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Our Lady of Fatima University
Research Development and Innovation Center
Philippines

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Project Title

Pre-partum Exercise Program Using Motion-based Games

Research Attributes

Field of Specialization	Nursing
Research Approach	Quantitative
Research Design	Quasi Experimental
Research Technique	Independent Group Pretest-Posttest
Research Domain	Obstetric Nursing
Delineated Factors	Motion based game, anxiety, depression, pregnant women

Research Abstract

This study aims to determine the effects of motion based games (e.g. X-box Kinect 360) on the anxiety and depression level of pregnant clients. State Trait Anxiety Inventory (STAI) and the Hospital Anxiety depression Scale (HADS) will be utilized to measure anxiety and depression. Twenty purposively selected pregnant women (10 members for the control group and 10 members for the experimental group) will be employed in the study. A motion-based exercise program which has been approved by an obstetrician will be facilitated to ten pregnant women. Pretest and post test scores will be taken.

Introduction

Pregnancy is the unique state of physiologic stress, which necessitates physical, mental and social adaptation. Recently, a concern has been voiced about the effect of motion-based exercise on pregnant women. The global quality of life of the mother during pregnancy is important for the quality of life of the child and their attitudes towards life and philosophy of life (Ventegodt, 2005). This has resulted for the researcher's to make a research towards motion-based game exercise for pregnant women. Formative assessment embedded within a video game can enable us to more accurately provide feedback on how pregnant women response to motion-based exercise. This is carried out by exploiting the cause-effect rule-based algorithms by Jensen (1998).

One of the pregnancy concerns is emotional issues including anxiety and depression level. Anxiety and depression are two common responses to stressfully demanding situations that may affect healthy progression of pregnancy. Prevalence rates of clinical depression rate at 7.4%, 12.8% and 12.0% for the first, second and third trimester (Bennett, 2004). There are studied that have been shown that high score of anxiety results in increased incidence of preterm labor, reduced birth weight and small fetal head size.

Changes that occur during pregnancy affect the musculoskeletal system (Ponnapula and Boberg, 2010) and can cause low back pain (Anthony and Lisi, 2006; Bastiaanssen et al., 2005; Gilleard et al., 2002; Gutke et al., 2010). McCrory et al. (2010) had pregnant women stand on a force plate translated anteroposteriorly, and found that women in the third trimester swayed less than those in the second trimester or non-pregnant women, in particular due to changes in the relative stiffness of the trunk. These changes make it difficult for pregnant women to execute some activities of daily living (ADL) (Garshasbi and Faghih Zadeh, 2005).

However, motion-based exercise during pregnancy has negative perception in the developing country like Philippines. The first thing that most newly pregnant exercises worry about is miscarriage to age-old myths that have women believe that about of strenuous exercise can harm the baby. An awareness that exercise is important in promoting health and well-being has led to many women wanting to continue exercising during pregnancy (Da Costa et al., 2003). Traditionally, pregnant women have been advised to restrict exercise due to concerns for the health of the mother and her fetus, including risks of overheating; impaired delivery of oxygen and nutrients to the fetus; and premature labor (American College of Obstetricians and Gyneacologists, 1985). While no study has

found any negative effect of moderate intensity aerobic exercise on pregnancy outcome in a normal, healthy pregnancy (Lokey et al., 1991; Bell et al., 1995; Sternfeld et al., 1995), the effect of motion-based games exercise on the anxiety and depression levels of women experiencing normal pregnancy have not been determined.

This led to the researchers to make a prepartum exercise program to study the effect of motion-based games on pregnancy experience, anxiety, and depression in normal pregnancy.

Literature Review (Synoptic and Argumentative)

Exercise helps woman feels during pregnancy , and data has shown that just one of 30 minutes exercise can improved woman mood. General recommendation for adults, including pregnant women, for physical activity is at least 30 minutes of moderate intensity on most days of the week (Pate et al., 1995, Bell, 2006 and Swedish National Institute of Public Health, 2010). During pregnancy a woman's body experiences dramatic physiological changes that require a carefully designed exercise. These naturally occurring changes are not permanent, and the benefits of regular exercise. To improved posture and appearance, relief of back pain, stronger muscles in preparation for labor and support for loosened joints, increased energy level and less fatigue and promotion of feelings of well-being and a positive self-image.

