

Determinants of Effective Parent-Adolescent Communication Methods in a Rural Agrarian Community in Western Kenya

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ABSTRACT

In an effort to address a major health systems concern, many interventions have been developed that recognize parents as key players towards influencing adolescents' knowledge, attitudes and behavior. This study explores interactional interfaces between various elements within the process of parent-adolescent sexual and reproductive health communication. This was an analytic cross sectional study utilizing mixed methods study design to collect data in 385 households in 40 villages with adolescents aged between 10-19 years. Household head gender, age, housing type, religion, group belonging, occupation, main source of income, local dairy animal, acreage of land available for cultivation and presence of a cash crop were important characteristics. Intra and inter method interactions included frequency of communication, information comprehensiveness, engagement frequency and monitoring frequency and intensity. Frequency of communication, monitoring and comprehensiveness of information were important elements for positive perception on effect and higher perception effect is related with higher likelihood of adolescents not having ever had sex and using protection during sex. Results show effectiveness of parent-adolescent sexual behaviour change communication process as being the result of four critical interactional interface points: household characteristics and communication methods; intra and inter methods; methods and perception effect; and perception and sexual behavior practice.

INTRODUCTION

In an effort to address a major health systems concern, adolescent sexual and reproductive health, interventions have been developed which recognize parents as key players towards influencing adolescents' behavior. There is robust evidence of parents influence on adolescents through identity formation and role-taking ability^[1], development of higher levels of moral reasoning^[2-4] and delayed sexual initiation, reduced sexual activity, improved use of contraceptives, lower risk of pregnancy and increased self-efficacy to negotiate safer sex^[5-9]. However, many studies have only examined various aspects of communication at independent effect level and challenges^[7,10-14]. If policy and program designers are going successfully to use these results for improved adolescent sexual and reproductive health outcome, consideration of interactions between various factors involved in the process of parent-adolescent communication are paramount.

The primary objectives of this study, undertaken in a rural agrarian area of Kenya in 2016, were to identify key elements of parent-adolescent sexual behavior change communication methods, determine the relationship between methods utilization with demographic and socio-economical factors and explain how the key elements contribute to effectiveness on adolescent sexual behavior change communication.

Many studies have demonstrated effectiveness of parent-adolescent sexuality communication in achieving desired impact [4-9]. Further, evidence from studies have determined relationships between different elements of communication and effect such as the discussions about sex and condoms being important for adolescents in communicating with sexual partners about sexual risk and condom use [15], preventing adolescents from conforming to more permissive peer norms about sexual risk-taking [16]. Also at communication methods level, relationships have been established where for instance repeated communications about sex, sexuality with open and closer relationships with parents [17], frequency of communication and relational closeness as predictors of future sexual attitudes and behaviors [18-20]. Five elements of parent-adolescent communication have been categorized as important: the extent of communication as measured by frequency and depth of discussions; the style or manner in which information is communicated; the content of the information discussed; the timing of communication; and the general family environment or overall relationship between the parent and child [21], elements of communication associated with delaying sexual initiation [22]. Some studies have also focused on barriers including culture [14] and demographic and socio-economic factors [13]. All these factors have roles that they play in effectiveness of parent-adolescent communication and those roles range from those directly related with outcome effect [4-9,16,18-20] and or indirect association through effect to other elements of communication [17].

The foregoing factors are pertinent considerations for those making policy decisions about program designs. But in the literature on effectiveness of parent-adolescent sexuality communication, communication methods assessed have often concentrated on elements and background factors as determinants of the outcome effect. While more recent design work on parent-adolescent has increased the number of parameters under consideration, limited empirical data exist to support how and effect of interactions within the processes of communication. This make comprehensive assessment of interventions' effectiveness difficult. Evidence based frameworks for assessing effectiveness of parent-adolescent sexual behaviour change communication process are needed.

METHODS

Study Setting

The study was conducted in Butere Sub-county of Kakamega County situated in western Kenya. Butere is predominantly rural agrarian with a total population of 139,78023. Since 2013, under the partnership program, both Butere sub-county Health Management Team (SCHMT) and the community received support to integrate young people into the implementation of Community Health Strategy (CHS) [24].

