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# JOURNAL OF INFORMATION SYSTEMS APPLIED RESEARCH

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# The Silent Treatment in IT Projects: Gender Differences in Inclinations to Communicate Project Status Information

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## Abstract

Incomplete and inaccurate information in Information Technology project status reporting results in a project becoming vulnerable to unexpected problems and potentially blindsiding stakeholders to impending project failure. The research presented in this study extends current knowledge of project status reporting by focusing on the inclination of project team members to communicate key project status information to members of upper management. A sample of 222 individuals currently working on IT projects were surveyed and both individual and work climate variables were tested in a simple direct effects model to predict inclination to report project status information to upper management (IRPI). To investigate potential individual differences based on gender the model was also run for the sample of male worker and female workers. Results show that there are differences in the relationships in the model based on gender. For males the factors that significantly predict IRPI include a sense of responsibility for the project, over optimism of project success, and potential negative consequences for reporting status information (NC). For females the factors that significantly predicted IRPI were the project development phase and NC. Although NC predicted IRPI for both genders, the effect was stronger for men than women. Implications for practice research are discussed.

**Keywords:** Project Management, Whistleblowing, Project Status Reporting, Software Development

## 1. INTRODUCTION

Accurate and timely reports to upper management about Information Technology (IT) project status is vital for avoiding costly calamities, yet when the reports involve bad news there is a reluctance to relay that information to those who have power and authority to take corrective actions (Keil, Smith, Pawlowski, & Jin, 2004). Research on resistance to communicate bad news is explained primarily in IT research through whistleblowing theory

(Keil et al, 2004, Smith, Keil, & Depledge, 2001). Such resistance contributes to the problem of misreporting IT project status and may be caused by factors in the following categories: individual traits, work climate, and cultural differences (Keil, Smith, Iacovou, & Thompson, 2014). The goal of this study is to expand previous research by examining gender differences in the relationships between the inclination to report project information (IRPI) and both individual and work climate factors.

An exploratory study is conducted to investigate predictors of individual inclinations to discuss project status information with member(s) of upper management. Separate predictive models are generated for both male and female participants to reveal potential gender differences in these reporting inclinations.

## 2. LITERATURE REVIEW AND HYPOTHESES

Although this study is primarily exploratory in nature, the hypotheses and overall predictive model is based on prior research in IT project status reporting and whistleblowing. Studies have shown that IT projects usually give advanced warning signals of imminent failure. However, warning signals are often ignored or reported with a biased positive spin (Keil et al, 2014, Cuellar, Keil, & Johnson, 2006). Research in project management and project status reporting have found that individual assessment of whether the project status ought to be reported along with an assessment of personal responsibility to report project status information influences individual reluctance to report status information. Additional indirect influential factors include perceived information asymmetry and organizational climate (Keil et al, 2004). Furthermore, Keil et al. (2014) published a summary of research findings from over 14 studies over the past 15 years in five key truths about why status reports go wrong. A succinct description of these five truths are: (1) Executives can't rely on staff to accurately report problems, (2) Causes for misreporting project status include personal traits, work climate, and culture, (3) An audit team cannot offset the effects of misreporting and withholding project status information (4) A senior executive placed in charge of a project may increase misreporting in project status information, and (5) Executives frequently ignore negative information about projects (Keil et al, 2014).

### Whistleblowing and Project Status Reporting

Project status reporting literature has relied significantly on the theoretical backdrop of organizational whistle-blowing. Whistle-blowers are described as "organization members who disclose information about dysfunctional organizational activities to either people or organizations who may be able to address the problems." (Keil et al, 2004, p.66). The dysfunction in the context of IT projects is when there is information indicating a significant

problem or impending project failure yet nothing is being done to address the problem or redirect the project from its current failing path. Cuellar et al. (2006) also identify reporting bad news as theoretically similar to whistle-blowing. Individuals may resist reporting bad news in order to avoid any negative repercussions and some may avoid speaking up due to personal perceptions such as feeling they lack confidence in their understanding of the trouble the project is experiencing or feeling like it is not their place or responsibility to report the information (Smith et al, 2001, Keil et al, 2004, Cuellar et al, 2006).

