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Development of a Scale to Assess Children's Trust in General Nurses

Running Head: CHILDREN'S TRUST IN NURSES

Key Words: Children, Trust, Nurses, Medical Centre Visits

Abstract

Purpose. Develop a Children's Trust in General Nurses Scale (CTGNS).

Design and Methods. In a cross-sectional investigation, 128 UK children (68 females and 60 males; Mean age = 10 year – 4 months) completed the CTGNS and reported their trust in, and fear of, nurses. Forty-six parents reported those dispositions and the frequency of their children visiting medical centres.

Results. The CTGNS showed acceptable internal consistency and factor structure. It was correlated with reported children's trust in nurses and visiting medical centres.

Practice Implications. The CTGNS will permit the investigation of children's trust in nurses and interventions to promote it.

Development of a Children's Trust in General Nurses Scale

Polls show that nurses are one of the most trusted professions (e.g., Gallup, 2012) and it has long been advocated that nurse-patient trust is a crucial part of nursing practices both in the treatment of adults (de Raeve 2002; Dinc, & Gastmans, 2012; Johns, 1996; Radwin & Cabral, 2010; Rutherford, 2014) and children (Hall & Nayar, 2014; Hupcey, Penrod, & Morse, 2001). There are a very limited number of studies investigating adults' trust in nurses (see Radwin & Cabral, 2010) and there is a dearth of research that has investigated children's trust in nurses. Researchers have developed multi-item scales to assess adults' trust in nurses (Radwin & Cabral, 2010). Because of the sophistication of the language and generalized nature of the items in those scales though, they are not suitable for use with children. The purpose of current study of the current study was to redress that gap in our knowledge regarding paediatric nursing by developing a trust in general nurses scale for children.

Conceptualization and Measurement of Trust

The current investigation was guided by Bases, Domains, and Targets (BDT) framework comprising 3 (bases) x 2 (domains) x 2 (target dimensions) (see Rotenberg, 2010). The three bases of interpersonal trust are: (a) Reliability which comprises believing that others fulfil their word or promise; (b) Honesty which comprises believing that others tell the truth and engaging in behaviors that are guided by benign rather than malicious intent and by genuine rather than manipulative strategies; and (c) Emotional which comprises believing that others to refrain from causing emotional harm, such as being receptive to disclosures, maintaining confidentiality of them, refraining from criticism and avoiding acts that elicit embarrassment. The three domains are: (a) cognitive/affective which are the beliefs and affect regarding the three bases of trust; (b) behavior-dependent which comprises individuals behaviorally relying on others to act in

a trusting fashion as per the three bases, (c) behavior-enacting which comprises individuals behaviorally engaging in the three bases of trust. The bases and domains are characterized by two target dimensions: (a) familiarity, which ranges from slightly to highly familiar and (b) specificity, which ranges from specific to general others. The BDT framework specifies that trust is a reciprocal process in which trusting beliefs and behaviors are matched by partners in dyads. These reciprocal exchanges result in a common social history of the partners.

Guided by the BDT, Rotenberg et al. (2008) developed the 9-item Children's Trust in General Physicians Scale (CTGPS) which assessed children's trust in general physicians. The target of trust was general physicians because children in the UK often receive medical treatment from a number of physicians rather than a specific/personal physician. Rotenberg et al. (2008) found that the CTGPS was composed of the expected three-factor/basis structure (reliability, emotional, and honesty) and demonstrated acceptable internal consistency ($\alpha = .70$) for a multi-factor scale. As evidence for the validity of the CTGPS, it was correlated with children's trust in doctors as reported by the children and their parents. Finally, CTGPS, notably the emotional basis subscale, was correlated with children's adherence to prescribed medical regimes as reported by children and parents.

