

Polycystic Ovary Syndrome [PCOS] and Polycystic Ovary Disease [PCOD]

What is it?

A medical condition associated with **ovaries** and **hormonal imbalance** affecting **women** belonging to the **reproductive age of 12 to 51**.

Both are used interchangeably as they depict the same symptoms.

Multifactorial disease: Involves **excess production of androgens** (male sex hormones)

Possible Causes:

Exactly how women get affected by PCOS is not known, however these are some significant factors:

- Genetic
- Excess insulin production
- Excess androgen production
- Low grade inflammation

IT AFFECTS EACH WOMAN DIFFERENTLY.

Doctors don't offer proper information, leaving the patient confused and frustrated; unsure how to proceed with generic advice to improve lifestyle

Key differences:

PCOD	PCOS
<ul style="list-style-type: none"> • Common disorder. 	<ul style="list-style-type: none"> • More severe medical condition.
<ul style="list-style-type: none"> • Affects 10% of the women population in the world. 	<ul style="list-style-type: none"> • Affects 0.2% - 2.5% of the women population in the world
<ul style="list-style-type: none"> • Ovaries produce many immature or partially mature eggs 	<ul style="list-style-type: none"> • Ovaries undergo anovulation; stop releasing eggs
<ul style="list-style-type: none"> • Doesn't affect fertility in women; still can ovulate and naturally conceive with the assistance of medications. 	<ul style="list-style-type: none"> • Does affect fertility in women; difficulties in conceiving; if pregnant, can lead to miscarriages, premature birth or other complications in the pregnancy.
<ul style="list-style-type: none"> • Doesn't have severe side effects 	<ul style="list-style-type: none"> • Has serious complications, can lead to or accelerate type 2 diabetes, heart disease, high blood pressure and endometrial cancer in later stage

*Most women aren't aware that PCOD and PCOS are different conditions.

Clinical Symptoms:

- Hormone Imbalance:**
 - Menstrual Irregularity (Oligomenorrhea)
 - Absence of menstruation (Amenorrhea)
- Hyperandrogenism:**
 - Alopecia (male baldness)
 - Hormonal Acne
 - Hirsutism (facial hair)
- String of Pearls**
 - Multiple cysts in the ovaries (Past failed follicular events)
- Obesity:**
 - Sudden weight gain
 - Bloating
- Physiological:**
 - Depression
 - Exhaustion
 - Anxiety
 - Pelvic Pain

Treatments:

- Medications**
 - Birth control pills (treat hormonal imbalance + regular menstrual cycles)
 - Ovulation Induction [**PCOS**] (meds + injection)
- Lifestyle Management**
 - Exercise regularly
 - Diet (Regulate your food intake; low-carb diet)
 - Maintain healthy BMI (18.5 - 24.9 for women)
- Treatments**
 - Skin treatments (acne)
 - Fertility drugs [**PCOS**] (infertility treatment)
- Procedures**
 - Laparoscopic procedure [**PCOS**]
*if patient doesn't respond to treatment -ovarian drilling procedure to destroy androgen-producing tissue

The Ecology

What are the causes and treatments?

DIAGNOSIS

It happens by **exclusion** where a doctor tests you for other disorders and conditions that mimic PCOS

- Thyroid
- Pregnancy
- Medications
- Hyperprolactinemia
- Hypogonadism
- NCCAH
- Hyperandrogenism

*if you don't test +ve for any of the above

*if you display any 3 clinical symptoms

TREATMENTS

Hormonal Imbalance

- Birth control pills
- Exercise Regularly
- Regulate food intake/ diet
- Maintain BMI