Exercise can have a moderating influence on the risk of depression in pregnancy as well as in the postpartum period. A lack of exercise during pregnancy has been associated with a higher rate of depression symptoms. However, despite the obvious burden for the society and ongoing research, the etiology of depression is still not completely understood but it is generally accepted that depression is the result of a combination of neurotransmitter disturbance, hormone dysregulation, genetic, and psychosocial factors (Kalia, 2005 and Nestler et al., 2002)

Motion-Based Games

Pregnancy and the transition to parenthood involve the daily life activity and social changes in future parents. These changes have been linked to an increase in anxiety rates and depression symptoms (Condon et al., 2004). Estimated anxiety in the 2nd pregnancy trimester was found to be lower; in most studies, it was found to be from 6.6% to about 15% (Andersson et al., 2003, Andersson et al., 2006 and Heron et al., 2004). Anxiety levels seem to be higher in the 1st and 3rd trimesters, when compared with the 2nd pregnancy trimester (Lee et al., 2007). In fact, a non linear pattern for anxiety has been pointed out in women, with the 1st and 3rd pregnancy trimesters being identified as high risk periods (Lee et al., 2007). Specifically, Using motion based game has been shown to reduce anxiety- and depressive-like behaviors and to counteract the cognitive and mood effects of stress (Duman et al., 2008).

Activity Theory

According to Rogers in 1995 defines as an idea, practice or object that is perceived as new by the individual, and diffusion as the process by which an innovation makes its way through a social system the theory of frameworks was diffusion as the process of an innovation. He said that the information about the innovation is communicated and time. The characteristics of innovation, as perceived by individuals, tend to influence their rate of adoption.

Theory of diffusion is defined as the process by which an innovation is adopted and gains acceptance by members of a certain community. A number of factors interact to influence the diffusion of an innovation. The four major factors that influence the diffusion process is the innovation itself , how information about the innovation is communicated, time and the nature of the social system into which the innovation is being introduced (Rogers, 1995).
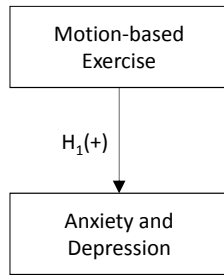
It was related to technology because that theory of Rogers in 1995 was about communicated the highlights of modern technology and to connect the other by using different gadgets. In our research using of technology was important because of the instrument that we use and in Rogers theory the innovation itself that influence like in our environment right now.

Research Questions

Research question 1: What is the STAI scores of the pregnant subjects?
Research question 2: What is the HADS scores of the pregnant subjects?
Research question 3: Is there a significant change between the pre-test and post test score of the subjects?

Research Simulacrum (Bins and Graphical Hypothesizing)

Corresponding to the variables discussed in the previous section, this paper proposed the following simulacrum, or paradigm, in order to represent such discussion. This will also serve as a structure to guide the research in validating or rejecting the arguments in the study.

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┌─────────────────┐
│  Motion-based   │
│    Exercise     │
└─────────────────┘
         │
  $H_1(+)$  │
         ▼
┌─────────────────┐
│  Anxiety and    │
│   Depression    │
└─────────────────┘
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$H_1(+)$: The motion-based exercise has an effect on the level of anxiety and depression of post-partum mothers as characterized by a significant change in their pretest and posttest scores.

Research Methods

Research Design

Consistent with the interesting phenomenon on anxiety and depression level assessment during pregnancy, the researchers have decided to conduct this study in a naturalist approach. This research approach, which is more commonly termed as quantitative studies, generally involves the collecting and converting of data into numerical form so that statistical calculations can be made and conclusions be drawn. Accordingly, in order to provide causation among variables discussed in the previous section, the research method applied was experimental – more specifically, quasi experimental, in which the element of randomization was removed.

The quasi experimental method is an evolution of the experimental method which is a systematic and scientific approach to research in which the researcher manipulates one or more variables and controls and measures any other change in other variables. While experimental research is a word with a wide range of definitions, in the strictest sense it may be what is called a true experiment. Experimental research is often used [1] in studies where time is a priority in causal relationships, [2] there is a consistency in a causal relationship, [3] the magnitude of correlation is great (Experimental Research, 2011).