### Individual and Work Climate Factors

The aforementioned literature (Keil et al, 2014) identifies individual characteristics, work climate, and culture influences as factors influencing project status reporting. For this study, the scope is delimited to individual and work climate factors. Abbreviation for all variables included in this study are identified in Table 1: Construct Abbreviations located in the Appendices. Individual characteristics investigated include: age, education, number of years working for the organization, number of years in IT, a feeling of responsibility and accountability for the project, and optimism of the project ultimately being successful. It is proposed that there will be a significant positive relationship between these individual characteristics and IRPI. The proposed positive relationships with age, number of years in IT, number of years in the organization, education, and IRPI may be explained in part by the logic in the following sentences. As individuals gain more experience in IT, their organization, and life in general they main gain confidence in their assessment and interpretation of project information. As confidence is gained in the assessment of whether the information would be important to communicate, individuals would be likely to go ahead and report such information to members of upper management (Keil et al, 2004).

*H1: The number of years an individual is at the organization (YO) will have a positive effect on IRPI.*

*H2: The number of years an individual has worked in the field of Information Technology (YIT) will have a positive effect on IRPI.*

*H3: Age will have a positive effect on IRPI.*

*H4: Education (EDU) will have a positive effect on IRPI.*

Keil et al (2004) found that perceptions of responsibility toward reporting status information decreased reluctance to report information. This study explores the perceptions of responsibility toward the project itself rather than toward status reporting. If an individual feels personally responsible for the outcome of a project they may be more inclined to talk candidly to members of upper management about the project status. It may be reasoned that an individual would be more likely to discuss project status especially to those who would have the authority to allocate the resources needed to address problems and ultimately improve the outlook for project success.

*H5: Perceptions of responsibility (**RES**) for project success will have a positive effect on **IRPI**.*

Optimistic beliefs about the probability of project success may increase the likelihood that a worker would be willing to discuss the status of the project with upper management. If the information to be relayed isn't negative and one is optimistic of project success, then it is logical that the individual would not be hesitant in discussing the project status with upper management. However, if the information is negative then being optimistic about project success may soften the blow of relaying bad news. Believing that the project will eventually be successful (even in spite of a troubled project status) may help communicators offer a positive note to offset a negative message. Furthermore, it may deflect negative consequences of delivering bad news if the overall impact on the project can be minimized and presented as not killing the project's overall likelihood of success. Such a communication tactic is analogous to using a politeness strategy to minimize the threat of the bad news and may be used as a communication approach to lessen the impact of a negative message (Lee, 1993).

*H6: Optimistic belief in project success (**OPS**) will have a positive effect on **IRPI**.*

Factors related to the project and work climate include the project development phase, negative information about the project, and negative consequences for communicating project status. The project development phase is placed in the work climate category, primarily because the development process along with social and the work environment connected to the development process are most closely connected

to work climate as opposed to either individual or cultural factors. It is hypothesized that the later in the development cycle of a project the more likely an individual to go to upper management to discuss project status. Part of this may be due to the fact that the closer the project is to completion and the deadline, the less likely workers are to hold to a biased belief that there is still plenty of time for a problem to work itself out. According to Keil et al. (2014) and Cueller et al. (2006), many IT projects exhibit warning signs in advance of problems. However, addressing the warning signs are typically ignored when the problems are still in the preventative state. This phenomenon seems to indicate that it is not until a later project phase that information gets communicated and addressed. Reasons for such delay may be due to a work environment that is not conducive to bringing forth negative information when a project is still in its early phases.

*H7: The later the phase in the project development cycle (**PDP**) the more likely workers will be inclined to report project information (**IRPI**).*

The dependent variable (IRPI) is measured generically as an individual's inclination to report and discuss project status related information with upper management. It does not differentiate between positive and negative status information. Therefore, negative information (NI) is included partially as a control variable. According to the "mum" effect, when individuals are faced with bad news they will likely choose to remain silent and not communicate the negative message (Lee, 1993). In addition, whistle-blowing theory, which was discussed earlier, also supports reluctance to report negative information. Therefore, it is believed that if the project status information is negative there will be less of an inclination to report the information to upper management.

*H8: Negative project status information (**NI**) will have a negative effect on **IRPI**.*

If there is a threat of negative consequences for relaying information to upper management then a worker may be less inclined to communicate. Even if the message to be relayed is not negative, there may be an organizational climate where higher levels of management have closed doors, there may be a fear of wasting a manager's time, or there may be perceptions that communication would not be welcomed at

higher levels of management. If the message is negative and the organizational climate is one that may "shoot the messenger" of bad news then workers may be inclined to remain silent for fear of retaliation from management or even from colleagues (Keil et al, 2004, Mesmer-Magnus & Viswesvaran, 2005).