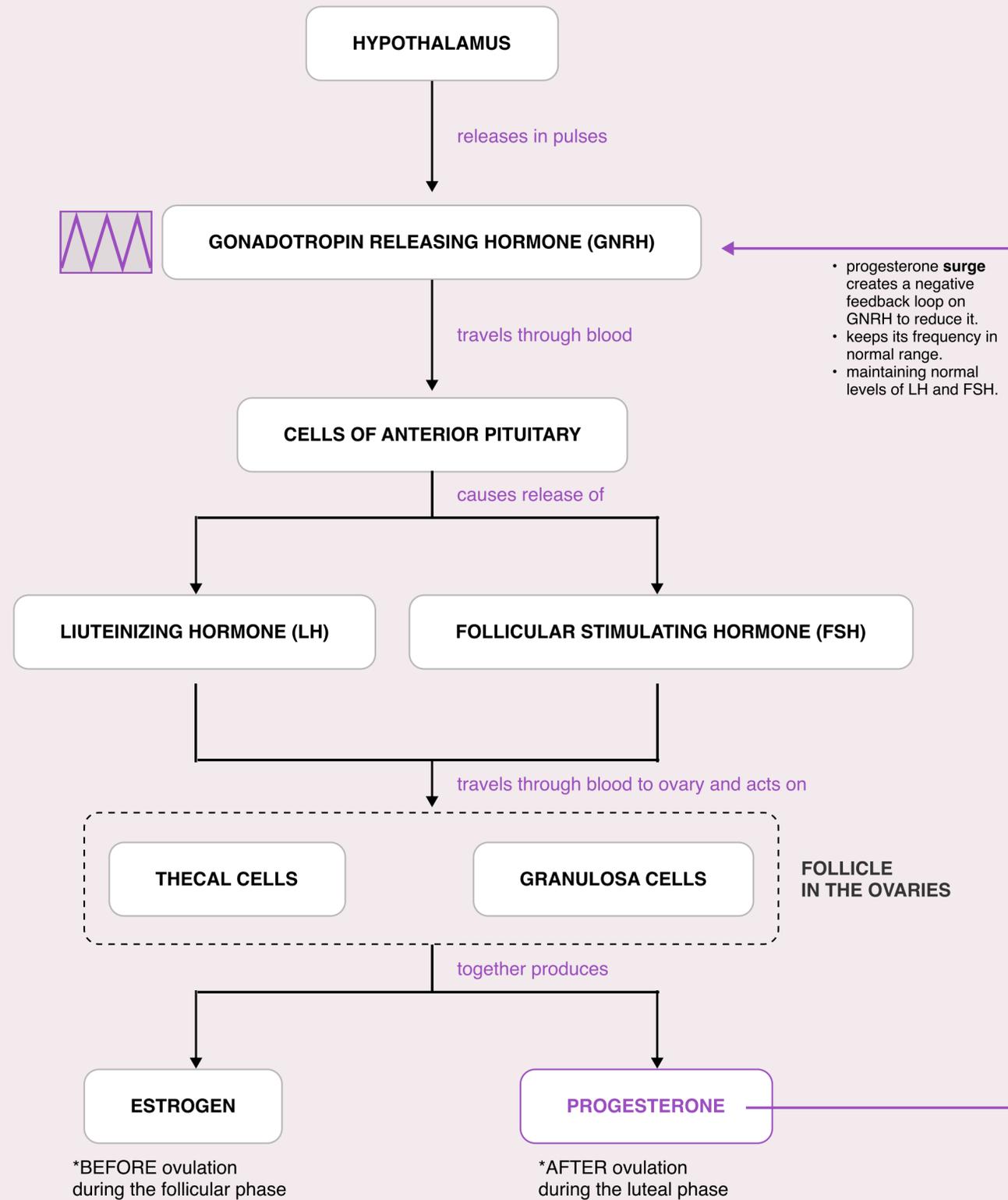
Hirsutism

- Skin treatments
- Electrolysis (laser)