Design

This study was analytical cross-sectional study utilizing a mixed methods approach of both quantitative and qualitative design. A mixed methods approach facilitated balance between efficiency in collection of adequate data required for power of test expected and analysis with data that provided context [25]. Qualitative approach employed an explorative research design.

Sample and Sampling Technique

The study population comprised of households having adolescent males and females aged 10-19 years. Both parents and adolescents were interviewed in these households. Sample size determination formula of Israel 1992 regarding large populations was adopted for its appropriateness in estimation of representative sample sizes for such populations. Based on the formula, a total sample size of 385 households was derived to be adequate to yield a representative sample size [26]. Qualitative study comprised 16 focus group discussions (FGDs) targeted at 12 participants for each FGD as recommended by Guest (2006) [27].

Multistage sampling was used and through simple random sampling, 10 villages were selected for quantitative data collection and 1 for the qualitative data collection 12 villages a Community Health Unit (CHU). Using a sampling frame developed from the CHU household register for illegible households, starting with the first household, 10 households were systematically selected on the basis of established interval range on proportional basis. At household level, a maximum of 4 (2 parents and 2 adolescents) and a minimum of 2 interviews were conducted using simple random sampling in cases of more than 1 adolescent of same sex. A total of 4 FGDs per CHU were conducted, comprising of parent females, parent males, adolescent boys and adolescent girls. Data were collected in December 2016.

Data Analysis

The data analysis involved application of correlations. Multilevel analysis was employed to take into account hierarchical data structure resulting from the cluster design [28]. Sexual behavioral practice of delayed sexual activities and safer sex practices constituted outcome variables with background and intermediate factors of communication methods as well as elements forming key explanatory variables. Fisher's Exact Test of significance was used to test for significant differences across background and intervening variables under 95% level of Confidence and Cramer's V used to establish strength level of association while Kendall's tau_b correlation coefficient used to determine relationships of interactions between methods of communication and outcome of sexual behaviour change. Thematic analysis technique was used to analyze data from focus group discussion [29].

In the interpretation of this study, limitations to be noted include purposive selection of the rural agrarian study area and presence of intervention for improving sexual, reproductive health rights program that may affect the extent to which results can be generalized to similar areas. Also, while enumerators were well trained in gaining rapport with adolescent participants, it is worth noting that some adolescents might still have found some of the questions sensitive and hence withheld some information or gave not so correct information affecting the quality of conclusions.

Ethical Consideration

The study protocol was reviewed and received approval from the AMREF Health Africa Ethical Review Board and permission from the National Commission for Science, Technology and Innovation (NACOSTI). Written consent were obtained from all study participants (quantitative and FGDs) after explaining the purpose of the study before data was collected. Consent for respondents below 18 years involved parents' permission for their children to participate in the study and adolescent's assent.

RESULTS

Interaction between Background Factors and Methods

Ten characteristics comprising gender, age, three social and five economic variables indicated significant association with communication methods. For instance, more parents in older age categories than their counterparts in the lower categories had communicated (for male parent/guardians) and monitored (both male and female) their adolescents. At 95% CI, the Fisher's Exact Test statistics was significant (communication $p=0.020$, Cramer's $V=0.335$; and monitoring $p<0.001$, Cramer's $V=0.737$ and 0.711). Out of the possible maximum value of 1, Cramer's statistics indicate strong association for monitoring and a weak one for communication as methods used. It was observed that under communication, a higher proportion of male parent/guardians were affected to a "great extent" by embarrassment, anxiety/fear, due to own past experiences and lack of appropriate time to discuss sexual attitude and behaviors as compared with female parent/guardians.

Under social factors, both religion and group belonging (for both male and females) and housing type (females) showed significant associations for monitoring (in cases of religion and group belonging, $p<0.001$, housing type $p=0.024$) as a method of communication. Both religion and group belonging had higher Cramer's V value ranging between 0.713 and 0.804 indicating strong association while housing type indicated a weak association at Cramer's V value of 0.216.

