

Contents lists available at ScienceDirect

International Journal of Africa Nursing Sciences

journal homepage: www.elsevier.com/locate/ijans

Factors influencing the adolescent pregnancy rate in the Greater Giyani Municipality, Limpopo Province – South Africa



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ARTICLE INFO

Article history:

Received 9 July 2013

Received in revised form 15 October 2014

Accepted 16 January 2015

Available online 7 February 2015

Keywords:

Access to care

Adolescence

Pregnancy rate

Peer pressure

Psychosocial environment

ABSTRACT

A quantitative, descriptive and explorative survey was conducted to determine factors that influence adolescent pregnancy rate among teenage girls ($n = 147$) attending four high schools in the Greater Giyani Municipality in South Africa. Data was collected using a validated questionnaire which had a reliability of 0.65. Response frequency distributions, two-way frequency tables, Chi-square tests and Cochran-Armitage Trend Tests were used to determine the effect with the demographic characteristics of participants. Participants reported that health services were not conveniently available for them. Their relationship with nurses was poor ($p < 0.05$) as reported by 73% of participants with regard to maintenance of confidentiality. Participants reported key psychosocial variables such as inadequate sexual knowledge (61%), changing attitudes towards sex (58.9%) and peer pressure (56.3%) as contributory to high pregnancy rate. Recommendations were made to improve school health services, reproductive education in school curricula focussing on reproductive health, sexuality and guidance for future research.

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1. Introduction and background

Adolescent pregnancy is a concern worldwide and has risen to an alarming rate in South African society (Dommissie, 2007). According to a 2012 World Health Organization (WHO) fact sheet on adolescent pregnancy, it is estimated that 16 million adolescent girls give birth every year – most in low- and middle-income countries. In these countries, complications from childbirth are the leading cause of death among girls between the ages of 15–19 (Goddie, 2008). In 2006, it was reported that 5868 pupils in KwaZulu-Natal, South Africa, approximately 5000 in Limpopo, 2542 in Gauteng and 1748 in the Free State were pregnant (Dommissie et al., 2007). According to a South African Department of Education report (Ramcharan, 2007) more than 72,000 pregnant female students were absent from school in 2006.

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<http://dx.doi.org/10.1016/j.ijans.2015.01.001>

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Adolescence is defined as the development phase in the human life cycle that is situated between childhood and adulthood (Gouws, Kruger, & Burger, 2008). Adolescence is characterised by rapid physical growth and development, with notable emotional and social changes (Gouws et al., 2008). A great challenge in this stage of development is that new feelings emerge, friends assume greater importance, and interest in the opposite sex increases (Gouws et al., 2008; Shaffer & Kipp, 2007). According to Erikson's theory of psychosocial development, adolescents from 12 onwards may face a psychosocial crisis known as identity versus role confusion that may be experienced in adolescent pregnancy (Shaffer & Kipp, 2007; Stanhope, Lancaster, Jessup-Falcioni, & Viverais-Dresler, 2008). Adolescents perceive pregnancy as something which is unintended. Pregnancy is often associated with individual characteristics such as knowledge, maturity, skill, and age at first intercourse. Misconceptions about sex and contraceptives are still evident in most teenagers (Richter & Mlambo, 2005; Ziyane & Ehlers, 2006). In a study conducted in Swaziland, adolescent girls revealed that they were expected to bear children at young ages and are competing for men's love by bearing their children. Adolescent boys confirmed that men are the leading decision-makers about sexual issues (Ziyane & Ehlers, 2006).

Adolescent pregnancy brings change to the lives of young girls and in most instances negative social consequences such as drop-

ping out of school and interrupted education. Adolescent pregnancies contribute to many health problems as girls enter into motherhood before they are physical and psycho-socially ready (Godding, 2008; Richter & Mlambo, 2005). Society is negatively affected as socio-economic factors such as poverty; unemployment and poor literacy are interrelated with adolescent pregnancies (Van Rensburg, 2004).

An empirical investigation on factors influencing pregnancy rates in adolescent girls will strengthen the knowledge base and empower health care providers to effectively improve health services delivery to this population.

1.1. Statement of the problem

High school teachers in the Giyani district of the Limpopo province reported high absenteeism due to pregnant adolescent girls not attending school or leaving school early to collect child support grants. The child support grant is described by Patel (2011) as a means of cash support for children, 0–18 years of age provided by the South African government. Although the government introduced this program with good intentions of reducing poverty and promoting equality and human well-being, it appears to be abused by some school going teenagers. Many adolescent girls become pregnant in order to be eligible to receive child support grants. In the African context, it is also known that pregnant dropouts are usually forced into early marriage (Patel, 2011). As a community member in the Greater Giyani Municipality and a nurse educator who frequently accompanies nursing students to different clinical areas, the researcher observed with concern the increasing number of adolescents who are pregnant and attending antenatal clinics.

1.2. Purpose and objectives of the study

The main purpose of this study was to explore and describe the factors that contribute to the prevalence of adolescent pregnancy in the Giyani region in the Limpopo province of South Africa. The objective was to investigate adolescents "perceptions on adolescent pregnancy".