The currently developed Children's Trust in Nurses Scale (CTGNS) was designed to assess children's trust in general nurses similar to the CTGPS. Trust in general nurses was examined because children often receive medical treatment from a variety of nurses rather that a specific/personal nurse. Similarly, the scale was designed to assess children's cognitive representation of nurses in a medical setting in the form of expectations that nurses show reliability, emotional and honesty behaviors as outlined by the BDT framework. It was expected that the scale would be: (1) composed of the expected three-factor structure (reliability emotional and honesty); (2) show acceptable internal

consistency commensurate with being a multi-factor scale; and (3) correlated with children's trust in nurses as reported by the children themselves and their parents as evidence for the validity of the scale. Guided by the principle that children's trust in nurses is a stable attribute, it was expected that there would be a positive correlation between parents' and children's reports of the children's trust in nurses. The current conceptualization and measure of trust in nurses is similar to other conceptualizations of trust in nurse-patient relationships (see Dinc & Gastmans, 2012) which include reliance on nurses' promises, general confidence in nurses, and expected lack of harm by them.

The CTGNS and Children's Fear

Children's trust in nurses is an attitude towards that bears similarity to their fear of nurses (see Salmela, Aronen, & Salanterä, 2011) and therefore they may be associated. Nevertheless, the two constructs are conceptually different in that trust in nurses comprises a given set of expectations (as defined) and fear of nurses is composed of a negative affective reaction to nurses (see Salmela et al., 2011). It was expected that the CTGNS would show discriminative validity by being associated with reports of children's trust in nurses rather than of reports of their fear of nurses.

The Nurse Contact Hypothesis

The fundamental principle of paediatric nursing is that nurses provide effective and competent health care to children (see Hall and Nayar, 2014; Johns, 1996; Rutherford, 2014). Based on that principle, it was expected that there would be a positive correlation between the CTGNS scale and the frequency with which children visited medical centres in which they most frequently have contact with nurses.

Methods

Participants

One hundred and 28 children (68 girls and 60 boys) enrolled in years 5 and 6 of UK elementary schools served as participants. They had a mean age of 10 years-10 months (*SD* = 7 months) and ranged from 9 years to 11 years-11 months of age. The participants were drawn from two schools that predominately served low to middle socio-economic status neighborhoods in a modest size city in the United Kingdom. The majority of the children in the schools participated in the study with 89% of the children in the classes in the first school and 91% of the classes in second school participating. None of the children in the classes were excluded from participating if parental consent was obtained. Reports of the children's trust in nurses, fear of nurses and frequency of visiting medical centres were solicited from parents (guardians). The data analyses of this data were limited to one school because the other school did not adequately distribute these questionnaires to parents. The participants were the same as those in Rotenberg et al. (2008; Study 2) which was carried out by the administration of a single questionnaire under the rubric of an investigation of children's views of health professionals.

Measures

CTGNS. The items for the CTGNS were generated by the author and students in consultation with a nurse and a paediatric psychologist. The scale was composed of 9 items, with 3 items designed to assess each of the three bases of trust (honesty, emotional, and reliability). There were two sets CTGNS which only differed in the gender of the protagonists. The participants were presented the set that depicted the protagonists who were of same gender as themselves. The participants were asked to imagine that they were the protagonists (identified in bold) in the items and then to provide their answers on the 5-point scales comprising: 1-- it is very likely to happen, --2-- it is quite likely to

happen, 3-- it is neither likely nor unlikely to happen, 4-- it is quite unlikely to happen, or 5 -- it is very unlikely to happen.

The following items are examples of those used in the CTGNS for females (with the basis of trust beliefs identified for this report).

