Effects of Multimodal Fever Education on Parents of Febrile Children
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Significance of the Problem
- Insufficient knowledge regarding fever management contributes parental anxiety, inappropriate antipyretic use, and overutilization of medical resources (Li-Chan et al., 2013 & van den Anker, 2012).
- Febrile illness in children accounts for approximately 20% of ED visits, 30% of office visits, and over 50% of after-hour phone calls to private physicians (Zanomero & Attar, 2008).
- Caregivers often associate fever in their children with negative connotations, thereby, leading to fever phobia (Schmidt, 1980).

Inclusion criteria:
- Childhood fever, over the course of 19 weeks?

Review of the Literature
In parents of children ages six months to five years, what is the effect of multimodal education of fever and appropriate management of childhood fever, compared to standard fever education, on knowledge, anxiety, self-efficacy, and satisfaction as well as health services utilization regarding childhood fever, over the course of 19 weeks?

Inclusion criteria: 2000-2014, scholarly peer reviewed journals, English language, subjects are caregivers of a pediatric patient (≤18 years of age)
Search terms: ped* or paediatric or preschool or child*; and fever; and educat* or knowledge; and parent* or caregiver or carer

PICOT
The most effective method of parental education is a formal strategy which involves mixed methods of written, visual, and interactive materials in a structured or repeated session (Young et al., 2010; Liebman & Barnsteiner, 2001; & Bloch & Bloch, 2013).

Synthesis of the Evidence
- Timing of the educational session was found to be more effective when presented in close proximity to the presentation of fever (Young et al., 2010).
- Informal strategies including one-dimensional methods, such as written material were not effective strategies for improvement of parental management of fever in their child (Young et al., 2010).

Decision to Change Practice
- The literature supported use of multidimensional educational interventions as effective methods in positively influencing parental management of fever.
- The American Academy of Pediatrics (AAP) is a reliable source for trusted advice for parents as well as HCPs; therefore, credible multimedia educational resources available through the AAP in the form of video and written brochure were utilized.

Implementation
- Theoretical Frameworks: Iowa Model of Evidence-Based Practice (EBP) and Self-Efficacy Theory by Bandura
- Sample: Participants were recruited via convenience sample: parents presenting with chief complaint of febrile children between ages of 6 months to 5 years
- Setting: Private pediatric practice in Northwest Indiana
- IRB: Accepted via Exempt Review on September 3rd, 2014
- Project Design: Non-randomized case control study- data collection took place over a period of 19-weeks (09/08/14 - 01/12/15)
- Intervention:
  - a three-minute educational video
  - a pamphlet on childhood fever including appropriate management developed by the AAP (2007)
  - brief verbal discussion of fever and appropriate caregiver management

Evaluation Tools
Tools/Outcomes Measured:
- Demographics form: participant demographics
- 17-item fever management questionnaire (FMQ): parental knowledge, self-efficacy and anxiety
- Satisfaction survey: self-efficacy and satisfaction

Demographic Data Collection
Table 1: Demographic Data

<table>
<thead>
<tr>
<th>Race</th>
<th>72.5% - Caucasian</th>
<th>12.5% - AA</th>
<th>10% - Hispanic</th>
<th>5% - other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital status</td>
<td>52.5% - single</td>
<td>27.5% - married</td>
<td>17.5% - separated/ divorced</td>
<td>2.5% - other</td>
</tr>
<tr>
<td>Education</td>
<td>12.5% - 9-12th grade</td>
<td>27.5% - high school diploma/GED</td>
<td>40% - some college</td>
<td>20% - Associate’s/ Bachelor’s Degree</td>
</tr>
<tr>
<td>Birth order</td>
<td>55% - first child</td>
<td>32.5% - second child</td>
<td>10% - third child</td>
<td>2.5% - other</td>
</tr>
<tr>
<td>Fever ED visit</td>
<td>60% - none</td>
<td>7.5% - once</td>
<td>32.5% - 2-3 times</td>
<td></td>
</tr>
<tr>
<td>Total children</td>
<td>40% - 1 child</td>
<td>32.5% - 2 children</td>
<td>7.5% - 3 children</td>
<td>20% - 4 or more children</td>
</tr>
</tbody>
</table>

Evaluation of Outcomes
- Data were collected and analyzed comparing outcome measurements from both groups using the Pearson Chi square test measurement for knowledge, anxiety, self-efficacy, and satisfaction.
- There was a statistically significant difference in intervention participants’ knowledge regarding harmful effects of fever (p = 0.020) and satisfaction of education provided (p = 0.023).

Conclusions
- A positive significant difference was identified in intervention participants’ knowledge regarding harmful effects of fever (χ² (1) = 5.449, p = 0.020) as 25% of intervention subjects correctly answered the question with false when asked whether or not it is harmful for a child to have a fever; whereas, 0% of the control group gave a correct response.
- Satisfaction of the education provided was statistically significant (χ² (1) = 5.159, p = 0.023) as 65% of participants in the intervention group described the education provided during their visit as “helpful,” whereas only 40% of the control group responded positively.
- Fifty-eight percent of intervention subjects as compared to 42 percent of control subjects correctly identified the threshold for fever, although this finding was not significant (χ² (1) = 1.242, p > 0.05).
- Ninety-two percent of intervention subjects felt the education received increased their confidence managing their child’s fever at home as compared to 75% of control subjects; however, this was not a significant finding (χ² (1) = 1.391, p = 0.238).

Recommendations
- Recommendations for future studies: - persistent education with subsequent visits; - randomization of subjects; - larger sample size; - longer implementation period.
- Implications for nursing: The education proved to increase parental satisfaction and is a cost-effective change with potential to increase parental knowledge and confidence in managing fever.

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