysian Journal of Medicine and Health Sciences* (2022) 18(SUPP15): 258-263. doi:10.47836/mjmhs18.s15.36

**Keywords:** Bagan Serai, Epidemiological profile, *Klinik Kesihatan*, Malaysia, Physiotherapy

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## INTRODUCTION

As of December 2019, there were about 2326 registered physiotherapist in Malaysia (1). Of these, 1467 (63%) working in public sector (2). Physiotherapists working in public sector are those who either work under the Ministry of Health (MOH) such as in public hospitals and *Klinik Kesihatan*, Ministry of Education (MOE) such as in university hospitals (e.g., University Malaya Medical Centre, Hospital Al-Sultan Abdullah UiTM,) and Sekolah Sukan, Ministry of Women, Family and Community Development such as in Rumah Seri Kenangan and under the Social Welfare Department and Ministry Of Youth and Sports such as those working with National Sports Institute of Malaysia. (3). *Klinik Kesihatan* is considered the first line of healthcare services and is the main provider of formal health care in Malaysia. *Klinik*

*Kesihatan* plays key role in developing an equitable health service and cater to the needs of different population group (4). In 2020 alone, MOH Malaysia reported a total of 36,835,750 outpatient attendances to *Klinik Kesihatan* (5). However, less attention was given to understand the challenges faced by the healthcare providers in *Klinik Kesihatan*.

Physiotherapy service in *Klinik Kesihatan* started in 1999 where at that time the service was available only in selected *Klinik Kesihatan* (6). As of 2011, there were approximately 70 *Klinik Kesihatan* across the country with full-time or visiting physiotherapy services (7). To date, there are about 217 *Klinik Kesihatan* throughout the country with between one and three physiotherapists working in each *Klinik Kesihatan* depending on the size of the clinic. Physiotherapist in *Klinik Kesihatan* focuses on health promotion, health education, disease prevention besides treating and rehabilitate as early as possible (8).

To understand the role, responsibilities and challenges

of physiotherapist in *Klinik Kesihatan*, it is necessary to know the epidemiological profile of the population. Only by understanding the epidemiological profile of the patients attending Physiotherapy services at *Klinik Kesihatan* (e.g., user of the service, expectation from the service, diseases mostly affecting the population and etc.) will allow a change in the action plan by specifically addressing the patient's needs and respect their peculiarities, subsequently ensuring a better care. Therefore, the aims of this study were to determine (i) the epidemiological profile of patients attending Physiotherapy Unit at *Klinik Kesihatan* Bagan Serai, (ii) the cases treated, type of treatment and physiotherapy management received by the patients and (iii) the attendance and non-attendance status in Physiotherapy Unit at *Klinik Kesihatan* Bagan Serai.

## MATERIALS AND METHODS

This research is a retrospective descriptive study through a technical procedure of documentary research. This research was carried out by analysing the evaluations records of patients in the physiotherapy unit at *Klinik Kesihatan* Bagan Serai, Perak, without any contact with the patients. The data was obtained through reviewing and analysis of clinical record in the period of two-year duration; from November 2017 to November 2019. The data collection was identified from the patient's evaluation card, through a simple random sampling method. Records of patients' sociodemographic data, procedure and type of physiotherapy session and patients' attendance status and reason for non-attendance were included as the variable studied. Patients were included if they attend the physiotherapy unit at *Klinik Kesihatan* Bagan Serai between November 2017 to November 2019 with i) evaluation card with completed clinical record, ii) evaluation card with completed referral letter, signed by the attending physician, and iii) stay at Bagan Serai or nearby district.

