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Sexual and Reproductive Health Knowledge: Moving the Needle—The Powerful Purpose of Mentors

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Abstract: Purpose: COVID-19 heightened awareness of primary caregivers (parents, aunts, uncles, grandparents, etc.) as fundamentally important in mentoring adolescents and youth toward avoidance of current cultural pitfalls. Proximity, but also passionate and consistent involvement, interest, and emotional investment, affords them a unique opportunity. Sexual and Reproductive Health Knowledge (SRHK) is an efficient, effective, and measurable health outcome worthy of consideration as "low-hanging fruit", with the potential to reap significant long-term benefits in the spectrum of Social Determinants of Health (SDOH). **Method**: A 50-item survey was administered to men and women, aged 20–89 years, in two US outpatient, primary care clinics, 1 urban, 1 suburban. SRHK was gauged with 18 questions, with 1 correct answer per question. Data coding and analysis used IBM-SPSS. Statistical analysis included: Pearson correlation, *t*, and Chi-squared tests; with significance at $p < 0.05$. **Results**: Of 352 patients studied; 81.5% were women and 18.5% men. Mean age was 55.2 ± 14.6 years. 84.1% were African-American. 62.3% had incomes ≤ $50,000. Average years of formal education were 14.1± 2.5, and lower in older adults. Formal sex education was reported to be sufficient in 42.3%; insufficient in 16.8%. Absence of any such education was reported by 35.2%. Mean SRHK score was 10.2 ± 3.6 (maximal attainable = 18). Higher scores correlated with increased SRHK. 97% stated having sufficient SRHK was important. SRHK scores correlated positively with years of education, income, and use of digital communication ≥ 11 x/week ($p < 0.001$); negatively with age ($p < 0.001$). Effect of face-to-face communication on SRHK did not reach statistical significance. **Conclusions:** The positive association of SRHK with technological (but not face-to-face) communication could possibly be traced back to education and income: two SDOH. Those living alone (also having lower incomes) and older adults (irrespective of income) scored lower. Intriguing is the effect of traditional two-parent or multigenerational households, in bridging the SRHK gap for older adults and preparing them as mentors to the next generation.

Keywords: sexual health; women's health; reproductive health; social determinants of health; education level; income level; minority health; STI; minority health; health equity

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1. Introduction

A review of the literature suggests that certain knowledge gaps and attitudes toward what had been traditionally socially acceptable behavior may contribute to the likelihood of the "perfect storm" of lack of knowledge with overwhelming physiologic stimuli at certain crucial life intervals. Appropriate educational interventions, at this pivotal stage, would hopefully deter irrevocable, life-altering consequences of choices that are often based on lack of (or incorrect) knowledge. Intrinsic to our project is the hypothesis that primary caregivers (e.g., parents, aunts, uncles, grandparents) are fundamentally important to the process of mentoring and instilling values that will help adolescents and

youth avoid the pitfalls so rampant in today's culture. In addition, our pilot survey showed that the knowledge of thirty high school students queried, regarding sexually transmitted infections (STI) and reproductive health, was inadequate. This provided us reason to inquire as to the reliability of the myriad of resources they used to obtain the relevant information. It was also felt that Sexual and Reproductive Health Knowledge (SRHK) was an quantifiable health outcome worthy of consideration as "low-hanging fruit", with the potential to reap significant long-term benefits in the spectrum of social determinants of health (SDOH). In the field of economics, the University of Michigan, Ann Arbor, has put forth confidence in the economy as a recognized component in increased consumer spending [1]. Similarly, the purpose of this study is to evaluate whether there is an association between confidence of household mentors and SRHK within the family, further enabling us to explicitly determine whether household mentorship is beneficial in enhancing the knowledge of younger family members in this arena.

2. Materials and Methods

This is a prospective study of patients seeking care at two large, outpatient primary care clinics in metropolitan Detroit, Michigan. Participants in the study had to be 18 or above, able to communicate in English, not cognitively impaired, and agree to participate with a written informed consent. The study was approved by the WSU Institutional Review Board and performed according to approved ethical guidelines for human participant research.

A 50-item evaluation instrument, integrating factors of socio-demographics (age, gender, ethnicity, income, formal education level, and household type) and SRHK was developed to assess familiarity with sexual and reproductive health concepts. SRHK was measured using an instrument that included 18 knowledge-based questions. Each correct answer was given one point, for a total maximal SRHK score of 18. The other SHRK-related variables included: knowledge regarding types of sexually transmitted diseases (STD)/infections (STI), causation, and steps that can be taken to prevent them; types and means of transmission, symptoms of STI and ways to avoid them; the menstrual cycle and conception, ways to avoid pregnancy, methods of contraception, and correct use and types of condoms and oral contraceptives.