Five areas of adolescent everyday life were identified in the literature as possible reasons for becoming sexually active at a young age. These factors assisted in structuring the research measuring instrument and data collection process.

2. Methodology

A quantitative, explorative and descriptive survey research design was used with an aim to explore, identify and describe issues, reasons, circumstances and factors that contribute to adolescent pregnancy.

2.1. Population and sampling

The target population in this study comprised of high school teenage girls between the ages of 10–19, pregnant or not and in grade 9–12. They had to be at school during March 2010 when data was collected and had to be willing to participate in the study.

Non-probability or convenience sampling method was appropriate to select respondents because not every adolescent girl had an equal chance to be included in the sample.

An accessible population comprised of respondents that were available on the dates when data was collected. However, the nature and sensitivity of the study topic made many girls to be unwilling to participate even if they were eligible. A sample of 147 eligible and willing female adolescents as respondents were conve-

niently obtained from the four designated schools as evidenced in Table 1.

Although the schools were more or less of the same size, a large number of recruits was from school C which could be due to the fact that the school is near the clinic and the researcher frequents the school for health services.

2.2. Development of the instrument

The comprehensive literature review and Bandura's (2001) social cognitive theory were sources from which questionnaire items were formulated. The questionnaire consisted of a section on demographic information and five other sections. Each of the other five sections in the questionnaire had a set of questions that provided the parameters within which the respondents answered. These five subsets of question statements used a five-point type Likert Rating scale with five response categories. It included questions related to:

- adolescent attitude/understanding of sexual activities at their age;
- the psycho-social environment that affects belief and value systems;
- availability and accessibility of health services to adolescent;
- the attitude of nurses towards adolescents' sexual health risks;
- health risk issues of adolescents.

2.3. Data collection

A structured questionnaire with closed-ended questions was used to collect data. Firstly an arrangement was made with the principals of the four designated high schools to collect data from eligible teenage girls. The researcher and two volunteers visited the conveniently selected schools and collected data consistently over a period of 4 days with one day spent at each research context. Prior arrangements were made in this regard with the teenage girls too from each school. The researchers went to each classroom to explain about the research and recruit girls who volunteered to participate. Secondly, the respondents who were available and were willing to participate were then gathered into a designated classroom where data was collected through the administration of a written questionnaire. More information about the study was provided and informed consent obtained. This was done during break to avoid disruption during class room attendance. Although numbers were disproportionate to the size of the three schools with low numbers, a desired sample of 147 respondents was obtained with a 100% response rate.

2.4. Validity and reliability

Content validity was ensured by submitting the pre-test questionnaire to three experienced school health nurses for their review and input to ensure that the content of the questionnaire represented the study phenomenon (LoBiondo-Wood & Haber, 2006). Most of the items on the questionnaire were derived from the literature and the suggested theoretical framework of Bandura (2001). A Cronbach's alpha co-efficient of 0.65 was established for reliability of the instrument which indicated a fair internal reliability.

2.5. Ethical consideration

Ethical approval was obtained from the Research and Ethics Committee of the Department of Health Studies, University of South Africa. Permission to conduct the study was obtained from the Provincial Department of Health, the Department of Education

Table 1
Number of respondents from each school ($n = 147$).

Schools	Frequency	%
A	9	6
B	10	7
C	123	84
D	5	3
Total	147	100

and school principals. Informed consent was obtained from all participants who were 18 years or older and from parents/guardians of those who were minors. Participation was voluntary and participants were informed that they could withdraw from the study at any time should they feel uncomfortable. Other considerations such as confidentiality, anonymity, respect and dignity were ensured. Anonymity was ensured especially for referral on sexually related issues to the counsellor by making sure that an appointment was made with the counsellor for private consultation outside the research environment.

2.6. Analysis strategy based on research questions to be answered and format of questionnaire

The analysis strategy designed for the study was aimed at addressing the research objectives and included frequency and composite frequency tables, figures, scale reliability testing on the subsets of questionnaire items that described each adolescent pregnancy factor. Detailed information on the composition of perception trends expressed in the construct scores could be derived from the subset of response frequency distributions on issues that described each pregnancy prevalence factor. Two-way frequency tables, Chi-square tests and Cochran–Armitage Trend Tests were used to determine the effect that demographic attributes of participants might further have on perceptions regarding the pregnancy prevalence constructs.

3. Findings and interpretation

All analysis presented in the paper was conducted with the Statistical Analysis System (SAS) version 9.2 statistical package.

3.1. The sampled participants

Demographics of participants are presented in [Table 2](#).

Most of the 147 participants were from the Giyani district and were single (93.8%); most were either in Grades 7 or 10 (38.8% and 36.7%); lived with both parents (65.1%) and were older than 15 years (87.5%). This sample represented the typical school going female.

