

Putting the Pieces Together



McNair *Scholars Program*

Journal of Research Reports

2008-2009 • Volume 14



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WICHITA STATE
UNIVERSITY

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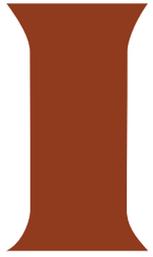
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From the Director

present volume 14 of the Journal of Research Reports, "Putting the Pieces Together." The articles featured in this journal represent the work of Program participants from the 2008 – 2009 – grant year. As one reads through these articles, it is clear that the breadth of research interests is as diverse as the students served, and the quality is outstanding as well. My staff and I could not be more pleased with the efforts that went into producing this meaningful and scholarly body of work.

The Program could not achieve such great accomplishments without the support of the University faculty, staff and administrators who have mentored students over the past year. These mentors have not only guided the McNair Scholars in completing their research manuscripts, but they have inspired them to work hard and produce scholarly material. Each mentor is to be applauded for the efforts in making undergraduate research a reality for the students in this Program.

As we continue in our fourth grant cycle, we send our gratitude to the University Administration and the U. S. Department of Education for their support over these past 14 years. We look forward to continuing our relationship for many years to come.

Within this journal we showcase the works of fourteen (14) students from the campus of Wichita State University. Twelve (12) of these students are McNair Scholars and two (2) students conducted research through the National Science Foundation (NSF) EPSCoR Summer Research Program. There are six (6) full manuscripts and eight (8) summaries presented.

A special word of thanks is directed to our research coordinator, **Mr. Kyle Little**. With his dedication and support for the students he was able to encourage them to go that extra mile and make sure their document was publication ready. Appreciation is also given to our assistant director/counselor, **Ms. Shukura Bakari-Cozart** and the senior administrative assistant, **Ms. Vicki Alfred** who without their support and persistence in making sure that things are done correctly and in a timely manner, none of this would be possible. These individuals are invaluable and irreplaceable. Dedication and commitment are rare qualities, and I feel fortunate to have found staff members who hold these qualities in such reverence.

Finally, I would like to congratulate the students for going beyond the classroom and putting their critical thinking skills into practice. Their efforts will not go unnoticed and will prove to be something they can be proud of for many years to come. We are proud of our students and their accomplishments. This is a well-deserved acknowledgement for their hard work. These students are our future educators as they continue to put the pieces of the puzzle together to reach their destination of obtaining a doctorate degree. Thank you for the opportunity to serve as your director.

LaWanda Holt-Fields, *Director*





Table of Contents

WSU Administration

- 2** **Letter from LaWanda Holt-Fields, Director**
WSU McNair Scholars Program

Research Papers

- 5** **Cecilia Crosa**
Corruption, Poverty and the Attainment of the Millennium Development Goal Number 1 in Latin America
- 13** **Rachel Jacobs**
Synthesis of Oxo Titanium Phthalocyanines as an Electron Donor for Light Harvesting
- 20** **Danille Lewis**
Appropriate Placement for Adults with Autism
- 32** **Philip J. Pettis**
Examining the Role of Self-Esteem on Body Image Dissatisfaction and Eating Disorder Behaviors Among Gay and Bisexual Men
- 44** **Shannon Ray**
Measurements with the MIPP Experiment at Fermilab
- 48** **Adella Rucker**
The Effectiveness of the DUI Pilot Court for Reducing DUI Recidivism

Research Summaries

- 54** **Diane Brown**
The Effects of TASER Use in Public Schools
- 57** **Sheila Cabbage**
Cumulative Binary Social Choice
- 60** **Christina Eaves**
In the Name of Love: An Exploration of Intimate Partner Violence and Female Aggression
- 63** **Margery Hannah**
Assessing Perceived Social Oppression Among Male High School Students in the City of Wichita
- 66** **Kristal McGhee**
The Psychological Effects of Divorce on Children 18-24 Years of Age
- 68** **Kate Page**
Doubly Rebellious: Swashbuckling Women in the Golden Age of Piracy
- 71** **Darnell Webb**
Synthesis and Photophysical Properties of Re(I) Complexes in Sugar Glass
- 73** **John Williams**
Beyond the Comfort Zone: Teachers' Perception of Placement of African American and Hispanic Learners





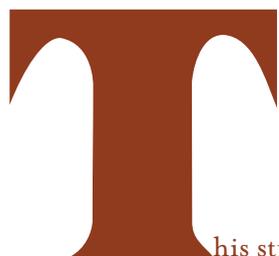
Corruption, Poverty and the Attainment of the Millennium Development Goal Number 1 in Latin America

Cecilia Crosa

Kansas NSF EPSCoR Scholar

Dinorah Azpuru, PhD

Department of Political Science



Abstract

This study examines the relationship between corruption and poverty in Latin America. The objective of the study is to determine if corruption might hinder the attainment of the United Nations Millennium Development Goal number 1 (MDG 1) in Latin America. The MDG 1 proposes to eradicate extreme poverty and hunger by the year 2015. The literature review shows that corruption seems to be one of the main barriers for social and economic development in less developed countries. Often, widespread corruption and weak institutions reduce the quality and the accessibility of public services and products. The current research indicates a strong relationship between the level of corruption and the national level of poverty in Latin American countries. In addition, this study briefly examines the case of Paraguay to illustrate the consequences of corruption in the process of reducing poverty and accomplishing MDG 1.

Introduction

Poverty is a worldwide problem that must be resolved. For several years, international organizations have jointly worked to reduce poverty in less developed countries. The United Nations is one of the leaders in this effort. In 2000, it launched a campaign called Millennium Development Goals (MDGs), which aims to improve the conditions of the poor worldwide. The MDGs program features eight goals; the first one (MDG 1) seeks to halve extreme poverty and hunger by the year 2015 (United Nations, 2009). Numerous studies have sought to uncover the multiple causes of poverty and extreme poverty; understanding those causes can help to accomplish MDG 1. One of the causes of poverty is the combination of lack of accessibility to services and the availability of resources. Corruption may be another factor relating to poverty and extreme poverty in less developed countries. According to the World Bank (2009), corruption also constitutes





an important barrier to the advancement of less developed countries. This study focuses on two areas: first, the relationship between corruption and poverty and extreme poverty and the attainment of MDG 1 in Latin America; second, the impact of corruption on the levels of poverty in Paraguay.

Literature Review

The United Nations initiated the Millennium Development Goals (MDGs) in 2000 with the adoption of the Millennium Declaration by 186 countries. Each country promised to accomplish eight goals and 16 targets by the year 2015 (United Nations, 2009). MDG 1 (eradicate extreme poverty and hunger) is one of the most urgent and important goals. MDG 1 encompasses two subsequent targets: MDG 1A (“Halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day”) and MDG 1B (“Achieve full and productive employment and decent work for all, including women and young people”) (United Nations, 2009).

In the case of Latin America (LA), in 2007, 34% of the population lived in poverty (Economic Commission of Latin America and the Caribbean [ECLAC], 2008) and 12.6% lived in extreme poverty. According to the World Bank (2009), the percentage of the population living below \$1 a day was 11.32% in 1990. As of 2005, the percentage of the population living below \$1 a day was 8.22. In order to accomplish the MDG 1A by 2015, the percentage should be reduced to 5.7% (World Bank, 2009). Individually, some of the countries in the region have already achieved the MDG 1A. These countries are Brazil and Chile. Ecuador, Mexico, Panama and Uruguay are on target to accomplish the MDG 1A by the year 2015. However, the region as a whole is behind because some countries have stagnated. According to ECLAC, countries like Bolivia, Colombia, Honduras, Paraguay and Peru are “behind the needed progress rate” (Hughes et al., 2009, p. 132).

Several factors perpetuate poverty and extreme poverty in LA and might hinder the

accomplishment of MDG 1A in the region. Among those factors is the great income inequality, the significant trade deficits, the marked poverty among indigenous groups, the high levels of external debt and tax evasion, and the consequent limited financial resources for the governments of the region. According to ECLAC (2008), the wealthiest 10% of the population in Latin America is 17 times wealthier than the bottom 40%. The reduction of the level of poverty of the indigenous population and the external debt is a challenge because they do not fluctuate with the growth or decrease the Gross Domestic Product (GDP) (Hughes et al., 2009).

High levels of external debt, combined with high trade deficits, have a significant impact on Latin American countries. Hughes et al. (2009) noted that in 2006, Honduras had an external debt of 66% of its GDP and Nicaragua had an external debt 70% of its GDP. The study goes on to say that in many cases unbalanced trade and government accounts are balanced with “foreign aid, worker remittances and borrowing” (p. 137). In addition, the majority of Latin American countries do not have an efficient tax collection system. Less developed countries in the region need to increase their national funding and promote tax reforms in order to acquire financial resources for social programs (Vos, Sánchez, & Kaldewei, 2008).

Furthermore, corruption has an overall impact on development in Latin America. The World Bank (2009) described corruption as “one of the greatest obstacles to economic and social development” (*FAQs Fraud and Corruption*, para. 1). In addition, corruption hinders the fight against poverty (Transparency International, 2009). Individuals living under extreme poverty possess few or no resources to bribe public officials in order to obtain a social service; therefore, corruption keeps the poor in an unprivileged condition (World Bank, 2009; Transparency International, 2008). Corrupt governments may also become inefficient and might not comply with quality, health and safety regulations when delivering services and products (Hughes et al., 2009). Therefore, the country does not produce economic growth. Lambsforff (2007), the creator of the Corruption





Perception Index for the organization Transparency International (TI), found that a “six-point improvement of the TI index would increase the GDP by 20 percent” (p. 80).

TI (2006) emphasized that in order to accomplish MDG 1A, corruption must be reduced. TI (2006) reported that a link between poverty and corruption exists when public officials take public resources for their own benefit and profit, when corrupt acts reduce investors’ trust, and when public projects are not well prepared. The poverty levels increase when not enough money exists to “properly finance the institutions that keep corruption in check” (TI, 2006). In spite of those assertions few empirical studies have been conducted to demonstrate the actual relationship between poverty and corruption.

Methodology

This study assesses the relationship between two variables: poverty and corruption. The independent variable of the study is the level of corruption measured through the 2007 Corruption Perception Index (CPI) of Transparency International. TI defines corruption as the “the misuse of entrusted power for private gain” (TI, 2009). The CPI is based on the results of nearly 14 surveys and polls on the perception of corruption, which are conducted via 12 independent research companies in each of the 180 countries included in the study. The CPI ranges from 1 to 10 points: 1 being the score for the most corrupt countries (less transparent) and 10 for the least corrupt countries (most transparent).

The dependent variable of the study is the level of poverty of each individual country of Latin America according to the ECLAC. The level of poverty is divided into four categories for the purpose of the research: the percentage of the population living under poverty, the percentage of the population living under extreme poverty, the percentage of the population living below \$2 a day and the percentage of the population living below \$1 a day. ECLAC determined the different levels of poverty based on data obtained from national household surveys, the census

of individual countries, and the World Bank. According to ECLAC (2008), the percentage of the population living in poverty is determined by the number of people living below the “minimum income to meet a person’s basic needs” (p. 10). The percentage of the population living in extreme poverty is determined by the number of people whose income barely satisfies their food needs (ECLAC, 2008, p. 10). The next two categories of poverty are the percentage of the population living under \$2 and \$1 a day. The World Bank calculated the population living under \$2 and \$1 a day with a formula based on the Purchase Power Parity (PPP). According to Hughes et al. (2009), the PPP calculation is based on the currency exchange rate of a standard market basket of goods.

This study looks at 18 countries in Latin America as the unit of analysis. The source for the analysis is a database prepared by the author using data of poverty and corruption in those countries. The United States is included in the database (and some subsequent tables and graphs) only for the purpose of comparison, but is not part of the statistical test. The study uses bivariate analysis of the Pearson product-moment correlation (computed by SPSS Statistics 17) in order to test the relationship between those variables. The value of the statistic ranges from -1 to +1. This study uses the interpretation of correlation coefficient from Neil J. Salkind, illustrated in Table 1.

Table 1.

Interpreting a Correlation Coefficient^a	
Size of the Correlation Coefficient	General interpretation
.8 to 1.0	Very strong relationship
.6 to .8	Strong relationship
.4 to .6	Moderate relationship
.2 to .4	Weak relationship
.0 to .2	Weak or no relationship

Source: Statistics for people who (think they) hate statistics by Neil J. Salkind





The research proposes that the CPI negatively correlates to the level of poverty in Latin America. The negative correlation stems from the fact that the corruption index has a reverse coding. Below are the hypotheses used in the research:

Countries in Latin America with lower CPI (most corrupt/least transparent) are more likely to

- H1: have higher levels of poverty
- H2: have higher levels of extreme poverty
- H3: have higher percentages of the population living below \$2 a day

H4: have higher percentages of the population living below \$1 a day

Results

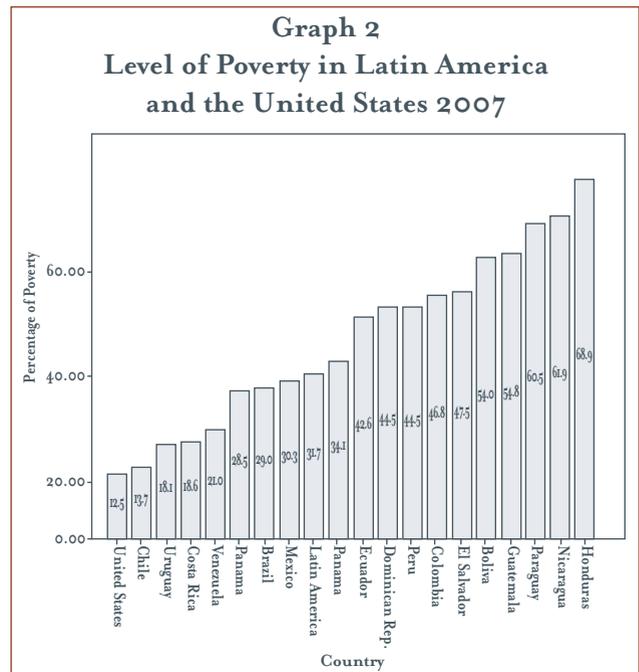
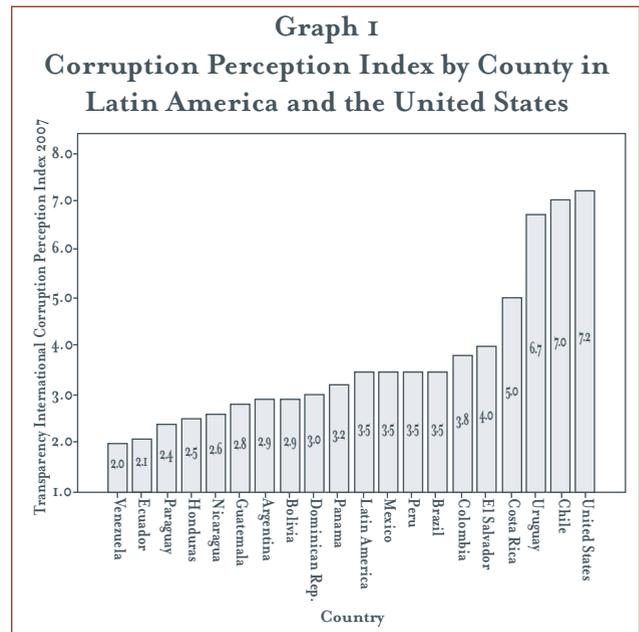
Table 2 shows the extent of corruption and poverty in the Latin American region. The countries with the highest levels of overall poverty

Table 2 Levels of Corruption and Poverty in Latin America

	CPI ^a	Poverty (Percentages) ^b							
		Poverty		Extreme		Below \$1		Below \$2	
Argentina	2.9	21.00 ^c	2006	7.2 ^c	2006	4.50	2005	15.23	2005
Bolivia	2.9	54.00	2007	31.20	2007	19.62	2005	36.77	2005
Brazil	3.5	30.30	2007	8.5	2007	5.21	2007	17.57	2007
Chile	7.0	13.70	2006	3.2	2006	0.19	2006	5.57	2006
Colombia	3.8	46.80	2005	20.20	2005	16.01	2006	34.81	2006
Costa Rica	5.0	18.60	2007	5.30	2007	2.37	2005	13.22	2005
Ecuador	2.1	42.60	2007	16.00	2007	4.69	2007	18.45	2007
El Salvador	4.0	47.50	2004	19.00	2004	10.97	2005	26.77	2005
Gautemala	2.8	54.80	2007	29.10	2006	12.65	2006	33.57	2006
Honduras	2.5	68.90	2007	45.60	2007	18.19	2006	36.47	2006
Mexico	3.5	31.70	2006	8.7	2006	0.65	2006	9.27	2006
Nicaragua	2.6	61.90	2005	31.90	2005	15.81	2005	41.34	2005
Panama	3.2	29.00	2007	12.00	2007	9.48	2006	23.11	2006
Paraguay	2.4	60.50	2007	31.60	2007	6.45	2007	19.98	2007
Peru	3.5	44.50	2006	16.10	2006	7.94	2006	25.38	2006
Dominican Republic	3.0	44.50	2007	21.00	2007	4.98	2005	21.63	2005
Uruguay	6.7	18.10 ^c	2007	3.10 ^c	2007	0.02	2006	8.39	2006
Venezuela	2.0	28.50	2007	8.50	2007	3.53	2006	15.71	2006
Latin America	3.5	34.10	2007	12.60	2007	8.30	2005	22.95	2005
United States	7.2	12.5 ^d	2007	N/A	N/A	N/A	N/A	N/A	N/A

a. Source: Corruption Perception Index 2007 (Transparency International, 2008)
 b. Source: Social Indicators and Statistics 2007, BADEINSO (ECLAC STAT, 2009)
 c. Data from total urban area
 d. Source: U.S. Census Bureau 2007 (DeNavas-Walt, 2008)
 N/A: Not available

are Honduras, Nicaragua, and Paraguay, where as the countries with the lowest level of poverty are Chile, Uruguay, and Costa Rica. The countries with the highest level of extreme poverty are Honduras, Bolivia, Nicaragua, and Paraguay. On the other side, Chile, Uruguay, and Costa Rica are again the ones with the lowest level of extreme poverty. The varying levels of corruption and poverty in the region can be seen more clearly in Graphs 1 and 2: the countries with the





highest CPI score (more corrupt) in Graph 1 are the countries with the highest levels of poverty in Graph 2 (Paraguay, Nicaragua, and Honduras). Additionally, the countries with the highest CPI (more transparent) have the lowest levels of poverty (Chile, Uruguay, and Costa Rica). In comparison, the United States is the country with the best CPI score (most transparent) and the lowest level of poverty. It should be noted, however, that the United States is considered an advanced industrial democracy, not a developing country.

Table 3 shows the results of the bivariate analysis using the Pearson correlation. The analysis shows a strong relationship between the level of corruption and the level of poverty in the region, a correlation of $-.632$. Again, note that the sign of the relationship is negative because the CPI has a reverse scoring system. In addition, the table illustrates a moderate relationship between CPI and extreme poverty and the percentage of the population living below \$2 a day. However, the relationship between corruption and the percentage of the population living below \$1 a day is weaker and not statistically significant.

Table 3 Bivariate Correlations

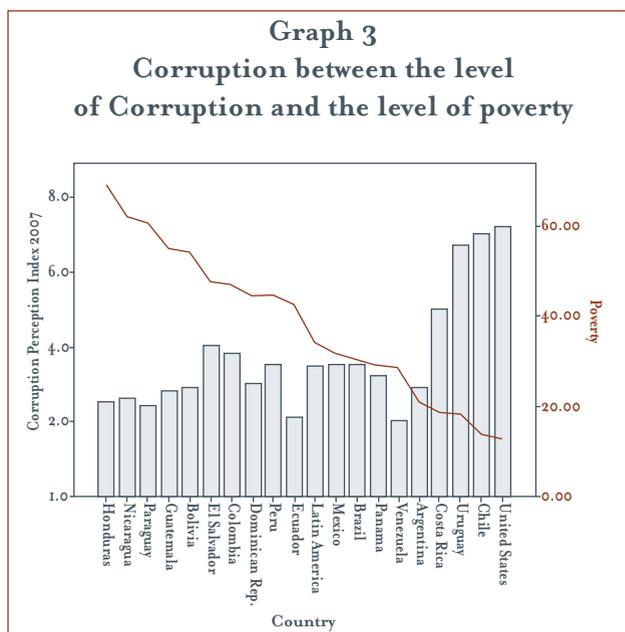
		CPI	Poverty	Extreme	Below \$1	Below \$2
CPI	Pearson	1	-6.32^{**}	$-.567^*$	$-.456$	$-.531^*$
	Correlation					
	Sig. (2 tailed)		.005	.014	.057	.023
	N	18	18	18	18	18

**Correlation is significant at the 0.01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

Graph 3 shows more clearly the correlation between corruption and overall poverty. The graph shows that the higher the degree of corruption, the higher the level of poverty. For example, Chile is considered one of the least corrupt countries in Latin America with a CPI of 7 and it has the lowest level of poverty, with only 13%. On the other side, Honduras is one of the five most corrupt countries in Latin America (with a score of 2.5) and has one of the highest percentages of poverty, 68.9%.