Statistical Analysis

The data was analyzed using IBM SPSS for Windows, version 27.0 (IBM SPSS Inc, Chicago, Illinois). Continuous data (e.g., age) were analyzed using t test and categorical data (e.g., gender) associations were evaluated using Chi-Square test. Pearson correlation coefficient (r) was used for the analysis of associations between SRHK and continuous data. Results are presented as mean (M) ± standard deviation (SD), or as number (n) and percentage (%). Statistical significance for all tests was established at $p < 0.05$

3. Results

Of 352 patients studied; 1.5% were women and 18.5% men. Mean age was 55.3 ± 14.6 years. Among the patients, 84.4% were African-American, 9.8% Caucasian, and 5.8% were of other ethnicities which included Hispanic/Latinx, East/South Asian, and Native Americans. A majority of the patients (64.4%) had incomes up to $50,000, with a smaller proportion (10.0%) having incomes greater than $100,000. Average years of formal education were 14.1 ± 2.5, with males and older adults having lower levels of education. The majority (66.5%) of patients studied had formal education levels greater than 12th grade. The largest proportion (49.8%) of study participants lived alone, a smaller proportion living together with other family members. Overall, the patient population had a total SRHK score of 10.2 ± 3.6.

Patient income, education and use of digital communication ≥ 11 x/week ($p < 0.001$) were positively associated with SRHK scores, with males generally obtaining lower SHRK

scores than females ($p < 0.05$). SRHK was, however, negatively associated with age ($p < 0.001$). Communication, especially face-to-face type of communication, did not have a significant effect on SRHK. Additionally, among the many variables studied, individuals living with others obtained higher scores than those living singly. A substantial proportion (42.3%) of those with formal sex education stated that it was sufficient, whereas 16.8% noted an insufficiency, with 35.2% reporting no such education. Nevertheless, a significant proportion (97%) of the patients noted that having sufficient SRHK was of importance for their well-being.

4. Discussion

Sexual health is an important aspect of clinical patient evaluation; but even now, with all the available resources, the subject is considered uncomfortable to discuss among household members. Therefore, our study decided to gauge adequacy, as well as self-perceived adequacy, of SRHK among household members serving as de facto mentors in a family dynamic. If their SRHK was in fact adequate, their confidence in interacting with younger family members on topics which might be considered, thus far, uncomfortable, unapproachable, or even taboo, should be enhanced, resulting in more accurate dispensing of valuable information from trusted sources. The findings of our study, in this context, confirm the importance of the research for the patient population evaluated. A popular radio show in the United States, "Focus on the Family", mentioned, on February 12, 2020, that approximately 1% of families engage in discussion about sexuality and sex [2]. This revelation resonated with and affirmed the need for our study, which set out to determine the skillset of a population of mentors, and whether household mentorship is beneficial in enhancing the SRHK of younger family members, as well as the tools necessary in effecting meaningful outcomes and long-lasting change.

As a rule, we might assume older individuals in the household to be the population with the greatest SRHK, based of substantial real-life experiences. This would hopefully mean that the primary sources of quality information—parents, grandparents, and guardians—have the armamentarium to provide such a crucial resource at the time of their children's (and grandchildren's) greatest vulnerability and greatest need. Our data, however, suggest that older family members in the African American community studied, often have both lower levels of formal education, and lower SRHK; and may, therefore, require additional assistance and training to achieve the level of expertise and competence necessary to confidently steward their younger charges. Such observations have been noted in other parts of the world as well [3]. We will expound upon why income and education were the primary SDOH identified in our study.

Practically, income effects acquisition of services, and makes salient the opportunity costs factored into other choices [4]. Additionally, the benefits of economic stability and education, as SDOH, have been shown by others, including the Kaiser Family Foundation [5]. The interaction of access to employment, disposable and discretionary income, out-of-pocket expenses, debt (e.g., student loans, mortgage payments, and taxes), medical expenses, and access to social support for assistance during periods of financial and/or medical stress all contribute to both the reality and to the self-perception of economic stability. Education, in the acquisition of economic stability, is fairly rudimentary. One's education affects functional health literacy, language skills (affecting upward mobility), early childhood education (at crucial developmental stages), and access not only to higher education, but even to vocational training to help with pursuit of higher learning and trade-related skills. Functional Health Literacy, as it relates to SRHK, may be a confounding factor in many SDOH, especially in older African Americans.

Our data bore out a relationship between household mentor knowledge and economic resources, and mentee aspirations and goal-fulfillment, in the context of SRHK. An additional, but potentially important component in that formative process exists. Primary healthcare providers have the skillset to provide a meaningful interface in guiding the "science" with accurate, real-time, information, fundamental to the success of this

intervention. Developing the tools in the provider/physician population is an ongoing effort in many institutions, as SDOH becomes a known and significant factor in improving patient outcomes. In all venues, for a physician to successfully impact the life of each patient, they must have the point-of-care resources to navigate, as advocates, the SDOH unique to each patient. Toward that end, developing a normative pattern of questioning regarding education [5], income, and sexual health, may help discover some of the more easily modifiable aspects of SDOH like functional health literacy (of which SRHK may be a subset).