1. **Lucy** was waiting for her test results. The nurse told **Lucy** that they would not take long. How likely is it that the test results would not take long? (Honesty)
2. **Emily's** nurse said that once she has had her bandage off she can go home. The nurse takes the bandage off. How likely is it that the nurse will let **Emily** go home? (Reliabilty)
3. Before she has to go for an operation **Jane** tells her nurse that she is a bit nervous. She asks the nurse not to tell anyone that she is a bit nervous. How likely is it that the nurse will not tell anyone that **Jane** is a bit nervous? (Emotional)

Child-reported trust in, and fear of, nurses. As a measure of reported trust, participants answered the question "How much do you trust nurses?" on a 5-point scale: "I do not trust nurses at all" (1), "I trust nurses a little bit", (2), "I kind of trust nurses" (3), "I trust nurses very much" (4), and "I trust nurses very, very much" (5). High scores denoted greater trust in nurses. As a measure of reported fear of nurses, participants answered the question "How much are you afraid of nurses? on the 5-point scale: "I am not afraid of nurses at all" (1), "I am afraid of nurses a little bit", (2), "I am kind of afraid of nurses" (3), "I am afraid of nurses very much (4), and "I am afraid of nurses very, very much" (5). High scores denoted greater fear in nurses.

Parent-reported of children's trust in, and fear of, nurses. The parents or guardians of the children completed the preceding ratings but judged "how much does your child trust nurses?" and "how much is your child afraid of nurses". High scores on the scales denoted greater parent-reported children's trust in nurses and fear of nurses,

respectively. The reports of children's trust in nurses and fear of nurses by children and parents were subjected to log 10 transformations in order to normalize the distributions for the analyses. (The raw means and standard deviations are presented in Table 1 to show the attributes of the measures.)

Frequency of children visiting medical centres. Parents answered the question "How many times in the past 12 months (1 year) has your child visited a medical centre" on a 4-point scale: "never (1)," "once (2)," "2-4 times (3)," or 5 times or more (4)."

Procedure. The participants were administered the scales and ratings during their class-time at school. They completed the ratings/scales individually. Standardized instructions encouraged participants to give honest answers by highlighting that their answers were confidential, that it was not a test, and there were no right or wrong answers. The parents (guardians) were sent the measures via the school and they returned their completed measures in a sealed envelope to the school. Parents (guardians) were similarly given standardized instructions encouraging them to give honest answers by highlighting that their answers were confidential, that it was not a test, and there were no right or wrong answers. The research was carried out in accordance with BPS/APA guidelines and received ethical approval from the institution hosting the investigation.

Results

Factor structure of the CTGNS. The 9 items of the CTGNS (denoted by basis as items 1, 2, and 3) were subjected to a confirmatory factor analyses using Structural Equation Modelling (SEM). The SEM analyses showed that the data were a good fit of the model. The Normative Fit Index (NFI) = .92, Comparative Fit Index (CFI) = 1.00, a Root Mean Square Residual (RMSEA) < .001 and a nonsignificant $\chi^2(24) = 14.03$, $p = .95$. Note The SEM analyses of the hypothesized factor structure of the CGTNS are shown in Figure 1. The items are shown by basis in shortened form (Rel1 for reliability 1 item) and the

latent factors corresponding to the three bases of trust (reliability, honesty and emotional) are depicted. There was a negative covariance between error 1 and error 4 in the SEM. All the paths and covariances attained significance (*ps* < .05). The three factor model was better fit than a random two-factor model $\Delta\chi^2$ (2) = 11.37, $p < .01$ and the one-factor model, $\Delta\chi^2$ (3) = 9.72, $p < .05$. Researchers regard a CFI > .90, RMSEA < .060, and a nonsignificant χ, as well as a factor structure representing a superior model, as evidence for a good fit of the data (Hu & Bentler, 1999).

The items were summed to yield a total CTGNS score and the three bases trust subscales (i.e., the items for reliability, honesty, and emotional, trust beliefs). Higher scores on the total scale and the three bases trust subscales denoted greater trust beliefs in nurses. The CTGNS total scale showed acceptable internal consistency commensurate with a multi-factor scale. It was found that $\alpha = .68$ for all (raw items) and $\alpha = .72$ when one skewed item was subjected to a log 10 transformation to normalize its distribution.