Although a correlation between corruption and poverty exists in many countries, countries such as Ecuador and Venezuela have a high level of corruption but only a medium level of poverty



compared to other countries in Latin America. This may be because of other factors such as the availability of natural resources (i.e. Venezuela and Ecuador are both oil producing countries).

Paraguay: A Case Study

Paraguay is a landlocked country located in the center of South America. With one of the lowest scores of CPI (less transparency) in the region, Paraguay also has one of the highest levels of poverty. Two out of 10 people live in extreme poverty in Paraguay (United Nations Development Program [UNDP], 2007). In addition, Paraguay has one of the highest inequality rates in the Latin American region (World Bank, 2009). The UNDP study stated that the high degree of poverty in urban areas is caused by the migration of farmers to the cities in search of better job opportunities. Once in the cities, farmers and indigenous people confront problems of housing, security and accessibility to clean water and health care. The majority, especially children and young people, become homeless, living and working on the streets (UNDP in Paraguay, 2007).

The current situation of Paraguay is a result of historical, political and economic circumstances that shaped the country. The presidential





elections of 2008 ended 65 years of dominance by the Colorado Party. Paraguay also had one of the longest dictatorships in Latin America (1954-1989) until the democratic process began in the early 1990s. The Colorado Party's dominance created a culture of high level informality, impunity and weak institutions (Franks et al., 2005). Franks et al. (2005) empirically analyzed the relationship between corruption and the GDP of Paraguay during the years 1938-2003. They did not find a "direct causality from corruption to growth" (p. 24). However, they reported that "low growth and corruption are jointly determined by various outcomes that resulted from weak institutionalism" (p. 24). The civilian authorities obtain greater benefits by being corrupt than by being honest. Franks et al. (2005) also noted that there are four particularly weak institutions in Paraguay: "the judicial system, taxation and customs administration, government expenditures, and patronage in the public sector" (p. 6).

A survey was taken of the Paraguayan population's experience, perception, and opinion of the government as well as democracy and transparency of the country. The National Congress and the UNDP in Paraguay promoted the survey and the Paraguayan Census office conducted it. The survey, carried out between November and December 2008, covered more than 2,000 respondents. The results showed that half of the population believed that political figures wanted to benefit themselves (46%), and the other half thought that politicians want to help the country (46%). The majority believed that the government did not promote the creation of jobs (77%), did not fight poverty (71%) and did not promote economic growth (62%). According to the survey, the least trustworthy institutions were the political parties, the police, the legislature and the Supreme Court of Justice (Paraguayan National Congress-UNDP, 2009). Government services were perceived as a gift which must be exchanged for loyalty to the political party in the next election (UNDP, 2007). In other words, the state does not provide benefits to the poorer groups of society, but to the power groups. Overall, most of the

population perceived the country's institutions as corrupt (UNDP, 2007).

In summary, Paraguay represents a case of inefficient and corrupt political institutions and widespread poverty. Economic growth is a key aspect in reducing poverty. Economic growth creates employment and eventually reduces poverty. TI reported that in Paraguay, the poor "have no alternative than to pay bribes," which in addition represent a major percentage of their income (2,83%) in comparison with higher-income citizens (for whom it only represents 0,1%) (TI, 2006, p. 54).

The research conducted by Franks et al. (2005) showed that corruption does not relate to GDP in Paraguay. However, weak institutions seem to foster corruption and low economic growth (Franks et al., 2005). The overall corruption in Paraguay jeopardizes the quality and the provision of social services, fomenting more inequality and poverty.

Conclusion

The findings in this study show that corruption may hinder the fight against poverty in Latin America. The research found a strong correlation between the CPI and the national poverty level in many countries in the region. Countries with lower corruption have overall lower levels of poverty. In addition, the research found a moderate degree of association between CPI and extreme poverty in the Latin America region. In addition, the study finds a moderate correlation between CPI and the percentage of the population living below \$2 a day. However the relationship between corruption and the percentage of the population living below \$1 is weak.

The study also shows that corruption may, to some extent, affect the attainment of MDG 1A, which is to "Reduce by half the proportion of the population living below a dollar a day." However, corruption seems to have a particularly significant effect on the other levels of poverty.

The results provide valuable contribution to future policies and actions toward achievement of the MDGs. It is critical to implement policies that effectively assist the poor, but that does not seem





to be enough. More emphasis should be placed on promoting good governance and transparency practices in Latin American countries in order to overcome poverty.

The brief analysis of the case of Paraguay shows that corruption is also a product of weak institutions, therefore the strengthening of institutions is crucial in the fight against corruption, which can ultimately result in the reduction of poverty levels.

Limitations and Future Areas of Development

The research had some limitations. The analysis showed a relationship between poverty and corruption, but not necessarily causality. One of the limitations of the study is the lack of

current data on Latin America and Paraguay. The most current data available for some countries was from four or five years ago. The UNDP office in Paraguay provided some information regarding that country, but further analysis needs to be done.

In the future, cross-time (longitudinal) analysis would be important to determine if the relationship between poverty and corruption holds over time in Latin America. Future multivariate analysis would be important in order to see if the relationship between corruption and poverty is strong, even when controlling for other variables that may be related to poverty (such as governmental social policies, media influence on the perception of corruption, levels of education, and resources in each country). It would also be important to apply the same type of analysis to other regions in the world.

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Synthesis of Oxo Titanium Phthalocyanines as an Electron Donor for Light Harvesting Devices

Rachel Jacobs

Kansas NSF EPSCoR Scholar

Francis D'Souza, PhD

Department of Chemistry

Abstract

An oxo titanium phthalocyanine, an electron donor for mimicry of reaction center in photosynthetic system, has been successfully synthesized and characterized. The title compound was synthesized using phthalonitrile in the presence of a titanium metal precursor under argon atmosphere. The synthesized compound was characterized using spectroscopic methods including UV/Vis absorption spectroscopy, fluorescence spectroscopy, ¹H NMR spectroscopy, mass spectrometric analysis and electrochemical methods. Further studies to link the synthesized titanium-phthalocyanine to a fullerene acceptor to make novel donor-acceptor dyads for building light harvesting devices is in progress.

Introduction

One of the most important goals of chemistry during the past century has been the construction and development of molecular and supramolecular-based artificial solar energy harvesting systems that have the ability to absorb light from the sun and convert it to useful and storable forms. One way to store solar energy is in the form of chemical energy, as plants do efficiently during photosynthesis¹⁻²; however, for building efficient artificial solar energy converting systems, certain requirements must be met by the synthetic systems: (i) the light must be captured by antenna molecules and/or sensitizers, leading to "excited states"; (ii) the absorption of the light must result in transfer of an electron to the acceptor entity; (iii) the electron transfer must be directional; and (iv) the lifetimes of the excited states must be long enough for electron transfer to take place. Constructing chemical systems possessing the characteristics listed above has been a challenging goal for chemists over the past few decades.⁴⁻⁶

Phthalocyanines and naphthalocyanines are well known antenna molecules and/or sensitizers





because of their high photo-absorptivity in the near infrared region (600–800 nm).⁴ They have been used as electron donors due to their good stability to heat, light, and harsh chemical environments.⁶ Hence, utilizing them in the construction of donor-acceptor dyads for light energy harvesting application is appealing. The synthesis of a new donor-acceptor system has been devised using titanium phthalocyanine/naphthalocyanine as donor and fullerene as acceptor. The first part has been successfully completed, namely, synthesizing oxo titanium phthalocyanine/naphthalocyanine donors.

Results and Discussion

Synthesis of 2,(3)-Tetra-tert-butylphthalocyaninato) titanium (IV) Oxide (tBu₄PcTiO). The synthesis of the compound is shown in scheme I below. A mixture of 4-tert butylphthalonitrile (5.44 mmol, 250.0 mg), urea (3 mmol, 45.0 mg), and 1,8-diazabicyclo[5.4.0]undec-7-ene, DBU (0.5 mL) in 15 mL of freshly purified pentanol was heated under an argon atmosphere to 120 °C. At the temperature 120 °C titanium(IV) butoxide (1.5 mmol, 127 µL) was added to the mixture with a syringe, and the reaction was allowed to reflux for 7 hours at 155 °C. The product was precipitated with a 1:1 ratio of methanol/water and purified by column chromatography using silica gel. This crude product was collected via centrifugation and dried in vacuum. The metalated and metal-free phthalocyanine was purified by column chromatography on silica gel. The blue metalated compound was then eluted with pure chloroform. Yield 30 mg. UV/Vis absorbance: 699.0, 630.0, and 347.5 nm. ¹H NMR (CDCl₃): δ = 1.95–1.90 (s, 36H, CH₃), 8.39–8.29 (m, 4 H, H-1), 9.5–9.12 (m, 8 H, 2,2) ppm. Mass spectroscopic analysis *m/z* = 800.9.

Synthesis of (Catecholato)-2,(3)-tetra-tert-butylphthalocyaninato)titanium(IV): tBu₄PcTiO (30.0 mg 0.2497 mmol) and 3,4-dihydroxybenzaldehyde (15.7 mg 0.724 mmol) were mixed in 80 mL of anhydrous

chloroform and heated for 2 hours under an argon atmosphere. After cooling to room temperature the solvent was evaporated and dried in vacuo. The crude product was purified by column chromatography with silica gel. Elution with 9.8:0.2 chloroform /methanol gave the main product. UV/Vis (CHCl₃): 703, 635, and 357 nm. ¹H NMR (CDCl₃): δ/ppm 1.9–1.79 (s, 36H, CH₃); 4.1–4.17 (t, 1 H); 4.59–4.61 (d, 1H); 8.34–8.43 (m, 4 H); 8.82–8.85 (s, 1H, CHO); 9.20–9.6 (m, 8H); δ_{maxfluor.} = 708 nm (δ_{ex} 630 nm).

Synthesis of (2,3-Porphyrinato)-2,(3)-Tetra-tert-butylphthalocyaninato) titanium (IV) (tBu₄PcTiO). 2,(3)-(Tetra-tert-butylphthalocyaninato)titanium(IV) Oxide (11 mg, 0.2497 mmol) and Porphyrin Catechol (25.6 mg, 0.724 mmol) were dissolved in 80 mL of chloroform and heated for 2 h under reflux in an argon atmosphere. After cooling to room temperature, the solvent was removed in vacuo and the product was purified under column chromatography. Elution with methylene chloride/ hexane 9:1 gave the main product.

Synthesis of [4-(N-methylfullereno-C₆₀-(1,9-c)pyrrolidine)catecholato]-2,(3)-tetra-butylphthalocyaninato)-titanium (IV). (Catecholato)-2,(3)-tetra-tert-butylphthalocyaninato)titanium(IV) (13.6 mg, 0.152 mmol), N-methylglycine (4.3 mg, 0.456 mmol) and C₆₀ (31.9 mg, 0.456 mmol) were mixed in dry toluene and refluxed under an argon atmosphere for 48 h. The crude product was purified under column chromatography over silica gel with using toluene/hexane (v/v: 9:1) as eluting solvents.

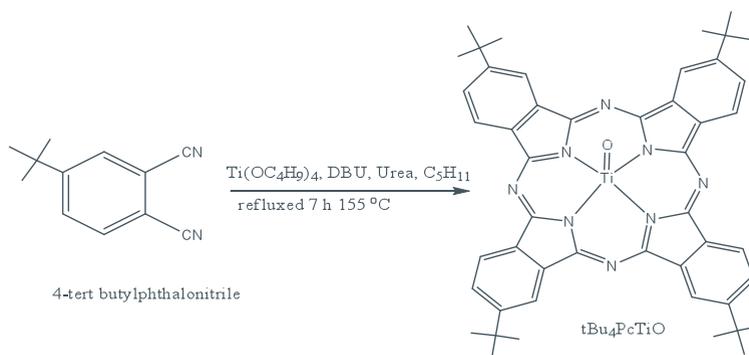
Characterization

First, the crude product, tBu₄TiO, prior to purification via column chromatography, was tested using UV/Vis spectroscopy and fluorescence spectroscopy. Both spectra in Figures 1 and 2 indicated that a metalated product was indeed formed. Figure 1 shows the UV/Vis spectrum of oxo titanium phthalocyanine, tBu₄PcTiO, being similar to the literature values of the compound. The fluorescence spectrum in

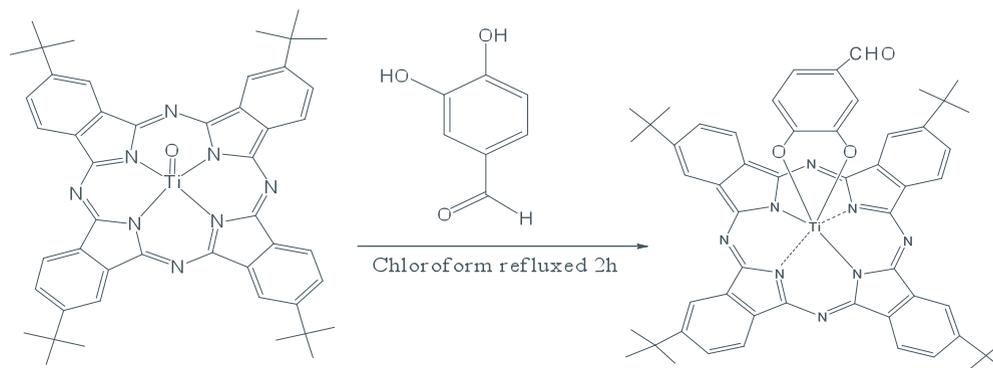




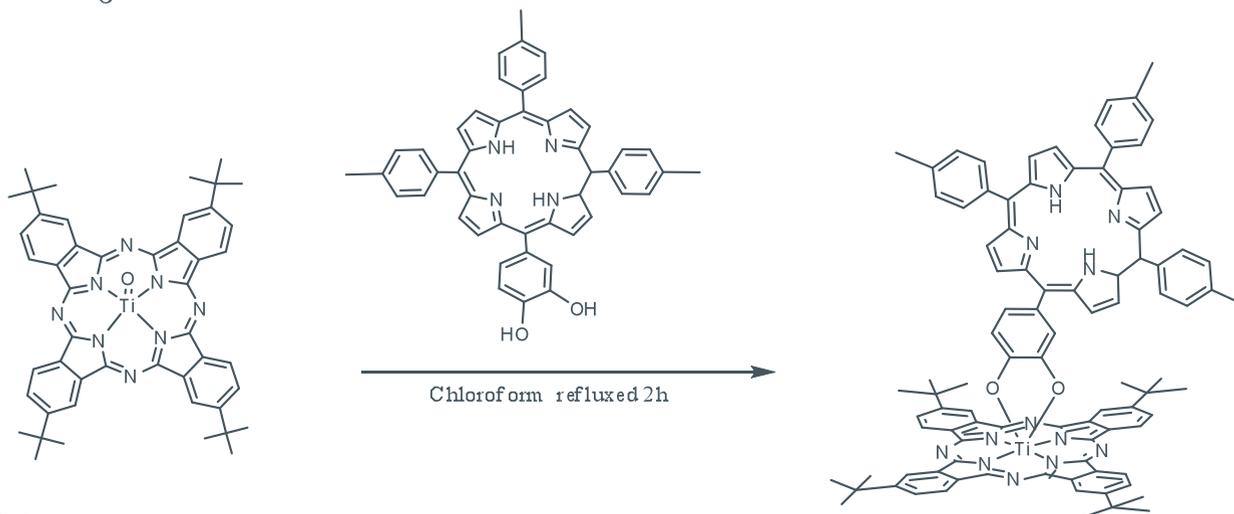
Scheme 1



Scheme 2



Scheme 3



Scheme 4

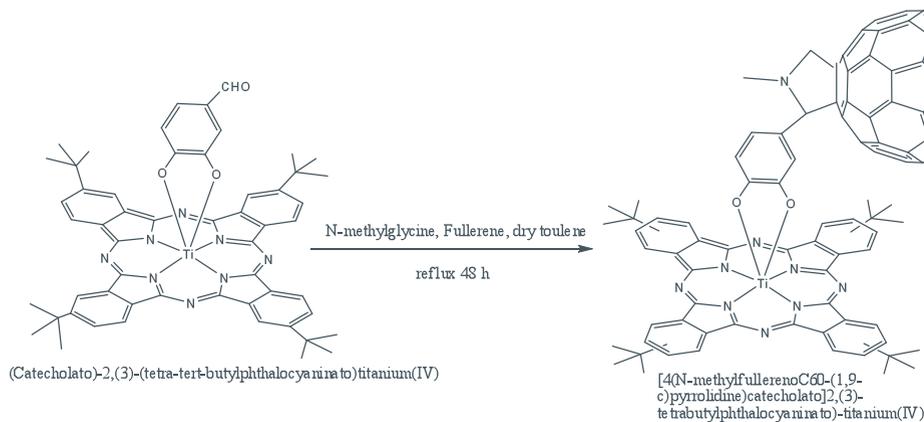




Figure 2 indicates that the metalated compound emits at a different wavelength than the free-base phthalocyanine, a phthalocyanine lacking a metal center. If the concentrations of both the free base Pc and the metalated Pc were the same, the peak corresponding to $t\text{Bu}_4\text{PcTiO}$ would have lower fluorescence intensity because metalated phthalocyanines typically have a quenched fluorescence compared with a free base Pc.

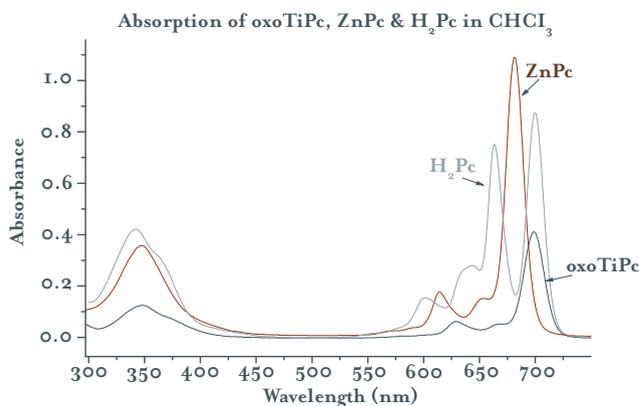


Figure 1. UV/Vis spectrum of H_2Pc (Green), ZnPc (Red), and oxoTiPc (Black).

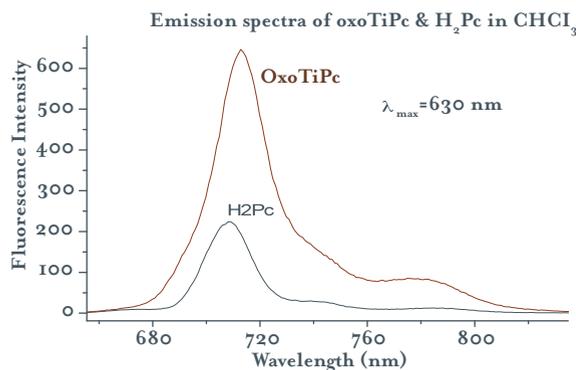


Figure 2. Fluorescence emission of $t\text{Bu}_4\text{PcTiO}$ (red) and H_2Pc (black) with varying concentrations.

The ^1H NMR spectrum of $t\text{Bu}_4\text{PcTiO}$ shown in Figure 5 indicates a signal for the 36 protons for the tert-butyl substituents which appeared at approximately 1.9 ppm as a strong singlet in the shielded region of the spectrum. The singlet for the 36 protons may appear slightly broad due to structural isomers. In the aromatic region of the spectrum at 9–9.5, a multiplet representing

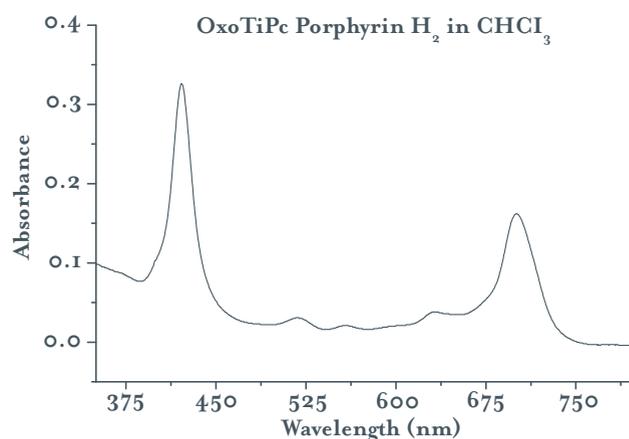


Figure 3. UV/Visible spectra of $t\text{Bu}_4\text{PcTi}$ Porphyrin in CDCl_3

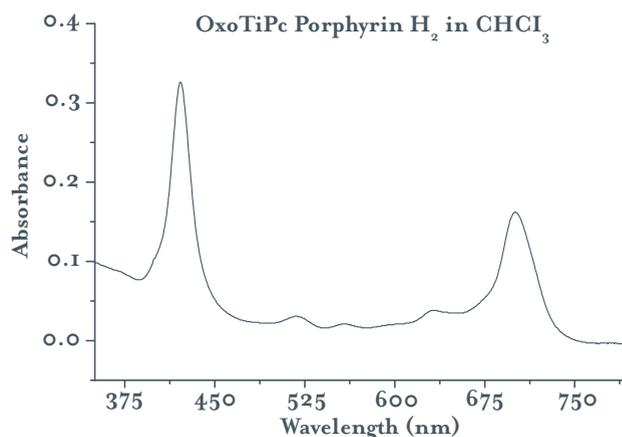


Figure 4. UV/Visible spectra of (4-formylcatecholato)-2,(3)-(tetra-tert-butylphthalocyaninato) titanium (IV) in CDCl_3

the eight protons in the 1,4-positions of the compound is present. A multiplet in the region between 8.0 and 8.4 represents four protons in the 2, 3 positions on $t\text{Bu}_4\text{PcTiO}$.

