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Effectiveness of telemedicine in increasing the self – efficacy of patients with gestational trophoblastic neoplasia at a Tertiary Hospital in Davao City

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Abstract:

BACKGROUND: Telemedicine has the potential of bridging the gap and achieving equity in receiving healthcare services. The department of health encouraged telemedicine using cell phones or consultations through social media platforms to decongest hospitals and reduce possible exposure to COVID-19.

OBJECTIVES: This study aimed to describe the effectiveness of telemedicine in increasing the self-efficacy of patients with gestational trophoblastic neoplasia (GTN) in a tertiary hospital in Davao City.

MATERIALS AND METHODS: This research was a mixed method pre-post-test exploratory design with two main phases: a quantitative phase of assessing the effectiveness of telemedicine in increasing self-efficacy to patients with GTN using Strategies Used by People to Promote Health-29, and a qualitative phase of online focus group discussions of patients and health-care workers. Thematic analysis was applied to contextualize the experience of the participants in engaging in telemedicine in the delivery of medical services.

RESULTS: Total subscale of self-efficacy of the patients during the first consultation was high. The respondents had a high level of confidence in stress reduction and in making decisions. The respondents had a very high positive attitude. After 6 months of telemedicine, the total subscale of self-efficacy was very high. The respondents had a high level of confidence in stress reduction and very high levels of confidence in making decision and positive attitude. The respondents had improved self-efficacy and verbalized that telemedicine was easy and readily accessible.

CONCLUSION: Telemedicine helped the respondents improve their self-efficacy. There was a significant difference between the baseline stress reduction and making decisions subscales after 6 months of utilizing telemedicine.

Keywords:

Gestational trophoblastic neoplasia, self-efficacy, telemedicine

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Introduction

Gestational trophoblastic neoplasia (GTN) collectively describes a group of gestational trophoblastic diseases capable of invading local tissues. It includes: (1) choriocarcinomas, (2) placental site trophoblastic tumors, (3) invasive moles, and (4) epithelioid trophoblastic tumors. Each of these conditions has the capacity to metastasize, perforate the uterine wall and can be fatal when left untreated.[1]

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Before the pandemic, monitoring and follow-up consultations for GTN patients were scheduled and done in person. However, at the start of the COVID-19 pandemic, studies documented a 60% decline in outpatient consultations.[2,3] This was expected since as far back as February 2020, the Centers for Disease Control and Prevention published guidelines encouraged social distancing practices and suggested that health care facilities render services through telemedicine.[3] Another report documented a 154% increase in teleconsultations during the last week of March compared to the same month last year, ultimately emphasizing the benefits of telehealth during this time.[3]

Telemedicine is defined as delivering health-related services or consultations, patient education, health information services, and self-care using digital communication technologies using cellphones or other online platforms.[4] It offers means of receiving relevant health-care service, without exposing both the patient and the health-care personnel to COVID-19.[3] Self‑efficacy, on the other hand, is defined as a cognitive process where individuals learn new behaviors that affect their ability to improve future events through environmental influence and social influence. Promoting self‑efficacy helps improve the quality of life of patients living with chronic diseases. Enhanced self-management support has been hailed as a hallmark of good care and high self-efficacy which led to enhanced quality of life.[5] Indeed, during the time of COVID-19 pandemic, one of the advantages of telemedicine is its effects on self-efficacy. In a study by 6-month prospective, randomized, comparative study involving 154 patients, telemedicine was associated with better control of the patients' symptoms, and reduced health-care time used by professionals during face-to-face consultations.[6] Studies have shown the positive effects of telemedicine, self-efficacy, and how this leads to better patient outcomes especially those with chronic disease.[7,8]

Telemedicine has the potential of bridging the gap and achieving equity in receiving health-care services, especially in resource-poor environments such as the Philippines. However, its use in the local setting got into momentum only in the recent months because of the COVID-19 pandemic. Last April 7, 2020, the department of health encouraged telemedicine using cellphones or consultations through social media platforms to decongest hospitals and reduce possible exposure to COVID– 19.[9]

Currently, there is no known research that investigated the potential use of telemedicine in the management of GTN specifically on patient's self-efficacy. This study was therefore undertaken to explore the effects of telemedicine on self-efficacy among patients diagnosed with GTN at the Southern Philippines Medical Center. Being the center for COVID-19 management in the Davao Region, SPMC may benefit from the findings of this study when they plan to acquire technologies for telemedicine to provide continuous medical services to its constituents, despite the restrictions imposed during the pandemic.

Objectives

General objective

This study aimed to describe the effectiveness of telemedicine in increasing the self-efficacy of patients with GTN at the Southern Philippines Medical Center.

Specific objectives

1. To determine if there is a significant difference in the baseline self-efficacy, and the self-efficacy of the respondents after 6 months of telemedicine
2. To describe the experiences of the respondents using telemedicine.

