

# Using the Theory of Planned Behavior incorporated with perceived barriers to explore sexual counseling services delivered by healthcare professionals in individuals suffering from epilepsy

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## ABSTRACT

People with epilepsy (PWE) are highly likely to suffer from sexual dysfunction, and dealing with this issue is a challenge for healthcare providers. Unfortunately, there is no theory-driven study that has investigated the counseling practice of healthcare providers for sexual problems in PWE. Therefore, we decided to apply the well-established Theory of Planned Behavior (TPB) to examine factors associated with healthcare providers' sexual counseling in PWE. Apart from TPB, perceived barriers toward providing counseling could be a possible factor that needs to be investigated as well. Therefore, two models explaining sexual counseling practice were proposed. Model 1 included only TPB and Model 2 included TPB incorporated with perceived barriers. Five hundred fifty-nine Iranian healthcare professionals responsible for PWE were recruited across several neurology clinics and asked to complete TPB-specific questionnaires. The same healthcare professionals were asked to complete an additional questionnaire on their attitudes toward sexual counseling 18 months later. Structural equation modeling suggested Model 2 to be more useful in explaining sexual counseling practice compared with Model 1. Moreover, attitude and perceived behavioral control showed stronger associations with behavioral intention, whereas subjective norm showed weaker associations. The associations were similar across different healthcare professionals (i.e., medical doctors vs. nurses). In conclusion, TPB incorporated with perceived barriers might be a useful theory for different types of healthcare providers to improve and enhance sexual counseling practice.

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## 1. Introduction

Sexuality is an integral part of people's lives and is significantly related to quality of life [1]. Individuals suffering from chronic diseases or conditions such as epilepsy tend to show impaired sexual functioning and consequently diminished quality of life. According to previous epidemiologic studies, 20–30% of women with epilepsy report some sort of sexual problem, such as decreased libido, reduced sexual arousal, and/or infrequent orgasms [2]. Similarly, around 30% of men with epilepsy

report erectile dysfunction [3,4]. Although the exact mechanisms by which epilepsy can cause sexual problems remain unknown, sexual impairment is most likely caused by a multitude of factors, such as anxiety, stigmatization, epileptic activity in the cortex, general impact of the disease on health, and side effects of certain antiepileptic drugs [2,5–11]. In terms of side effects, for example, the negative effects of the novel antiepileptic drug lamotrigine (LTG) on sexual functioning have recently been demonstrated [12]. A pharmacological review suggested that LTG has the ability to inhibit voltage-gated sodium channels, consequently suppressing glutamate release and enhancing the action of gamma-aminobutyric acid [13]. Secondary to these actions, LTG may induce persistent genital arousal disorder through altering brain excitatory transmission and finally result in an unbalance of the dopamine/serotonin ratio [14]. Because of the detrimental effects on quality of life, healthcare providers should be aware of the potentially impairing effects of epilepsy on sexuality and should address this in people with epilepsy (PWE) from a very early stage in the treatment process.

**Abbreviations:** Comparative fit index, CFI; Lamotrigine, LTG; People with epilepsy, PWE; Root mean square of error approximation, RMSEA; Sexual Attitudes and Beliefs Survey, SABS; Structural equation modeling, SEM; Standardized root mean square residual, SRMR; Tucker–Lewis index, TLI; Theory of Planned Behavior, TPB.

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This, however, proves to be a challenging endeavor for many healthcare providers [15,16], and different types of barriers have been identified providing possible explanations on why sexuality is not routinely considered and addressed in the treatment process [17–19]. To the best of our knowledge, however, no studies have explored specific theories underlying counseling practice of healthcare providers and how these could influence sexual counseling in PWE. Therefore, the aim of the present study was to use the Theory of Planned Behavior (TPB) to investigate and examine factors associated with healthcare providers' sexual counseling in PWE. The reasons for using TPB include the following: (1) other studies on PWE showed that TPB is an appropriate theory to explain patients' drug compliance [20] and help-seeking behaviors [21] and (2) TPB can explain healthcare providers' intention to provide health service [22].

The Theory of Planned Behavior is based on the Theory of Reasoned Action [23] and is frequently applied to predict behaviors or behavioral change using four key elements: attitude, subjective norm, perceived behavioral control, and behavioral intention [24]. *Attitude* describes a person's positive or negative judgment toward their behaviors. *Subjective norm* refers to the approval or disapproval of these behaviors in the person's environment as perceived by the person. *Perceived behavioral control* represents the level of control toward the behaviors that a person feels he or she has [24,25]. In terms of the clinical practice in epilepsy care and especially in view of sexual counseling, attitude refers to how healthcare providers judge their services of sexual counseling. Subjective norm refers to how healthcare providers perceive the opinions of their environment on providing sexual counseling. Finally, perceived behavioral control refers to how healthcare providers have control over providing sexual counseling to PWE. Overall, the three aforementioned elements are postulated to influence and shape the final behavior and/or cause behavioral change, a process that is mediated by behavioral intention (e.g., whether the healthcare providers intend or do not intend to provide sexual counseling). In other words, attitude, subjective norm, and perceived behavioral control may influence a person's intention to perform a specific behavior, and engagement in such a behavior is mainly influenced by levels of intention.