The molecular weight of $t\text{Bu}_4\text{PcTiO}$ is 800.46 g/mol. The mass spectroscopic analysis of $t\text{Bu}_4\text{PcTiO}$ had a major peak at 800.9 as indicated in Figure 8.

The $t\text{Bu}_4\text{PcTiO}$ was further reacted with a porphyrin catechol to form an axially coordinated dyad as shown in scheme 2. This complex was further reacted with zinc acetate to metalate the porphyrin with zinc, as shown in scheme 3. Unfortunately the metalation with zinc could not be confirmed with UV/Vis spectroscopy and



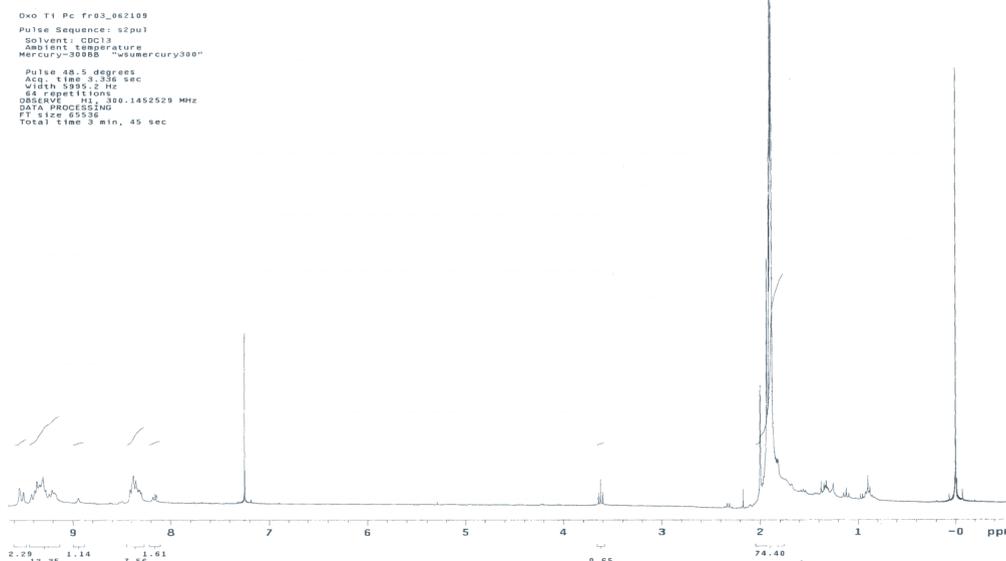


Figure 5. ^1H NMR spectrum of tBu_4PcTiO in CDCl_3

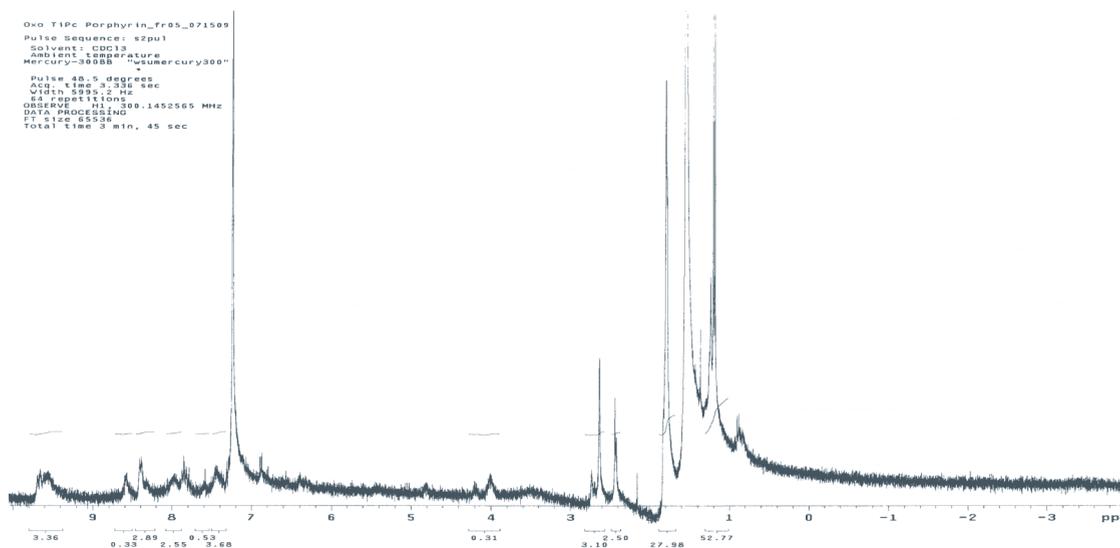


Figure 6. ^1H NMR spectrum of tBu_4PcTiO in CDCl_3 .

fluorescence spectroscopy. To obtain final product as shown in scheme 3, the porphyrin catechol would have to be previously metalated with zinc.

The UV/Vis spectrum of the oxo Ti Pc porphyrin complex in Figure 3 shows a large peak at 699 corresponding to the metalated tBu_4PcTiO and additional peaks at 631.81, 592.04, 556.68, 517.04, and 421.52. The large peak at 421 nm, representing porphyrin, and the large oxo Ti Pc peak at 699 nm should be at

a 1:1 ratio. The oxo Ti peak is slightly quenched compared to the porphyrin peak because it has a lower molar absorptivity.

The ^1H NMR of figure 6 shows that the presence of peaks relating to the titanium phthalocyanine is still present. A strong singlet is in the shielded region at 1.9 ppm for 36 protons. Additional peaks at 2.5-3 ppm and in the aromatic region between 7.2 – 8 ppm are peaks corresponding to the porphyrin.



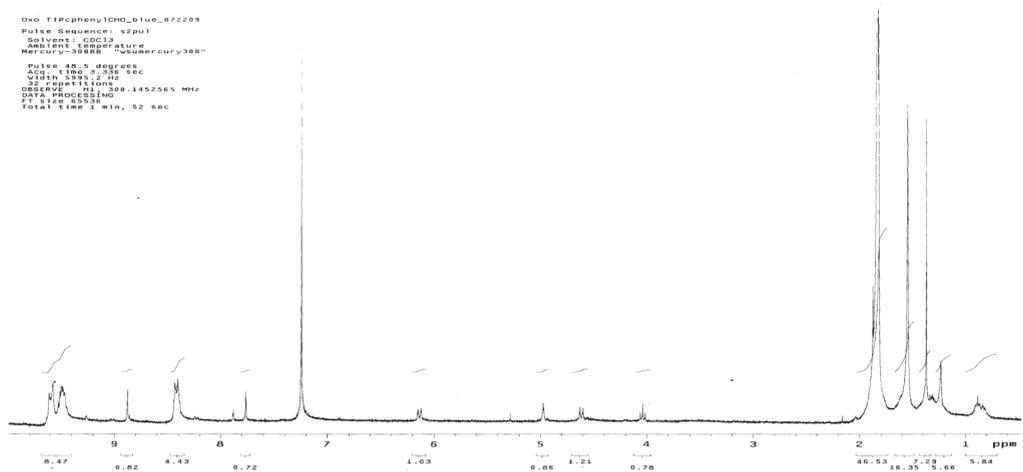


Figure 7. ¹H NMR spectrum of (4-formylcatecholato)-2,(3)-(tetra-tert-butylphthalocyaninato) titanium (IV) in CDCl₃

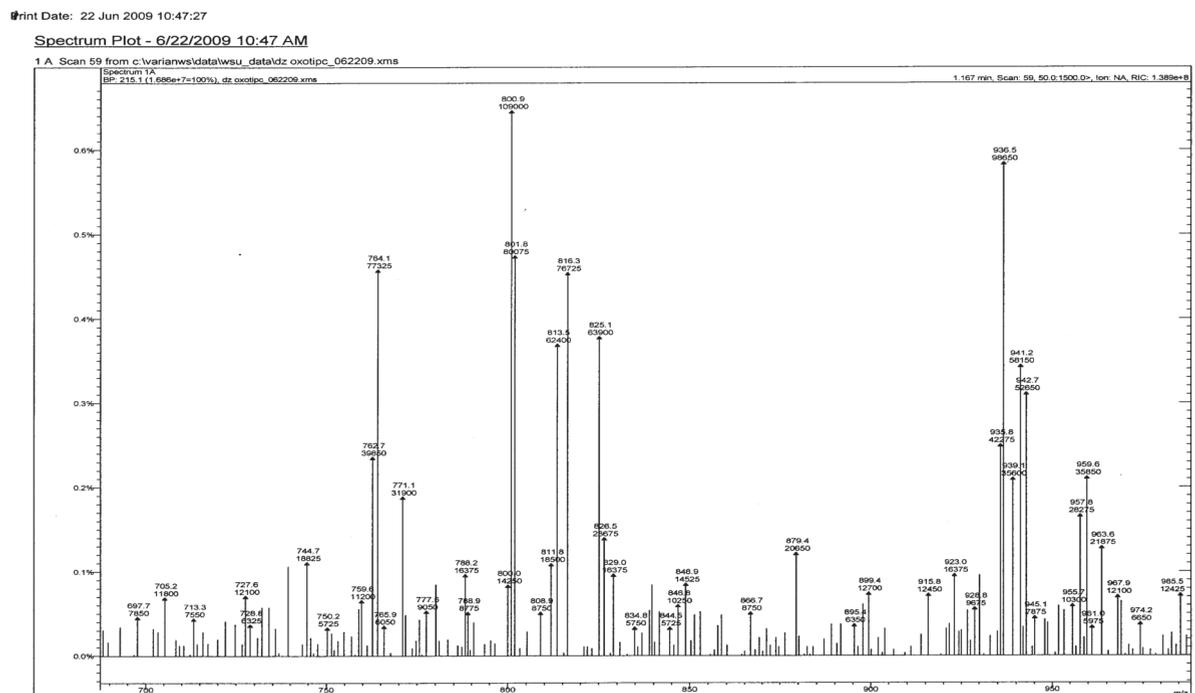


Figure 8. Mass spectrum of tBu₄PcTiO in CH₂Cl₂ matrix.

The ¹H NMR of (Catecholato)-2,(3)-tetra-tert-butylphthalocyaninato)titanium(IV) in Figure 7 shows additional peaks for the protons on the catechol. The triplet at 4.1-4.17 representing the proton in the 5 position on the

benzene ring contains the aldehyde, although in this case the spin-spin splitting should be a doublet. The doublet at 4.59-4.61 represents the proton in the 6th position on the catechol. The singlet found at 8.82-8.85 represents the proton on the aldehyde group.



Summary:

The target compound, oxo titanium phthalocyanine, which is analogous to chlorophyll in plants, has been successfully synthesized and

characterized. The oxo titanium phthalocyanine has been covalently bonded to an acceptor, fullerene to make novel donor-acceptor dyads for building light harvesting devices. This compound is currently undergoing characterization.

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Appropriate Placement for Adults with Autism

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Much progress has been made in the acceptance and assistance provided

Abstract

to children with autism and their parents; however, after children finish school, the necessary supports for adults with autism are reduced. Resource acquisition such as case management and residential support is nearly impossible for an autistic adult to obtain. Funding to provide these types of services is minimal for adults with autism. Many children with autism thrive during their education; however, no overlap in services or transition to adulthood exists. Using a convenience sample, 66 discharged students from a local agency were analyzed. Results indicated that length of stay (LOS) and age were associated with whether or not the client was discharged to a family or non-family (RCF, institutions) living setting; and family involvement, age at discharge, and geographical location of origin were predictors of living setting and post-discharge occupational setting (school or employment). Discussion will explore how many states around the country recognize this pervasive problem and address whether any states have implemented programs and funding to meet the needs of adults with autism.

Introduction

Adults with autism pose a variety of problems to families, communities, and states. The diagnosis of autism varies from severe, self-injurious behaviors to social skills that seem “a bit off.” This leaves a wide spectrum of individuals with autism who exhibit behaviors between these two extremes. Many of these individuals could get an apartment after graduation because they are not a “severe case.” However, the individual may not know about social boundaries such as sexuality and the seriousness of inappropriate touch. An adult with severe autism who exhibits aggressive behaviors may require police intervention from nervous community members unfamiliar with the disability.





In school, students with autism have an interdisciplinary team working with them comprised of therapists, educators, social workers and psychologists. Upon graduation, however, the adult may not have any community-based services to turn to for support. The field of developmental disabilities as a whole has a funding crisis. This is in large part due to the ever-growing need of the baby-boomer generation. Someone with a disability may have to be on a waiting list to receive services, and many of these waiting lists can be as long as five years.

Autism is a developmental disability; however, in many states, the diagnosis does not fall on the spectrum of financial assistance like other developmental disabilities. Therefore, adults with autism do not receive funding for a case manager, psychologist or residential support. States that do obtain funding for these individuals would not have the funding to train direct-care staff appropriately. Parish and Lutwick (2005) argued that, by the year 2010, the most common age will be 65, and the percentage of the population considered elderly will increase for decades (as cited in Hooyman & Gonyea, 1995). Many predict that the federal budget will be strained as healthcare, retirement, and disability benefits soar (Lee & Skinner, 1999). In Parish and Lutwick (2005), Hooyman and Gonyea quoted that the expansion of the elderly population will place excessive demands on the need for both formal and informal long-term care services. This will cause the developmental disabilities service system to compete with the elderly care system for paid caregivers. Parish and Lutwick (2005) noted, "this competition between the two services will likely be compounded by the fact that the cohort of staff in developmental disabilities long-term care is seriously underpaid and lacks sufficient training (as cited in Braddock & Mitchell, 1992, & Minnesota Technical College Task Force, 1993). Issues of this nature will precipitate a high turnover rate which will negatively affect the quality of care that people with disabilities receive (Larson, Lakin, & Bruininks, 1998). Therefore, staff are often ill-equipped to deal with populations who display high levels of intense behaviors. Staff may also be

unaware of the necessity for routines and lack the ability to communicate effectively with persons with autism.

With the lack of funding and the increase in the need for services for the adult population, this project is interested in how states plan on addressing this issue. States must determine a way to meet the ever-growing need for services for adults with autism and provide them treatment that will enable them to utilize the knowledge, skills, and abilities they learned in school to live a life of dignity and respect.

Research Objective

The purpose of this study was to assess the placement of adults with autism who display aggressive and self-injurious behaviors. This research will explore the frequency and intensity of behaviors and how they affect the placement of adults with autism. Researchers hope to substantiate and help society recognize that autistic children become adults and their need for services remain extant. The body of literature for placements of adults with autism indicates that adults with low-frequency and low-intensity behaviors usually stand a good chance of getting into an adult-group home. The ratio of staff to clients in adult-group homes decreases compared to the ratio of when they are in a school setting. Placing an autistic adult who displays a high level of intense behaviors with high frequencies becomes more difficult. In addition, the research will outline what states can do within their legislatures to assist with this crisis. This project will be organized around the following four themes: Current Interventions with Autism, Placements for People with Autism, Maintaining Independence for Persons with Autism, and Funding for Care. We do not propose hypotheses, as this research is exploratory and inductive, but speculate the following findings:

1. Aggressive and self injurious behaviors will interfere with the learning process and negatively impact the placement of adults with autism.





2. Students with family involvement will show a greater success rate of placement compared to students with little or no family involvement.
3. Males will be more likely to be placed in mental institutions than females.

Methods

Participants

A convenience sample of students (N=66) from a local agency was used for this research. The data was obtained from a local agency’s database of student clients and the sampling frame consisted of a majority of males (88%) and minority of females (12%). The majority of students were Caucasian. All cases had been discharged from the agency.

Due to the limitations and functioning level of participants, this type of methodology was less obtrusive for the population. Confidentiality of records was maintained and only reviewable in the records department of the agency. Names of the participants were not used in this study. This study was not biased in that participants were not compensated for their participation nor did any of the agencies’ employees partake in this study. Only participants’ school records were observed to obtain data. Additionally, the Wichita State University Office of Research Administration approved the project according to “expedited” review process.

Instrument

A data collection tool (see appendix A) was developed to review each client’s Individual Educational Plan (IEP) information. The IEP has seven key components: Functional Academics (FA), Occupational Therapy (OT), Home Management (HM), Physical Education (PE), Speech (SP), Medical (MED), Transition Plan (TP) and is a federal document that drives a student’s education. Little information was placed in the Medical component of the IEPs, so information was omitted from the collection process.

Information from the IEPs at the time of discharge was collected. These data tools were then compiled into an Excel document and exported to an SPSS file for statistical analyses.

Results

Demographics

There were 81 records reviewed with the data collection tool. However, 15 cases had been “terminated” for danger to staff or because they were “temporary” placements. These 15 cases had little to no data for an IEP. Dropping these cases, there were 66 cases for analyses. The average age at discharge was 17.5 years (median = 19.0 years, and range between 7 and 24 years old). The average length of stay was 4.5 years (median = 3.6 years, and ranged between 0.52 and 13.8 years). Most clients were male, had either autism or mental retardation diagnoses, and were admitted from out of state (KS), as the following tables show:

Table 1

Gender	Percent
Male	58 (87.9%)
Female	8 (12.1%)
Total	66 (100.0%)

Table 2

Diagnosis	Percent
Asperger’s Disorder	2 (3.0%)
Autism	25 (37.9%)
Autism, Dual Diagnosis	8 (12.1%)
Behavior Disorder	2 (3.0%)
Behavior Disorder, Dual Diagnosis	2 (3.0%)
Medical	12 (18.2%)
Mental Retardation	5 (7.6%)
Mental Retardation, Dual Diagnosis	8 (12.1%)
Pervasive Development Disorder	2 (3.0%)
Total	66 (100.0%)

Table 3

State of origin	Percent
Kansas	13 (19.7%)
Bordering States*	3 (4.5%)
Nearby States**	30 (45.5%)
Remote States†	20 (30.3%)
Total	66 (100.0%)

* (CO, OK)

** (AZ, IL, IN, KY, LA, TN, AND TX)

† (CA, FL, GA, HI, MD, NJ, PA, Virgin Islands, WA, WV, and Canada)





Table 4

Family Involvement	Percent
None	3 (4.6%)
Not very much	2 (3.1%)
Somewhat	16 (24.6%)
Very	41 (63.6%)
Extremely	3 (4.6%)
Total	65 (100.0%)*

* Missing data

Table 5

Occupational Setting	Percent
Neither education nor employment	32 (48.5%)
Educational or employment setting	34 (51.5%)
Total	66 (100.0%)

Table 6

Living-arrangement	Percent
Non-family environment (RCF, Institution)	40 (62.5%)
Family environment	24 (37.5%)
Total	64 (100.0%)*

* Missing data

Other variables were family involvement and to what setting the client was discharged for occupational (school or employment) and living arrangements. The following tables demonstrate that family involvement was high in client care and most were discharged to non-family living arrangements (Residential Care Facilities or Institutions/Medical settings) and educational and/or employment programs.

IEP Variables

The IEP is an Individual Educational Plan for each student. The IEP is a federal document that drives each student’s education. The IEP ensures that students are learning or being taught skills that will enable them to pursue a life of dignity, respect, and self-worth. The IEP consists of several components and evaluates each student’s skill level in many different areas.

Overall, the occupational goals focused on hygiene, functional assessment goals focused on scheduling tasks and transitioning between them, home management goals focused on food preparation or purchasing items, physical education focused on recreational activities or skills, and speech focused on expressive and receptive communication skills. Where the frequencies do not total 66, these goal areas were not assigned. Due to large number of categories within each IEP area goal, analyses by discharge living arrangements and occupational setting was not possible.

There were also targeted behaviors that each client engaged in at a high frequency. These target behaviors are placed in a Student Support Plan for each individual client. The Student Support Plan provides staff with a layout of how to manage the behaviors that the clients display. The following table lists the first two and, as with the IEP areas, are assumed to be the priorities during the client’s stay across all 66 clients.