Materials and Methods

Study design

This research was a mixed method pre-post-test exploratory design with two main phases: a quantitative phase of assessing the effectiveness of telemedicine in increasing self-efficacy of patients with GTN, and a qualitative phase of online focus group discussions (FGDs) of patients and health-care workers at the end of the intervention to provide insights on the use of telemedicine as a mode of intervention. Thematic analysis was applied to contextualize the experience of the participants in engaging in telemedicine in the provision of medical services. Thematic analysis is a method of identifying, analyzing, and reporting themes within collected data.[10] The main challenge in constructing a thematic analysis of the data (i.e. the interview transcript) is to effectively identify the themes or main patterns within the text. Braun and Clarke defined "theme" as something that captures an important issue about the data in relation to the research question and refers to patterned responses or meaning within the data set.[10]

Study population

All patients of legal age (18 years old and above) who were diagnosed with GTN and were being seen for posttreatment monitoring at the Department of Obstetrics and Gynecology of the Southern Philippines Medical Center were recruited in March 2021. All patients had access to online and offline telemedicine. In addition, all medical doctors in charge of providing care to patients with GTN were recruited. An informed consent was provided before the conduct of the study. Participants who did not provide their informed consent were excluded from the study.

Sampling procedure

Convenience sampling was utilized in the study. All 15 patients who were diagnosed with GTN who were consulting for post treatment follow-up in Southern Philippines Medical Center were included in the study. Sample size computation was not needed in this study.

Data collection and instrumentation

Approval of the Ethics Review Committee of SPMC and the Department of Obstetrics and Gynecology was obtained. After approval, the researcher communicated with all 15 patients with GTN who were currently seeking consultation at Southern Philippines Medical Center. The nature and purpose of the study were provided to the respondents, and they were given ample time to ask questions pertaining to the study.

The following points were discussed with each potential respondent before inclusion to the study: (1) statement of information about the conduct and general content of the interview/discussion and the confidentiality and security of data; (2) the participants will be on-call for data validation within the 6 months' duration of the study; and (3) records will be kept in strict confidence. Once the researcher had confirmed that the respondents had satisfactorily understood the nature and purpose of the study, the respondents were asked to sign the informed consent form.

After signing the informed consent form, the respondents were asked to answer the Strategies Used by People to Promote Health-29 (SUPPH-29) questionnaire. This questionnaire has been used and validated in other previous studies.[11,12] The tool consists of 29 questions with subscales on stress reduction (item no. 1 to item no. 10); making a decision (item no. 11 to item no. 13); and positive attitude (item no. 14 to item no. 29), and is measured using a 5-point Likert scale with 1 as "very little" and 5 as "quite a lot." Mean scores were calculated for each subscale. The results served as the baseline self-efficacy of the respondents. They engaged in telemedicine as a form of health-care provision for 6 months. The 6 months' duration of telemedicine was adopted from a study among patients with diabetes mellitus who utilized telemedicine for glycemic management.

After 6 months of undergoing telemedicine, the respondents were asked to answer the SUPPH-29 questionnaire again. Results were tabulated and analyzed. A significant difference between the baseline self-efficacy and the self-efficacy of the respondents after 6 months of telemedicine was analyzed using paired *t*-test.

For the qualitative part of this study, FGDs were conducted through Zoom platform after 6 months. This involved patients as well as the medical doctors who provided telemedicine to the patients. Eight physicians were included in this study. Out of the 15 patients included in the study, three did not have internet access; hence, an individual interview over a phone call was done. Three groups were formed consisting of 4 patients and 3 medical doctors in each group. The FGDs were of two parts. The first part confirmed the respondents' answers to the questionnaire on. The second part explored their experiences in using telemedicine as a mode of intervention in the management of GTN. Facilitators and barriers in using this mode of intervention were also discussed to provide a holistic view of the effect of telemedicine in the management of GTN. Guide questions were the following: (1) How was your experience in utilizing telemedicine in providing/seeking care for GTN?; (2) Are there any positive/negative factors that aided/hindered you in using telemedicine?; and (3) Do you think that telemedicine helped the patients in improving self-efficacy in terms of compliance to medications and other treatment interventions? All discussions were recorded and thematic analysis was done.

Data analysis

Participants' characteristics were reported using mean and standard deviation. The self-efficacy scores at baseline and after 6 months of intervention were reported as means and standard deviations. The significant difference between the baseline self-efficacy and the self-efficacy of the respondents after 6 months of telemedicine were analyzed using paired *t*-test.

All the recorded FGDs were transcribed and anonymized. The transcripts were translated into English and compiled. Thematic analysis was used, however, since thematic analysis is a qualitative analysis method, there was no set rules as to how a theme was selected and was largely dependent on the researcher.