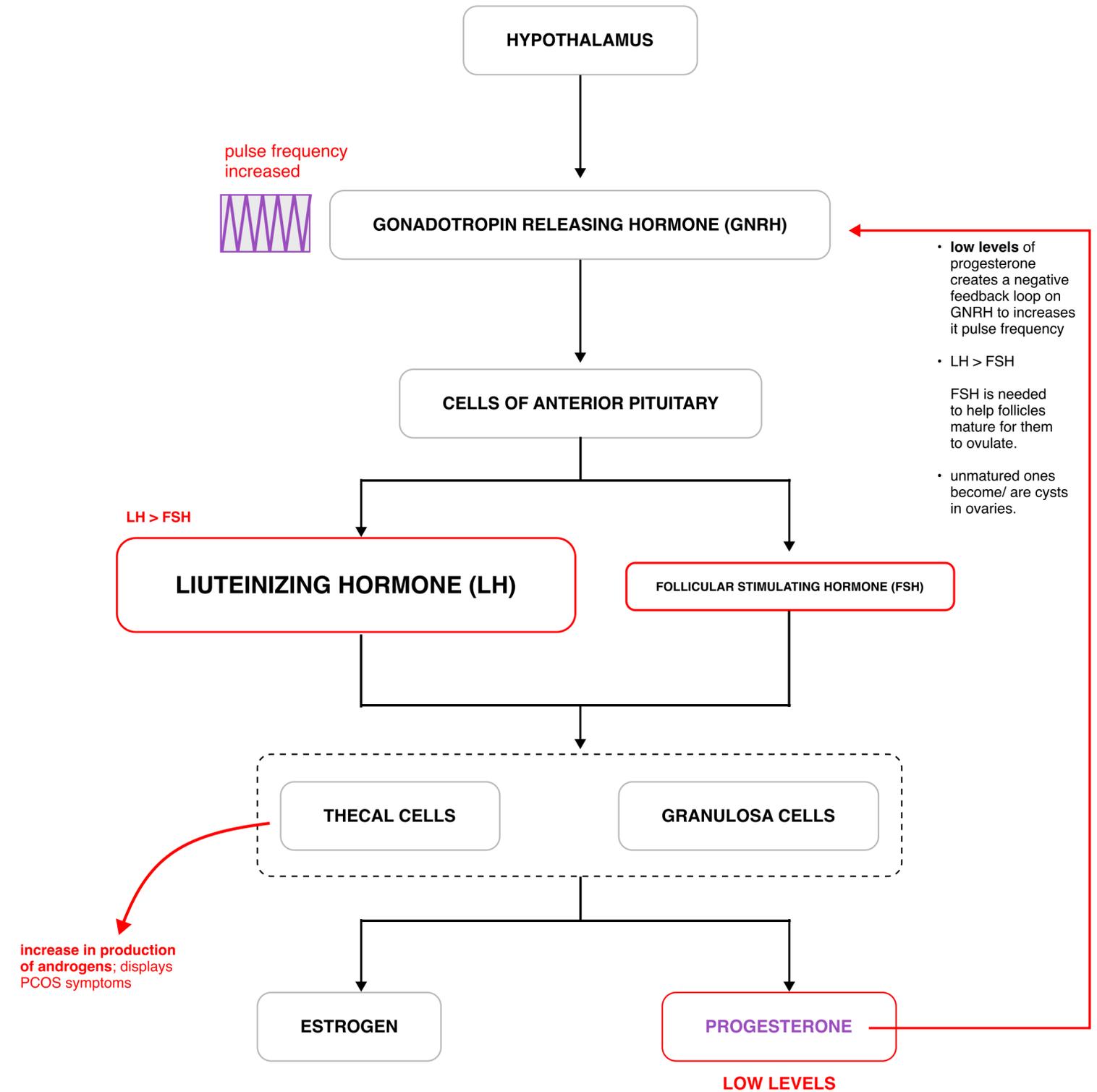
Fertility

- Ovulation Induction (injection)
- Fertility Drugs
- Laparoscopic procedure

Biological System at play: < healthy >



< in PCOS >



Qualitative Research: Chronic Health Condition PCOS/D

Who does it affect? What do they experience?

Interviews with three women



Patient 1: Rashmika Paniraj
Age: 31 years old
Height:
Weight:
Location: Houston, USA
~ started at age 12



Patient 2: Tushita Gupta
Age: 34 years old
Height:
Weight:
Location: Bengaluru, India
~ started at age 23



Patient 3: Saloni Verma
Age: 31 years old
Height:
Weight:
Location: Bengaluru, India
~ started at age 25

Condition: Initial diagnosis - PCOD
Currently - **PCOS**

Condition: **PCOD**
3 months pregnant, conceived naturally

Condition: **PCOD**

Initial Symptoms: Bloating,
Irregular periods (gap of 6 months)