Economic background factors including occupation, main source of income to household, ownership of local dairy animal, size of land for cultivation and presence of a cash crop, all showed significant associations with at least a method of communication (communication, connectedness and monitoring). Under the male guardians, both occupation and ownership of local dairy animal depicted significant association with communication only as did the size of land for cultivation and presence of a cash crop for connectedness (range of p-values 0.011-0.039). The main source of income to household variable showed significant Fisher's Exact Test statistic of association across all the three methods of communication under both sex (p-values ranging from <0.001 -0.037). However, except for monitoring with a strong association, the rest of the methods depicted either moderate or weak Cramer's V values of associations.

Results indicated progressive increase in proportion of males using method due to: age advancement, occupation (from salaried, casual, business to farmer); main source of income to household sub groups (from casual work, pension, salary, business to farming); and ownership of local dairy animal. For female parent/guardians, only main source of income to household was a factor for differential use of communication as a method, with salary, business and pension sources recording favorably higher utilization as compared to farming and casual work sources.

Connectedness as a method, depicted significant associational with three economic factors (main source of income, acreage of land available for cultivation and presence of a cash crop). Under both the male and female parent/guardians, main source of income sub groups showed differential utilization levels for connectedness (progressively from casual work, pension, salary, business to farming for males; and from farming, casual work to salary, business and pension

sources for females). Acreage of land available for cultivation and presence of a cash crop factors also showed favourable differential use of connectedness as a method under the male parent/guardians.

Monitoring had higher number of significant associated factors; four under the males and five under the female parent/guardian category. Main source of income, the only universal factor across the three methods and sexes, just like under the other two methods, showed differential utilization levels for monitoring method (progressively from casual work, pension, salary, business to farming for males; and from farming, casual work to salary, business and pension sources for females). Age advancement was associated with increased utilization of monitoring among male parent/guardians while for the females the reverse was true. Utilization for monitoring was higher by Catholics and Muslims declining with Pentecostal, Anglican and Indigenous churches, among the males. While the order is maintained under females, Indigenous church joins both the Catholics and Muslims in higher utilization levels. Belonging to economic group was highly associated with method utilization as compared to clan and women group belonging, in that order for both sexes. And, the more the housing structure tended towards permanence the high the level of utilization of monitoring method by female parents/guardians.

Interaction between Communication Methods

Using Kendall's tau_b correlation coefficient, findings showed that, overall frequency of communication between adolescents and their male parent/guardians was positively related to the comprehensiveness of information ($r=0.184$, $p<0.05$), frequency of engagement for connectedness ($r=0.222$, $p<0.01$), frequency of monitoring ($r=0.218$, $p<0.01$) and intensity ($r=0.196$, $p<0.05$) of monitoring. Comprehensiveness of information given by male parent/guardians was positively related with frequency of engagement, frequency and intensity of parent monitoring, with coefficients $r=0.341$, $r=0.245$ and $r=0.217$ respectively, just as frequency of engagement was strongly related with frequency and intensity of parent monitoring ($r=0.228$ and $r=0.346$, respectively, all at significant $p<0.01$). Among female parent/guardians, irrespective of adolescent gender, comprehensiveness of information was positively related with frequency of communication ($r=0.361$, $p<0.01$), frequency of parent monitoring ($r=0.128$, $p<0.05$); and intensity of parent monitoring related with frequency of engagement ($r=0.270$) and monitoring ($r=0.255$), both with $p<0.01$.