Results

Sociodemographic profile of respondents

All patients who were diagnosed with GTN and were undergoing posttreatment follow-up in SPMC during the study duration were included in this study. The sociodemographic profile is presented in Table 1.

The total subscale of self-efficacy of the patients during the first consultation was high. Most of them had a high level of confidence in using relaxation techniques to decrease anxiety. Respondents had moderate confidence in experiencing life's pleasure since they were diagnosed with GTN. Moreover, the respondents were very confident about convincing themselves that they will be okay. Due to the reduction of face-to-face

Table 1: Frequency distribution of the study population based their sociodemographic characteristics

Characteristics	Frequency (*n*=15), *n* (%)
Mean age (years)±SD	31±6.94
GTN stage	
I	3 (20)
II	0
III	11 (73)
IV	1 (7)
Marital status	
Single	4 (27)
Married	11 (73)
Gravidity	
Gravida 1	3 (20)
Gravida 2-5	12 (80)
Parity	
Nulliparous	3 (20)
Gravida 1-5	12 (80)
Antecedent pregnancy	
H-mole	14 (93)
Abortion	1 (7)
Term pregnancy	0
Preterm	0
Educational attainment	
High school graduate	8 (54)
College level	5 (33)
College graduate	2 (13)
Employment status	
Employed	3 (20)
Unemployed	12 (80)
Comorbidities	
Schistosomiasis	1 (7)
None	14 (93)

SD: Standard deviation, GTN: Gestational trophoblastic neoplasia

consultation, the respondents had low level of confidence in terms of excluding upsetting thoughts from their consciousness. Worries of recurrence or progression were some of the upsetting thoughts. The respondents had a very high level of confidence in terms of findings ways in alleviating their stress. The respondents had very high level of confidence in choosing the treatment presented by the physician to them which seems right for them. Although there was an increase in the level of confidence in making their own decision regarding treatment alternatives, the respondents still were afraid of the possibilities of the disease.

After 6 months of telemedicine, a positive attitude of the respondents remained. There was a significant difference in terms of stress reduction and making decisions. On the other hand, there was no significant difference in terms of positive attitude toward their condition. Table 2 shows the comparison between the baseline efficacy and the self-efficacy of the respondents after 6 months of telemedicine.

Table 2: Comparison between the baseline self-efficacy and the self-efficacy of the respondents after 6 months of telemedicine

Subscale	Baseline self-efficacy	Self-efficacy after 6 months	*P*	Interpretation
Stress reduction	3.69±0.30	4.18±0.29	0.001	Significant difference
Making decisions	3.93±0.58	4.29±0.36	0.002	Significant difference
Positive attitude	4.27±0.38	4.35±0.31	0.216	No significant difference
Total	3.96±0.42	4.27±0.32		

The result of the focused group discussion was interpreted in a thematic analysis. Eight physicians were included in this study along with the 15 respondents. The analysis produced 2 themes per question.

How was your experience in utilizing telemedicine in providing/seeking care for GTN?

Theme 1: Easy and readily accessible

The respondents verbalized that using telemedicine for consultation was easy and it was readily accessible. Most of the patients use social media as a way of communication hence it was easy for them to access consultation from the physicians using Facebook messenger and zoom meetings.

The health-care providers also had a good experience with telemedicine. They can easily attend to the patients since they always bring with them mobile phones and can attend to the patients immediately.

Theme 2: Challenging

Not all patients were adept of using this modern way of communication. Those who belong to the older population had difficulty and they needed the younger generation to teach them.

Furthermore, the physician verbalized that some patients called them or messaged them past their working hours or the allotted time for the consultation.

Are there any positive/negative factors that aided/hindered you in using telemedicine?

Theme 1: Physicians were approachable and accommodating

At this time of the pandemic, the respondents had apprehensions since they cannot immediately go to the hospital for consultation. Respondents verbalized that what aided them in utilizing telemedicine was that the physicians were very approachable and accommodating.

Theme 2: Accessibility to Internet connection

Some of the patients lived in a far-flung area; hence, connectivity hindered them from using telemedicine frequently. There were respondents who had delayed

follow-up checkups with the physician because of limited access to Internet connection.

The physicians verbalized that continuity of care was some of the issues. These patients should be monitored and checked however due to limited access of the patients to Internet, continuity of the follow-ups was compromised.

Do you think that telemedicine helped the patients in improving self-efficacy in terms of compliance to medications and other treatment interventions?

Theme 1: Improved self-efficacy

All of the respondents verbalized that telemedicine helped them improve self-efficacy in terms of compliance with treatment. It helped them improve their stress reduction methods and making decisions for themselves.

The physicians verbalized that the improvement of respondents was evident after telemedicine. Respondents had improvement in stress reduction management and making decisions.

