Chatbot Design: Artificial Intelligence Support for Postpartum Depression

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Course: Human-AI Interaction
AGENDA

01  WHY POSTPARTUM DEPRESSION IS IMPORTANT?

02  WHAT I LEARNED FROM HUMAN INTERACTION?

03  WHAT I LEARNED FROM EXISTING APPLICATIONS?

04  HOW TO BUILD A CHATBOT FOR PARENTS?
WHY POSTPARTUM DEPRESSION IS IMPORTANT?
POSTPARTUM DEPRESSION

SYMPTOMS

Feelings of guilt, shame or hopelessness
Feelings of anger, rage, or irritability, or scary and unwanted thoughts
Lack of interest in the baby or difficulty bonding with baby
Loss of interest, joy or pleasure in things you used to enjoy

Disturbances of sleep and appetite
Crying and sadness, constant worry or racing thoughts
Physical symptoms like dizziness, hot flashes, and nausea
Possible thoughts of harming the baby or yourself

TREATMENT OPTIONS

Counseling
Medication
Support from others
Exercise
Adequate sleep
Healthy diet
Bright light therapy
Yoga
Relaxation techniques
A GLOBAL CRISIS

- **Postpartum depression** affects up to one in five women globally, which can have major **negative effects** on both maternal and child health.
- While effective treatments are available, nearly 60% of mothers with Postpartum depression symptoms are **undiagnosed**, and 50% of diagnosed mothers are left **untreated**.
- **Cost**, time, stigma, and **lack of childcare and information** constitute major barriers to treatment.
02
What I learnt from human interaction?
The mission of Postpartum Support International is to **promote awareness, prevention** and **treatment** of mental health issues related to childbearing in every country worldwide.

You are not alone.
You are not to blame.
With help, you will be well.
DATA ANALYSIS

- PSI has a **24/7 helpline** where anyone can call or text to get basic **support of information** and **trained volunteers**.
- More than **7000 text conversations** between support-seekers and trained volunteers.
- **21 interview records** with people who had experienced postpartum depression.
- **6 interview records** of the volunteers work in PSI about their experience in the process.

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12:36 pm PSI00006
Hello. I found your website online. I wondered if someone could reach out to me for support. I delivered my baby on 10/9 and I am not doing well. Hoping to be able to connect to local resources. I am in Colorado- zip code PSI_ZIP. Thank you

12:42 pm psi helpline
Hello. My name is PSI_PLACE. I am a volunteer. Have you talked with your provider about how you are feeling? What city in PSI_PLACE are you in? It will only take me a couple of minutes to check to see if there is a PSI coordinator in your area...

12:43 pm PSI00006
I left a message for Dr- waiting for call back and have an appointment on Monday with SW at PSI_PLACE office. I am in PSI_PLACE

12:44 pm psi helpline
I am going to send you some online resources as well: https://www.postpartum.net/learn-more/pregnancy-postpartum-mental-health/ Fantastic! Let me check PSI_PLACE...

12:45 pm PSI00006
Thank you
Data Analysis

- **Emotional validation**: want to have some validations about their feelings.
- **Support problems**: there is weak or no support system around them.
- **Seeking resources**: get some information related to postpartum depression

<table>
<thead>
<tr>
<th>Concerns from the parents</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional validation</td>
<td>17</td>
<td>38.6%</td>
</tr>
<tr>
<td>Support problems</td>
<td>10</td>
<td>22.7%</td>
</tr>
<tr>
<td>Seeking resources</td>
<td>39</td>
<td>88.6%</td>
</tr>
</tbody>
</table>
SEEKING FOR RESOURCES

- “I'm hoping to get a referral for a therapist that specializes in PPA/PPD in my area”
- “Hello! I am a first time mom of a 16-week-old and am definitely struggling with anxiety. Could you please help me find a coordinator or therapist in my area?”

-------Quotes from support seekers
“I just wanted to talk to someone because I feel like my depression is getting worse. I've never opened up about it and wanted to start somewhere”

“I feel like crying all the time”

“What are the signs of postpartum depression and How do I seek help?”

-----Quotes from support seekers
SUPPORT PROBLEMS

- “my husband doesn't make himself available throughout the week until it's bedtime.”
- “Well I've been being verbally and sometimes physically abused by my mother and today it got out of hand in front of my daughter who is only a year old”

------Quotes from support seekers
DATA ANALYSIS

- **Situations:** move to a new city / single mother / no support system
- **Problems:** not aware of their mood / hated pregnancy / don’t know how to ask for help
- **Feelings:** guilty / shame / anxiety / sad / lonely
- **Suggestions:** open / connect with society / exercise / you are not alone / just talk to someone
Jade Miller

Occupation
Graduate student

Location
San Francisco, California

Age
28

Family
Married.

Characteristics
- Internet
- Social Media
- Tech Savvy

Biography
Jade recently graduated from university as a graduate student major in social work, medical anthropology and psychology. Her husband is in navy and she is very scared about what was going to happen during pregnancy. She doesn’t have a good relationship with her parents, so there would be no support from them after her child given birth.

Needs
- Get some information about postpartum depression.
- Prepare for the incoming pregnancy.
- Have some advice about how to deal with the relationship between her families.

