

## **Male Partners' Involvement towards Prenatal Screening and Diagnostic Testing for Down Syndrome**

Niken Kusumaningrum<sup>1</sup>, Christina Choi<sup>2</sup>, George S.H. Yeo<sup>3</sup>

**Purpose:** Now, male partners' involvement in prenatal screening and diagnostic testing for Down syndrome is becoming increasingly recognized as well to ensure that parents are well informed of the risks and benefits of screening. The aim of study was to understand the degree of male partners' involvement during pregnancy in Singapore population.

**Methods:** A cross-sectional survey of male partners' attending prenatal counseling was performed. The instrument used to measure the level of involvement is a self-assessment questionnaire that identifies the role of male partners with a Likert scale. Descriptive statistics was used to analyze data gained.

**Result:** A total of 107 participants completed the questionnaire. Sixty-seven percent of male partners were found to have a high level of involvement while 32.7% was found to have a medium level of involvement. Most of them stated that women can pursue prenatal testing without their permission. Male partners found it more important for them to accompany their spouse to amniocentesis or CVS than to the Down syndrome screening test. When participants were asked about how much information about Down syndrome they sought prior to the appointment, how much discussion they had with their spouse about Down syndrome testing, and about whether they or their spouse should be the first person to receive test results, most stated that they were undecided.

**Conclusion:** These results revealed that male partners were very well involved in the Down syndrome testing during pregnancy and future studies should assess possible underlying factors that influence male partners' involvement.

**Keywords:** male partners' involvement, prenatal screening, diagnostic testing, Down syndrome

<sup>1</sup>School of Nursing, Diponegoro University, e-mail: nikensafitri@keperawatan.undip.ac.id

<sup>2</sup>Genetic Counselor, Division of Obstetrics & Gynecology at KK Women's and Children's Hospital Singapore

<sup>3</sup>Chief of Obstetrics, Division of Obstetrics & Gynecology at KK Women's & Children's Hospital

## **Introduction**

Male partners' involvement in the past papers focused mostly on their roles as the breadwinner of the family, but now male partners are also expected to be actively involved in either pregnancy or caring for their children (Deave & Johnson, 2008; Plantin, Månsson, & Kearney, 2003; Premberg, Hellström, & Berg, 2008). During pregnancy, male partners often feel excluded by health care professionals because the care provided mainly focuses on women's health and psychological support (Locock & Alexander, 2006). Some male partners may even face stigmatization from friends and family for acting outside of the traditional masculine role (Mullany, 2006; Plantin et al., 2003). Studies conducted on male partners' involvement in prenatal screening and diagnostic testing have been performed, even though these numbers have been few (Alsulaiman & Hewison, 2007; Bryant, Green, & Hewison, 2009; Kenen, Smith, Watkins, & Zuber-Pittore, 2000; Lafans, Veach, & LeRoy, 2003; Locock & Alexander, 2006). A recent study performed in England indicated that men experienced ambivalence, doubts, and uncertainty about medical complications that may arise (Williams, Dheensa, & Metcalfe, 2011). It is also stated the men experience many forms of emotions such as happiness, concern, fear, and anxiety during the screening process. Another study conducted on Latina demonstrated that it is the pregnant women who made the majority of the decisions about amniocentesis, despite their partners' presence at the time of the genetic consultation (Browner & Preloran, 1999).

Male partners' involvement in prenatal screening and diagnostic testing is becoming increasingly important to ensure that parents are well informed of the risks and benefits of screening (Williams et al., 2011). Involvement of male partner is believed to promote positive outcomes both for the pregnancy as well as for the male partners himself in helping him adapt to the pregnancy, which in turn can help increase their confidence in their parenting abilities (Draper, 2002; Hildingsson & Sjöling, 2011). To our knowledge, there has not been any prior

research exploring male partners' involvement in prenatal screening and diagnostic testing for Down syndrome in the Singaporean population. Understanding how male partners are involved in prenatal Down syndrome screening and diagnostic testing may provide an important strategy in achieving male partners' health behaviors.

