

Exploring The Impact Of hirsutism Treatment And Quality Of Life Of Women With Polycystic Ovary Syndrome in Saudi Arabia: A Quantitative Study

Anoud Himli

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Supervisor: Emily Lockwood, Dr Catherine Corrigan

*Reviewed by Catherine Corrigan DNP, MS Advanced nurse practitioner, certified nurses Educator, and Bsc RGN
RCN RM*

School of Nursing, Psychotherapy and Community Health, Dublin City University

College of Nursing, Princess Nourah Bint Abdulrahman University

Riyadh, Saudi Arabia

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I. Background

Hirsutism is a condition that involves the excessive growth of hair in women, in parts predominantly for men (Bode, Seehusen, and Baird, 2012). Women with the disease demonstrate excessive hair distribution pattern that resembles men, that consists of the chest, face, back, thighs, and the abdomen (Bode, Seehusen, and Baird, 2012). It is one of the medical disorders that have affected women that result from hormonal imbalances, mainly androgens, and primarily the testosterone (Bode, Seehusen, and Baird, 2012). Clinical manifestations of the condition also include the deepening of the patients' voice, acne, balding, increased muscle mass, and enlargement of the clitoris among others (Bode, Seehusen, and Baird, 2012). It is commonly measured by the use of the modified Ferriman-Gallwey (mFG) scoring system (Bode, Seehusen, and Baird, 2012). Medical studies about quality of life among women with hirsutism have demonstrated that hirsutism can lead to other clinical problems for women such as worry, embarrassment, depression, and social withdrawal among others (Bode, Seehusen, and Baird, 2012). The study by Bode, Seehusen, and Baird (2012) sought to determine how hirsutism impacts on the quality of life. According to the researcher's PCOS has a negative impact towards the treatment of hirsutism (Bode, Seehusen, and Baird, 2012).

Clinicians have embarked on serious studies to evaluate the condition and recommend suitable treatment and management methods of the condition. Most of the treatment recommendations are based on the degree of hair growth (Donnelly, 2017). However, this method has demonstrated numerous problems that have necessitated more studies to evaluate the nature of the condition in order to recommend the most appropriate procedures (Donnelly, 2017). Besides, modern studies focus on the quality of life, including the psychological status, that the patient lives when having this condition (Bode, Seehusen, and Baird, 2012). Hirsutism has been studied regarding its relationship with other conditions and disorders, although few have focused on Polycystic ovary syndrome (PCOS) (Donnelly, 2017). This proposal seeks to explore the impact of hirsutism treatment on patients with PCOS. Impact, in this case, refers to the influence, effect, or the result of treatment of the condition in the sample population (Cambridge Dictionary).

Hirsutism is related to PCOS, which relates to the growth of hair in women in masculine areas (He et al., 2016). PCOS is a condition that is associated with hormonal imbalance such as the increase in testosterone that makes the ovaries produce excessive androgens (He et al., 2016). According to He et al. (2016), androgens refers to male trait hormones that can lead to male behaviors in women if they rise. Therefore, the increased androgens, particularly testosterone has been noted to result in hirsutism (Donnelly, 2017). Besides, women who have PCOS are likely to have hirsutism (Donnelly, 2017). Also, for women who demonstrate PCOS, there is the development of multiple small follicles within the ovaries that seem like cysts, thereby the origin of the name polycystic (Khomami et al., 2015). Considering the relationship between hirsutism and polycystic ovary syndrome, the treatment of hirsutism requires an analysis of the potential PCOS, to develop best care strategies. Besides, the treatment of a patient with PCOS is much more complicated, which significantly affects the quality of life (QOL) (Khomami et al., 2015). Therefore, clinical studies have highly recommended that the assessment of the women who have PCOS should not only be based on the reproductive and the metabolic evaluations, but also the quality of life regarding the health-related issues with the patient (Khomami et al., 2015).

Significance of the Study

Medical studies have been conducted to evaluate the QOL and the psychological wellbeing of women who have PCOS (He et al., 2016). However, few studies have examined the relationship of hirsutism and PCOS, and how its treatment can be affected in a patient who has both conditions (Fuchs et al. 2019; He et al., 2016; Khomami et al., 2015). It should be noted that patients with hirsutism demonstrate numerous psychological challenges, such as anxiety and depression that should be considered during their treatment (Alizadeh et al., 2017). For example, depression and anxiety are a significant concern among these patients (Alizadeh et al., 2017). Female patients with hirsutism depict anxiety and depression, implying that the management of the condition can improve their psychological wellbeing, hence the quality of life. Therefore, considering that the current proposal seeks to enumerate the ways ofhirsutism management, improve PCOS patients' QOL, a reduction of PCOS will be a key indicator to improve the quality of life. Hirsutism impacts on a patient's psychological wellbeing, hence proper management should deal with such challenges. Some studies, such as Fuchs et al. (2019) have demonstrated that there are medical issues, including weight management that affect the patients, (Fuchs et al., 2019). Therefore, it is not clear regarding the overall impact of hirsutism treatment, which relates to the patient's QOL when being treated for hirsutism and PCOS. This study will determine clinical practices that enable effective management of hirsutism in patients with PCOS, where a reduction of PCOS will be an indicator of improved quality of life (Fuchs et al., 2019), and hence improved the QOL. The following section will discuss the problem statement, which will highlight the problem that exists regarding treatment of hirsutism and its relationship with PCOS, and why it should be studied.

Problem Statement

The prevalence of PCOS among women, especially in developing countries and Western Caucasian women, has been on the rise (Fuchs et al., 2019). In this regard, it is imperative to investigate how managing hirsutism can impact the QOL among women with PCOS (Alsibyani et al., 2017). Such women have a decreased QOL from the mood disturbances, weight gain, decreased sexual satisfaction, alopecia, and acne vulgaris (Lumezi et al., 2018), as illustrated in the literature review section.

Additionally, managing hirsutism has been suggested to be one of the measures to improve PCOS condition (Lumezi et al., 2018). However, studies have not been conclusive regarding the actual effect, which necessitates further studies to examine how these women can be helped to improve their health and QOL (Lumezi et al., 2018). The prevalence in Saudi Arabia is not well known, illustrating the need to study the condition to improve the quality of life of the victims. Therefore, the poor quality of life that women with PCOS and hirsutism face require further research to identify appropriate measures and interventions.