### Measurements

Sociodemographic data and clinical record: Demographic data and clinical record of patients including patient's age, gender, ethnicity, address, socioeconomic status, occupation, educational level and marital status. Medical diagnosis and investigation status were obtained from the referral letter by the attending physician. The clinical assessment of patient was gathered from the evaluation card by identifying the Subjective, Objective, Analysis, Plan, Intervention, Evaluation and Review (SOAPIER) written by the physiotherapist in each session. Case treated and type of treatment received during Physiotherapy session: Type of cases treated and physiotherapy management received during physiotherapy session in the physiotherapy unit, *Klinik Kesihatan* Bagan Serai was identified. Physiotherapy managements include the manual therapy, exercise therapy, modalities and home education program aim to ensure the continuation of proper management and

exercise at home. Attendance status and patient's reason for non-attendance: Patients who has completed their treatment was labelled as 'discharge' and patients who failed to attend one consecutive scheduled appointment was labelled as 'defaulter' and was discharged with 'no show' status.

### Sample size

There were 3189 patients attended Physiotherapy Unit at *Klinik Kesihatan* Bagan Serai from November 2017 to November 2019. By using the Krejcie and Morgan Table for determining sample size of a known population, a minimum of 345 sample was required for a population size between 3000 and 3500. This number was inflated by 10% to account for evaluation cards with incomplete information. The total sample required for this study was 380.

### Sampling method

All the 3189 evaluation cards were arranged according to their last two-digit ID number (00-09, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80-89, 90-99). Thirty-eight evaluation cards were then randomly selected from these 10 subsets.

### Data analysis

Data were analysed using the Statistical Package for Social Sciences (SPSS) version 23.0. Descriptive statistical analysis was conducted to report the frequency distributions and percentage proportions of all of the variables of interest.

## RESULTS

Of the 380 evaluation cards gathered only 350 (92%) met the study criteria and were included in the analysis of this study. The other 30 evaluation cards were excluded for reasons such as incomplete referral form (e.g., referral without diagnosis, referral not from medical officer). Table I summarized the demographic characteristics of the 350 patients who attended physiotherapy at *Klinik Kesihatan* Bagan Serai from November 2017 to November 2019. Majority of the patients were female (57%), aged between 25-59 years (65%), Malay ethnicity (69%), live within five to 10 km from the clinic (55%), married (70%) and in the B40 category household income (86%).

Table II reports the frequency of cases treated in the physiotherapy unit, *Klinik Kesihatan* Bagan Serai. Majority of cases treated in the physiotherapy unit were from musculoskeletal disorders (315 [90%]), followed by neurology (23 [7%]). Cases from cardiorespiratory, pediatrics and other non-communicable diseases (e.g., diabetes mellitus, hypertension and obesity) has the least number with only 4 cases (1.1%) each. The main musculoskeletal cases treated at physiotherapy unit, *Klinik Kesihatan* Bagan Serai were cases of knee pain (80 [25%]), shoulder pain (66 [21%]), back pain (60

**Table I: Description of the patients attended physiotherapy at *Klinik Kesihatan* Bagan Serai between November 2017 and November 2019**

Variables (n=350)	n	(%)
Gender		
Male	151	(43)
Female	199	(57)
Age category, years		
0-6	5	(1)
7-18	18	(5)
19-24	9	(3)
25-59	229	(66)
>60	89	(25)
Race		
Malay	242	(69)
Chinese	28	(8)
Indian	80	(23)
Distance between Physiotherapy Unit and home, Km		
0-5	83	(24)
5-10	191	(55)
>10	75	(21)
Marital status		
Single	63	(18)
Married	243	(70)
Widowed	44	(12)
Household income		
B40	300	(86)
M40	41	(12)
T20	9	(2)
Educational level		
Did not attend school	42	(12)
Primary	34	(10)
Secondary	150	(43)
Tertiary	124	(35)
Time of default		
After 1 <sup>st</sup> visit	52	(37)
After 2 <sup>nd</sup> visit	29	(21)
After 3 <sup>rd</sup> visit	58	(42)
Sources of referral form		
Public Hospital	161	(46)
Public Health Clinic	185	(53)
Private Hospital /Clinic	4	(1)
Occupation		
Government sector	44	(13)
Teacher	24	(54)
Policeman/soldier/fireman	3	(7)
Clinic/Hospital staff	10	(23)
Others government staff	7	(16)
Private sector		
Factory worker	81	(23)
Lorry/bus driver	47	(58)
Company employees	15	(19)
Others	18	(22)
1	1	(1)
Self employed		
Own business	67	(19)
Paddy farmer	19	(28)
Farmer/Planter	22	(33)
Fisherman	10	(15)
Carpenter	9	(13)
Others	3	(5)
4	4	(6)
Unemployed	118	(34)
Housewife	86	(73)
Not working	16	(14)
Student	16	(13)
Retiree	40	(11)

Data are presented as n (%).