Focus group discussions revealed that frequency of communication increases opportunity for parent/guardian to use real life examples (based on personal or other people's experiences), as remarked by a female FGD participant remarked: "I talked with my daughter using recent real life examples and she changed on issues of relationship". Frequency of discussion also increases focus specific pertinent issue at a time, monitoring progress helping to avoid repetition (a practice that bores adolescents) and recognizing good practices by adolescents. Comprehensiveness of information is aided in instances where clarification is given on information accessed from phones, internet and other sources. A male FGD participant remarked: "And because there is so much information from these sources that they learn from, the best thing is to give them directions and explain to them the consequences of some behaviours and if you tell them the consequences, they remember especially when they are about to get trapped in similar things you talked about." Frequency of engagement means improving parent-adolescent relationship, which is crucial for openness and also helps parent understand needs of adolescent leading to innovatively dealing with situations, as a participant remarked: "It is difficult telling children to walk with a condom - but when aware of their needs, we can only give pocket money to help purchase such things like condoms". Also frequency of engagement made adolescents open up enabling them tell anything disturbing including their needs. Monitoring frequency was particularly identified with ability for instant pinpointing on areas needing behaviour change, knowing of adolescents that they are under protection, cared for and loved.

Interaction of Communication Methods with Adolescent Effect Perception

A majority of interviewed parent/guardians (99% and 97%, males and females respectively) and adolescents (75% males and 80% females) had positive perception regarding effect of sexual behavior communication with their adolescents. For instance, in reference to the last parent-adolescent conversation held, irrespective of gender, a majority of parent/guardians and adolescents noted that they "strongly agree" to the conversation as having been beneficial (63% males and 71% females, 69% boys and 61% girls). However, only four (4) elements (out of fourteen examined), were identified as most influenced that included; delayed sexual initiation, reduced sexual activity, lowering risk of pregnancy and abstinence. For instance, delayed sexual initiation was reported to a 'very great extent' for boys at 49% and girls at 47% by male parent/guardians; and 64% and 63% for boy and girl adolescents respectively, by female parent/guardians; reduced sexual activity, was reported by a majority female guardians to a 'great extent' and 'very great extent' (21% - 20%, and 57%, respectively), while males had 22-23% and 41-43%. Other types of sexual behaviour change practice elements that had over half of the female parent/guardians reporting with either to a 'great extent' or 'very great extent' included lowering risk of pregnancy (52%) and abstinence (50%) for girl adolescents.

Just as their parent/guardians, adolescents remarked the influence as being either to "great extent" or to a "very great extent" on delayed sexual initiation (20-52% and 29-50%, for male and females respectively), reduced sexual activity

(19-35% and 24-39% for male and females respectively) and abstinence (21-44% and 28-47% for males and females respectively). Additionally, adolescents perceived communication positively in preventing adolescents from conforming to more permissive peer norms about sexual risk-taking (23-35% and 34-35% for males and females respectively). Furthermore, girl adolescents had positive perception that communication lowered pregnancy risk. However, findings showed no significant relationship between methods of communication with perception effect among male parent/guardians.

Among female parent/guardians, the Kendall's tau_b correlation coefficient established that monitoring frequency had a positive relationship with high perception effect for boy adolescents ($r=0.424$), while frequency of engagement ($r=0.258$), frequency of parent monitoring ($r=0.220$), frequency of communication ($r=0.167$) and comprehensiveness of information ($r=0.188$) were positively related with perception effect for girl adolescents, all with $p<0.01$.

Interaction of Adolescent Effect Perception and Practice

While findings showed no significant direct relationship between methods of communication with perception on effect of communication among the male parent/guardians, higher positive perception effect level was related with higher likelihood of adolescents not having ever had sex ($r=0.225$) and using protection during sex ($r=0.229$), both with a $p<0.01$. Female parent/guardian interaction with their adolescents did not show significant relationship between perception effect and outcome practices.

DISCUSSION

The interactions between various factors that influence desired parent-adolescent sexual behaviour change identified from this study could be used as a basis for improving adolescent sexuality communication interventions planning, implementation and monitoring. Prior work on sexuality studies have highlighted limited level of; communication [30,31], comprehensiveness, nature and value of messages [32,33] and these affecting effectiveness of parent-adolescent sexuality communication [4-8]. This study extends this work and reveals three areas of interface where critical interactions occur in the realization of expected positive sexual and reproductive health behavioral outcomes among adolescents [34].