Initial Symptoms: Hormonal Acne flaired up,
Irregular periods (by a week)

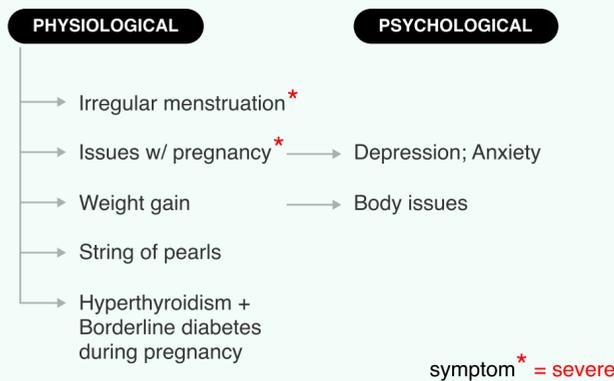
Initial Symptoms: Bloating
Pain in breasts

Initial Treatment:

- Birth control pills (3-4 months) didn't suit me; side effects: mood swings and gained weight
- Avoided hormonal therapy (unsure)

Initial Treatment: Treatments for skin acne and hair fall

Initial Treatment: Vitamins and Mineral Tabs (90 days 0-0-1)
Continued same tabs for another 6 months couldn't stick with it



“ Do I have to continuously put myself through this **my entire life?!** ”

“ I just **don't care** anymore. I am definitely **obese** today. Is my PCOD in control? Nope; just living with it. ”

“ It should be given the importance it needs; it afterall affects **half the world's population** ”

“ Why don't you tell me exactly **what kind of diet and exercise** will work on my body? This is so frustrating. ”

“ **Zero guidance from docs** on the long term effects of this. Online is a web of information one can't know what to believe. ”

“ How can anything else be more important than your health is what I tell myself often, but its so **difficult to follow through** on your own life choices. ”

“ What about the **root cause**? What's the point of just dealing with the symptoms? ”

“ The doc gave **generic solutions**- lifestyle changes that are so **difficult** to follow your entire life. ”

“ I go through ebbs and flows. When I slack sometimes, I notice my symptoms coming back- like a **clock ticking** ”