Abbreviation: B40, household monthly income &lt; RM4,850; M40, household monthly income &gt; RM4,851 &lt; 10,970; T20, household monthly income &gt; RM10,971.

**Table II: Frequency of cases attended by the physiotherapy unit, *Klinik Kesihatan* Bagan Serai between November 2017 and November 2019**

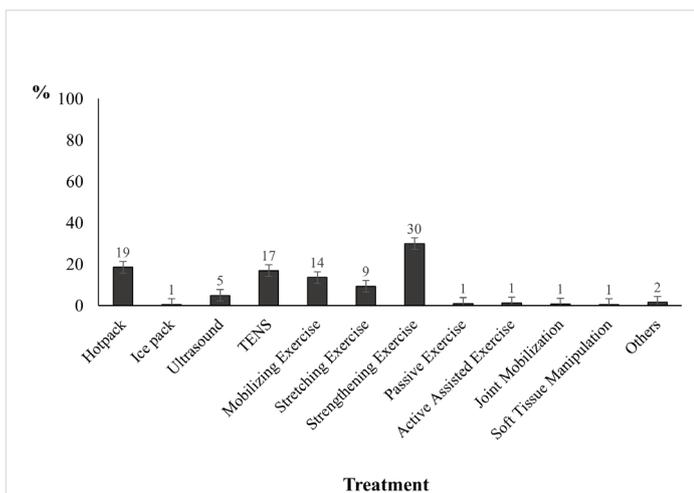
Case (n=350)	n	(%)
Musculoskeletal (subgroups)	<b>315</b>	<b>(90)</b>
Face	5	(2)
Neck	7	(2)
Shoulder	66	(21)
Elbow	2	(1)
Hand	56	(18)
Back	60	(19)
Hip	12	(3)
Knee	80	(25)
Ankle	12	(4)
Foot	15	(5)
Neurology (pathology)	<b>23</b>	<b>(7)</b>
Stroke	18	(78)
Spinal Cord Injury	2	(9)
Brain injury	1	(4)
Others	2	(9)
Cardiorespiratory (pathology)	<b>4</b>	<b>(1)</b>
Asthma	2	(50)
Pneumonia	2	(50)
Paediatric (discipline)	<b>4</b>	<b>(1)</b>
Paediatric Neurology	3	(75)
Paediatric Musculoskeletal	1	(75)
NCD (pathology)	<b>4</b>	<b>(1)</b>
Diabetes Mellitus	1	(25)
Hypertension	1	(25)
Obesity	2	(50)

Data are presented as n (%). Abbreviation: NCD, non-communicable diseases

[19%]), hand pain (56 [18%]), foot pain (15 [5%]), hip and ankle pain (12 [4%]). For neurology cases, majority of cases were stroke (18 [78%]). There are also patients who came in with more than one diagnosis/ problem.

Figure 1 reports the frequency and type of physiotherapy management done in the physiotherapy unit, *Klinik Kesihatan* Bagan Serai. Majority of patients received therapeutic exercise management (196 [56%]) followed by electrotherapeutic modalities (143 [41%]) such as the application of hot pack (65 [46%]) ice pack (2 [1%]), ultrasound therapy (17 [12%]) and transcutaneous electrical nerve stimulation (59 [41%]). Manual therapy (5 [1%]) such as joint mobilization (3 [60%]) and soft tissue manipulation (2 [40%]) was the treatment least commonly used in Physiotherapy Unit, *Klinik Kesihatan* Bagan Serai. Among all the therapeutic exercise types, strengthening exercise (106 [54%]) was the most commonly prescribed followed by mobilizing (48 [24%]) and stretching (33 [17%]) exercises.