3.2. Scale reliability testing and Cronbach alpha coefficients

Validating the internal consistency reliability of the five constructs investigated as possible causes of adolescent pregnancy was performed. Separate scale reliability testing was conducted on the subsets of questionnaire items describing each pregnancy prevalence factor ([Table 3](#)).

The tests were conducted to confirm internal reliability to establish whether the subsets of questionnaire items truly contribute towards explaining the relevant aspect/or factor of pregnancy prevalence.

Table 2
Demographic characteristics of adolescents ($n = 147$).

	Frequency	%	Cumulative frequency	Cumulative %
Age				
10–15 years	26	17.8	26	17.8
16–20 years	120	82.2	146	100.0
Marital status				
Single	136	93.7	136	93.8
Married	5	3.5	141	97.2
Other	4	2.8	145	100.0
Highest grade completed at time of data collection				
Grade 7	57	38.8	57	38.8
Grade 10	54	36.7	111	75.5
Grade 12	24	16.3	135	91.8
Other	12	8.2	147	100.0
Family composition				
Both parents	95	65.1	95	65.1
Single parent	48	32.9	143	98.0
Sibling head	1	0.7	144	98.6
Other	2	1.4	146	100.0
Position within the family				
1st born	49	33.3	49	33.3
2nd born	24	16.3	73	49.7
3rd born	34	23.1	107	72.8
Last born	36	24.5	143	97.3
Other	4	2.7	147	100.0
Age at first intercourse				
11–12 years	6	4.4	6	4.4
13–14 years	11	8.1	17	12.5
15–16 years	62	45.6	79	58.1
17–18+ years	57	41.9	136	100.0

*Frequency and valid percent excludes missing cases (i.e., “no response” and “do not know” etc.). Percentages may not add to total 100, due to rounding.

Table 3
Reliability of constructs scores related to the participants' general perception of whether the specific factor contributed towards the prevalence of adolescent pregnancy.

Constructs	Standardised Cronbach alpha	Construct score means (standard deviation)
Attitude of adolescent's engagement in sexual activities	0.66	3.63 (1.01)
Psycho-sociological effect of environment	0.72	2.94 (0.71)
Effect of health service accessibility/availability	0.66	3.48 (0.69)
Effect of adolescent health/nursing problems	0.62	2.49 (0.82)
Relationship with nurses; approachability	0.5	3.37 (0.68)

3.3. Calculation of adolescent pregnancy construct-scores and construct score means

Pregnancy prevalence participants' scores for each construct were calculated once internal reliability of the constructs was established. The scores measured participants “perceptions on each pregnancy prevalence construct” and were calculated as the mean agreement rating responses of a participant to the subset of questionnaire statements that describe a pregnancy prevalence factor/aspect. Since these scores were derived from agreement rating responses, the scores could be interpreted according to the agreement rating levels specified in the questionnaire, namely “1” indicating strong agreement, “2” indicating agreement, up to “5” indicating strong disagreement. The average construct score for each pregnancy prevalence factor was calculated from participant construct scores as an average and reflected how par-

ticipants in general perceived a factor as contributing towards adolescent pregnancy. These construct score means and their standard deviations are reported in Table 3. The construct score described the general perception of each participant as to whether the specific factor contributed towards the prevalence of adolescent pregnancy. Cronbach alpha values in the region of or greater than 0.65 can be regarded as indicators of internal reliability.

The values of all alpha coefficients barring the coefficient for the construct of relationship with nurses/their approachability “were greater than 0.6” which indicated satisfactory internal reliability in this exploratory study. Measures of perceptions for each construct, calculated as mean rating values for each subset of questionnaire item responses, would thus present reliable measures of participants individual perceptions of these factors.

The alpha coefficients of 0.50 for the relationship with nurses/their approachability however, indicated that the construct score of participants on this factor was an unreliable measure and should

be treated with caution in further analyses. The construct score on this factor could have been omitted from further analyses. It was therefore reasoned that the cautious interpretation of findings on this factor could be used as guideline in the development of a more accurate measuring instrument/questionnaire in future research.

The construct score means for the pregnancy prevalence constructs of adolescents attitude towards sexual activities, availability of health services to adolescents and approachability of nurses were towards an agreement score of “4” – which signified disagreement or a negative perception. The implication of these negative perceptions on the pregnancy prevalence rate should be considered in the context of the issues that constitute each construct. Detailed information on which specific issues constitute each construct and how perceptions on these issues contribute to the various construct scores are presented in Figs. 1–4.