Condition & Care Network: Chronic Health Condition PCOS/D

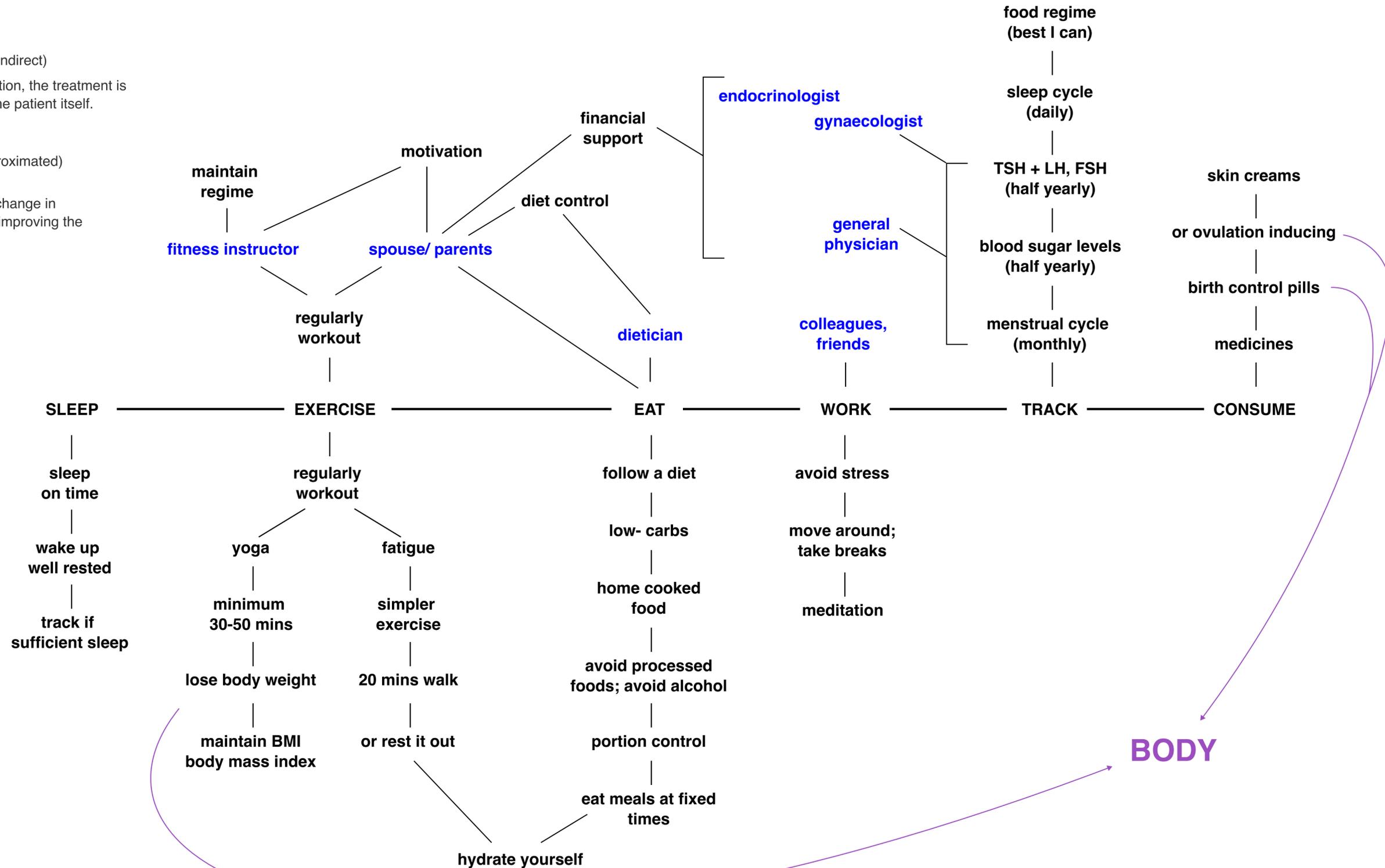
How does an individual go about caring for themselves while with this condition

■ Care network (direct & indirect)

*as a lifestyle related condition, the treatment is essentially dependent on the patient itself.