Of the 350 analysed evaluation cards, 204 (58%)



**Figure 1: Frequency and types of physiotherapy treatment to patients attended physiotherapy at Klinik Kesihatan Bagan Serai between November 2017 and November 2019.** Abbreviations: TENS, Transcutaneous Electrical Nerve Stimulation.

completed their treatment and was discharged from Physiotherapy, 139 (40%) defaulted from their treatment plan and 7 (2%) either called not to continue their treatment as they are getting better after one physiotherapy session or was transferred to other health facilities. Figure 2 summarises the factors that may have influenced the patients to default their physiotherapy clinic appointment. Of the 139 patients who did not comply to their physiotherapy clinic appointment, more than half were female gender (81 [58%]), aged between 25 to 59 years (94 [68%]) and employed (76 [55%]).

**DISCUSSION**

The findings of the present study show that the background of people attending Physiotherapy Unit at Klinik Kesihatan Bagan Serai were varied. There was a predominance of female patients in this study which suggests that women are more concerned about their health. Muller (9), in a book titled healthcare and gender also stated that women often seek physician consultation more than men as women thought to be more aware about their health care and predicted to seek prevention management as early as possible. The majority of the patients who attended the Physiotherapy Unit at Klinik Kesihatan Bagan Serai were aged between 25 to 59 years. This could be because this age group are working people and have a high risk of injury or impairments that related from their occupation and activity in daily living. In this study, the age group was categorized from 0-6 years representing pediatric group, 7-18 years representing adolescent group, 19-24 years representing the youth group who are going to college or started to work or find a job, 25-59 years representing the adult group and elderly is classified as more than 60 years.

Malays are the predominant ethnic group in Peninsular Malaysia which constitutes 69% of the total Malaysian population followed by Chinese, Indian and others as

reported by the Department of Statistics (DOS), Malaysia, based on the population estimation for the year 2018-2019. Parallel to that, Malay patients (69%) represent the majority of ethnic group attended Physiotherapy Unit at Klinik Kesihatan Bagan Serai. In fact, sources from DOS Malaysia reported that Malay and other indigenous (Bumiputera) covers the majority area of Bagan Serai (10). This study also suggests that patient lives nearby tend to come to physiotherapy as they can come alone by walk, ride bicycle or motorcycle and driving their own car. It was proposed that in East Malaysia, more than half of the rural population has an access to health services within a 5-km radius from their residence (11). The results of the study are in line with the study by Krishnaswamy et al., (11) as the nearer the residence to the health facility, the probability toward attending their clinic follow up increased by twofold. Apart from that, geographical location also can be linked to non-compliance factors due to the required high travelling time and cost or great walking distance if they walk to the clinic. A study by Ngwenya et al., had pointed out that patients who require to travel a great distance to the clinic were more likely to miss their appointments (12).

Furthermore, most of the patients attended Physiotherapy at Klinik Kesihatan Bagan Serai are married. This finding corroborates the finding from the study by Shrestha and Hu where they also found that patients that complied to scheduled appointments were mostly married (12). This could be explained in part by those who are married usually are occupied with housework and are more stressed than those who are single. For instance, in a longitudinal cohort study in China, Wang et al. (13) found a positive association between housework and metabolic markers such as triglycerides and metabolic syndrome indicating people who engage in high intensity housework are more stressed and at higher risk for metabolic diseases. Moreover, patients who are married have spouse and children to encourage them to go seek for the treatment for their health. Consistent with one earlier study, Kim et al. (14) also found that individuals who lived without their partner are at higher risk of developing health issues such as depression and nutritional deficiency when compared to individuals living with their spouse. A large proportion of patients who attended Physiotherapy at Klinik Kesihatan Bagan Serai were from B40 household income. This could be explained by the fact that the treatment fees are much lower than going to any other private clinic or physiotherapy centre. In Malaysia, Klinik Kesihatan services are subsidised by the government. Patients are required to pay only RM 1 for their treatment (8).

