

## **I. COVER SHEET** (submitted separately)

## **II. GENERAL AUDIENCE PROJECT SUMMARY**

High blood pressure is a chronic medical condition that often requires medication for successful management and treatment. Patients need to take prescribed medication as directed in order for it to be effective. It is common, however, for some patients with high blood pressure not to take their medications as directed. Patients, especially those without health insurance, might encounter barriers to taking their medications as prescribed. These obstacles are complex and might include the cost of medications, asymptomatic episodes, lack of understanding, and lack of motivation. It is important to understand factors that might influence behaviors and decisions about taking prescribed medications in order to provide quality health care. Social support from an individual's family, friends, and acquaintances might serve as a protective factor against these barriers. Individuals might provide social support to patients with high blood pressure by providing positive affirmations or reminding patients to take their medications. Therefore, it is hypothesized that patients with higher perceptions of social support will engage in more adherent medication behaviors. Establishing a better understanding of this relationship might enable health care providers to target patients with reportedly low levels of social support in order to increase their medication adherence. Health care providers could attempt to increase their patients' perceived levels of social support by creating support groups for patients with high blood pressure or providing them with more resources.

This project intends to explore the relationship between social support and medication adherence primarily through several questionnaires. Participants will be recruited at Reach Out of Montgomery County, a free medical clinic for uninsured, Montgomery County residents. Data about the timeliness of high blood pressure medication pick-ups at the clinic's pharmacy will also be collected as an additional measure of adherence.

### **III. PROPOSED THESIS TITLE AND PROPOSED ABSTRACT**

**Proposed Title:** Relationship Between Perceived Social Support and Medication Adherence in Uninsured Patients with Hypertension

**Proposed Abstract:** Hypertension is a relatively common chronic condition that affects approximately one in three Americans. Successful management and treatment often requires individuals to take antihypertensive medications regularly. However, non-adherence to varying levels and for different reasons is rather common. Untreated hypertension can lead to serious health consequences including heart attacks, heart disease, and kidney damage. Individuals without health insurance are more likely to have uncontrolled levels of high blood pressure than those with health insurance. The social support that uninsured individuals with hypertension receive might affect their decisions about taking their antihypertensive medications. It is predicted that increased perceptions of social support are correlated with higher levels of medication adherence. Participants will be recruited at Reach Out of Montgomery County, a free medical clinic. They will complete several surveys to measure perceptions of social support and medication adherence. Prescriptions claims data for their antihypertensive medications will also be collected as an additional measure of adherence. It is important to understand the factors that might influence individuals' decisions about taking their medications in order for health professionals to provide quality medical care. If social support is correlated with medication adherence, then health care providers might be able to attempt to increase perceptions of social support in individuals with initially low levels of support in order to increase medication adherence.

### **IV. PROJECT DESCRIPTION**

Hypertension, or high blood pressure, affects approximately one in three Americans (Fields et al., 2004; Ostchega, Yoon, Hughes, & Louis, 2008). The American Heart Association defines hypertension as having a systolic blood pressure  $\geq 140$  mm Hg or a diastolic blood pressure  $\geq 90$  mm Hg (Go et al., 2013). If left

untreated, hypertension can lead to serious health consequences including heart attacks, heart disease, and kidney damage (Ostchega, Yoon, Hughes, & Louis, 2008).

Hypertension management and treatment is multifaceted and aims to lower individuals' blood pressure to below 140/90 mm Hg. Health care providers typically encourage their patients to exercise regularly, eat a healthy diet, manage their stress levels, and take antihypertensive medications regularly ("Prevention & Treatment" 2014). Non-adherence to such treatment regimens, however, tends to be rather common. Factors patients cite as influencing their adherence include cost of medications, lack of motivation, asymptomatic periods, social support, and side effects of antihypertensive medications (Marshall, Wolfe, & McKeivitt, 2012; Rimando, 2013; Scholmann, Virgin, Schmitke, & Patros, 2011). Understanding the factors that influence medication adherence is important in order to provide quality medical care by improving adherence.

Individuals without health insurance are more likely to have undiagnosed and uncontrolled hypertension than those with health insurance (Schober, Makuc, Zhang, Kennedy-Stephenson, & Burt, 2011). Roughly half of insured individuals have their blood pressure levels under control compared to only 29% of those without health insurance. Uninsured individuals likely encounter unique barriers in obtaining an initial diagnosis and maintaining compliance with established treatment plans. For example, they are less likely to have a regular source of medical care aside from free medical clinics or see a physician regularly (Keis, DeGeus, Cashman, & Savageau, 2004). They also delay seeking medical attention more frequently and refrain from taking medications as prescribed when compared to their insured counterparts. The factors that influence medication adherence in individuals without health insurance are likely different from those with health insurance. Therefore, it is necessary to examine these possible factors specifically in this population in order to improve medication adherence in uninsured patients with hypertension.

