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Research

Health-Information Comprehension, Motivation and Perceived Readiness to implement Infant-Survival Strategies Among Attendees at Infant-Welfare Clinics in Ikenne Local Government, Nigeria

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Abstract

Infant mortality recorded for low- and middle- income countries remain unacceptably high despite all efforts to facilitate a reduction. Poor ante-natal preparations of mothers for the survival of their infants among others are believed to be responsible for this. We undertook to investigate how comprehension of health-information, and motivation aroused may be associated with readiness to implement infant-survival strategies among attendees at Primary Health Care infant-welfare clinics in rural communities of Ikenne Local Government Nigeria in order to better understand the dynamics of health-message delivery and effectiveness.

The study adopted cross-sectional design and employed the 45-item Health-Information- Comprehension-Motivation and Readiness (H-ICMR) questionnaire developed for the study to measure level of message comprehension, motivation and readiness of mothers attending infant-welfare clinics to apply counsels to facilitate the survival of their infants. Two hundred and forty five mothers were selected by a two-stage sampling of five health-centers from ten, followed by systematic random sampling of clinic attendees at the local health-centers following consent from participants. Rating scales were computed for these variables while ANOVA and regression analysis were applied to determine test of significance and independence respectively. The condition for tests of statistical significance was set at 5%.

Mean age of respondents was 29.1 ± 6.62 years and majority (85.8%) reported having some form of formal education. Respondents were of the Yoruba (49.0%), Igbo (27.8%) and various other (23.2%) ethnic expressions. A significant proportion (42.0%) claimed to have two children with 79(32.2%) just having their first live birth. A significant proportion of mothers (78.0%) were able to recall accurately information contained in the health-counsel offered. On a 35-point scale measuring Health-Information Comprehension and Motivation (H-ICM), mothers scored a mean of 18.36 ± 4.17 . Readiness to implement infant survival strategies delivered through counseling offered at the clinic measured on a 27-point scale, reported a mean score of 14.66 ± 4.87 . Furthermore, there was a significant relationship between H-ICM and Readiness to apply health counsel sub-scale ($R = 0.269$; $R^2 = 0.072$; $P < 0.001$). Information Recall was similarly significantly associated with Readiness to act on information delivered ($R = 0.231$; $R^2 = 0.053$; $P < 0.001$), however, H-ICM ($B = 3.874$; $\beta = 0.345$; $R^2 = 0.119$; $p < 0.001$) was the predictor in a stepwise multiple regression analysis.

Findings showed average readiness to implement infant-survival strategies. Mothers' comprehension of information and motivation was poor and may account for persistence in morbidity among infants possibly due to inability to apply survival strategies communicated during clinic sessions. The study recommends that health personnel providing counselling at infant-welfare clinics should be more deliberate in planning health-information, and to disseminate well-structured health-messages that would be motivating in arousing conscious-awareness and deep desire to enhance infant-survival behaviour among mothers.

KEY WORDS: Health-information, Mothers of infants, Readiness, Health-information comprehension and Motivation.

Introduction

Presently, infant mortality recorded for low- and middle-income countries remain unacceptably high despite the Millennium Development Goal (MDG) initiative which was established to facilitate a reduction. It is on record that each year thousands of children die as a result of diseases and health conditions that are preventable. A number of these diseases do not occur spontaneously; rather, they build up gradually to critical levels over a considerable time. Most approaches to address these diseases have focused exclusively from the clinical point of view (Akinyemi, Bamgboye and Ayeni, 2015); obviously, these clinical approaches have failed to recognize that substantial antecedents of these outcomes have psycho-behavioural contexts that can be addressed significantly through strategically planned antenatal communication and education.

It has been argued that infant mortality in Nigeria seem to be one of the highest in the world. Factors identified by research and practice contributing to infant morbidity and mortality range from poor antenatal preparations of mothers, poor service provision by health care service providers, inadequate birthing practices of care-givers and importantly, poor health-information dissemination to mothers of these infants. All of these factors are related when considered in the ecological context in which all of these factors operate (McLeroy, Bibeau, Steckler, & Glanz, 1987). While it is important to have delivery taken by skilled health personnel, what happens after the safe delivery when the mother and infant go home? A significant number of events leading to adverse outcomes following successful delivery usually occur during the post natal period when the mother is caring for the infant. As a result, it is important that the mother is sufficiently skilful to apply survival strategies to ensure that the success of the delivery is sustained throughout the period of vulnerability of the infant.