## **Methods**

This study was cross-sectional survey of male partners attending prenatal counseling in KK Women's and Children's Hospital. The population in this study consists of male partners above 21 years old attending counseling of prenatal screening and diagnostic testing for Down syndrome in KK Women's and Children's Hospital were selected between May and June 2012. The potential participants receiving prenatal counseling from senior counselor nurse were approached to ascertain their interest in the study and they were asked to complete a questionnaire. The development of this questionnaire was done by discussion and review from the literature that revealed adaptation and adoption of statements and findings from previous studies. The first section of questionnaire assessed socio-demographic characteristics including age, highest level of education, religion, and race, type of housing, house distance from hospital, total of children, and total of wife's miscarriage. The questionnaire was mainly focused on male partners' role in prenatal screening and diagnostic testing. These questions asked about decision-making, physical attending, information seeking, and couple discussion. A 10-item Likert scale was used to measure the level of male partners' involvement. The scale included statement on various activities with a 5-response option from "strongly agree" to "strongly disagree", which the scoring responses ranged from 1 to 5 (Polit & Beck, 2004). The level of male partner's involvement was classified into three levels according the total score: (1) low level of involvement: 10 to 23 of total score, (2) medium level of involvement: 24 to 36 of total score and (3) high level of involvement: 37 to 50 of total score. Descriptive

statistics were used to summarize the data.

## Results

A total of 107 participants completed the questionnaire. Table 1 shows the distribution of each category of socio-demographic characteristics of participants.

Table 1 *Socio-Demographic Characteristics of Male Partners (N= 107)*

<b>Socio-Demographic Characteristics</b>	<b>n (%)</b>
Age	
20 – 29	32 (29.9)
30 – 39	66 (61.7)
40 – 49	9 (8.4)
Highest level of education	
Primary school	1 (0.9)
Secondary school	8 (7.5)
ITE	13 (12.1)
Polytechnic	23 (21.5)
Junior College	1 (0.9)
University	61 (57.0)
Religion	
Christianity	14 (13.1)
Islam	20 (18.7)
Hinduism	18 (16.8)
Buddhism	27 (25.2)
Taoism	6 (5.6)
Freethinker	20 (18.7)
Others	2 (1.9)
Race	
Chinese	57 (53.3)
Malay	16 (15.0)
Indian	23 (21.5)
Eurasian	1 (0.9)
Others	10 (9.3)
Type of housing	
HDB 1/ 2-room flat	6 (5.6)
HDB 3/ 4/ 5- room flat	85 (79.4)
HDB executive apartment/ maisonnete	4 (3.7)
Executive condominium	2 (1.9)
Condominium	5 (4.7)
Terrace house/ bungalow	4 (3.7)
Others	1 (0.9)
Distance consideration from house to hospital	
Far	40 (37.4)

Near	65 (60.7)
Don't know	2 (1.9)
Total of children	
0	68 (63.6)
1	26 (24.3)
More than 1	13 (12.1)
Wife's miscarriage	
Yes	14 (13.1)
No	93 (86.9)

Note :  
 ITE : Institute of Technical Education  
 (is a post-secondary institution in Singapore that provides pre-employment training to secondary school leavers and continuing education and training to working adults)  
 HDB : Housing and Development Board  
 (is the statutory board of the Ministry of National Development responsible for public housing in Singapore, so it is familiar to call the type of housing in Singapore)