Social support likely influences antihypertensive medication adherence to some extent, yet its effect on health outcomes is unclear and complex. Individuals who provide social support might provide emotional,

informational, tangible, or affectionate support. Interviews with hypertensive adults indicate their spouses, children, friends, family, and medical staff provide general encouragement for managing their condition (Rimando, 2013). They also receive support specifically related to following a healthier diet and reminders to take medications. Sayers, Riegel, Pawlowski, Coyne, and Samaha (2008) describe a correlation between increased levels of social support and better self-care among patients with heart failure. Yet, several experiments intended to increase levels of perceived social support have struggled to document significant effects on medication adherence and blood pressure levels (Caplan, Harrison, Wellons, & French, 1980; Criswell, Weber, Xu, and Carter, 2010). One possible explanation outlines that it might be difficult to measure substantial effects when many participants enroll with high initial levels of social support and adherence. Thus, these findings do not necessarily discount the possible positive effects of social support on medication adherence and blood pressure management. They indicate the complexity of the relationship between social support and medication adherence and the need for further exploration and research. Additionally, interventions to increase social support and medication adherence might only be effective if these values are initially low.

This project intends to explore the relationship between social support and medication adherence in uninsured hypertension patients. It is hypothesized that patients with higher perceptions of social support will have higher levels of medication adherence. Participants will be recruited at Reach Out of Montgomery County, a free medical clinic that serves uninsured Montgomery County residents. Enrollment will begin in May upon approval from the Psychology Department's Research Review and Ethics Committee. Please see Appendix A for a draft of this application. A copy of all study materials is included in the application. Dr. Sharon Sherlock, the Executive Director of Reach Out, supports this project; see Appendix B.

Participants will complete surveys to measure demographics, perceived levels of social support, self-reported adherence, and perceived levels of social support provided by Reach Out of Montgomery County. Additionally, prescriptions claims data will be used as an objective measure of medication adherence to

compare to the self-reported adherence measure. Approximately 80 patients will be enrolled in this study and each participant will be compensated for their time and effort with a \$10 Walmart gift card.

Recruitment will occur during the adult walk-in clinics on Wednesday and Thursday evenings and during the hypertension clinics on Friday afternoons. In order to be eligible to participate, patients must be 18 years of age, have had a diagnosis of hypertension for at least three months, and obtain their high blood pressure medications through the Reach Out of Montgomery County Pharmacy. Hypertension must be diagnosed three months prior to enrollment to ensure adequate time to acquire medication and develop measurable adherence behaviors. Patients will not be excluded from the study if they have medical conditions in addition to hypertension due to high comorbidity rates of hypertension with other medical conditions. Participants must also obtain their blood pressure medication from the Reach Out of Montgomery County Pharmacy so that prescriptions claims data can be collected.

The researcher will approach patients about participating in the study when they are waiting for either their appointment or their prescription to be filled. If patients are eligible to participate, the researcher will present patients with information about the study and an informed consent document. Upon agreeing to participate, they will complete several questionnaires. Participants will have the option of self-administering the questionnaires or having them read to them to accommodate for varying reading levels present in the study population. Participants will be orally debriefed immediately after they either complete the study or choose to terminate their participation. They will also be given a document with references and contact information to take with them.

The prescriptions claims data will be collected after enrollment. A staff member at Reach Out of Montgomery County will record the date participants received their antihypertensive medication(s), how many days the prescription(s) intended to cover, and the date they picked up a refill or prescription. The staff member will not have access to any other study information. Single interval compliance (CSA) will be calculated by the

following equation: days' supply obtained at beginning of interval/days in interval. Steiner and Prochazka (1997) discuss the validity of refill compliance using pharmacy data. The resulting CSA will be compared to the adherence score calculated from the self-reported measure of adherence. All study materials will be stored in Dr. Kirschman's lab in St. Joseph Hall.

The questionnaires will include a demographic measure, the Morisky 8-Item Medication Adherence Questionnaire (MMAS-8), the Medical Outcomes Study - Social Support Survey (MOS-SSS), and a measure of the perceived social support provided by Reach Out of Montgomery County Clinic. The demographic measure and measure of perceived social support provided by Reach Out of Montgomery County Clinic were developed by the researcher. The MMAS-8 is a relatively common and respected measure of self-reported medication adherence. Morisky, Ang, Krousel-Wood, and Ward (2008) discuss the validity and reliability of the MMAS-8 in an outpatient setting serving primarily low income, minority patients with hypertension. Responses generate a score that indicates low, medium, or high adherence. Use of this survey is pending approval by the author. The MOS-SSS measures five dimensions of social support: emotional support, informational support, tangible support, positive social interaction, and affectionate support. It contains 19 items for which participants indicate on a 5-item Likert scale the relative amount of time a given type of support is available to them. There is also one item that measures structural support available to participants by asking participants to indicate the number of close friends and relatives they have. This survey is available in the public domain. Sherbourne and Stewart (1991) discuss the development, validity, and reliability of the MOS-SSS.