Research Aim

This study aims to evaluate the impact of hirsutism treatment among patients who have polycystic ovary syndrome, especially on the quality of life of the patients.

PICOT Question

The framework used for assisting in evidence and formulating the research question was PICOT (P: Problem, I: Intervention, C: Comparable Intervention, O: Outcomes, and T: Time Frame) (Rios, Ye and Thabane, 2010). Therefore, the question is: Considering the increased prevalence of PCOS among women with hirsutism, how does pharmacological treatment of PCOS compared to no treatment, impact on the treatment of hirsutism in patients with PCOS on quality of life in the long run?

PICOT Question

P: Increased prevalence of PCOS among women with hirsutism

I: How does pharmacological treatment of PCOS affect quality of life of hirsutism patients

C: Compared to no treatment

O: Improvement of quality of life

T: In the long run

Research Objectives

- To explore the impact of hirsutism treatment on the QOL of people with PCOS
- To determine the relationship between hirsutism management in PCOS patientsand their QOL.

II. LITERATURE REVIEW

Literature Search Strategy

The search strategy utilized was a three-step approach (Aveyard, 2018). The first step was the identification of the relevant keywords. This was achieved by identifying the components of the topic requiring further investigation and qualification. Accordingly, the phrases "hirsutism," quality of life, and 'PCOS' were considered pertinent to all searches. The second step incorporated database searches. Relevant literature was

qualified according to its utility in providing detailed information on the topic area. The research question helped in identifying the keywords, phrases, and terms that would provide relevant results when using an online database. The databases utilized in the search were Google Scholar, (DCU) Dublin City University, (PNU) Princess Nourah University, EBSCOHOST and Cochrane. In addition, a secondary search, with the following keywords: PCOS and hirsutism, the impact of hirsutism in PCOS treatment, hirsutism treatment, and psychological implications of hirsutism. The keywords used in the search were 'Polycystic ovary syndrome' ('PCOS'), 'hirsutism,' 'treatment of PCOS,' and 'treatment of PCOS.' These keywords and terms were then combined to refine the search further. The combination resulted in phrases that included 'PCOS and hirsutism', 'impact of hirsutism in PCOS treatment,' 'hirsutism treatment', 'psychological impact of hirsutism,' 'Impacts of PCOS on quality of life,' 'Managing Hirsutism for PCOS patients,' and 'Impacts of Hirsutism management on improved QOL'.

To ensure the search yielded sufficiently reliable results, the database search included the use of database operators supported by the majority of the database. Database operators such as "OR," wildcard symbols, "AND," and others were used to source relevant literature. Additionally, the database search also involved searching for literature by the subject matter, which yielded many results. Search operators narrowed down broad results returned by keyword, phrase, and subject searches leading to more concise results reflected in the literature forwarded.

Inclusion and Exclusion Criteria

The third step of the search process involved a manual searching of grey literature on the impacts of hirsutism treatment on patients with PCOS and their quality of life (Aveyard, 2018). The grey literature included literature on treatment options for hirsutism to include any relevant policies and guidelines that might assist in the literature review and develop the knowledge in the chosen area.

The inclusion criteria are: studies published within the last seven years; in English; studies that focused on hirsutism treatment and quality of life, studies of the relationship between hirsutism and PCOS. Select articles from more than seven years were included depending on the quality of the investigations and the appropriateness of the topic to the topic under investigation. Meta-analytical, qualitative, systematic reviews, mixed methodologies and quantitative studies were thus eligible, as long as they met the inclusion criteria. The exclusion criteria included articles published earlier than in 2012. Additionally, articles not published in the English language were excluded to avoid information translation errors. The literature returned from the database searches were also sorted categorized according to the year of publication. Only literature from the last seven years was considered to ensure that the information contained would reflect current clinical and medical practices.

Search Results Summary

The articles outputted after the first step were 912 from the EBSCOHOST database and 23 from the Cochrane database. This was before filtering the search for time and other parameters listed in the search strategy above. After filtering the articles for time and language, a total of 68 articles cumulatively remained. Finally, the abstract section for all the remaining articles was read to determine the relevance of the articles. Following the application of the inclusion and exclusion criteria, there were 19 articles included in the literature review.

Review of Literature

Polycystic Ovarian Syndrome (PCOS) is a hormonal disorder that mostly affects women in the reproductive ages (Morreale et al., 2012; Barthelmeß, and Naz, 2015). The condition is illustrated by menstrual periods that are not frequent and prolonged ones, as well as excess androgen levels (Lauren, 2019). It also manifests as the growth of ovarian cyst that presents when eggs are not released for a long period causing the growth of fluid-filled sacs (Barthelmeß, and Naz, 2015). It affects between 6 -10% of women in reproductive ages and accounts for approximately 30% of infertility cases in women (Barthelmeß and Naz, 2015). Common symptoms include weight gain, chronic fatigue, low energy levels, insomnia, and mood changes (Morreale et al., 2012; Barthelmeß and Naz, 2015). These conditions are attributed to the hormonal imbalance associated with PCOS. PCOS may arise from genetics, inflammation, and insulin resistance to excessive androgen production, which can affect the management of hirsutism in such patients.

Hirsutism is classified according to the degree and distribution of hair growth (Fuchs et al., 2019). The most used Hirsutism scoring criteria is the Ferriman-Gallwey Scale (Lumezi et al., 2018). This is a score of 1 to 4 that is given to for nine areas of the body that are most sensitive to androgen. However, there are limitations such as failure to consider all androgenic areas such as buttocks and sideburns, ongoing cosmetic procedures, focal hirsutism, and the impact on general patient wellness (Lumezi et al., 2018). Under the Ferriman-Gallwey scale, a score of 1 to 4 (each area) is given after an examination of nine critical areas of the body. Patients who

score less than 8 are considered free of hirsutism 8 to 15 indicate mild hirsutism whereas above 15 indicate severe hirsutism (Lumezi et al., 2018; Fuschs, 2019).

The limitations prompted the use of Patient-Important Hirsutism, a term used to indicate the significance of the symptoms to patient distress (Bode, Seehusen, and Baird, 2012). According to Bode, Seehusen, and Baird (2012), the impact of hirsutism should be measured according to the effect on well-being psychologically, emotionally, and socially rather than on the degree of hair growth.