The scores mean for the pregnancy prevalence aspects of psycho-social influences and health risks and problems that adoles-

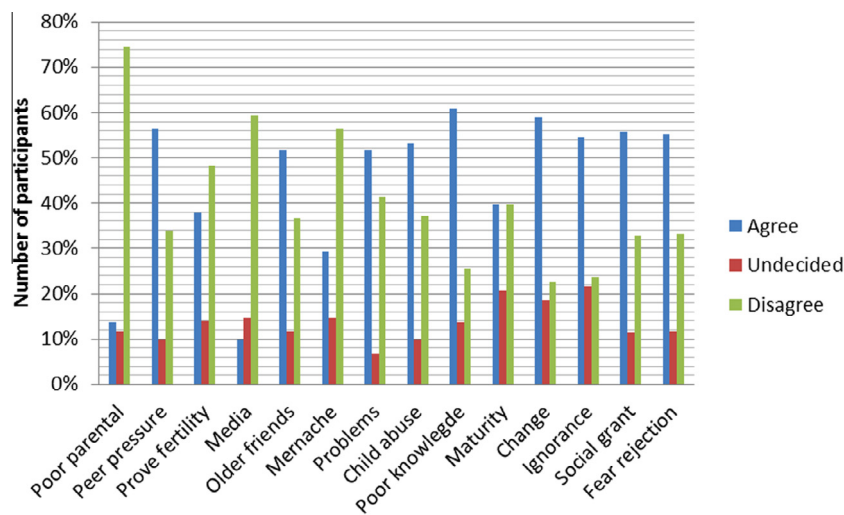


Fig. 1. Participant responses to adolescent psychosocial issues as reasons for early sexual activity (n = 147).

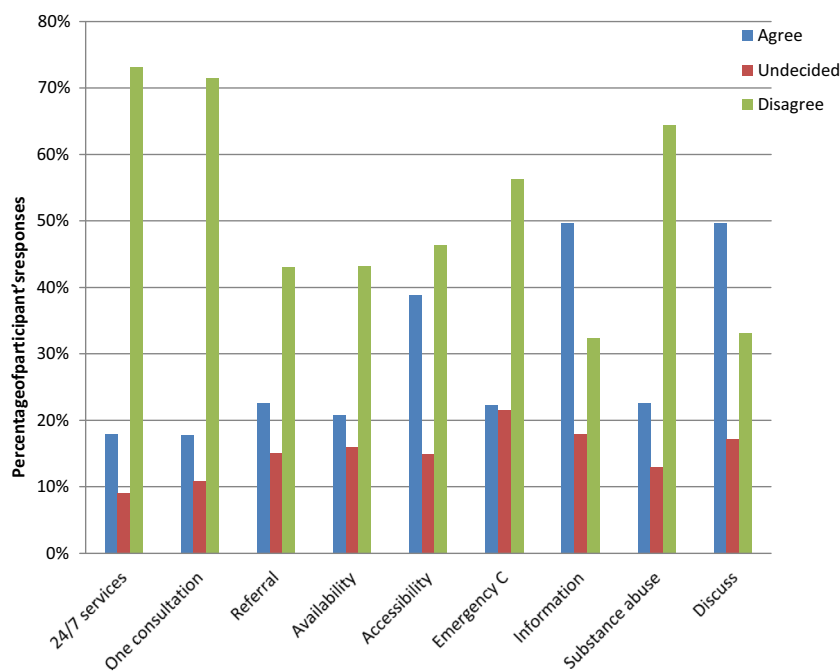


Fig. 2. Participant responses to adolescent health services issues (n = 147).

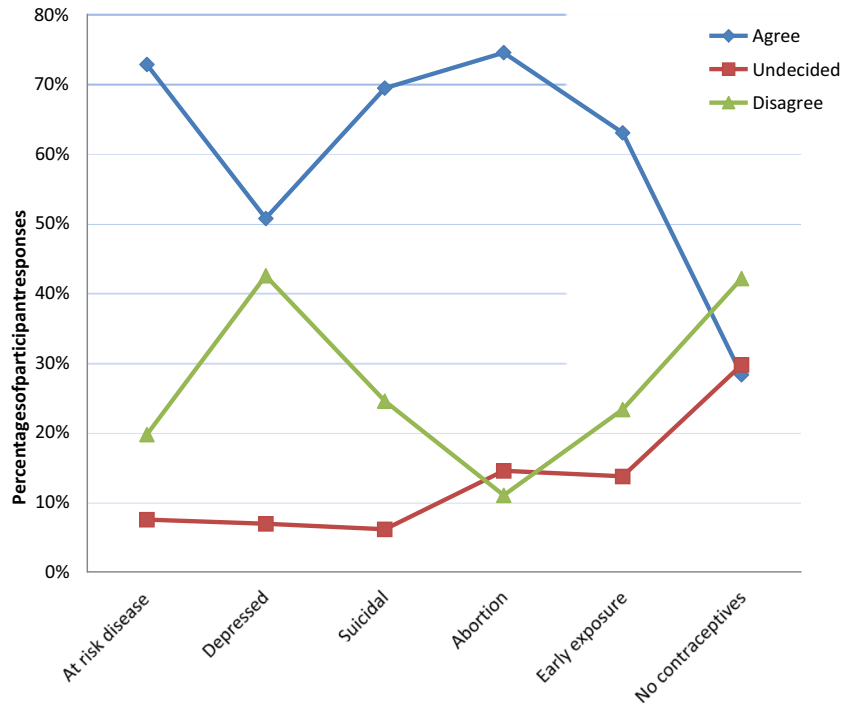


Fig. 3. Participant responses to health risk issues (n = 147).