*H9: Perceptions of negative consequences (NC) for sharing project information will have a negative effect on IRPI.*

### **Gender Differences**

Based on Cuellar et al. (2006) gender differences were found when participants in a research experiment were faced with making a decision to de-escalate a project. Results revealed that women were more likely to delay projects in the face of negative information than men. An explanation offered for why women would be more inclined to delay projects is that women may be less likely to be sensitive to personal negative consequences if it means preventing negative impacts on the organization. Because gender differences have been identified previously in the context of project management, it is believed that there will also be gender differences in the relationships between the individual and work climate factors and IRPI. It is hypothesized that the relationship between negative consequences and IRPI will become non-significant when the model is tested for women. If women are less likely to be concerned about personal negative consequences than men then they will be less likely influenced by the existence of negative consequences when faced with the decision to speak to upper management about a project's status.

*H10: The relationships in the proposed model will be difference for men than for women. The relationship between NC and IRPI will be non-significant for the sample of women.*

Refer to Figure 1: Proposed Model located in the Appendices for the direct effects model showing the proposed relationships.

### **3. METHOD AND RESULTS**

A sample survey was administered to individuals currently working on IT projects. Project team members are the individuals most closely involved with the project, influence information on status reports, and are more likely to be some of the first to know when projects are

heading for trouble (Keil & Robey, 1999, Snow & Keil, 2002). A sample of 232 survey responses were gathered, ten responses were removed due to incomplete demographic information, leaving a usable sample of 222 responses. Survey questions are listed in Table 2: Survey Items in the Appendices. Multiple item constructs such as IRPI, responsibility, and optimism of project success were adapted from existing measures (Korzaan, 2009, Smith et al., 2001, Simon & Houghton, 2003, Schoorman & Holahan, 1996). Three models were tested as simple direct effects regression models. The first model was tested for the full sample of 222 participants, the second model was run for the sample of 87 female participants, and the third model was run for the sample of 135 male participants. The final results models for all three of these scenarios are shown in the Appendices in Figure 2: Final Model-All Data, Figure 3: Final Model-Females, and Figure 4: Final Model-Males.

The results from running the model with all data reveal that the only hypotheses supported were H5 (RES→IRPI), H6 (OPS→IRPI), H7 (PDP→IRPI), and H9 (NC→IRPI). The more one believes that they are responsible for the project, the more optimistic one is about the overall success of the project, and the later the project development phase then the more likely one is to go to upper management and discuss project status information. The stronger the perception of experiencing negative consequences for discussing project status information then the less likely an individual will be to discuss that information with upper management. The amount of variance explained in the dependent variable was 28%. None of the demographic information (age, number of years IT experience, number of years' experience at the organization, and education) was significant in predicting IRPI.

When the direct effects model was run for females and then for males H10 was found to be partially supported. There are some differences in the models between the sample of males and females. However, although it was hypothesized that negative consequences would be significant for men and not significant for women, this hypothesis was not supported. Negative consequences were found to be significant for both men and women; however, the effect for men was  $\beta = -.35$  and the effect for women was  $\beta = -.2$ . So although negative consequences were significant for both genders, it is not as strong of an effect for women as it is for men. Other

relationships, which were not hypothesized to be significantly different between the genders, were found to be significantly different. For men, a sense of responsibility for the project and optimism of project success were significant positive predictors of IRPI. However, for women, neither factor was significant. For women, the later the development phase the more likely they were to discuss project information; however, for men the development phase was not significant. The model explained 40% of the variance in the dependent variable for men and 22% of the variance in the dependent variable for women.

#### 4. DISCUSSION

This study contributes to IT project status reporting literature by identifying individual and work climate variables that predict when individuals are more willing to discuss project related information with members of upper management. This extends current knowledge in the research stream of IT project management and project status reporting. Another significant contribution to research is the demonstration of the differences in the influential factors in predicting willingness to discuss project information with upper management for men and women. Because project development phase was significant in predicting IRPI in both the model with all data and the model for women, it is recommended that mechanisms be implemented in the development life cycle to promote project status communication early in the development life cycle when there is still enough time to prevent potential problems and address trouble areas in the project before they spiral out of control.