The correlations between the measures (with means and SDs) are shown in Table 1. Consistent with the SEM analyses, there were correlations between the three bases trust subscales, as well as between those and the total CTGNS. As evidence for validity, the total CTGNS was correlated with child-reported trust in nurses and parent-reported children's trust in nurses (as a one-tailed test). Also the emotional based subscale of the CTGNS was correlated with parent-reported children's trust in nurses. As expected there was correlation between child-reported trust in nurses and parent-reported children's trust in nurses. In addition, children's trust in nurses was negatively correlated with fear of nurses when parent-reported. In support of the nurse contact hypothesis, the frequency with which the participants visited medical centres was positively correlated with the total CTGNS, score as well as the reliability basis and the honesty basis subscales.

Discussion

Psychometric properties of the CTGNS

The CTGNS demonstrated acceptable level of internal consistency as a brief multi-factor scale. As evidence for the validity, the CTGNS was: (1) composed of the three trust beliefs bases/factors and (2) positively correlated with children's trust in nurses as reported both by children and parents (which were correlated as an attribute). As support for the discriminative validity of the CTGNS, it was correlated with children's trust in nurses but not with their fear of nurses as reported by the children and parents.

The study successfully yielded a scale to assess children's trust in general nurses that demonstrated psychometric properties, such as factor structure and level of internal consistency, that have been found for the Children's Trust in General Physicians scale (Rotenberg et al., 2008) as well as Children's Generalized Trust Belief Scale (Rotenberg et al., 2005). In that vein, the internal consistency of the CTGNS is similar to that found for multi-item scales assessing adults' trust in nurses (Radwin & Cabral, 2010). It is interesting to note that the emotional based subscale of the CTGNS was more clearly associated with children's trust in nurses as reported by parents. This parallels the finding by Rotenberg et al. (2008) that emotional based subscale of the CTGPS was most strongly associated with adherence to prescribed medical regimes. These findings highlight that it is children's emotional trust beliefs which play the important role in their relations with health professions such as nurses.

The study yields some evidence that there is an association between children's trust in nurses and the children's fear of nurses. There was a negative correlation between children's trust in nurses and fear of nurses as reported by parents. It is possible that this association may be due to parents' naïve association between trust and fear in children's disposition to health professionals such as nurses. There was a lack of an association

between children's and parents' reports of the children's fear of nurses. This finding may be due the tendency for children to hide their fear of health professions during hospital visits (see Salmela et al., 2011)

Nurse Contact Hypothesis

As support for the nurse contact hypothesis, a positive correlation was found between the frequency with which children visited medical centres and the CTGNS total scale, as well as reliability and honesty bases subscales. This yields support for the hypothesis that children's trust in nurses is caused by repeated contact with them.

Limitations and Future Directions

In future, researchers may which to employ other measures to assess the frequency with which the children have contact with nurses, such as observations of children's contact with nurses. This could include assessments of the quality of that contact which would likely be relevant to the children's trust in nurses. Finally, the current study was a cross-section investigation. A longitudinal design is needed to draw conclusions regarding causality between contact with nurses and children's trust in nurses as assessed by the CTGNS.

Implications for Nursing Research and Practice

The Children's Trust in General Nurse Scale will permit the further investigation of children's trust beliefs in nurses specifically the causes (e.g., parental trust in nurses), correlates (e.g., engagement in nurses in medical centres) and consequences (e.g., successful medical treatment) of different bases of children's trust in nurses. The CTGNS could be used to assess of the effectiveness of interventions by nurses in practical settings to promote children's trust in nurses (see Hall & Nayar, 2014). The CTGNS could be used to identify children who, because of their atypically low trust in nurses, at risk for medical treatment and could be the target of nurse-promoting interventions.