The Millennium Development Goals initiative was launched in 1990 with the aim of addressing deteriorating health conditions of populations in the developing world, encouraging governments of nation states to initiate policies and resources that would significantly impact on factors responsible for health disparities, poverty in diverse communities, environmental degradation and social inequality. At the target end-line for evaluating what has been achieved seems to show that a significant number of countries have not attained the set goals. Beyond the current clinical interventions addressing these health conditions related to the management of pneumonia, diarrhoea, sepsis, treatment of malaria and restoring nutrition in the infant and young children, conditions that put these population at risk of

morbidity and mortality needs to be targeted for intervention through effective health promotion and education strategies. There is a need now to begin to shift emphasis away from approaching disease from the exclusively clinical approach, which hitherto has not provided the expected results, to a more ecological perspective which provides opportunity to explore other factors contributing to the dynamics of causes of human diseases (McLeroy, 1987).

One of the strategic approaches in preventing outcomes caused by illnesses is by changing behaviours connected with risk of developing the diseases or halting the progression to a more severe form and poor outcome. Behaviour is at the root of disease aetiologies and all behaviours are amenable to learning activities. Therefore Health Education provides this opportunity because it is regarded as the process of planned learning activities that enables (empowers) individuals, groups and communities to voluntarily behave in ways that promote health, prevent diseases and facilitate recovery from illness (Green & Kreuter, 1991; Glanz, Rimer & Lewis, 2002).

It should be noted that behaviour is learned. This is achieved by providing experiences that will arouse a conscious awareness of the far reaching consequences of specific health behaviour by providing necessary information which would set in motion a cascade of psycho-behavioural and cognitive processes that should facilitate understanding and comprehension. Comprehension provides the framework for assigning meaning to phenomena and serves as the gateway to higher cognitive skills that would enable reasoning and decision-making (McKinney & Kurtz-Rossi, 2000). Invariably, the recipients of health-information at the rural settings are dipped in cultural context that probably interferes (Omeje & Nebo, 2011) with the cognitive processes relevant in contextualizing the information given, and thus preventing message comprehension (Nutbeam, 2000). Value clarification provided by information in the learning process can enhance understanding (Nutbeam, 2008).

At infant welfare clinics, a number of health promoting activities are organized and delivered that should enhance the health of the infants. These includes health-information contained in clinic counsels regarding immunization, adequate nutrition, breastfeeding practices, birth spacing through family planning counseling, growth monitoring, improved weaning practices and oral rehydration practices. Information about these health issues are essential requirements for promoting optimum growth and development of the infant. Invariably, these messages are given but do

not appear to make the impact desired. The important question raised in this study is, to what extent do these mothers actually comprehend the health information contained in the counsel offered? How often are these learning outcomes assessed? Most times, the clinics are large with few staff to provide strategically designed patient-focused motivational counselling (Fisher, Fisher, Misovich, Kimble & Malloy, 1996). Invariably, the clinic attendees leave more bewildered with information that appear to contradict their cultural practices. Yet there is no opportunity to provide value clarification in the bid to discharge the duty of the day by the healthcare personnel that is overwhelmed by the population of clientele they have to deal with considering other activities including clinical and laboratory tests.

It is well understood that ineffective messages delivered to mothers of infants will negatively influence their understanding of what is expected them to do to prevent events that may put their infants at risk of mortality and morbidity. It has been reported on many occasions that some of the challenges facing health systems are that infant healthcare facilities and services are still underutilized. Importantly, health promotion counseling and messages delivered to mothers attending infant welfare clinic appear to be casually delivered which raises a number of questions regarding how these messages are prepared, delivered and their effectiveness to produce the needed consciousness-raising, concern-arousing, action-stimulating impetus necessary to contribute effectively in ensuring that the infant grow without adverse events occurring, at least within their first year of life (Atulomah & Atulomah, 2012). Health messages and client counselling are the most popular and cheapest ways to reach these group in order to influence and equip them to meet the needs of the growing infants. In the absence skills likely to be acquired during these counselling sessions, they become powerless to perform preventive action in emergency situations.