The interplay between sexual and reproductive health knowledge, behavior change (based on attitude shift), and resultant societal normative changes is a tenuous science [6] fraught with variables that cannot always be defined and interpreted with exactitude. Human behavior cannot be predicted as efficiently as that of a rat in a maze, but shifts in societal norms either toward or away from behavioral standards should be measurable. The United States Agency for International Development (USAID) *Data for Impact* project looked at Adolescent and Youth Sexual and Reproductive Health (AYSRH), focusing on four major goals: 1) social support; 2) knowledge, 3) attitudes, and 4) skills and behaviors [7]. Hogben, et al. also looked at the intersection of sexual health interventions (in the areas of knowledge, attitudes, communication, healthcare use, sexual behavior, and adverse events) [8] and their relationship to public health outcomes. Individuals were surveyed regarding their self-perceived acumen in these domains, as well as whether they perceived this to be normative behavior in their own communities. Importantly, they were also asked questions relevant to their (and others') perceived ability to effectuate change.

Historical perspective adds context and helps with understanding root causes. In an earlier study it was observed that even though adolescents needed accurate knowledge of sexual and reproductive health topics to make informed decisions, they did not behave in a manner consistent with their knowledge, necessitating a distinct behavior measurement [9]. Hogben similarly noted, in the majority of studies cited, that knowledge and attitudes were positively correlated, but that attitudes and behavior were negatively correlated. His analysis also suggested that face-to-face interventions were more effective in changing behavior and health outcomes than larger group interventions, which affected attitudes and knowledge more substantially**.** The multidisciplinary approach to patient care offers opportunities for students, residents, pharmacists, social workers, and nurses to learn from one another, and bring a wealth of energy and knowledge to bear for each patient encounter (2). Similarly, the multigenerational approach to mentoring, especially in the home, should bring the same dynamic to young people seeking answers to fundamental questions from trusted, knowledgeable intercessors.

COVID-19 has helped make TeleHealth and the Patient Portal tools for increased accessibility. The more trustworthy patients perceive us as being, the more we are able to advocate for them universally (and vice versa). We considered this aspect in designing the study as the initial part of a separate implementation strategy to ultimately effect behavioral change, especially in young adults. The secondary goal of our intervention would be to: (1) improve SRHK in our adult patient population, the logical primary mentors, (2) counsel them to effect attitudes regarding sexual and reproductive health in their home environments, (3) guide those in need to age-appropriate sources (e.g.**,** text-messaging for those < 35 yrs, or e-mail for those ≥35 yrs) (9) and offer user-friendly SRHK online and paper-based resources.

Our research identified economic stability and formal education as key indicators of both SRHK and primary health. We will be parsing out each of these, as well as looking at mitigation strategies for these largely un-socially-supported mentors, in future studies, as well as validating our tool in divergent populations. We plan to target our intervention toward addressing the specific health issue of SRHK among adolescents and young people, by addressing the knowledge of the mentors, who may best be in a position to help foster and change behavior, and counteract the root causes of STI and unwanted pregnancies in the African American community. Our ultimate goal is prevention, by increasing

knowledge, attitudinal change, and normalization of the discussion around SRHK; but to ultimately affect behavior, this must be preceded by increased access to correct information (knowledge), buy-in by the targeted demographic, opportunities to articulate their views and beliefs, and finally, opportunities to act on their beliefs. In the post-COVID-19 United States, physicians recognize TeleHealth and confidential e-mail (Patient Portal) communication as a new but integral tool for engaging populations of older adults, not previously interacting with the healthcare system, in preventive care.

Physicians have a responsibility to be *socially accountable* to the patients they serve by being responsive to their voiced (and unvoiced) needs and serving as advocates for those we recognize as marginalized in our patient population. The practice of medicine has always evolved with new evidence borne of research. The scope of its reach has expanded to include the environment beyond bodily systems, even beyond four walls. Traditional two-parent or multigenerational households, along with strategic interventions by trusted primary care providers, may serve as a template in bridging the SRHK gap for older adults and preparing them as mentors to the next generation. Further studies are necessary to confirm these findings and also to understand the interplay of family mentoring with the use of technology.

Strengths and Limitations of Study

The findings of this research may significantly impact clinical evaluation and care as well as patient education; however, the study does have limitations. Since the research was carried out in an urban setting, the socio-demographics of the patients participating in the study may not be representative of other populations, thus constraining the generalizability of results. Nevertheless, the findings of the study are unique, have clinical implications, and warrant further investigation.

5. Conclusions

It is essential for the knowledge of household mentors to be translated to younger family members during their formative years. Our study added credence to the benefits of SRHK mentorship within the family unit.

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