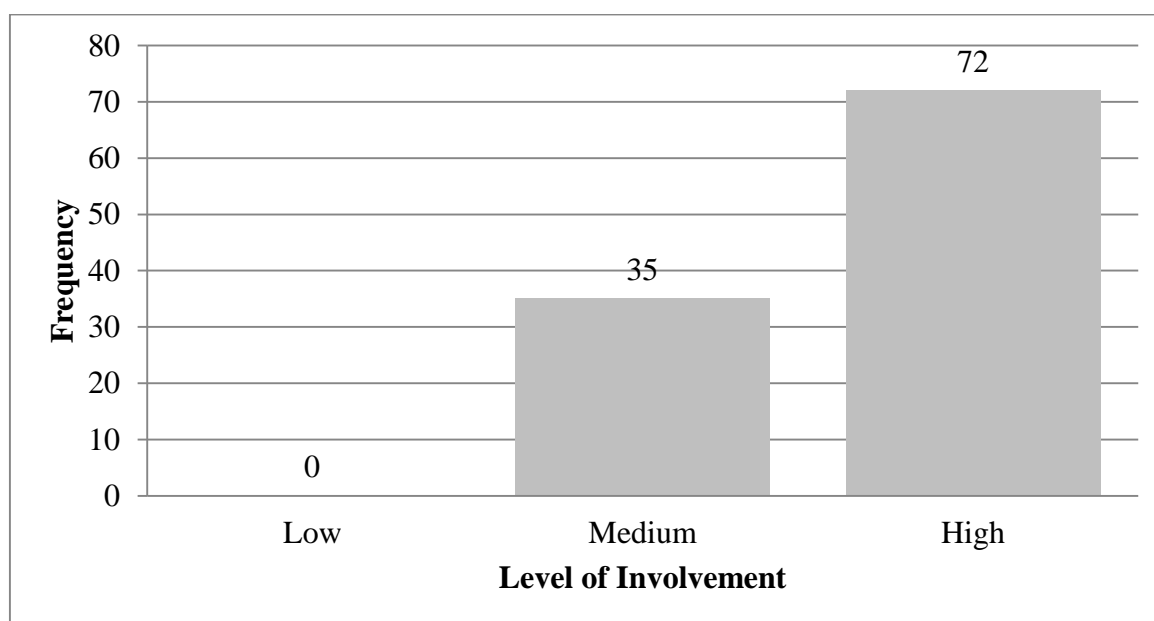


Figure 1 Male Partners' Involvement toward Prenatal Screening and Diagnostic Testing for Down syndrome in Singapore (N = 107)

Based on the participants' answer, the categories for male partner's level of involvement have been arranged. Figure 1 shows that male partner's role in the medium level of involvement (32.7%) and 67.3% role in the high level of involvement. None of participant has low level of involvement.

Table 2 demonstrates the participants' opinions on their involvement during pregnancy and their attitudes towards prenatal screening and diagnostic testing for Down syndrome. The responses included strongly agree (SA), agree (A), undecided (U), disagree (D), and strongly disagree (SD).

During interview the male partners were asked a number of questions concerning prenatal screening and diagnostic testing for Down syndrome, including can a woman be tested for Down syndrome without his permission. As much as 29% male partners stated strongly agree and 34.6% agree that women can be tested without his permission.

Questions asked about male partners attending in prenatal screening and diagnostic appointment. Moreover, questions also assessed their willingness to take leave from work in order to accompany their partner. The percentages of male partners stated strongly agree to accompany their spouse to amniocentesis or chorionic villus sampling (CVS) was higher than that to Down syndrome screening appointment. A number of 59.8% of them answered strongly agree that they will take leave from work in order to accompany their partner for amniocentesis or CVS.

The male partners were asked have they actively sought information and discussed about Down syndrome screening and diagnostic testing before attending counseling session. There were 37.4% of participants stated not sure for question of actively sought information about Down syndrome. Only 18.7% of male partners stated strongly agree that they have discussed Down syndrome screening and diagnostic testing with their partner and 19.6% strongly agree that they have discussed what they might do about the pregnancy if it was affected by Down syndrome.

Finally, the male partners were asked whether the results of Down syndrome test should be first revealed to male than women. Only 17.8% of participants answered strongly agree and 11.2% of them stated strongly disagree for this question.