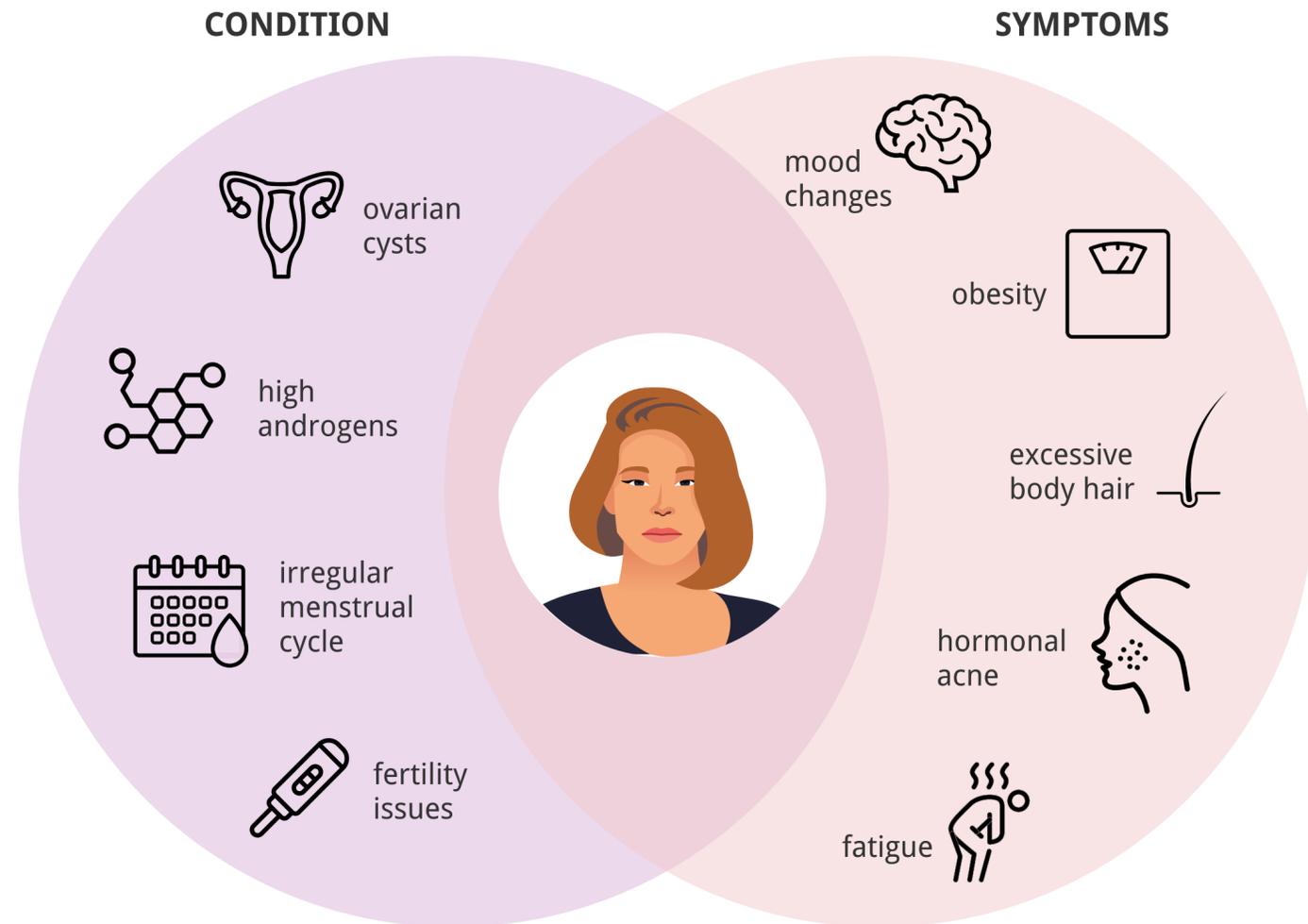
■ Overall habits (it is approximated)

■ feedback loops (every change in lifestyle works towards improving the situation)



Patient Profile: Chronic Health Condition PCOS/D

How does the condition and its symptoms manifest in an individual



Freya Dadich

31 years old | Houston, US

~ started at age 12

Treatment

- Birth control pills (6 months)
discontinued due to side effects: mood swings + sudden weight gain
- Aldactone (1 year) + Electrolysis
for hirsutism: facial hair + skin acne
- Minerals + Vitamins

Symptoms Frequency

- Mild — Fatigue + Mood swings + Anxiety
- Severe — Obesity + Hormonal Acne *painful*