Table 7

IEP Area	First Goal	Percent	Second Goal	Percent
Occupational	Bathing	42 (70.0%)	Bathing	2 (3.6%)
	Buttoning	1 (1.7%)	Buttoning	1 (1.8%)
	Food Pacing	1 (1.7%)	Comb Hair	1 (1.8%)
	Get Dressed	1 (1.7%)	Cut w/ fork/knife	1 (1.8%)
	Put on Pants	1 (1.7%)	Dry Off	6 (10.7%)
	Shaving	8 (13.3%)	Get Dressed	2 (3.6%)
	Toothbrush	6 (10.0%)	Put on Socks	1 (1.8%)
	Total	60 (100.0%)	Scooping	1 (1.8%)
			Toothbrush	36 (64.3%)
			Wash Hair	3 (5.4%)
			Writing	1 (1.8%)
			Write 3 letters/name	1 (1.8%)
			Total	56 (100.0%)





Functional Assessment	Emotions	1(1.5%)	Answer Questions	1(1.5%)
	Follow Direct	1(15%)	Follow Schedule	4(6.1%)
	Follow Schedule	11(16.7%)	ID Objects n Schedule	1(1.5%)
	Incr. Job skills	2(3.0%)	Matching	2(3.0%)
	Job Finding Skills	1(1.5%)	Math	1(1.5%)
	Matching	9(13.6%)	Money	1(1.5%)
	Personal Info	1(1.5%)	Personal Info.	1(1.5%)
	Purchasing	1(1.5%)	Purchasing	4(6.1%)
	Reading	2(3.0%)	Reading	4(6.1%)
	Social/Emot. Behav.	1(1.5%)	Select Measuring Cup	1(1.5%)
	Time on Task	35(53.0%)	Sorting	8(12.1%)
	Transition	1(1.5%)	Time on Task	4(6.1%)
	Total	66 (100.0%)	Transition	32(48.5%)
			Work Rules	1(1.5%)
		Written Instruction	1(1.5%)	
		Total	66 (100.0%)	
Home Management	Chore Completion	8(13.8%)	Chore Completion	16(27.6%)
	Cooking	5(8.6%)	Clean Room	2(3.4%)
	Follow Schedule	1(1.7%)	Cooking	11(19.0%)
	Increase Domestic Skills	1(1.7%)	Dry Laundry	3(5.2%)
	Incr. Social Skills	1(1.7%)	Fold Towels	1(1.7%)
	Laundry	8(13.8%)	Incr. Domestic Skills	1(1.7%)
	Plan Snack	1(1.7%)	Incr. Self-Help Skills	1(1.7%)
	Prepare Snack	13(22.4%)	Laundry	3(5.2%)
	Purchasing	15(25.9%)	Prepare Snack	12(20.7%)
	Toileting	1(1.7%)	Purchasing	3(5.2%)
	Wash Laundry	3(5.2%)	Wash Laundry	2(3.4%)
	Wiping Surfaces	1(1.7%)	Wipe Surfaces	1(1.7%)
	Total	58 (100.0%)	Wipe Table	1(1.7%)
		Total	58 (100.0%)	
Physical Education	Cycling	1(1.6%)	Cardio	1(1.6%)
	Follow Recreation Activity	1(1.6%)	Incr. Recreation Skills	56(90.4%)
	Incr. Physical Fit	58(92.1%)	Pedaling	2(3.2%)
	Ind. Recreation Act	1(1.6%)	Remain in designated area	1(1.6%)
	Pedaling	1(1.6%)	Roller Skate	1(1.6%)
	Treadmill	1(1.6%)	Treadmill	1(1.6%)
	Total	63 (100.0%)	Total	62 (100.0%)
Speech	Communicate in Full Sentences	1(1.9%)	Communicate Emotions	1(2.1%)
	Communicate Wants & Needs	1(1.9%)	Communicate Wants & Needs	4(8.3%)
	Improve Reading & Typing	1(1.9%)	Increase Receptive Communication	41(85.4%)
	Increase Expressive Communication	44(81.5%)	Pronouns I & You	1(2.1%)
	Increase Receptive Communication	1(1.9%)	Respond to questions	1(2.1%)
	Incr. Verbal Speech	4(7.5%)	Total	48 (100.0%)
	Use Communication System	1(1.9%)		
	Use Pronouns	1(1.9%)		
Total	54 (100.0%)			





Table 8

First Targeted Behavior	Percent	First Targeted Behavior	Percent
Aggression	52(80%)	Aggression	5(7.8%)
Dropping	1(1.5%)	Biting	1(1.6%)
Elopement	1(1.5%)	Crying	1(1.6%)
Head Banging	1(1.5%)	Dropping	2(3.1%)
Hoarding	1(1.5%)	Elopement	2(3.1%)
Inappropriate Urination	1(1.5%)	Non-Compliance	1(1.6%)
Non-Compliance	3(4.6%)	Property Destruction	31(48.4%)
SIB	5(7.7%)	SIB	18(28.1%)
Total	65 (100.0%)	Verbal Aggression	3(4.7%)
		Total	64 (100.0%)

Bivariate Analyses

Both discharged areas (occupational and living arrangements) were examined along the demographic variables to detect any differences that might contribute to causality of post-discharge placement. Overall, none of the chi-

square analyses were statistically significant ($p < 0.05$); note, however, that for many of the χ^2 tests, the test assumption for expected frequencies was violated. The following tables show the cross tabulations for living arrangements and occupation settings after discharge:

Table 9

Variable		Non-Family Environment	Family Environment	Total
Gender	Female	7 (87.5%)	1 (12.5%)	8 (100.0%)
	Male	33 (58.9%)	23 (41.1%)	56 (100.0%)
	Column Total	40 (62.5%)	24 (37.5%)	64 (100.0%)
Diagnosis	Asperger's Disorder	1(100.0%)	0(.0%)	1(100.0%)
	Autism	13(52.0%)	12(48.0%)	25(100.0%)
	Autism, Dual Dx.	7(87.5%)	1(12.5%)	8(100.0%)
	Behavior Disorder	1(50.0%)	1(50.0%)	2(100.0%)
	Behavior Disorder, Dual Dx.	0(.0%)	1(100.0%)	1(100.0%)
	Medical	7(58.3%)	5(41.7%)	12(100.0%)
	Mental Retardation	4(80.0%)	1(20.0%)	5(100.0%)
	Mental Retardation, Dual Dx.	7(87.5%)	1(12.5%)	8(100.0%)
	Pervasive Developmental Disorder	0(.0%)	2(100.0%)	2(100.0%)
	Column Total	40(62.5%)	24(37.5%)	64(100.0%)





State of Origin	Kansas	6(46.2%)	7(53.8%)	13(100.0%)
	Neighboring	1(33.3%)	2(66.7%)	3(100.0%)
	Nearby	20(71.4%)	8(28.6%)	28(100.0%)
	Remote	13(65.0%)	7(35.0%)	20(100.0%)
	Column Total	40(62.5%)	24(37.5%)	64(100.0%)
Family Involvement	None	3(100.0%)	0(.0%)	3(100.0%)
	Not very much	2(100.0%)	0(.0%)	2(100.0%)
	Somewhat	14(87.5%)	2(12.5%)	16(100.0%)
	Very	19(47.5%)	21(52.5%)	40(100.0%)
	Extremely	1(50.0%)	1(50.0%)	2(100.0%)
	Column Total	39(61.9%)	24(38.1%)	63(100.0%)

Table 10

Variable		Neither	School or Employment	Total
Gender	Female	6(75.0%)	2(25.0%)	8(100.0%)
	Male	26(44.8%)	32(55.2%)	58(100.0%)
	Column Total	32(48.5%)	34(51.5%)	66(100.0%)
Diagnosis	Asperger's Disorder	0(.0%)	2(100.0%)	2(100.0%)
	Autism	12(48.0%)	13(52.0%)	25(100.0%)
	Autism, Dual Dx.	4(50.0%)	4(50.0%)	8(100.0%)
	Behavior Disorder	0(.0%)	2(100.0%)	2(100.0%)
	Behavior Disorder, Dual Dx.	0(.0%)	2(100.0%)	2(100.0%)
	Medical	7(58.3%)	5(41.7%)	12(100.0%)
	Mental Retardation	3(60.0%)	2(40.0%)	5(100.0%)
	Mental Retardation, Dual Dx.	6(75.0%)	2(25.0%)	8(100.0%)
	Pervasive Developmental Disorder	0(.0%)	2(100.0%)	2(100.0%)
	Column Total	32(48.5%)	34(51.5%)	66(100.0%)
State of Origin	Kansas	3(23.1%)	10(76.9%)	13(100.0%)
	Neighboring	1(33.3%)	2(66.7%)	3(100.0%)
	Nearby	15(50.0%)	15(50.0%)	30(100.0%)
	Remote	13(65.0%)	7(35.0%)	20(100.0%)
	Column Total	32(48.5%)	34(51.5%)	66(100.0%)
Family Involvement	None	3(100.0%)	0(.0%)	3(100.0%)
	Not very much	2(100.0%)	0(.0%)	2(100.0%)
	Somewhat	8(50.0%)	8(50.0%)	16(100.0%)
	Very	18(43.9%)	23(56.1%)	41(100.0%)
	Extremely	1(33.3%)	2(66.7%)	3(100.0%)
	Column Total	32(49.2%)	33(50.8%)	65(100.0%)





Independent t-tests were conducted to detect mean differences for occupational and living arrangement categories across age and LOS in years. Results showed that the older the client at the time of discharge and the longer the length

of stay, the more often the client was discharged to a non-family environment to live (RCF or institution). The following table shows the statistical test results:

Table II

Variables		Cases	Mean	S.D.	t	d.f.	Sign.
LOS	Non-family living arrangement	40	5.2286	3.28963	2.701	62	.009*
	Family living arrangement	24	3.2026	2.09871			
	Neither	32	4.7816	2.95168	.676	64	.501
	School or Employment	34	4.2771	3.10107			
Age	Non-family living arrangement	40	18.5000	3.36650	3.004	62	.004*
	Family living arrangement	24	15.6250	4.22016			
	Neither	32	18.3438	3.80670	1.768	64	.082
	School or Employment	34	16.6765	3.85118			

Predicting Placements

The two post-discharge placements of living arrangements and occupational settings were recoded into dichotomous variables (see demographics table) of “family” or “non-family” environment and “school or occupational setting” or “neither school nor occupational setting” respectively. Further recoding these two outcome variables into “dummy” variables, logistic regression was conducted using the

demographic variables of LOS, diagnosis, age, sex, geographical state of origin and family involvement as predictor variables. Using a “forward step-wise (conditional)” method, the variables of family involvement and age predicted the living arrangement, while family involvement and geographical location predicted occupational setting; all other demographic variables were not significant ($p < 0.05$) to either predictive model. The following tables show the results of these analyses:

Table 12

Dependent Variable	Predictor Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Living arrangement	Age	-.233	.087	7.111	1	.008	.792
	Family	1.755	.661	7.041	1	.008	5.784
	Constant	-1.209	2.183	.306	1	.580	.299

Table 13

Dependent Variable	Predictor Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Occupational setting	Geographical location	-.999	.331	9.092	1	.003	.368
	Family	1.325	.486	7.444	1	.006	3.761
	Constant	-1.559	1.188	1.722	1	.189	.210





Discussion

Results suggested that older clients and longer LOS are associated with the client being discharged to a non-family living arrangement (RCF or institution/medical setting). These demographic factors, however, did not seem to be associated with the clients' occupational settings upon discharge. This finding is not corroborated by the above reviewed literature, as lower-frequency and low-intensity of behaviors are more likely to be placed in group-home settings. Granted, the variables for behaviors did not lend themselves to statistical analyses.

Further results indicated that, in part, increased family involvement predicted a family living arrangement and school/educational setting upon discharge. These findings, in a similar fashion, corroborated the above reviewed literature. Anecdotal information from the agency staff, however, supported this finding in that staff have commented that the "family is the client's advocate."

The factor of the age of the client predicting the living arrangement (the older the client, the more likely they are to be placed in a non-family environment upon discharge) would seem reasonable, in that families of older clients tend to be older themselves and probably would be less able to care for an adult child with special needs. The geographical location of the client's post-discharge occupational setting (ranging from in-Kansas to more remote locations throughout North America) would also seem intuitive, as discharge staff would be unlikely to know all available programs the further the placement from Kansas.

Future Research

Future research should focus on a larger sample size, noting race and all placements in which the adults transitioned in order to provide a larger representation of this population. Integrating multiple ethnic groups would provide a more inclusive illustration of this population.

This research would assist in improving the knowledge of where the service gaps exist as well as outlining what services that adults with autism require. Survey data would also be beneficial to insert into this study regarding what services parents and/or caregivers feel are critical for adults with autism. The crucial components of this crisis are educating lawmakers and getting states to acknowledge that service gaps along with a lack in funding for persons with developmental disabilities do exist. The pace at which autistic children are becoming autistic adults without adequate services is distressing and therefore the issue must be addressed.

Current Interventions with Autism

Federal law requires that transitional services included in a child's individual educational plan prepare the child for post-school activities. These services include supported employment, preparation for independent or supported living, and liaison between schools and agencies that provide support to individuals with disabilities. However, far too often not enough resource personnel exist to ensure that this is accomplished before the child graduates from high school. This leaves adults with autism and their families ill-equipped for their next transition (Aman, 2005).

The state of Washington has emphasized the training of professionals working with adults with autism. Staff receive ongoing, updated information to support them in their job. Washington has also implemented autism training in state schools. Physicians, educators and social service providers enter a curriculum that train these staff on the basics of autism, legislation and how to care for someone with autism. First responders and police officers go through a similar training as well (Autism Task Force, 2006).





Placement for People with Autism

Children receive a variety of services to facilitate their independence; however, these services do not transfer into their adult settings. The lack of consistency between these programs causes individuals with autism to regress and lose many of the skills that enabled the individual to be independent in school. The need for adults with autism to have behavior therapy, pharmacotherapy, and occupational therapy increases dramatically with age (Aman, 2005).

The Ohio Task Force on Autism provides three principles for successful transition planning: start early, involve all service and funding agencies and try to have work scheduled before the individual graduates from high school (Aman, 2005). Employment is a key component for an adult with autism to succeed after school. This provides the individual with a routine, increased opportunity to utilize social skills the individual learned in school and an increase in self-esteem. Predictors of successful employment are employment readiness, adequacy of job match, and successful strategies to use with the individual for behavior management (Aman, 2005).

Maintaining Independence for Persons with Autism

Many individuals with autism lack preparedness for employment nor have secured funding for supportive home services before they graduate. This means many people with autism live independently, regardless of their ability to do so. Most individuals with autism-spectrum disorders try to avoid trouble with the law; however, the respect for rules is offset by a number of predispositions that make the individual more vulnerable. People with autism often misinterpret relationships, which leave individuals to be drawn into illicit relationships or exploitation. Limited emotional knowledge can lead to social interactions or friendships that

are mistaken for love. Individuals with autism can misinterpret rules, particularly social ones, in which they find themselves unwittingly embroiled in offenses such as date rape. They may also copy video game and television shows in their real life that are not intended to be replicated. People with autism have also had problems accurately determining people's age; this can lead to illegal relationships with minors. Many of these factors affect people with autism's ability to make valid decisions. This leaves the judicial system in a position where the system has to either prosecute someone with autism who does not know right from wrong, or have the person admitted into a mental hospital (Royal College, 2004).

Typically people with autism or other developmental disabilities require a combination of developmentally appropriate, interdisciplinary, and individualized supports and assistances across a lifetime. The service system for the developmentally disabled is a complex network of services funded by federal, state, local and private resources. Services include long-term care, employment, family support, personal assistance, therapies and case management. In the year 2000, the United States spending budget for all types of developmental disabilities exceeded 29 billion (Braddock, 2002). Only 15% of the developmentally disabled population receives services of this nature. A critical shortage of services exists in most states (Prouty et al., 2003). Now large-scale institutions are no longer considered the best placement for people with developmental disabilities. In most cases across the United States, long-term care has occurred in community-based settings. Parish and Lutwick noted, "existing empirical evidence overwhelmingly indicates that people with developmental disabilities living in community-based settings have significantly better outcomes across a range of psychosocial and behavioral domains than those who are institutionalized" (as cited in Apgar, Lerman & Jordan 2003; Larson & Lakin, 1989, 1991; Racino & Taylor, 1993). Medicaid is a vital source by which most states derive federal revenues for their long-term care systems for people with developmental disabilities. In turn, Medicaid enables states to use their own resources to leverage federal funds (Braddock,





2002). Two Medicaid programs support the developmental disabilities service system: The Intermediate Care Facilities/Mentally Retarded (ICF/MR) and the Home and Community Based Services (HCBS) Waiver program, authorized in 1971 and 1981. Even though positive changes have occurred in the services provided, fulfilling the unmet needs of clients remains a difficult task. Families who attempt to secure services become frustrated by the lack of services, lengthy waiting periods, and bureaucracies that are difficult to navigate. Many families turn to litigation in order to receive care (Parish & Lutwick, 2005).

The state of Connecticut started a pilot program to meet the needs of adults with autism. They implemented a two-year, state-funded pilot program that studied the effect of home and community based services to learn how to help adults with autism develop skills to become employable. Connecticut has a limited number of agencies that can provide services to people with autism as there were no prior services targeted to this population. This program serves 25 individuals with autism in a group home. The program provides these individuals with intense staffing support, direction in daily activities, and classes to improve job skills. The State education staff offered a variety of autism training which included having people with autism help train. Connecticut's program hopes to see that, even though training is costly, the retention of the staff that now has the right resources to work with this population will offset the training cost. This program also hopes to see autistic individuals gain employment and live in a home where they can consistently work on these skills to ensure that they are successful in maintaining their employment (Thomson Health Care, 2007).

Funding for Care

Despite all of these issues, two states lead the way in developing comprehensive programs for adults with autism. The State of Washington developed an autism task force. This task force aimed in 2006 to provide appropriate services to people with autism. The first objective

completed placed autism centers across the state of Washington. This provided better geographic coverage and ensured all people could receive services around the state. They also implemented Medical Homes for people with autism. In these homes, individuals work with an interdisciplinary team versed in autism. This team develops programs for the individual, provides daily living structure, routines and monitors his or her progress. The Washington task force also emphasizes adults with autism being employable for their well-being. The state provides tax incentives to businesses that make modifications to their businesses in order to provide employment opportunities to people with autism. Because autism is a lifelong disorder, adults with autism must receive appropriate and multidisciplinary support to maintain and further their opportunities for employment. The state's Department of Social and Health Services, regional autism centers, and healthcare providers all work together to assure that the individuals receive the level of care needed as well as obtain funding assistance (State of Washington, 2006).

Funding to provide for these programs in Washington comes from private insurance, Medicaid, Division of Developmental Disabilities and Mental Health programs. Possible modifications in Washington will look at current reimbursement rates as well as explore options to improve health-insurance funding. Another possibility for Washington will look at reallocating state departments to ensure that the programs are run as economically and efficiently as possible to free up more money for autism programs. Washington follows the example in improvement in financing of adult autism programs set by Maryland, Pennsylvania, and Massachusetts (State of Washington, 2006).

Research on both programs and curricula for persons with autism confirm that both Washington and Connecticut are trying to improve their programming for adults with autism. Washington, however, took a step further and began to look at reallocating state departments in order to ensure that money is freed up for the autism programs. More states need to be willing to do the same. Autism is a





life-long condition. States need to find a way to fund programs for adults with autism.

Conclusion

Resources for children with autism spectrum disorders are diverse and meet a variety of needs. Students are protected and will be guaranteed this right through federal legislation. The student's IEP should ensure that the student is ready to transition to adult programs. The implementation of the transition element of the IEP usually ends in failure. These students go out into the world with no assistance and end up in legal, financial, and social trouble.

The waiting list for services for the developmentally disabled is long. This is due to the lack of funding available for these services across the United States. Adults with autism are

lucky if they can get on the waiting list; many states do not see autism as a developmental disability that receives services. Research, education, and state and federal knowledge of this gap in services are growing. With any luck, knowledge of autism will increase and these adults will acquire needed services.

Several states are implementing programs that focus on developing job-readiness skills for adults with autism. Employment is being determined as a major factor in the success of adults with autism in the community as well as community-based services. These programs often provide staff with intensive training to be better equipped to serve these individuals. Education, more funding opportunities, and more skilled programs to deal with adults with autism will be the key to ensuring that these people live a life of dignity, respect, and happiness.

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Examining the Role of Self-Esteem on Body Image Dissatisfaction and Eating Disorder Behaviors Among Gay and Bisexual Men

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Abstract

Gay and bisexual men are disproportionately represented among eating-disordered males. Gay and bisexual men are also more likely to display eating-disorder symptoms than heterosexual men. Previous research has suggested that gay men are at a greater risk for body dissatisfaction than heterosexual men and are more concerned with body weight and shape than their heterosexual counterparts. Gay and bisexual men are more concerned with a muscular body and a thinner body than heterosexual men. Several risk factors for body image dissatisfaction and eating disorder behavior for gay and bisexual men exist: 1. Homonegativity, 2. Gay sub-culture, 3. Involvement with the gay community, 4. Sexual objectification, 5. Media influence, and 6. negative childhood experiences. The purpose of this study was to examine how self-esteem correlates to body image dissatisfaction and eating-disorder behaviors. Forty individuals participated in this pilot study. The average BMI of participants was 23.8. The results indicated a statistically significant difference did not exist for self-esteem and body image dissatisfaction nor self-esteem and eating-disorder behaviors. Future research and limitations will be discussed.