With the backdrop of the unacceptably high infant mortality in developing countries of the world and the drive to achieve a significant reduction in infant morbidity and mortality rates as we approach the end of the MDG initiative provides the rationale for this study. The impact of an effective counseling and information communication strategy can produce the needed consciousness-raising, concern-arousing, action-stimulating impetus necessary to contribute effectively to prepare mothers of infant to perform necessary actions to ensure that their infants grow without adverse events occurring (Bandura, 1977).

We undertook this study to investigate how comprehension of health-information, and

motivation aroused by contents of health messages delivered may be associated with readiness to implement infant-survival strategies among attendees at Primary Health Care infant-welfare clinics in rural communities of Ikenne Local Government Nigeria in order to better understand the dynamics of health-message delivery. The study was guided by a number of research questions and specific objectives and included; to ascertain the level of information recall, comprehension, motivation and readiness to implement infant-survival strategies offered during the period of attending the clinic. Information is becoming an invaluable resource to facilitating all aspects of human lives required at all levels (Cox, Browmer & Ring, 2011). It is the most important resource for decision-making and when it is lacking result in poor decision-making and serious outcome that has far-reaching consequences to health and welfare. Intentionally, activities in the antenatal clinics are designed to equip mothers with information and knowledge about the nature of events likely to arise during the perinatal and postnatal period they should be aware of and skills to be able to deal with them. These birth-preparedness and infant-survival strategies among others are very important for reducing maternal and infant morbidity and mortality.

In this study, we postulated the hypothesis that both information about infant survival strategies and comprehension/motivation will be significantly associated with readiness of mothers to implement infant survival strategies, however that comprehension/motivation aroused will predict readiness to implement infant-survival strategies. Evidence from comparing the effect size of the two pathways validates this hypothesis.

Methodology

The study adopted cross-sectional design and employed the 45-item validated Health-Information-Comprehension-Motivation and Readiness (H-ICMR) questionnaire developed for the study to measure level of message comprehension, motivation and readiness of mothers attending infant-welfare clinics to apply counsels to facilitate the survival of their infants. Two hundred and forty five (245) mothers were selected by a two-stage sampling of five health-centers from ten, followed by systematic random sampling of clinic attendees at the local health-centers following consent from participants. Data was collected through interviewer-administered responses from respondents by trained research assistants.

The population of interest was mothers who had recently delivered infants and are attending infant

welfare clinics in a rural community of Ikenne Local Government Primary Health Care facility. Ikenne local government is one of twenty local government areas located in the tropical rainforest of South-western Nigeria at 12° 16' North and 6° 33' East with an area of 144 Km² and is made up of ten wards from five towns. The population of the rural communities is predominantly of Yoruba ethnic expression, however, other groups such as the Igbos and Hausa are also resident in these communities. They are predominantly subsistent farmers, artisans and traders with a few civil servants employed as teachers and local government workers.

Instrument Development and Measures

In developing the instrument for the study, we sought to measure certain demographic characteristics of the participants, their level of comprehension of Health-information contained in counsels and messages delivered to mothers at infant-welfare clinics. Measures for the study were conceptually derived from the information-motivation-behavioural skills construct (Fisher, et al., 1996) and consisted information about infant-survival strategies, comprehension and motivation and readiness to adopt infant survival strategies as a proxy measure for behavioural skills. These variables were operationalized by transforming participants' responses of instrument items into weighted coding to derive rating scales that reflect levels of measures. For instance, health-information recall was measured as an index of content of health counsel and message delivered and the scope health messages, measured on a 17-point rating scale. Similarly, Health-Information Comprehension and Motivation (H-ICM) index, measured comprehension of information delivered and level of willingness to engage in action that would promote survival of the infant on a 35-point rating scale. Finally, readiness to adopt infant-survival strategies presented at the infant welfare clinics were operationalized through items considering cognitive perception of self-efficacy and perception of usefulness and applicability of health counsel measured on 27-point rating scale. The comprehension-motivation constructs were measured on a multiple-response type and 4-point likert-type response scale respectively, with responses such as *Strongly Disagree*, *Disagree*, *Agree* and *Strongly Agree* coded so that a low value represented little or no comprehension or willingness.