References

de Raeve L. (2002). The modification of emotional responses: a problem for trust in nurse-patient relationships? *Nursing Ethics, 9,* 465-71. doi: http://dx.doi.org/10.1191/0969733002ne536oa

Dine, L., & Gastmans, C. (2012). Trust and trustworthiness in nursing: An argument-based literature review. *Nursing Inquiry, 19,* 223-237. doi: http://dx.doi.org/10.1111/j.1440-1800.2011.00582.x

Gallup. (2012). Honesty/ethics in profession. Retrieved from Retrieved from: http://www.gallup.com/poll/180260/americans-rate-nurses-highest-honesty-ethical-standards.aspx http://.gallup.com/poll/1954/Honesty-Ethics-Professions.aspx.

Hall, J. & Nayar, S. (2014). Building trust to work with children after a severe traumatic accident. *Contemporary Nurse,* 46, 161–169. doi: http://dx.doi.org/10.5172/conu.2014.46.2.161

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit Indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6,* 1-55. doi: http://dx.doi.org/10.1080/10705519909540118

Hupcey, J. E., Penrod, J., & Morse, J. M. (2001). An exploration and advancement of the concept of trust. *Journal of Advanced Nursing, 36,* 282–293. doi: http://dx.doi.org/10.1046/j.1365-2648.2001.01970.x

Johns, J. L. (1996). A concept analysis of trust. *Journal of Advanced Nursing, 24,* 73–83. doi: http://dx.doi.org/10.1046/j.1365-2648.1996.16310.x

Radwin, L. E., & Cabral, H. J. (2010). Trust in Nurses Scale: Construct validity and internal reliability evaluation. *Journal of Advanced Nursing, 66,* 683-689.

doi: 10.1111/j.1365-2648.2009.05168.x

Rotenberg, K. J. (2010). The conceptualization of interpersonal trust: A basis, domain, and target framework. In Ken J. Rotenberg (Ed).*Interpersonal trust during childhood and adolescence* (pp. 8-27). New York: Cambridge University Press. doi: http://dx.doi.org/10.1017/CBO9780511750946

Rotenberg, K. J., et al. (2005). Construction and validation of a children's interpersonal trust belief scale. *British Journal of Developmental Psychology, 23*, 271-292. doi: 10.1348/026151005X26192

Rotenberg, K. J. et al. (2008). Development of a children's trust in general physicians scale. *Child: Health, Care and Development, 34,* 748-756. doi: 10.1111/j.1365-2214.2008.00872.x

Rutherford, M. M. (2014). The value of trust to nursing. *Nursing Economics, 32,* 283-289.

Salmela, M., Aronen, E. T., & Salanterä, S. (2011). The experience of hospital-related fears of 4- to 6-year-old children. *Child: Care, Health & Development, 37*, 719-726. doi: http://dx.doi.org/10.1111/j.1365-2214.2010.01171.x