Introduction

Gay and bisexual men are disproportionately represented among eating-disordered males. The percentage of males with eating disorders who are gay or bisexual has ranged from 20-53% (Andersen, 1999; Schneider et al., 1995). These statistics are alarming considering estimates that only 3-5% of men in the U.S are gay or bisexual (Andersen, 1999; Feldman & Meyer, 2007). Lifetime prevalence rates among homosexual men are at 25% for recurrent binge-eating episodes and at 12 % for purging (Russell & Keel, 2002). Recent research has begun to focus on sexual orientation and the relationship it has on eating disorders and negative body image (Kaminiski et al., 2005).





Most of the research on eating disorders and body image has focused on women. Women constitute approximately 90% of people diagnosed with eating disorders (Levesque & Vichesky, 2006; Gettelman & Thompson, 1993; Schneider et al., 1995). In the last decade, research has found a strong relationship between body image disturbance and eating disorders such as anorexia nervosa and bulimia nervosa (Gettelman & Thompson, 1993). Although women have historically been the focus of studies on body image and eating-disorder development and behavior, recent studies have suggested that many men are also dissatisfied with their bodies, particularly gay men (Levesque & Vichesky, 2006). Thus, more research should examine gay and bisexual men who have body dissatisfaction and eating disorder behaviors, specifically focusing on anorexia nervosa and bulimia nervosa.

Eating Disorder Behavior

Gay men are considered a high-risk group for eating disorders (Reilly & Rudd, 2006; Yelland & Tiggemann, 2003). Gay men are over-represented among males with eating disorders (Heffernan, 1994; Herzog et al., 1991; Levesque & Vichesky, 2006; Russell & Keel, 2002; Williamson & Hartley, 1998). Gay and bisexual men are also more likely to display eating-disorder symptoms (Feldman & Meyer, 2007; French et al., 1996; Russell & Keel, 2002). Research has indicated that gay men may be at a greater risk for eating disorders and eating-disorder behavior (Andersen, 1999; Beren et al., 1996; Drummond, 2005; Feldman & Meyer, 2007; Gettelman & Thompson; Hausman et al., 2004; Hospers & Jansen, 2005; Kaminski et al., 2005; Morrison et al., 2004; Reilly & Rudd, 2002; Russell & Keel, 2002; Siever, 1994; Williamson & Hartley, 1998; Yelland & Tiggemann, 2003). Kaminski et al. (2005) found that gay men are more likely to practice restrictive dieting practice and are more fearful of becoming fat than their heterosexual counterparts. Reilly & Rudd (2002) suggested

that in efforts for gay men to maintain ideal body images they may turn to risky behaviors, such as chronic dieting, avoiding food and practicing bulimic behaviors.

Anorexia Nervosa

Anorexia nervosa is “characterized by a refusal to maintain a minimally normal body weight” (American Psychiatric Association [APA], 2000). The diagnostic criteria for an individual with anorexia are a refusal to maintain a normal body weight for an individual’s age and height, an intense fear of gaining weight or becoming fat, disturbance in the way an individual perceives his or her body and a denial that the individual currently has a low body weight (APA, 2000). There are two requirements for an individual to be classified as underweight: the first, having a body weight that is less than 85% of a normal range for an individual’s weight and height; the second a BMI equal to or less than 17.5 kg/m² (APA, 2000).

Weight loss is typically accomplished by food restriction, but also includes other methods such as purging, use of laxatives or diuretics and excessive exercise (APA, 2000). Self-esteem of persons with anorexia nervosa has a strong association to their body shape and weight (APA, 2000). Weight loss is perceived as an accomplishment or as a sign of self-discipline; however, weight gain is viewed as an unacceptable failure due to a lack of self-control (APA, 2000). Individuals with anorexia are often obsessed with the thought of food and display obsessive-compulsive rituals that are related to and not related to food (APA, 2000). People diagnosed with anorexia nervosa are often concerned about eating in public (APA, 2000). Other characteristics include perfectionism, overly restrained initiative and emotional expression and inflexible thinking (APA, 2000).

Bulimia Nervosa

Bulimia nervosa is typically “characterized by repeated episodes of binge eating followed by inappropriate compensatory behaviors to prevent weight gain such as self-induced vomiting; misuse of laxatives, diuretics or other medications; fasting, or excessive exercise.” Individuals with





bulimia nervosa's self-evaluation are influenced by body shape and weight (APA, 2000).

Body Dissatisfaction (Negative Body Image)

A need exists to examine body image dissatisfaction among gay men as well as the ideal body image for gay men. An ideal body for homosexual men has been suggested to be not only slim but also muscular (Hospers & Jensen, 2005; Yelland & Tiggemann, 2003). Research has noted that gay men are at a greater risk for body dissatisfaction than heterosexual men (Andersen, 1999; Beren et al., 1996; Boroughs & Thompson, 2002; Brand et al., 1992; Drummond, 2005; Duncan, 2007; Feldman & Meyer, 2007; Gettelman & Thompson, 1993; Hausman et al., 2004; Hospers & Jensen, 2005; Kaminski et al., 2005; Lakkis & Ricciardelli, 1999; Levesque & Vichesky, 2006; Martins et al., 2008; Morrison et al., 2004; Russell & Keel, 2002; Yelland & Tiggemann, 2003). Several studies have identified that gay men are as dissatisfied with their bodies as women (Beren et al., 1996; Duncan 2007; Levesque & Vichesky, 2006).

Gay men are more concerned with body weight and shape than their heterosexual counterparts (Lakkis & Riccardelli, 1999). Gay men are also more concerned with body image than heterosexual men (Strong et al., 2000; Siever 1994). Body image is "the thoughts, feelings, and actions taken with regard to how a person views his or her body" (Reilly & Rudd, 2006). Body dissatisfaction is defined "as the negative subjective evaluation of one's physical body such as figure and weight, and has been found to be a prominent risk factor in the development and maintenance of eating disorders" (Hospers & Jansen, 2005). Gay and bisexual men have several concerns regarding body image. According to the current literature available there are two basic body types that have been examined. First, gay and bisexual men have concerns for achieving a muscular body type. Second, gay and bisexual men also have a concern for achieving a thin body type.

Concern for a muscular body

The desire to have a more muscular body is one area that may lead to body dissatisfaction among gay men. Gay men have a greater risk of body dissatisfaction because they may feel the need to develop a more muscular body (Chaney, 2008, Kaminski et al., 2005; Levesque & Vichesky, 2006). Research has suggested that gay men are less satisfied with their muscle mass than heterosexual men (Morrison et al., 2004). In gay male society, having a perfect gym body has become a way to measure how an individual feels about himself (Shernoff, 2001). According to Chaney (2008), gay men desire to have a muscular body to appear young. Having a muscular body also allows gay men to feel a sense of control (Drummond, 2005).

AIDS may have contributed to gay men's desire to not appear too thin, which may have served as an illness indicator (Chaney, 2008; Drummond, 2005; Kaminski et al., 2005; Shernoff, 2001). To appear healthy as HIV/AIDS spread throughout the gay community, gay men sought muscularity (Levesque & Vichesky, 2006; Shernoff, 2001). Having a muscular body became a symbol that someone was healthy (Drummond, 2005).

Childhood teasing may be a factor for gay men having greater body dissatisfaction in adulthood. Chaney (2008) has found that gay men being bullied for being gay or perceived as gay may lead them to feel the need to develop strong bodies and be viewed as masculine. In childhood, gay men may have experienced more teasing regarding lack of masculinity; the desire then is to appear more strong and masculine in adulthood (Chaney, 2008; Duggan & McCreary, 2004).

Desire for a thin body

Gay men place a greater value on being thin than heterosexual men (Andersen, 1999; Boroughs & Thompson; Herzog et al., 1991). Research has indicated that gay men prefer a thinner, ideal figure than heterosexual men (Levesque & Vichesky, 2006; Kaminski et al., 2005; Tiggemann et al., 2007; Williamson & Hartley, 1998). Boroughs & Thompson (2002) found that gay men believe their partners prefer a thinner figure compared to heterosexual men. In





comparison to heterosexual men, gay men have a greater desire to be thin (Drummond, 2005).

Kaminski et al. (2005) found that gay men had both a lower body weight and lower ideal body weight than heterosexual men. Researchers have indicated that gay men are at a risk for developing eating disorders because gay men place a large emphasis on being physically attractive and being thin (Gettelman & Thompson, 1993; Herzog et al., 1991). Gay men may also feel pressure to be slim and youthful looking, which may lead to body dissatisfaction (Drummond, 2005; Williamson, 1999). Gay men may experience body dissatisfaction due to the high value of thinness in gay society (Boroughs & Thompson 2002).

Risk Factors

Several risk factors are associated with body dissatisfaction and eating disorder behaviors for gay and bisexual men. Various studies have attempted to understand the reasons that gay men have higher levels of body dissatisfaction than heterosexual men. Research has also indicated that some risk factors for gay and bisexual men may serve as protective factors for other gay and bisexual men.

Homonegativity

One explanation for the reason gay men have high levels of body dissatisfaction is homonegativity (Chaney, 2008; Reilly & Rudd, 2002; Williamson & Spence, 2001). Internalized homonegativity can be defined as "the negative and distressing thoughts and feelings experienced by lesbians and gay men about their sexuality, which also are attributed to experiences of cultural heterosexism and victimization" (Williamson & Spence, 2001). Internalized homophobia among some gay men may also contribute to body dissatisfaction (Beren et al., 1998).

Gay sub-culture

The gay sub-culture places high emphasis on physical appearance. Research has indicated that, similar to the pressures that are placed on heterosexual women, gay men may feel pressured

by the demands of the gay community to be considered attractive and meet a body ideal (Drummond, 2005; Feldman & Meyer, 2007; Morrison et al., 2004; Yelland & Tiggemann, 2003). The gay community places a high emphasis on personal appearance and physical attractiveness which may lead to body dissatisfaction and eating disordered behaviors (Chaney, 2008; Drummond, 2005; Duncan, 2007; French et al., 1996; Gettelman & Thompson, 1993; Hausman et al., 2004; Heffernan, 1994; Kaminski et al., 2005; Lakkis & Riccardelli, 1999; Levesque & Vichesky, 2006; Martins et al., 2008; Morrison et al., 2004; Strong et al., 2000; Siever, 1994; Tiggemann et al., 2007; Yelland & Tiggemann, 2003). Gay sub-culture places a strong emphasis on gay men to be physically attractive, as well as have the internalized pressure to be slim and youthful (Drummond, 2005; Siever 1994; Williamson & Spence, 2001; Williamson, 1999). Gay culture often excludes and those who cannot conform may suffer from self-esteem issues (Drummond, 2005).

Involvement with the gay community

Involvement with the gay community may be an indicator of body dissatisfaction and eating-disorder behavior. Due to the high emphasis that the gay culture places on physical attractiveness, several studies have extrapolated that the more a gay male is involved within gay culture the more dissatisfied he is with his body (Beren et al., 1996; Levesque & Vichesky, 2006; Morrison et al., 2004). Feldman & Meyer (2007) found that gay men who participated in a gay recreational organization or group in comparison to those who did not participate had a significantly higher incidence of subclinical eating disorders.

Sexual objectification

Studies have shown that men place a greater emphasis on the physical attractiveness of their potential partners (Siever, 1994). Gay men may desire to attain specific body type to attract a partner (Reilly & Rudd, 2006). Gay men, similarly to heterosexual women, feel sexually objectified which can lead to body dissatisfaction and eating disorder behavior because of the need





to attract men (Siever, 1994; Tiggemann et al., 2007; Williamson, 1999).

Media influence

Men's bodies in the media have been commercialized and objectified (Drummond, 2005). This has led to a negative body image in men (Drummond, 2005). Research has indicated that the media is responsible for the increase in muscle dissatisfaction among men (Chaney, 2008). Gay media places a high emphasis on thinness (Kaminski et al., 2005; Williamson, 1999). Gay men, in comparison to heterosexual men, are more susceptible to media images that promote thinness (Kaminski et al., 2005). Gay men also feel more pressure to diet (Kaminski et al., 2005).

The results of a study conducted by Levesque & Vichesky (2005) found that gay men socially compare themselves to media images which may serve as an indicator for body dissatisfaction. The self-esteem of men who are unable to meet the gay sub-culture's emphasis on a lean, muscular, or thin appearance may be affected, which can lead to body dissatisfaction (Williamson, 1999). Drummond (2005) found that gay men criticized the media for displaying an unrealistic image of the male physique. The pornographic industry also plays a part in media images portrayed to gay men. The porn industry may serve as a risk factor for gay men to feel body dissatisfaction. According to Duggan & McCreary (2004), the gay community's high consumption of pornography is normative. The images portrayed in the gay porn industry show men who are muscular and attractive (Duggan & McCreary, 2004). The men who observe these images may feel that the only way to be seen as sexually attractive is to meet a certain physical appearance (Duggan & McCreary, 2004).

Negative childhood experiences

Experiences from childhood may contribute to negative body image and eating disorder behavior among gay men. Feldman & Mayer (2007) found that gay and bisexual men with a history of childhood abuse were more likely to develop subclinical eating disorders. Gay men are more likely to place their self-worth on their physical appearance (Morrison et al., 2004).

Self-esteem

The pressure to be physically attractive within the gay community may affect self-esteem among this population (Tiggemann et al., 2007). Self-esteem may influence body dissatisfaction among males (Beren et al., 1996; Chaney, 2008; Levesque & Vichesky, 2006; Reilly & Rudd, 2006; Russell & Keel, 2002). Williamson & Hartley (1998) found a strong association between self-esteem, body dissatisfaction and eating disturbance for gay males. Russell & Keel (2002) found that disordered eating highly correlated with poor self-esteem. A study conducted by Tiggemann et al. (2007) found body dissatisfaction correlated with lower self-esteem for gay and heterosexual men.

Protective Factors

Although some research has indicated that the more involved a gay male is with the gay community, the greater the risk for the development eating disorder behavior and body dissatisfaction, others have found that involvement in the gay community protects men from this (Feldman & Meyer, 2007). Several studies have indicated low levels of self-esteem may serve as an indicator for body dissatisfaction and eating disorder behaviors among gay and bisexual men (Beren et al., 1996; Chaney, 2008; Levesque & Vichesky, 2006; Reilly & Rudd, 2006; Russell & Keel, 2002, Williamson & Hartley, 1998). Perhaps having higher levels of self-esteem may serve as a protective factor for this population.

Due to the dearth in literature of studies specifically examining self-esteem on body dissatisfaction and eating disorder behaviors, the purpose of this pilot study is to explore the role self-esteem plays on body dissatisfaction and eating disorder behaviors among gay and bisexual men. For the purpose of this pilot study three hypotheses will be tested: H1: Self-esteem is an indicator for anorexic symptoms for gay and bisexual men; H2: Self-esteem is an indicator for bulimic symptoms for gay and bisexual men; and H3: Self-esteem is an indicator for the development of body image dissatisfaction for gay and bisexual men.





Methods

Participants and Setting

Table I describes the demographics of participants. Forty-five percent of participants were Caucasian, 32.5% of participants were

African-American, 10% of participants were Asian Indian and 12.5% of participants were from other ethnicities. The majority of participants were homosexual (87.5%) and the remaining were bisexual (12.5%). The average height of participants was 72.5 inches with an

Table I Demographics

Characteristic	N =40	%
Race/Ethnicity		
Caucasian	18	45%
African-American/Black	13	32.5%
Asian Indian	4	10%
Hispanic/Latino	1	2.5%
Other	1	2.5%
Multi-ethnic	3	7.5%
Sexual Orientation		
Homosexual	35	87.5%
Bisexual	5	12.5%
Yearly Income		
Less than \$9,999	3	7.5%
\$10,000-\$19,999	3	7.5%
\$20,000-\$29,999	9	22.5%
\$30,000-\$39,999	7	17.5%
\$40,000-\$49,999	9	22.5%
\$50,000	9	22.5%
Education		
Less than high school	1	2.5%
High school diploma	2	5%
GED	1	2.5%
Some College	20	50%
Bachelors	13	32.5%
Masters	3	7.5%
Age		
18-25	16	40%
26-35	10	25%
36-45	8	20%
46-55	5	12.5%
55+	1	2.5%





average weight of 178.4 lbs and an average BMI of 23.8. Participants were also asked yearly income, level of education, age, and lowest and highest weight at current height.

Procedures

The Wichita State University Institutional Review Board approved this pilot study. Forty participants were recruited from Wichita State University, convenience sampling, and the internet website Facebook. The survey took approximately 10 minutes to complete. After the survey was administered, participants were debriefed and asked whether the survey resulted in any discomfort.

Instrument

Participants completed a 63-question survey titled "Health Assessment" measuring demographic characteristics, self-esteem, eating disorder behaviors, body image and other variables. For the purpose of this study, the

Rosenberg Self-Esteem Scale was used to measure self-esteem of participants. The Diagnostic and Statistical Manual of Mental Disorders was used to construct a survey examining eating disorder behavior using the requirements for anorexia nervosa and bulimia nervosa, the two eating disorders examined for this study. For the purpose of this study, table two outlines the specific survey question researchers focused on. The Rosenberg Self-Esteem Inventory has become one of the standard inventory tests administered to examine self-esteem. The Rosenberg Self-Esteem Inventory has been used in many studies that have examined body image and eating disorders among gay and bisexual men (Beren et al., 1996; Boroughs & Thompson, 2002; Chaney, 2008; Duggan & McCreary, 2004; Gettleman & Thompson, 1993; Hospers & Jansen, 2005; Reilly & Rudd, 2006; Russell & Keel, 2002; Tiggemann & Kirkbridge, 2007; Williamson & Hartley, 1998; Williamson & Spence, 2001; Yelland & Tiggemann, 2003).

Table 2 Measures

Questions	True	False
Anorexic Symptoms		
I am fearful of gaining weight or becoming fat.	1	2
After or before I eat, I feel I must exercise to lose weight even if I have eaten very little.	1	2
When I lose weight, I feel that it is a great accomplishment and a true sign of self-discipline.	1	2
Bulimic Symptoms		
I feel bad when I have eaten too much.	1	2
I feel I have no control when I eat.	1	2
I have made myself vomit, used laxatives or diuretics, or fasted after eating too much.	1	2
Body Image Dissatisfaction		
I feel it is important to have a slim body.		
I feel that my current body weight, shape, and muscularity determine the way I feel about myself.	1	2
I wish I weighed less.	1	2





Results

Self-Esteem and Anorexic Symptoms

It was hypothesized that self-esteem is an indicator for anorexic symptoms for gay and bisexual men. The Rosenberg Self-Esteem scale was used to measure self-esteem of participants. A score below 15 on a 30 point likert scale indicated low self-esteem. A score of 15-25 indicated average and a score above 25 indicated above average self-esteem. Ten percent (n=4) had a low self-esteem score, 65% (n=26) had an average self-esteem and 25% (n=10) had an above average self-esteem score. To test for statistical significance researchers performed a one-way Anova test using a 95% confidence interval. Table 3 compares participants with a low self esteem, average self-esteem, and above average self-esteem score. The results in table 3 indicate that there was no statistically significant difference for self-esteem and the three anorexic symptom

variables. Thus, the results did not agree with the hypothesis.

Descriptive Statistics

Although the results for HI presented no statistically significant difference in self-esteem scores for the three variables of anorexic symptoms, there were a number of other significant findings presented. Regarding the question "I am fearful of gaining weight," the majority (67.5%) of participants responded true. In addition, 82.5% of participants responded "true" to the question "When I lose weight, I feel that it is a great accomplishment and a true sign of self-discipline."

Self-Esteem and Bulimic Symptoms

It was hypothesized that self-esteem is an indicator for bulimic symptoms for gay and bisexual men. To test for statistical significance researchers performed a one-way Anova test using

Table 3 Results Hypothesis 1

Question	Responses			
I am fearful of gaining weight or becoming fat.				
Rosenberg Composite	N	Σ	SD	Significance
Low Self-Esteem	4	1.50	0.58	p > .05
Average Self-Esteem	26	1.23	0.43	p > .05
Above Average Self-Esteem	10	1.50	0.53	p > .05
After or before I eat, I feel I must exercise to lose weight even if I have eaten very little.				
Rosenberg Composite	N	Σ	SD	Significance
Low Self-Esteem	4	1.75	0.50	p > .05
Average Self-Esteem	26	1.62	0.50	p > .05
Above Average Self-Esteem	10	1.90	0.32	p > .05
When I lose weight, I feel that it is a great accomplishment and a true sign of self-discipline.				
Rosenberg Composite	N	Σ	SD	Significance
Low Self-Esteem	4	1.25	0.50	p > .05
Average Self-Esteem	26	1.19	0.40	p > .05
Above Average Self-Esteem	10	1.10	0.32	p > .05





a 95% confidence interval. Table 4 compares participants with a low self-esteem, average self-esteem, and above average self-esteem score. The results in table 4 indicate that there was no statistically significant difference for self-esteem and the three bulimic symptom variables. Thus, the results did not agree with the hypothesis.