*borderline Diabetic

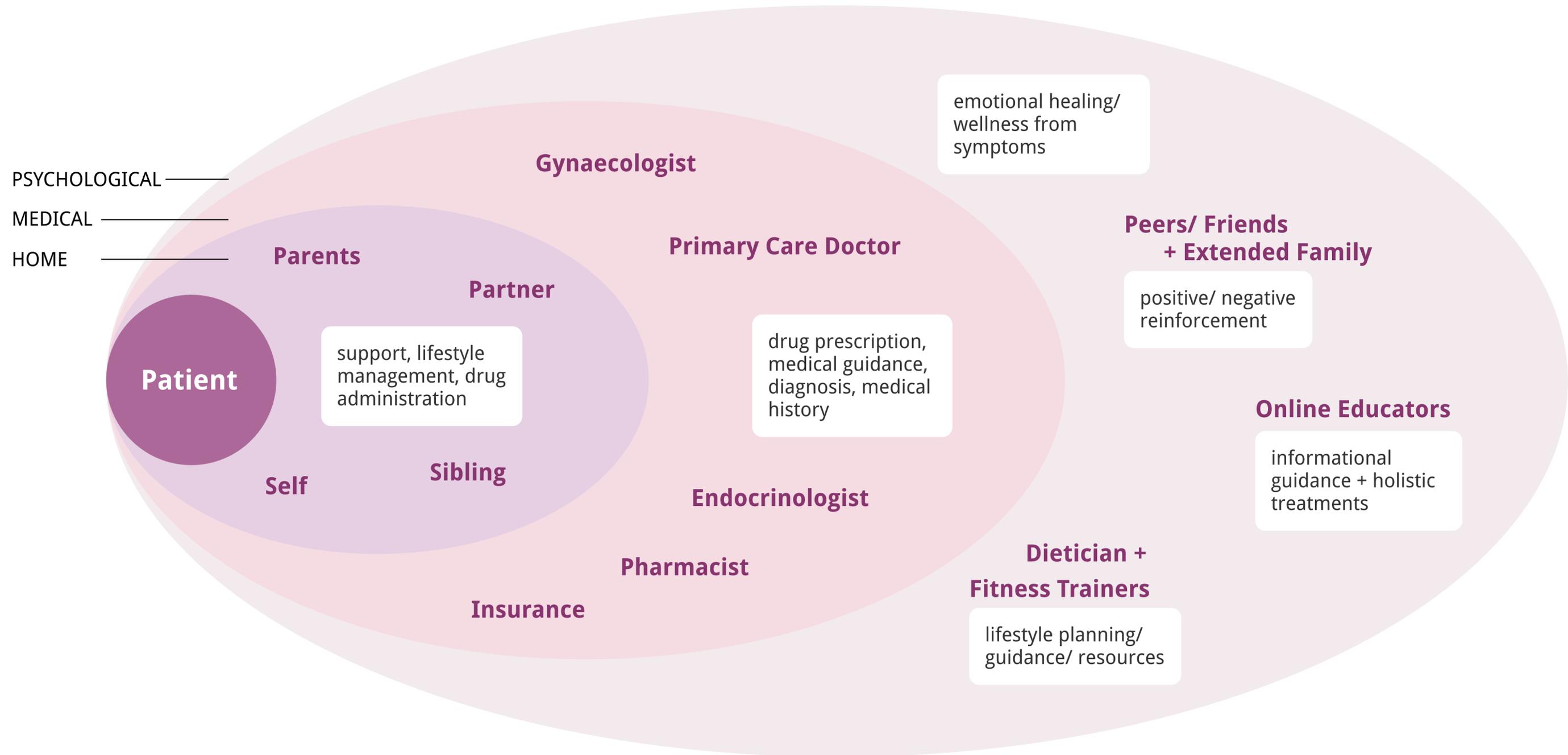
*facing issues naturally conceiving

“I go through ebbs and flows. When I slack sometimes, I notice my symptoms coming back - **like a clock ticking.**”

“Zero guidance from docs. Why don't you tell me **what kind of diet and exercise** will work on my body?”

