

**A Quasi-experimental Study of a Health Patterning Modality and Power in Haitian
Primary Caregivers**

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Abstract

The purpose of the study was to determine the power as knowing participation in change of primary caregivers of Haitian children, 6 to 13 years old, before and after participation in an education and resource health patterning modality related to risk factors and prevention of childhood vaginitis. Barrett's Power as Knowing Participation in change served as the conceptual framework. A pretest-posttest quasi experimental study consisting of a purposive sample $n = 92$ was conducted. Findings include statistically significantly improvement in power at posttest and relate the importance of health patterning modalities in enhancing power. Though limited, these findings have implications for nursing research and practice, support the unitary nature of power and the belief that power is an innate attribute.

Key words:

Power as Knowing Participation in Change, Haitian, childhood vaginitis, Health patterning modality

Background

Power is something all people have and can enhance. People's power is their "capacity to knowingly participate in change" (Barrett, 2010, p. 48) and to participate knowingly in actualizing their potential for well-being (Barrett, 2010). Power as knowing participation in change can be enhanced through using health patterning modalities (Barrett, 2000). Health patterning is the process whereby nurses in mutual process assist clients with their knowing participation in change (Barrett, 1988). This mutual process is unpredictable, not causal (Barrett, 2010) and focuses on exploring with clients, ways to make the changes they wish to make (Barrett, 2015) including lifestyle issues or other challenges (Barrett, 1990b). Power is essential to the health patterning process (Barrett, 1988).

Health patterning modalities "are general approaches used to help people use their power in new ways" (Barrett, 2015, p. 502). They are tools that can facilitate power enhancement (Barrett, 2000). The use of health patterning modalities such as health education through voluntary mutual patterning can facilitate people's involvement in creating the changes they want (Barrett, 1990b). Engagement in health modalities were found to significantly increase power (Larkin, 2007; Wall, 2000). Thus, helping Haitian caregivers identify their power profile, and using a health patterning modality that may help them enhance their power to knowingly participate in change can help them facilitate their children's unitary well-being (Barrett, 2000).

Childhood vaginitis is a major health problem. It may lead to serious consequences later in life such as higher risk for sexually transmitted diseases (Gor, 2014) and may have major consequences in childbearing age. Bacterial vaginitis, for example, is associated to low birth weight (Center for Disease Control and Prevention (CDC), 2010) and to increase the risk for preterm birth, preterm labor, pelvic inflammatory disease, and premature rupture of membranes

(CDC, 2010; Gor, 2011, Port & Matfin, 2009). Leveille-Tulce (2013) reported the presence of many risk factors of vaginitis in Haitian children and the lack of resources to facilitate engagement in related health promotion activities. Haitian caregivers' responsibilities in mitigating the incidence of vaginitis in their children has also been noted (Leveille-Tulce, 2014). To date, there are no national efforts related to decrease the incidence of vaginitis in Haitian children, nor study of an education and resource modality related to health promotion of vaginitis and Haitian caregivers' power as knowing participation in change.

The Haitian people's manifestation of power as knowing participation in change in health promotion endeavors has been noted to be hindered by methods of health promotion that lack the mutual patterning process and that Haitians perceived as domineering (Maternowska, 2006). In addition, Farmer (2003) identified Haitians health problems as manifestations of power –as - control and labeled them pathologies of power. This study engaged the health modalities of freely choosing to participate in education and choosing resources in an effort to enhance power.

Purpose/objectives

The purpose of the study was to appraise the power as knowing participation in change of primary caregivers of Haitian children aged 6 to 13 years old, who wished to learn more about promoting the health of their female children in an effort to reduce their children's risk of vaginitis before and after participation in an education and resource health patterning modality related to risk factors and prevention of childhood vaginitis.

Theoretical framework

Barrett's Power as Knowing Participation in Change theory (2010) was used as the theoretical framework for the study. Power as Knowing Participation in Change theory was

selected as it reveals that power is innate and that at times individuals may experience feelings of powerlessness, (Barrett, 2010). Power as Knowing Participation in Change theory focuses on the importance of being aware of the choice made, feeling free to do it and completing it intentionally without outside pressure (Barrett, 2010, 2015). Barrett (1986) conceptualized power in the realm of Rogers' (1970) Science of Unitary Human Beings (SUHB). SUHB is a unitary worldview wherein humans and environment continuously and mutually pattern (Rogers, 1992). Barrett, (1986), first described the theory as emerging from Rogers' (1970) attention to knowing participation in change, which Barrett (1983) identified as power. Knowing participation in change is the pattern manifestation of power, which when used for the betterment of human beings is "power as freedom". Living power is related to wellness and well-being for self and those, our paths cross, if our choices promote health based on our own health definition (Barrett, 2010). The integral dimensions of power are awareness, choices, freedom to act intentionally, and involvement in creating change.