Hirsutism Treatment and Impacts on Quality of Life

Hirsutism among women with PCOS arises as a result of an overproduction of male hormones (Bode, Seehusen, and Baird, 2013). Bode, Seehusen, and Baird (2013) sought to examine hirsutism in women, where they argued that while different conditions can lead to the disease, polycystic ovary syndrome and idiopathic hyperandrogenism are the major contributors to about 85% of the disease. The condition refers to a situation where women experience excess hair growth and male-like hair growth patterns (Bode, Seehusen, and Baird, 2013). Hirsutism can be managed through several interventions including lifestyle changes, promoting physical exercise, balance dieting, cosmetic procedures such as laser hair removal, through plucking, shaving, waxing and chemical treatments. Drugs can also be used to treat the condition especially when the condition leads to fertility issues (Escobar-Morreale et al., 2012). Some of the drug administered includes Topical Eflornithine, oral contraceptives containing progestin and estrogen, antiandrogens, insulin sensitizers, and other drugs (Escobar-Morreale et al., 2012).

In addition to PCOS symptoms directly impacting women's morbidity, the condition also leads to anxiety, may cause depression, and impacts women's self-esteem. As noted by Williams (2015), the problem affects the ability of women to participate fully in day-to-day activities or enjoy their life in full. Effective treatment would hence refer to holistic management of the presenting symptoms and other therapies that would enable the patient to recover esteem and participate fully in life.

Background on Polycystic Ovary Syndrome

PCOS is one of the most common endocrines, menstrual, and metabolic disorders in women (Barthelmeß and Naz, 2015). According to Barthelmeß and Naz (2015), PCOS affects about 6 -10% of women and is attributed to approximately 30% of infertility cases in women. PCOS first gained attention and public discourse in 1935 by Leventhal and Stein when several patients presented a host of endocrine-related problems such as polycystic ovaries, hirsutism, and amenorrhea Lauren (2019). PCOS symptoms have a significant impact on several metabolic symptoms (Barthelmeß and Naz, 2015). It is associated with hyperandrogenism and anovulation and increases the risk of cardiovascular diseases, obesity, Type II diabetes, and insulin resistance (Barthelmeß and Naz, 2015).

Other common symptoms associated with PCOS also include irregular periods, which is the most prevalent condition associated with PCOS (Barthelmeß and Naz, 2015). Women suffering from the disease have reported cases on infrequent, prolonged, or irregular menstrual cycles (Khomami et al., 2015). For example, the study by Barthelmeß and Naz (2015) reported some women to menstruate once every few months or experience abnormally heavy bleeding (Barthelmeß and Naz, 2015).

Another common symptom is the growth of the ovarian cyst, which occurs when eggs are not released for a long period causing the growth of fluid-filled sac (Khomami et al., 2015). Women with PCOS also experience excessive weight gain and have difficulties managing their weight. Patients have also reported experiencing chronic fatigue and low energy levels leading to a lack of quality sleep (Khomami et al., 2015; Barthelmeß and Naz, 2015). Additionally, patients experience mood changes, which is attributed to severe hormonal imbalance (Barthelmeß and Naz, 2015).

While the exact cause of PCOS remains unknown, experimental research on PCOS has attributed genetics, inflammation, and insulin resistance to excessive androgen production and development of the condition (Khomani et al., 2015). The high production of male hormones in women has been linked to preventing the ovaries from making eggs and producing hormones normally (Khomani et al., 2015). Increased demand for insulin prompts the pancreas to produce more hence triggering the production of higher male hormones in the ovaries compared to female hormones (Khomani et al., 2015).

Due to the production of high levels of male hormones, women with PCOS experience unwanted hair growth known as Hirsutism (Bode, Seehusen, and Baird, 2012). This condition presents with male-like hair growth patterns (Fuchs et al., 2019). Women with PCOS tend to grow excess dark and coarse body hair in areas typically expected in men (Bode, Seehusen, and Baird, 2012; Fuchs et al., 2019). The amount of hair is dependent on an individual's genetic make-up. That is the thickness, color, and distribution (Bode, Seehusen, and Baird, 2012). However, in PCOS patients, hirsutism arises from the excess androgen hormones production, especially testosterone (Fuchs et al., 2019). Hirsutism occurs in about 7% of women in the United States (Bode, Seehusen, and Baird, 2012). The annual economic burden of the condition is estimated to be at \$600 million

(Bode, Seehusen, and Baird, 2012). The condition affects women of reproductive age with prevalence levels between 3 and 15% in both white and black women (Fuchs et al., 2019; Bode, Seehusen, and Baird, 2012).

Etiology of Hirsutism

The etiology of the condition is quite unclear, which makes it difficult to diagnose, which consequently bears immense negative impacts on the quality of life for patients. According to Ahmed, Alzolibani, Robaee, Hamed and Settin (2013), hirsutism is diagnosed based on the quantification of symptoms. This can be done via physical examination by using either objective or subjective method (Ahmed et al., 2013). Hirsutism has a notable effect on the quality of life for most women (Khomani et al., 2015). Other than being a cosmetic problem, as it is generally assumed, hirsutism is associated with other underlying health conditions linked with flawed self-image for women's, and the decline in QOL (Khomani et al., 2015). According to Tehrani et al. (2015), women with hirsutism may have declined social activities as a result of low self-esteem. Hirsutism disrupts daily activities in the lives of patients hence limiting them to a particular way of life and limited social circles (Tehrani et al., 2015).

Hirsutism in Polycystic Ovary Syndrome Patients

Hirsutism is one of the conditions that significantly influence PCOS patient's morbidity and hence is a vital aspect of PCOS management. For instance, a study by Dinary et al., (2015) showed that the higher the hirsutism in PCOS patients, the lower the QOL. Psychological and even psychiatric interventions were recommended for this group (Dinary et al., 2015). The study indicated depression and anxiety levels had a significant relationship to the level of hairiness (Dinary et al., 2015). The study indicated that approximately 75% of women with Hirsutism were reported to have suffered from anxiety, a third of experienced clinical depression levels, while another third was uncomfortable in social settings and avoided constant associations with other people (Dinary et al., 2015). This shows that hirsutism bears severe consequences on the patient's self-esteem and confidence. According to the study, women with hirsutism had decreased sexual satisfaction and self-worth. As a result, women suffering from the condition avoid sexual relations hence undermining the quality of their relationships (Dinary et al., 2015). Managing such psychological aspects can significantly help improve the PCOS patients' morbidity and QOL both in the short and long term. The rationale for associating an improvement in psychological condition to QOL is based on the understanding that improved QOL is attained when all aspects of a patient's morbidity are addressed.