The first interface area, interaction between household background factors and communication methods have been found to present barriers to effective communication by reason of cultural taboos, lack of capacity [14] and demographic, socio-economic influences [13]. Our study demonstrates need to consider effect of both demographic and socio-economic characteristics. In our study, it was found that age was a factor in determining communication methods. Older male parent/guardians were more likely to have used communication and monitored their adolescents compared with young male counterparts, whereas younger females were more likely to have used monitoring approaches as compared to their older counterparts. Social groups have been shown to influence adoption of parent-adolescent communication methods [35]. In our study, differentials in level of use for monitoring as a method was observed across: religious lines with Catholics and Muslims being more likely to use the method followed by steady decline thorough Pentecostals, Anglicans and indigenous churches; group belonging where economic groups indicated high use as compared with clan or women group belonging; and housing type where families living in permanent houses were more likely to use monitoring compared to those in semi-permanent ones, which also had higher use compared with families of temporary houses. Also communication was more likely among occupation of housewife and trend showed proportional decline in use for same method through occupations of farming, business, casual worker to salaried individuals. Also main source of income indicated declining trend from farming, business, salaried, pension to casual work. These trends confirm that importance of communication approaches is dependent on time duration for which the parent/guardians is at home, affected by both station of work and nature of working hour schedules. Similarly, higher likelihood in proportional use of communication was noted by ownership of local dairy cow, and connectedness to ownership of a cash crop and large sizes of cultivation land, implying economic ventures provided opportunity for parent/guardians to work together with their adolescents and engaging in sexuality discussions.

This study identified second and third interfaces in parent-adolescent communication process as interaction between communication methods and adolescent perception for effective method. While in the study we confirmed some earlier findings that there were interactions between different methods of communication [17], our study further links these interactions with perception effect. Positive perception towards sexual behaviour change is important to realize expected parent-adolescent communication that leads to positive behavioral outcomes, including those on sexual and reproductive health [34]. In our study, we found that within the process of interaction between communication methods and perception, first important level regards interaction between different communication methods through their elements, with practice of one element escalating into practice for others as well. On the strength of positive association links, communication method had a higher concentration of correlation linkages among male parent/guardians and monitoring method among females. Irrespective of gender of parent/guardian, connectedness method had fewer correlation linkages among communication methods. These findings imply that benefits from strengthening one element

does not only benefit from final outcome, it also strengthens practice in other elements. However, the study also found that gender of parent/guardian is important factor that should be consider in modeling communication method-to-method interactions.

The study identified other important level within interaction process between communication methods and perception, interaction between elements of communication methods with perception effect. For instance frequency and comprehensiveness of information under communication method as well as frequency of monitoring and engagement for connectedness by female parent/guardians, were all correlated with increasing levels of perception effect on girl adolescents, while frequency of monitoring increased effect on boy adolescents. Longer term studies are needed across different contexts to better understand how these interactions occur and to develop better assumptions for effectiveness of communication methods in design of interventions.

The fourth key interface within parent-adolescent communication process that have received little attention that our study identified is interaction between adolescent perception of communication method and expected practice. This interface is especially important for consideration of models that include appropriateness of communication methods with regards to adolescents' preferences and liking [36]. Our study found that irrespective of whether there was direct association between communication methods with perception effect or not, high levels of perception regarding effect of communication methods were related with increased likelihood of delayed sex and use of protection during sex practices among adolescents.

CONCLUSION

Parents are key players towards influencing adolescents' knowledge, attitudes and behavior change. However, health programme managers and policy-makers need to pay close attention to the details of interactions that take place within the interface points along the communication process for effective designs and policies. Through examination of these interactions from household characteristics to parents and adolescents along the communication process, we have highlighted key interactional interface points for consideration in the design, implementation and monitoring of a parent-adolescent sexual behavior change communication processes.

CONTRIBUTION OF AUTHORS

COW conceived the idea and designed the study, provided team leadership to the research process, analyzed data, drafted the initial manuscript and synthesized the contributions of the other authors into the final draft of the manuscript. FC designed the study, supervised data collection and provided input on manuscript drafts. JK and NC participated in study design, development of analysis frame and provided input on manuscript drafts. All authors unconditionally approved the manuscript.

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