Table2 *Male Partners' Self-Report of Their Involvement (N=107)*

Male Partners' Involvement	Strongly Agree n (%)	Agree n (%)	Undecided n (%)	Disagree n (%)	Strongly Disagree n (%)
A woman can be tested for Down syndrome in the pregnancy without her husband's permission.	31 (29)	37 (34.6)	17 (15.9)	17 (15.9)	5 (4.7)
A husband should accompany the pregnant woman to the Down syndrome screening appointment.	53 (49.5)	44 (41.1)	9 (8.4)	1 (.09)	0 (0)
A husband should accompany the pregnant woman to the amniocentesis or chorionic villus sampling (CVS) appointment.	61 (57)	40 (37.4)	4 (3.7)	2 (1.9)	0 (0)
You will take time off work in order to accompany your partner for the Down syndrome screening appointment.	59 (55.1)	36 (33.6)	11 (10.3)	1 (0.9)	0 (0)
You will take time off work in order to accompany your partner for the amniocentesis or chorionic villus sampling (CVS) appointment.	64 (59.8)	36 (33.6)	6 (5.6)	1 (0.9)	0 (0)
You have actively sought information about Down syndrome screening and diagnostic testing before attending today's session.	26 (24.3)	20 (27.1)	40 (37.4)	11 (10.3)	1 (0.9)
You have discussed with your partner about prenatal screening and diagnostic testing for Down syndrome before attending today's session.	20 (18.7)	37 (34.6)	34 (31.8)	14 (13.1)	2 (1.9)
You and your partner have discussed what you might do about the pregnancy if it was affected by Down syndrome.	21 (19.6)	36 (33.6)	34 (31.8)	11 (10.3)	5 (4.7)
Since a husband is not actively involved in the Down syndrome testing (blood draw or ultrasound), he is less inclined to be present during the appointment.	8 (7.5)	21 (19.6)	25 (23.4)	28 (26.2)	25 (24.3)
The results of the Down syndrome test should be first revealed to the husband before the pregnant woman herself.	19 (17.8)	22 (20.6)	28 (26.2)	26 (24.3)	12 (11.2)

## **Discussion**

Assessment of the level of male partners' involvement toward prenatal screening and diagnostic testing for Down syndrome revealed that more than a half of participants have a high level of involvement (67.3%). The rest were found in the medium level of involvement (32.7%). This percentage is higher than other study on male involvement that demonstrated that 50.3% of male partners have a medium level of involvement (Tshibumbu, 2006). Another result on male involvement in Prevention of Mother-to-Child HIV Transmission (PMTCT) program revealed that only 26% of the 387 respondents had a high male involvement (Byamugisha, Tumwine, Semiyaga, & Tylleskar, 2010). Our findings were different with these other studies may be because of different programs assessed.

More than half of male partners stated that women can pursue prenatal testing without their permission. It may be caused by the awareness that women also have an independence decision-making. Male partners' dominance of decision-making was not found to be the most common pattern of this decision making. One study in the past has described that woman as the primary decision maker in pregnancy (Mullany, Hindin, & Becker, 2004). It is also stated that the wife having sole final say in household decision-making was independently associated with significantly less "involved" husbands. In Singapore context, the probable justification for this reason may be due to the fact that male partners were recognizes wife's ability to determine the best for pregnancy based on the education and information obtained. In addition, gender equality between men and women was a greater believed in this population. They might also have discussed this matter before, although there was no decision taken.

The pattern of decision-making also influences their opinion on how the results of test should be first revealed. As much as 24.3% of participants stated that they disagree if the results of Down syndrome test should be first revealed to the husband than wife. Besides that,



11.2% of them stated strongly disagree for this question. It can be described that the social belief of masculinity was not at all supports male partners to be more powerful than women. Male partners are not considered to be superior to women and the decisions are not relied on them anymore.

A series of questions was asked about what male partners' role in their wife's pregnancy. Fifty-three participants (49.5%) said that they strongly agree that it is important to accompany their wives to the first trimester screening. In addition, participants who strongly agree that it is important to accompany their wives to amniocentesis and CVS were even greater (57%). It is possible that male partners find it more important that they accompany their wives to the invasive procedures than to a non-invasive testing such as ultrasound and blood draw. This may be understandable considering the risk of miscarriage associated with amniocentesis and CVS.