Musculoskeletal disorders were found to be the commonest problems treated in the physiotherapy unit at Klinik Kesihatan Bagan Serai, followed by neurology. Among the musculoskeletal disorders, knee, shoulder, back and hand were the four areas most commonly referred to Physiotherapy at Klinik Kesihatan Bagan Serai.

One possible explanation relates to the nature of job and activity of daily living of people in Bagan Serai. Of the 350 included records, the majority of those attended physiotherapy services were housewife (86 [25%]), factory worker (47 [13%]) and farmer (41 [12%]) where their nature of job is either requiring repetitive motion, prolonged hours in one position or working with heavy loads, where all are established factors for work-related musculoskeletal disorders (15) (see Table I).

Therapeutic exercise and the use of electrotherapeutic modalities were the two most common treatment given to patients attended Physiotherapy Unit at *Klinik Kesihatan* Bagan Serai. This could be due to these two treatments do not need lengthy time or continuous supervision between the therapist and the patient. Of note, physiotherapist at *Klinik Kesihatan* Bagan Serai is treating an average of 16 patients per day, or an average of two to three patients per hour from 8 am to 5 pm. Thus, to make more time for the patient is difficult for the therapist. The time usually spent with the patient was during review question on patient problem and education or advice on home program. In fact, given that the cases mostly attended by physiotherapist at *Klinik Kesihatan* Bagan Serai was musculoskeletal, it is reasonable to have therapeutic exercises as the most common treatment provided to the patients.

In the present study, more than half of the patients (58%) who attended the physiotherapy unit, *Klinik Kesihatan* Bagan Serai have completed their physiotherapy treatment and 40% defaulted their treatment. Majority of the defaulters were female (58%), aged between 25 to 59 years (68%) and employed (55%). Consistent with one earlier study, David et al. (16) also found that female was more likely to miss their health appointments than male. Other factors associated with non-compliance to health appointments from their study were old age and low socioeconomic factors. It can be identified that quite a great number of female's patients who attended physiotherapy unit at *Klinik Kesihatan* Bagan Serai were housewives. Therefore, the non-compliance to the treatment follow-up could in part be explained by transportation issues or in need of someone else to send them to physiotherapy. However, reasons for non-compliance to physiotherapy treatment follow-up are beyond the scope of this retrospective study.

High number of defaulters among adults aged between 25 to 59 years and employed may be due to their working commitment resulting in them having difficulties in complying to their physiotherapy appointment which only operates during working hours (17). Previous study has reported that 63% of patients prefer after working hours appointment as they are working during the day (18). In fact, in a cross-sectional survey in 2018, 65% patients who are in employment prefer to have virtual healthcare visits to prevent them from requiring to take leave from work (19). Some limitations

should be considered when interpreting the results of the present study. First, the findings of this study may not be generalized to all *Klinik Kesihatan* despite the large sample size, as data is collected only from *Klinik Kesihatan* Bagan Serai. Future research may include several *Klinik Kesihatan* from both urban and rural areas, and data from a longer time period. Second, the study may also have similar limitation to any other secondary research such as potential lack of data accuracy. However, it is important to note that, we only included data from November 2017 to November 2019 when SH was the only Physiotherapist at *Klinik Kesihatan* Bagan Serai. Documentation of patients should have been consistent throughout.

## CONCLUSION

Majority of patients who attended physiotherapy unit at *Klinik Kesihatan* Bagan Serai were female, aged between 25 to 59 years, Malay, has a household income of B40 and lives near the *Klinik Kesihatan*. The most common case treated in the physiotherapy unit *Klinik Kesihatan* Bagan Serai were musculoskeletal disorders. Understanding the epidemiological profile of patients attending *Klinik Kesihatan* is important to maximize the benefits of physiotherapy treatment and prevent defaulters.

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