Statistical Analysis

The reliability of the 45-item semi-structured questionnaire was determined through test-retest

with a sample ($N = 8$) of women from a neighbouring community and a reliability coefficient (Cronbach alpha) of 0.68 computed. Furthermore, the instrument was strengthened by incorporating major conceptual themes expressed in the conceptual framework that guided the study. The retrieved questionnaires were coded and entered into the computer system and data analyzed using the computer-assisted Statistical Package for Social Science (SPSS[®]) version 15.0 software. Descriptive statistics such as frequency distributions, and rating scales were used to derive means \pm standard deviation to evaluate sample parameters, while ANOVA and regression analysis were applied to determine test of significance and independence respectively. The level of significance was set at ($P \leq 0.05$) for all statistical procedures.

Results

The results of the study involving levels of Health-information Comprehension and motivation scales and Readiness to adopt infant-survival strategies generated three main hypotheses and were tested for validity.

Demographic Characteristics of the Participants

Two hundred and forty five (245) mothers of infants attending infant-welfare were enrolled for the study from five community infant welfare clinics in the Local Government area, Remo Ogun State, Nigeria. The mean age of the respondents in the study was 29.05 \pm 6.62 years and 172 (70.2%) reported to be married. Majority (85.8%) reported having some form of formal education. Respondents were of the Yoruba (49.0%), Igbo (27.8%) and various other (23.2%) ethnic expressions. A significant proportion (67.4.0%) claimed to have two or more children with 80 (32.7%) just having their first live birth. Similarly, a significant proportion of mothers (78.0%) were able to recall accurately information contained in the health-counsel offered at the clinic. (See Table 1)

Health-Information Comprehension and Motivation (H-ICM) measured on a 35-point rating scale showed that mothers scored a mean of 18.36 \pm 4.17. Readiness to implement infant survival strategies delivered through counseling offered at the clinic measured on a 27-point scale, reported a mean score of 14.66 \pm 4.87. Furthermore, there was a significant relationship between H-ICM and Readiness to apply health counsel sub-scale ($R = 0.269$; $R^2 = 0.072$; $P < 0.001$). Information Recall was similarly significantly associated with Readiness to act on information delivered ($R = 0.231$; $R^2 = 0.053$; $P < 0.001$), however, H-ICM ($B = 3.874$; $\beta = 0.345$; $R^2 = 0.119$; $p < 0.001$) was the predictor in a stepwise multiple regression analysis

Table 1. Frequency distribution of demographic characteristics of participants in this study

| VARIABLES | Respondents in this Study N= 245 | |
|---|----------------------------------|-------------|
| | Frequency (N) | Percent (%) |
| <i>Marital Status;</i> | | |
| ▪ Single | 45 | 18.4 |
| ▪ Married | 172 | 70.2 |
| ▪ Separated | 28 | 11.4 |
| <i>Religious Affiliation;</i> | | |
| ▪ Christian | | |
| ▪ Islam | 120 | 49.0 |
| ▪ Traditional belief system | 103 | 42.0 |
| | 22 | 9.0 |
| <i>Educational Attainment;</i> | | |
| ▪ Non-Formal | 35 | 14.3 |
| ▪ Primary | 58 | 23.7 |
| ▪ secondary | 70 | 28.6 |
| ▪ Higher(college or University) | 82 | 33.5 |
| <i>Birth History;</i> | | |
| ▪ First child only | | |
| ▪ Second child | 80 | 32.7 |
| ▪ More than two | 106 | 43.3 |
| | 59 | 24.1 |
| <i>Ethnicity;</i> | | |
| ▪ Yoruba | 120 | 49.0 |
| ▪ Igbo | 68 | 27.8 |
| ▪ Hausa | 40 | 16.3 |
| ▪ Others | 17 | 6.9 |
| <i>Post-natal Clinic Attendance since delivery;</i> | | |
| ▪ First time | 99 | 40.4 |
| ▪ Second attendance | 94 | 38.4 |
| ▪ More than two | 52 | 21.2 |

Perceived Level of Health-Information Recall

The result presented here considers perceived level of health-information recall (PHIR) of participants, a measure of what participants were able to remember related to counsels received on infant-survival strategies. In this study PHIR was measured on a 17-point scale, and a mean score of 13.26 ± 2.67 was reported for mothers attending the infant welfare in the local community. This result translates to a prevalence rate of information recall of 78.0%. (See Table 2)

Level of Health-Information Comprehension and Motivation (H-ICM)