Theme 2: Realizations

The respondents verbalized that they have realized that it is important to make a good decision in terms of their health and manage their own stress to have a positive attitude regarding their condition.

Discussion

GTN collectively describes a group of gestational trophoblastic diseases capable of invading local tissues. It includes (1) choriocarcinomas, (2) placental site trophoblastic tumors, (3) invasive moles, and (4) epithelioid trophoblastic tumors. Each of these conditions have the capacity to metastasize, perforate the uterine wall and can be fatal when left untreated.[1] With timely and appropriate institution of treatment, GTN is a highly curable malignancy. Post treatment follow-up is necessary for the early detection of recurrence.

Telemedicine is defined as delivering health-related services or consultations, patient education, health information services, and self-care using digital communication technologies using cellphones or other online platforms.[4] It offers a means of receiving relevant health-care service, without exposing both the patient and the health-care personnel to COVID-19.[3] Telemedicine can improve the quality of care and patient's self-efficacy.[13] A study done on patients with diabetes mellitus showed that it was also a method of increasing the efficacy of patients' self-management. Other studies have shown the positive effects of telemedicine and self-efficacy and how this leads to better patient outcomes, especially among those with chronic disease.[7,8]

Self‐efficacy, on the other hand, is a cognitive process where individuals learn new behaviors that affect their ability to improve future events through environmental influence and social influence. Promoting self‐efficacy can improve the quality of life of patients living with chronic diseases.[13] The SUPPH-29 was developed to measure patients' confidence in carrying out self-care strategies.[14] This tool has three subscales: (1) stress reduction; (2) making decision; and (3) positive attitude.

The total subscale of self-efficacy of the patients during the first consultation was high. Most of them had a high level of confidence in using relaxation techniques to decrease anxiety. In an article of Cleveland Clinic, taking the time to relax every day helps to manage stress and to protect the body from effects of stress. There are a variety of techniques that may be used such as deep breathing, image progressive muscle relaxation, and mindful meditation.[15]

There are several important factors that influence decision-making. Significant factors include past experiences, a variety of cognitive biases, an escalation of commitment and sunk outcomes, individual differences, including age and socioeconomic status, and a belief in personal relevance.[16]

Having a positive attitude can improve outcomes for those living with chronic illness.[17] There are five benefits of a positive attitude toward illness: (1) makes you stronger; (2) you remain optimistic; (3) you gain acceptance of your new situation, (4) helps solve the way you process your life; and finally, (5) changes your values.[18] Respondents had moderate confidence in experiencing life's pleasure since they were diagnosed with GTN. Moreover, the respondents were very confident about convincing themselves that they will be okay.

Bandura, in 1977, described self-efficacy as an efficacy expectation where a person believes in taking a particular action and producing a specific outcome. Self-efficacy is not a trait, but rather a set of beliefs. People must believe they can have certain effects on their actions, or they will not persevere in difficult situations. People's beliefs in their efficacy have an influence in meeting one's goals. Traditional forms of education that include discussions between the patient and caregiver, as it is well documented in the literature, are not sufficient in giving patients the necessary understanding and skills to manage their disease and minimize complications.[19]

Promoting self-efficacy helps improve the outcomes and quality of life for patients living with chronic diseases.[20] Patients are expected to be autonomous in the management of chronic diseases. Patient-centered care

cannot be a one-size-fits-all approach and organizations need to promote self-management through strategies that improve and sustain self-efficacy. New technology has been proven to improve traditional patient education and reach more patients than ever before. Boosting self-efficacy could be a way to increase treatment adherence and outcomes and decrease cost.[19]

A meta-analysis confirmed the effectiveness of various telemedicine intervention applied in primary health care. The results of this study suggest that compared with nontelemedicine care, telemedicine intervention in primary health care may improve glycemic control and self-management in patients with type 2 diabetes. The 6-month intervention period was effective, and interventions with remote monitoring or applications were most effective.[21] As to the current study, the 6-month duration of telemedicine was effective in improving the self-efficacy of the respondents. Therefore, telemedicine interventions are effective supplement to the traditional face-to-face counseling in primary health care settings. The next step should focus on assessing the acceptability and feasibility of telemedicine implementation on a large population and whether it is effective in reducing health-care costs.[21]

Conclusion

Based on the result of this study, telemedicine helped the respondents improve their self-efficacy. Telemedicine will be of great help to the physicians especially in monitoring their patients. Patients will have a high level of confidence in stress reduction, making decisions, and positive outlook toward their condition. There will be greater compliance to their treatment regimen and the pandemic will not be a hindrance in seeking medical services. However, no strong conclusions can be drawn from these results due to the limited number of patients included in the study.

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Conflicts of interest
There are no conflicts of interest.

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