Khomani et al. (2015) used a Persian version questionnaire on quality of life for PCOS patients, to perform statistical analysis on 796 sampled women. The study on the impact of hirsutism on the quality of life of women in Iran revealed that there was a significant negative impact caused by the various PCOS manifestations namely obesity, infertility, hirsutism, and anovulation (Khomani et al., 2015). However, the highest effect was caused by hirsutism which is not only a concern but, the energy and time that the women spent on hiding the condition seemed only to aggravate the patient's distress. The majority of the women in the study demonstrated traits like negative self-body image and unattractiveness, which impacted negatively on their interactions (Khomani et al., 2015). Reports indicate that the majority of women suffering from PCOS; feel inferior and embarrassed due to the perception of the loss of their feminine identity, arising from the issues with fertility and self-perception associated with PCOS (Khomani et al., 2015).

Hirsutism and Quality of Life

Hodeeb et al. (2015) sought to investigate the role of hirsutism on the quality of life. The researchers enrolled 100 female patients in the study for a self-reported questionnaire. The study is similar to that of Khomani et al. (2015), although their sample was smaller. According to Hodeeb et al. (2015), QOL is multi-dimensional and encompasses physical, material, social, and emotional well-being. It is referred to as the capability of an individual to enjoy normal activities in life. According to the World Health Organization (WHO) (2019), measurement of health should not only include changes in the severity and frequency of a medical condition but also encompass the general well-being, which can be measured by assessing the quality and improvement in individual quality of life in relation to healthcare (WHO, 2019). In this regard, WHO suggests that the impact of treatment to be evaluated regarding how it improves the life of the patient, concerning how the patient feels.

The QOL should be in correlation with the personal perception of their life position in terms of their value systems and culture relating to expectations, concerns, goals, and standards (Barthelmeß and Naz, 2015). Adapting to living with hirsutism is quite difficult and requires exemplary emotional and psychological will power as well as acceptance (Ekbäck et al., 2014). Even in the presence or absence of treatment, patients should find ways of active participation in society to improve their quality of life (Ekbäck et al., 2014). This, however, requires maximal social support to prevent stigmatization and the negative impacts associated with stigma (Ekbäck et al., 2014).

Khomani et al., (2015) noted that many women with hirsutism do not seek medical attention. However, the mere perception of the loss of the feminine identity in relation to physical features has significant effects on the general well-being of women (Ekbäck et al., 2014). Having a negative self-image has an adverse impact on a patient's confidence and mental wellbeing and consequently impacts morbidity negatively (Ekbäck et al., 2014). As such, nursing and medical staff should be guided by the patient's perception rather than focusing on the extent of hair growth (Khomani et al., 2015).

The goal of management and intervention should be not only seek to correct the symptom but to ensure that the patient's QOL to prevent the occurrence of other associated disorders such as depression, and social-anxiety (Ekbäck et al., 2014). This point of view is also held by Hibbert and Yeon (2016) who offer that management mostly involves control rather than cure and Escobar-Morreale (2016) who argue that Hirsutism is a frequent medical complaint but rarely requires medical treatment.

Additionally, eradicating stigma associated with depression and anxiety, social support plays an important role in how patients suffering from PCOS adapt and cope with the condition (Ekbäck et al., 2014). Treatment and management interventions should not only consider the pharmacology aspect but the psychosocial aspect of PCOS and associated conditions as hirsutism (Ekbäck et al., 2014). Knowing the effect of hirsutism is a vital management aspect and is capable of altering the therapeutic approach. This is in line with the principle of holistic care whose aim is to improve all aspects of a patient's morbidity. Providing holistic care positively correlates with improved QOL and patient satisfaction (Dinary et al., 2015).

Hirsutism Pharmacological Treatment

Hirsutism can be managed through several interventions. To start with, clinicians should advise their patients to modify their lifestyles. This includes promoting physical exercise and making dietary changes. This plays an essential role in controlling excess production of androgen hormones and the occurrence of cardiovascular diseases. A study by Barthelmess and Naz (2015) indicated that the attenuation rate of hirsutism is slower when treatment is focused on androgen levels reduction (Barthelmess and Naz, 2015). Therefore, combining pharmacology treatment with a lifestyle change can increase the attenuation rate of hirsutism in women with PCOS. Hyperandrogenism attributes such as acne and hirsutism are mostly associated with poor dietary habits as well as poor hygiene. Lifestyle changes would influence the production of androgen hormones, consequently inhibiting the occurrence of hirsutism or limiting the severity of the same in women (Khomani et al., 2015).

Another treatment intervention involves cosmetic procedures such as laser hair removal to complement medical treatments (Fuchs et al., 2019). Other cosmetic procedures include shaving, plucking, waxing, electrolysis, and chemical treatments (Khomani et al., 2015). However, the majority of these treatments only provide a temporary reprieve from hirsutism (Fuchs et al., 2019; Khomani et al., 2015). Electrolysis, on the other hand, is capable of providing a permanent amelioration in the treated section (Khomani et al., 2015; Barthelmess and Naz, 2015).

As reported by Hodeey et al. (2015), the treatment does not lead to cosmetic side effects such as scarring if competently performed. Treatment of hirsutism using used on patients not seeking fertility immediately (Hodeey et al., 2015). Unfortunately, there is scarce evidence-based information about pharmacological hirsutism treatment. The available literature is limited by various factors, hence unable to establish the efficacy of these drugs. Some of the drugs used to treat hirsutism include Topical Eflornithine, oral contraceptives containing progestin and estrogen, antiandrogens, insulin sensitizers, and other drugs (Morreale et al., 2012; Hodeey et al., 2015). Therefore, there is an inherent need to explore other non-pharmacological therapies to manage hirsutism to have a significant improvement in PCOS patient's morbidity and QOL. The following section will discuss non-pharmacological treatment.