Evolving from the experimental method – while in most aspects still much the same – the quasi experimental method characteristically lacks randomization. The use of control groups is absent. "Quasi experiments are conducted when true experiments are impracticable of impossible" (Tilley, 2006).

Quasi experimental was deemed the best method to be used in this study due to time and financial constraints, as well as a limited subject pool from which to choose. Issues with practicality and convenience were also taken into consideration when deciding on which method would best suit the needs of the researcher's study.

Research Locale

The researchers shall conduct the study at Valenzuela City, Metropolitan Manila. This location was chosen in part due to its convenience and proximity to the researchers' center of operations.

Population and Sampling

In accordance with the researchers' quasi experimental method, at least ten participants were chosen through purposive sampling with the following criteria: [1] Pregnant women, 23 years old and above, [2] At second and third semester of pregnancy, [3] with a certification from OB that proved the program is non-stressnous for both mother and baby, [4] from the City that the researchers chose, and [5] willing to participate.

Virtually synonymous with qualitative research, purposive sampling is a type of non-probability sampling that uses a particular subset of people and rejects people who do not fit a particular role (Purposive Sampling , 2013). Because of the lack of randomization, it can be argued that purposive sampling may not accurately represent the population. However, often in research there are instances in which probabilistic methods are simply "not feasible, practical, or theoretically sensible" (Trochim, 2006).

Ethical Consideration

To avoid ethical dilemmas, the researchers provided a consent form, asking for the permission from the respondents in participating the research in accordance of the Nuremberg code with the following criteria: [1] Participant must be aware that they are participating in research, [2] Research must not harm the subject, [3] Researcher must stop the study if the problem occur, [4] Participant can withdraw from the study without penalty. In addition, researchers consulted an OB with regard to the exercise program plan suitable for pregnant women and had ask for a certification.

Research Instruments

The researchers use the tool State Trait Anxiety Inventory (STAI). STAI is widely used and has been shown to have high reliability and validity. It was developed in early 1980s by psychologists, Charles Spielberger, R.L. Gorsuch,

and R.E. Lushene to help clinicians measuring anxiety through the created set of questions. It is a form which contains 20 statements that asks the respondent to describe how she feels at a particular moment. This would be a new development because all other questionnaires focused on one type of anxiety at the time.

The researchers use the Hospital Anxiety depression Scale (HADS). HADS is a self-assessment scale developed in early 1980s by Zigmond and Snaith. It is a widely used self-report instrument designed to assess the dimensions of anxiety and depression in non-psychiatric population. It has 14 items that consist of two subscales of seven items each, to measure the anxiety and depression. Each items is rated on a scale from 0 (not at all) to 3 (very much).

Data Collection

Before gathering participants, the researchers first obtained a city health office clearance that allowing researchers to conduct the study and an OB certificate to allowed participants in participating the research. After which, they will enter the barangay and choose participants that met the above mentioned criteria. Qualified participants will be given two Pre-test – one measuring anxiety level and the other depression level during pregnancy. Under the supervision of guidance of the researchers' thesis advisor, the participants will meet the researchers twice a week for one month for one hour session in which they performed motion-based game that pertained to prepartum exercise. At the end of the session, the participants will be given a Post-test that consisted of the same material as the Pre-test. Both latter and the former will be put through statistical analysis.

Data Analysis

The answers to the questionnaire will be tallied and computations will be facilitated through the use of tables of frequency distribution, percentages and t – test. Frequency distribution and percentages will be utilized to answer the questions regarding the STAI scores of the respondents as well as their HADS scores as stated on the research questions. The utilization of t – test will be used to reveal if there are any significant difference between the pretest and post test scores of the respondents.

This t-test compares one set of measurements with a second set from the same sample. It is often used to compare "before" and "after" scores in experiments to determine whether significant change has occurred.

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Proponents (Last Name, First Name, Middle Name)		
Malinao	Mardy	Ortega
Bojangin	Beverly	Tico
Buencamino	Jose Arnel	Acosta
Cerdan	Aiko Mayumi	Paner
Del Rosario	Christian	Verzosa
Dilag	Ariadne Mae	Besinga
Dino	Michael Joseph	Sarmiento
Marquez	Divine Grace	Vela
Patrocino	Alvin	Ege
Rivero	Jenica Ana	Ayson