



## SHP Student Interns for Research and Scholarly Activities Application of Project Proposal Form

### Instructions:

Please fill out the form and return via email to Nipa Sahasrabuddhe ([ns1115@shp.rutgers.edu](mailto:ns1115@shp.rutgers.edu)) by **March 31, 2023**. Please fill each box to the right of each required field. If you are sending attachments, please ensure your contact information is added to all your forms.

### Faculty Contact Information:

Date submitted:	03/16/2023
Faculty Name:	Shristi Rawal
Department/Program:	Department of Clinical and Preventive Nutrition Sciences
Telephone number:	860-690-8495
E-mail:	Shristi.rawal@rutgers.edu

### Project Detail:

Project Title: (56 characters max)	Applying a User Centric Design Approach to Develop a Mobile Application for Management and Treatment of Gestational Diabetes in Nepal
Hypothesis:	We hypothesized that our culturally tailored smartphone application (app) to support self-management of GDM (GDM-DH) will show good usability and preliminary efficacy among patients in a tertiary level, university hospital of Kathmandu University, Nepal

<p><b>Description:</b> (Include design, methodology, data collection, techniques, data analysis to be employed, evaluation and interpretation methodology for research component)</p>	<p>Mobile apps can aid with management of Gestational Diabetes Mellitus (GDM) by providing patient education and reinforcing daily glucose monitoring and diet/lifestyle modification. Here, we describe our process of applying a user-centered design approach in developing a culturally appropriate app (GDM-DH) to support management of GDM among patients in Dhulikhel Hospital, Nepal.</p> <p><b>Methods:</b> A multidisciplinary team including experts in GDM, mHealth, and behavior and implementation sciences, as well as health providers and patients at Dhulikhel Hospital contributed to the development of the GDM-DH app. After finalizing app's content and features, we created the app's wireframe, which illustrated the app's proposed interface, navigation sequences, and features and function. This was followed by key informant interviews with healthcare providers (n=5), and focus group and in-depth interviews with GDM patients (n=12) in which they were asked to provide feedback on the features and functions of the wireframe. Incorporating their input, we built the minimum viable product, which was user-tested with 18 GDM patients, and further refined for the final version of the GDM-DH app.</p> <p>Qualitative findings from the user research affirmed the potential utility and usability of our target app and provided insight into app features and design elements that needed to be added or modified. Consistent with the Social Cognitive Theory, the final version of GDM-DH app</p>
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	<p>supports GDM self-management by providing health education and allowing patients to record and self-monitor blood glucose levels, carbohydrate intake, physical activity, and gestational weight gain. The app uses innovative features to minimize self-monitoring burden and uses automatic feedback and data visualizations. Healthcare providers can use the web-based admin portal of the GDM-DH app to enter/review glucose readings, track patient progress, and guide treatment and counseling accordingly. To our knowledge, this is the first mHealth platform for GDM developed for a low-income country, and the first one containing a feature to aid with carbohydrate estimation in meals. A pilot clinical trial is currently underway to explore the clinical utility of the GDM-DH app.</p>
Specific Student Responsibilities:	<ol style="list-style-type: none"> <li>1. Draft manuscript</li> <li>2. Submit manuscript to peer-reviewed journal</li> </ol>
Start / end date of project:	July 2- August 26

#### **Educational:**

WHAT OTHER EDUCATIONAL OPPORTUNITIES ARE AVAILABLE TO STUDENTS? (e.g., journal club, seminars, clinic, rounds)	N/A
WHERE DO YOU PLAN TO PRESENT OR PUBLISH THE FINDINGS WITH THE STUDENT?	Peer-Reviewed Journal (to be determined)

(e.g., national or state meetings, newsletter or journal, SHP poster day)	
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**CHECK ALL APPROPRIATE BOXES BELOW AND PROVIDE REQUESTED INFORMATION.**

This project is: ☒ clinical    ☐ laboratory    ☒ behavioral    ☐ survey    ☐ educational  
☐ Other: please specify \_\_Research Manuscript development\_\_

☒ This project involves the use of human subjects (including chart review, retrospective studies and questionnaires).

Pending ☐    Approved ☒    IRB Protocol Number  
Pro2019001883\_\_

***IRB approval must be obtained by June 2023***

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JANEZ AEGLER

Signature of Department Chair

\_\_\_\_3/16/2023\_\_\_\_  
Date

OR-For internal use

Form: (1)

Reviewed date: \_\_4/5/23\_\_

Date processed on website: \_\_\_\_\_