The Care Network: Chronic Health Condition PCOS/D

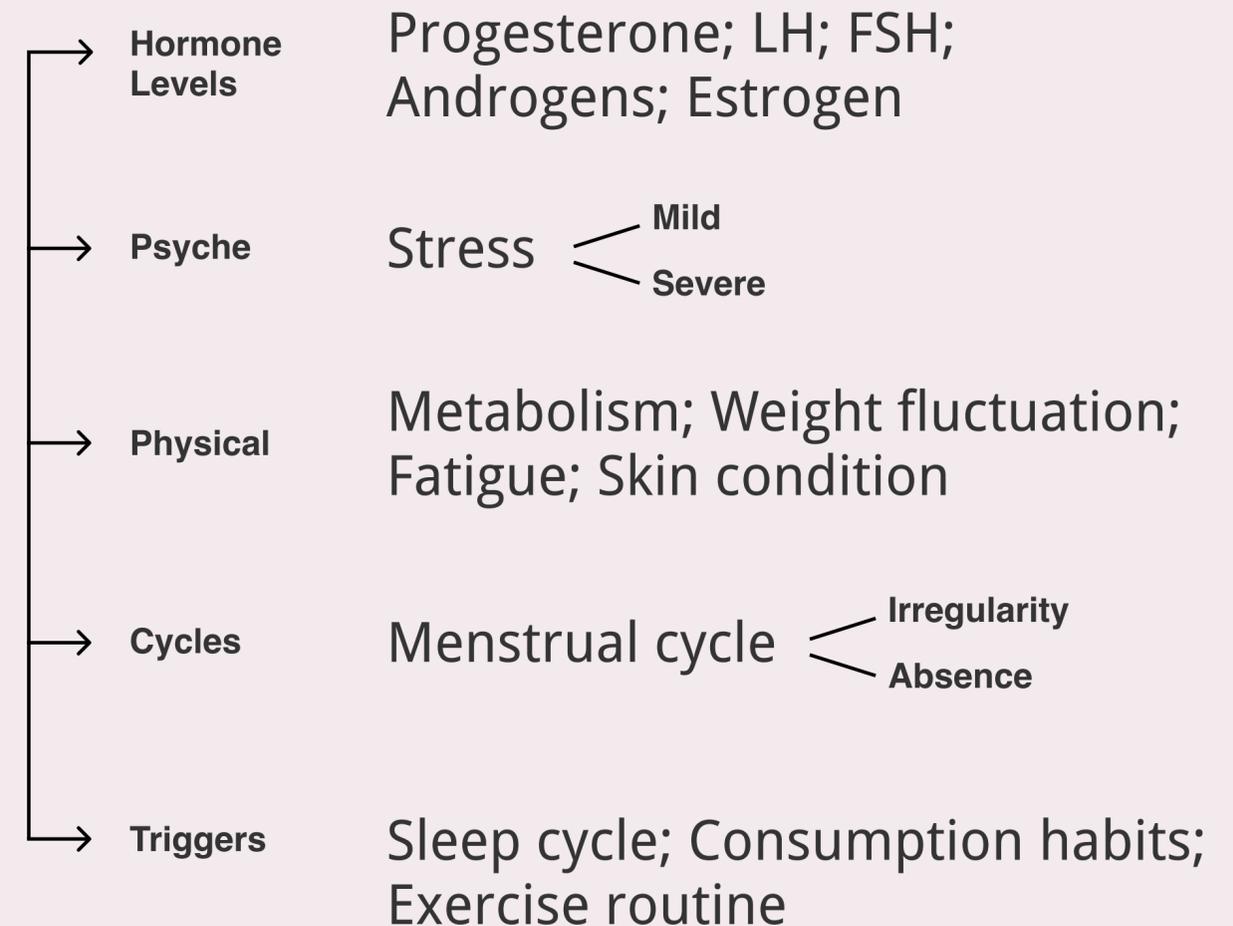
Who exists in the patient's current care network? What roles do they play?



How might we help Ruhi have a better idea of how her lifestyle is impacting her condition?

RECORD + PRESENT + PREDICT + PREVENT

MEASURABLE VARIABLES



User Conceptual Model: Chronic Health Condition PCOS/D

Setting priorities and framing key features

Prachi Soumya Garg | Systems Design

03 May | Spring 2022

Week 04

Objects	Attributes	Operations
Wireless	bluetooth connectivity, wifi	find phone, connect, remove connection, on/off
Face ID	preset face, unlock, lock	map face, save
Menstrual Cycle	predict next cycle, past history, menstruation length	add, view, edit, cancel, save
Metabolic Activity	metabolic rate (current, past), tips to improve	view, share
Sleep	history, calendar view, optimum sleep suggestion	view, edit, save, add, cancel
Hormones	time based (quarterly, half-yearly, yearly), values (past, current)	view, share
Calendar	sleep, metabolism, temperature, hormones	view, filter
Community	myths, information, online forums, tips + suggestions	view, share, comment, add, tags, filter
Stress	notifications	view, dismiss, close

Why is this an opportunity? Chronic Health Condition PCOS/D

Reframing and narrowing the scope using the framework of Record + Present + Predict + Prevent

RECORD

Saves Ruhi time via virtual healthcare

Portable and meets travel requirements

FSA/HSA Eligible

PRESENT

Offers Ruhi control to understand her body

Timely updates to stay on track

Easily accessible

PREDICT

Helps Ruhi plan in advance and know what to expect

Predictions more accurate with time

Share with family + care practitioners with ease

PREVENT

Prevention vs cure solution

Offers Ruhi plans to maintain her health

Connects with others sharing her experience