Non-pharmacological Treatment

Research on the efficacy of Laser Hair Treatment has indicated that it portends improvements in the quality of life in hirsute women (Alizedeh et al, 2017; Khomani et al., 2015). Social fear in hirsute women influences their level of participation in social activities. The study factored several variables such as employment and education, but the two did not show any significance to the quality of life in these women (Alizedeh, et al., 2017). Patients who undergo laser hair treatment present elevated levels of self-esteem, improve self-body image, and ease when participating in social activities (Fuchs et al., 2019). The time and energy spent in removing unwanted hair also reduced significantly, with some patients reporting to new growth between twelve and thirty months after a laser hair removal session (Fuchs et al., 2019). This was seen to significantly reduce the emotional burden hence improving the QOL (Fuchs et al., 2019). Therefore, laser hair removal is significant in the treatment of hirsutism in PCOS patients (Fuchs et al., 2019).

A study by Pasch et al., (2016) was conducted on 229 patients, and the self-rating mFG scored at 13.3 out of 36 points while the clinician ratings were at 8.63 (Pasch et al., 2016). The patient's self-ratings scored highly in all body parts with the exception of the thighs. The adverse effects are partially associated with

hirsutism degree and have more to do with the quality of life than physician ratings (Pasch, et al., 2016). The results are in agreement with guidelines recommending that intervention and treatment should be largely guided by the patient's level of distress with PCOS and associated subjective perceptions rather than physician judgment degree (Pasch et al., 2016).

Anti-androgenic contraception helps in birth control but also has non-contraceptive effects on a woman's body (Fuschs et al., 2019). Anti-androgenic contraception refers to natural and synthetic medication that suppresses the development of male characteristics (Fuschs et al., 2019). These particular ranges of drugs are also used in the management and treatment of endocrine-related issues such as hirsutism because they are able to reduce male hormone levels in women. The study involved women that had been on oral contraceptives for about three months. The women completed a survey regarding the quality of life and how the medication helped reduce the intensity of menstrual pain, hirsutism, acne, and other PCOS related symptoms (Ekbäck et al., 2014).

A study by Joanna et al. (2019) showed a direct correlation between different anti-androgenic treatments and the intensity of endocrine disorders (Joanna et al., 2019). The majority of the women reported having relief from various symptoms hence positively influencing their quality of life (Joanna et al., 2019). A similar study concluded that combined oral contraceptive pills (COCP) therapy is beneficial in the management of menstrual regulation and hyperandrogenism. Combining Metformin with COCP showed positive impacts on metabolic features management and prevention (Albaghdadi, and Kan, 2017). The studies by Joanna et al., 2019 and Albaghdadi, and Kan (2017) create a sense that the management of hirsutism should be more holistic and not focused purely on relieving the adverse symptoms. Albaghdadi and Kan, 2017 suggest that it should involve addressing the symptoms, addressing hyperandrogenism, and taking other measures that can improve the patient's morbidity (Albaghdadi, and Kan, 2017). Therefore, hirsutism management should also consider therapists for emotional guidance on affected women. The following section will discuss alternative therapies that can be used to manage hirsutism apart from medication and other forms of conventional treatment.

Alternative Therapies for Hirsutism Management

There are some non-pharmacological treatment approaches that have been adopted by PCOS patients. Spearmint Tea is known to have components that produce anti-androgen effects when used for a prolonged period. A study conducted by Donnelly (2017), using spearmint tea, androgens, and hirsutism revealed that consuming the tea for an a-five-day period led to a significant reduction of testosterone and an increase in the follicle-stimulating and luteinizing hormones (Donnelly, 2017). The review by Donnelly (2017) evaluated the effects of spearmint (*Mentha Spicata*) in lowering androgens and the consequent implication on hirsutism management. Results were further analyzed for the impact after 30 days and patients reported a decline in self-reported hirsutism score (Donnelly, 2017).

It is important that any interventions recommended taking societal influence on the well-being of Hirsutism patients into consideration to improve their QOL quality of life (Lumezi et al., 2018). Improved social support can be ignited by public health education interventions as well as interventions based on the psychological, mental, and emotional well-being of patients (Lumezi et al., 2018; Khomami et al., 2015). Intervention criteria should base on the theory of the Three Cs – core, care, and cure. From the theory, Core refers to the patients who need the care of the nurses. The core sets goals, not his or her healthcare provider, and therefore making decisions based on personal values and feelings (Lumezi et al., 2018). The cure aspect of the theory is aimed at the roles and duties of nursing practitioners in nurturing the patient. Nursing care is more of motherly care and includes patient instructions, providing comfort, and assisting the patient in meeting their needs (Khomami et al., 2015). Lastly, Cure refers to the clinician's attention to patients.

Gaps in Knowledge

While endocrinologists and gynecologists have been managing the disorder, increased prevalence and severity has led to the application of primary care management, which primarily involves an administration of medicines (Umara, 2018). However, nurses should expand their knowledge base regarding PCOS (Umara, 2018) and associated conditions as hirsutism to assist patients adequately manage the symptoms and deal with any complications to improve their quality of life (Umara, 2018; Lumezi et al., 2018). Currently, there is no actual cure (Umara, 2018) for PCOS and unfortunately, the literature review illustrated that limited research has been conducted despite the increasing prevalence as Umara (2018) suggested the need to evaluate different treatment approaches with underlying factors to manage the condition. Therefore, there is need for medical researchers to investigate and recommend the alternative management techniques available, such as therapies to improve the patients' quality of life.

Theoretical Framework

The essence of this study will be to assess how managing hirsutism contributes to the overall well-being of a PCOS patient. Well-being, in this case, is measured by the improvement in the QOL. According to

Umara, (2018), QOL can be defined as the subjective perception of a patient's position in regards to morbidity and the ability to participate fully in day-to-day activity. The impact of treatment of hirsutism on the psychological wellbeing of patients of PCOS can be examined with a statistical tool like SPSS. The QOL was designed to enable health care practitioners to develop unique ways of addressing individual patients' needs. To explore whether managing hirsutism management will improve the quality of life, the study will evaluate whether the treatment plan for PCOS contributes to effective nursing as described by Lydia Hall (1969) in the Three Cs of Lydia Hall Theory. Lydia Hall's theory 1969 describes nursing as the "participation in care, core and cure aspects of patient care, where CARE is the sole function of nurses, whereas the CORE and CURE are shared with other members of the health team" (Umara, 2018, p.21). The purpose of managing hirsutism will be to facilitate the development of the core. Lydia Halls' philosophy was that patients' care, cure, and are interconnected with the core nursing theory. She used her knowledge in psychiatry and nursing to develop the framework.