More than one third of participants answer undecided when asked about their activity to seek information about Down syndrome screening and diagnostic testing before attending the counseling sessions. It is less unlikely that they already know about Down syndrome screening and diagnostic testing before come the appointment. One of the possible explanations of this finding may be because that they were not sure whether they have already known this topic comprehensively. To our knowledge, there have not been any previous studies about male partners seeking information on prenatal screening and diagnostic testing for Down syndrome. One study on women survey of knowledge, attitudes, and experiences of Western Australian women in relation to prenatal screening and diagnostic procedures revealed that some women may rely on the information initially received during their previous pregnancy and do not actively search for additional information (Rostant, Steed, & O'Leary, 2003). This reason also can be applied to male partners, which they might have no enough time to seek detail information about that.

This study also demonstrated that more than 50% of male partners have discussed prenatal screening and diagnostic testing for Down syndrome with their partner. They also have discussed what they might do if the pregnancy was affected by Down syndrome. To our knowledge, there have not been any previous studies performed that have addressed the degree of communication between couples on prenatal screening and diagnostic testing for Down syndrome. From the analysis, it is found that more couples have discussed about it than that never discussed. It is reasonable that they not only have better communication about prenatal screening and diagnostic testing but also other health consequence in pregnancy, which finally encourages them for better application of pregnancy care.

The thing that should be considered is prenatal screening and diagnostic testing is not the simple topic. There are some critical issues on understanding this matter. Ethical issues and socio-cultural factors also have a contribution to make correct decision about prenatal screening and diagnostic testing for Down syndrome. Diagnostic testing becomes more controversial when benefit is questionable. However, it is relatively uncontroversial as there are significant benefits to be derived from early diagnosis and medical treatment (Wagner, 2005). At this time, the fact about prenatal testing is that the most fetal treatment often used is the termination of pregnancy (Chipman, 2006). Society may interpret the offer of diagnosis and termination for Down syndrome fetuses as an implicit message that Down syndrome is by definition an undesirable state, and Down syndrome individuals worthless.

These results reveal that male partners are very well involved in the Down syndrome testing during pregnancy and future studies should assess possible underlying factors that influence male partners' involvement. Understanding data presented in this study raise several important issues for consideration in how accurately these behaviors correspond to positive health outcomes.

This was the first study on male partners' involvement toward prenatal screening and diagnostic testing for Down syndrome in Singapore population. Some limitations need to be acknowledged. The study population has already been pre-selected by this study itself, so generalization of the result cannot be performed. The small sample size gave effect to the performing statistical analysis in advance. Descriptive statistics was performed; however, appropriate methods could be applied to make statistically inferences.

### **Acknowledgement**

The author would like to thank the support of the AMC Counseling staff of KK Women's and Children's Hospital. We appreciated Dr. Serene Thain as panel expert to validate the questionnaire. We extend acknowledgement to Wei Xing who has helped edit this study and beef up its language accuracy.