Figure Caption

Figure 1: SEM analysis of the Hypothesized Factor Structure of the CGTNS

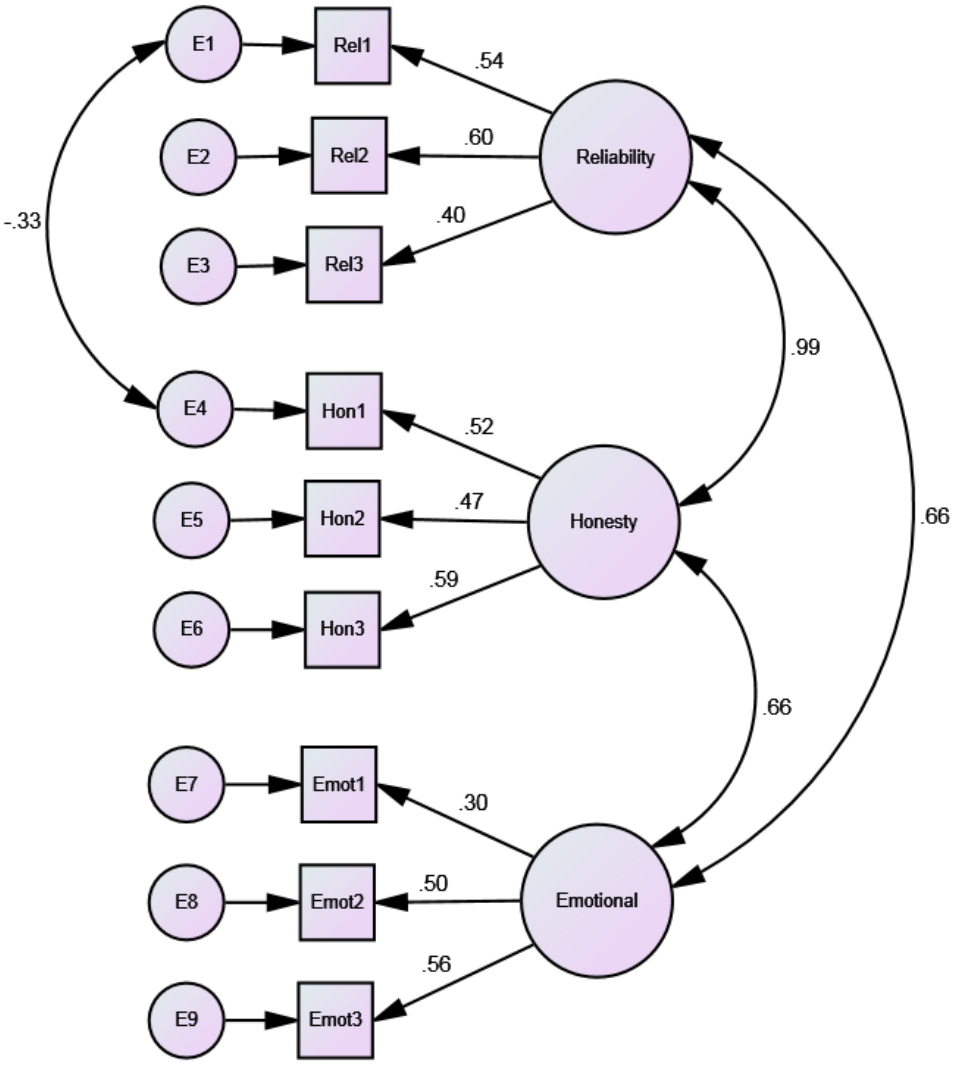
E1
Rel1
.54
E2
Rel2
.60
Reliability
-.33
.40
E3
Rel3
.99
E4
Hon1
.52
E5
Hon2
.47
Honesty
.66
.59
E6
Hon3
.66
E7
Emot1
.30
E8
Emot2
.50
Emotional
.56
E9
Emot3

Table 1

Correlations Between the Measures (with Means and SDs)

Measure	Mean	SD	RelTN	HonTN	EmTN	CRTN	CRFN	PRTN	PRFN	FVMC
CTGNS										
Total Scale	21.79	6.00	.66***	.67***	.66***	.19*	-.09	.27ŧ	.06	.48***
Reliability (RelTN)	6.98	2.47		.47***	.32***	.15	-.11	.09	.13	.55***
Honesty (HonTN)	7.10	2.49			.33***	.07	-.04	.11	-.04	.32*
Emotional (EmTN)	7.76	2.95				.15	-.05	.36*	.03	.26
Child-Reported										
Trust in Nurses (CRTN)	1.83	1.35					-.10	.56**	-.12	.17
Fear of Nurses (CRFN)	4.09	1.25						-.23	.12	.08
Parent-Reported (of Children's)										
Trust in Nurses (PRTN)	1.28	.54							-.30*	.14
Fear of Nurses (PRFN)	4.15	.84								.21
Frequency of Visiting Medical Centres (FVMC)	2.53	.99								

Note: df for relations with children = 126 and *df*s for relations with parents = 44. Also, ŧ$p < .05$ (one-tailed),* $p < .05$, ** $p < .01$ and *** $p < .001$.