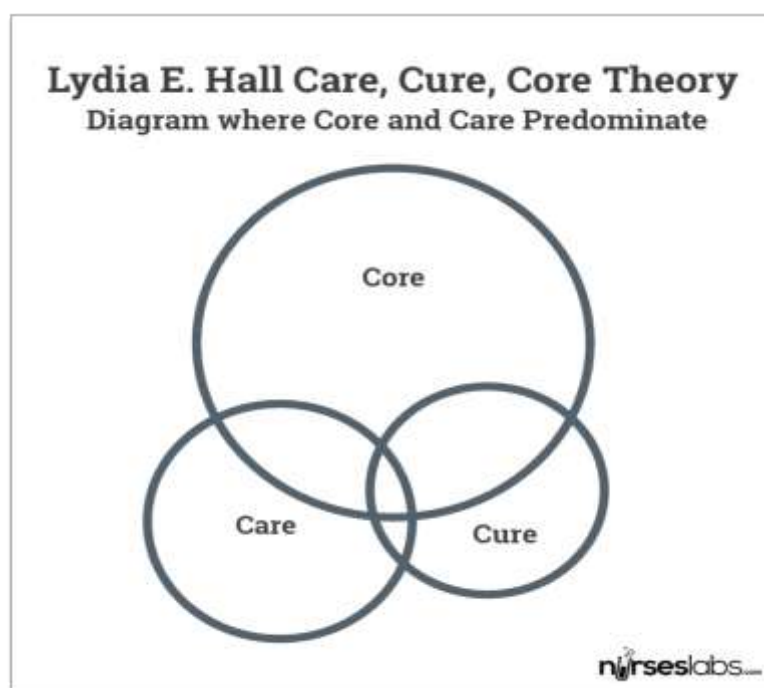


Figure 1: Lydia Hall Care, Cure, Core 1969 Theory Summary

According to Lydia Hall, the circle of cure carries nurses and other medical professionals, for instance, physical therapists, and physicians (Umara, 2018). The actions of the persons in this circle should be geared towards providing holistic treatment for any illness that the patient suffers (Umara, 2018).

The model theory approach was developed as a result of Lydia's interest in chronically ill patient's rehabilitation (Umara, 2018). She paid deep attention to the role of nursing in patient's outcomes and treatment. The theory is significant in the treatment of hirsute women in the quest to improve their QOL (Umara, 2018). It should be noted that the theory emphasizes the importance of individual attention when dealing with patient's issues. Physicians from all disciplines need to collaborate to work on effective hirsutism interventions that are not only aimed at correctional medicine but also at ensuring the patient's comfort and wellbeing while on treatment (Umara, 2018). Understanding the provisions of the theory will have an immense effect on helping create an understanding of how alternative medicine can be used to manage hirsutism and consequently how this would impact a PCOS patient QOL (Lumezi et al., 2018).

The Rationale for Theoretical Framework

The theoretical frameworks adopted in the 18 main studies identified were different from each other and are also different from the framework adopted for this study. However, the evaluation noted that most of the studies evaluated some level of connection between Hirsutism, PCOS and the quality of life (Teede et al., 2019). The study that used a relatively similar quantitative framework includes Kiran et al. (2018) which used The Ferriman-Gallwey score (brilliant as it was analysed using a quantitative measure) to assess the connection between the perception of health care outcomes and QOL. Some of the articles selected evaluated how some aspects of hirsutism or PCOS management impacted patients' QOL. For instance, Amiri et al. (2017) used the 6-arm controlled and randomized trial to evaluate the connection between PCOS and QOL. The rationale for

choosing to use the theoretical framework adopted in this study was based on the appropriateness of the Lydia Hall Care, Cure, Core Theory in assessing the connection between practitioners' care, health outcomes, and QOL, which were the main points of concern for this study.

The theoretical framework adopted in this study is essential in evaluating the relationship of different social, individual, environmental factors, and how they facilitate health care practitioners regarding the provision of the holistic treatment for any illness that the patient suffers, and in this case management of hirsutism in women with polycystic ovary syndrome.

III. METHODOLOGY

Overview of Objectives

This study aims to evaluate the impact of hirsutism treatment among patients who have polycystic ovary syndrome, especially on the quality of life of the patients. Specifically, the study will seek to analyze the following research objectives.

- To explore the impact of hirsutism treatment on PCOS and QOL
- To determine the relationship between hirsutism management and PCOS patients' and QOL.

Research Design

The term paradigm can be described as a worldview that has distinct elements of epistemology (how we know what we know), ontology (the nature of reality), axiology (one's values) and methodology (the process of research) (Bryman, 2015). Researchers who hold different worldviews (or paradigms) will approach research in different ways to construct knowledge, interpret information and make methodological choices within the research process itself (Bryman, 2015). In this study, a positivism approach will be deployed. Positivism in study prefers scientific investigation to illustrate the correlation between study variables.

In a positivist approach, a quantitative research design is preferred. A quantitative research design is a systematic investigation of a phenomena which entails gathering of quantifiable data to perform mathematical, statistical, or computational analysis to investigate the hypothesis (O'Dwyer and Bernauer, 2013). This differs from a qualitative research design studies human behavior, themes, opinions, and motivations (O'Dwyer and Bernauer, 2013). Besides, a quantitative research is based on data and facts, which reduces the possible bias in human investigation and judgment present in qualitative research. Therefore, this study will use a quantitative research design, which will entail the scientific observation of data and describing the behavior noted. A quantitative approach will facilitate descriptive analysis, which is a common approach that is used in social sciences to describe the behavior of the subjects by conducting an in-depth investigation of the subjects (O'Dwyer and Bernauer, 2013). Therefore, the study will use a quantitative research method, where quantitative data will be obtained. Quantitative data will be collected that will be used in conducting statistical analysis. It should be noted that a quantitative approach is imperative as it facilitates understanding of the variables and the mathematical analysis of the findings to establish the correlations of the subjects and the objects (O'Dwyer and Bernauer, 2013). Therefore, the researcher will be able to analyze the descriptive data, which fits in the descriptive research design for this study. This will be imperative to ensure the credibility and applicability of the results. (O'Dwyer and Bernauer, 2013).