Descriptive Statistics

Table 4 indicates the results for H2, that there was no statistically significant difference among self-esteem scores for the three variables of bulimic symptoms, but there were a number of other significant findings presented. Sixty percent of participants responded "true" to the question "I feel bad when I have eaten too much." In addition 35% of participants responded "true" to the question "I have made myself vomit, used laxatives or diuretics, or fasted after eating too much."

Self-Esteem and Body Image Dissatisfaction

It was hypothesized that self-esteem is an indicator for body image dissatisfaction for

gay and bisexual men. To test for statistical significance researchers performed a one-way Anova test using a 95% confidence interval. Table 5 compares participants with a low self-esteem, average self-esteem, and above average self-esteem score. The results in table 5 indicate that there was no statistically significant difference for self-esteem and the three body Image dissatisfaction variables. Thus, the results did not agree with the hypothesis.

Descriptive Statistics

Table 5 indicates the results for H3; there was no statistically significant difference among self-esteem scores for the three variables for body image dissatisfaction. There were, however, a number of other significant findings presented. The majority of participants (52.5%) responded "true" to the question "I feel it is important to have a slim body." Seventy-five percent of participants responded "true" to the question "I wish I weighed less." In addition, the majority of participants (57.5%) responded "true" to the question "I feel that my current body weight,

Table 4 Results Hypothesis 2

Question	Responses			
I feel bad when I have eaten too much.				
Rosenberg Composite	N	∑	SD	Significance
Low Self-Esteem	4	1.25	0.50	p > 0.5
Average Self-Esteem	26	1.35	0.49	p > 0.5
Above Average Self-Esteem	10	1.60	0.52	p > 0.5
I feel I have no control when I eat.				
Rosenberg Composite	N	∑	SD	Significance
Low Self-Esteem	4	1.75	0.50	p > 0.5
Average Self-Esteem	26	1.65	0.49	p > 0.5
Above Average Self-Esteem	10	1.90	0.32	p > 0.5
I have made myself vomit, used laxatives or diuretics, or fasted after eating too much.				
Rosenberg Composite	N	∑	SD	Significance
Low Self-Esteem	4	1.50	0.58	p > 0.5
Average Self-Esteem	26	1.65	0.49	p > 0.5
Above Average Self-Esteem	10	1.70	0.48	p > 0.5





shape, and muscularity determine the way I feel about myself.”

Discussion

Major Findings

Although research has suggested that self-esteem may be an indicator for body dissatisfaction and eating disorder behavior among gay and bisexual men, the results of this research project did not find a correlation between self-esteem and body dissatisfaction or self-esteem and eating disorder behavior among gay and bisexual men.

Results for H1: Self-esteem is an indicator for anorexic symptoms for gay and bisexual men.

Although there was no statistically significant difference in self-esteem scores for the three variables of anorexia nervosa, the majority of participants were fearful of gaining weight, and felt when they lost weight it was a great accomplishment and a true sign of self-discipline. While there was no statistically significant difference, the gay and bisexual men

in this study did have some symptoms of anorexia nervosa.

Results for H2: Self-esteem is an indicator for bulimic symptoms for gay and bisexual men.

Although there was no statistically significant difference in self-esteem for the three variables of bulimia nervosa, the majority of participants felt bad when they ate too much and 35% of participants had made themselves vomit, used laxative or diuretics, or fasted after eating too much. This suggests that although there was no statistically significant difference, over a third of the gay and bisexual men in this study exhibited a major symptom of bulimia nervosa.

Results for H3: Self-esteem is an indicator for body image dissatisfaction for gay and bisexual men.

Although there was no statistically significant difference in self-esteem for the three variables of body image dissatisfaction, the majority of participants felt it was important to have a slim body, wished they weighed less, and felt that their current body weight, shape, and muscularity determined the way they felt about themselves. So, although there was no statistically significant

Table 5 Results Hypothesis 3

Question	Responses			
I feel it important to have a slim body.				
Rosenberg Composite	N	Σ	SD	Significance
Low Self-Esteem	4	1.50	0.58	p > 0.5
Average Self-Esteem	26	1.46	0.51	p > 0.5
Above Average Self-Esteem	10	1.50	0.53	p > 0.5
I feel that my current body weight, shape, and muscularity determine the way I feel about myself.				
Rosenberg Composite	N	Σ	SD	Significance
Low Self-Esteem	4	1.50	0.58	p > 0.5
Average Self-Esteem	26	1.38	0.50	p > 0.5
Above Average Self-Esteem	10	1.50	0.53	p > 0.5
I wish I weighed less.				
Rosenberg Composite	N	Σ	SD	Significance
Low Self-Esteem	4	1.00	0.00	p > 0.5
Average Self-Esteem	26	1.27	0.45	p > 0.5
Above Average Self-Esteem	10	1.30	0.48	p > 0.5





difference, the majority of participants had some form of body image dissatisfaction.

Another interesting finding of this research was the height and weight of participants. The average height of participants was 72.5 inches with an average weight of 178.4 lbs and a BMI of 23.8. However the desired weight of participants averaged to be 163 lbs with a BMI of 21.7; the men in this study wanted to be approximately 15.4 lbs thinner.

Limitations

This pilot study consisted of a number of limitations. First, although it was a pilot study it consisted of only 40 participants; a larger, more reflective sample size would have been more generalizable for a larger gay and bisexual population. Second, 90% of participants had some college education; this may not reflect a less educated population. Third, the survey was

based on self-report; participants may have given socially desirable answers.

Future Research

Future research would be to conduct a study with more participants examining self-esteem and body image dissatisfaction and self-esteem and eating disorder behavior of both homosexual and heterosexual men (perhaps using at least 100 homosexual and heterosexual participants). A future study might examine the factors for body image dissatisfaction among gay men. A future research study would be to examine age difference and eating-disorder behavior and body image dissatisfaction among gay and bisexual men. Researchers would also like to examine self-esteem among men of different age groups of both heterosexual and homosexual men.

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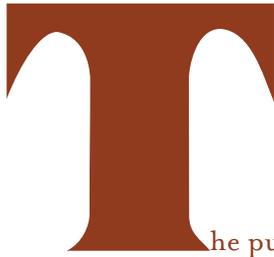
Measurements with the MIPP Experiment at Fermilab

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Abstract

The purpose of this experiment is to determine cross sections and charged kaon and pion production ratios of various targets. Thin targets include liquid hydrogen, beryllium, carbon, aluminum, copper, silver, bismuth, and uranium. A thick target, NuMI(carbon), was also used. These production ratios are determined by cross sections between the presented targets and incident kaon $^{+/-}$, pion $^{+/-}$, and proton $^{+/-}$ beams at momenta ranging from 5 to 120 GeV/c. Incident beams are produced by a primary proton beam of 120 GeV/c from the Main Injector at Fermilab. Produced particles are tracked and identified in the MIPP detector using a TPC and wire chambers, time of flight, Cerenkov and RICH detectors, and calorimeters. The current cross section results are on the same magnitude as expected from comparison to previous experiments.

Introduction

A group of approximately 60 researchers from several universities conducted a particle physics experiment that collected data at Fermi National Accelerator Laboratory (Fermilab) in 2005. Data acquired by the Main Injector Particle Production (MIPP) experiment at Fermilab has multiple implications for the field of physics. Applications in particle physics include non-perturbative QCD (quantum chromodynamics), scaling laws of particle fragmentation, light meson spectroscopy, missing baryon resonances, and charged kaon mass measurement [1]. Benefits in nuclear physics include investigating strangeness production in nuclei, nuclear γ -scaling, and the propagation of flavor through nuclei [1]. Experiments like the Main Injector Neutrino Oscillation Search (MINOS) and NuMI Off-Axis ν_e Appearance (NO ν A), both conducted at Fermilab, will rely on kaon and pion production ratio measurements found with the NuMI target [2]. Other particle production experiments have been conducted in the past,





but they lacked the sophisticated equipment used by MIPP. The MIPP experiment conducts a large number of runs, providing unbiased high statistics data, which is an improvement from past experiments. Four charged particle identification (PID) detectors allow MIPP to identify particles of momenta ranging up to 120 GeV/c with high resolution. This is an improved method of particle identification over the bubble chambers used in the past.

The Beam

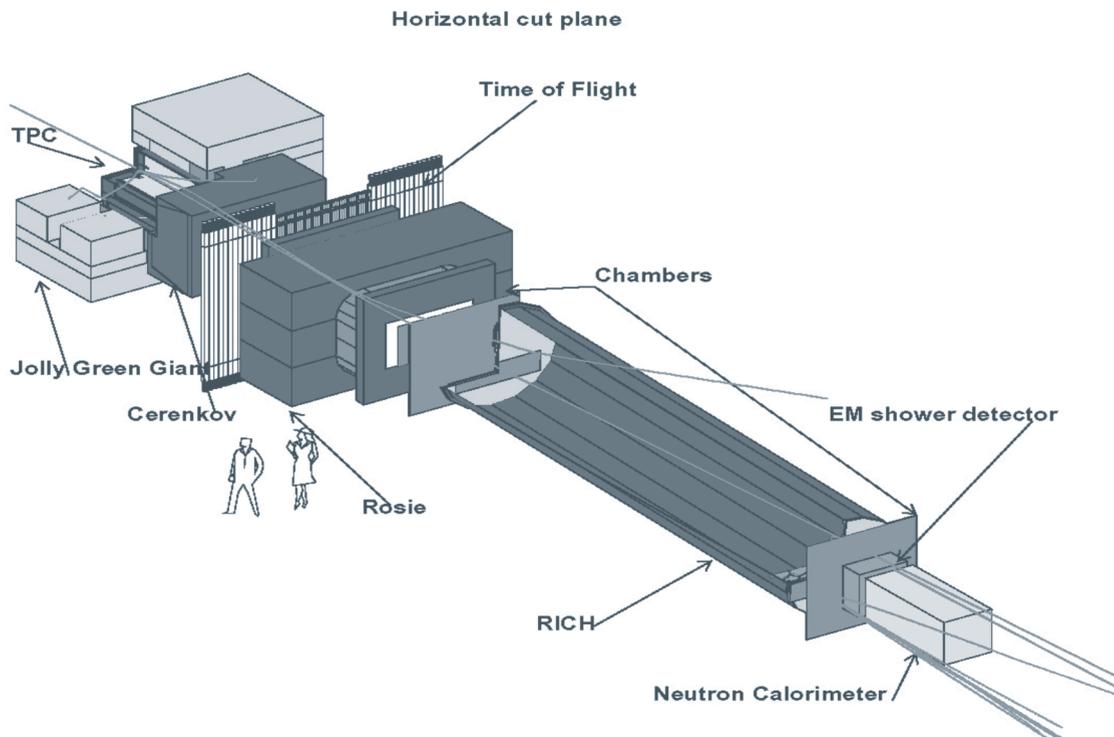
MIPP is a fixed target experiment. A 120 GeV/c proton beam from the main injector travels downstream and interacts with the primary copper target. This creates a secondary beam containing kaons, pions, and protons that also travel downstream to interact with the experimental target. Thin targets include liquid hydrogen, beryllium, carbon, aluminum, copper, silver, bismuth and uranium. A thick

target, NuMI (carbon), was also used.

Three scintillators, TOI, TBD, and TOO, are located downstream of the primary target and upstream of the experimental target. These scintillators are used to determine the number of tracks, form beam trigger signals, create a start time for the Time of Flight (ToF) wall, and identify low momentum beam particles [4]. The TBD scintillator lacks components necessary to give time of flight information. Another scintillator is placed approximately 1.5cm after the target. Its purpose is to determine if an event took place by counting the number of tracks. As a particle travels through the scintillator, it leaves energy of a MIP (Minimizing Ionizing Particle). This energy – converted into light in the scintillator – is then detected by clear fibers that are mounted on the short sides of the scintillator [3]. The amount of MIPs detected are proportionate to the number of tracks traveling through the scintillator. The ToF wall is made up of scintillators and aids in track reconstruction and particle identification.

MIPP

Main Injector Particle Production Experiment (FNAL-E907)





Three beam chambers and two beam Cerenkov detectors (BCkov) are placed downstream from TOO and upstream from TOI scintillators. The beam chambers are used to track secondary particle beams, while the BCkovs identify the beam species as a kaon, pion, or proton. Both BCkovs are filled with either C_4F_8O (for lower momenta) or nitrogen gas. Gas pressure can be adjusted to identify kaons and pions in the first BCkov, while the second BCkov identifies protons and pions. Particle physicists are limited by their electronics. When detectors gather data there is lag before they can begin recording new events. To keep from missing rare events, physicists impose triggers on their equipment. This provides criteria to when the spectrometer is allowed to record data. For example, in the MIPP experiment kaons are produced at a much lower rate than protons. Triggers can be set to detect every kaon interaction and limit proton events to one out of every ten. The capabilities of the scintillators, beam chambers and BCkovs mentioned earlier make it possible to set these triggers.

The Detector

The detector is shown in the figure above. The schematics of the MIPP spectrometer listed upstream to downstream are Time Projection Chamber (TPC) inside the Jolly Green Giant (JGG) magnet, drift chamber DC1, threshold Cerenkov (Ckov), DC2 and DC3, ToF, ROSIE magnet, DC4, proportional wire chamber PWC5, ring imaging Cerenkov (RICH), PWC6, electromagnetic calorimeter (EMCAL), and hadron calorimeter (HCAL) [3]. These components together allow the spectrometer to perform a wide range of particle identification for momenta ranging up to 120 GeV/c, depending on the particle. The detector is also capable of reconstructing tracks in three dimensions.

The most robust detector in the MIPP experiment is the TPC. Located within the JGG magnet, the TPC is filled with a 90% argon and 10% methane gas mixture. Particles traveling through the TPC ionize the gas. Due to a uniform electric field of 125 V/cm located

between the top and bottom of the TPC, ionized gas drifts up while electrons drift down at a rate of 5 cm/ μ s. Below this field, in descending order, are ground wires, anode wires, and TPC copper readout pads. Drifting electrons accumulate on the anode wires, creating an image on the copper readout pads. This image provides a detailed reconstruction of the ionizing tracks in the xz plane. This process reconstructs the track in three dimensions. The magnetic field created by the JCC is vertical, creating a force in the horizontal plane. This bends the track of the ionizing beam at a certain radius, depending on the particle, thus providing a momentum measurement. The energy loss per unit path length also provides particle identification.

The Ckov is made of 96 mirrors and 96 photo multiplier tubes (PMTs). The mirrors are positioned to reflect Cerenkov radiation into each tube for particle identification. The Ckov can detect pions, kaons, and protons with thresholds of 2.6, 8, and 17 GeV/c respectively. The ToF wall is made of 54 scintillators, each having a height of 3 m and a total width of 3.5 m. Once a particle interacts with this wall, a time is acquired for flight with a known distance allowing a calculation for velocity. A particle's curvature is determined by where it collides on the ToF wall, revealing the particle's momentum. Plotting velocity vs. momentum provides a computation of mass, thus determining particle identification.

The RICH detector is capable of identifying all three particle species: pion, kaon, and proton, ranging from 20 GeV/c to 80 GeV/c. It also detects particles by Cerenkov radiation, but instead of merely checking thresholds, it examines the radius of light produced. Sixteen spherical mirrors are placed at the end of the RICH detector. These mirrors reflect light upstream, inside the RICH, to 3000 PMTs. These PMTs record the radius of the light emitted. Different particles emit different radii, allowing for another means of particle identification.

The last two detectors are the EMCAL and HCAL. These detectors are used to identify forward moving photons and neutrons. Due to the nature of these particles, data correction is required with respect to their production.





Cross Sections

Identifying hadron production ratios from different interactions depends on calculated cross sections. Cross sections can be defined as either exclusive or inclusive. Exclusive cross sections start with some initial particle state and produce a known final state. For example: $p + p \rightarrow p + \pi + n$, where all particles in the final state are known. On the other hand, inclusive cross sections show some final state particles with unknown particles represented by X as in $p + p \rightarrow \pi + X$.

Differential cross sections are calculated with some values dependent on the final state of particles produced by interactions. These values can also be calculated with respect to two values. MIPP uses both the angle and momentum of the particle emitted to find differential cross sections. Total cross sections can be calculated by integrating over the total dependent value.

Cross section values are on the same order of magnitude as atomic nuclei. Because of this, their values are presented in the obscure unit of area called a barn. One barn is equivalent to 10^{-28} m^2 .

Knowing the amount of incident beams, total particles found in desired state, and real target density, is necessary for cross section calculations. This can be represented in the following equation:

$$\frac{d\sigma}{d\Omega} = \frac{dN_{int}}{N_{beam} \cdot \rho_{tgt} \cdot d\Omega}$$

Where,

dN_{int} represents the number of particles found in desired state,

N_{beam} represents the total amount of incident beams,

ρ_{tgt} represents the real target density.

The last equation is sufficient for calculating cross sections of one variable and does not consider background or acceptance. Previously mentioned, the MIPP's cross sections are calculated with two variables. Considering two final state values, background and acceptance the cross section equation becomes as follows:

$$\frac{d^2\sigma_{\pi}(p, \cos\theta)}{dp d\Omega} = \frac{A}{2\pi\rho_{tgt} NA} \frac{1}{a(p, \cos\theta)} \frac{N_{\pi}(p, \cos\theta) - N_E(p, \cos\theta)}{N_{beam}(\Delta p)(\Delta \cos\theta)}$$

Where,

A represents the atomic weight of the experimental target,

N_{beam} represents number of incident beams,

ρ_{tgt} is the real density of the experimental target,

$a(p, \cos\theta)$ is the acceptance generated by Monte Carlo simulation,

Δp is momentum of emitted particle,

$\Delta \cos\theta$ is cosine of the angle of the emitted particle,

N is the number of particles emitted, and

N_E is the number of particles emitted with empty target.

Data analysis conducted by MIPP is ongoing.

Early cross section calculations have yielded positive results that are on the same order of magnitude as known cross section values.

Upgrades have been proposed to improve the MIPP detector's performance. These upgrades include extended good beam performance down to 1 GeV/c with triggered ToF, upgraded TPC and wire chamber readouts to 3kHz, veto all backward hemisphere particle identification, and a silicon detector interaction secondary vertex trigger [2].

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The Effectiveness of the DUI Pilot Court for Reducing DUI Recidivism

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Abstract

Due to the high number of alcohol-related arrests each year, some states have implemented a DUI pilot court program to ensure consistent prosecution and rehabilitation treatment for offenders with alcohol-related offenses. The purpose of this study was to evaluate the efficacy of DUI pilot court programs in an effort to provide legislators with quantitative information before they commit public resources for funding. This study reviewed the effectiveness of alcohol and drug-court programs for reducing recidivism. Researchers collected quantitative data on recidivism rates of participants and non-participants in these programs. Based on the empirical data collected from 15 DUI pilot programs, in every case, less than 20% of offenders recidivated within five years of post-conviction. Based on this evidence, the DUI pilot court programs are effective in reducing the DUI recidivism rate.

Introduction

According to the National Transportation Safety Board (2007), “one alcohol-related death occurs in our country every 31 seconds, and one alcohol-related injury occurs every 2 minutes.” In 2006, 17,602 people were killed in the United States from an alcohol-related incident (NTSB, 2007). Repeat offenders (NTSB, 2007) represent about one-third of drivers arrested or convicted of driving under the influence of alcohol. The federal government requires that states pass and implement laws that would “crack down” on the recidivism rate amongst DUI offenders or lose funding. Groups such as Mothers Against Drunk Driving (MADD), Remove Intoxicated Drivers (RID), and Students Against Drunk Driving (SADD) are trying to persuade lawmakers to enforce harsher penalties on habitual drivers that drive under the influence of alcohol.

Due to the high number of alcohol-related arrests each year, some states have implemented





a DUI (Driving Under the Influence) pilot court program to ensure consistent prosecution and rehabilitation treatment for offenders with alcohol-related offenses. The DUI pilot court program is modeled after the drug court program; the primary focus is rehabilitating the offender. The offender will be placed on supervised probation while attending AA (Alcoholics Anonymous) meetings and undergoing frequent and random analysis to ensure that the offender adheres to the commitment of the court. The DUI pilot court addresses the particular needs of high-risk drunk drivers who have a history of driving while impaired. The purpose of this study was to evaluate the efficacy of the DUI pilot court programs in an effort to provide legislators with quantitative information before they commit public resources for funding.

History of Social Organizations

Mother's Against Drunk Driving (MADD) is a non-profit organization that supports putting an end to driving under the influence. Candy Lightner (2005) founded the organization in 1980 after her daughter was severely injured by a drunk driver, who had three prior convictions for drunk driving. This gave Lightner the motivation she needed to start the Mothers Against Drunk Driving organization in an effort to see tougher laws passed. Later she met Candy Lamb whose 5-month-old daughter became a paraplegic due to a drunk driver. The two ladies would begin an uproar on Capitol Hill. They formed alliances with other housewives and began meeting at the White House in an effort to send a message to lawmakers and DUI offenders. This group began putting faces with the names of victims, so legislators would implement and enforce laws that would hold offenders accountable. As a result of the efforts of MADD, the federal government passed a law that would award states with highway (2005, Davies) funds as long as they complied with federal requirements to reduce the rate of fatalities caused on public highways. Since the

group first formed, "the annual alcohol-related traffic fatalities have dropped from an estimated 30,000 in 1982 to fewer than 17,000 today."