An index to measure how much understanding and motivation demonstrated by participants was developed to assess comprehension of information delivered and level of willingness to engage in action that would promote survival of infants. Motivation to adopt infant-survival strategies was developed as a composite of two sub-scales, information-comprehension and willingness to adopt, and measured on a 35-point rating scale, The result showed that the level of information-

comprehension for the participants in this study measured on a 14-point rating scale was 5.54 ± 3.00 with a 95% confidence interval of 5.15 – 5.90. Similarly, willingness to adopt health counsel sub-scale measured on 21-point rating scale reported a mean score of 12.83 ± 2.54 with a 95% confidence interval of 12.53 – 13.15. This result showed that the prevalence rate for motivation among the participant to adopt health counsel was 52.5%. (See Table 2)

Level of Perceived Readiness to Adopt Health Counsel

Considering perceived readiness to adopt health counsels offered at infant-welfare clinics in the community and measured as level of confidence and self-efficacy expectation to performed the infant-survival strategies on a 27-point rating scale, reported a mean score of 14.66 with a standard deviation of 4.87 and a 95% confidence interval of 14.04 – 15.27. (See Table 2) The prevalence rate for readiness to adopt health counsel computed for this group of participants was 54.3%.

TABLE 2 Summaries of descriptive statistics of major variables related to Health information comprehension and motivation and perceived Readiness to adopt infant-survival strategies offered at the clinic among participants in this study

| VARIABLES | Respondents in this study N=245 | | |
|--|---------------------------------|------------------------|----------------------------------|
| | Maximum Score on Rating Scale | $\bar{x}(SE)\pm SD$ | 95% Confidence Interval for Mean |
| Age of Respondents (<i>Years</i>) | ... | 29.1 $\pm(0.42)$ 6.62 | 28.22 – 29.89 |
| Level of Health-Information Recall | 17 | 13.26(0.17) \pm 2.67 | 12.92 – 13.59 |
| Motivation to Adopt; | 35 | 18.36(0.27) \pm 4.17 | 17.84 – 18.89 |
| ▪ Information-Comprehension | 14 | 5.54(0.19) \pm 3.00 | 5.15 – 5.90 |
| ▪ Willingness | 21 | 12.83(0.16) \pm 2.54 | 12.53 – 13.15 |
| Readiness to adopt Health Counsel(Self-Efficacy) | 27 | 14.66(0.31) \pm 4.87 | 14.04 – 15.27 |

Regression Characteristics of the Constructs in the Study

In this study, we postulated the hypothesis that both information about infant-survival strategies and comprehension/motivation will be significantly associated with readiness of mothers to implement infant survival strategies. Regression analysis also revealed that comprehension/motivation aroused will significantly predict readiness to implement infant-survival strategies. (See Table 3) Evidence from comparing the effect size of the two pathways validates this hypothesis. Furthermore, there was a significant relationship between H-ICM and Readiness to apply health counsel sub-scale ($R=0.269$; $R^2=0.072$; $P<0.001$). Information Recall was similarly significantly associated with Readiness to act on information delivered ($R=0.231$; $R^2=0.053$; $P<0.001$), however, H-ICM ($B=0.397$; $\beta=0.345$; $R^2=0.119$; $p<0.001$) was the predictor in a stepwise multiple regression analysis.

Discussion

The goal of the Millennium Development Goal (MDG) initiative of reducing infant mortality rates (IMR) and under five (U5MR) by two-thirds between 1990 and 2015, despite some progress made, Nigeria is still short of the target 30.3 deaths per 1000 live births for IMR and 63.7 deaths per 1000 live births (FRN MDG 2013 Report, 2014). Presently, the IMR is at 61.0 deaths per 1000 live births while U5MR is at 94.0 deaths per 1000 live births. No doubt, 2015 defined as the end-line of the initiative is here, and the target has not been met validates the challenge involved. Therefore every research that would provide an understanding of the nature of this challenge would significantly contribute to achieving the goal.