The study highlights the potential importance for upper management to pay close attention to project team composition. According to Keil et al. (2014), team composition is a key factor in accommodating cultural differences. The findings of this study support the concept as well as recognize the implications related to gender within the team environment

A consistent and strong negative predictor of IRPI is negative consequences for reporting status information. This work climate variable is something that upper management has control over and it is recommended that management implement policies and promote a culture that encourages open communication about project status. It is also recommended that they guard

against any potential of backlash to an individual reporting negative information. Instead, an open door policy that fosters open communication is encouraged.

#### 5. LIMITATIONS AND FUTURE RESEARCH

This study was an initial and exploratory endeavor in identifying key individual and work climate factors that influence individuals' willingness to report project status information to upper management. Future research is needed to confirm this study's findings and to enhance the rigor of the research method. For example, some measures are one item constructs and further development and validation of measurement items and constructs is needed in future studies. Furthermore, future research is needed to help understand additional gender differences and how these differences may be balanced in project team composition. It is important to also consider the gender of individuals in the role of upper management and how that might impact the likelihood of communicating project status. Finally, there is a call for future research to investigate cultural factors that influence individuals' inclinations to report project status information. Implications of this could also impact the content of project management training and education.

#### 6. CONCLUSIONS

Although many members of senior management believe that employees will communicate when problems arise with IT projects, the reality is that most will not speak up or if they do will bias the information in a positive direction (Keil et al., 2014). This research has helped address the silent treatment from IT project workers by identifying key factors that help predict when individuals will be more likely to discuss project information with upper management. For management this means to promote a corporate culture that does not "shoot the messenger" for bearing bad news but instead shields employees from potential negative consequences for communicating project information. It is also important for project teams to be comprised of a balanced representation of males and females. However, statistics still show a shortage of women in the technology workforce with only 20% computer jobs and 7% CIO positions held by women (Fisher, 2013). Perhaps it is time for the field of IT project management to open more discussion on promoting and supporting women



in the IT project management profession as well as build more awareness of gender issues.

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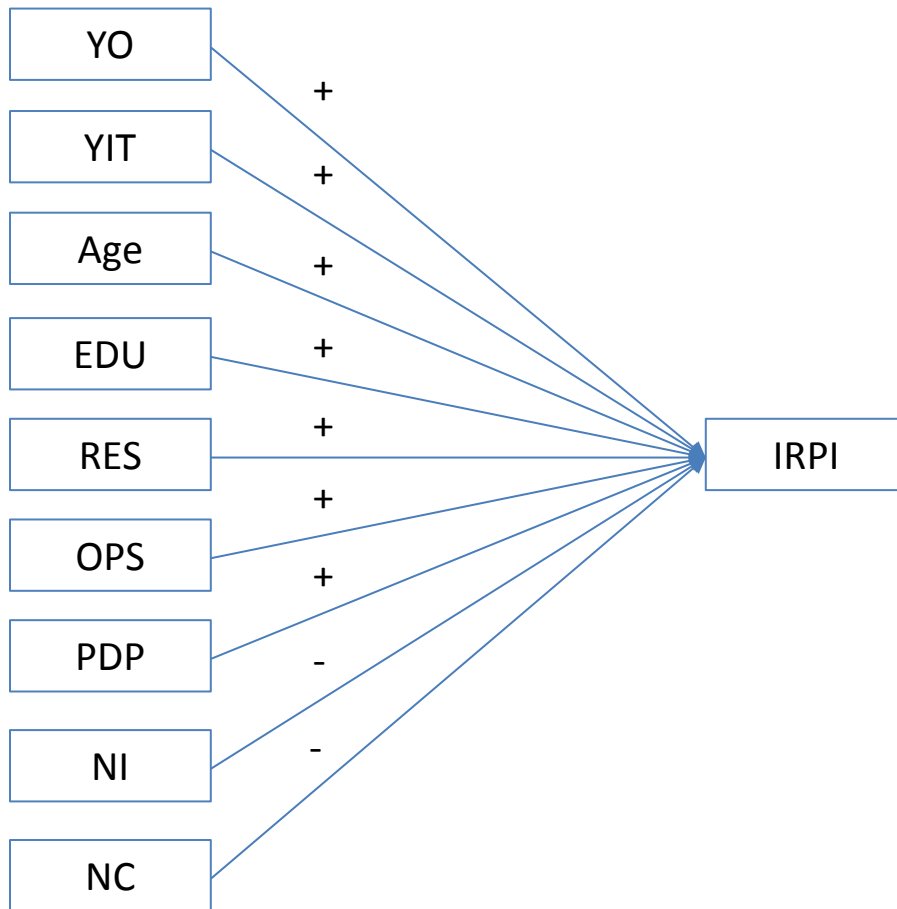
## Appendices