Design

A pretest- posttest quasi-experimental study was conducted to examine Haitian primary caregivers' power before and after participants' voluntary mutual patterning in an education and resource health patterning modality related to risk factors and prevention of childhood vaginitis. The study sought to answer the following two questions

1. What are the power profiles of Haitian caregivers before and after the health patterning modality about childhood vaginitis?
2. To what extent does Haitian caregivers' power profile change after the health patterning modality about childhood vaginitis?

The approach used in the study derived from Barrett's (1988) Rogerian practice methodology which encompasses two phases, pattern manifestation knowing and appreciation, and voluntary mutual patterning (Barrett, 2010, 2015). These two phases are neither sequential nor separable. Although a continuous and integral process, in this study, pattern manifestation knowing and appreciation relates to the appraisal of participants' power profile before and after the health modality. Moreover, voluntary mutual patterning refers to the researcher and participants' participation in the health modality.

Characteristics of the sample

Participants were recruited from 5 selected primary schools in underserved and underprivileged area in Les Cayes, Haiti after approval from institutional review board (IRB) in the States and in Haiti, and permission from selected sites. They were informed through flyers and announcements at selected primary schools. Based on eligibility criteria, participants were primary caregivers of female children ages 6-13 years old for a minimum of 6 hours per day (regardless of child/children's experience with vaginitis), were able to read and understand Haitian Creole, and voluntarily consented to participate.

Sample size

A power analysis was conducted using the G*Power program, version 3.1.7. Assumptions used were alpha = .05, power of .80, and an effect size of $d = .35$. It was determined that a sample of 50 would be sufficient to detect this effect with 80% power and a sample of 100 would have sufficient power to detect an effect size of $d = .25$ (Faul, Erdfelder, Lang, & Buchner, 2007). Thus, a minimum of 50 participants was used.

Method

Instrument

Power as Knowing Participation in Change Tool, Version II (PKPCT V II).

Two research instruments were used for the study. A Demographic Data Form (DDF) and the Power as Knowing Participation in Change Tool Version II (PKPCT VII). Besides obtaining descriptive information, the Demographic Data Form was also designed to determine participants' knowledge and their children's incidence of vaginitis. The PKPCT VII was blind back translated in Haitian Creole and piloted by the researcher (Leveille-Tulce, 2015).

PKPCT VII is a self-report instrument that measures power as knowing participation in change (Barrett, 1990a). It is a semantic differential instrument that consists of four integral dimensions, awareness, choices, freedom to act intentionally and involvement in creating change. Each of the dimensions is measured with 12 bipolar adjectives one pair of adjectives is included twice in order to measure internal reliability. The number of scores that participants can obtain may range from 1 to 7 for each pair of adjectives and from 12 to 84 for each dimension. Scores represent power manifestation in lower to higher frequency (Barrett, 1989). The Haitian Creole (HC) translated PKPCT V II's reliability was tested using Cronbach's alpha. Alpha for the total HC PKPCT VII was .95, and for the subscale of awareness, choices, freedom to act intentionally and engagement in creating change as .87, .85, .85, and .79 respectively (Leveille-Tulce, 2015).

The Health Patterning Modality

The study process reflects Barrett's Rogerian two phases practice methodology (Barrett, 1988; Barrett, 2010), and lasted about three hours. In the pattern manifestation knowing and appreciation phase, which identifies human and environmental manifestations as they relate to

current health events (Barrett, 1988), Haitian caregivers completed the DDF and used the HC PKPCT VII to appraise their power profile before and after participation in the education and resource health modality that addresses risk factors of and health promotion behaviors toward childhood vaginitis.

In the voluntary mutual patterning phase, which is the deliberate and continuous mutual patterning of the environmental field by nurses and clients to promote harmony related to health events (Barrett, 1988), the researcher and participants voluntarily and mutually pattern the health patterning modality. The educational modality integrated storytelling, reflection, and a poster. It encompassed sharing information and addressing issues related to risk factors and prevention of vaginitis, and distribution of resources such as cotton panties, small towels and unscented soaps. A Portable Document Format (pdf) copy of the poster was also given to participants to take home.