This study was conducted among mothers attending

infant-welfare clinics in a rural community health-center to better understand the dynamics of how health-information related to infant survival incorporated into clinic counseling messages may determine their level of readiness (self-efficacy) to implement infant survival. In the study, we assessed their level of health-information comprehension and motivation aroused following health counseling procedures and also measured message-content recall and cognitive-perception of the information received and their implications for implementing infant-survival strategies. The study found that 78% of the mothers were able to accurately recall information contained in the health-counsel offered. When Health-Information Comprehension /Motivation (H-ICM) was considered, the mothers scored a mean of 18.36 ± 4.17 which translates to a comprehension prevalence rating of 52.5% of what they should score considering how important infant survival is to them. Self-Efficacy to act on information delivered through counseling offered at the clinic measured on a 27-point scale, reported a mean score of 14.66 ± 4.87 . Furthermore, there was a significant relationship between H-ICM and Self-Efficacy to apply health counsel ($R=0.269$; $R^2=0.072$; $P<0.001$). Information Recall was similarly significantly associated with Self-Efficacy ($R=0.231$; $R^2=0.053$; $P<0.001$), however, predictor in a stepwise multiple regression model was H-ICM ($B=0.397$; $\beta=0.345$; $R^2=0.119$; $p<0.001$). Findings show poor comprehension/motivation however, it is clear that comprehension and motivation when combined provides the necessary drive and incentives especially when the information is clearly disseminated. The study recommends that health personnel providing counselling at infant-welfare clinics should be more deliberate in planning health-information, and disseminate well-structured health-messages that would be motivating in arousing conscious-awareness and deep desire to

enhance infant-survival behaviour in mothers. The results also suggest that careful considerations should be given to attitudinal dispositions that would arouse interest and desire. The issue of comprehension should

not be downplayed when communicating information because it is the gateway to higher cognitive skills in decision-making (Ajzen, 2002).

TABLE 3 Regression Analysis of major variables related to Health information comprehension and motivation and perceived Readiness to adopt infant-survival strategies among participants in this study indicating relationship and independence.

| Variables in the Model | Readiness to Adopt Health Messages (N=245) | | | | |
|--|---|----------------------|----------------|-------------|----------|
| | B | β -Coefficient | R ² | F-Statistic | P-value* |
| Model 1: Health-information Comprehension and Motivation | 0.314 | 0.269 | 0.072 | 18.92 | 0.000 |
| Model 2: Health-Information Recall; Health-information Comprehension and Motivation; | 0.301 | 0.217 | 0.047 | 16.39 | 0.000 |
| | 0.397 | 0.345 | 0.119 | 12.94 | 0.000 |

*correlation is significant at p< 0.01 (2-tailed)

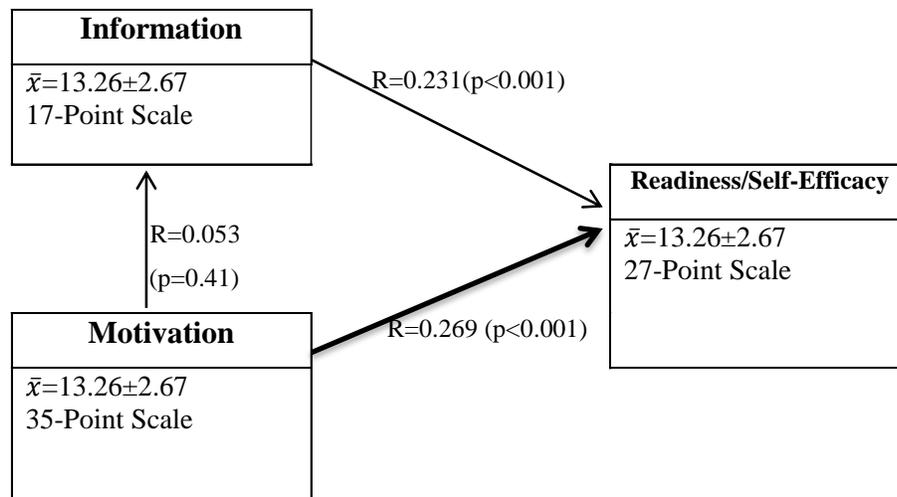


Figure 1 Path Analysis of the relationship between the major variables in the study.

Conclusion

The study on health-information comprehension, motivation and perceived readiness of mothers attending infant-welfare clinics to act on counsels offered to them is an important one because it offers opportunity to evaluate the outcome of information processing that should facilitate reduction in infant morbidity and mortality. Findings showed average readiness to implement infant-survival strategies. Mothers’ comprehension of information and motivation was poor and may account for persistence

in morbidity among infants possibly due to inability to apply survival strategies communicated during clinic sessions. The study recommends that health personnel providing counselling at infant-welfare clinics should be more deliberate in planning health-information, and to disseminate well-structured health-messages that would be motivating in arousing conscious-awareness and deep desire to enhance infant-survival behaviour among mothers.

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