<b>Construct</b>	<b>Construct Description</b>
IRPI	Inclination to report project information with upper management
YO	Number of years at organization
YIT	Number of years in IT
Age	Age
EDU	Education
RES	Sense of responsibility for the project
OPS	Optimism of project success
PDP	Project development phase
NI	Negative information about project status
NC	Negative consequences for reporting project status information

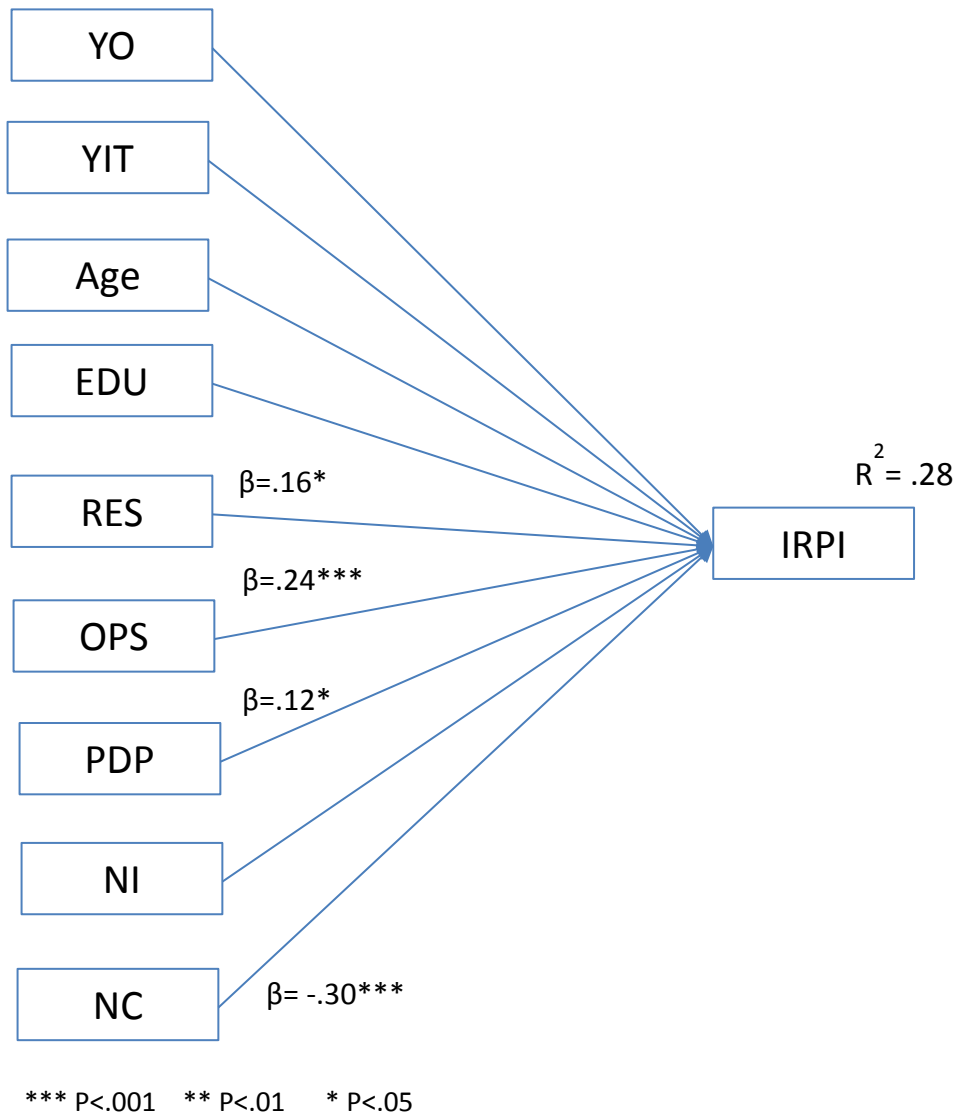
**Table 1: Construct Abbreviations**

<b>Variable</b>	<b>Survey Questions</b>
<b>IRPI</b> Inclination to report project information	How likely would you be to go directly to upper management by yourself to discuss the status of this project?  How likely would you be to try and persuade members of the development team to go to upper management and discuss as a group the status of this project?
<b>NI</b> Negative information	There are many challenges that must be overcome before this project can succeed.  This project will need to overcome several obstacles.
<b>RES</b> Responsibility for project	The project's performance is a reflection of me personally  I am responsible for the project's outcome  I am accountable for the project's success
<b>OPS</b> Optimism of project success	I am completely sure the project will finish successfully.  I am absolutely positive that this project will be a success.
<b>NC</b> Negative consequences	If you went directly to upper management by yourself and discussed the status of this project, how likely is it that you would suffer negative consequences?
<b>YO</b> Number of years at organization	How many years have you been employed at your current organization?
<b>YIT</b> Number of years in IT	How many years of experience do you have with IT development projects?
<b>Age</b>	<input type="checkbox"/> 20-29 years <input type="checkbox"/> 30-39 years <input type="checkbox"/> 40-49 years <input type="checkbox"/> 50-59 years <input type="checkbox"/> 60 or more
<b>PDP</b> Project Development Phase	<input type="checkbox"/> Analysis <input type="checkbox"/> Design <input type="checkbox"/> Programming <input type="checkbox"/> Testing
<b>EDU</b> Education	<input type="checkbox"/> High school <input type="checkbox"/> Some college <input type="checkbox"/> Associates Degree <input type="checkbox"/> High school <input type="checkbox"/> High school <input type="checkbox"/> High school

