Factors affecting the employability in people with epilepsy

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ABSTRACT

Purpose: People with epilepsy (PWE) are negatively prejudiced in their ability to work. This study aimed to examine demographic, clinical and psychological factors associated with employability in PWE.
Methods: This study recruited epilepsy patients from a neurology clinic in Malaysia. Employability was measured using employment ratio, with a ratio ≥90% (ER90) classified as high employability. Basic demographic data such as age, gender, marital status, religion, education level and household income was collected. Clinical measures consisted of age of seizure onset, seizure frequency, type of epilepsy, aura, polytherapy, nocturnal seizures and seizure control. Psychological measures included Work Self-Determination Index (WSDI), Rosenberg Self-Esteem Scale (SES), and Multidimensional Scale of Perceived Social Support (MSPSS).
Results: Of 146 PWE, 64.4% had high employability. The participants were predominantly female (52%), Chinese (50.7%), single (50%), having tertiary education (55.5%) and focal epilepsy (72.6%). Clinically, only type of epilepsy was significantly correlated to employability of PWE. Employability of PWE was associated with ability to work (indicated by education level, work performance affected by seizures, ability to travel independently and ability to cope with stress at work) and family overprotection. The high employability group was found to have lower self-perceived stigma (ESS), higher self-determined motivation (WSDI), self-esteem (SES) and perceived social support (MSPSS), than the low employability group. Logistic regression analysis showed that tertiary education level (AOR 3.42, CI: 1.46–8.00), higher self-determination (WSDI, AOR 1.09, CI: 1.012–1.17), lower family overprotection (AOR 0.76, CI: 0.61–0.95), and generalised epilepsy (AOR 4.17, CI: 1.37–12.70) were significant predictors for higher employability in PWE.
Conclusion: Ability to work (education level), clinical factor (type of epilepsy) and psychological factor (self-determined motivation and family overprotection) were important factors affecting employability in PWE.

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1. Introduction

Epilepsy is a brain disorder that is characterized by an enduring predisposition of generating seizures and by its neurobiological, cognitive, psychological, and social consequences (Fisher et al., 2005). It affects approximately 50 million people globally, fourth-fifths of whom are living in developing countries (De Boer, 2005).

A recent systematic review reported an estimate of global employment rate of people with epilepsy (PWE) using adjusted employment rate (aER). This is calculated based on the definition of the Bureau of Labor Statistic (BLS) of United States and the International Labour Organization i.e. employment rate is the percentage of employed person over the labor force. It showed that more than 75% of people with epilepsy (PWE) were employed. Furthermore, PWE were employed over a broad spectrum of occupation categories including professional, business ownership, administrative personnel and shelter workshop (Wo et al., 2015b), despite the perpetual stigma and discrimination.

According to Hillage et al. (1998), employability is defined as the capability to move self-sufficiently within the labour market to realise self-potential through sustainable employment. It takes into account of knowledge, skills and attitudes possessed by an individual, the way in using those assets and present them to employers as well as the context (e.g. personal circumstances and labour market

environment) (Hillage et al., 1998). A qualitative study suggested that employability of PWE must be studied from a multidimensional viewpoint (Wo et al., 2015b).

Clinical factors would contribute to the prediction of employment status in PWE but the combination of neuropsychological and psychosocial measures would significantly improve the overall predictability (Schwartz et al., 1968). Therefore, socio-demographical, psychological, environmental and economic factors would have to be considered in the context of employability prediction in PWE, rather than emphasizing solely on clinical factors.

Employability in PWE is dependent on a combination of internal and external factors (Wo et al., 2015a). To date, evidence on clinical (seizure control, etc.) and socio-demographical (gender, etc.) factors affecting employment status in PWE were in abundance while psychological factors remain scarce; furthermore these factors were studied independently (Wo et al., 2015b). In contrast to studying the negative factors (e.g. poor seizure control) affecting employability in PWE, understanding the positive factors may be an alternative approach that may lead to an improvement in employability. This study aimed to determine the positive and negative demographical, clinical, and psychological factors affecting the employability of PWE.

2. Methodology

This study employed a cross-sectional design using a self-administered survey. All patients aged between 16 and 64 years attending the neurology clinic at a tertiary hospital during the study period April 2014 until February 2015 were recruited. Sample size was determined based on $N > 50 + 8(m)$, where m equals to 12 independent variables in this study (Tabachnick and Fidell, 2007). This study was approved by a local ethics committee at University Malaya Medical Center (MREC no.: 1010.83).