In addition to TPB, we propose the examination of an alternative model that includes TPB and a factor called “perceived barriers”. Two key arguments justify the inclusion of this additional factor. First, although TPB has been found to be useful in explaining health behaviors among different populations [20,22,26–31], one of its major limitations is its parsimony, especially because TPB relies only on three key elements to explain behavioral intention [32]. Second, perceived barriers have been identified as possible factors hindering the delivery of sexual

counseling [15,17]. Consequently, we decided to incorporate perceived barriers as an underlying factor into the original TPB theory. More specifically, we hypothesized that perceived barriers would be associated with behavioral intention and with sexual counseling practice.

The general aim of the present study was to examine the usefulness of TPB (Fig. 1) and TPB with perceived barriers (Fig. 2) in explaining attitudes toward sexual counseling in an Iranian sample of healthcare providers (including neurosurgeons, neurologists, and nurses) dealing with PWE. Additionally, we were interested in whether different healthcare professionals (i.e., medical doctors vs. nurses) interpret the TPB model or the TPB model incorporated with perceived barriers similarly.

**2. Materials and methods**

The study was conducted in ten neurology clinics across seven university hospitals in Tehran, Qazvin, Isfahan, Mahshad, Kashan, Tabriz, and Yazd. The procedure was approved by the research ethical committee of Qazvin University of Medical Sciences. All participants provided written consent prior to participating in the study.

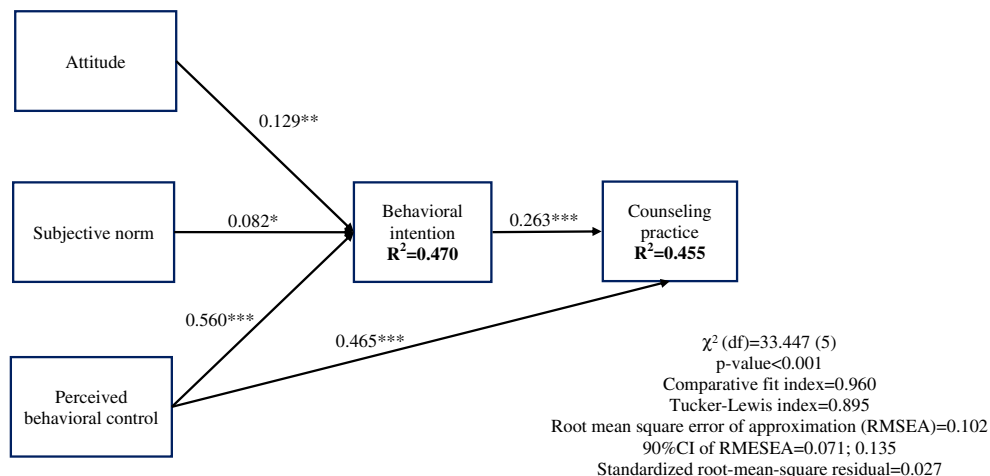
*2.1. Participants and procedures*

Study participants were healthcare professionals (including neurosurgeons, neurologists, and nurses) responsible for PWE care in neurology clinics. Individuals were included in the study if they had been involved in providing services and care to PWE, including prevention, diagnosis, treatment, and rehabilitation. Seven hundred fifty questionnaires were distributed, and 74.5% of the participants responded to the questionnaires (N = 559; detailed information of questionnaires can be found in Sections 2.2.1–2.2.5). Eighteen months later, the same participants completed another questionnaire asking about sexual counseling practice (more details can be found in Section 2.2.6).

*2.2. Main outcome measures*

*2.2.1. Attitudes toward providing sexual counseling*

The 12-item Sexual Attitudes and Beliefs Survey (SABS) was developed by Reynolds and Magnan [33] to capture attitudes related to clinical practice. Response options are on a five-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The SABS has demonstrated satisfactory internal consistency ( $\alpha = 0.75\text{--}0.82$ ) and excellent test-retest reliability ( $r = 0.85$ ) [34]. A higher SABS score indicates stronger beliefs about providing sexual counseling.



**Fig. 1.** The Theory of Planned Behavior Model on counseling practice. Note: \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001; age, sex, and year of practice were controlled.

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