Data analysis

Data were entered into statistical package for the social sciences (SPSS) version 21 program. Accuracy of data entry was checked and evaluated at least twice by someone who speaks Haitian Creole and the researcher. A priori significance was set at $p = .05$. Moreover, data was cleaned and analyzed. Data frequencies were carefully examined for invalid, unusual, and missing data. Descriptive statistics described the sample. Z-scores were calculated to detect normality of distribution. A t - test was used to examine the degree of power as knowing participation in change of participants (Plichta & Kelvin, 2013). Cronbach's alpha reliability was also calculated to determine the reliability of the tool in the study.

Findings

Study Sample

110 people registered to participate in the study; 92 attended the health patterning modality. Three of the 92 self-eliminated due to inability to complete the questionnaires. Thus, 89 attended the whole health modality sessions and completed the questionnaires. Nine questionnaires with excessive missing data were eliminated; they had 10% or more, that is more than five (5) missing items. In all, $n = 80$ were included in the analysis. Of the 80 sets of questionnaires available for analysis, 59.6% ($n = 53$) had no missing data at pretest versus 73% ($n = 65$) at posttest; only 12.5% ($n = 10$) at pretest and 8.75% ($n = 7$) at posttest had between 2 and 5 missing data. Descriptive statistics information for the sample include number and percentage for gender, work status, community of residence and highest level of education. Missing data were handled using mean imputation.

All participants ($N = 80$) reported that they would like to know more about childhood vaginitis. Participants rated their level of knowledge about risk factors and prevention measures of childhood vaginitis, using a scale of 1 to 10, with 1= very little knowledge and 10 = very knowledgeable. A paired samples t-test revealed a significant increase in the mean difference between the level of knowledge at pretest and at posttest 2.35 ($SD = 2.48$), $p < 0.01$. The expressed willingness of participants to learn more and their choice to participate in the health patterning modality indicate that they were aware of the need for patterning the environment for their girls' health promotion.

The HC PKPCT VII

Possible score for each dimension of the PKPCT VII ranges from 12 to 84, and total score from 48 to 336 (Barrett, 1983). In this study, total scores for the Haitian Creole translated

PKPCT VII ranged from 186 to 336 with mean 258.58 ($SD = 35.02$) at pretest and from 180 to 336 with mean score 273.73 ($SD = 273.73$) at posttest. Table 1 reports the scores for the total HC PKPCT VII and each subscale at pretest and at posttest. It also reports their mean percentages, Standard Deviations, Skewness and Kurtosis.

Moreover, Cronbach alpha reliabilities for the total HC PKPCT VII were high, .89 at pretest and .90 at posttest. The subscale reliability scores were lower and had more variability (see Table 2). Pearson correlation for the test retest items were all statistically significant at ($p < .01$) and varied between moderate and strong. They were at pretest: Awareness ($r = .46$), Choices ($r = .77$), Freedom ($r = .46$), Involvement in Creating Change ($r = .67$), and at posttest: Awareness ($r = .62$), choices ($r = .86$), Freedom ($r = .32$), Involvement ($r = .61$). These findings are consistent with previous reported studies (Barrett, 1983; Barrett & Carroselli, 1998; Kim, 2009; Kim, et al., 2012, Leveille-Tulce, 2015).

Descriptive statistics was used to report minimum and maximum ranges and means scores for the HC PKPCT VII subscales and total. Measures of central tendency comparing the difference in means between pretest and posttest scores reveal increases in the means HC PKPCT VII total and subscales at posttest. A test for the assumption of t-test showed that power was negatively skewed both at pretest and at posttest, indicating that participants self-defined as normally having high power. In addition, the Skewness and Kurtosis of the subscales and total HC PKPCT VII indicate that the data are not normally distributed. A t- test was done to determine the extent of change in participants' power profile after the health patterning modality and was significant. Since the assumption for normal distribution was not met, the Signed ranked test, a non-parametric alternative, was applied to determine the robustness of the t-test procedure.

Research question 1: Participants rated themselves high on the power scale both at pretest and at posttest with mean range for the total Haitian Creole translated PKPCT VII $M = 258.58$ ($SD = 35.02$) at pretest, and $M = 273.73$ ($SD = 36.30$) at posttest. These findings suggest that participants reported high power before and after the health patterning modality as indicated by the subscales and total scores on the HC PKPCT VII. The means, standard deviation of the subscales and total HC PKPCT VII at pre and posttest are shown in table 1.