Students Against Destructive Decisions (SADD) is a non-profit group that supports putting an end to underage drinking. Robert Anansta and 15 other students in Wayland, Massachusetts formed the group, which was formally known as Students Against Drunk Driving but has since modified its name. SADD works with the federal government to provide pamphlets and brochures to schools, teen magazines, and information through media publicity. SADD started the "Contract for Life", a contract teens make with their parents pledging to stay alcohol free and make good moral decisions involving drugs and alcohol.

In an effort to persuade legislators to adopt harsher laws for drunk driving, in 1978, Doris Aikin founded Remove Intoxicated Drivers (RID). RID is the first anti-DWI citizen action group and its mission is to deter impaired driving and teen binge-drinking that often leads to intense trauma for all concerned. RID also maintains a webstie, <http://rid-usa.org/>, where they inform citizens of their stance on pending DUI laws and statutes.

Type of Offenders

The DUI pilot court targets repeat offenders that have two or more alcohol-related offenses within five years. The court also targets hardcore drunk drivers. Hardcore drunk drivers have been defined as "those who drive with a high blood alcohol concentration of 0.15 or above, who do so repeatedly by having more than one alcohol-related arrest in a five year period. Hardcore drunk drivers are highly resistant to changing their behavior" (The Century Council, 2003, p. 9). According to the National Transportation Safety Board (NTSB, 2007) hardcore offenders were involved in 53% of the alcohol-related fatalities and 22% of total highway deaths in 2007.





What are drug courts/ DUI courts?

A drug court is a special court that “provides long-term treatment, counseling, sanctions, incentives and frequent court appearances” to substance abusing offenders (Defining Drug Courts: The Key Components, 2008). The first drug court was established in Dade County, Florida as a measure to reduce the drug-case overload while shifting the financial liability from the taxpayers to the offender. The primary goal (2008) of a drug court is to reduce recidivism, substance abuse, and rehabilitate the offender. Judges are able to monitor the offender and hold the offender accountable. Some incentives of the drug court versus a traditional court are that the offender may have a dismissal of the charges, reduced or set aside sentences or even lesser penalties. There are three phases (2008) of the drug court: stabilization, intensive treatment, and transition. First, the stabilization phase focuses on detoxification, initial treatment assessment, education, and screening for other needs. Second, the intensive treatment phase offers individual and group counseling and other core adjunctive therapies. Third, the transition phase emphasizes social reintegration, employment, education and housing.

Drug Court Model

The United States Department of Justice sets and defines the criteria for developing a drug court. The DUI court is modeled after the drug court; the only difference is the offender profile and characteristics of the offender. According to the Drug Courts Program Office (1997), there are ten key components for developing a drug or DUI court:

- Integrate alcohol and other drug treatment with the justice system case processing.
- Use a non-adversarial approach.
- Assessment of individual participants.
- Provide treatment and rehabilitative services.
- Monitor the offender to ensure abstinence.

- Coordinate strategy that responds to participants’ compliance.
- Ongoing judicial interaction with each participant.
- Monitor and evaluate the achievement of the program goals and measure the effectiveness of the program.
- Continue interdisciplinary education.
- Forge partnerships among drug courts, public agencies, and community based organizations to generate local support.

According to the National Drug Court Office (2007) the United States has over 168 different DUI pilot courts. The three main models that courts may pattern themselves after are the Maricopa model, the Bernalillo model and the Anchorage Alaska Wellness court model. In the Maricopa County model (NDCI, 2008), an offender enters a guilty plea and then must appear in court once a month. This allows the judge to impose mandatory treatment sentences, alcohol counseling and regular AA meetings. In addition to the treatment requirements (NDCI, 2008) offenders must also report to probation officers for random urine analysis tests in an effort to ensure compliance with the sentence that was imposed. If the offender enters a contract agreeing with the terms set by the judge, then the judge will defer the mandatory incarceration sentence until the completion of the contract requirements. If for some reason the offender does not complete the requirements of the contract, the judge will then revoke probation and sentence the offender to the mandatory jail requirement.

The second model that courts may pattern themselves after is the Bernalillo Court Metropolitan DWI/ Drug court started in 1997 in Albuquerque, New Mexico. The basic components of this court are the same as the Maricopa model; however, this court administers acupuncture in the first phase of treatment (refer to the meta-analysis chart for the recidivism rates of this court). The acupuncture process is used to alleviate any craving for alcohol the offender may have.

The third model is the Anchorage Wellness Court, a therapeutic court that assists offenders





that have committed misdemeanor offenses or repeat felony DWI (Driving While Intoxicated) offenses. Due to the limited number of openings, this court requires that offenders be screened and accepted into the program. Each participant is required to commit to the program for 18 months. The offender is put through the same process as the participants in the Maricopa model; however this court also administers Naltrexone or Antabuse (prescription drugs that take away cravings for alcohol) to offenders the first four months. Naltrexone and Antabuse are only administered if the need is indicated during screening.

Theory (why they work)

The purpose of the DUI court is to treat the substance abuse problem (Cavalolat & Wuth, 2002). The DUI pilot court program provides long-term, intensive treatment, monitoring of the offender and accountability in an effort to reduce the recidivism rate of DUI drivers (NDCI, 2008). The benefit of a DUI pilot program is that it allows the DUI court team to efficiently monitor the offender in an effort to reduce the negligent behavior of the offender (NCDI, 2008). The sentencing judge of the pilot court usually enters a deferred sentence of jail time until all requirements of the program are met. If the offender does not successfully attend meetings or pass random urine analysis, the judge can either impose the jail sentence or add more meetings or a longer commitment to the program. According to Brekenridge, J. F., L. T. Winfree, J. R. Maupin, and D. L. Clason. (2000), in a 24-month evaluation of an experimental DUI court, research found that the treatment group processed through the DUI court had a significantly lower recidivism rate than the control group that was processed through the traditional court process. The attached meta-analysis evaluates the efficacy of six DUI courts. In all of the cases, the recidivism rate was dramatically reduced, even during post-conviction.

Methods

This research conducted an extended literature review on the effectiveness of this and similar programs for reducing recidivism. Quantitative data was collected on recidivism rates of participants and non-participants in this program. An attached meta-analysis compares court commitments and evidence of effectiveness of each court included in this research.

Results

Researchers collected quantitative data on recidivism rates of participants in these programs. The empirical data collected from six DUI pilot court programs show less than 20% of the offender's recidivated within five years of post-conviction. Research concludes that DUI and drug courts significantly reduce the recidivism rate of repeat and hardcore offenders.

Conclusion

Upon successful completion of the DUI pilot court program, offenders are less likely to recidivate. However; the DUI pilot court must ensure successful completion of each participant in an effort to reduce the alcohol dependency issue that leads to driving intoxicated.

Limitations and Future Research

Time constraints prevented the opportunity to conduct a longitudinal study that would measure the efficacy and effectiveness of the Kansas DUI Pilot Courts Program that was implemented in the fall of 2007.

For future research, evaluation of the admittance process to screen candidates before they are accepted into the pilot program as well as mandatory versus voluntary admittance.





Table X Meta-Analysis of Pilot Court Programs:

Program: Bernalillo County Metropolitan DWI/ Drug court (1997) Albuquerque, New Mexico

Type of court: DWI/ Drug

Offender Profile: 95% DUI

Time Frame of Program Commitment: 6 months long

Evidence of effectiveness: yes

Based on what: Empirical Numbers, within the 1st year only 15% drug court graduates recidivated, 27% of the successful probation recidivated within the 1st year and 44% of the unsuccessful probation offenders recidivated within their 1st year.

Comments: Prepared by The University of New Mexico Institute for Social Research Center for Applied Research and Analysis; acupuncture is administered to offenders in Phase I of their treatment.

Program: Anchorage Wellness Court (2001) Anchorage, Alaska

Type of Court: 95% DWI

Offender Profile: alcohol misdemeanor/ repeat offender felony

Time Frame of Program Commitment: 18 months

Evidence of effectiveness: yes

Based on what: Empirical Numbers, within 2 years, 37% of the Treatment Group had been re-arrested compared to 53% of the of the Comparison Group. The same significant difference persisted through 48 months where the treatment group had been rearrested at 47% compared to 66% of the Comparison Group.

Comments: Prepared by The Urban Institute Justice Policy Center; the first four months offenders are given the drugs Naltrexone or Antabuse (prescription drugs that take away the craving for alcohol).

Program: Maricopa County DUI Court (1997) Phoenix, Arizona

Type of Court: DUI/ Drug

Offender Profile: 60% Aggravated Dui (class 4 felony), 20% first time offender (class 6 felony), 20% (class 1 misdemeanor) plus (class 6 felony).

Time Frame of Program Commitment: 1 year plus 1 year probation

Evidence of effectiveness: yes

Based on what: Empirical numbers, the re-arrest rate was reduced by 25% for participants that graduated the program.

Comments: Prepared by Mid America Research.

Program: Kootenai County Dui Court (2000) Coeur d' Alene, Idaho

Type of Court: DUI

Offender Profile: 2nd DWI offense within 5 years or BAC of .20 or higher

Time Frame of Commitment: 1 year minimum

Evidence of effectiveness: yes

Based on what: Empirical numbers, 70% success rate, (101 participants) 46 graduated, 20 were terminated from the program for non-compliance, 35 still in the program.

Comments: Prepared by Alfred Crancer, NHTSA Data& Evaluation Contractor.

Program: Michigan Sobriety Courts (2001) Lansing, Michigan

Type of Court: DUI

Offender Profile: non-violent defendants with at least 2 drinking and driving offenses

Time Frame of Commitment: 1 year program commitment

Evidence of effectiveness: Yes

Based on what: Empirical numbers, 1st year: 3% re-arrest rate w/ DUI court vs. 19% re arrest rate for traditional probation, 2nd year: 8% re- arrest rate w/ DUI court vs. 33% re-arrest rate for traditional probation

Comments: This was a two year study analysis prepared by staff at the Michigan Supreme Court State Court Administrative Office (SCAO). The data analysis and report writing were performed by NPC Research.





Program: Fredericksburg Regional Dui Court (1999) Fredericksburg, Virginia

Type of Court: DUI / Drug

Offender Profile: 2 or more offenses

Time Frame of Commitment: 1 year

Evidence of effectiveness: yes

Based on what: There have been 103 graduates who have successfully completed the program. Of those graduates, 5 received subsequent offenses during their probationary period, which is a 5% recidivism rate. There have been 3 subsequent offenses that occurred after the probationer

completed the DUI Court program, which is a 3% recidivism rate. There have been 46 probationers who have failed to complete the DUI Court program and have been listed as unsuccessful. Of these probationers, 8 received subsequent offenses during their probationary period, which is a 17% recidivism rate and 2 have received offenses since being unsuccessfully discharged from the program, which is a 4% recidivism rate.

Comments: This court was formerly known as Rappahannock Area Alcohol Safety Action Program (RAASAP) DUI Recidivism Court. This report was prepared by National Center for State Courts.

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The Effects of TASER Use in Public Schools

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The Wichita Police Department and Unified School District 259 are currently allowing security officers to carry TASERs in schools. In 2005, New Mexico Senator Stuart Ingle decided to investigate deaths involving TASERs. Senator Ingle concluded that TASERs were implicated in far too many deaths to be called non-lethal weapons. Senator Ingle went to the legislature to attempt to persuade the Judicial Committee to amend the non-lethal TASER weapon bill to state that TASERs are a lethal weapon.

TASERs are designed to control an uncooperative individual by injecting a 50,000 volt charge of electricity into the body. In recent years several deaths have been attributed to the use of TASERs. This research aims to determine the extent to which the parents of middle school children are informed of the use and risk associated with TASERs in the schools.

TASERs paralyze the subject; once the prongs are injected into the skin, they are helpless and the fall could cause additional harm to the subject. Police officers give one verbal warning before the non-lethal weapon is fired. A verbal warning gives the subject(s) a chance to think about the situation. According to the Wichita Police Department manual of regulations, this verbal warning, "The verbal control technique," allows offenders to control themselves before the police take charge of the situation.

TASERs are not to be fired on young children, the elderly, pregnant women, restrained people, or near flammable items. TASERs are not to be expelled on people with heart conditions. If the TASER dart goes six inches deep into the skin and the victim has heart issues, or if the probe is in their neck, groin, or some other sensitive part of the body, the victim must go to the emergency room to seek medical attention.

Research shows that the Wichita Police Department Manual concerning TASERs is vague about length of training. Policies restricting the use of TASERs on the mentally disabled, psychologically impaired, children and adolescents were not found.





Methodology

The purpose of this research is to determine the extent to which the parents of middle school children are informed of the use and risk associated with TASERs. In order to determine the extent of the general public's knowledge of TASERs in Wichita Public Schools, 300 surveys were sent to parents of middle school-age children in the USD 259 School District.

Results

From the original 300 surveys that were mailed to participants, 53 were returned. The information from the 53 surveys was analyzed by the Statistical Package for Social Science (SPSS). The data was loaded into the computer SPSS system, which conducts various descriptive statistical analyses. The results showed that 74% of parents who responded are knowledgeable about police officers' use of TASERs in schools and that 75% of parents know that TASERs can possibly harm and cause death to children. Although 58% of parents feel that TASERs are an effective tool in breaking up fights, 68% are uncomfortable with the use of TASERs in middle schools. These results indicate that parents need more information from schools regarding under what conditions, and to what extent TASERs are being used for discipline purposes in USD 259 School District.

Discussion

More than 300 deaths have been attributed to TASERs, and they are now being used in

public schools. As indicated in survey results, parents are knowledgeable about the potential harm that TASERs can cause. In Wichita, 22 resource officers carry TASERs in schools. TASER regulations are not being followed, with law enforcement officers using TASERs at their own discretion. Limits should be set to prohibit the use of TASERs until further research has been conducted. Schools should be required to send out consent forms for parents to sign if they approve of TASERs being used on their child for disciplinary reasons. Education is needed for the law enforcement agencies to better evaluate the use of TASERs.

Limitations

Due to limited funding, the sample size was small. The researcher was unable to survey the entire Wichita 259 School District in a short period of time. More time is needed to conduct a better survey of the entire USD 259 school district. A limited amount of research has been done on TASERs.

Future Research

Future research should focus on a larger sample size that would include an entire or multiple school districts, as well as urban and rural school districts throughout the state of Kansas. Research should include the long term and underlying effect that TASERs may have on the internal organs of a child. Law enforcement must be retrained and reevaluated.

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Cumulative Binary Social Choice

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The United States government halted research on voting methods approximately 40 years ago. With the issues of voting irregularities seen in recent elections using majority rule or first-past-the-post voting method, study should begin again.

Fair representation for minorities in this country is one of the greatest concerns. Cumulative voting has the potential to yield more effective results than the current voting method of first-past-the-post.

In the last 10 years, the United States government passed the “motor-voter” act and the Help America Vote Act (HAVA). Neither of these measures generated large public interest in voting. These are just the most recent of several measures attempted by the federal government to get the public to vote.

The current method of first-past-the-post or plurality voting, also known as simple majority rule, means that the first person to receive the required majority wins the elected position. This system is credited with some notable drawbacks such as fraud. The system also creates unlikely coalitions in order to form majorities. If a third party gains enough momentum to be on the ballot in a two-party system, it diminishes the share of votes for the most similar party and conceivably can elect someone that is not the preferred choice for the majority of voters. The purpose of this research is to see if cumulative voting is able to help alleviate some of the challenges facing smaller constituent group voters in attaining proportionate representation.

Environment

The voter has predetermined preferences for the election outcome. This is in essence why a person votes. Because this was an experiment, the participant would not have preferences for the





abstract outcome. Values for the participants were created to simulate those preferences. The environments used in the experiments were constructed by creating paired contests (similar to voting in a two-party system) and assigning a value to each outcome (to simulate personal preference) for each participant.

Elections ran in 16 separate rounds and each round consisted of two paired contests: Blue versus Red and Orange versus Green. Of the two choices in each paired contest, every participant was assigned a zero value for one outcome and a non-zero value for the other. These values differed for each participant. When these values were totaled across all participants, one option had a larger sum of values in each paired contest. Based on the participants' decisions, one choice obtained winner status in each paired contest for each round.

The split of values in any given election is variable. In these experiments the values were set as "close" or "landslide" for those choices with non-zero values. The larger sum of values was either 60%, called "close" or 75%, called "landslide" with respect to the non-zero values. These values were then divided among seven participants in each session. Some contests had minorities of two and others of three. A 4-3 split created a "close" majority of voters and a 5-2 split created a "landslide" majority of voters.

The optimal outcome occurred when the group of voters with the larger sum of values won, whether or not that was the majority of voters. It is not required for the majority of voters to have the majority of value. Consequently the optimal outcome does not necessarily mean the majority-rule outcome. In each round the participants were given information on the percentage of voters for each option and the average value of non-zero values for each option in the round. This information enabled the participant to have an idea whether they were in the majority or minority and how the values were assigned for each option.

To summarize, totals in voters and in values were split among seven participants in each round creating majorities in values and voters. Two sessions were run, consisting of 16 rounds

each. Each participant was given, for each round separately, information concerning the group percentage of members for each option and the average non-zero value for the same options. This gave each participant an idea of where that participant placed in values and whether or not he or she was in the majority or minority within the group.

Institution

Each round used a budget of 10 "tokens" and the participant could not designate more than 10 split between the two contests; no carryover between rounds was allowed. The tokens had no monetary value, thus the participants were not paying for outcomes. When placing a bid the participant would mark the circle of the choice desired and write in the box for each contest the amount of budget desired to go to this choice, never exceeding the budget sum for both measures.

Each round, the participants' values were presented on a different piece of paper and the results of that round tabulated, independent of the other rounds. The winner was declared by adding the amounts of each bid together and comparing the sums. The largest sum won. Each round contained two winning options, one for each pairing. In case of a tie, a random tie-breaker decided the winner. This occurred in one pairing out of 32 rounds and 64 pairings.

Three types of voters noted in the sample as value voters, social voters, and "other," determined the outcomes in each session. Value voters placed the majority of their bids on items they had a value other than zero for. Social voters placed the majority of their bids on items the group had the largest values for. Other voters' bids correlated to neither personal values nor social values.

Conclusion

The United States being a social nation, it is safe to assume the division of voters would be along the same lines as seen in these experiments.





At this point the efficiency of outcomes is difficult to predict with any accuracy. If more of the populace will vote socially rather than “other” the outcomes could be 75% or more efficient, even while many will vote according to their

own values. Many choices for alternative voting methods exist and these should be researched to see how they have fared in the past and what they offer for the future of voting for at least the local and state level.

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In the Name of Love: An Exploration of Intimate Partner Violence and Female Aggression

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Abstract

Most research from the Center for Disease Control showed that Intimate Partner Violence (IPV) is a health issue in the United States. This study focuses on understanding the experience of IPV, with particular attention to female perpetration of the phenomena. This study utilized a quantitative approach based on reporting data from a survey from a convenience population sampling of Midwest university students in Kansas. The data was analyzed to explore the perception of female aggression and the possible effects of IPV in our society that may have an impact on reporting of this phenomenon. This study has the potential to contribute to the development of better programs and processes for helping survivors and perpetrators of IPV and aid in women's health issues.

Methods

This study used a qualitative approach to examine how female aggression may affect IPV with regards to female perpetration of incidences. Data was collected using a structured questionnaire with closed ended questions on a Likert Scale of 1-5. Data was then analyzed using SPSS 17.0. Descriptive and inferential statistics tests were then used to compute the categorical and variable data. This data was analyzed to explore possible relationships between the differences in perception of female aggression and perpetration of violence and the effects on IPV. The test groups consisted of 25 male and 53 female students, ages 18-52, of diverse ethnicity, various economic status, physical ability, and sexual orientation. The subjects volunteered to participate in the study after gaining the willingness of professors to administer the survey in their classrooms. Participants were asked to complete a 32-question survey that was previously approved by the Institutional Research Board (IRB) at Wichita State University. Consent was given for surveys





to be distributed in three classes: a Master’s level Criminal Justice class, an undergraduate Perception in Psychology class, and an undergraduate Sociology class. Participants were provided with a consent form describing the purpose of the research, selection of participants, explanation of procedures, discomforts or risks, benefits, confidentiality, compensation or treatment, refusal/withdrawal and contact information of researcher. A copy of the signed consent was provided to the participant at the time of the survey, upon request.

Leven’s T-Tests were run on 32 variables with an alpha level of ($p < .05$). Variables were then examined for acceptance or rejection of the null. Five questions showed a level of significance and rejected the null hypothesis showing a .05 level or lower for question numbers 8, 13, 14, 15, 18 and 20. The rest of the questions did not meet the criteria for rejecting the null.