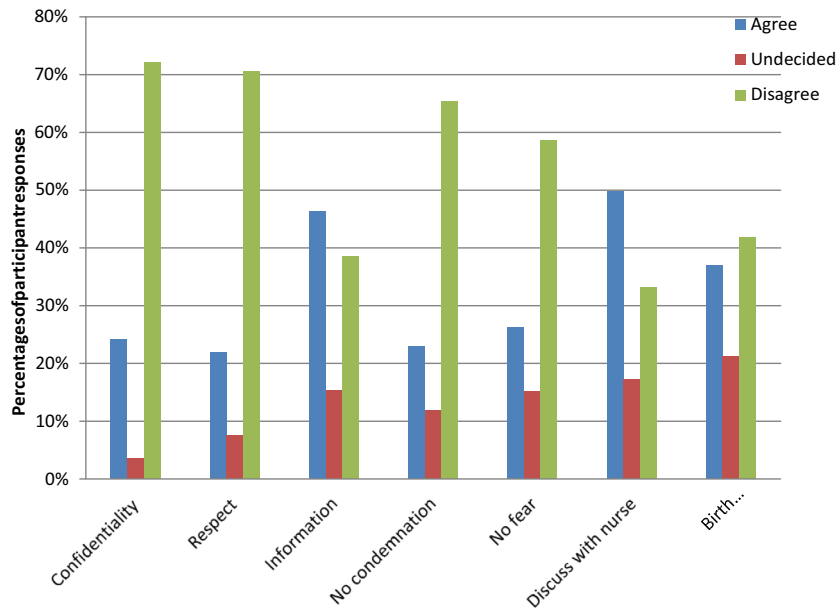


Fig. 4. Participant responses for approachability and relationship with nurses (n = 147).

cents face on the other hand were towards a rating value of “3” which signified indifference or even “2” which signified agreement. These findings should also be interpreted in the context of the issues that constitute the constructs and how perception trends on each issue should be interpreted as affecting pregnancy rate.

3.4. Composite frequency tables of the five constructs investigated as possible causes of adolescent pregnancy

3.4.1. Adolescent changing attitudes towards sex

Detailed information on the composition of perception trends expressed in the construct scores can be derived from the subset of response frequency distributions on issues that described each

pregnancy prevalence factor. It should, however, be noted that the subsets of questionnaire statements indicated in the reliability analyses as reliable, do not correspond directly with the structure of pregnancy prevalence factors indicated on the questionnaire. Analyses could not prove internal reliability for the questionnaire-structured subsets. Further analyses showed construct scores derived from questionnaire item subsets satisfied internal reliability (see Table 4).

Participants overall portrayed a negative perception (disagreement) towards being sexually active at their age (score mean of 3.69). This was also supported by the total agree ratings of 212 (29.4%) in Table 3, as opposed to the total disagree ratings of 428 (59.3%). The agree and disagree rating totals consisted of responses

to statements on engagement in sexual activities at a young age being acceptable in the community; adolescents experimenting with sexual intercourse, planned adolescent pregnancy, sex abstinence not being acceptable to adolescents and the acceptability of adolescent pregnancy to society. Of the participants, 54.1% disagreed that they would have sex to prove love for their sex partners. The reported response rate showed that adolescents still held conservative values concerning sexual activities at a young age. If this was true, then adolescent pregnancy would be against their general value system. The fact that the participants still held a conservative value could be interpreted as having other factors that influence early engagement in sexual activity. A study that investigated sexual risk in the context of immigration, found that young girls entered into the adult world for sexual relationships at an early age with an expectation of marriage and childbearing when their parents moved to larger cities in search for work (Larson, 2009).

3.5. Adolescent psycho-social issues

The construct score mean of 2.93 indicated that adolescents were generally indifferent towards psycho-social issues as reasons for early sexual activity. This is supported by the total undecided rating as shown in Fig. 1.

To determine whether psycho-social issues contribute towards the prevalence of adolescent pregnancy, the response patterns and the issues describing this construct needed to be considered. An agreement trend was reported on issues such as inadequate sexual knowledge (60.7%), changing attitudes towards sex (58.9%), the effect of peer pressure (56.3%), ignorance regarding pregnancy age (54.6%), fear of rejection (55.2%) and child support grants (55.8%), sexual abuse as a child (53.1%), older friends that have children (51.7%) and social problems of adolescents (51.7%). These findings strongly suggested that psycho-social issues affect adolescent pregnancy rate. According to 60.7% of the participants, sexual knowledge that adolescents receive at school seemed to be inadequate to address the issue of what to do when they find themselves in unfavourable conditions of having to make choices that may jeopardise their health and future.