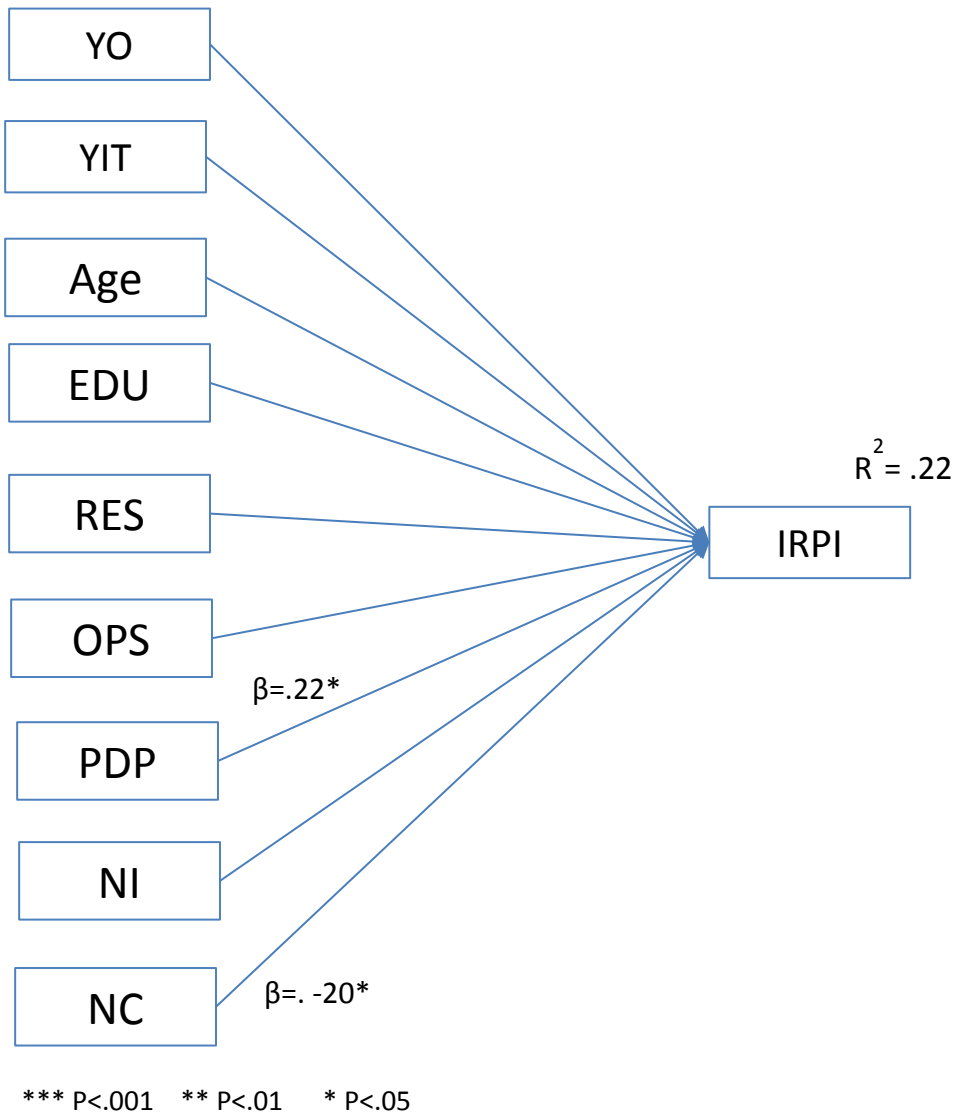
**Table 2: Survey Items**



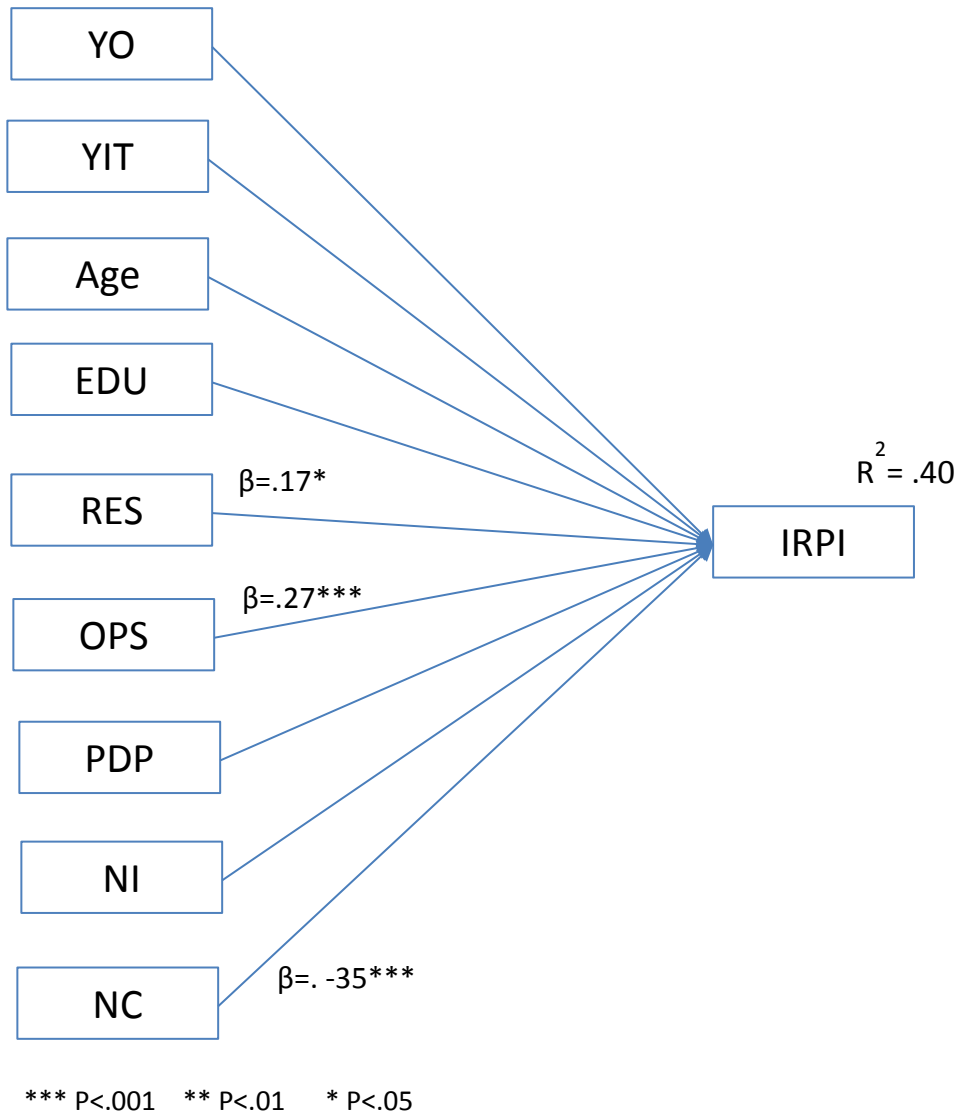
**Figure 1: Proposed Model**



**Figure 2: Final Model – All Data**



**Figure 3: Final Model – Females**



**Figure 4: Final Model – Males**