Results

Demographic results revealed the percentage of male respondents was 32 and the percentage of female respondents was 68. The frequency of ages showed that ages 21 – 22 were 37%, the largest percentage of participants.

Self Identified Ethnicity	
Asian	3 or 4%
African American	4 or 5%
Asian/Caucasian	11 or 14%
Caucasian	51 or 65.4%
Hispanic	4 or 5%
Latina American	1 or 1.3%
Native American	1 or 1.3%
Mixed Race	2 or 3%
Unreported	1 or 1.3%
Total = 78 or 100%	

The percentages for those who have had a relationship since age 16 is as follows:

Relationships since age 16	
# of Relationships	Percentage
0 - 2	28 or 36%
3 - 4	23 or 29%
5 - 6	12 or 16%
7 or more	7 or 9%
Unreported	8 or 10%
Total = 78 or 100%	

Limitations

One limitation of this study was the sample size ($N = 78$). The findings from this sample cannot be generalized to the whole population, and should be viewed as exploratory only. Because of the small sample size, it was not possible to determine any group differences based on demographic characteristics such as age and race/ethnicity. The only group differences that were explored were based on gender. The survey instrument was based on self-report, and the findings must be viewed in this context. Although the questions were phrased to avoid self-disclosure of personal experiences of abuse, the topic of domestic violence is difficult for some people, and so it is possible that participants may not have answered all questions with total accuracy. Another limitation is the survey instrument itself. The instrument was based on questions used in other surveys of this type, but the questionnaire has not been tested for reliability or validity. Face validity was established in consultation with the author’s McNair mentor, but other types of validity were not determined or tested. A broader population and increased sample size would be beneficial to future research in this area.





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Assessing Perceived Social Oppression Among Male High School Students in the City of Wichita

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In 2008, Kansas' overall high school graduation rate was placed at 74% by the Alliance for Excellent Education. However, while 79% of Caucasian students and 72% of Asians graduated, only 55% African American, 46% Hispanic, and 46% Native American students finished high school. This trend duplicates a larger national trend of educational disparity existing between minority students and Caucasian students.

The "Assessing Knowledge, Perception, and Consciousness" Survey is a 44-item survey created by Margery Hannah to answer the four proposed questions. There are 43 quantitative questions and 1 qualitative question. To increase the level of honest participation and maintain anonymity, no identifying information was collected on the survey. Participants 18 years of age gave implied consent by completing the survey. Participants 17 years of age and under obtained parental consent on a separate consent form before participating in the study. Before conducting the study, researchers received approval from both Unified School District 259 and The Institutional Review Board at Wichita State University. School counselors at each Wichita Public High School participating in the study handed out consent forms to students 17 years old and under. Each consent form included a briefing of the study and contact information for the chief and co-investigators. After returning a parental-signed consent form, students received briefing by school counselors about the study, importance of honestly answering all questions, and the inability to identify participants by their answers, were handed the survey, and debriefed upon completion. Those over 18 years of age interested in participating received notification via school intercom by the school principal of a specific time and classroom to meet, where the co-investigator briefed participants, administered the survey, and debriefed participants. In some cases, the co-investigator went class to class within the high school. To ensure an unbiased sample, subjects were not compensated for their participation.





Results

Although African-American males continue to be one of the most underrepresented groups to matriculate from high school, much less to go on to post secondary education, African American participants categorize “good grades” significantly higher than other students, with 82.3% of African-American males defining good grades as all A’s, compared to 66.2% of Caucasian participants, 57.1% of Native American participants, 42.9% of Asian participants, and 58.7% of Multi-Ethnic participants defining good grades the same. Since no significant differences were found in participants’ perception of mother and father supporting the family financially, of participants’ parents who want participants to attend college, of students who agree they want to make good grades, and participants’ who believe racism no longer exists and who believe it is easier for some to become successful than others, researchers can assert that parental economic and academic status have no bearing on student social oppression.

No overall significant differences were discovered in participants’ perception of rap artists’ portrayal of rappers and women; however, only 31.1% of African-American participants agreed rap artist reflect negative images of rappers and women compared to 73.2% of Caucasian participants. Likewise, most participants across demographics agreed their parents are proud of them, their parents support the family financially, and their parents believe attending college is more important than working upon completing high school. However, an overwhelming 80.25% of African American participants agreed President Obama is a good example compared to 49.3% of Caucasian participants, 37.2% of Native American participants, 42.8% of Asian participants and 58.7% of multi-ethnic participants. A significant difference was also found in participants who have had at least one male family member go to prison. While only 19.1% of Asian participants and 29.6% of Caucasian participants agreed to having a male family member having gone to prison, 75.8% of

African American participants, 71.4% of Native American participants, and 56.5% of Latino participants agreed they have had at least one male family member go to prison. Interestingly, most participants across demographics agreed racism still exists and that it is easier for some to become successful than others. Therefore, the hypothesis role models effect student perception about social oppression was disproven.

Since no significant differences were found in participants’ perception on racism still existing (the majority agreed it does) and most participants across demographics believe it is easier for some to become successful than others, the hypothesis African American males who internalize an awareness of systemic oppression are more likely to graduate was disproven. With the exception of both African-American participants’ overwhelming support for President Obama and the high percentage of male family members having gone to prison within the African-American family (“family” includes relatives) no significant differences were found between African-American participants and other participants regarding role models. Likewise, when answering the qualitative question “How do you define success?”, African Americans were more likely to give answers reflecting “instantaneous” success, such as “Owning a nice car” and “Having a good job” before answering “Having a college degree” and “Supporting my family financially.” This is a clear mis-prioritization of the sequences of success which, according to scholar and African-American Studies specialist Woodson G. Carter, is a clear indicator of psychological slavery. While African-American male participants agree with the importance of education, a majority see wealth in the same glorious material images (namely cars and women) rap artist are known for supporting. Although a majority of participants in general did not agree rap artists portray rappers and women negatively, the fact most rappers are African American adds a dynamic variable, sparking the question if this is due in part because the population not only embraces this image of African-American males, but defines them in this manner.





Conclusion

Since all hypotheses were disproven and myriad at-risk programs exist that provide individuals with supplemental education, job training, and secure housing, the disproportionate rate of single-parent homes should be addressed. With an overwhelming majority of African-American participants living with one parent, it is clear that home life is likely a factor in the underachievement of the African American male. Since African American women continue to graduate not only from high school, but college, and psychologists have long determined

same sex parents are the most influential in a child's life, the absence of the African-American father, as well as the increase of single family homes in general, coincides with the continued increase of female academic achievement across demographics and the decrease of male college graduates across demographics. In order for a generational shift in achievement to occur, gaps in the achievement of male youth, particularly African-American males, must be addressed from home; it is asserted the issue of African American male academic underachievement is unsolvable by government programs.

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The Psychological Effects of Divorce on Children 18-24 Years of Age

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D

ivorce in the United States has increased drastically over the years. Parental separation, divorce, remarriage and family reconstitution have become common experiences in children's and parents' lives (Hetherington, 1999, p. 47). These experiences become so common that people fail to consider the long-term psychological effects divorce may have on children as they began to engage in their own relationships. The purpose of this research is to demonstrate how divorce has a psychological effect on children, as they grow older.

The intended outcome of this research is to show parents that divorce can continue to affect their children, even as the child grows older if no steps are taken to screen or evaluate the child's thoughts on how they process the idea of divorce.

Children may experience several different effects that are associated with divorce of parents such as coping with divorce, custody battle and social effects a child and family suffer after the parental unit has separated (Afifi, 2003). Prior to divorce, parents are often in a constant battle with each other, causing arguments and disagreements, frequently acted out in front of the children. According to Afifi (2003), children's feelings of being caught in the middle may also be a by-product of their parents' communication competence:

Children who feel caught between their parents often describe themselves as being put in the middle, torn, or forced to defend their loyalty to each of their parents. Children who feel caught between their parents can become anxious and develop symptoms of depression in an attempt to ameliorate their parents' conflict. Some parents may not know how to listen effectively or how to communicate in a given situation. For instance, parents' negative disclosures to their children about their former spouses may create an environment where role reversals and unproductive alliances are manifested. (p. 142)

The goal of this research project was to gather baseline data that describes and explains the effects that divorce has on children 18 to 24 years of age. This includes the children's experience as minors





going through divorce and how it has affected them within their current or past relationships with their significant others. The subjects for the survey were 17 college students who currently attend a university in a Midwest city in the U.S.

After the Office of Research Administration for the Protection of the Human Subjects granted permission to sample 17 participants, the survey was administered. The survey took approximately 15 minutes to complete. The survey was kept confidential and the participants were not required to participate in the study. The only requirement of the survey was to sign a consent form if the subject volunteered to be a part of the study. After the surveys were collected the responses were analyzed.

The first set of questions asked the student's current age, marital status of their parents, and the number of years the student's parents were divorced. The average age of students who took the survey was 19 years of age and the average number of years student's parents had been divorced was 15 years. The next section of questions asked students if they felt as though they were responsible for their parents divorce and 18% of the students answered yes. The following section of the survey asked the students if the

divorce of their parents affected them at all and 65% answered yes.

The majority of the students surveyed (77%) lived with their mother after the divorce took place and few (18%) reported experiencing poverty in the transition from a two-parent to a single-parent home. Of the students that reported the divorce of their parents affected them psychologically, only 41% reported they experienced commitment difficulties with their romantic relationships and the same percentage reported experiencing fears that their marriage would end in divorce.

Several limitations were present throughout the study, including sample size and lack of time to further discuss divorce with the 17 participants. Further research is needed for children of divorced homes ages 18 to 24. Psychological evaluations are necessary for children over the age of 18 so that they may learn how to engage in a relationship as they mature and begin to experience relationships with significant others. Further research is also needed to specify what steps are needed to help the children manage the divorce of their parents and to receive adequate counseling throughout the duration of the divorce, and following the divorce.

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Doubly Rebellious: Swashbuckling Women in the Golden Age of Piracy

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W

omen in history were often forgotten and overlooked. Women who challenged social norms were romanticized and turned into fanciful stories, making it a challenge to discover who these women really were. This fact was especially true for female pirates. Women engaging in piracy took more chances than male pirates. Not only did they challenge the law, but social norms as well. This paper aims to shed light on a forgotten aspect of early Atlantic history. The research seeks to correct the assumption that piracy was strictly a male occupation and demonstrates gender roles in the 17th and early 18th century were far more fluid and dynamic than as previously presented. These female pirates were pioneers in women's independence and challenged social norms for the time period as well as for pirating standards.

The methodology combines an extended literature review and qualitative research. This includes both primary and secondary sources. References come from books, essays, articles, and newspapers. Through the study of Anne Bonny, Mary Read, and Grace O'Malley, the research has shown how these women gained the respect and discipline of men in a world that sought to control female independence and roles. Prior to the Industrial Revolution, women were typically confined to the domestic sphere, especially in middle to upper classes. The peasant women could work as farm hands or tavern keepers, jobs of that sort, but few respectable women worked outside their home. Writer of *Bold in Her Breeches*, Jo Stanley, comments that "for the most part, women stayed home waiting anxiously for vessels to return, bearing babes and gazing out on to the waves that custom forbade them cross."¹

Pirates' attitudes towards gender roles were not that different than their more staid contemporaries. Though pirates did have their own world, women's freedom to be on the same

¹Stanley, Jo, Chambers, Anne, *Bold in Her Breeches: Women Pirates Across the Ages*, (New York: Pandora P, 1996), III.





boat with them was not usually an option. It was their opinion that “the world of a seafarer is both a world unfit for ladies and one where women’s presence leads to disaster. Women on ships bring bad luck.”² This was the general opinion on most of the pirate ships.

The opinion of many is that the few recorded female pirates were an anomaly, that they were exceptions to rules. But the real question is, were these women such a strange occurrence? The answer is no. From the evidence of these few women, there is a strong possibility that more women existed in piracy or as pirates that were not recorded. So why did women become pirates? There were many reasons why the recorded women pirates escaped to a life of freedom on the sea: “It surely attracted women for the same reasons it attracted men—as a source of fast money and a way of escaping difficulties on land. Women seafarers expressed their discontent with domestic labor by leaving the milieu deemed appropriate for them and moving in the public sphere.”³

A discussion of the three most famous women pirates will show some of the difficulties of being a woman at sea, how the trust and respect of their fellow male pirates was obtained, and the fluidity of gender roles that were once thought to be so rigid during this time. Grace O’Malley was not at home playing housewife during this time. O’Malley used her influence at sea towards piracy. O’Malley’s piracy methods were not as gruesome and terrifying as some of the other pirates of the age. O’Malley had a softer technique than the more gruesome picture we usually associate with pirates. She sometimes

“only charged a percentage of their cargo as a tax for allowing them to pass; sometimes she took the whole cargo—and the ship.”⁴

It’s probable that the most famous women pirates of all time were the duo of Anne Bonny and Mary Read. They were possibly the fiercest of the women pirates that history had seen. They were fully accepted by the men of the crew, participated in every aspect of the pirate life, and could do anything that any male pirate could. Their piracy career was profitable but it did not last long: on October 22, 1720, their ship was caught off guard by Captain Barnett of the Royal Navy. Their Captain, John Rackham, felt that he was outnumbered and surrendered but Anne Bonny and Mary Read refused to go down without a fight. They stood on the deck of the ship alone fighting off the governor’s men until they were finally overpowered.

In conclusion, female pirates illustrate that gender roles during the golden age of piracy were far more fluid than once thought. This is proven through the examination of the female pirates. Pirates were even stricter about women than their fellow landlubbers and the fact that some women fought alongside and were respected by those same men shows that women could do anything a man could do. A woman had much more of a part in the pirating world than is usually presented. Grace O’Malley, Anne Bonny, and Mary Read show that pirate women had far more independence and freedom than other women of their eras. To be able to live a life of their own outside the home was the barrier these women broke open for a whole new age of women.

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²Ibid, II.

³Ibid, 54.

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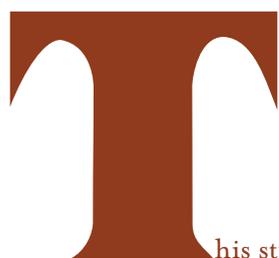
Synthesis and Photophysical Properties of Re(I) Complexes in Sugar Glass

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This study focused on the making of new dyes for dye-sensitized solar cells or Grätzel Cells and observing the photochemical properties in sugar glass at liquid-nitrogen temperature. We examined two similar rhenium (I) tricarbonyl complexes containing different bidentate heterocyclic ligands, which are 2, 2'-bipyridine and 4, 4'-dimethyl bipyridine. These types of compounds interest chemists because of their promise in the study of solar-energy conversion; they are also ideal for such applications because of their intense luminescence in the visible region and stability to photo decomposition [1]. Previously we found that embedding ruthenium(II)-tris(2,2'-bipyridyl) dichloride in sugar glass resulted in comparable emission energy at room temperature to that found in a glassy matrix at liquid-nitrogen temperature. We believed that emission of our rhenium (I) tricarbonyl complexes embedded in sugar glass at room temperature would be similar to emission at liquid nitrogen temperature. This is the basis of this research.

In our study we discovered that emission studies at 77K and 298K were similar. At 298 K in solution we observed one broad peak ~550 nm for both compounds. At 77K we observed peaks at ~608 nm and 624 nm for $[\text{Re}(\text{CO})_3(\text{bpy})(i\text{-nic})]\text{CF}_3\text{SO}_3$ and $[\text{Re}(\text{CO})_3(\text{dmb})(i\text{-nic})]\text{CF}_3\text{SO}_3$ respectively. In sugar glass we observed peaks of ~626 nm for both compounds. The rhenium complex also shows a red shift of the emission maxima with cooler temperature and sugar glass when compared to emission in solution. This was different with emission with the ruthenium complex studied previously.

In conducting emission studies at 77K we had to use a different solvent than methanol and water because of water's ability to expand while frozen. We instead used butyronitrile as the solvent in the freeze-pump-thaw process. Preparation of emission at 77K takes longer because of the freeze-pump-thaw process while preparation of emission in sugar glass is quicker and less hectic.

UV-vis spectra were obtained using Hewlett-Packard model 8452 diode array spectrophotometer. Preparing the sample for absorption studies involved dissolving a small amount of sample in





MeOH:H₂O (50:50). The concentration of the solution was changed in order to achieve an absorbance of 0.1 at 314 nm. This was done in order to eliminate the self-quenching process. 3-4 mL of the solution was placed in a quartz cuvette and was ready for emission studies.

The hypothesis that emission of the Re(I) metal complexes incorporated in a sugar solid matrix at room temperature will be similar to emission at a liquid-nitrogen temperature was correct. The sugar glass proved to be just as

useful in emission studies. The only drawback is that the dyes that were used in the testing of our hypothesis proved not to work for the TiO₂ electrode used in Grätzel cells. This was because the electrons were transferred to the ligand and not the acid which is attached to the electrode. But once again this method proves to be useful in emission studies and can be applied to dyes for dye-sensitized solar cells, protein stabilization, protein labeling, plus other useful applications [2, 3, 4, 5, 6, 7].

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Beyond the Comfort Zone: Teachers' Perception of Placement of African American and Hispanic Learners

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ll children have the right to a fair and equitable education, so they may achieve at their highest level. Schools are charged with the responsibility to provide such an education; however, Baldwin (2003) conducted many studies that have shown that little attention has been given to the large percentage of minority achievers in urban schools. Shaklee and Hamilton (2003) suggested that educators change their attitudes and perceptions of urban school learners and look for untapped and unrecognized potential.

This pilot study focused on the awareness level of classroom teachers, grades K-5, in terms of identifying five themes: 1) teachers' knowledge of alternative assessment tools that correctly identify gifted qualities in African American and Hispanic Learners; 2) teachers' knowledge of traditional assessment tools that are used to identify gifted qualities in students; 3) differences in dispositions of teachers toward minority male learners' capabilities; 4) levels of training that teachers have received that would enable them to identify gifted, minority learners in a more accurate and equitable manner; 5) placement of African American and Hispanic students and how they are perceived for special education.

The participants for this study were teachers from a mid-western urban school district, which was chosen because it has a large representation of ethnic groups. Twenty-one Title I schools were selected, producing 327 participants. The data was analyzed using an ANOVA to determine statistically significant differences for the five themes. The researcher also looked at demographic data, such as gender, ethnicity and length of time teaching.

The instrument was a 25-item Likert-type scale that addressed the five afore mentioned themes. The scale had a six-point, forced-choice response for the participants, with scores ranging from 1 for "strongly disagree" to 6 for "strongly agree." Participants were assured of their anonymity and results would be shared once the study was finished.

Themes 1 and 2 showed that teachers had no knowledge of the assessment tool referred to





in the survey as well as limited knowledge of alternative or traditional assessment tools used to identify gifted qualities in minorities. Theme 3 showed that teachers' perception towards male minorities' capabilities of learning is low, that non-minority teachers looked at minority males and said "they can't do it." Theme 4 indicated that most teachers have not received staff development in multicultural education awareness; those who had were less likely to discriminate because they would have a better understanding based on experience or insight of the differences that other racial groups may have. Theme 5 showed that teachers' perception of minority children lead to a high propensity towards special education placement.

The significance of this pilot study is that urban school districts can benefit when they become more cognizant of the necessity to commit to alternative assessment methods for minority children. Likewise, they will benefit from providing the necessary staff development training for preparing teachers to recognize and identify gifted, African-American and Hispanic learners. If identified at an early age, these children's potential can be nurtured and strengthened. When children are identified early as gifted, they have more opportunities to mature and to have their gifts nurtured while enrolled in school at the elementary level. When teachers and administrators are conscious of the problem, it is likely that teacher education programs will begin to focus more on training with their teacher education candidates in the use of other effective alternative methods for the assessment of these minority children.

In conclusion, teachers are not being properly prepared or trained to assess minority learners

in every aspect of their education. A great deal of time is spent on recognizing behavior problems or things that are out of the norm for the dominant culture which can cause the needs of others to be neglected. Teachers let negative stereotypes and images of minorities surpass identifying minority students' individuality. According to Gullnick & Chinn (2009) teachers have limited education on cultures other than their own, and when they are exposed to something that may be out of the norm for their culture they automatically assume it to be problematic, which explains why the propensity towards special education placement is so great. Many teachers are unable to recognize that maybe behaviors such as obsessive talking or disruptive actions may be signs of boredom for some children.

Teachers are charged with the responsibility of placing children in the best learning environments and providing them with educational tools that will enable them to become life-long learners and productive citizens. Parents trust these professionals to make correct and equitable educational placement decisions. Teachers must understand that children from different cultures may not demonstrate their high abilities in the same ways as children from the majority culture (Gay, 1978). It is important that each student, regardless of gender or race, be treated and assessed equally. If these barriers can be broken and the proper education be implemented in teacher education programs, and minority children are given the chance to be properly assessed, the representation of African-American and Hispanic learners in gifted programs will improve and all children will be able learn to their utmost potential.

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