### **References**

- Alsulaiman, A., & Hewison, J. (2007). Attitudes to Prenatal Testing and Termination of Pregnancy in Saudi Arabia. *Public Health Genomics*, 10(3), 169–173. Retrieved from <http://www.karger.com/DOI/10.1159/000101758>
- Browner, C., & Preloran, H. M. (1999). Male Partners' Role in Latinas' Amniocentesis Decisions. *Journal of Genetic Counseling*, 8(2), 85–108. doi:10.1023/A:1022890714866
- Bryant, L. D., Green, J. M., & Hewison, J. (2009). The role of attitudes towards the targets of behaviour in predicting and informing prenatal testing choices. *Psychology & Health*, 25(10), 1175–1194. doi:10.1080/08870440903055893
- Byamugisha, R., Tumwine, J., Semiyaga, N., & Tylleskar, T. (2010). Determinants of male involvement in the prevention of mother-to-child transmission of HIV programme in Eastern Uganda: a cross-sectional survey. *Reproductive Health*, 7(1), 12. Retrieved from <http://www.reproductive-health-journal.com/content/7/1/12>
- Chipman, P. (2006). The moral implication of prenatal genetic testing. *Penn Bioeth J*, 2(2), 13–6. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/17146901>
- Deave, T., & Johnson, D. (2008). The transition to parenthood: what does it mean for fathers? *Journal of Advanced Nursing*, 63(6), 626–633. doi:10.1111/j.1365-2648.2008.04748.x
- Draper, J. (2002). "It's the first scientific evidence": men's experience of pregnancy confirmation. *Journal of Advanced Nursing*, 39(6), 563–570. doi:10.1046/j.1365-2648.2002.02325.x
- Hildingsson, I., & Sjöling, M. (2011). Fathers' experiences of support during pregnancy and the first year following childbirth – findings from a Swedish regional survey. *Journal of Men's Health*, 8(4), 258–266. doi:10.1016/j.jomh.2011.03.007

- Kenen, R., Smith, A. M., Watkins, C., & Zuber-Pittore, C. (2000). To Use or Not to Use: Male Partners' Perspectives on Decision Making About Prenatal Diagnosis. *Journal of Genetic Counseling*, 9(1), 33–45. doi:10.1023/A:1009429106757
- Lafans, R., Veach, P., & LeRoy, B. (2003). Genetic Counselors' Experiences with Paternal Involvement in Prenatal Genetic Counseling Sessions: An Exploratory Investigation. *Journal of Genetic Counseling*, 12(3), 219–242. doi:10.1023/A:1023232203033
- Locock, L., & Alexander, J. (2006). “Just a bystander”? Men's place in the process of fetal screening and diagnosis. *Social science & medicine (1982)*, 62(6), 1349–59. doi:10.1016/j.socscimed.2005.08.011
- Mullany, B. C. (2006). Barriers to and attitudes towards promoting husbands' involvement in maternal health in Katmandu, Nepal. *Social science & medicine (1982)*, 62(11), 2798–809. doi:10.1016/j.socscimed.2005.11.013
- Mullany, B. C., Hindin, M. J., & Becker, S. (2004). Women's autonomy and male involvement in antenatal care: associations and tensions. Baltimore, USA. Retrieved from <http://iussp2005.princeton.edu/papers/52230>
- Plantin, L., Månsson, S.-A., & Kearney, J. (2003). Talking and Doing Fatherhood: On Fatherhood and Masculinity in Sweden and England. *Fathering: A Journal of Theory, Research, and Practice about Men as Fathers*, 1(1), 3–26. doi:10.3149/fth.0101.3
- Polit, D. ., & Beck, C. . (2004). *Nursing Research Principles and Methods* (Seventh Ed.). Philadelphia: Lippincott Williams & Wilkins.
- Premberg, Å., Hellström, A.-L., & Berg, M. (2008). Experiences of the first year as father. *Scandinavian Journal of Caring Sciences*, 22(1), 56–63. doi:10.1111/j.1471-6712.2007.00584.x
- Rostant, K., Steed, L., & O'Leary, P. (2003). Survey of the knowledge, attitudes and experiences of Western Australian women in relation to prenatal screening and diagnostic procedures. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 43(2), 134–138. doi:10.1046/j.0004-8666.2003.00041.x
- Tshibumbu, D. (2006). Factors influencing men's involvement in prevention of mother-to-child transmission (PMTCT) of HIV programmes in Mambwe district, Zambia. *University of South Africa (UNISA)*.
- Wagner, J. E. (2005). Practical and Ethical Issues with Genetic Screening. *ASH Education Program Book*, 2005 (1), 498–502. doi:10.1182/asheducation-2005.1.498
- Williams, R. A., Dheensa, S., & Metcalfe, A. (2011). Men's involvement in antenatal screening: a qualitative pilot study using e-mail. *Midwifery*, 27(6), 861–6. doi:10.1016/j.midw.2010.09.004