Research question 2: A paired samples t -test showed participants reported significantly higher power at posttest ($M = 273.73$, $SD 36.30$), $t(79) = -5.69$, $p < .01$ than at pretest ($M = 258.58$, $SD = 35.02$). The signed ranked test supports the significant difference for the Haitian Creole translated PKPCT VII total and subscales at $p < .01$. In addition, the effect size was in the medium to high range ($d = .64$) showing that participants' scores increased on average 0.64 standard deviations. This also supports the adequacy of the sample size to detect differences and demonstrates that the health modality resulted in a significant increase in power.

The data was checked for differences in power based on demographics such as age group, gender, level of education, schools' locations, work status, and presence of vaginitis in participants' girls. One- way ANOVA and Tukey post hoc tests determined that there were no statistically significant differences in the mean power based on any of the demographics both at pretest and at posttest.

Furthermore, findings of the study reveal a significant increase in participants' self-reported knowledge about childhood vaginitis at posttest. This implies that as power increased, so did self-reported knowledge. There was a moderate statistically significant relationship in the level of participants' self -reported knowledge at pretest with the HC PKPCT VII total at pretest $r = .37$ $p < .01$ and a weaker, yet, statistically significant relationship with the HC PKPCT VII

total at posttest $r = .245$ $p = .028$. However, there was no statistically significant relationship between level of knowledge at posttest with the HC PKPCT VII total at pretest $r = .173$ $p = .125$ and at posttest $r = .215$ $p = .055$.

In the study, total scores for the HC PKPCT VII varied between moderate and high both at pretest and at posttest. Although Cronbach alpha reliabilities for the dimensions were much lower, showing more variability (see table 2), the total HC PKPCT VII was high both at pretest and at posttest. Cronbach's alpha was lower at posttest than at pretest for the dimension Freedom. In addition, the test retest items were analyzed for correlation and showed moderate to strong statistical Pearson correlation. All correlations were significant at $p < .01$. Pearson correlations were lower at posttest than at pretest for two of the dimensions' subscales, Freedom and Involvement in Creating Change.

The lower alpha coefficient at posttest for one of the dimensions and the lower Pearson correlation for two of the dimensions test- retest items might be due to the fact that participants inadvertently scored themselves on the power scale in the opposite direction, therefore, showing a decrease in reliability for these items. Moreover, participants experienced difficulty understandings meaning of concepts and completing the instrument. Besides difficulty with completing the questionnaire, the lower reliability of the dimensions might be related to the number of items 12 for each dimension compared to 48 for the total HC PKPCT VII total. According to Kimberly and Winterstein (2008, p. 2277) the "greater the number of items in a summated scale, the higher Cronbach's alpha tends to be." Likewise, Wijesinghe (2008) alluded that the length of items for the PKPCT total may have been responsible for the higher total PKPCT's reliability found in her study.

Yet, the fact that the scores and reliability for the HC PKPCT VII total remained high at pretest and at posttest demonstrates that the low reliabilities of the dimensions did not affect participants high perception of power and speaks to the inseparable and integral characteristic of the power tool four dimensions. “The whole cannot be understood when it is reduced to its parts” (Rogers, 1992, p 129). To understand how humans and environment knowingly participate in the continuous creation of change we need to appraise manifestations of the whole not the parts (Barrett, 2010). In addition, these findings indicate that the HC PKPCT VII has the potentiality to appreciate pattern of power in this population and support the use of the instrument in this group provided that proper assistance is offered.

Although this was the first time the HC PKPCT VII was used in a monolingual Haitian Creole speaking population, the recorded alpha coefficients reflect previous findings that reported a variety of alpha coefficients for PKPCT VII total and its dimensions’ subscales (Barrett, 1983; Barrett and Carrosselli, 1998; Kim, 2009; Kim, et al., 2012, Leveille-Tulce, 2015). Alpha coefficients for the subscales and total HC PKPCT VII were higher in the pilot study than those found in this study (Leveille-Tulce, 2015). Additionally, Pearson correlation as reported by previous studies showed correlation range from $r = .40$ to $.92$ (Barrett & Carrosselli, 1998) and from $.78$ to $.94$ (Larkin, 2001). There were strong statistically significant correlations at $p < .01$ of all the Haitian Creole translated PKPCT VII dimensions with each other and with the total Haitian Creole translated PKPCT VII. These results are consistent with the unitary and irreducible worldview of the SUHB and the power as knowing participation in change theory premise that the dimensions of power are inseparable (Barrett, 2015).