Sample Selection

The participants of the study will be patients in medical facilities managing PCOS and hirsutism. The research will focus on patients. The sample size will be 300 patients. The sample size will help to illustrate the impact of PCOS treatment on hirsutism patients regarding their quality of life. As illustrated by Bode, Seehusen, and Baird (2012), there is a need to use a larger sample to give a clear picture and ensure reliability of the findings when dealing with the condition. Therefore, the patients will be examined regarding their response to various health issues that have impacted on their lives when receiving treatment for PCOS. Hirsutism patients with PCOS that are being managed and those diagnosed but not taking any medication or alternative therapies will be evaluated to compare the results. Besides, the random sampling of the participants will facilitate all possibilities without bias in the findings.

Instruments

The study will use a questionnaire to collect the relevant data. The questionnaire method was chosen as it is effective in collecting multiple data from many sources without compromising the time required (Blair, Czaja and Blair, 2013). A single questionnaire is prepared where copies are sent to the target respondents (O'Dwyer and Bernauer, 2013). The questionnaire will be sent to the respondents by mail, since it will be easy and convenient for both the researcher and the respondents. By structuring the questionnaire, the researcher will be able to collect a wide array of data from the respondents that can be used to evaluate the disparities of the treatments and responses. Besides, the questionnaire is an effective tool for quantitative research as the

independent variables can be evaluated regarding how they are influenced by different objects (O'Dwyer and Bernauer, 2013). Considering that this study will adopt a questionnaire that has been used previously investigating a similar research problem, it will be possible to expand the knowledge and the findings, when studied in a different population. Also, the questionnaire will collect different important information including the demographic information of the patient such as age, gender, level of education, and marital status, which will help in understanding the concept in a specific population (O'Dwyer and Bernauer, 2013). Also, the data about the health condition of the patient will be essential to answer the research questions.

Ethical Issues

Medical ethics refers to a system of moral principles that seek to apply values to the practice of medical research. In case of confusion or conflict, professionals have a guideline to refer to the values of medical practice and research (D'Agincourt-Canning and Ells, 2019). Medical studies are subject to critical ethical standards, considering the sensitivity of the research and how it may affect the subjects, there is a need to ensure that the rights to the human subjects are respected. Therefore, ethical principles will be followed throughout the study. The study will follow the ethical guidelines as established by the World Medical Association during the Helsinki Declaration (Chadwick and Meslin, 2012). The researcher will get relevant legal, statutory, and ethical norms of informed consent, where the participants will not be coerced to take part in the study. Only the willing respondents will be used, and they will be required to sign an informed consent form. Besides, it is important to note that no personal data will be required from the respondents, to ensure anonymity. The risks of experimental evaluations, especially when involving the vulnerable groups are not a major concern, as the questionnaire will be sent via email. Therefore, the data will be collected in accordance with the established ethical norms and procedures as the study aims to avoid any ethical issues. The research will be conducted as guided by the IRB for studies involving human subjects.

Data Analysis

The data obtained will be evaluated and analyzed statistically using the SPSS statistical package Version 25. SPSS is statistical software that is used to evaluate descriptive statistics, and demonstrate the correlations between the variables (Verma, 2013). The software will be used as it allows the comparison of different groups of data, and analyze the relationship of the dependent and independent variables (Verma, 2013). Therefore, the choice of the statistical package fits with the descriptive research design proposed, which is imperative to evaluate the research questions regarding the impact the dependent and independent variables (Verma, 2013). It should be noted that the study seeks to evaluate the impact of hirsutism treatment on the quality of life of patients with PCOS. Therefore, there is a need to evaluate the relationship using statistical data, which will be easily evaluated using the SPSS software. The statistical significance will be considered at $p > .05$. Descriptive statistics such as percentages regarding demographics of the patients will be analyzed, including the correlation analysis of treatment methods and patients' quality of life.

Validity and Reliability

This study will be conducted while ensuring validity and reliability, which are concepts that are used to evaluate the quality of research. The reliability can be explained as test-retest reliability that seeks to assume the consistency of the study across time (Khuanchanok, Saipin, Piyatida and Mahidon, 2013). Khuanchanok, Saipin, Piyatida and Mahidon (2013) illustrates that it is critical to ensure that the findings of a study can be generalized in other studies. In this regard, the study will be carried out with a lot of care in order to ensure that all the collection of data and the analysis of the same depicts the real situation in the institution. Internal constancy will also be ensured in this research, which will be analyzed through the collection and analysis of the available data for the items that could be analyzed in pairs, hence establishing their correlation. The study will also ensure validity by utilizing a proper methodology for data collection and analysis that can be replicated (Khuanchanok, Saipin, Piyatida and Mahidon, 2013). For example, the survey will contain questions that are deemed related to the research question to make excellent face validity. Also, the study will ensure content validity which seeks to cover the extent to which the measure covers the construct of interest. By using SPSS software, validity of findings will be ensured as it is a validated mathematical instrument of research (Verma, 2012). By adopting the questionnaire used previously, the study will ensure validity of the research instrument for this type of research. However, the study will only focus on hirsutism treatment for patients with PCOS, and how it affects the overall quality of life. This is a major limitation as there are other possible factors that can impact on the treatment and patient response. However, those factors will not be considered in this study.

IV. RESULTS AND RECOMMENDATIONS

The study aims at evaluating the impact of hirsutism management and how it impacts the quality of life of the patients with PCOS. It is expected that the physical health consequences are immense for women suffering from the condition. Therefore, any form of management is expected to demonstrate a lot of improvement towards the quality of life of the patients. The study, therefore, anticipates that the treatment and management of hirsutism will offer numerous benefits to the patient with PCOS regarding the overall management of the condition. It should be noted that not all patients are affected the same by the same situation. However, whatever one feels like a poorer quality of life could be very relevant for another person. In this regard, the management of hirsutism will reduce the symptoms such as having dark hair on the face, which lower the self-esteem. This implies that if the condition is properly managed, the patients with PCOS are likely to have a better health status, hence improved quality of life.