Pain points
Jade is deeply influenced by her original family, so she is scared to have a child. She is also afraid of not having any support from her family if she has a child in the future.
**Kate Wright**

**Occupation**
Stay-at-home mother

**Location**
Chicago, Illinois

**Age**
44

**Family**
Married. 2 children.

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**Characteristics**

<table>
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</table>

**Biography**
Kate is a former electrical engineer who is currently a stay-at-home mother. Her husband is very supportive and will spend time to stay with her and their children. She is also on medication to manage her bipolar disorder for many years. Sometimes she feels sorry for her children and has thought about suicide.

**Needs**
- Connect with some professional therapy to accommodate her situation.
- Get some advice on how to deal with the tendency of suicide.
- Have the validation of emotions related to postpartum depression.

**Pain points**
Kate usually feels guilty and has no idea about how to ask for help.

“I just feel like my life changed so much and want to suicide.”
Chloe Johnson

Occupation
Sales

Location
Kansas, Missouri

Age
38

Family
Single mother. 1 child.

Characteristics
Internet
Social Media
Tech Savvy

Biography
Chloe is a single mother who just moved to Kansas last month, so there are no friends or families near her. She juggles two jobs doing sales during the week and English-French translation works part-time during weekends. She usually has little sleep at night since her child often needs to be taken care of.

Needs
- Be able to connect with some people.
- Get some advices on how to deal with the emotion that happened during postpartum period.
- Have the validation of emotions related to postpartum depression.

Pain points
Chloe is an independent mother, but she also needs to get some emotional support from others.

"There are so many things I need to do everyday."
03
WHAT I LEARNT FROM EXISTING APPLICATIONS?
## COMPARATIVE ANALYSIS

| Applications | Purpose | Availability | Self-assessment | Recommended activities | Communication types | Voice recognition | Connect to therapist | Mood tracker | Group support | Therapy plan | Charge / Free | Check in | Driver Features | Theoretical framework | Technology | Color | Feel |
|--------------|---------|--------------|-----------------|----------------------|----------------------|---------------------|-------------------|------------------|--------------|--------------|--------------|--------------|--------|----------------|----------------------|------------|-------|------|
| Weebot       | Making therapy accessible to all | Mobile | ✓ | ✓ | Text / Emojis | ✓ | ✓ | ✓ | ✓ | ✓ | Charge / Free | ✓ | ✓ | 4 tasks provided every week | Cognitive Behavioural Therapy / Dialectical Behavioural Therapy / Interpersonal Psychotherapy | AI / Natural Language Processing (NLP) | Blue green | Active |
| 7 Cups       | On-demand emotional health service and online therapy provider | Mobile / Web | X | ✓ | Text / Emojis | X | ✓ | ✓ | ✓ | ✓ | Free | X | Tasks provided | Provider listeners to users | Research-backed, Evidence-Based Online Emotional Support | Purple / blue / green | Subtle |
| Wyse         | AI Chat that makes you feel heard | Mobile | X | ✓ | Text / Emojis / Picture | ✓ | ✓ | ✓ | ✓ | ✓ | Charge / Free | ✓ | ✓ | Journey reminder in the end of the conversation | CBT, DBT, meditation, breathing, yoga, motivational interviewing and interventions | AI-based emotionally intelligent bot | Blue / White | Calm |
| Inner hour   | Deliver mental healthcare through technology. Help people live happier, healthier, and more fulfilling lives. | Mobile / Web | ✓ | ✓ | Text / Picture | X | X | ✓ | ✓ | ✓ | Charge / Free | ✓ | ✓ | Recall the content of the previous conversation / Possible to reset the but data / Goals setting | Cognitive Behaviour Therapy / Positive Psychology / Mindfulness | Algorithms and intelligent software to build customised self-care programmes for | Purple / Blue / White | Calm |
PERSONALITY

GREETINGS

Polite/ Chatty / Warm

- It is important to set a tone, a pace, a level of politeness patterns to have a personality in speaking.
- Consistency creates trust in the system.
SUGGESTED REPLIES

Box / List

- Eliminating the need to type it out manually.
- Saving **time and energy.**
DELAYED RESPONSES

- Delaying the system response to a user input makes it feel more human-like.
- Visibility of system status can help users to understand the process.
TYPES OF RESPONSES

Text / Emoji / Visual / Media

- Text and emoji are the common way to reply by a chatbot which can provide a kind of personality.
- Visual or media reply can interestingly give the information.
DELAYED RESPONSES

Different / Check / Recall

- Providing different responses in different situations makes chatbot more human-like.
EMOTION CHECKING IN

List / Emoji / Card

- Track the mood of users is a method for applications to analyze and provide more accurate suggestions.
04

HOW TO BUILD A CHATBOT FOR PARENTS?
Jade is seeking some information related to postpartum depression because the result of the questionary shows that she has a high risk of mental health problems.
Kate has no knowledge about postpartum depression, so she wants to get the **validation** about her feelings and emotions.
Chloe just moved to a new city and has no friends or families around her. She wants to meet some local therapy to have professional advice about her mental health related issues.

"There are so many things I need to do everyday."
Thanks!