Results of this project potentially hold important implications for health care providers who serve hypertensive individuals without health insurance. If there is a correlation between social support and medication adherence, health care providers might attempt to increase perceptions of social support for individuals with initially low levels of social support in order to try to increase medication adherence. It is desirable to increase adherence levels due to the serious health consequences of uncontrolled hypertension.

Health care providers might attempt to increase their patients' perceptions of social support by creating support groups for patients with high blood pressure or providing them with other resources. While a correlation between social support and medication adherence might exist, it is likely that additional factors also influence medication adherence warranting the need for further research.

Additionally, the general literature about the medical care of uninsured medical patients is considerably scarce. This project will add to this body of knowledge. Results from this project might demonstrate the capacity of free medical clinics to provide social support to their patients. Data generated will also specifically provide feedback to Reach Out of Montgomery County about the types of social support their clients perceive them to provide. This information might confirm current practices and services or suggest the need for future adaptations.

## **V. TIMELINE:**

APRIL 15: submit application to Research Review and Ethics Committee for approval

MAY 21: begin collecting data pending approval from Research Review and Ethics Committee (this is also the earliest time when data collection can begin as I will be travelling abroad with my Chaminade Scholars cohort until May 16)

JUNE: begin entering de-identified data into SPSS, continue literature review, and continue enrolling participants at Reach Out of Montgomery County

JUNE 15: review progress with thesis mentor to determine if any changes to protocol or measures are necessary; if substantial changes are necessary, resubmit proposal to Research Review and Ethics Committee

JULY: continue collecting data at Reach Out of Montgomery County, conducting literature review, and entering de-identified data into SPSS

AUGUST 15: finish surveying patients

AUGUST 30: compile data from surveys and begin analysis

SEPTEMBER 15: coordinate with Reach Out of Montgomery County to receive prescriptions claims data

TBD Attend required Senior Thesis Workshop

SEPTEMBER 30: enter data from prescriptions claims data and finish data analysis

OCTOBER 5: generate outline for first thesis draft

OCTOBER 15: generate conclusion based on results

NOVEMBER 1: compose first thesis draft

NOVEMBER 15: edit first thesis draft

DECEMBER 1: finish editing first thesis draft and submit for revisions and feedback

JANUARY 1: begin editing second thesis draft

JANUARY 31: Complete the *Symposium Registration Form* to register thesis information for the Honors Students Symposium.

FEBRUARY: begin preparing for oral presentation for Honors Students Symposium

FEBRUARY 15: share results with Reach Out of Montgomery County

MARCH 15: finalize oral presentation

MARCH 20: oral presentation of thesis at the Honors Students Symposium (HSS15)

APRIL 1: make final changes to thesis

APRIL 8: Submit electronic copy all Word documents of the student's thesis to Ramona Speranza.

APRIL 15: Present thesis project at the Stander Symposium.



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**VII. BUDGET**

**Itemized Budget:**

<b>Materials/Supplies:</b>	
Item	Estimated Cost
1 box of file folders	\$13
Copying/Printing	\$40
Clipboards (3)	\$7
Pens	\$3
<b>Travel: (If required for Thesis Project)</b>	
Mileage	100 miles X (\$0.55/mile) = \$55
	*The current UD rate for mileage reimbursement will be used.
<b>Other:</b>	
Item	Estimated Cost
<b>Other Source(s) of Funding</b>	
Source	Pending/Secured

**Total Amount Requested: \$ 118**

**Narrative Budget Justification:**

I request \$40 to cover the cost of printing and copying throughout this project. I will enroll about 80 participants and each participant’s packet composed of an informed consent, debriefing form, and questionnaires will require about 12 pieces of paper. Copying at Roesch Library costs \$0.04 per page. \$40 will allow me to print and copy the questionnaires, informed consents, debriefing forms, and other items. I will need at least three clipboards for participants to use when they are completing the study. I request \$7 to cover the cost of these clipboards. I also request \$3 to buy pens for the study. In order to store and organize the collected data, I will need a box of file folders. The estimated cost of these file folders is \$13. I estimated the cost of office supplies using the current prices listed on officedepot.com.

I request \$55 to cover the cost of driving to the clinic to conduct my research. I estimate that I will visit the clinic at least 50 times in order to collect data. The clinic is one mile from campus. Based on the current UD rate for mileage reimbursement, \$55 will cover the travel costs incurred for data collection.