V. FINDINGS, DISCUSSION AND CONCLUSIONS

It is expected that the findings will demonstrate the importance of management of hirsutism, regarding the full understanding of the quality of life implications. Such implications should inform the treatment of PCOS. Past studies have demonstrated that some women can have relatively little hair growth, or could be in only one part of the body. However, such women are likely to get a lot of embarrassment that can lead to social isolation. In this regard, the management of the hirsutism condition by the medical practitioners is likely to impact on the quality of life of patients who face these challenges. The study will be assessed regarding the findings, where a comparative analysis will be conducted regarding the past literature to establish whether the study has assisted in filling the literature gaps. For example, it is anticipated that the treatment plans will demonstrate an impact regarding the response to the patients with the condition. However, there is a need to examine how various methods can be useful in evaluating patients, in order to improve their overall quality of life. Therefore, evaluating the impact of hirsutism management is imperative in assessing the extent to which PCOS patients manage their health.

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Appendix

Research Timeline

Timeframe and Work Plan For Capstone Study



Request for Permission to Use Tool

Approved the Request



Appendix ...

Validated Questionnaire

Demographic Characteristics and Medical History of the Study Participants

Variable	Fill/ Tick Appropriately
Age	
Weight	
Level of education	
Income per day	
Interval of menstruation (every 28 days, irregular)	
The number of menstruation in a year	
Marital status	
Height	
Menstrual disorder in the past 6 months (e.g bleeding)	
Number of pregnancies	
Number of abortion experience	
History of pregnancy complications (breech, cesarean section)	
Do you have a history of acne?	
Do you have a history of hirsutism?	

On a scale of 1-4, how likely are you to experience the following since the last 1 year:

1. Very likely
2. Likely

- 3. Unlikely
- 4. Very unlikely

Psychosocial and emotional domain	1	2	3	4
Bad mood				
Impatience				
Blamed your-self for having PCOS?				
Trouble dealing with others?				
Low self-esteem due to PCOS?				
Aggressiveness due to PCOS?				
Pessimistic about the treatment?				
Lack of control of emotions?				
Easily tired?				
Self-body image domain				
Embarrassment due to your appearance?				
Different to normal females?				
Lack of satisfaction with your role as a wife?				
Lack of satisfaction with being a woman?				

Fertility domain	1	2	3	4
Trouble getting pregnant?				
Sad seeing children?				
Sad seeing pregnant women?				
Felt you will accept all other PCOS manifestations if assured of pregnancy?				
Fear of abortion?				
Concerned about infertility in the future?				
Fear of divorce or separation?				
Uselessness of sexual intercourse due to infertility?				
Concerned about the long term effects of PCOS medication?				
Unsatisfied with sex?				
Lack of sexual stimulation?				

Sexual function domain	1	2	3	4
Lack of sexual desire?				
Lack of lubrication during sexual intercourse?				
Lack of orgasm?				
Ashamed of sexual coldness/unresponsiveness?				
Loss of libido because of PCOS?				

Obesity and menstrual disorder domain	1	2	3	4
Did you feel being obese?				
Concerned about being overweight?				
Concerned about a fast return to your previous weight after any weight loss?				
The need to decrease your weight to control PCOS status?				
Concerned about the complete cessation of menstruation?				
Concerned about menstruation at long intervals?				
Fear of diseases such as diabetes, hypertension and heart disease?				
Fear of cancer?				

Hirsutism domain	1	2	3	4
Sad to see hair in the mirror?				
Concerned about the progression of excess hair?				
Embarrassed because of excess facial hair?				
Concerned about having excess body hair?				

Concerned about rapid re-growth of unwanted hair after its removal?				
The need to cover your body and face because of excess hair?				

1. How would you rate your quality of life?

Tick Appropriately		
1	Very Poor	
2	Poor	
3	Neither poor Nor Good	
4	Good	
5	Very Good	

2. How satisfied are you with your health?

Tick Appropriately		
1	Very Dissatisfied	
2	Dissatisfied	
3	Neither Satisfied nor Dissatisfied	
4	Satisfied	
5	Very Satisfied	

3. How well are you able to get around?

Tick Appropriately		
1	Very Poor	
2	Poor	
3	Neither poor Nor Good	
4	Good	
5	Very Good	

4. How satisfied are you with your sleep?

Tick Appropriately		
1	Very Dissatisfied	
2	Dissatisfied	
3	Neither Satisfied nor Dissatisfied	
4	Satisfied	
5	Very Satisfied	

Appendix ...

Informed Consent

I invite you to take part in this survey questions that are provided in the questionnaire. The purpose of this survey is to gather information about the hirsutism condition treatment among women with Polycystic ovary syndrome (PCOS), to recommend better strategies to facilitate improved outcomes. My name is Anoud from Dublin City University, undertaking a masters in nursing program, and I am conducting a research study about the “Impact of Hirsutism Treatment on women with Polycystic ovary syndrome and quality of life in Saudi Arabia”

I would like to find out some information from you please (use lay language)

Please understand that to take part in this study:

- Understand that taking part in the research project is absolutely voluntary. That you will NOT be coerced to take part in answering the questions or answering any question that you feel is not convenient for you.
- You have the right to withdraw from the research any time you feel that your rights may have been violated, or any concern regarding privacy, ethics violations, threats, or just a personal decision, without any penalty or consequences whatsoever.
- That the participation in this study will not entail significant danger to the participants, as only a questionnaire will be sent.

The participation in the survey and, hence in the research project will be completely voluntary, and you can decline at any time or leave blank spaces to any questions that you feel uncomfortable to answer. The responses

that you provide will remain anonymous and confidential, and the data provided will be kept locked in the researcher's hand disk and laptop for collective analysis by the researcher only.

If you agree to take part in the research project, please confirm in the consent form declaration below. In case you have any questions about the research project, please contact the researcher immediately.

Consent declaration: Please indicate/ mark appropriately.

I have read and understood the information, and I voluntary agree to take part in the study: **yes** **no**

I do not wish to take part in this research project: **yes** **no**

Respectively,

Sign: _____

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