2.1. Participants

Of 152 eligible participants, 3 rejected and 3 failed to return the questionnaires, leaving 146 participants, with a response rate of 96%. All surveys were administered during clinic visitation. Written consent was obtained from all participants and their anonymity and confidentiality were assured.

2.2. Inclusion and exclusion criteria

Inclusion criteria were adults with epilepsy diagnosed more than one year, English literate, aged between 16 and 64 years and without severe comorbidities, i.e. intellectual disability and learning disability. Student, housewives and pensioners were excluded.

2.3. Instruments

A total of 7 validated psychometric scales were adopted in this study including Work Extrinsic and Intrinsic Motivation scale (WEIMS), Brief Illness Perception Questionnaire (B-IPQ), Epilepsy Stigma Scale, Rosenberg Self-Esteem Scale (RSES), Multidimensional Scale of Perceived Social Support (MSPSS), and Discrimination and Support at Work (DSW) and Centrality of Religiosity Scale (CRS). Additionally, 7 self-structured items were developed to measure ability to work and family overprotection.

Work Extrinsic and Intrinsic Motivation scale (WEIMS) measures the level of work motivation with a Cronbach's alpha of 0.84. (Tremblay et al., 2009) It consists of 18 items with a 7-point Likert scale, encompasses six motivational subscales: intrinsic motivation, integrated regulation, identified regulation, intro-

jected regulation, and amotivation. Work Self-Determination Index (WSDI) was calculated to determine the level of self-determined motivation.

Brief Illness Perception Questionnaire (B-IPQ) is a 9-item scale designed to measure the cognitive and emotional representations of illness (Broadbent et al., 2006). All items except open-ended causal question (item-9) were rated using a scale of 0–10. The responses to causal item were not included in this study. The test-retest reliabilities for multi-items scales were 0.48–0.70. A higher score reflects a more threatening view of the illness towards an individual.

Epilepsy Stigma Scale is a 3-item scale measuring self-perceived stigma, with a Cronbach's alpha of 0.72 (Jacoby, 1992). It employs a simple scoring system of zero or one for each item. Higher score indicates greater degree of self-perceived stigma.

Rosenberg Self-Esteem Scale (RSES) is a 10-item global self-worth scale measuring both positive and negative feelings about the self, using a four-point Likert scale with Cronbach's alpha ranged from 0.77 to 0.88. Higher scores indicate higher self-esteem (Roseberg, 1965).

Multidimensional Scale of Perceived Social Support (MSPSS) consists of 12 items, using a seven-point Likert scale, measuring the degree of social support from the family, friends and significant others. (Canty-Mitchell and Zimet, 2000) The Cronbach's alpha were 0.93 for the total score and 0.91, 0.89, and 0.91 for the family, friends and significant others subscales respectively.

Centrality of Religiosity Scale (CRS-5) measures the centrality, importance or salience of religious meanings in a person, using a five-point Likert scale (Huber and Huber, 2012). It has a good internal consistency with a Cronbach's alpha of 0.85. Higher score indicates more central religious construct system.

Discrimination and Support at Work (DSW) scale was developed, with 5 items adopted from the DISC-12 scale (Thornicroft et al., 2009) with approval of the original author, to measure experience of discrimination (3 items) and support (2 items) at workplace in PWE. The items were validated, showing a good internal consistency with Cronbach's alpha of 0.74 and 0.85 in discrimination and support subscales, respectively.

Ability to work and family overprotection have been reported to affect employability in PWE (Wo et al., 2015a). To-date, there were no validated scales measuring these two constructs. In this study, ability to work is measured with seven dichotomous (yes/no) items assimilating previous study. (Wo et al., 2015a) In addition, family overprotection was the perception of respondents in family overprotection using one item "I think my family is being overprotective", measured with a seven-point Likert scale whereby a higher score reflects greater family overprotection.

Baseline demographic information on age, gender, education levels, current employment status, monthly income, marital status, religion and race were also obtained. Clinical information (i.e. seizure frequency, number of antiepileptic drugs, type of epilepsy, and aura) was extracted from the medical records. Uncontrolled epilepsy is defined as having at least one seizure per year.

2.4. Operational definition

2.4.1. Employment ratio (ER) as a measure of employability

Employability refers to a person's capability in gaining and maintaining employment. (Hillage et al., 1998) Employment ratio (ER) was defined as the percentage of actual working period (months) of an individual over the expected working period (months). The expected working period was defined as the period between academic graduation and the time of research. For those who graduated before 16 years old, the expected working period starts from 16 years old. High employability was defined as those