Conclusion

The reported high scores show that Haitian primary care givers, despite their less than favorable situation, are very well aware of their capacity to knowingly participate in changes that can impact their children's health; these findings are congruent with Barret's assertion that power is an innate and evolving phenomenon (Barrett, 2010). They attest to Barrett's (2010) belief that power exists independent of contexts and Florczack (2009), ideas that Power "is a life force belonging to all humans since they exist" (p 290). The significantly higher power profile and the significant increase in the mean difference of power at posttest indicate that participants perceived a stronger sense of power after their participation in the health patterning modality.

The current findings additionally imply that the health patterning modality facilitated a situation conducive to positive change. It enhanced Haitian primary caregivers' power and potentially facilitated their participation in health promotion behaviors for their girls' well-being. The study findings are consistent with other studies that showed significant increases in power in relation to health patterning modalities (Larkin 2007; Kim et al. 2012). They also support previous findings that activities that necessitate choices and knowing participation enhance power (Wall 2000). The findings highlight the usefulness of health patterning modalities developed in the realm of SUHB in boosting power and promoting healthy behaviors (Wynd, 1990) in people wherever they are.

Limitations

Although, the findings are consistent with the study's theoretical underpinnings, cautions must be used when analyzing them. The higher power profile at posttest may have been influenced by the short period of time between the health modality session and the posttest questionnaires and participants and the researcher engaging in mutual process. Bramlett and Gueldner (1993), concluded that personal nature of the research environment and engagement

with the participants might contribute to power enhancement in participants. Moreover, cognitive tests that are similar at pretest and at posttest may be affected by practice effect (Knapp, 2016). Difficulty with completing the power tool might have also affected the results; participants experienced difficulty understanding conceptual meanings and direction of the tool. Issues with difficulty completing the PKPCT had been reported in previous studies (Shearer et al., 2007; Wijesinghe, 2008).

Implications for nursing Knowledge and practice

The findings attest to the fact that research contributes to the testing of theories and generates new knowledge and meanings that enrich and strengthen nursing (Rogers, 1992). The strong significant association among all power dimensions, and between the dimensions and total power, supports the unitary and innate nature of the power as knowing participation in change theory. The findings enrich the knowledge base of a nursing paradigm construed in the irreducible nature of human and environment.

Knowledge translation

The use of health patterning modalities should be promoted (Rogers, 1992). These findings emphasize the need for health professionals to engage in developing health patterning modalities that individuals and group may choose to participate in to enhance their power and promote manifestations of healthy behaviors. Patterning in mutual process places nurses in key position to acknowledge the different ways people manifest their pattern within health modalities (Kim et al., 2008).

For community, public, and global health nursing, the findings highlight the importance of continuous and mutual patterning of the environment for the well-being of all people regardless of their social, educational or economical background. It is Rogers' beliefs that nurses should

promote health and well-being for all people regardless of where they are (Rogers, 1992) and address issues of social inequalities that loom underprivileged population (Rogers, 1970). Health patterning modalities should transcend basic factors such as demographics and embrace all issues that can impede people 's participation in actualizing their well-being such as issues of inequalities (Butcher, 2000) and lack of resources. The effectiveness of the Haitian Creole translated PKPCT VII in appreciating power expands the use of unitary power as knowing participation in change to ethnic groups for whom the primary language is Creole.

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Table 1

Scores, Means, Standard Deviations, Skewness and Kurtosis for the HC PKPCT VII at Pretest and Posttest

N = 80

HC PKPCT VII	Min	Max	Mean	SD	Skewness	Kurtosis
Pretest						
Awareness	41	84	62.82	9.35	-.22	-.49
Choices	46	84	64.45	10.05	-.028	-.79
Freedom to Act	40	84	65.18	9.52	-.447	-.01
Intentionally						
Involvement in	43	84	66.14	9.51	-.308	-.55
Creating Change						
Total HC PKPCT	186	336	258.58	35.02	-.11	-.71
Posttest						
Awareness	44	84	68.38	9.28	-.371	-.17
Choices	30	84	68.21	10.86	-1.04	1.41
Freedom to Act	49	84	68.62	8.83	-.18	-.65
Intentionally						
Involvement in	36	84	68.52	9.89	-.69	.74
Creating Change						
Total HC PKPCT	180	336	273.73	36.30	-.49	-.24

Table 2

Reliability of the Subscales and Total HC PKPCT VII Pretest and Posttest

HC PKPCT VII	<i>N</i>	Cronbach's Alpha	
		Pretest	Posttest
Awareness	12	.58	.63
Choices	12	.61	.74
Freedom to Act Intentionally	12	.67	.61
Involvement in Creating Change	12	.65	.68
Total HC PKPCT VII	48	.89	.90