Regarding ethical and caring behaviours, knowing what to do, how to do it, when to do it seemed to be powerful in enhancing morally-inclined choices and behaviours (Pera & Van Tonder, 2005). Based on the findings, 59% of the participants were of the opinion that changed attitudes towards sex had the potential to influence the high rate of adolescent pregnancy. Similarly, Pinter, Verdenik, Grenbenc, and Ceh (2009) found that changed sexual values more easily exposed adolescents to unplanned or unexpected pregnancy which confirms this finding. Findings revealed that peer pressure (56%) and fear of rejection by friends (55%), had an influence on adolescent pregnancy. According to Gouws et al. (2008), relationships with peers are highly significant for self-concept formation and self-actualisation during adolescence. The three factors, peer pressure, fear of rejection by friends and child support grant appeared to be among the unfavourable conditions that adolescents find themselves especially in a school environment. Belonging to a group is an important part of adolescence and rather than being ostracized, many youth will conform and engage in high risk sex related behaviour in order to have access to a group (Selikow, Ahmed, Fisher, Mathews, & Mukoma, 2009). The school environment, friends and behaviour of peers constantly influence each other. Adolescents spend more time with friends and peer groups than with their parents which affects their choices and decisions (Gouws et al., 2008).

Certain psycho-social constructs that reflected a majority disagree rating from participants can be a reason why the derived score-mean indicated an “average” undecided rating of 2.93. The

issues perceived not to affect adolescent pregnancy rate (majority disagree rating responses) included poor parental supervision (74.5%), influence of the media (59.5%), early menarche (56.3%) and proof of fertility (48.2%). However, findings from a US study, determined that sexual content in music, movies, television and magazines had an influence on early sexual activity in youth (Brown et al., 2006).

3.6. Adolescent health service issues

The health services accessibility score mean of 3.48 should also be interpreted in the context of the issues that describe the construct. The response patterns in Fig. 2 on the following health services that underlie the construct all show a disagree trend, namely availability of services such as: 24/7, referral, specific adolescent health, reproductive, emergency contraceptive and substance abuse services; and variety of health services offered during a single consultation.

The disagree response in these instances imply that adolescents do not perceive these health services to be freely available. The argument can thus be made that the unavailability of these health services would impact the adolescent pregnancy rate. Seventy-three percent (73.1%) of participants indicated that services that were not available on a 24-h basis was problematic. In another study, findings indicated that services provided by health care workers are neither available nor accessible at the times that suits adolescents, especially when emergency contraceptives are needed (Baloyi, 2007). Adolescents in South Africa are often only offered contraceptives after the first pregnancy due to social stigma and lack of knowledge on adolescent sexuality and prevention of pregnancy (MacPhail, Pettifor, Pascoe, & Rees, 2007).

The agreement response-trend to the issues of whether nurses provided health information related to adolescent pregnancy indicated that participants perceived this service to be available to them. This could have been influenced by availability of health related literature in the clinics as confirmed by 72.8% of the participants. It was however noted that 56.3% of the participants were of the opinion that nurses do not provide health information related to emergency contraceptives and 64.4% on substance abuse interventions. The negative response from participants (71.4%) with regard to factors such as lack of offering various health services in one consultation compromised the value of such information. This notion is supported by Maharaj and Rogan (2008) who found that there is a fairly low awareness and little knowledge about emergency contraceptives (EC) among health care providers. Information given by health care providers should be coupled with availability, accessibility and a warm attitude.

3.7. Health risk issues

The construct score mean of 2.49 indicated that adolescents generally perceive that adolescent health problems exist but feel almost indifferently about it, as their responses were between the 2-to-3 agreement rating range – “agree-to-neutral”. This impression created by the fact that participants agreed on all aspects of existing adolescent health problems. These aspects were noted as adolescents being at-risk for sexually transmittable diseases; depression amongst pregnant adolescents; suicidal tendencies and the option of abortion. The statement on adolescent preference not to use contraceptives elicited a majority disagree response. The disagreement ratings thus tapering down the agreement rating responses and finding in the almost “neutral” overall response of 2.49 as exhibited in Fig. 3.

By examining the individual response patterns as indicated above, the deduction can be made that adolescents acknowledged that health problems do exist. The question can then be asked

Table 4
Participant responses to adolescents' changing attitude towards sex (n = 147)

	Agree	Undecided	Disagree	Total
	Frequency (%)			
<18 years sexual involvement, acceptable in community	43 (29.6)	11 (7.6)	91 (62.8)	145
Adolescents plan pregnancy	50 (34.5)	26 (17.9)	69 (57.6)	145
Adolescents plan pregnancy	37 (25.7)	19 (13.2)	88 (61.1)	144
Sexual abstinence not acceptable	41 (28.5)	13 (9.0)	90 (62.5)	144
Adolescent pregnancy socially acceptable	41 (28.1)	13 (9.0)	90 (62.5)	144
Total	212 (29.4)	82 (11.4)	428 (59.3)	722
Early sexual expose adolescent pregnancy	92 (63.0)	20 (13.7)	34 (23.3)	146
Sexual activity is actually need for acceptance	41 (28.1)	33 (22.6)	72 (49.3)	146
Result sex. behaviour, intercourse	108 (75.0)	9 (6.2)	27 (18.8)	144
Prove love via intercourse	38 (26.0)	29 (19.9)	79 (54.1)	146
Adolescents prefer no contraceptives	41 (28.3)	43 (29.7)	61 (42.1)	145
Total	320 (44.0)	134 (18.4)	273 (7.6)	727

whether adolescent health problems affect the prevalence rate of adolescent's pregnancies. In this context, participants "perceptions showed that adolescent pregnancies contributed to adolescent health problems.

Sixty-three percent of the participants viewed that early sexual activity exposed adolescents to pregnancy. However, they continue to engage in early sexual activities with the hope that they will not fall pregnant or that they will be able to terminate the pregnancy. This finding is supported by most of the participants (74.5%) who were of the opinion that abortion is an acceptable solution to adolescent pregnancy. Ekstrand, Tyden, Darj, and Larson (2009) found that 75–90% of known teenage pregnancies ended in abortion indicating an intense desire among young women to avoid having children during the teenage years. Adolescents however lacked information with regard to termination of pregnancy services. Many adolescents are not aware that legal abortion in South Africa is done before 12 weeks "gestation (Ratlabala, Makofane, & Jali, 2007).

The findings revealed that 72.8% of the adolescents were aware about the risk of contracting sexually transmitted infection (STIs) and diseases. This high response rate showed that they were aware that unprotected sex not only exposes them to pregnancy but increases the risk of contracting STIs. The Life Orientation course, which is taught in schools from Grade 5, informs learners of the possibility of contracting STIs, including HIV/AIDS (University of South Africa, 2009).

3.8. Relationship with nurses

The construct score mean of 3.37 for nurses "approachability and relationship with adolescents indicated that adolescents generally perceived nursing staff as not very approachable.

By studying the perceptions for each issue, the majority disagree responses were elicited from participants as follows: 72.1% on the statements of confidentiality towards health information; 70.6% on respect; 65.3% on advice without condemnation and 58.6% on ability to enquire from nurses without fear; which all tended to indicate a strained nursing staff-adolescent relationship. A strained relationship would imply that adolescents would be hesitant to seek advice which could affect the prevalence rate of adolescent pregnancy. Health services were reported as not freely available and relationship with nurses were therefore significantly cited as poor by participants (72.1%) with regard to maintenance of confidentiality. Only 46.2% of the participants expressed that nurses did provide information on contraceptives and 49.7% reported that they could discuss menstrual problems with nurses.

The White Paper for the Transformation of the Health System in South Africa (Department of Health, 2000) and the Patients "Rights Charter centred on the observation of patients "rights to ensure

building of trust between health care service providers and patients. Lack of observation towards these rights, especially of maintaining confidentiality of patient's sensitive information such as sexuality may impact negatively on adolescent reproductive health.

In summary, the findings of the questionnaire showed that:

- participants still held conservative values concerning sexual activities in their adolescent years. The question can be asked whether this perception trend could affect the prevalence rate of adolescent pregnancies.
- some psycho-social issues affect adolescent pregnancy rate and that adolescents are able to distinguish between issues that affect adolescent pregnancy and those that do not,
- adolescents do not perceive all adolescent health services to be freely available and this contributed to the high adolescent pregnancy rate, adolescent health problems contributed towards the prevalence rate of adolescent pregnancies which in turn caused more health problems and
- the nurse-adolescent relationship is strained because of the issues of confidentiality and that this perception can affect the prevalence rate of adolescent pregnancies.

The possible compounding effect of demographic attributes on adolescents "perceptions of the five constructs as influential in the prevalence rate of adolescent pregnancies needs further review. In the first section of the questionnaire the demographic information of participants were probed and included information on age, marital status, highest grade completed at school, family composition, position within the family and age at first intercourse. The possible effect of these attributes on perceptions were investigated in cross reference tables between an attribute and a set of construct scores on one of the five causes of pregnancy factors probed in the questionnaire. Chi-square tests were conducted on the frequencies of these two-way tables to establish whether the demographic attributes and perception factors cross referenced had a statistically significant effect on perceptions regarding the particular construct. In the findings discussed and presented below, only cross-references that proved to be significant are included.

3.9. Effect of age on attitudes towards adolescent sexual activities

The first two-way table investigated the effect of age on perceptions regarding early sexual activities between adolescents.

A statistically significant relationship between perceptions on the construct of the attitude of adolescent with regard to early sexual activities and the age of participants was established in Cochran-Armitage Trend Test (the probability associate with a Z-

score of 1.42 is 0.08). These findings imply that different age groups (10–15 years and 16–20 years) held significantly different views on sexual activities during the adolescent years. Younger participants were significantly more conservative (disagreed more) in their views than the older participants.

3.10. Effect of family composition on perceptions concerning accessibility of adolescent health services as reason for adolescent pregnancies

A statistically significant relationship on the 10% level of significance was established between family set-up and perceptions with regard to the construct of health services availability to adolescents. The significance of the relationship was established in a Cochran–Armitage Trend Test (the probability associated with the Z-score of 1.41 is 0.08). Participants who live with both parents perceived health services to be unavailable more often ($p < 0.08$), than participants who live with one parent. These participants tended to be somewhat less critical about availability of services. The effect of adolescent's family composition on perceptions concerning nursing staff/adolescent relationship is seen as a contributing reason for adolescent pregnancies.

A statistically significant relationship on the 5% level of significance could be established between family composition and perceptions concerning the construct of approachability of nursing staff towards adolescents. The significance of the relationship was established in a Cochran–Armitage Trend Test (the probability associated with the Z-score of 2.08, which is 0.02).

3.11. Effect of adolescent's family composition on perceptions regarding nursing staff/adolescent relationship as factors in prevalence of pregnancies

By examining the column percentages over agreement ratings of the two-parent and one-parent groups, it can be deduced that significantly more ($p < 0.02$) both-parent participants indicated disagreement with the nurse approachability construct than the one parent-group.

In summary, statistically significant relations could be established between demographic characteristics and participant perceptions on certain prevalence of pregnancy constructs probed in the questionnaire, namely:

- different age groups (10–15 years and 16–20 years) held statistically significant different views on sexual activities during adolescent years,
- participants who live with both parents more often perceive health services to be unavailable than participants who live with one parent.
- both-parent participants indicated disagreement with the nurse approachability construct than the one parent-group.

The findings indicated that the questionnaire developed for the study proved to be a reliable measuring instrument in the sense that internal reliability could be established for a couple of constructs formulated to investigate perceptions on aspects of the environment that could affect adolescent pregnancy. It was pregnancy prevalence constructs such as adolescent attitude/understanding of sexual activities at their age; psycho-social environment that affect belief and value systems; availability and accessibility of health services to adolescents; the attitude of nurses towards adolescents' sexual health risks.

The research objective of a reliable measuring instrument was attained.

Participant's perceptions on these pregnancy prevalence constructs could be measured with the aid of the questionnaire and

presented as participant construct scores. The perception score mean of each construct gave a general indication of participant's view of any of the five pregnancy prevalence aspects and thus addressing the research objective of measuring perceptions. By examining the perception rating patterns of issues that constitute a construct, the research objective and research question could be answered as to whether pregnancy prevalence constructs/concepts affect the adolescent pregnancy rate.

4. Scope and limitations of the study

The study was restricted to four schools in the Greater Giyani Municipality therefore, the findings cannot be generalised to other districts or areas of Limpopo Province or the country. The sample consisted only of adolescent girls attending the selected high schools. Adolescent girls who do not attend school and adolescent school boys were excluded which could have given a wider perspective of the phenomenon.

5. Recommendations

Based on the findings, the following recommendations were made:

The South African Departments of Health and Education need to work together to provide youth clinics that cater solely for adolescent health and reproductive services offered by trained young professional nurses. These clinics could be mobile units that serve several schools in a district. Professional nurses should be appointed to act as primary nurses so that adolescents feel free to divulge any information and seek information and advice.

Teaching sexuality education should be one of the core functions of trained school health nurses and younger professional nurses offering youth services. This need was confirmed by findings in a study conducted by Mbambo, Ehlers, and Monareng (2006) that indicate that adolescents, from the age of 12, should receive education about sexuality and appropriate use of contraceptives. Therefore, learning about adolescent reproductive health should form part of all professional nurse training programmes.

These recommendations will assist in identifying other measures that school health services can use to form the basis for viable sexuality education at schools. School health nurses, professional nurses and other categories of nursing staff, who work in direct contact with adolescents, should receive in-service education on adolescent reproductive health, related legislation and policy. Richter and Mlambo (2005) recommended that, health care professionals working with adolescents should develop a wide range of practical and interpersonal skills given the complexity of this problem.

Further research should be undertaken on the following:

- an investigation into the factors that influence adolescent pregnancy rates despite the sexuality education they receive at home, schools, media and health care facilities,
- a comparison of factors that contribute to high pregnancy rates among school-going adolescents in rural and urban township areas and
- perceptions of high school boys concerning the prevalence of adolescent pregnancy.

6. Conclusion

This study sought to identify and examine factors that influence the adolescent pregnancy rate. The study revealed that some of the psychosocial factors, health services that are delivered inadequately both at the clinics and at schools as well as poor relationship of health care providers with adolescents contribute towards adoles-

cent pregnancy. The resulting recommendations should assist high schools health services and nursing education departments in developing curricula and programmes that will empower adolescents to make informed decisions about sexual behaviour, improve their quality of life thus reducing the high rate of pregnancy.

Conflict of interest

'We, the authors declare that we have no financial or personal relationship(s) which may have inappropriately influenced us in writing this paper.' We report no relationship with grantors, pharmaceutical companies or other entities whose products or services are related to the study topic or content.

Acknowledgments

Mrs. T. Erasmus, UNISA librarian, for her support with literature and other needed library resources. Mrs. Rina Coetzer for formatting the paper. Mrs. Jean Chaw-Kant for editing the manuscript. All the participants who willingly participated in the study.

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